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PAWEŁ BRYŁA

MANAGING AGRICULTURAL ENTERPRISES

Exploring Profitability and Best Practice in Central Europe

Managing Agricultural Enterprises

Paweł Bryła
Editor

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Introduction

This book is the result of an international research project entitled *Development of agricultural enterprises in the knowledge-based economy,* which was conducted in the framework of the International Visegrad Fund programme (grant no. 21420048). The project was led by Hétfa Research Institute from Budapest. The other participants included the Czech University of Life Science in Prague, University of Lodz, and University of Debrecen.

The project departed from the following assumptions. Young generation members do not find agricultural careers appealing. This is probably one of the most obvious reasons why agricultural enterprises face the difficulties of finding new managers. At the same time, the competitiveness and profitability of agricultural enterprises are quite low in the Central European region, albeit with huge differences in this respect among countries. The successful management of agricultural enterprises is unimaginable without the knowledge and application of the modern forms of management and technology. Central European agriculture needs help in order to find the necessary and feasible answers to the changing demand conditions of the domestic market and strong foreign competition, in which regional knowledge centres can play a prominent role. The main aim of the project was to diagnose the situation, to share experiences between experts, and to disseminate the results among various stakeholders.

This book is organised in an analytical framework, which is used consistently for the three countries included in this research project: Poland, Czech Republic, and Hungary. It is based on both primary and secondary data. Primary research included in-depth interviews with various types of agricultural managers. Secondary sources encompassed national-level and European-level statistics, reports, and literature of the subject. Each national study departs from an overview of the place of agriculture in the national economy and key managerial issues in agricultural enterprises. Then, an analysis of profitability in the sector under study is provided, with main factors influencing profitability as well as forecasts. The empirical part of the studies focusses on such managerial challenges in agricultural enterprises as increasing sales potential, competitiveness, partnerships and cooperation, human resource issues, and risk management. Each national study concludes with the identification of good practices, unresolved problems and gaps, and suggestions for market-based services. The use of the same analytical framework across countries constitutes a major strength of this publication, as it facilitates international comparative studies. Apart from the three national studies (Parts 1, 2, and 3, respectively), the book includes Part 4, which is an attempt to provide a synthesis of the major findings as well as to propose some further explanations and suggestions.

This book may constitute a valuable source of knowledge and inspiration for researchers, students, policy-makers, and managers of agricultural enterprises.

Part I

Managerial Issues in Agricultural Enterprises in Poland

1

Agricultural Enterprises in Poland

Paweł Bryła

We have conducted both quantitative and qualitative research for the purpose of this study. It is based on the analysis of both secondary and primary sources. The secondary sources include:

- statistical data, in particular obtained from the Polish Farm Accountancy Data Network (FADN), the Polish Central Statistical Office, and the European Commission
- thematic reports published by the Institute of Agricultural and Food Economics in Warsaw
- the author's own publications, based on previous empirical studies
- other publications, in particular from Polish academic journals specialising in the management of agricultural enterprises/farms, such as: *Journal of Agribusiness and Rural Development*, *Zagadnienia Doradztwa Rolniczego*, *Zeszyty Naukowe SGGW – Ekonomika i Organizacja Gospodarki Żywnościowej*, and *Roczniki Naukowe SERiA*

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The primary sources concern information obtained during two in-depth individual face-to-face interviews; one interview conducted with the use of the CATI methodology (Computer Assisted Telephone Interview) and two interviews conducted with the use of the CAWI methodology (Computer Assisted Web Interview). The interviews were conducted from May 2015 to September 2015. They lasted 35 minutes on average. The sample was constructed with a view of having a representation of agricultural enterprises of various sizes and operating in diverse sectors. Our respondents' production profile was as follows:

- one producer group specialising in cereal production
- one farmer specialising in milk production
- one farmer specialising in pig production
- two farmers with a multidirectional farm (one combining the production of cereals, potatoes, milk and pigs, and another one combining the production of milk, cattle and pigs)

Regarding the number of employees, the agricultural enterprises under study were predominantly small, which reflected the situation in Polish agriculture. In four cases, this number ranged from two to four, and it was 15 in the case of the producer group.

1.1 Agricultural Enterprises in the Country's Economy

The gross value added of the agricultural sector as a percentage of GDP amounted to 2.4% in Poland in 2012, which was double the EU-27 average. The employment in the agriculture, forestry, hunting and fishing sectors as the share in employed civilian working population was 12.6% compared to 5.2% in the EU-27 (European Commission 2013). In 2010, the gross value added in agriculture, hunting and fishing was 3.5% in Poland, twice as much as the EU-27 average (1.7%). In 2013, the share of agriculture in total employment amounted to 12%, whereas it was 5.1% in the EU-28 (European Commission 2015). The agricultural

employment in Poland declines over time. For example, in 2000, it amounted to 19.2% of the total employment (Bryła 2004: 111).

In 2013, there were 1,429,006 farms in Poland, including 1,425,386 private (family) farms. Their structure by area of agricultural land was as follows:

- up to 1 hectare (ha) = 2.4%
- 1–2 ha = 19.4%
- 2–5 ha = 31.9%
- 5–10 ha = 22.1%
- 10–15 ha = 9.9%
- 15–20 ha = 4.9%
- 20–50 ha = 7.2%
- 50 ha and more = 2.2%
  (Central Statistical Office of Poland 2015: 113)

The number of farms declined from 2,733,400 in 2005 to 1,409,600 in 2015 (Fig. 1.1). The area structure of farms in 2015 is shown in Fig. 1.2. The area structure continues to be very fragmented in spite of some recent consolidation processes. It is a legacy of the history—as an exception,

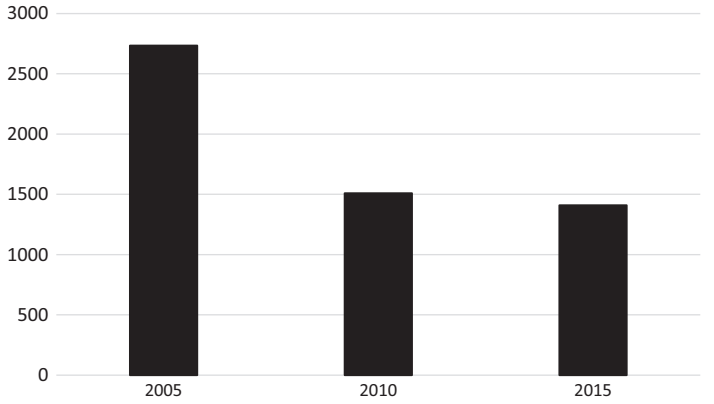

Fig. 1.1 The number of agricultural holdings in Poland in thousands (2005–2015) (Source: Adapted from Central Statistical Office of Poland (2016: 471))

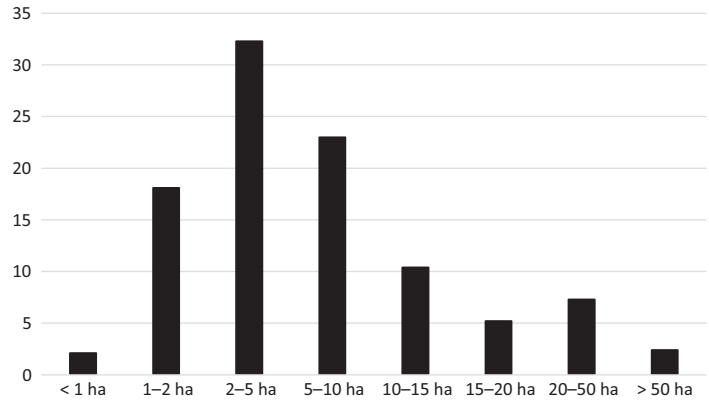

Fig. 1.2 Farms by area groups in Poland (%) (2015) (Note: For the reasons of space, we simplify bar names – the exact intervals are as follows: <=1; 1.01–1.99; 2.00–4.99; 5.00–9.99; 10.00–14.99; 20.00–49.99, and >=50.00; Source: Adapted from Central Statistical Office of Poland (2016: 473))

Polish agriculture was not collectivized during communist times. Furthermore, the biggest private holdings were divided into smaller plots after World War II. Following the introduction of the market economy in 1989, the phenomenon of overt unemployment emerged, which prevented many farmers from leaving their farms. Considerable inefficiencies ensued due to the unfavourable area structure and the consequent so-called covert unemployment in Polish agriculture (too many people staying on the farm). The EU system of granting high direct payments per ha of arable area goes in the same direction—it keeps many farmers attached to their land regardless of the market signals.

Poland is still characterised by family farm fragmentation, despite some legislative measures that were adopted to counteract this. The fragmentation does not occur within the category of other farms (both public and commercial companies) in which the ownership of agricultural land area usually exceeds 100 hectares. Land policy tools and the EU direct payments hinder the development of the land market, which leads to an inefficient allocation of this production factor. The land lease system should be strengthened in Poland (Biró et al. 2014).

According to Borzutzky and Kranidis (2005), the EU accession has not solved the structural problems of the agricultural sector such as

overemployment, farm size and lack of capital. However, the entry into the European Union provides the potential for a better future if a stable economic environment is created and if foreign capital is attracted. The holding of small farms served as an element of social security (Miciewicz and Mickiewicz 2014). In Poland, there is a large group of farms, which do not allow for obtaining a satisfactory level of income. That is why even farm managers are involved in the agricultural activity to a limited degree (Chmieliński 2015).

As far as the legal setting is concerned, there were as many as 2,122,117 agricultural producers entered into the register of producers, out of which a vast majority (2,108,044) were natural persons (usually family farms), 11,757 legal persons, 1865 organisational entities without legal status and 451 civil partnerships (Central Statistical Office of Poland 2015: 137). These data confirm that Polish agriculture is based to the largest extent on small family enterprises having the legal form of a natural person.

In 2013, 2,326,700 people were employed in Polish agriculture, including 1,127,400 women. The vast majority were employers and own-account workers on private farms (2,216,200). There were 99,200 employees hired on the basis of an employment contract and 10,600 members of agricultural production cooperatives (Central Statistical Office of Poland 2015: 149). Therefore, in Poland the agricultural employment is characterised by many entrepreneurs who manage their own family farms. The evolution of employment in Polish agriculture is shown in Fig. 1.3. The level of employment continues to be very high. In fact, there was an increase from 2005 to 2010.

In Annual Work Units (AWU), the employment in Polish agriculture amounted to 1,937,100 in 2013, including 867,300 of women. Therefore, more women than men are employed part-time; 1,897,700 AWU were employed on private farms and only 39,400 on farms of legal persons. Within the category of private farms, 1,799,200 AWU were family labour force, 49,600 temporary employees (seasonal workers) and 37,200 permanent employees. On farms of legal persons, there were 30,100 AWU of permanent employees and 2500 of temporary employees (Central Statistical Office of Poland 2015: 151). These data show that Polish agriculture is based on family labour force employed in private farms. There are few employees from outside the family of the owner. Some of the

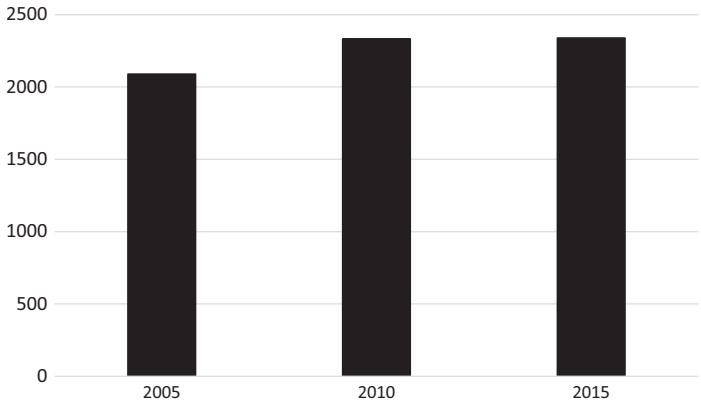

Fig. 1.3 Employed persons in Polish agriculture in thousands (2005–2015) (Source: Adapted from Central Statistical Office of Poland (2016: 242))

seasonal work may happen in the "grey sphere" of the economy, and thus it is not recorded in the official statistics.

The average size of the farms in terms of AWU was 1.3 in 2013, but it reached 1.9 in those farms where agricultural activity constituted the main source of income (34.9% of all farms in Poland). Among farms with the principal source of income generated in external hired employment (30.2% of farms), the AWU was much lower at 0.9. It equalled 1.0 in farms relying on retirement pensions and disability pensions (13.3%). If most income was derived from non-agricultural activities (7.5% of farms), the AWU was 0.9 (Central Statistical Office of Poland 2014: 140).

The Polish statistical office distinguishes between agricultural population and economically active population in agriculture. The former includes all persons, the source of maintenance of which is agriculture, hunting, forestry and fishing, including the persons being maintained by this population. The latter includes all persons for whom the work in agriculture, hunting, forestry and fishing is the main activity (Central Statistical Office of Poland 2015: 388). There were 3.352 billion people worldwide classified as agricultural population, which constituted 47.3% of the world's population in 2012. In the European Union, there were 132.3 million such people, or 26% of the total population. In Poland,

14.984 million people belonged to this category. They accounted for 39.2% of the total population of the country. Regarding the economically active population in agriculture, there were 1.325 billion such people worldwide, or 18.7% of the world's population. The European Union had 10 million people in this category, which made up 2% of the total population. In Poland, it was 2.801 million (7.3% of the total population) in 2012, compared to 3.367 million (8.8% of the total population) in 2005 (Central Statistical Office of Poland 2015: 395–396, 423).

Poland accounts for 7.8% of the agricultural area in the European Union, which is comprised of 28 member states, making it the fifth largest player in this classification. Regarding the economically active population in agriculture, Poland is the biggest in the European Union, with a 27.9% share in 2012. It has a considerable significance in the production of a wide range of agricultural products in the European Union. It is the top producer of apples and oats. It is ranked second in the production of rye, potatoes and tobacco; third in sugar beets; fourth in wheat, rape and turnip rape, and cow milk; and fifth in meat and barley (Central Statistical Office of Poland 2015: 422).

The amount of labour input per 100 ha of arable land is twice as high in Poland as in the European Union. The high level of labour input is the result of overemployment, especially in small farms. This directly translates into a reduction of productivity in Polish agriculture (Biernat-Jarka 2015). The position of Polish agriculture is underprivileged due to its peripherality, topographic restrictions and overemployment (Piecuch 2013).

The value of agricultural production in Poland rose in the period 2002–2012. Nominally, the value of global[1] and commercial output increased approximately twice (103 billion and 75 billion zlotys, respectively). In real terms (in 2002 prices), the increase in the value of production[2] in 2012 reached 62 billion zlotys and 43 billion zlotys, respectively, which means that it increased by 11% and 24%. A faster growth in the value of commercial production than the output resulted from greater commercialisation of production and increased market orientation of Polish agriculture. The share of commercial production in the output in the period under study increased by 10 percentage points to 72% (Wigier 2014a: 40–41).

In 2013, the global agricultural output in Poland increased by 3.7% compared to 2012. This growth was due to an increase of plant production (by 5%) and of animal production (by 2.1%) (Skarżyńska 2014: 11).

Gross output in Polish agriculture in 2013 reached 107.8 billion zlotys, whereas in 2005 it was only 63.3 billion. Intermediate consumption was 61 billion zlotys, and gross value added amounted to 46.8 billion zlotys in 2013, compared to 22.3 billion zlotys in 2005. These indicators per 1 ha were as follows: gross output – 7380 zlotys, intermediate consumption – 4178 zlotys, and gross value added – 3202 zlotys. The market output reached 80.3 billion zlotys in 2013 compared to 42.9 billion zlotys in 2005. Private farms accounted for 69.9 billion zlotys of the market output in 2013. Animal market output was higher than crop market output (44 billion zlotys vs. 36.3 billion zlotys), although crop gross output exceeded animal gross output (58 billion zlotys vs. 49.8 billion zlotys) (Central Statistical Office of Poland 2015: 174–178). The evolution of gross agricultural output, including gross value added and intermediate consumption, is shown in Fig. 1.4, whereas the evolution of market output, including crop output and animal output, is shown in Fig. 1.5. The net agricultural market output in current prices increased

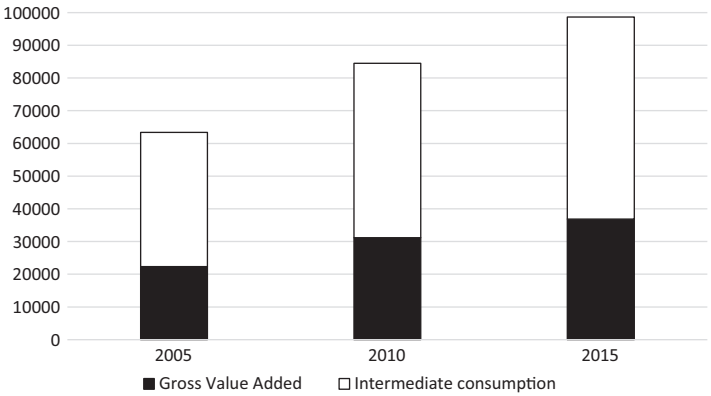

Fig. 1.4 Gross agricultural output (intermediate consumption and gross value added) in Poland in million zlotys (2005–2015) (Source: Adapted from Central Statistical Office of Poland (2016: 473))

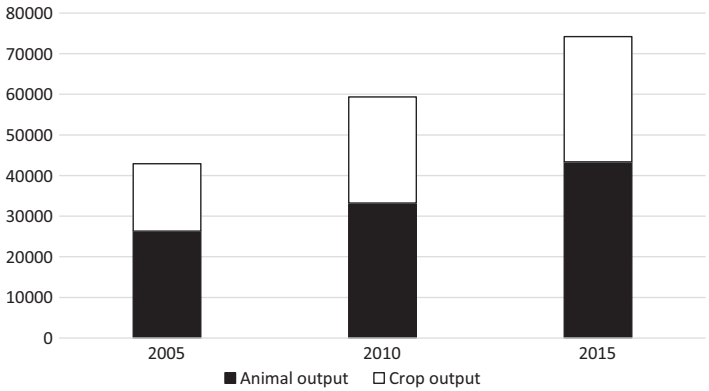

Fig. 1.5 Market output (crops and animals) in Poland in million zlotys (2005–2015) (Source: Adapted from Central Statistical Office of Poland (2016: 473))

from 2314 zlotys per 1 ha of agricultural land in 2005 to 4544 zlotys (Central Statistical Office of Poland 2015: 182), which is a sign of profitability improvement in Polish agriculture during its membership in the European Union.

The economic size of private farms in Poland amounted to 13.8 thousand euros, but it reached 30 thousand euros in farms with the principal source of income in agricultural activity. The average agricultural area was respectively 9.3 ha and 17.4 ha, the number of livestock (calculated in large units) 5.9 and 14.2 (Central Statistical Office of Poland 2014: 140). The structure of Polish private farms by economic size in 2013 was as follows:

- 0–2 thousand euros = 28.2%
- 2–4 thousand euros = 19.9%
- 4–8 thousand euros = 18.4%
- 8–15 thousand euros = 12.9%
- 15–25 thousand euros = 7.9%
- 25–50 thousand euros = 7.6%
- 50–100 thousand euros = 3.5%
- 100 thousand euros and more = 1.6%

(Central Statistical Office of Poland 2014: 168)

As far as the market performance of Polish farms is concerned, there are (too) many that sell nothing or almost nothing; 15.6% used their final agricultural production entirely, 5.6% sold only 1–25% of their final production, and a further 5.8% sold less than half of what they produced. Only 15.9% marketed everything they produced, and 30.5% marketed more than three-quarters (Central Statistical Office of Poland 2014: 147). Therefore, in Poland we may distinguish a large segment of semi-subsistence farms, and only a relatively small share of active players. Further processes of structural changes, including generational turnover and land consolidation, facilitated by some agricultural policy measures, may help to improve the situation.

The structure of agricultural market output by products in Poland in 2005 and 2013 is presented in Table 1.1 (Central Statistical Office of

Table 1.1 Structure of agricultural market output by products in Poland in 2005 and 2013 (%)

Products	2005	2013
Crop output	***38.7***	***45.2***
Cereals, including	10.9	13.1
Wheat	5.2	6.0
Rye	1.5	1.8
Barley	1.2	1.2
Potatoes	2.6	2.9
Industrial, including	8.7	8.5
Sugar beets	4.9	3.7
Other	3.8	4.8
Vegetables	6.2	8.9
Fruit	5.7	6.9
Other	4.6	4.9
Animal output	***61.3***	***54.8***
Animal for slaughter, including	36.4	31.5
Cattle (excluding calves)	5.1	5.1
Calves	0.9	0.3
Pigs	19.4	13.7
Sheep	0.1	0.0
Poultry	10.4	12.1
Cows' milk	19.8	17.5
Hen eggs	4.6	5.4
Other	0.5	0.4

Source: Adapted from Central Statistical Office of Poland (2015: 181–182)

Poland 2015: 181–182). It is worth noting that in the period under comparison, the share of crop production increased, albeit animal output still remained higher. Cereals were the most important crops, followed by vegetables and industrial crops. The share of sugar beets diminished as the result of quantitative limits imposed by the Common Agricultural Policy (CAP). In animal production, the most visible share reductions concerned calves and pigs, whereas the share of poultry grew. These changes in the production structure reflect some evolutions in profitability, which are affected both by the market forces (changing demand in Poland and abroad, changing input costs) and by the agricultural policy (quotas, subsidies, market intervention, etc.).

In 2015, crops accounted for more than half of the agricultural output in Poland, which was less than in the Czech Republic in Hungary (Table 1.2). However, due to the size of Polish agriculture, the share of Poland in EU-28 crop production amounted to 5.3% compared to 2.1% for Hungary and 1.3% for the Czech Republic. The most important

Table 1.2 Structure of agricultural output in Poland, Czech Republic and Hungary in 2015 (%)

	Poland		Czech Republic		Hungary	
Products	%	% of EU-28	%	% of EU-28	%	% of EU-28
Crop output, of which:	***52.5***	***5.3***	***61.4***	***1.3***	***64.4***	***2.1***
Cereals (including seeds)	31.9	7.3	45.6	2.5	45.9	4.1
Industrial crops	21.9	12.8	25.9	3.6	21.2	4.9
Forage plants	7.4	3.4	13.4	1.5	3.8	0.7
Vegetables and horticultural products	22.0	4.6	7.2	0.4	15.4	1.3
Potatoes	5.6	6.7	2.9	0.8	1.8	0.8
Fruits	10.9	4.8	2.4	0.3	8.6	1.5
Wine	x	x	1.5	0.2	2.3	0.5
Animal output, of which:	***47.5***	***6.4***	***38.6***	***1.1***	***35.6***	***1.6***
Cattle	13.3	4.2	14.2	0.7	5.5	0.4
Pigs	18.0	5.8	18.4	1.0	26.0	2.0
Sheep and goats	0.1	0.1	0.2	0.1	1.8	0.8
Poultry	25.8	12.5	13.4	1.1	33.4	3.9
Milk	31.6	6.2	48.3	1.6	20.6	1.0
Eggs	10.3	11.5	5.4	1.0	7.5	2.0

Source: Adapted from European Commission (2016a: 2, b: 2, c: 2)

crops in Poland were cereals (31.9% of crop production), but Poland had a higher share of EU production for industrial crops (12.8%) than for cereals (7.3%). As far as the animal output is concerned, Polish agriculture provided 6.4% of the EU-28 production compared to 1.6% for Hungary and 1.1% for the Czech Republic. Within the animal production in Poland, milk and poultry were the most significant (31.6% and 25.8% of the animal output, respectively). Regarding the role of the Polish animal production in the European Union, it was the most important for poultry (12.5%) and eggs (11.5% of the EU-28 production).

The investment outlays in Polish agriculture amounted to 4,897,400,000 zlotys in 2013, compared to 2.4 billion zlotys in 2005. Their structure was as follows: buildings and structures (39.8%), machines, technical equipment and tools (35.3%), and transport equipment (13.2%). The investment outlays per 1 ha of agricultural land were 335.2 zlotys. Interestingly, they were relatively much higher in the public sector (813.4 zlotys per ha) than in the private sector (315.5 zlotys per ha), though in absolute terms investment on private farms prevailed largely (Central Statistical Office of Poland 2015: 155). The Polish accession into the European Union has had an enormous impact on the growth of investment outlays in Polish agriculture.

1.2 Managerial Issues in the Agricultural Enterprises in General

One of the most widely used tools in management is the SWOT (strengths, weaknesses, opportunities, and threats) analysis. Wigier (2014b: 94) conducted it in relation to Polish agriculture. The results are presented in the following sections.

The strengths of Polish agriculture include:

- high quality of agricultural and food products
- a significant role of Polish agriculture in the EU-27
- considerable resources of land, which ensure self-sufficiency of the country in food
- growth in farmers' income (EU support accounts for 50%)

- diversification of income sources
- large resources of relatively cheap labour
- growing entrepreneurship of rural inhabitants
- modernised park of machines and agricultural equipment
- a fast growth of the area of orchards (by one-third since 2000)
- comparative advantages in labour-intensive sectors and those that require large inputs of land
- well-preserved biological diversity of agricultural areas, including genetic resources in agriculture
- a diversified market offer of traditional and origin products
- development of organic farming
- relatively cheap land (in comparison with other EU countries)
- improvement in the area structure of agricultural holdings
- concentration of production: cattle, cows, pigs and crops
- improvement in the education level of farmers
- dissemination of innovative solutions on farms

The weaknesses of Polish agriculture include:

- a high number of people employed in agriculture
- unfavourable area structure of farms
- a low level of respecting environmental standards in agricultural production
- weak education of farmers (only 2.8% have higher education)
- decapitalisation of buildings, structures and transportation means
- dispersed supply of raw materials in agriculture
- a high share of poor and acid soils
- low productivity and high volatility of production
- low profitability of the agricultural sector
- high long-term and covert unemployment
- a low level of income in agriculture compared to other sectors of the economy
- a low level of specialisation in production
- poor infrastructure used in agriculture: roads, energy, water supply and environment protection
- a low level of own capital among farmers and their low ability to get bank loans

- a low level of activity to consolidate the community of farmers (especially among young farmers), lack of willingness to participate in common investment projects
- dependence of farmers' income on EU subsidies
- multidirectional character of farms
- development of the economic "grey sphere"
- low pace of implementing technical progress

The opportunities of Polish agriculture include:

- coexistence of farms having intensive and sustainable character
- agricultural income growth, contributing to higher investment capabilities on farms
- higher demand for and prices of agricultural goods globally
- increase in the activity of multinational corporations (in production and trade)
- development of technical and social infrastructure
- high demand for Polish food on the European market
- higher promotion and food exports to third countries (new market outlets)
- increase in the purchasing power of Poles
- more interest in the production of energy from renewable resources
- growing market demand for organic food
- a change in consumer expectations regarding production methods in favour of extensive, environmentally friendly methods and respecting animal welfare
- creation of producer groups and agro-processing clusters
- large internal market
- higher demand for raw materials from the processing industry

Finally, the threats to the Polish agricultural sector include:

- decreasing agricultural area (alternative use of land)
- a high level of rural unemployment
- conflicts of interest (ecology vs. intensification of agricultural activities, especially on Natura 2000 areas)
- climatic changes and a growing deficit of water
- increasing costs of agricultural activities

- higher competitiveness of multinational corporations
- excessive state protectionism restricting market conditions
- competition from other EU producer countries
- inflow on the national and EU markets of low priced food, having poor quality and nutritional value
- divergence of agricultural policy priorities between more developed members of the EU and Poland
- decline in the support for European agriculture as a result of WTO negotiations
- higher costs of agricultural production (higher process of energy, oil, machines, fertilisers, etc.)
- a higher price of land, which hinders the enlargement of farms
- taking over a part of support addressed to farmers by firms supplying them in goods and services
- trade restrictions, in particular resulting from the Russian embargo

The Polish Rural Development Programme for 2014–2020 also contains a SWOT analysis (Ministry of Agriculture and Rural Development 2014: 45–53). Let us start with an overview of the strengths of Polish agriculture. Relatively large resources of agricultural land in Poland compared to other EU member states are mentioned, not only in absolute terms, but also per inhabitant. As a result, the production may be more extensive, entailing lower costs in farms and lower negative externalities for the natural environment. Multidirectionality of the Polish agricultural sector is another strength. This factor contributes to the food security of the country through a diversification of the product supply and higher resistance to climate changes. It has a positive impact on the quality and biological diversity as well. From the stance of economic efficiency, territorial specialisation of farms should be assessed positively. Certain regions specialise in some types of production—Wielkopolskie and Kujawsko-Pomorskie in pigs, Podlaskie in milk, Mazowieckie in milk and fruit, Dolnośląskie and Opolskie in cereals. It is favourable for building cooperative ties between farmers and other business partners as well as facilitating the development of branch infrastructure and knowledge transfer. The presence of large food-processing enterprises contribute to the competitiveness of the Polish agri-food sector. There is a

growing interest in production methods that enable manufacture of high-quality food and that have a positive environmental impact (organic, integrative, traditional farming). Local varieties of crops and livestock survived in Poland. They create a genetic reserve for breeding, taking into account the necessary adaptations to climate changes. Considerable resources of labour and their relatively low costs, high cultural, natural and touristic value of rural areas create potential for national and local development. The system of agricultural counselling is developed. It encompasses both public (subordinate to territorial and professional self-governments and the government) and private units. Therefore, there is a base of institutions enabling the working out of necessary solutions for the agriculture and rural areas and implementing them as well as disseminating indispensable knowledge. Moreover, there is a strong network of universities and research institutes specialising in agriculture and rural development issues. Among the customers of services in the broadly understood knowledge transfer, especially young people, we may observe an increasing determination to improve their skills and education.

The Ministry of Agriculture and Rural Development underlines the following weaknesses of the Polish agriculture. The agrarian structure is unfavourable, with the majority of farms being small. Farms with a size of more than 15 thousand euros constituted only 17% of total farms. The productive potential is concentrated in small-scale production units, which tend to be characterised by low specialisation and little market orientation. The unfavourable implications of farm fragmentation are reinforced by poor tracts of arable land. Almost a quarter of Polish farms have their surface divided into more than six pieces. The unfavourable agrarian structure limits the use of technologies that could improve the productivity of production factors. The fragmented agrarian structure is accompanied by oversupply of labour in agriculture. Moreover, farmers are not excluded from population aging. Most farmers have old technical equipment, and their own capital, which is much lower than the EU average, reduces their modernisation and development capabilities. A relatively low level of production in relation to the resources of production factors is observed as a result. Agricultural labour productivity is one of the lowest in the European Union. Apart from the unfavourable structure of farms, an insufficient level of organ-

isation of agricultural markets is a weakness. Farmers tend not to be organised and integrated with the processing industry. A single producer characterised by a low scale of production, lack of access to technical equipment and innovative technologies finds it hard to react to changes in the market environment. This phenomenon is particularly acute in Poland due to the fragmentation of farms. Group activities of farmers may constitute an initial phase of their vertical integration with the processing industry, which is necessary in order to reduce the operational risk and stabilise prices. In Poland, there are relatively few quality systems and their prevalence is low. Thus, it difficult to overcome one of the barriers to raise revenues by building consumer trust and guaranteeing high quality. Another weakness is the shortage of alternative distribution channels for local food, which stems from, among others, a lack of institutional framework promoting the development of short supply chains, especially direct sales, The resources of capital and know-how in the processing industry are still insufficient. From the point of view of risk management, a low prevalence of insurance is another drawback. There is a system of subsidised agricultural insurance that covers only 30% of crop area and concerns a low range of risks. Low income and insufficient knowledge about the benefits of insurance slow down the adoption of insurance. A lack of accounting in Polish farms makes it hard to implement measures aiming to support their income. The quality of soils is one of the poorest in Europe, and water resources are scarce, which reduces agricultural productivity. In spite of the rapid development of organic farming, too few organic products are available. There is a high level of unemployment, including covert unemployment in agriculture. Poorly developed infrastructure is one of the major barriers to the development of Polish rural areas, including investment opportunities and commuting to work. The mechanisms of knowledge transfer between the advisory and research sectors and farmers are insufficient. A poorly organised agricultural sector fails to communicate its needs, and research results often fail to be implemented in practice. The training offer may be inadequate to the needs of customers. Education of farmers is still too low to ensure the transformation of their farms and eventually leaving farming altogether. The awareness of the need to be innovative and improve one's knowledge is insufficient as is the level of

digital competence. In the processing industry, the share of expenditure on research and development is too low as well.

The opportunities identified by the Ministry are related to the increasing purchasing power of domestic consumers and the rising global demand for agricultural goods. The expansion of Polish agri-food products to foreign markets confirms a higher interest in Polish food and a better efficiency of Polish producers and intermediaries to find foreign partners. The rising demand for high-quality products (in particular, respecting ecological requirements) creates a space for further improvement of competitiveness and profitability of Polish agricultural enterprises. The use of this opportunity depends on the adoption of new technologies. A chance for certain producers will be specialisation in niche products or direct sales of lowly processed food. Organic farming is an opportunity for many farmers, especially those with small holdings. Another opportunity is linked to the growing interest in rural areas as places of living and leisure. Better access to market information is an opportunity as well.

The threats mentioned in the Polish Rural Development Programme analysis include weak economic situation at home and in major trade partners as well as high costs and risks related to the implementation of new technologies. Increasing competition from abroad gives rise to the risk of losing a stable base of supplies, which happened recently in the pig industry in Poland. Growing consolidation of retailers makes the suppliers meet increasingly demanding expectations, for example, large, homogeneous and consistent supplies, which many small farmers find particularly difficult to obtain. At the same time, legal and fiscal barriers to the development of small trade and processing persist and hinder the development of alternative distribution channels for small farmers. There is a growing threat of plant and animal diseases, which accompanied by a low propensity to take insurance, may lead to worsening the income situation of Polish farmers. Spatial concentration in certain regions and in large, intensive farms increases environmental pressure and may lead to higher pollution of air, soil and water, unless appropriate technologies are implemented. There are risks of losing biological diversity and crowding out traditional, local varieties of livestock and crops. There is a growing threat of unpredictable extreme weather events such as wind, flood and drought. Insufficient competencies of farm advisors and low expenditure

on innovative solutions on farms and in the food industry belong to the threats, too.

The pace of changes in labour resources is slower in Poland than in most EU member states. Poland continues to have the biggest stock of human resources in agriculture across the European Union and the highest share of agriculture in employment. As the level of education of farmers is rather low, they find it difficult to move to other jobs. This process is also hampered by the general economic slowdown in Poland.

Regarding the area structure, Polish agriculture is less competitive than EU-15. We may observe some positive changes in this field, but they are much slower than in most new member states (EU-12). In Poland, a large share of the agricultural area belongs to farms that are small and hardly connected to the market. It impedes the growth of agricultural production and an improvement in the efficiency of the use of production factors (due to economics of scale). The CAP instruments, such as direct payments decoupled from production and low taxation of agriculture, petrify the existing unfavourable structure. Besides, the CAP is criticised for other reasons as well (Bryła 2003a, b). The interests of Central European member states of the European Union lie in more targeted instruments to fight poverty and encourage economic development than the present CAP can offer (Bryła 2005).

Not only does the small area of farms constrain their efficiency and competitive position, but so too does the spatial distribution of land surfaces belonging to a single farm. The small size of farms, however, does not preclude their functions in the social and ecological spheres.

One of the principal determinants of development in agriculture is the propensity to cooperate. In Poland, it is very low. Polish farmers are reluctant to undertake collective actions and create cooperation institutions (cooperatives, producer groups, etc.). In EU-15, the organisation of the food supply chain is much stronger than in Poland, alongside risk management promotion and market orientation of producers.

The progress in the modernisation of resources in Polish agriculture depends to a large extent on the absorption of EU funds, the availability of national support measures and the willingness of farmers themselves. The public policy should create a favourable financial and legal environment for farms. The competitiveness of Polish agriculture is also affected

by global phenomena, including the price of agricultural goods on the world market, the dynamics of growth of emerging economies, the prevalence of extreme weather events, market-distorting state intervention, exchange rate fluctuations and the situation on the stock exchange (Wigier 2014b: 95–97).

The use of state-of-the-art knowledge in agricultural technology has become an important source of the competitive advantage of Polish farmers. Furthermore, a growing competitive pressure has led to a growing importance of knowledge about processes occurring in the market environment. The managerial complexity in Polish agriculture continues to increase. It is partly related to the growing legislation, in particular in the field of the agricultural policy. The European and national policies put many, often conflicting objectives in front of the agricultural managers. Apart from caring for the economic viability of their farms, their managers are expected to fulfil social and environmental goals. The execution of these tasks entails the necessity to respect a range of rules and principles (e.g., cross-compliance).

The growth in the complexity of the regulatory environment is accompanied by higher market expectations regarding the quality of agricultural produce. Both consumers and food processors demand products with high sensory properties. We may observe an increasing demand for traditional and organic products. The production process in these categories is expensive and knowledge-intensive. Finding the market outlets is conditioned by taking up intensive information and marketing activities, which creates an unquestionable challenge for agricultural managers.

The volatility of the market environment in Polish agriculture increases as a result of price fluctuation, processes of integration, globalisation and regulation as well as climatic changes. A way to cope with the uncertainty, and consequently achieve competitive advantage, is to make the right managerial decisions based on relevant information. In this context, it seems critical not only to find the right information but also be able to interpret it and apply in practice (Wrzochalska 2014: 64).

Information becomes an increasingly important production factor, alongside land, capital and labour. In order to take rational decisions, farmers need market information. The level of risk is connected to the availability and quality of information. Śmiglak-Krajewska and Zielińska (2009) conducted a survey about the sources of market information in Polish agriculture among 280 private farms and 66 large farms leasing

land from the state. In the private farms, the principal sources of market information included TV, agricultural press, exchange of information among neighbours, farm advisory services (the network of farm advisory services centres) and radio. The main types of information indicated by farmers as needed to take decisions included prices, market requirements, product quality, new variations, technology and marketing trends.

Notes

1. The output is the sum of plant and animal products obtained during a year in a given farm. Its primary source is crop production, animal production and income from mechanisation services, but also processing. The output reflects the actual size of the agricultural production. It is therefore a measure that makes it possible to determine the production orientation of an enterprise.
2. Calculated by means of the cumulative rate of increase in the price of the output and commercial agricultural production.

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2

Profitability in Polish Agricultural Enterprises

Paweł Bryła

2.1 Main Factors Influencing Profitability

The income of the Polish agricultural sector significantly increased after its accession to the European Union. A sudden increase of income was noted in 2004 (more than 20 billion zlotys against less than 10 billion zlotys in 2002 and 2003), namely in the first year after accession into the European Union and covering the Polish agriculture with the Common Agricultural Policy (CAP) income support system. In following years, the dynamics of income growth slowed down, yet a clear positive trend was observed. In nominal prices, the income in 2012 amounted to almost 37 billion zlotys, compared to less than 10 billion zlotys in the pre-accession period. The growing income of the sector, combined with employment reduction, resulted in a significant growth of income calculated per persons employed full time. In 2012, it was almost twice as high compared with the pre-accession period. The share of subsidies and grants in income increased from 15% to more than 50% as a result of the implementation

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of direct payments and other aid schemes (Wigier 2014: 41–42). The most important priority of the agricultural policy in Poland was to increase the competitiveness of the sector, but a number of activities within that priority were also related to supporting farmers' income (Fogarasi et al. 2014).

In the 2004–2012 period, the cumulative value of support for the agri-food sector in Poland reached an enormous sum of 370 billion zlotys. It came from three main sources—a grant from the national budget to a special system of social insurance for farmers (KRUS), a grant from the national budget co-financing the CAP, and payments from the EU budget. The largest share of these payments were subsidies to insurance (38%) and grants coming directly from the EU budget (more than 160 billion zlotys, or 35% of the above amount) (Wigier 2014: 43). The EU direct payments are the most common type of support; each year about 1.4 million Polish farmers use this form of support. The value of payments in the 2004–2012 period increased from approximately 6 billion zlotys to 14 billion zlotys per year. It reached an average of 9 thousand zlotys per farm, and this form of support is used by 87% of farms having an area of more than 1 ha (Wigier 2014: 42). In 2013, Poland received more than 5 billion euros from the CAP, including 2.8 billion for direct payments, 1.9 billion for rural development and 0.4 billion for market measures (European Commission 2015).

A nearly two-fold increase in Polish agricultural holdings' income was observed in 2004—in the first year inside the European Union and the functioning within the CAP. In the next years, this trend continued. In 2008–2012, the average level of income per holding was 86 thousand zlotys, which was more than 40% more than in the first years of EU membership. A diversification of agricultural producers' income was primarily due to the level of their productive resources, operating and investment subsidies, the economic situation in the agricultural market, as well as the costs of the factors of production used (Wigier 2014: 50).

An increase in the value of subventions had the decisive impact on the growth in the income of agricultural entrepreneurs in Poland in the 2004–2009 period. The share of subsidies in the income increased from 38.8% in 2004 to more than 60% in 2009. Subsequently, a significant decline of this share was observed. In 2011 it dropped below 50%, and in

2013 it was below 40% (Ministry of Agriculture and Rural Development 2014a: 24).

The average income obtained from agricultural activity in Poland grew by 90% from 2000 to 2008. The entry of Poland into the European Union brought about an investment boom in agriculture and accelerated farm modernisation. Preferential investment credits and the EU funds played a huge role in the process. The removal of trade barriers between Poland and the European Union showed high price competitiveness of domestic agricultural and food products (Mickiewicz and Mickiewicz 2010). During the initial years of Polish membership in the European Union, the most positive effect for profitability was observed in animal production, in particular on individual farms' economic results on beef cattle and dairy cow breeding (Czternasty and Smędzik 2009). The gross operating surplus had the highest share in the gross value added of the Polish food industry and amounted to 55.64% in 2007. Costs connected with employment were also important, as they represented 41.82%. The gross operating surplus had the highest share in the gross value added contributed by agriculture, hunting and forestry (Jędruchniewicz 2010). The implementation of the CAP intensified the processes of specialisation and modernisation in Polish agriculture, which are reflected in the increase in the average farm size and agricultural productivity, but geographical disparities grew (Jezierska-Thöle et al. 2014). The effectiveness of productive potential in Polish agriculture is the highest in regions characterised by a high socioeconomic development (Nowak et al. 2015). The average work profitability in agriculture increased in real terms by 5.66% per year during the first decade of Polish membership in the European Union. The main causes of these favourable changes were increased productivity and subsidies (Golas 2016).

The average monthly available income of households of farmers amounted to 5043.97 zlotys in 2013, which was well above the income of households of employees (4289.01 zlotys) and almost as much as that of households of self-employed individuals (5164.13 zlotys). There was a much stronger dynamic of growth in the income of farmers' households than in the rest of the economy over the period 2005–2013. In 2013, the income per capita in households of farmers was 1156.13 zlotys, including 812.89 zlotys of income from a private farm in agriculture, 150.78 zlotys

of income from social security benefits, 123.27 zlotys of income from hired work, and some other less important sources of income (Central Statistical Office of Poland 2015: 250).

According to FADN data, family farm income in Poland rose from 25,920 zlotys in 2009 to 40,588 zlotys in 2013, mainly because of the faster growth of total output than total input (Table 2.1). The family farm income per a full-time employed person belonging to the family increased from 17,137 zlotys to 26,325 zlotys on average in the period under study. The costs of producing 100 zlotys of output decreased from about 93 zlotys in 2009 to less than 84 zlotys in 2012, but it increased in 2013 to 89 zlotys.

According to our expectations, the profitability differs depending on the farm profile. Table 2.2 presents FADN measures for five selected farm profiles: specialising in arable crops; horticulture; milk cows; grain-eating animals; and not specialised in any direction (mixed). The highest output and family farm income (on average) was observed in farms producing grain-eating animals. This type of production requires the accumulation

Table 2.1 FADN data on family farm income in Poland (2009–2013)

Measure	2009	2010	2011	2012	2013
Total output (zlotys)	87,237	100,956	115,723	126,580	141,919
Total input (zlotys)	81,420	85,227	97,430	105,908	126,326
Including specific (direct) costs (zlotys)	41,489	41,132	49,852	54,999	65,051
Total subsidies, excluding on investments (zlotys)	21,676	23,649	25,214	24,469	26,671
Subsidies on investments	677	922	949	996	1087
Family farm income	25,920	38,290	42,217	43,539	40,588
Family farm income per full-time work unit in the family (zlotys/FWU)	17,137	23,831	25,779	25,939	26,325
Total assets (zlotys)	538,523	574,512	612,585	651,684	715,519
Total liabilities (zlotys)	30,961	32,000	34,202	36,521	41,479
Net investment on fixed assets (zlotys)	−3099	−1726	−2724	1693	−2622

Source: Adapted from *Wyniki…* (2014: 3)

Table 2.2 FADN data on family farm income in Poland by selected farm profiles (2013)

Measure	AC	H	MC	GA	M
Total output (zlotys)	128,385	230,375	145,820	509,739	117,397
Total input (zlotys)	115,994	172,294	111,145	430,686	114,631
Including specific (direct) costs (zlotys)	49,961	68,696	56,279	337,609	57,535
Total subsidies, excluding on investments (zlotys)	38,686	6670	26,739	27,745	24,638
Subsidies on investments	1153	1083	2258	2143	651
Net value added	61,244	92,252	64,978	121,426	36,956
Family farm income	48,010	64,707	61,964	106,565	25,218
Family farm income per full-time work unit in the family (zlotys/FWU)	33,083	40,132	35,225	65,879	16,741
Total assets (zlotys)	812,586	560,559	892,125	1,127,608	611,658
Total liabilities (zlotys)	68,852	74,533	48,009	84,949	24,759
Net investment on fixed assets (zlotys)	−210	8297	1701	−2057	−5099

Notes: *AC* arable crops, *H* horticulture, *MC* milk cows, *GA* grain-eating animals, *M* mixed
Source: Adapted from *Wyniki…* (2014: 1)

of considerable assets, which were generated by past investments. The lowest family income and income per person occurred in unspecialised farms. The highest level of subsidies was granted to producers of arable crops, and the lowest to famers specialising in horticulture. Nevertheless, the latter were more profitable than the former.

In the European Union, agricultural households tend to get a surprisingly high share of their income from non-agricultural sources, which makes their income situation comparable to the rest of the society. The income situation of EU farmers is increasingly affected by the phenomena of pluriactivity and farm diversification (Bryła 2009). The use of various definitions of a farmer and of an agricultural household across countries impedes international comparisons of farm income (Bryła 2010a). One of the principal determinants of income differentiation across EU member states is varying farm structures (Bryła 2010b).

The profitability of Polish farms depends, inter alia, on their size. The economic size of Polish farms is well below the EU average. Within the FADN, the economic size of Polish farms amounted to 10 European Size Units (ESU) (which is the equivalent of approximately 12 thousand euros), which constituted only one-third of the EU average in the period 2005–2009 (Ministry of Agriculture and Rural Development 2014b: 27). It is not only the area (soil quantity and quality as well as climatic conditions) that counts, but also the number of livestock per farm. Poland is far below the EU average. In 2010, the average pig farm in Poland had 39 animals compared to the EU average of 53. The Dutch farms had 1743 pigs on average, and the German ones had 459. As far as cattle farms are concerned, they had 11 animals on average in Poland compared to the EU average of 34, 87 in Germany and 121 in the Netherlands (Ministry of Agriculture and Rural Development 2014b: 27).

In Poland, there is a system of measuring profitability of certain types of agricultural production called AGROKOSZTY. The study was conducted in a sample of individual farms observed by FADN. Sampling was not random but focussed on market-oriented enterprises. In the system, quantitative and value data on production level, inputs and direct costs are collected according to a predefined methodology and standards. They allow for computation of the first category of revenue—gross margin. Costs were classified as direct if they could be attributed to an activity without any doubt, their level was proportional to the scale of production, and they had direct impact on the size of production (amount and value). The direct costs are different for crop and animal production. The direct costs in crop production consist of: seeding material, purchased fertilisers, plant protection chemicals, growth regulators, insurance directly applied to a given activity, specialist costs (including expenditure on crop production), specialist services and temporary leasing. The direct costs in animal production concern: animals to replace the stock, feeds (both bought and own), land lease of feeding area for less than a year, insurance of animals, medicines and veterinary means (including insemi-

nation material), veterinary services (insemination, castration, vaccination), and specialist costs (including expenditure on animal production), specialist services and temporary leasing. In calculating the gross margin, value-added tax (VAT) is not included (Skarżyńska 2014: 16–20).

The gross margin is the annual value of production from 1 ha of crops or from 1 animal, reduced by direct costs incurred to get this output. There are a few exceptions. For edible mushrooms, it is calculated per 100 m^2 of production surface. In the case of poultry, it is calculated per 100 items. For bees, it concerns a family living in a hive. The gross margin is calculated as follows (Skarżyńska 2014: 24):

Production value
− Direct costs
= Gross margin without subsidies
+ Subsidies
= Gross margin

The estimated calculation of economic results of Polish agriculture in 2013 was as follows (million zlotys) (Ministry of Agriculture and Rural Development 2014a: 25):

1.	Production of the agricultural sector (A+B+C)	96,386
A.	Crop and animal production	91,774
B.	Subsidies to products	1784
C.	Remaining production and services	2827
2.	Indirect consumption	57,634
3.	Gross value added (1–2)	38,751
4.	Depreciation and amortization	6487
5.	Net value added (3–4)	32,264
6.	Other taxes	2423
7.	Other subventions	11,857
8.	Income from means of production (5–6+7)	41,698
9.	Costs of hired labour	4108
10.	Rent fees	479
11.	Balance of paid and obtained interest	1198
12.	Income of agricultural entrepreneurs (8–9–10–11)	35,913

The calculation of agricultural income in Poland in 2014 according to the Economic Accounts for Agriculture was as follows (in million euros) (European Commission 2015):

Output of the agricultural industry	22,799.5
– Intermediate consumption	14,151.4
= Gross value added at basic prices	8648.1
– Consumption of fixed capital	1621.1
– Taxes	528.6
+ Subsidies	3569.5
= Factor income	10,068.0

The factor income was 81.6% higher than in 2005.

In order to assess production and economic results and efficiency of input use, the following measures are used (Skarżyńska 2014: 26):

- the ratio of production value to direct costs (the so-called direct profitability indicator)
- direct costs incurred to produce one unit of output
- direct costs incurred to produce one zloty of the gross margin without subsidies (the so-called gross margin competitiveness indicator)
- the gross margin without subsidies per one unit of output
- the share of subsidies in the gross margin
- total labour inputs (both own and external) to produce one unit of output (the so-called labour intensity of production)
- production output per one hour of total labour inputs (the so-called technical efficiency of labour)
- production value per one hour of total labour inputs (the so-called economic efficiency of labour)

In 2013, out of the six analysed production profiles, the highest economic efficiency of labour was observed in rapeseed production, followed by wheat (Table 2.3). In the production of organic milk, the share of subsidies in the gross margin amounted to 15.1% (Skarżyńska 2014: 66).

The economic result in agriculture depends on the optimal use of labour, capital and land resources. The factor of management plays a crucial role in this regard. It applies to the characteristics and attitudes of

Table 2.3 Economic efficiency indicators for selected agricultural products in Poland in 2013

Measure	Wheat	Rye	Barley	Rape	Pork	Milk
Direct costs/1 dt of main output (zlotys)	24.67	20.38	23.20	55.09	4.78	0.46
Direct costs/1 zloty of gross margin without subsidies (zlotys)	0.52	0.70	0.52	0.63	8.57	0.49
Gross margin without subsidies/1 dt of the main output (zlotys)	47.40	29.19	44.45	88.09	0.56	0.94
Total labour inputs/1 dt of the main output (hours)	0.15	0.25	0.16	0.25	0.024	0.056
Production quantity/1 hour of work (dt)	6.87	4.05	6.25	4.05	42.5	17.75
Production value/1 hour of work (zlotys)	494.91	200.58	422.50	580.48	226.76	24.78

Notes: The indicators for pork are per 1 kilogram of live pig; the indicators for milk are per 1 litre in organic farms
Source: Adapted from Skarżyńska (2014: 34, 39, 44, 51, 58, 66)

farm managers. It has been estimated that the shrinking number of agricultural holdings in Poland is often due to failing to meet the requirements of economic rivalry and wrong managerial decisions.

It also needs to be emphasised that the institutional environment plays a crucial role in rural development. It includes local authorities, information and counselling centres, especially the networks of Farm Counselling Centres in Poland (*Ośrodki Doradztwa Rolniczego—ODR*), local promoters of entrepreneurship (foundations, associations, incubators) and loan providers. In the Polish institutional landscape, accession to the European Union caused an immense growth of importance of the Agency for Restructuring and Modernising Agriculture (*Agencja Restrukturyzacji i Modernizacji Rolnictwa*), the regional and county branches of which are responsible for managing the EU direct payments and various instruments of the agricultural and rural development policy (Wrzochalska 2014: 95).

One of my interviewees, who specialises in milk production, drew attention to the negative trends in his sector regarding profitability. As

the milk quota is eliminated, the price of milk is stable or declines, even to 0.4 zloty per litre. At the same time, production costs grow due to the increase of prices of fertilisers and feeds.

Another interviewee, who specialised in pig production, complained about a long-term recession in his sector. Even if the consumer prices continue to be the same, the producers receive smaller and smaller shares of the price. The intermediaries take over a growing portion of the value added. Animal diseases and the Russian embargo make the situation even worse, especially when the domestic demand is stagnating. This point of view was confirmed in another interview with a pig producer who indicated an enormous loss of profitability due to lower prices of pigs.

Another interviewee mentioned that consumers pay an increasing attention to quality issues. It may constitute an opportunity for Polish agricultural enterprises, but at the same time, it means higher expectations and more stringent requirements.

2.2 Planning and Forecasting Profitability

One of the key variables in forecasting profitability is price. The price forecasts are done on the basis of statistical data, reports and industry analyses. There are several types of market information. Data on domestic and world prices constitute one of them. In the economic reality, it is hardly possible to talk about a single market price in a given period. Therefore, there are many sources of primary information on prices on agricultural markets. In Poland, they comprise (Figiel et al. 2014: 16):

- the Warsaw Commodity Exchange (www.wgt.com.pl) and its platform e-WGT
- the agricultural and fuel exchange called Rol-petrol (www.rolpetrol.com.pl)
- the Internet Exchange called NetBrokers, addressed to firms operating on the agri-food market (www.netb.pl)
- the information portal called Fresh-market.pl, which specialises in information concerning the fruit and vegetable branch

– websites of wholesale markets
– Internet portals of agri-food industry information services (e.g. www.farmer.pl, www.portalspozywczy.pl).

Skarżyńska (2014) built a forecasting model on the basis of data from 2011 to 2013 collected in the AGROKOSZTY system. The projection of production value, costs and economic effects concerns the following years: 2016, 2018 and 2020. The basic indicator to measure the effects was activity revenue with or without subsidies. It was calculated as follows:

$$\text{Activity revenue without subsidies} = \text{production value} - \text{direct costs}$$

$$\text{Activity revenue} = \left[\text{production value} - \left(\text{direct costs} + \text{indirect costs}\right)\right] + \text{subsidies}$$

The indirect costs cannot be attributed to specific products (production activities) when they are incurred. They are common for the whole agricultural holding. The indirect cost structure is as follows (Skarżyńska 2014: 114):

A. ***Real indirect costs***

(a) General economic costs

– Electricity
– Heating
– Fuel
– Renovation
– Services
– Insurance (of buildings, property, vehicles)
– Other (e.g., water, sanitation, phone)

(b) Taxes

– Agricultural
– Other (forest, special activities, property)

(c) Costs of external factors

- Hired workers
- Land lease
- Interests

B. ***Estimated indirect costs – depreciation***

- Buildings and structures
- Machines and equipment
- Transportation vehicles
- Other (e.g., melioration, orchards, multiannual plantations)

The system of direct area payments consists of two components:

- obligatory – the same across the European community
- optional – chosen by the member state

The obligatory payments include:

- single area payments (about 110 euros/ha)
- green payments (for diversification of crops, maintaining permanent green areas and pro-ecological areas)
- payments for young farmers (higher direct payments by 25%—62 euros/ha and direct subsidies of up to 100 thousand zlotys).

The optional subsidies include:

- payments for small farmers (having the economic value up to 6 thousand euros; it may be a single payment up to 60 thousand zlotys and, if they sell their farm, a compensation of 120% of direct payments they would get until 2020)
- production-related subsidies (for certain types of production, i.e., cattle, cows, goats, high-protein plants, hop, potato starch**,** sugar beetroot, tomatoes, strawberries, raspberries, flex and hemp)
- additional payments (related to the specific area of the farm, about 41 euros/ha in Poland),
- transitory national support (it must be degressive—each year lower by five percentage points, in Poland it is granted for tobacco) (Skarżyńska 2014: 116–117)

The forecasts are affected by possible changes of yield, prices and costs. The yield is influenced by the hereditary properties of crops, environmental conditions (soil and climate), and agro-technical factors, including the structure of plantations, the time of planting, the quality and quantity of seeds, fertilisation, crop protection, and so on. The prices depend on the situation in national and international markets. The accession into the European Union made the CAP an important price-making

Table 2.4 Forecasts of profitability of wheat production in Poland until 2020

		Forecast			2013 = 100		
Measure	2013	2016	2018	2020	2016	2018	2020
Yield (dt/ha)	56.3	58.4	59.7	61.1	103.6	106.0	108.4
Price (zlotys/dt)	79.13	85.26	89.34	93.42	107.7	112.9	118.1
Per 1 ha of the arable area, in zlotys							
Production value	4482	5001	5360	5731	111.6	119.6	127.8
Direct costs	1420	1625	1762	1900	114.4	124.1	133.8
Gross margin without subsidies	3062	3376	3598	3830	110.2	117.5	125.1
Indirect costs	1690	1883	2013	2144	111.4	119.1	126.8
Activity revenue without subsidies	1372	1493	1585	1686	108.8	115.5	122.9
Subsidies	969	1008	1008	1008	104.0	104.0	104.0
Activity revenue	2341	2501	2593	2694	106.8	110.8	115.1
Economic efficiency indicators							
Profitability (%)	144.1	142.6	142.0	141.7	98.9	98.5	98.3
Total costs/1 dt (zlotys)	55.23	60.11	63.23	66.23	108.8	114.5	119.9
Activity revenue without subsidies/1 dt (zlotys)	24.36	25.59	26.55	27.61	105.0	109.0	113.4
Total costs/1 zloty of activity revenue without subsidies (zlotys)	2.27	2.35	2.38	2.40	103.6	105.1	105.8
Subsidies per 1 zloty of activity revenue without subsidies (zlotys)	0.71	0.68	0.64	0.60	95.6	90.0	84.6
Share of subsidies in activity revenue (%)	41.4	40.3	38.9	37.4	97.4	93.9	90.4

Notes: The base year is 2013, reflecting the average for 2011–2013; the subsidies are estimated at 240 euros/ha; 1 euro = 4.20 zlotys
Source: Adapted from Skarżyńska (2014: 137)

factor in Poland. With the elimination of trade barriers among the member states, the impact of the European market is stronger. Apart from the volume of production and transportation costs, price levels on the markets of other member states and exchange rates play an increasing role. The situation of supply and demand is also important (Skarżyńska 2014: 132–133).

Table 2.4 contains a forecast of results for wheat. Yield is expected to grow by 1.2% per year. The average annual growth rate of prices may reach 2.2–2.6%. The rise in prices and higher yields will lead to a growth in revenue (in 2020, 27.8% more than in 2013). The direct costs are expected to grow by more than one-third until 2020, especially due to higher costs of the seeding material and mineral fertilisers. The indirect costs will grow less quickly than direct costs (by 26.8% from 2013 to 2020). As total costs will grow more quickly (by 30.0% until 2020) than production value by 2.2 percentage points, profitability of wheat production is expected to fall to 141.7% compared to 144.1% in 2013. However, the revenue will continue to grow, even though subsidies will stabilise (Skarżyńska 2014: 136–139).

Polish farmers predict their future economic situation much better qualitatively than quantitatively (Jedruchniewicz and Danilowska 2016).

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3

Managerial Challenges in Polish Agricultural Enterprises

Paweł Bryła

3.1 Sales Potential

In the Polish agri-food sector, one of the principal sales strategies is exporting. From 2003 to 2013, the value of the Polish exports of agri-food products increased as much as 5.9 times, to the level of USD 25.9 billion, whereas the imports of agri-food products increased by 4.7 times, to the level of USD 18.4 billion. During the EU membership, Poland had a permanent positive balance of trade in agri-food products, and its value was growing on a regular basis. The value of the surplus increased in the analysed period from only USD 0.5 billion in 2003 to USD 7.5 billion in 2013 (Szczepaniak 2014: 29). Figure 3.1 shows the impressive dynamic of Polish agri-food exports in the period 2005–2015. The period of EU membership was characterised by a growth of Polish food exports

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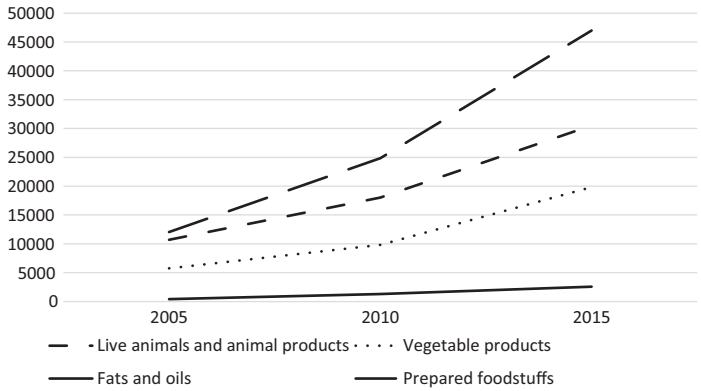

Fig. 3.1 Polish exports of agri-food products in million zlotys (2005–2015) (Source: Adapted from Central Statistical Office of Poland (2016: 570))

and a rise of the export orientation of Polish food-processing enterprises (Domański and Bryła 2010: 36–60).

Polish trade in agri-food products was dominated by food industry products (more than 80%), rather than agricultural raw materials. The developed commodity structure of trade in agri-food products is beneficial for the Polish economy and confirms the thesis about the export-oriented nature of the development of the Polish food industry. By exporting processed products, producers gain much higher benefits from value added than by exporting only raw materials required for production of these products. Moreover, industrial food processing intended for export enables a more efficient use of resources and thus allows to gain economies of scale. The export of processed (final) products is also conducive to promoting the Polish food sector on external markets, which would be more difficult to pursue by exporting agricultural raw materials or industrial semi-products used in secondary food processing (Szczepaniak 2014: 29).

During the EU membership, the commodity structure of the Polish export and import of food industry products has changed. In exports, the importance of fruit and vegetable industry products decreased, while the importance of the tobacco, meat and concentrates industry products grew considerably (Table 3.1). In 2013, products of four food indus-

Table 3.1 Commodity structure of the Polish exports and imports of food industry products in 2003 and 2013 (%)

	Exports		Imports	
Food industries	2003	2013	2003	2013
Meat	20.9	24.6	9.3	17.7
Dairy	10.0	10.0	2.2	7.0
Tobacco	2.0	9.0	0.5	1.5
Concentrates	6.7	8.0	12.0	8.7
Confectionery	7.8	7.9	10.7	8.1
Fish	7.8	7.8	11.8	8.4
Fruit and vegetable	18.7	7.6	6.0	6.4
Non-alcoholic beverages	8.2	5.0	3.1	2.7
Bakery and pasta	4.5	4.6	1.9	3.5
Fats	1.0	3.9	22.7	17.6
Coffee and tea	2.9	3.2	5.6	4.3
Milling and starch	2.1	2.4	3.0	4.1
Sugar	3.5	2.0	0.8	1.3
Feedstuffs	1.9	2.0	3.5	3.8
Spirit	1.4	0.9	0.9	1.8
Wine	0.0	0.1	3.4	2.2
Brewing	0.5	0.8	2.5	0.9

Source: Adapted from Szczepaniak (2014: 31)

tries—meat, dairy, tobacco and concentrates—accounted for more than half of revenues from the exports of Polish food (Szczepaniak 2014: 30). Therefore, choosing the right direction of production may constitute an opportunity for farm managers. The importance of strong cooperation between the producer of agricultural raw materials and food processor should also be emphasised.

Polish exports of food and live animals amounted to 71 billion zlotys in 2013 compared to 48.1 billion zlotys of imports. Therefore, the balance was very positive, with a trade surplus of 22.9 billion zlotys. The European Union accounted for the bulk of both Polish food exports and imports (54.9 and 33.6 billion zlotys, respectively). Germany absorbed 16.4 billion zlotys of Polish food exports, the United Kingdom 6.1 billion, the Czech Republic 4.1 billion, the Netherlands 3.7 billion, Italy 3.5 billion, France 3.2 billion and Slovakia 2.2 billion. As far as countries outside the European Union are concerned, Russia received 4.9 billion zlotys of Polish food exports and Ukraine received 1.7 billion.

In 2012, Poland ranked 33rd in the world regarding the size of population and 69th in the total area. It was much stronger in the production of selected agricultural products. It was the second largest producer of rye worldwide (with a 19.8% market share). It ranked third in oats production, fourth in apples, seventh in potatoes and sugar beets, eighth in rape, and twelfth in cow milk and barley (Central Statistical Office of Poland 2015: 390). These data show some areas of competitive advantage of Polish agriculture, but also reflect to a certain extent the preferences of Polish consumers and sales potential on both the domestic and world markets.

One of possible sales strategies in agricultural enterprises is direct sales. Dziedzic (2008) listed the following factors in the socio-cultural environment that influence Polish agricultural enterprises engaging in direct sales:

- changes in the population structure
- migration to the countryside, higher interest in the rural areas as a place of living and spending one's leisure time
- low education of rural inhabitants, with a positive trend
- growing affluence of the Polish society
- increasing interest in the healthy lifestyle
- increasing ecological awareness of the Polish society (consumers and agricultural producers)
- higher demand of consumers for information on product origin and high-quality food
- expectation among many consumers that the product is highly processed (lack of time to prepare meals)
- increasing number of drivers (ease of reaching the seller directly)
- forecast development of tourism, including agro-tourism and eco-tourism in the rural areas,
- organisation of specialised trade fairs and other events promoting food
- weak interest in direct sales of agricultural goods by agricultural and economic scholars
- lack of training on direct sales of agricultural products for farmers and teachers, with a trend of growing interest in organising such training
- high requirements and expectations of consumers, especially regarding affordable prices

– more expectations of consumers in changing production methods in favour of environmentally friendly methods and ensuring animal welfare (organic farming in particular)

Regarding the technical and technological conditions of direct sales development, the following factors merit our interest (Dziedzic and Woźniak 2008):

– higher quality standards as a result of Polish entry into the European Union (HACCP - Hazard Analysis and Critical Control Points, GMP - Good Manufacturing Practice, GHP - Good Hygiene Practice)
– difficulties of small food processors to meet the sanitary and veterinary requirements
– ease of fulfilling the hygienic conditions of less advanced processing (first degree)
– a growing number of registered traditional, origin and certified organic products
– return from industrial farming methods to organic, integrated and extensive ones
– lack of consumer knowledge about methods of production, storage and distribution of food
– the use of information technologies to support the sales and promotion of agricultural products

Most of my interviewees sell their entire output to a single food processor with which they cooperate in the framework of long-term contracts. This approach to the sales strategy has both advantages and drawbacks. On one hand, it ensures a certain level of stability and promotes vertical marketing channel integration, including the transfer of know-how and better adjustment to market requirements (Bryła 2006, 2007b). On the other hand, it makes the farmers more dependent on their customers. Their bargaining power may be very weak, taking into account the dispersion and fragmentation of suppliers facing a strong intermediary who may exert pressure on lowering prices.

One of my interviewees has a diversified sales strategy. He supplies milk to a dairy cooperative but also to nearby inhabitants for their needs. Moreover, he produces various things—pigs for a slaughterhouse, cereals

for feed producers and potatoes for private consumers. This kind of strategy means a diversification of risk and the reduction of global risk due to avoiding overreliance on a single product or market. However, the lack of specialisation may also have negative consequences. It is more difficult to manage such a farm. The accumulation of know-how and efficiency improvements may be worse than in specialised enterprises.

Increasing sales potential obviously depends on investments made in agricultural enterprises. They may be financed from various sources: EU funds, bank loans and private savings. An interesting option is leasing. One of my interviewees confirmed that he used a wide range of financial instruments to finance the investments, whereas another one adopted a much more conservative approach relying only on direct area payments. The selection of the strategy will depend on many factors, including the sector of activity and the attractiveness of EU investment support as well as interest rates and the requirements of banks.

One of the interviewees indicated that he considers the development of sales of products from other farmers. This might be an interesting strategy, allowing farmers to find an alternative source of income from taking the role of a distributor.

Another interviewee is the manager of a producer group specialising in cereal production. The group consists of six members, including three from the same family: two brothers and their father. These three farmers alone have more than 300 hectares. Thanks to forming the producer group, their bargaining power on the market is much stronger.

3.2 Competitiveness

The competitiveness of Polish agriculture is determined to large extent by the ability of farms to increase the productivity of the production factors and the general efficiency of the system, but also by the conditions of accession into the European Union (Bryła 2002). The results of the accession negotiations were not fully satisfactory, for instance, regarding the transition periods, quantitative limits, reference yields and base periods used to calculate the direct payments (Bryła 2004).

As far as the competitive potential of Polish agriculture is concerned, a positive trend was observed in the last decade, but the scale of changes is relatively limited. Taking into account the excess employment, it was positive to lower the inputs of labours. A favourable tendency also concerns the rise of capital inputs, but in light of the urgent need to modernise Polish agriculture, only a moderate progress in the improvement of the competitive potential was noted. The competitive potential was reduced by a decline in agricultural area. The changes in available resources and production inputs was reflected in a different ratio between the production factors—a unit of labour was equipped with more land inputs (by 0.86 ha in 2010 compared to 2002), which was due to a lower decline of land than labour resources. The technical equipment of labour and land improved as well (Nosecka et al. 2011: 38–39).

Under the conditions of the European Single Market, it is worth comparing the production inputs in Polish agriculture with the whole European Union. Considerable inputs of land and labour are engaged in Polish agriculture (18% of all agricultural labour in the community, second only to Romania). The high labour input constitutes a significant potential, but only if used in the right way. Otherwise, it becomes a burden for the competitiveness of the sector. With an 8.5% share in the agricultural areas, Poland has only a 5.1% share in capital inputs in the EU-27 agriculture. In relation to the EU-27 average, an AWU (annual work unit) is equipped with land at the level of 46%, and 31% of the EU-15 average. The capital inputs per working unit are 3.5 times lower in Polish agriculture than the EU-27 average and more than six times lower than in EU-15. A lower technical equipment of a working unit was observed only in Bulgaria and Romania. These two ratios (showing the equipment of labour with the remaining production factors—land and capital) are an evidence of a weak competitive potential of Polish agriculture and determine low labour productivity in this sector of the economy. The ratio of capital to land inputs is also quite unfavourable (lower by 40% compared to EU-27, though a bit higher than the EU-12 average), which leads to a low intensity of production in Polish agriculture, and consequently, a low productivity of land. The extensive methods of farming are often not chosen by the managers of Polish agricultural enterprises, but rather imposed by capital shortages and/or low managerial

capabilities. This kind of extensiveness does not improve the competitiveness of Polish agriculture (Nosecka et al. 2011: 39–40).

The agricultural area of a farm continues to grow in Poland, which is a sign of an improvement in the competitiveness of the remaining enterprises. In the period 2002–2010, the agricultural area of farms having 30–50 ha increased by 14% and those of 50–100 ha by as much as 39.4%, although small farms still account for the majority of the agricultural area. In 2010, there were as many as 1505.7 thousand agricultural holdings in Poland, which accounted for 12.7% of all farms in the European Union (Nosecka et al. 2011: 48). The dispersed agrarian structure is one of the principal causes of low productivity of labour and capital. Therefore, further consolidation processes are necessary. The average size of the agricultural holding in Poland rose from 6.6 ha in 2003 to 9.6 ha in 2010, but it was still well below the EU-27 average, and much lower than in countries with comparable production conditions, for example, 55.8 ha in Germany (Nosecka et al. 2011: 52).

The productivity of labour in Polish agriculture amounted to only 30% of the EU-27 average and only 17.6% of the EU-15 average in 2010 (Nosecka et al. 2011: 53). It constitutes a threat to the competitiveness of the sector unless an extremely low remuneration of labour is provided. The good results observed in international trade of Polish food products were achieved partly due to a "social dumping" in agriculture and food processing, which is contrary to long-term development strategies and confirms the necessity of structural changes.

It seems that a greater importance should be attributed to the relative labour productivity in the agriculture of the Central and Eastern European Countries (CEECs) (measured as a ratio of the output value per person employed in agriculture to the value added per one employee in other sectors of the economy) than to the absolute figures. It turns out that the competitiveness of Polish agriculture measured in this way is lower than in the other new EU member states, and worse by half than in the EU-15. It is the result of the huge covert unemployment in the primary sector of Polish economy (Bryła 2012).

The share of Poland in global trade of agricultural and food products is growing. The exports increased from 9.4% in 2005 to 12.1% in 2013, and the share of imports rose from 5.8% in 2005 to 8% in 2013 (Central

Statistical Office of Poland 2015: 420). The increasing internationalisation of these sectors of the economy, reflected inter alia, in the growth of exports and imports, creates more opportunities for Polish producers, but at the same time increases the competitive pressures they must face, even if they decide to stay on the domestic market.

The essence of the Balassa revealed comparative advantage (RCA) index consists in determining whether the share of a given product group in the export of the country in question is higher or lower than the share of this product group in the world export to the specific market. When the index takes values greater than 1 (the share of the given product group in the export of the country in question is higher than the corresponding share in the world export), the country in question has revealed comparative advantages in the export to the specific market. In 2013, Poland belonged to the European Union countries with the highest RCA indices in the export of agri-food products to the world market. The share of those products in the total Polish export was more than 1.5 times higher than their share in the world export (RCA = 1.52) (Szczepaniak 2014: 36).

Poland had particularly strong comparative advantages in the export of products from certain food industries (Table 3.2). Among the EU countries, in 2013, Poland ranked second with regard to the RCA index value in the exports of products of the confectionery industry (after the Netherlands) and of the coffee and tea industry (after Luxembourg), as well as third in the export of products of the meat industry (after

Table 3.2 Selected RCA indices in Polish exports of food industry products

	RCA		Rank[a]
Food industries	2003	2013	2013
Tobacco	0.65	6.28	5
Confectionery	1.99	3.21	2
Meat	1.70	2.89	3
Coffee and tea	2.46	2.77	2
Bakery and pasta	1.65	2.45	3
Non-alcoholic beverages	2.59	2.45	4
Fruit and vegetable	3.60	2.26	6
Dairy	1.43	2.07	11
Food industry in total	1.30	1.85	7

[a]of Poland among the EU countries with regard to the RCA index value
Source: Adapted from Szczepaniak (2014: 38)

Denmark and Ireland) and of the bakery and pasta industry (after Italy and Bulgaria). In the export of products of the tobacco and non-alcoholic beverages industries, Poland was ranked fifth among the most competitive EU countries, although it had a very high RCA (Szczepaniak 2014: 37).

The Lafay index (LFI) is another frequently used index of competitiveness of foreign trade. It is based on the export and import of the given country, and in particular on the nature of the trade balance. The trade surplus of the given commodity group is identified with having competitive advantages in the export of commodities from this group, while the deficit is identified with the absence of such advantages. The index is interpreted as follows: if it is greater than 0, it means that the analysed country has the competitive advantage over foreign countries in the export of products belonging to this group. In 2013, the highest LFIs were observed in Polish trade in tobacco and tobacco products (3.48 in the trade of Poland with EU-28), meat or fish preparations (1.63), fruit and vegetable preparations (1.10), dairy products (0.94), fish and seafood (0.93) and meat and edible meat offal (0.81) (Szczepaniak 2014: 60–62).

Despite a decrease in price advantages and an undisputed increase in the importance of non-price sources of competitiveness, the price factor still remains a prominent determinant of the international competitiveness of the Polish food sector, which is confirmed by an analysis of the differentiation of food prices in the European Union. Without a clear improvement in the efficiency of using the competitive potential of the agri-food sector, enhancing innovation or increasing the concentration of production and agri-food processing, further strengthening of non-price competitive advantages in the EU market will not be possible any longer. A permanent increase in the production of food in Poland requires vigorous measures aimed at searching for new market outlets. The strategy of diversification of foreign markets seems an appropriate solution also due to significant fluctuations of the economic situation in external markets. However, it entails many problems related to, inter alia, distribution, transport and logistics as well as adaptation to different tastes and expectations of consumers (Szczepaniak 2014: 117).

There was a significant improvement in the financial performance of most of the basic sectors of the Polish food industry during the first

decade of the twenty-first century, which was related to EU accession. The greatest improvements were in the sugar, brewing, baking and fruit and vegetables sectors. In other industries, there were fluctuations between years, but generally the trend was positive (Szczepaniak et al. 2014).

A survey among 87 economic entities using agricultural land belonging to the Polish state treasury examined their opinions about the sources of their competitive advantage. The scale of answers ranged from 0 (completely unimportant) to 4 (very important). The results ranked by the arithmetic mean are presented here (Juchniewicz 2014):

- investment (3.20)
- technological progress (2.92)
- experience and managerial skills (2.89)
- production scale (2.84)
- low costs (2.77)
- building relationships with suppliers and customers (2.75)
- innovations (2.60)
- high qualifications of the management (2.36)
- efficient logistics (2.24)
- restructuring (2.21)
- consumer preferences (2.14)
- education system (1.95)
- brand (1.90)
- horizontal integration (1.76)
- vertical integration (1.57)
- organisation culture (0.05)

The interviewed manager of the cereal producer group emphasised the role of investments co-funded from the EU budget in raising its competiveness. He underlined that this is not an aid in one direction, but rather a mutually beneficial partnership, because the funds earmarked by the European Union for investments on Polish farms are spent on modern equipment produced in Western Europe, so it comes back to the principal donors. Moreover, he emphasised the importance of subsidising structural pensions for farmers who decide to retire. This enables the consolidation of land in the hands of the most dynamic and competitive producers. According to my interviewee, the funding should also promote

the consolidation of plots of current farmers, as the structure of arable land is often very unfavourable (many small plots, often far apart), which naturally raises costs of agricultural activities. He said that his family was able to gain a decent income only when they had 100 ha of land; that is why the consolidation processes are necessary.

3.3 Partnerships and Cooperation

We may distinguish various types of partnerships and cooperation in agricultural enterprises. Horizontal integration concerns the cooperation among farmers, especially in the framework of producer groups. Vertical integration deals with the cooperation of suppliers of raw materials with the processor or the cooperation of producers with distributors.

Integrated supply chains (marketing channels, value networks) are characterised by lower transaction costs, higher functional synergies and a reduction of costs of developing new products. The best results are observed in the so-called learning supply chains. They have the ability to notice changes in the market environment and make necessary adaptations. The value added is created by knowledge or intellectual capital, the accumulation of which is collective. Absorption of and sharing information are critical. The competition between enterprises for market shares is replaced with the competition of the whole supply chains for consumer expenditure on food. The process of offer diversification and quality improvement requires strengthening the integrative links of food-processing enterprises with the suppliers of agricultural raw materials. The time of information flow is reduced and loyal groups of suppliers emerge. There is a modernisation pressure on the producers of supplies. The role of marketing channel integrator is usually assumed by the food processor, which should inspire progress in production and distribution. It is difficult to lower costs and implement innovations and the marketing strategy without the integration. The integration of the marketing channel also constitutes one of the crucial elements of the process of building the export orientation of the food industry. It was confirmed that the Special Accession Programme for Agricultural and Rural Development (SAPARD) programme[1] had a positive impact on the

backward vertical marketing channel integration of the Polish agri-food sector and on quality improvements, as well as on the volume of production (Bryła 2007a, b). Moreover, SAPARD and next generation rural development programmes are much more in line with the concept of sustainable development than traditional Common Agricultural Policy (CAP) instruments, like price intervention and decoupled income payments (Bryła 2007c).

The legacy of communism contributes to the widespread reluctance of Polish farmers to engage in any kinds of horizontal cooperation. They are very individualistic, which in some cases may have a negative impact on their efficiency and competitiveness. The barriers to the creation of producer groups include lack of willingness to take common actions, lack of trust, even among neighbours, no leadership, too complex legal procedures, differences in the size of potential partners, passiveness of local authorities, lack of willingness to support, and so on.

Agricultural producer groups may be created by natural persons, legal persons and organisational units without the legal personality. Trust constitutes the main determinant of success of the producer group. According to the Polish law on producer groups from 2000, their aims comprise (Niewęgłowski 2011):

– common adaptation of production of agricultural goods to market conditions
– improvement in management efficiency
– planning production, in particular its quantity and quality
– supply concentration
– organisation of sales of agricultural products
– protection of the natural environment

The producer groups are created for a single product or a group of products. The willingness to create them results from the conviction that common action will improve the economic situation of farmers and enable them to (Niewęgłowski 2011):

1. better plan production and adapt it to the needs of customers, processors, distributors and exporters

2. offer larger quantities of homogeneous products and sell them together, which will limit the number of intermediaries and allow the group members to get higher prices
3. lower production costs, in particular by common purchases of production inputs, common use of specialised equipment, preparation of products for sale, organising distribution, improving access to information and exchanging experiences
4. invest together, joining their small equities to build storage facilities or buy modern technological lines, for example, for packaging
5. improve their market position, by strengthening their bargaining power in negotiating prices both in sales and in purchases

The benefits of joining a producer group for farmers include (Niewęgłowski 2011):

– the reduction of the number of intermediaries
– higher unit revenues of all members
– lower costs of purchasing production inputs
– better prices for homogeneous, good quality products delivered on time
– a single manager, allowing for lower costs and more time for the farmer
– common investments
– common preparation of appropriate production lots
– common promotion of products
– exchange of technological experiences
– exchange of market information
– higher chances for timely and certain payments
– flexibility of contracts
– market diversification (initiation of contacts with many customers, conquering new markets)
– negotiations on behalf of members
– common base prices

The mid-term evaluation of the Polish Rural Development Plan 2007–2013 showed that cooperation in agricultural producer groups (Krzyżanowska and Trajer 2011):

– enables members to supply production lots with quality parameters expected by buyers, which improves the chance of sales (91%)
– contributes to efficiency improvements through common purchases of production inputs (89%)
– facilitates their members to broaden their knowledge in the field of producer group activity (84%)
– enables preparation of the production lot according to the requirements of the buyer regarding the type and size of packaging (81%)
– enables members to supply larger production lots (80%)
– enables production planning in the group (80%)

The extent to which the aims were achieved was assessed with the use of a five-degree Likert scale in a sample of 110 producer group members. The highest level of fulfilment was observed for concentration of supplies, followed by common preparation of the product for the market, better planning and adjusting production to market requirements, better quality of production, and higher income of group members through cost reduction (Krzyżanowska and Trajer 2011).

According to Krzyżanowska and Trajer (2014), there were 1225 agricultural producer groups in Poland in 2013 (data for 5 November). We may observe a rising dynamics of setting up producer groups in Poland. The highest number of producer groups have been created in the Wielkopolskie region. The producer groups operate in 23 branches. They are most common among producers of cereals and oil plants (460), pigs (274), and poultry (244). Of the producer groups, 65% function as limited liability companies, 28% as cooperatives, 4% as unions and 3% as associations. The financial support for producer groups is granted from the Rural Development Programme funded by the European Union. It may reach 100 thousand euros in the first and second years of operation, 80 thousand in the third year, 60 thousand in the fourth year and 50 thousand in the fifth year. It also depends on the value of sales of the producer group. Until the end of 2012, 791 producer groups benefitted from the subsidies, out of 1006 that existed at that time.

The following factors affect success or failure of producer groups (Chlebicka 2011):

(A) Production:

- specialisation of production
- type of production

(B) Marketing:

- scope of functions performed by the producer group
- quality system
- long-term contracts
- cooperation with other producer groups

(C) Organisational:

- time of operating on the market
- number of producer group members
- similarity of member farms
- legal form of the producer group
- legal status
- membership contracts
- traceability of procedures
- manager's professionalism
- outside manager
- one member, one vote
- open membership

(D) Social:

- previous cooperation of members before setting up the group
- relationships between farmers
- member loyalty
- member age
- member education
- member professional experience

The likelihood of unpermitted sales outside the group is negatively affected by the price premium members get for their output and positively affected by the group size (Banaszak and Beckmann 2010).

The accession into the European Union enabled Polish farmers to take group action, for which financial support from the EU funds is available (Lemanowicz 2016). The large number of small producers, increasing expectations of the market, strong European competition and financial aid will undoubtedly continue to stimulate the process of forming producer groups in Poland (Guzdek and Petryk 2016).

According to one of my interviewees, making an investment may contribute to strengthening cooperation among farmers. He provided the example of a milk cooler he purchased a few years ago. Not only did it enable him to improve his competitiveness, but it also created his role as an integrator of a local network of farmers specialising in milk. Instead of worrying about the supplies to the dairy cooperative, they started to deliver their milk to my interviewee, who became an intermediary in their relationships with the processor. The EU accession brought about more stringent requirements regarding storage and transportation of milk, especially concerning temperature. Therefore, a combination of these two factors—changes in the legal environment and an appropriate investment—helped to establish cooperation among milk producers in the locality.

Another example of cooperation identified in my interviews concerns the vertical marketing channel integration. A pig producer receives help in decision-making from a processing company. As this firm also has a breeding facility, it provides expert advice to its supplier. The cereal producer cooperates with a feed mixing company, mills and distillery. The relationships with the processors are short-term; the interviewee changes the partners each year. Sometimes it is related to financial difficulties of the processing firm. Some problems arise if the cooperation with the processor is not direct but instead there is an intermediary. The interviewee gave an example of his attempt to start exporting the cereals. An intermediary that specialises in collecting the produce from many small firms in order to export it turned out to be dishonest.

The producer group whose manager I interviewed cooperates with a professional advisory company. The consultancy gets either a one-off remuneration or a percentage of the obtained funding.

3.4 Human Resources

The human capital is the sum of personal assets enabling to keep or improve one's market position in the economic system. Thus, it is a complex phenomenon. Apart from the traditional measures, such as general and professional education, additional variables may be taken into account, including age, gender, health, competencies in the field of information and communication technologies and the use of knowledge and information provided by specialised institutions (Wrzochalska 2014: 65).

The age of farmers may have a diverse impact on production and income in agriculture. On the one hand, being young is associated with better health and psychological wellbeing, which contributes to the development of agricultural activities. Older farmers often reduce their involvement in farming in favour of consumption or leisure. On the other hand, it is often underlined that older farmers possess professional experience, especially farm-specific human capital. We may expect that the technical progress in agriculture and an improvement in the health situation of the population will reduce the negative influence of aging on farm management (Wrzochalska 2014: 65).

In spite of population aging in Poland, the structure of farmers by age is more favourable than the EU-27 average. The share of farmers younger than 35 years old is 12.7% compared to 6.1% in the EU-27, and the share of the oldest group—farmers being 65 years old and more is 10.4%, whereas in the European Union, it is as much as over one third (34.1%) (Wrzochalska 2014: 49). However, we may observe some dangerous trends in this regard in Poland. The study of the Institute of Agricultural Economics in Warsaw shows that the share of young farm managers declined from 23.1% in 1992 to 12.8% in 2011, whereas the share of those in the productive immobile age (45–64 years for men and 45–64 years for women) increased from 40.2% to 51.8% (Wrzochalska 2014: 50). It may lead to a very bad situation in the forthcoming years unless Polish farming manages to attract more young people and the replacement of generations is supported by public policies for agriculture. In 2013, 25.8% of farm managers in Poland were up to 40 years old (Central Statistical Office of Poland 2014: 140).

The highest share of farm managers in the post-productive age was observed in the smallest farms (20.3% in farms of 1–2 ha and 16.3% in farms of 2–5 ha, compared to 3.2% in farms of 30–50 ha and 1.9% in those of 50 ha and more). Within the productive age, a more favourable structure was also observed in the biggest farms with 45.1% of farms having 50 ha and more being managed by people in the mobile age (18–44 years) compared to 31.9% in the 2–5 ha interval (Wrzochalska 2014: 52). These data confirm that the necessary processes of land consolidation are accompanied by generational changes. A segment of highly competitive large farms managed by relatively young people emerges in the Polish countryside.

There is a significant relationship between the demographic characteristics of farmers and the economic potential and condition of their farms. In the farms not producing for the market, farmers up to 35 years old constitute 9.7% compared to 13.9% in those marketing their production, while the share of the oldest farm managers is 21.8% and 8.7% respectively. In the subcategory of farms selling agricultural output for more than 100 thousand zlotys (approximately 25 thousand euros) per year, the share of youngest farmers (up to 35 years old) was 14.7%, and the share of the oldest (in the post-productive age)—only 5.0% (Wrzochalska 2014: 53).

Regarding tenure, Polish farm managers are characterised by very long periods of holding the same position. Of 1,425,386 farms, as many as 567,806 are managed by people with a tenure of 21 years or more, and 458,831 by those with 11–20 years of tenure. Of total farms, 240,293 are run by farmers with 6–10 years of experience in the same position, 14,298 by those having 2–5 years of tenure, and only 17,958 by new managers (up to 1 year of tenure) (Central Statistical Office of Poland 2014: 192). On the one hand, having experience in managing one's farm is not a bad thing, as it allows to accomplish certain economies of experience, have a network of partners and accumulated knowledge in the field. Nevertheless, being stuck in the same position for a very long time may have adverse consequences as well, for example, lower flexibility and willingness to seize emerging market opportunities. A balance needs to be struck. The data shown indicate that there is too little "fresh blood" in managing Polish agricultural enterprises, especially family farms.

Women continue to have a relatively low share in the population of farm managers in Poland (23%). In spite of cultural changes and the blurring of the division into male and female jobs, the function of agricultural holding manager continues to be ascribed to men. Those women that are involved in management usually work in small farms due to the paid job of their husband, his illness or simply his lack in the family (Wrzochalska 2014: 51).

The quality of human resources depends, inter alia, on the level of formal education. In Poland, it is much lower among the inhabitants of rural areas compared to the inhabitants of urban areas—in 2012 only 9.9% of rural inhabitants had tertiary education compared to 21.4% of urban inhabitants. As far as secondary education is concerned, it was reported by 25.5% of rural inhabitants compared to 35.3% of urban inhabitants. Women living in the rural areas tend to be better educated than men (12.1% have university education compared to 7.7% of men) (Wrzochalska 2014: 33–34).

Among farm managers, the level of education increased over the last two decades, but the share of those with higher education is still rather low. In 2011 it was 6.9% compared to 1.5% in 1992. Having secondary education was reported by 27.5% of Polish farmers compared to 12.8% two decades before. These changes are positive because education level affects the speed and effects of implementation of technical and technological innovations in agriculture and correlates with being equipped in production means. The positive changes took place especially in market-oriented farms, which tend to be relatively bigger (Wrzochalska 2014: 56).

The educational profile is also important in the assessment of the preparation of farm managers; 24.1% of farm managers said they had graduated from an agricultural school, and 16.9% had completed a course related to agriculture. Unfortunately, from 1992 to 2011, the share of farm managers without any formal qualifications in this area increased from 50% to 59%. It is connected with the liberalisation of formal requirements of professional preparation to conduct agricultural activities among those who buy agricultural property or inherit it. The legal environment provides an incentive to acquire agricultural education by those whose farms are large, market oriented and have a considerable

production potential. Among the managers of farms producing at least 100 thousand zlotys of output, 51% completed agricultural schools and a further 19% finished courses in this field, whereas among those who sold agricultural output for less than 10 thousand zlotys (per year), it was 17% and 15% respectively. The acquisition of formal education in agriculture is often connected with the intention to expand one's farm and to improve the competitive position of the agricultural enterprise. At the same time, the improvement in non-agricultural education reflects the perspectives of employment outside agriculture, but also changing requirements for competencies within the agricultural sector. The conventional preparation for the farmer's job may no longer be sufficient (Wrzochalska 2014: 57–62). In both 2002 and 2010, less than 50% of Polish farm managers had completed some form of formal training in agriculture, but the educational status of farm managers varied significantly across Polish regions. The educational attainment of farm managers was also positively correlated with the absorption rate of EU funds (Gwiazdzinska-Goraj and Rudnicki 2016). The low educational attainment of Polish farmers is an important reason for their inefficient management practices (Latruffe 2005). The scale of reproduction processes of fixed assets excluding land in Polish agricultural holdings depends on the level of education of the farm manager (Grzelak 2016).

It is estimated that 11.3% of rural inhabitants speak a foreign language, and 2.4% speak two languages. English is the best known foreign language among inhabitants of the Polish rural areas (7.9%), followed by German (2.0%) (Wrzochalska 2014: 44).

It is estimated that more than 60% of those who leave agricultural families migrate due to a liquidation of their farm, and only one-quarter migrate because of family reasons (Wrzochalska 2014: 20). Very common also are international economic migrations among rural inhabitants. The most frequent destination countries are Germany (28.9%), the United Kingdom (19.4%), the Netherlands (11.9%) and Ireland (6.5%). The average time spent abroad amounted to 15 months. Seasonal work was very important in Germany (Wrzochalska 2014: 30–31).

We may observe a trend of the growing importance of non-agricultural activities among Polish farmers. More than one-third of the respondents combine managing their farm with being involved in non-agricultural

(economic) activities. Naturally, this share is the highest among the managers of the smallest farms (49.4% for those having 1–2 ha, 44.2% among managers of farms having 2–5 ha, compared to 15.9% among farmers having 30–50 ha and 18.9% of managers of the biggest farms with more than 50 ha) (Wrzochalska 2014: 85). The same applies to the correlation of this involvement in non-agricultural activities with the market value of agricultural output. Among those that produce more than 100 thousand zlotys of agricultural goods, 90.8% are employed on the farm full time compared to 53% of farmers producing less than 10 thousand zlotys per year (Wrzochalska 2014: 89).

According to Wicka (2012), Polish agriculture is still characterised by significant farm fragmentation and high employment in agriculture, which hinders accumulation of capital and investment. The agricultural model of the highly developed states in the European Union does not seem achievable in Poland sooner than 30 years from now. A survey among 943 Polish farmers demonstrated that as many as 78.9% received at least a part of their farmland from their parents or parents-in-law, and almost the same share (73.5%) would like to pass their farm to children or grandchildren (Marks-Bielska 2014). Another study, however, indicates that the traditional model of family succession in Polish farms may become less relevant, as only 22% of farmers are planning to transfer their farm to the next generation (Czekaj 2016).

The managerial positions are usually held by owners, which is related to the structure of Polish agriculture, dominated by small, family firms.

According to my interviewees, key managerial competencies in farms are related to experience rather than formal education. They learned their job working for their parents on the farm. Unfortunately, this practice of passing the know-how from one generation to another seems interrupted in an increasing number of cases. It is more and more common that Polish farmers do not have successors. I observed this phenomenon among my interviewees as well. They are aging, but their children have decided to choose university education not related to agriculture and to migrate to urban areas. On the other hand, this process may accelerate the necessary consolidation of land in the hands of fewer, more competitive agricultural enterprises.

My interviewees emphasised the need to be very versatile. One of them said that at the same time he must be a CEO, an accountant and even a doctor. Another one described himself as having some competencies of a biologist, physicist and economist. It is also key to be passionate about farming and to be hard working. A successful manager of an agricultural enterprise is expected to have good interpersonal skills, which are necessary in the negotiations with intermediaries, transport companies and financial institutions. It is also important to be good at predicting prices, purchasing supplies, warehousing and selling products. It is also crucial to have competence in acquiring EU funds. Apart from learning from one's parents, there is also the exchange of information among friends. Another important source of advice and even training are commercial partners, such as dairy cooperatives or providers of feeds, as well as the state advisory services (ODR). Only the manager of the producer group confirmed the use of professional advisory services of a private institution on commercial terms (especially during the preparation of applications for investment aids from the EU funds). Therefore, a certain threshold has to be attained for an agricultural enterprise to be interested in these kind of services. The smallest firms cope otherwise.

Some of my interviewees pointed out they get the necessary knowledge and information to manage their enterprises from specialised press and literature as well as TV programmes for farmers.

Those interviewees who employ workers indicated that they expect the following competencies and skills from them: knowledge and skills related to agriculture, agro-technological operations and animal breeding, as well as industriousness. The manager of the producer group emphasised the importance of reliability, obedience, and honesty ("they should not steal anything"). He prefers employees with only lower vocational education (lower than secondary education) who originate from farmer families. There is a high rate of staff turnover, unless they are family members of the owner. The candidates are motivated by good wages, but also modern equipment. They usually come from the neighbourhood. No professional employment agency is used by my interviewees. The management positions are taken by the owners of the largest plots in the producer group or of a given agricultural holding.

3.5 Risk Management

Risk factors concern phenomena that may occur with a certain probability and may affect negatively the activity of an economic entity. The sources of risk factors should be analysed in the broadest meaning. The main risk factors include (Wawrzynowicz et al. 2012):

1. macroeconomic factors
2. microeconomic factors
3. intermediate economic factors

The macroeconomic factors are related to the economic situation of the country and international relations. They include, inter alia, the state of the economy, inflation level, monetary policy, fiscal policy, legislation, trade policy, and so on.

The microeconomic factors refer to enterprises. Internal and external risk factors related to the activities of economic entities are often distinguished.

The third group of risk factors concerns a particular industry, both inside and in its environment.

In another classification of risk factors, the following types are distinguished (Wawrzynowicz et al. 2012):

1. systematic (external) – they are determined by external forces out of the control of a given entity, they cannot be eliminated by an enterprise; they include interest rate fluctuations, inflation, changes in taxation rules, the political and economic situation and natural conditions.
2. specific (non-systematic, internal) – concerning the field of activity of a given entity and controllable by this entity (future events that may be controlled at least partially); they include management methods, competition, availability of resources, financial liquidity and danger of bankruptcy.

The risk factors in enterprises may also be classified as follows (Wawrzynowicz et al. 2012):

1. trade risks – credit risk, risk of losing financial liquidity
2. market risks – due to exchange rate and interest rate fluctuations
3. social risks – related to culture, religion, system, convictions, interests of social groups
4. risk of natural disasters – flood, earthquake
5. political risks – related to state interventionism in the economy, changes in the legal environment
6. economic risks – changes in the economic policy, fiscal law, currency rules

The study of Wawrzynowicz et al. (2012) among Polish farmers led to the formulation of the following list of risk factors in agricultural enterprises:

1. market, legal and political risks – legal risk (changes in fiscal law, farm law, etc.), market risk (changes in demand, changes of prices of products and production inputs), risk of an increase of land lease costs, financial risk (interest rated, exchange rates), political risk, regulatory risk (changes in regulation of agricultural markets), competition risk (external competition, imports), supplier risk (lack of reliability, not respecting delivery deadlines), buyer risk (lack of reliability, bankruptcy), outlet risk (contracts, stable partners), risk of reduction of subsidies
2. environmental risks – fire (field and infrastructure), flood, wind, hurricane, hail, acid rains, earthquake, drought, frost, ice, environmental pollution (including plant protection chemicals, slurry)
3. breaks and stoppages – lack of production inputs (fertilisers, fuel, etc.), lack of transportation means and production equipment, breakdown of machines and equipment, lack of electricity, gas, oil, water shortages (irrigation, animal production)
4. human resources – work accidents, occupational diseases, internal thefts (workers), external thefts, deceit, lack of availability of labour (especially during harvest)
5. animal production – death, disease, cannibalism among animals
6. plant production – destruction of crops by wild animals, losses in storage, plant diseases, pests

Risk management in agricultural enterprises constitutes one of the principal determinants of profitability in this sector. The awareness and control of risk factors in agricultural enterprises is crucial due to the multiplicity of threats related to the specificity of the production process and a unique impact of the natural environment. It is necessary to adopt a holistic approach to the definition of risk factors in agricultural enterprises. Agriculture is characterised by the relative weakness of producers and higher unpredictability than other sectors of the economy. Moreover, in agriculture it is often difficult to take corrective measures once a decision is made, which stems from the long cycles of production (in some types of production, e.g., cattle, it may be 1.5–2.5 years). The fundamental source of uncertainty and systematic risk in agriculture is the dependence of production size on climatic and biological conditions, which are outside the control of the agricultural manager. Investments are made in the production direction that is profitable at the moment, but they may not guarantee the expected level of profit at the moment of product sale (Wawrzynowicz et al. 2012).

Four types of risk are considered the most important in Polish agriculture (Wawrzynowicz et al. 2012; Jerzak 2008; own interviews):

1. Natural risk – strongly connected with the character of agricultural production. The unpredictability of production volume, its costs and losses stem from changeable climatic and biological conditions, soil conditions, diseases of plants and animals, pests, drought, excess rain, production seasonality, spatial distribution, and so on. The natural risk may be reflected in insufficient supply (scarcity) or oversupply (the so-called disaster of abundance). The interviews conducted for the purpose of this book confirmed the importance of natural risks. Poor weather affects not only crop production, but also farmers who specialise in animal production. They often obtain at least a part of the necessary feeds from the land they possess in addition to the main activity of milk or meat production. In Poland, certain types of farm insurance are compulsory—insurance of farm buildings (1.9 million contracts in 2013) and third-party liability insurance of farmers (1.5 million contracts). However, insuring one's crops and animals is voluntary, and the number of such insurance contracts is very low (45

thousand for crops and 8 thousand for breeding animals) (Central Statistical Office of Poland 2015: 246), which indicates a low propensity of Polish farmers to take preventive measures before a disaster happens. It may be related to high prices of voluntary insurance and farmers' conviction that in case of a natural disaster, the state should take care of them.

2. Economic risk – strongly connected with the impact of the environment. The profitability of farming is affected by prices of agricultural products and inputs, price relations, agricultural policy, income structure, consumption structure, productivity, property rights, financial system, and so on. The market risk, referring to changes in the external economic conditions of production, is very important within the category of economic risk. It may result from a loss of market outlets and consequent oversupply and fall of prices. Another key problem may be difficulty finding a partner to conclude a transaction at the right moment. The partner may also withdraw from the contract or fail to respect its conditions, especially the level and time of payments. However, the most prevalent risk related to price is volatility. It is virtually impossible to predict future movements of prices. The economic risk may be closely connected with the political environment, for example, the Russian embargo imposed on Polish agricultural products.
3. Technological risk – failing to embrace technological progress or choosing wrong solutions may seriously reduce farm profitability. The use of new plant varieties, animal breeds, feeding and production technologies is very important. Our interviews showed that in Poland the suppliers of agricultural inputs often play a positive role in disseminating technological progress and thus reducing this kind of risk. Moreover, a bold decision of the farm manager may not only minimise this risk but also create a source of competitive advantage. One of the farmers I talked to emphasised that his success stems from his decision to purchase a milk cooler, which enabled him to stay within the increasingly demanding sector of milk production. The requirements imposed by the European Union encouraged him to take this investment decision, which turned out to be very profitable.

4. Organisational risk – related to planning, controlling and organising agricultural production, working time and relationships with the environment. The farmers I interviewed underlined the importance of their experience and family traditions in minimising this risk. However, relying only on the past routines may turn out to be misleading in the rapidly changing conditions. Health and safety risks are also important. In 2013, there were 15,806 people injured in accidents at work on private farms in Poland. The most frequent causes were persons falling (8281), persons caught or hit by moving parts of machinery and equipment (1863), persons hit, crushed or bitten by animals (1807), and persons hit or crushed by falling objects (1266) (Central Statistical Office of Poland 2015: 154).

In Poland, risk management in agriculture is a relatively new and unknown issue with few examples of implementation. It is common that investments in land, production inputs and equipment exceed current financial abilities of farmers, leading to the necessity to take bank loans. The repayment of credits depends on the price obtained for agricultural outputs. If it is too low, the farmer may fail to repay his debts and lose everything. It is therefore very important to stabilise agricultural income through an active risk management. It is also recommended to assess the level of risk at the moment of deciding about production structure and the related inputs. Taking actions to reduce risk and minimise losses characterises a pro-active attitude, which requires the competence in risk identification and assessment and the awareness of methods to prevent risks. The risk may be limited by getting to know laws governing natural phenomena and economic processes, improvements in production and organisation and taking risk into account in production planning. These are actions within the preventive direction of risk reduction (Jerzak 2008).

Economic entities may also try to control risk with the use of various methods (Jerzak 2008). We may distinguish physical and financial methods. The physical control in agribusiness consists in taking measures to reduce losses resulting from the effects of a risky situation. The physical control of risk includes:

– vertical integration enabling to get to know better the stages of the production process; the risk is divided among various entities of the integration channel (unfortunately, approximately 85% of Polish farms have no integrative relationship with the processing industry)
– risk compensation, by choosing production directions with opposite, mutually equalising market trends
– concluding agreements to reduce risk in supplies, distribution, prices, timing and quantities
– multiple types of production, also called differentiation or diversification of production directions

The financial control of risk may concern independent risk management by a firm or transferring the risk to another entity. This type of risk management consists in:

– blocking risk and covering potential losses by financial flows, sale of assets, special funds and loans
– risk transfer, by moving the responsibility from an entity suffering losses toward another entity; it may be achieved by transferring the activity that generates losses or transferring the commitment to cover potential losses, which is done in stock exchange transactions and insurance

According to Wicka and Milewska (2011), the obligation to insure together various risks including those not occurring in the region is not conducive to active risk management by insurance among Polish farmers.

One of my interviewees claims that one of the sources of risk is growing imports from Germany. With the processes of European integration and trade liberalisation, Polish farmers are more vulnerable to competitive pressures from abroad. The risk grows if their partners are oriented at trade rather than processing.

My interviewees underlined the risk related to falling and unstable prices and wrong investments as well as weather conditions. Even if a farmer specialises in milk production, he is strongly dependent on weather, because he often produces feeds for his own use. Regarding investments, they should be adjusted to anticipated changes in demand.

Risks are also related to changes in the agricultural policy. For instance, if the quantitative limits of production (like milk quotas) are eliminated, there is more uncertainty on the market. The costs of fuel also may be an important source of risk. Being cautious in taking bank loans reduces risk.

In animal production, the level of risk is particularly strongly linked to production cycles. According to one of my interviewees, it is impossible to wait once the pigs have grown. It is necessary to sell them in a relatively short period of time, which aggravates the risks. There is also a risk that the costs incurred for insemination will be lost if it is not effective.

Risk also concerns dishonest customers. A processing company, which is situated close to my interviewee, offered a price much lower than previously agreed. Therefore, the farmer had to search for another customer. The manager of the cereal producer group indicated the risk of unreliable business partners. They may lose financial liquidity or simply refuse to pay on the pretext of lower quality. In particular, he mentioned that his producer group finds it difficult to export cereals, as its relatively small scale makes it a tiny player on the market. The intermediaries use the pretext that his produce is affected by a disease (cereal weevil), even if it is not true. The most effective method to defend oneself against unreliable customers is word of mouth. Positive opinions about potential partners are spread among potential suppliers. The trust is based on the positive recommendations of colleagues, but it takes time to build such a successful brand in the relation with suppliers.

My interviewees have a very reactive, passive approach to risk management. They believe they have no influence on the level of risk. They did not mention taking insurance. In case of a disaster, they expect the public authorities to help them.

In the course of adapting to the changing reality, Polish farmers creatively use customary ways of thinking and acting in the various decisions they have to make while running the farm. However, changes of the mechanisms of decision-making seem to be rather slow (Krzyworzeka 2013).

Notes

1. A predecessor of current EU structural funds for Polish agricultural and food-processing enterprises.

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4

Good Practices and Unresolved Problems in Polish Agricultural Enterprises

Paweł Bryła

4.1 Good Practices

As mentioned, Polish agriculture is characterised by an unfavourable agrarian structure. It should be emphasised, however, that the economic success of a given farm is not unequivocally determined by its size. Some experts claim that it is the quality of labour that is decisive. Nevertheless, the production units should adapt their strategy to their area conditions. Smaller farms should adopt a strategy of differentiation, the example of which may be the production of local specialty articles, organic agriculture or agro-tourism. The main condition of success of such a strategy is the right recognition of market niches and placing there one's product, for which a minimum of marketing knowledge and a well-developed system of agricultural counselling are indispensable. Bigger agricultural holdings may also use strategies aiming at reducing unit costs. It is estimated that under Polish conditions, it applies to about 15–20% of farms, which are capable of exploiting the economies of scale (Bryła 2012b),

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Kulawik and Wieliczko (2012) identified four types of competitive advantage for agricultural enterprises:

1. based on productivity and efficiency – it combines cost leadership and marketing differentiation
2. based on innovativeness and entrepreneurship – company resources and capabilities should result in core competencies; they should be valuable, scarce, irreplaceable, inimitable and used in an efficient way; knowledge is a valuable asset of an organisation; entrepreneurship is characterised by creativity, ability to identify and exploit opportunities, risk taking, being ambitious and hard-working; the entrepreneur creates and implements broadly understood innovations
3. appealing to the Corporate Social Responsibility (CSR) – a return to traditional values expressed in the balance of economic, social and ecological dimensions
4. based on the concept of Creating Shared Value (CSV) – finding an equilibrium between company goals and society expectations; the firm must be embedded locally; social needs, benefits and costs should be taken into account in economic activities; efficiency and productivity in the value chain should be redefined, taking advantage of various synergies, reducing energy consumption, making use of outsourcing, caring for local suppliers and developing micro-financing; promoting local clusters and cooperation among competitors because it stimulates productivity and innovations; fighting poverty creates demand and prevents the degradation of the environment; there is a principle of positive feedback—by reinforcing the cluster, local demand is bolstered and the value chain is concentrated spatially

The success of co-opetition (co-operation combined with competition) depends on:

(a) creating fair and balanced cooperation and rivalry, based on mutual trust
(b) a lack of appropriate and sufficient own or controlled resources to fulfil new needs of clients

(c) having the abilities of knowledge absorption and transfer
(d) identifying common goals
(e) a precise division of authority, duties, responsibilities and control powers
(f) an accurate preparation of the list of expected benefits
(g) adequate identification of the character and dynamics of market competition

For the success of Polish agricultural enterprises, it is important that a group of competent leaders emerges. A good leader has the following abilities (Kania 2008):

– precise analysis of the situation
– proposition of ways to achieve objectives
– division of tasks in such a way that the accomplishment of objectives is the merit of all members of the group
– coordination of the group activities
– being a genuine leader
– setting goals and objectives
– representing the group outside
– arbitration and mediation
– controlling intragroup relations
– appreciating accomplishments and drawing attention to mistakes

Generally, the uptake of EU funding may be considered a good practice. In a study of Special Accesssion Programme for Agriculture and Rural Developmen (SAPARD) applicants, three strategies of the use of investment support were observed (Bryła 2009a):

1. adaptation of farms to sanitary, veterinary and environmental standards – these types of farmers usually expected to increase the volume of production, reduce costs and improve work organisation; this strategy was common among milk and livestock producers
2. implementation of product innovations – the most entrepreneurial, educated farmers, expecting a significant rise in profitability and employment

3. implementation of process innovations – farmers with agricultural profile of education; reduction of costs and losses in harvesting and storing agricultural goods; common in large-scale farms.

It is worth noting that certain effects of investment support for agricultural enterprises may be either final or intermediary depending on the type of the given investment proposal (Bryła 2012b).

Undoubtedly, the use of farm advisory services may be considered as a good practice in agriculture. In 2013, 358, 392 Polish farmers used the support of trained advisors. The most often chosen area of advisory services was plant protection (263, 087), followed by how to apply to get support from the Rural Development Plan (147, 050), and fertilisation (142, 025). Further ranks were occupied by pieces of advice in rearing and breeding of livestock (70, 274), legal issues (43, 711) and introduction of food safety control systems (40, 473) (Central Statistical Office of Poland 2015: 122). Only every fourth Polish farmer took advantage of the support of qualified counsellors. This share increased with the size of the agricultural holding. It exceeded 50% in farms having at least 20 hectares (Central Statistical Office of Poland 2014: 70).

The use of information and communication technologies (ICTs) in agriculture is another example of a good practice. The so-called e-agriculture is an emerging field at the intersection of agricultural informatics, rural development and entrepreneurship, referring to agricultural services, technology dissemination and information delivered or enhanced through the Internet and related technologies. More specifically, it involves the conceptualisation, design, development, evaluation and application of new (innovative) ways to use the existing or emerging ICTs. It relates to improved information exchange and communication for the benefit of rural communities, farm households and the rural service providers involved in the provision of agricultural, financial and communication services. ICTs should be used by farm-advisory services (Marciniak and Ogonowski 2010).

A survey among food-processing enterprises located in Poland (Bryła 2012c) showed a systematic growth of export orientation in the study sample after joining the European Union. The representatives of the industry usually pointed out either a positive or neutral country-of-origin

effect. The crucial sources of competitive advantage differed according to the target market. The importance of quality guarantees and successful branding was much higher in exports, whereas taste and price played a relatively greater role on the domestic market. A growing prevalence of the strategy of backward contractual market channel integration was observed. The findings confirmed the growing attractiveness of internationalisation strategies among Polish food processors after EU accession.

We may consider the development of organic farming as another example of a good practice in Polish agriculture. We may observe a spectacular growth in the number of organic farms in Poland. In 2005, there were only 1463 certified organic farms and 5719 under conversion, while in 2013 there were 19,872 and 6726, respectively. The agricultural area in Polish certified organic farms increased from 38,673 ha in 2005 to 492,972 ha in 2013 (Central Statistical Office of Poland 2015: 136). The structural changes in organic farms are more intensive than in all individual holdings in Poland due to a significant increase in the population of farms characterised by a larger utilised agricultural area and a simplified structure of production. These farms were also managed by farmers with a higher level of education (Wrzaszcz and Zegar 2014). The existence of a strong, integrated organic farming sector results in not only the improvement of economic welfare of organic farmers, but also of whole local communities, strengthening the bonds amongst them and mobilising social resources (Śpiewak 2016). The Polish accession into the European Union resulted in the emergence of new instruments supporting the development of sustainable agriculture and rural areas. Organic production methods in agriculture fit the concept of sustainable development, which implies a coherence between economic, environmental and social objectives (Bryła 2015b; Czapiewska 2016).

We observe an increasing importance of certain product types in food marketing, including organic products. In order to analyse the marketing strategies of offering organic food, Bryła (2013a) conducted an Internet survey among 282 entities, which had obtained the status of organic food processor awarded by the Polish Ministry of Agriculture and Rural Development. According to the respondents, acquiring the status of organic food producer had a very positive (39%) or moderately positive (46%) impact on the development of their organisation. Multiple

parameters of their enterprises improved, including an increase in the number of customers, output and net profit as well as marketing outlays, which led to more intense and/or sophisticated marketing actions. Of the survey participants, 86% indicated a positive influence in the field of market image of their firm, almost three-quarters confirmed entering new distribution channels, and two-thirds mentioned that this status enabled them to implement a policy of premium pricing. The representatives of organic food processors believe that their competitive advantage depends on the following factors to the largest extent: healthiness, brand, reputation and taste. Additional determinants include safety concerns, ecological character of the product and quality guarantee confirmed by a sign or certificate (more than 70% of answers in the category "very important"). The altruistic motive of supporting local producers was less pronounced. The principal distribution channels of organic food include specialised shops and large distribution networks. Direct sales has a lower significance. We asked our respondents to assess the importance of selected barriers to the development of the organic food market in Poland. They indicated too high prices as the main constraint. This factor is dependent on the processor only to a certain extent, as it is also shaped by suppliers and distributors. We should also bear in mind that the Polish society is relatively less well off than in most EU member states. The second most important barrier was low visibility of organic food in points of sale (weak merchandising), followed by low accessibility (shortage of specialised shops and poor availability in conventional food stores) as well as insufficient intensity of marketing activities. We observe a distinctive trend concerning the increasing role of export markets for Polish organic food. European Union markets are particularly attractive for Polish organic food producers. The internationalisation process requires adopting more advanced marketing strategies.

The development of the organic food market in Poland depends, inter alia, on the structure of distribution channels, level of prices, growth in the income of the society and its ecological awareness. Specialist shops with organic food have a large market share, but they face multiple difficulties such as unfavourable location, low share of certified products in sales and high prices due to gross margins. The margins are high in Poland (even exceeding 100%) because of low supplies, high costs of distribution and a large share of imported goods. Sales in supermarkets also constitutes a serious challenge for the industry, as big distribution chains require

a considerable amount of homogeneous products, supplied on time according to the schedule and supported by professional promotion activities. Poland ranks high, at the fifth position on the European continent in terms of the area of organic crops, and even higher (fourth) regarding the number of organic food producers. However, the national market value, the share of organic products in the food market and sales of organic food per capita continue to be relatively low (Bryła 2015b). The critical barrier to the development of the organic food market in Poland is the high price, followed by an insufficient consumer awareness, low availability of organic products, short expiry dates and low visibility in the point of purchase (Bryła 2016a). An interesting strategy in organic food retailing is cross-channel distribution, taking advantage of the synergy and complementarity of e-commerce and physical shops (Bryła 2016b). According to Bryła (2017), there is a relationship between the frequency of origin and organic food purchase and the role attributed to quality signs. He also found a strong correlation between the perception of European quality signs and the attitude toward origin and organic food as well as the self-reported willingness to pay a higher price for such products compared to conventional food.

Appealing to tradition and area of origin constitutes another interesting strategic option for some agricultural enterprises in Poland (Domański and Bryła 2013; Bryła 2013c, 2015a). The frequency of the use of tradition in marketing is growing. Appealing to tradition reflects the need to have reference points, trust and stability. It is possible to copy all aspects of a food product, but it is impossible to change its history. The brands of regional food products are built on tradition, encompassing habits of manufacturing and consumption, and they are based on the localisation of production processes and the origin of raw materials. However, market success will occur only if the factor of tradition and localisation is highlighted by working out a high level of perceived authenticity of the shared brand (Bryła 2010b, 2014a, 2015c). The perceived authenticity of a product is strongly connected with its origin, which is expressed by the factors of time (history), place (area), socialisation (local community) and naturalness (raw materials). Bryła (2013b) carried out a survey among producers of items registered on the List of Traditional Products, managed by the Polish Ministry of Agriculture and Rural Development. He obtained 88 responses from all over Poland. Three-quarters of the study subjects

claimed that getting registered on this list caused an improvement of their organisation image. According to the respondents, the perceived authenticity of traditional products depends to the largest extent on such factors as consumer knowledge, the look of the product and its name. In the opinion of producers, the most important determinants of competitive advantage in offering traditional products include taste, product uniqueness, traditional recipe, brand and reputation, healthiness and smell.

A survey in a representative sample of Polish consumers investigated the attitudes toward origin food. Bryła (2015b) asked the respondents to indicate the five most important factors that determine the choice of origin food in a catalogue of 26 options, including a possibility to provide one's own determinant. The respondents attributed the highest importance to the traditional recipe of origin food, whereas their identification with the area of origin ranked only fifth. The second rank was taken by taste, followed by product uniqueness. As far as the evaluation of authenticity of origin food is concerned, the Polish consumers attributed the highest importance to sensory values of origin products (natural taste). Taste was followed by product quality. More than one-quarter of the study subjects drew attention to the location of the point of sale in the product area of origin and to labelling. Therefore, marketing strategies of origin food producers should focus on emphasising specific taste of their products as well as their high quality.

Another kind of good practice is cooperation. As an example, let us mention a producer group called Zagroda Podlaska. It was the first group of milk producers registered in the Siedlecki county in Poland. It was created by 14 farmers in 2008. The establishment of the group was triggered by a training organised by the farm advisory service (ODR) about the stages of formation of such groups and the financial support that can be obtained. The farmers were made aware about the improvement of their power if they join the group and the potential benefits for their enterprises. All the same, the beginning was not easy. Some milk cooperatives treated farmers belonging to a producer group as a potential threat and were suspicious about their illicit intentions. The difficulties to start a cooperation with a milk cooperative pushed the farmers to look for an alternative solution. They approached a limited liability company called Laktopol instead. Although this processor was looking for new suppliers

at the time, potential candidates were subject to very strict control of their personal data, farms and animals. Thanks to a good quality of the raw material, the producer group gained a business customer that offered a very good price. Another strength of the farmers belonging to this group was their geographical proximity to the partner processor as well as their concentration in one place. The good price led to the conclusion that milk quality was crucial. Therefore, some members of the producer group had to get rid of the worst cows, which led to production decline. However, soon the volume of production started to grow again and the net revenue increased even faster. The subsidies for the producer group amounted to 300 thousand zlotys in the period 2008–2010. Divided by the number of farmers, it was 14 thousand for each, which constituted the most obvious benefit of joining the producer group. In order to ensure the consistent high quality of milk, the group conducts regular controls of member farms at the cost of the producer group. Thanks to these inspections, farmers get important information about possible modifications of their production strategy and the ways to increase the productivity per cow. The common activities are not confined to production and sales, as the member farmers decided to purchase together fertilisers and feeds. With the higher volume of purchases, they manage to get 8–10% reductions. Furthermore, the producer group starts common investments and the members help one another, for example, by providing specialised equipment. The number of farmers belonging to the group increased to 21, and there are plans to extend its operation to neighbouring areas (Niewęgłowski 2011).

Cooperation in agricultural producer groups enables them to seize the following opportunities (Kania 2008):

- better conditions of sales, including higher prices
- lower costs of distribution of goods
- possibility to purchase production inputs at better conditions granted to wholesale buyers
- favourable long-term contracts with customers, more certainty
- possibility to build a stable network of customers and confectioning products according to their expectations
- easier access to market information, lower costs to get it and better understanding of the market

- lower investment costs (shared by many farmers) and higher ability to get capital
- saving time necessary for purchasing and sales
- fuller use of the production potential and of associated farmers' skills and experience
- possibility to get better legal protection of transactions and to reduce commercial risk
- more favourable forms of commercial insurance
- avoidance of useless internal competition

A good example of best practices is the recent development of the poultry sector in Poland. The Polish poultry sector is characterised by a high level of knowledge. The managers are well qualified and have long-time experience and adaptation capabilities in the changing environment. Industrial slaughterhouses have been built, which could use their capacities more efficiently due to the disappearance of seasonality. The manufacturing of poultry preparations has blossomed. The processes of concentration of capital, production, slaughter and processing led to a higher competitiveness. Leaders have emerged and new structures contributed to the dynamic development. The role of exports increased, especially on the European markets, which facilitated the accession into the European Union. Polish poultry products are characterised by high quality and safety due to EU requirements and funds. The production methods belong to the most modern in Europe. The production scale continues to grow, which contributes to the reduction of labour costs in production and processing as labour is substituted by technical equipment. Net profits grow as the result. Thanks to a high level of investment, infrastructure is modernised and meets the most stringent hygienic and sanitary norms at the EU and international levels. Recognisable quality systems have been implemented (Figiel et al. 2014: 97).

The comparison of Polish poultry farms with their German and Dutch counterparts leads to the conclusion that they perform in a similar way. The higher share of direct costs in Polish farms (80%) can be evaluated positively. The cost of producing 1 kg of poultry was lower than in Germany, France, the Netherlands, UK and Denmark; the costs of slaughtering were lower as well. The strength of the Polish poultry sector

consisted in lower prices. A high level of integration in the industry, with processors taking the responsibility of integrators in market channels, leads to a reduction of costs of material and immaterial infrastructure (administrative, legal, informational, research and development). A lot of mergers and acquisitions have taken place in this branch. Foreign capital participates in this process of concentration. Foreign direct investments bring not only know-how, but also capital enabling further modernisation and entry on new markets. The atmosphere is optimistic, open-minded and active. New networks of formal and informal contacts are created systematically. The domestic demand for poultry grows as a substitute for other types of meat. However, the basic determinant of Polish poultry sector development is foreign demand. A number of organisations and associations supervise the breeding and reproduction of poultry, but the level of integration among producers is still low (horizontal integration). The producers tend to be integrated with the processors (vertical integration), which initiate investment in the whole channel. The long-term contracts of farmers with processors ensure a high quality of the raw material and safeguard the interests of both parties. Thanks to EU funding, a common promotion of Polish poultry and preparations on foreign markets could be undertaken. In Poland, there are a few capital groups (Animex, Sokołów, PKM Duda and Indykpol) that have managed to develop fully integrated supply chains, which led to strengthening of the whole branch. An interesting example is the CEDROB company, which organised a whole network, including reproduction farms, hatcheries of chicks, feed manufacturers, fattening farms, slaughterhouses, processing plants, company shops and firms specialising in fuel and fertiliser trade as well as a company established in Germany, which specialises in exports on EU markets (Figiel et al. 2014: 97–103).

An interesting and innovative path to development may also concern agricultural production (biocomponents, biomass, biofuels, biogas) for energy generation purposes (bioenergy). The formation of biogas plants and the use of agricultural production for generating energy contribute to the dissemination of renewable energy sources, functional diversification of agriculture, development of additional economic activities in the rural areas, and an increase in the energy security of particular regions

and the entire country (Chodkowska-Miszczuk et al. 2015; Marks-Bielska et al. 2014; Chodkowska-Miszczuk and Szymańska 2013).

Making a suitable investment is another example of good practices. As indicated by one of my interviewees, his decision to purchase a milk cooler determined his survival and success. It facilitated his cooperation with a dairy company, as it regularly sends a vehicle to collect the milk directly from the farmer. He does not have to worry about milk transportation any more. Another interviewee indicated the importance of investing in a feed mixer, which enabled him to become more independent and to lower production costs.

4.2 Unresolved Problems and Gaps

One of the key issues in the development of the Polish agricultural enterprises is the absorption of EU structural funds. There are multiple problems related to the unsatisfactory absorption (Bryła 2004: 164, 2007a):

(a) too restrictive conditions of getting the support, regarding the level of productions, qualified costs, and so on
(b) insufficient range of the programme, excluding for example some branches of food processing
(c) lack of own funds to co-finance or pre-finance investments
(d) excessive costs of bank loans
(e) too much risk related to the investment
(f) excessive reduction of flexibility of action due to the investment
(g) too complicated procedure of granting the support, the application form, the number of attachments
(h) too short deadlines for submitting applications
(i) insufficient education of potential beneficiaries
(j) lack of experience in the preparation of business plans and accounting[1]
(k) lack of willingness to create producer groups
(l) incorrect functioning of the system of farm advisory services
(m) unfavourable general economic situation
(n) unfavourable development prospects

(o) unfavourable subjective view about one's development prospects
(p) fear of the unknown
(q) possibility to find better alternative ways of investing one's resources
(r) lack of the habit and capability of strategic planning
(s) lack of coherence between the potential investment eligible for funding with the development strategy of the potential beneficiary
(t) insufficient information about the support programmes

The preceding list of problems is by no means exhaustive, and their order is random.

The reasons for the low interest of Polish farmers to engage in any forms of cooperation, especially producer groups, include (Kania 2008):

– a lack of faith that it is possible to achieve more by cooperating with others than acting alone
– lack of willingness to cooperate with others
– shortage of cooperation skills
– no ability to take collective decisions
– fear of losing one's identity due to the necessity to share knowledge and experience, in particular successes, which some farmers believe to be their individual achievements
– difficulties to make a transition in thinking from "I" to "We"
– lack of willingness to organise themselves in the form of a cooperative
– bad experiences from the communist period,when agricultural cooperatives were created by force, and the members of which had no impact on the management

A survey among managers of agricultural cooperatives in Poland showed a relatively low level of self-reported competencies (Gajewska 2011). Only 15% of the managers indicated their propensity to look for useful information in decision-making as their characteristic as a manager. Even lower rates of response were observed for such managerial capabilities as:

– having a development orientation (creating a climate for development)

– understanding the feelings and ideas of others (empathy)
– flexibility of concepts, consideration of alternatives
– proactive orientation (implementation)
– achievement orientation (ambitious but realistic goals)
– self-confidence in the implementation of own concepts and ideas
– formulating concepts on the basis of available information,
– managing relationships (building teams)
– presentation (communicating ideas)
– exerting influence and obtaining support for one's ideas

In a large-scale survey among Polish farmers carried out in 2008 (Informacja… 2012), as many as 48.1% of the respondents said they made decisions only on the basis of their own knowledge and experience. Only 28.1% used advisory services understood as contact with advisors and experts employed in the farm advisory services. Only 24.4% of respondents declared making use of media communications and information from specialised press, and 12.4% of Polish farmers benefitted from advice provided by producers or sellers of agricultural inputs (brochures, leaflets and other advertising materials issued by such companies).

Let us consider the example of the berry fruit sector. Although Poland is one of the leading producers of berries in Europe, there are a number of unresolved problems in this branch (Figiel et al. 2014: 83–91). It is often underlined that there is not enough cooperation to reduce purchases of machines, equipment and tools, which could lead to savings allowing to modernise the machine part, build specialised facilities (sorting and freezing fruit), which would enable producers to become independent from a single customer and to supply the raw material out of the season. The processors seldom initiate and collaborate in activities in the field of investment, consulting and organisation. They do not cooperate with producers at the strategic, tactical and operational levels, which impedes long-term planning among producers and results in limiting investment. The main weakness of berry producers is a lack of cooperation, which reduces profitability and product quality. A lack of information exchange increases the number of errors in technology of production (not qualified seedlings, inappropriate fertilisation, incidental plant protection chemicals) and contributes to failures in storage and transportation

(e.g., fruits that have been harvested are not stored in cooling conditions, which makes substandard raw material to be supplied to processors). There are few common activities in the area of investment (e.g., the construction, equipment and exploitation of storage facilities, purchase of transportation means that would guarantee safe delivery, solutions in the sphere of packaging and ecological logistics).

There are not enough common activities in the domain of optimisation of logistical processes of all entities and in the relationship of the industry with the market environment. The lack of common warehouses and of a common organisation of transportation prevents the development of exports. Intermediaries play an excessive role in this sector due to the fragmentation of producers. Only 10–15% of supplies are subject to long-term contracts. The effect is not only a lower price for producers, but also a limited influence of processors on the processes of growing, harvesting, warehousing and transportation. The management of daily supply may be executed by a regulation of packages. There is not enough management of food safety and quality; the food safety hazard points are not identified. In the logistics, customer relation management systems and IT systems are lacking. In the transportation system, the impact of atmospheric conditions is often ignored as well as the number of producers and the distance to the processor. There are not enough coherent and targeted measures to preserve the quality of fresh products. The transportation means are often not adapted to the sensitive fruit, which are often vulnerable to crushing, mould, solid pollutants (sand, dust, chemicals) and biological ones (pollen, bacteria, moulds, insects), which results in additional costs of rejected and substandard fruit.

The production is burdened by a high level of risk due to weather conditions and price fluctuation. Some producers choose to focus on the larger dessert fruit, which means an undersupply of the raw material for processors. The administrative, legal and informational infrastructure is not accessible to smaller producers. The application of research results is still insufficient. The consumption of fruit in Poland is low compared to the EU average (about half). There are few products with producer brands that would be supplied directly from the producers to the distribution networks. Furthermore, direct sales methods are not developed. Therefore, the development of short distribution chains should be a

priority. The promotion of berry fruit and their processed preparations is not sufficient. The social marketing actions are insufficient or inadequate for this sector. There is not enough cooperation of producers with NGOs that promote healthy lifestyle and diet, local markets, organic products, and so on. Only an improvement of social awareness of the importance of fruit and their preparations in the balanced diet can increase the consumption significantly. The non-governmental sector may also contribute to the improvement of the position of farmers in the marketing channel. Although there is a high potential of market growth in the category of frozen products, for the time being it is fulfilled by substitutes—apples and citrus fruit.

The Polish branch of berry producers does not have a strategy. It is at the stage of discovering its identity. The producers also lack a strategy of development. There is a shortage of knowledge and information, and farmers are often not treated as entrepreneurs. They seldom think about building their own brand, about market segmentation and positioning their products. Their position in the distribution channel is the weakest, and direct competition among themselves is weak. The prices and quantities of raw materials are determined by processing companies and the inventories they hold. The competition among retailers is very strong, especially among discount networks. This results in a growing pressure on lowering prices, which has unfavourable repercussions on suppliers. On the other hand, category management and e-commerce development constitute opportunities.

According to one of my interviewees, it is rather difficult to change a partner in the downstream marketing channel (a dairy processor) because the farmers are locked in as members of a milk cooperative. There are some sunken costs, virtually impossible to recover. They have paid a considerable amount to obtain membership in the cooperative. It depends on the size of milk delivery. In the case that I examined, it was 7 thousand zlotys. Even if this farmer noticed that another milk processor was more dynamic, with a specialisation in cheese production, he could not withdraw from his earlier commitments, as the costs of the change would be too high.

Another interviewee complained that food-processing companies are oriented at the purchase of cheap raw material. He gave the example that

he sells a litre of milk with the fat content of 4.5% for 0.8 zlotys. The dairy firm collects the fat to make butter and the pasteurised milk having 3.2% is sold for more than 2 zlotys per litre. Therefore, the farmer believes that an unfair part of the value added is captured by the processing industry.

Another issue raised by my interviewee is the necessity to reach a certain threshold of production in order to ensure profitability. In the pig sector, the farmer claims that it is necessary to have at least 100 animals to be profitable. The economies of scale may encourage further consolidation in Polish agriculture.

4.3 Suggestions for Market-Based Services

The challenges in front of the Polish system of farm advisory services include (Duczkowska-Małysz 2009):

- acceleration of modernisation of agriculture, market organisation and improvement of competitiveness within the European Single Market
- pressure on modernisation of food-processing enterprises (standards, costs) and the remaining entities in the food sector (transportation, warehousing, distribution)
- economic activation of rural areas in non-agricultural jobs, professions and functions
- development of the system of governmental and non-governmental institutions capable of implementing the agricultural and rural development policies, including the management of Common Agricultural Policy (CAP) and Structural Funds of the European Union,
- strengthening of the agricultural enterprises on the market, including their competitiveness and production of high-quality goods, which requires a multidisciplinary knowledge rather than preservation of habits and farm management based on intuition
- dissemination of diversified know-how in the field of preparation of applications and project management
- establishment of a clear organisational structure of farm advisory services and a transparent management system, including financing and

training of counsellors as well as partnerships with other institutions, in particular in the academic sphere

Any construction of the model of farm advisory services should take into account its different functions compared to the period of starting modernisation of agriculture in Western Europe. This difference results from history, especially the model of agricultural policy implemented in previous decades. After the phase of spreading technology, Poland has entered the stage of modernisation of agriculture and countryside. It entails the necessity of accelerating structural changes and taking up new, non-traditional functions. This process happens in very difficult conditions due to inefficient agrarian structures and civilizational lagging behind. Polish agriculture needs to face tough competition by offering high-quality products adapted to the needs of customers.

The tasks in front of the Polish farm advisory services are increasingly complex. They may be classified into the following categories:

- technical and economic counselling – promoting the implementation of innovations, awareness raising addressed particularly to the most active farmers
- socio-economic counselling – concerning farms with deficient structures, failing to achieve suitable income (advice on alternative sources of income, information on courses and trainings, increasing mobility on the labour market)
- socio-structural counselling – addressed to farmers who should adapt better their enterprises to market requirements or are ready to withdraw from agriculture altogether
- counselling on the economics of a family – family functions (fulfilling social and professional aspirations, consumption models, family budget, benefits of education, home decoration, gardening, family relationships), role of women (nutrition, household duties, acquisition of non-agricultural qualifications, alternative sources of income), special needs of young people (jobs outside farming, improving agricultural skills and qualifications), the elderly (social care, fighting isolation and loneliness, organisation of special accommodation, organisation of leisure time), and children (family education, childcare)

– counselling in the field of regional development and agricultural policy implementation – tasks related to local development, use of resources, activation of local communities, use of non-agricultural qualities of the countryside

The success factors of the system of dissemination of agricultural knowledge depends on:

– relationships between its elements
– accessibility (opportunity to make use of the knowledge)
– mobility (propensity of the system to generate innovations)
– openness (possibility to integrate new elements into the system)
– social effectiveness (meeting expectations and facing challenges)

Respondents from the rural areas expressed their interest in counselling services, especially in the following fields: getting financial resources from EU funds, agro-tourism, farming, general economic counselling, setting up producer groups and starting economic activities (Wrzochalska 2014: 38).

Figiel et al. (2014: 96) recommend the following measures for the Polish berry fruit sector:

– higher intensity of cooperation, sharing resources, information among producers, solving problems in common
– increasing the awareness of functioning in a system, creating a common vision of the future and selecting a leader
– adapting knowledge and skills of the human resources to the needs of the cluster
– faster development and absorption of new technologies and faster launching of products based on these technologies
– ensuring that cluster members have access to entities operating in the research and development sphere
– ensuring access to specialised services of public institutions, especially technology development centres, small and medium sized enterprise (SME) development centres and services of designers, lawyers and accountants
– deepening cooperation with public institutions providing support for export activities

– making banks aware of the financial needs of firms belonging to the cluster and looking for capital that is necessary to take advantage of market opportunities

The author of this report believes that the success of Polish agricultural enterprises will depend, inter alia, on the following:

- the improvement of management skills, especially in the field of strategic planning, market research, project management and the use of information and communication technologies
- the adoption of the marketing orientation and innovative solutions in the field of marketing (Bryła 2008, 2011, 2012c; Domański and Bryła 2012), including the strategy of offering origin products (Bryła 2009c, 2010a, b, 2012a, 2015a, c) and organic products (Bryła 2013a, 2014b, 2016a, b)
- strengthening their embeddedness in value delivery networks (horizontal and vertical market channel integration) (Bryła 2007b, 2012b)
- further internationalisation (various forms of entering foreign markets, contractual and equity connections) (Bryła 2007d; Domański and Bryła 2008, 2010, 2011; Bryła and Domański 2009)
- development of risk-management culture and competencies
- improvement of the resource base (including agrarian structure and adaptation of the applied technologies to the specificity of each enterprise)
- paying more attention to the formal qualifications of human resources and life-long learning
- development of leadership competencies of the management
- more effective absorption of EU structural funds (Bryła 2009a)
- making reasonable investment decisions, being cautious not to take too many bank loans
- improvement of capabilities to seize emerging opportunities and identify threats in the environment
- promotion of entrepreneurship (Bryła 2007c, 2009b) and intrapreneurship
- dissemination of food-quality management systems (Bryła 2012c, 2017)
- strengthening and modernising the system of farm advisory services

- improvement of transport infrastructure and efficient logistical systems
- improvement of the commercial and civil law enforcement system (execution of contracts)

Notes

1. Polish farmers are still not required to conduct accounting like in other enterprises.

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Part II

Managerial Issues in Agricultural Enterprises in the Czech Republic

5

Agricultural Enterprises in the Czech Republic

Hana Urbancová

Agricultural production combined with food production is one of the traditional sectors of the national economy in the Czech Republic. The share of agriculture (including forestry) in gross value added in the national economy is drawing closer to the average of the former EU-15. The Czech agriculture has a centuries-proven tradition that guaranteed not only the nation's self-sufficiency in basic food, but even made this Central European corner of the world famous abroad. The agricultural exports have focused mainly on commodities such as milk, live animals, cereals, sugar and malt. Czech agriculture underwent several institutional and economic changes in the last two decades. These changes had a significant influence on the performance, structure and size of the Czech agriculture. One of the production factors influencing Czech agriculture is work (wage costs and connected

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areas of employment), which are influenced by the demographic development of the population (Smrčka and Artlová 2012).

5.1 Agricultural Enterprises in the Country's Economy

Agriculture in the Czech Republic is currently seen as one of the cultural and industrial sectors. Due to natural conditions, a number of enterprises and individuals manage it through an appropriate combination of animal husbandry and crop production. However, there are also landlords specialising exclusively in crop production. Agriculture, including forestry, makes up a primary sector of the economy. These two areas are specific for the Czech Republic because they are affected by the same or similar external and internal factors.

According to Měrtlová (2007), the competitiveness of agriculture, not only in the Czech Republic, is determined by both technical and technological levels of the processing industry and the existence of various forms of imperfect competition in these sectors. In food vertical channels, there are different levels of monopsonisation and oligopsonisation of the position of enterprises in the processing industry and trade in agricultural products, which is reflected mainly in different prices paid to agricultural producers in relation to consumer prices. The competitiveness of agriculture in each country is further affected by provisions of economic policy, which significantly influence the market environment in each sector of the economy. These provisions include general provisions of economic policy (monetary, fiscal and business provisions, and also provisions for non-agricultural sectors) and provisions of agricultural policy that determine the level of agricultural sector competitiveness. It concerns particularly pension subsidies, production input subsidies, production subsidies and provisions for stabilisation of agricultural product prices and provisions supporting exports and restricting imports.

Factors and conditions that influence the competitiveness of the national economy in agriculture are as follows:

Internal Factors

- Factors determining the technical and economic level of agriculture
  Productivity of basic production inputs, qualification, skills, motivation of employees—human resources issues, technique and technology—risk management issues, level of management, natural conditions
- Technical side of the production quality determined by
- Properties of raw materials used, consistency of production processes, reliability of quality management and control processes within the enterprise, efficiency of packaging materials and distribution facilities, range of production.
- Adaptability to market conditions – competitiveness
  Optimisation of the structure of production inputs and costs, size of the company and the form of doing business, optimisation of the commodity structure and revenues (aims of an enterprise, marketing, sales activities).

External Factors

- Level and development of national economy
  Availability, quality and price of production inputs, level and distribution of population income, influence of the exchange rates, influences of the position of agriculture within the national economy.
- Market structure of the agricultural and food sector – increasing sales potential/sales strategy
  Range of product differentiation, number of buyers and sellers in this sector, inputs into the sector and outputs from the sector, benefits from the range of a given production, degree of vertical integration and diversification, character of the competitive environment and position of agricultural enterprises in food vertical channels.
- Formation of the economic environment of agriculture by instruments of agricultural policy – partnerships and cooperation
  Instruments and provisions of economic policy.

Based on the preceding framework, it can be concluded that agricultural enterprises in the Czech Republic are increasingly influenced by the environment, especially by the successive parts of agribusiness. When retail chains dictate the manufacturers' sometimes very unfavourable conditions, the importance of wholesale has been growing. As a result, the agrarian sector is fragmented and under pressure from market forces of both preceding and subsequent parts of the chain.

Prices of agricultural products are characterised by high fluctuation rates. In conditions of perfect competition, price changes are transferred in the vertical channel to the end consumer. However, because of the emergence of market channel structure, most of the markets become imperfectly competitive markets, and the transfer of changes in prices of agricultural primary producers to consumers is minimal. If price changes are not transferred across the vertical channel, then consumers are not able to fully exploit the benefits that are brought by declining prices of agricultural products. It leads to retained profits arising from the use of market forces of single parts of the vertical channel, and the problem of the redistribution of consumer welfare occurs.

Finally, it can be stated that agriculture in the Czech Republic is characterised by a biological character of production, which means that it is manifested by:

(a) high dependence on natural conditions;
(b) time discrepancy of production and working processes, a long production cycle, demand for big stocks of own production; and
(c) seasonal work.

To summarise, the key factor in the economic backwardness of the Czech Republic is low productivity. The main source of its increase is particularly the intensification of economic activities as far as qualitatively intensive inputs are concerned, as well as ensuring competent employees and managers of agricultural enterprises. In connection with this task, it is necessary to ensure knowledge-based competitive advantages as a precondition for qualitative competitiveness, which is determined by innovative performance. The combination of innovative

performance and quality human resources is an essential condition for the development of knowledge-based competitiveness. Achieving competitiveness at a sectoral level in particular areas of the national economy by monitored performance characteristics is a prerequisite for improving the position of the Czech Republic within the European Union.

5.2 Managerial Issues in Agricultural Enterprises in General

In today's highly competitive environment, all enterprises in the national economy in the Czech Republic (agricultural enterprises are not any exception) are affected by the factors (external and internal) to which it is necessary to respond as quickly as possible and in the best way to keep the enterprise competitive. Therefore, key areas are analysed in detail in the sections that follow.

Sales Potential

According to the Real Estate Cadastre, the agricultural land fund represented as of 31 December 2013 the total of 4219.9 thousand hectares. It represents 53.5% of the territory of the Czech Republic (7887 thousand ha). Compared to the year 2012, the area of the agricultural land decreased by about 4.5 thousand ha (Ministry of Agriculture 2015). In addition to the decline in the total area of agricultural land, in recent decades the managed agricultural land has decreased, too. In 2013, it was recorded at 3521 thousand ha, with an annual reduction of 4889 ha. The proportion of the arable land in the agricultural area represents 71%, and 27.7% is the permanent grassland. The remaining part of the land consists of orchards, vineyards, hop fields and gardens (1.3%). The area of arable land is diminishing very quickly. Over the past decade, its acreage decreased by 9% (Lhotská 2014). The development of changes in the area of agricultural land, arable land and permanent grassland for the period 2010–2013 is shown in Fig. 5.1.

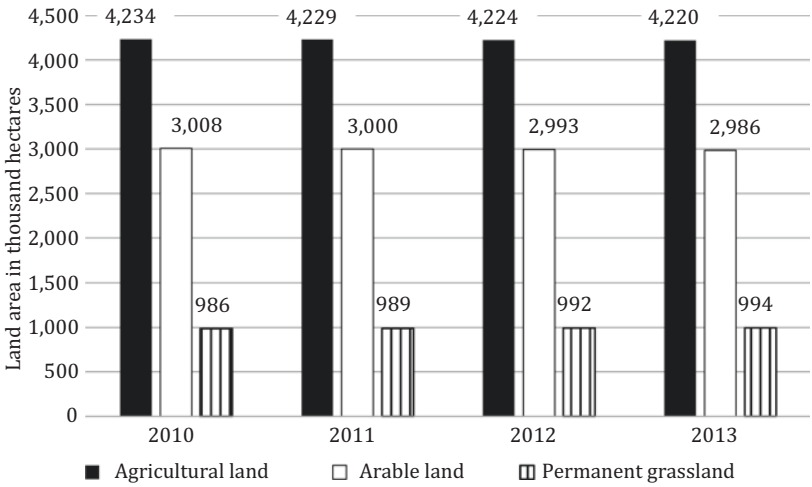


Fig. 5.1 Land use in the Czech Republic in thousand hectares (2010–2013) (Source: Adapted from Czech Statistical Office (2014))

At the end of 2013, in the structural agricultural statistics of the Czech Statistical Office, more than 48,000 entities were recorded. Enterprises of natural persons accounted for 91.7% (i.e., 44,120) of the total number of business entities and managed 30.4% of acreage of the utilised agricultural area. Enterprises of legal entities were represented by 3999 businesses, which managed 69.6% of the utilised agricultural land (Ministry of Agriculture 2015). The Czech agriculture is characterised by a typically average size of the agricultural entity. In 2010, it was 152 ha per entity, while the EU average is only 14 ha per entity. It is related to the representation of entities in all size categories—for those having more than 100 ha acreage, it is 19.3%, while in the European Union it is only 2.7% of entities. On the contrary, only 15.4% of entities belong to the category of up to 5 ha of acreage. In the European Union, it is 69.2%. In the Czech Republic, the average acreage in the period 2000–2010 increased from 136 ha per entity to 152 ha per entity. A high degree of rented land utilisation is also typical for the Czech agriculture, even though the proportion of owned land in agricultural entities is gradually increasing (from

7.6% in 2000 to 22% in 2010). The proportion of the rented land increases with the size of the agricultural entity (Mácová 2014).

In 2013, the agricultural sector recorded a slight increase in the value of the total agricultural production (2.3%). The growth was mainly influenced by a higher value of livestock products. The increase in the total production occurred in all major groups focused on manufacturing, with the exception of enterprises specialising in milk production. This group of agricultural entities recorded a significant decline in other agricultural products in connection with the change of support accounting for renewable energy sources. It was proved by a slight decrease in the overall production by 0.8%. An annual production increase was observed in the context of manufacturing specialisations in mixed production (3.5%), field production (3.0%) and cattle breeding (2.1%). The proportion of crop production in the total value of agricultural production is nearly 60%, similarly to the previous year. The value of crop production increased yearly by 1.7%. The structure of the crop management did not record any significant changes in comparison with the previous year. In the long run, the most important commodity is represented by grains and oilseeds, which account respectively for 45.9% and 22.2% of the crop production. Other major products include forage crops (9.7%), sugar beet (5.8%), vegetables and ornamental plants (4.6%) and potatoes (4.5%). Furthermore, crop production consists of fruit (2.2%), wine (1.7%), industrial crops (1.1%) and other products (2.3%) (FADN 2015).

In the long run, significant changes in the structure of cultivated crops occur. Species diversity and the proportion of areas under crops are changing. In 2013, wheat and barley were grown on more than 80% of areas with cereals. These cereals along with rape and maize occupied almost three-quarters of all areas under crops, which means a decline in species diversity. A substantial decrease was recorded in the area of root crops, sugar beet, potatoes and also legumes. Conversely, the acreage of rape was insignificant in the first half of the last century. It represented less than 1% of all areas under crops. Currently, it is grown on almost one-sixth of the land under crops. Fodder crops grown on the arable land

Table 5.1 Areas under crops in hectares in the Czech Republic (2010–2013)

Crops	2010	2011	2012	2013
Wheat	833,577	863,132	815,381	829,393
Barley	388,925	372,780	382,330	348,992
Pulses	31,318	22,316	20,177	17,851
Root crops	84,492	85,362	85,749	86,151
Rape	368,824	373,386	401,319	418,808
Green and silage maize	181,939	197,579	214,876	218,786

Source: Adapted from Czech Statistical Office (2014)

cover nearly 20% of areas under crops (Lhotská 2014). Overall changes in the representation of particular crops in areas under crops are reported in Table 5.1.

The value of production in animal husbandry increased compared to the previous year by 6.7%. The proportion of animal husbandry production in the total value of agricultural production slightly increased. In 2013, it amounted to 32%. Cow's milk (61.4%), beef (22.7%) and pork (10.5%) play crucial roles in the production of animal husbandry. A key factor influencing the growth in the production is a significant increase in the average price of cow's milk, which grew by 11.4% year on year, to CZK 8.6/litre. The yield was approximately at the same level as in the previous year. Due to higher purchasing prices, the milk production increased by 8.1%. The production of other important commodities—pork (5.7%) and beef (3.0%)—also increased. In terms of the development of the production value, a similar trend was recorded—the increase in animal production by respectively 7.5% and 6.4% as far as legal entity enterprises and natural person enterprises are concerned (FADN 2015). Currently animal husbandry supplies the Czech Republic at the level of 55% of pork consumed; the remaining amount has to be imported. Produced poultry meat covers about four-fifths of consumption. In beef production, the Czech Republic is self-sufficient, and beef is even exported (up to 30%), as well as one-quarter of the milk. To satisfy the consumption of eggs, about 10% of them must be imported. Over the past 25 years, the stocks have decreased. The cattle population fell to 40%, number of pigs to 35% and poultry to 75%. The amount of animal products needed to satisfy domestic consumption has also changed (Lhotská 2014). The development of changes in meat production is shown in Table 5.2.

Table 5.2 Meat production in the carcass weight in tonnes in the Czech Republic (2010–2013)

Meat	2010	2011	2012	2013
Beef	73,730	71,616	65,244	64,377
Pork	275,905	262,944	239,753	234,273
Veal	529	509	469	448
Mutton	44	47	47	49
Lamb	101	112	119	127
Goat meat	4	4	5	4
Horse meat	63	81	80	74
Poultry meat	188,177	170,084	152,613	148,174

Source: Adapted from Czech Statistical Office (2014)

Competitiveness

An important part of the consumption satisfaction of commodities produced in agriculture is, aside from domestic producers, foreign partners with whom the Czech Republic trades. Half of exports and more than two-fifths of imports are carried out with the neighbouring states. The fastest growth rate in the period 2005–2013 was recorded in trade with China and Russia. In 2013, Russia was the largest export market of the Czech Republic (it absorbed goods worth 116.2 billion CZK, which was 3.7% of total exports). The Czech Republic also exports to the United States and Switzerland. China is significant for the Czech Republic in terms of imports. During the years 2005–2013 there was an increase of the total value of imported goods by 222% (from 94 billion CZK in 2005 to 303 billion CZK in 2013). Other important sources of imports are Russia, United States, Korea and Japan. Regarding the position of the Czech Republic in the trade of individual states of the European Union, the Czech Republic contributes to 2.7% of the total of the EU-28 exports and to 2.4% of the total imports. This proportion is steadily growing (in 2005, it was 2% and 1.9%). Germany, Slovakia, Poland and Austria are the most important partners in the context of the total foreign trade of the Czech Republic. They affect the dynamics of total exports, imports and foreign trade balance very significantly. In 2013, their proportion in the total foreign trade turnover of the Czech Republic accounted for 46.5% (total exports were 50.7% and total imports were 41.9%, as can be seen in Fig. 5.2) (Heczková 2014).

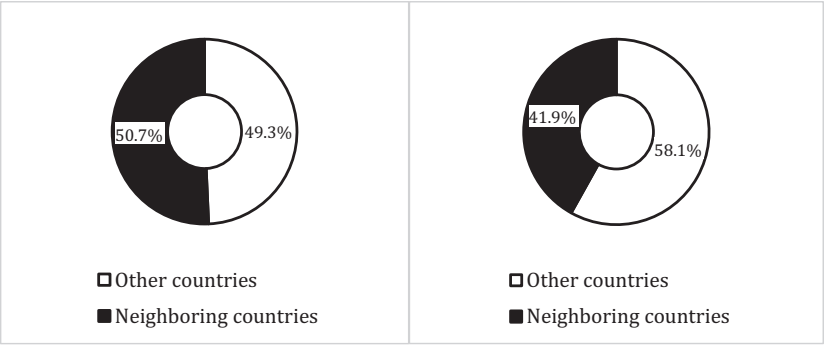


Fig. 5.2 The role of neighbouring countries in exports and imports of the Czech Republic (2013) (Source: Adapted from Heczková (2014))

Table 5.3 Czech exports of selected commodities (2012–2013)

Exports	2012	2013
Milk and dairy products (tonnes)	763,759	742,959
Sugar (tonnes)	362,580	325,819
Bovine animals, live (pcs)	195,528	200,734
Swine, live (pcs)	253,253	282,779

Source: Adapted from Czech Statistical Office (2014)

The most important commodities exported from the Czech Republic are mainly milk and dairy products, sugar, live cattle and pork livestock. For milk, dairy products and sugar an annual decrease was observed in 2013. With live pork and beef cattle, an increase was recorded that year. Changes in the exported amount are shown in Table 5.3.

The most imported commodities of agricultural production include unroasted coffee, cocoa, rice, pork, fish, vegetable fats and oils, and wine. In 2013, the abovementioned commodities were imported to the Czech Republic in the total volume of 30.08 billion CZK. More than 45% consisted of imported pork, which covers the shortage of domestic production. The most significant partners in imports in 2013 were: Italy (rice, wine, vegetables), Germany (pork, fish, vegetable fats and oils, tea, cocoa), Spain (fruit and nuts, vegetables, spices, wine), and Poland (pork meat, vegetable fats and oils, rice and vegetables). Exports of agricultural goods

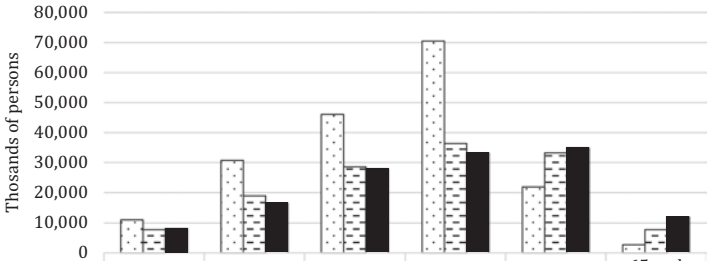
from the Czech Republic in 2013 were mostly directed to: Germany (milk and milk products, sugar, live cattle), Slovakia (milk and dairy products, sugar, live pigs, poultry and pork, beer) and Hungary (milk and dairy products, butter, sugar, pigs, poultry and pork) (Czech Statistical Office 2014).

In 2013, the long-term trend in the decline of the number of workers in agriculture continued, as can be seen in Table 5.4 and Fig. 5.3. Based on the data from the Farm Accountancy Data Network (FADN) (2015), there are 2.76 workers per 100 ha of agricultural land. It is a decrease of 0.8% in comparison to the previous period. The proportion of paid and unpaid workers in the agricultural sector remains largely constant. Paid workers make up 79.5% of the total workforce in agriculture. Unpaid workers (i.e., natural persons who do not receive wages) contribute to the

Table 5.4 The place of agriculture in the Czech economy (2010–2013)

Indicator	2010	2011	2012	2013
Gross value added of the agricultural sector as a percentage of total gross value added	1.68	2.38	2.59	2.60
Employment share of the agricultural sector as a percentage of total employment	2.78	2.74	2.69	2.63
Number of employed and number of firms	105,400/22,864	103,600/X	101,800/X	100,900/26,246
Value of production (CZK thousand)	33,663,827	43,590,789	39,315,005	39,024,202

Source: Adapted from Czech Statistical Office (2014)



	up to 24	25 – 34	35 – 44	45 – 54	55 – 64	65 and over
2000	11,058	30,770	46,067	70,510	21,951	2,713
2010	7,762	18,960	28,634	36,384	33,247	7,799
2013	8,046	16,524	27,791	33,120	34,778	11,872

Fig. 5.3 Working persons in agriculture by age groups in the Czech Republic (2000–2013) (Source: Adapted from Czech Statistical Office (2014))

total labour input in the sector by 20.5%. The value of the total agricultural production increased by 3.2% a year. In 2013, the value of agricultural production per employee was 1281 thousand CZK/AWU. Natural persons reported the value of production per employee at the level of 999 thousand CZK/AWU, while enterprises of legal entities have higher labour productivity (1381 thousand CZK/AWU). In both compared legal forms, the value of production per employee grew at the same pace (in enterprises of legal entities at 3.5%, in enterprises of natural persons at 3.2%).

The total number of employees in agriculture in the period 2000–2013 decreased by nearly 30%. Significant changes also occur in the age structure of employees. Over the period under study, the number of workers being over 55 years old increased nearly by 50%, while the supply of new labour forces in agriculture is declining in the long run. The ageing of the farming population is a problem not only in the Czech Republic, but also in most European countries.

The educational structure of sector workers has been improving; that is, the proportion of workers with a General Certificate of Secondary Education (GCSE), higher vocational education and university education has been increasing. Conversely, the proportion of workers with primary and secondary education without the GCSE, including apprentices, has been decreasing. Almost half of all workers in the sector, according to the

national census of people, houses and apartments in 2011, consisted of persons with secondary education without the GCSE, including apprentices (48.1%). Other education categories included: workers with secondary education with the GCSE and higher vocational education (30.9%), workers with university education (11.7%), and persons with primary education or without education (8.8%). In comparison with the situation in the national economy, among farmers there is a lower proportion of workers with university education, with secondary education and with higher vocational education, which is to some extent determined by the nature of agricultural work. A slightly worse educational structure was observed among employees, including members of cooperatives—in 2012, 54.5% of them had a secondary education without the GCSE (including apprentices), 23.4% secondary education with the GCSE, 10.7% primary education (including uncompleted school education) and 9.7% university education (including higher vocational education).

In comparison with the industry, the educational structure of employees in the agricultural sector differed by mainly a lower proportion of employees with secondary education with the GCSE (by 6.9 percentage points), then by a higher proportion of people with secondary education without the GCSE (by 5.1 percentage points) and with primary education (by 3.1 percentage points). The structural proportion of university graduates in comparison with the industry was about the same. The lower educational level of farmers is related to the fact that most workers in the sector work in manual professions (Ministry of Agriculture 2015).

Partnerships and Cooperation

In 2013, as in previous years, a number of sales cooperatives and organisations operated on the market. In the beef and pork sector one of the most significant was Centroodbyt—a national sales cooperative that has operated on the Czech market since 2004. In 2013, it merged six sales organisations. Its activity has long focused on business with slaughter cattle, fattening cattle and slaughter pigs both on the local and foreign market. In addition, it provides its members with marketing and monitoring services in the development of the market in beef and pork meat

sectors in the Czech Republic, other European countries and worldwide. In 2013, the trade of approximately 10% of total pig production in the Czech Republic was negotiated through this association of sales organizations, which is an almost identical volume as in 2012. Although the national sales cooperative contributed to the total number of negotiated cattle trade with a rather low percentage in 2013, there was an increase in trade. In 2013, the most significant sales organisations that were members of Centroodbyt included Agropork and Agrofarm.

On the milk market in the Czech Republic, in the quota year 2012/2013, 36 sales organisations eligible for milk sale were registered in total. In the quota year 2012/2013, 1777.4 thousand tons of milk were sold through sales organizations, i.e., 65.4% of amount supplied for further processing. In the referential period 2013/2014, the number of sales organizations decreased to 33 entities and eight organisations were recognised as milk producers. The largest producers in terms of milk volume intended for sale were A Dairy and Economic Cooperative JIH, Dairy Economic Cooperative Central Bohemia and, last but not least, Dairy Sales Cooperative Moravia.

In the field of sheep and goat commodities a company called Oveko was in operation in 2013, established by sheep and goat breeders from the Association of Sheep and Goat Breeders of the Czech Republic. Its main goal is to secure regular sales of slaughter and stud animals abroad and on the local market and the distribution of other sheep and goat products. Other activities include performance testing and counselling.

For the chicken eggs commodity, two large sales associations continued their activity in 2013—Czech Eggs and Golden Eggs. Their main goal was to centrally provide the sales of most production from producers who were at the same time shareholders of the aforementioned companies. Their production plants were located in such a way that, if necessary, the association was able to secure the supply in all parts of the Czech Republic. The Czech Eggs company has 12 members. The Golden Eggs company associates five producers of consumption eggs.

During 2013, the number of recognised organisations of fruit and vegetable producers increased from 11 to 14. In 2013, current organisations of fruit and vegetable producers (Sales Cooperative Czech Fruit in Prague; Cooperative Jihofrukt in Velké Bílovice; Cooperative South Moravian

Fruit and Vegetables in Velké Bílovice; Sales Cooperative Litozel in Bohušovice nad Ohří; Sales Cooperative Eko-Odbyt in Slaný; The Cooperative of Tomato Producers in Podivín; South Bohemian Vegetables – Cooperative of Vegetable Producers in Synkov; Sales Cooperative of Fruit Producers EB Fruit in Holovousy; Sales Cooperative Polabí in Přerov nad Labem; Cooperative Bramko in Semice; Cooperative OZC Jizera in Předměřice nad Jizerou) were joined by the Sales Cooperative Český ráj in Prague; Sales Cooperative Berry in Březany and Planters Cooperative M.O.Z. in Sedlnice, which all met the conditions to be recognised as producer organisations. By the end of 2013, there were six preliminarily recognised associations of fruit and vegetable producers (Cooperative Bohemia Apple in Tuchoraz; Sales Cooperative SP Zeltr in Troubky; Coooperative Nature Fruit in Choustníkovo Hradiště; Cooperative G's Planter in Stratov, Lysá nad Labem; Sales Cooperative ZP Otice, Ltd. and Sales Cooperative Suchá Loz).

A nationwide sales cooperative of regional suppliers of bakery and mill products, MP Product, associates significant Czech and Slovak producers from both the bakery-confectionary and mill field (Czech Republic – 18 members, Slovakia – 5 members). The main activity of this cooperative is the sale of a broad product selection from both the bakery-confectionery and mill field.

Bio-Sale Ltd., established by Pro-Bio, the Association of Organic Farmers and German Union Bioland, organises and coordinates the sales of Czech organic ingredients (cereals, pulses, feed, seed, meat) with the aim to place the Czech production on the Czech market (Ministry of Agriculture 2015).

In 2013, a reduction of subsidies due to the so-called modulation (in accordance with Article 10 of Council Regulation (EC) No. 73/2009) continued and the so-called financial discipline was newly established under Council Regulation (EU) No. 1181/2013. Despite this fact, in comparison with 2012, the value of operation subsidies and support increased from 9113 CZK per ha to 10,654 CZK per ha, i.e., an annual increase of operation support of 16.8%. Besides an increase in the rate of the single payment scheme (SAPS), such an increase is caused by a change of legislation in the field of renewable energy resources support and financing the support of producing electric energy of the so-called green

bonus. This was reflected in other subsidies for production whose value increased almost three times annually and crucially influenced the total level of operation support. In 2013, the SAPS amounted to 55% of the total operation support value and reached 5851 CZK/ha. As a result of the SAPS rate increase, the single payment scheme grew by 9.7% a year. The second most significant item were other production subsidies, which in 2013 amounted to 18% of operation support in total. This category includes all subsidies for crops and animals, so-called special support under Article 68 of Council Regulation (EC) No. 73/2009, temporary domestic support (TDS), separated payment for sugar (SPS) and tomatoes (SPT), support for beekeeping, operation subsidies for wine growers and further subsidies of operational character acquired from sources other than agriculture.

In 2013, national supplementary payments were substituted by temporary domestic support (TDS) which was intended for hop, potatoes for starch production, ruminants, sheep and goat breeding, breeding suckler cows and for agricultural land, as was the case with national supplementary payments in 2012. As opposed to 2012, there was a significant increase in subsidies for production from 724 CZK per ha to 1933 CZK per ha. This increase was related to the so-called rules of accounting support, the green bonus. Until 31 December 2012, this support was recorded in revenues for energy as other agricultural production, while since the 1 January 2013, the green bonuses have been recorded as other production subsidies. The change in accounting resulted in the reduction of energy, i.e., the decline of other production and growth of other production subsidies. The total amount of other production subsidies was influenced by businesses of legal entities that produce electricity from renewable resources, particularly bio-gas stations. The green bonus amounted to 71.3% of other production subsidies in legal entity businesses. The third most significant item of operational support is represented by environmental subsidies which include agro-environmental subsidies and Natura 2000 subsidies for agricultural land, with the share of 12.5% of the total volume of operational support. The value of environmental subsidies fell by 1.5% a year, to 1332 CZK per ha. The value of subsidies for farming, which amounted to 808 CZK per ha, decreased in less favourable areas (LFA) by 4.3%, compared to the previous year.

Human Resources

In comparison with the rest of the national economy, agricultural enterprises have a special position regarding their employees. It is a so-called specific branch that is characterised by a number of specificities. One of the most significant is income disparity, which is understood as a negative impact on workers in the agrarian sector. Sokol (1994) defines the income disparity as a state in which the income in the agrarian sector in relation to applied production factors is lower than in other sectors of the national economy, whilst sectorial differences in income may fluctuate for example due to qualification and various expectations of the workers and the degree of business and work activities performance. Since the income disparity is caused by the imbalance, we need to compare income with the expectations of interested workers. The concept of income disparity thus means inequality in corporations' incomes.

According to Svatoš (2008), there exist several hypotheses explaining the specificity of agriculture:

1. Specifics of agricultural productions:
   - harvest fluctuation due to climatic and weather conditions;
   - investment limitations in relation to land area (limited amount);
   - theory about the loss of revenue increase;
   - low productivity of capital in agriculture; and
   - limited durability of stored products.
2. Inverse behaviour of supply – during price reduction an offered amount does not fall; on the contrary, it grows.
3. "Treadmill" hypothesis – implementation of technical development in order to increase income leads to a shift of the curve of agrarian products supply, which results in mass effort to improve technologies in the sector and in the reduction of farmers' incomes.
4. Alternative costs factor – it explains the perception of incomes in agriculture in terms of expecting income from this activity based on comparison with income in the national economy. In practice, this means that real income in agriculture does not compare to the expectation of an agricultural worker who starts to concentrate on his specific income.

If his real income exceeds his specific income (income he might receive in another branch), he will not interrupt his activity. In the opposite case, he will end his activity.

5. Engel's law – food expenditures increase slower than income growth.
6. Market power is applied to the detriment of agriculture:
   - the main role is played by imperfect competition resulting in unequal position of agriculture on the market; and
   - in essence, farmers have high costs on the side of inputs (they purchase for high prices in monopolistic markets) and sell for low prices (in monopsonistic markets).
7. Market-economic explanation in relation to the price creation theory.

The aforementioned reasons have a consequent impact on the process of building the brand of an employer, attracting new school graduates, keeping present employees and managers in corporations, and so on. This is confirmed by the statistics observed by the Czech Statistical Office. Since the transformation in 1989, there has been a decrease in the number of employees and, based on the data, their structure has changed. The agrarian sector is a branch with lowest salaries and educational structure. The results of a research performed by Médea Research (2014) agency show that the Czechs change three to four jobs during their professional careers. They change jobs roughly every eight years. The lowest fluctuation is in agriculture (13.3 years per present positon) and in public administration (12.4 years per present position). People change jobs the most in branches such as trade (8.7 years per present position) and science or research (6.8 years per present position). These aspects further contribute to an increase in disparity.

Van Mossevelde (2014) stipulates that building the brand of an employer is the process of company promotion, which leads to gaining and maintaining required workers. Wilden et al. (2010) regard the brand of an employer as a complex of psychological, economic and functional

delights which connect potential employees with their employer. Therefore, it should be the focus of corporations in the agrarian sector as well.

The present is significantly focused on brand building. Saini et al. (2014) and Elving et al. (2013) agree that the brand of an employer is an efficient marketing tool that helps companies project their image in the minds of potential agriculture job applicants and their company allocation on the labour market as their potential employer. It is systematic, long-term work that comprises a large scale of activities. Building a brand must be a complex process. It must lead to all existing and potential stakeholders, i.e., customers, suppliers, subscribers, banks, shareholders, potential employees, present employees and others. It is an integral part of a company that affects the company existence. Bursová (2009) argues that building the brand of an employer is important for the motivation and activation of employees and for selecting potential candidates for different work positions in a company. Hučková (2012) says that the brand of an employer is a magnet that attracts capable individuals, which results in further growth of potential employees' motivation to apply for a job in a particular company, and also in an agricultural enterprise.

Pop (2008) mentions that the attractive brand of an employer in every corporation and even in agriculture is a combination of tangible and intangible factors such as employee benefits package, cultural and work environment, management involvement, and image and brand reputation. Helm (2011) agrees with Pop (2008) and performs an analysis demonstrating a close relationship between brand quality and employees' pride and the quality of their work. The research was carried out in companies belonging to the Fortune 500 index in the United States, which comprises the so-called most admired firms—firms with a strong brand. Based on the aformentioned, employees' pride on well-performed work has an impact on the strength of the brand. Based on in-depth interviews, Wilden et al. (2010) argue that the perception of a brand by a potential employee is influenced by previous work experience, brand intelligibility and credibility, the perception of investments in a brand and, last but not least, the portfolio of company products or services.

On the other hand, it is important to monitor the factors that make building a brand difficult. Aaker (2003) enumerates the following factors:

- Pressure on lower prices can be implemented through the strategy of cost reduction, which has a negative impact on investments in brand building and consolidation.
- Competition growth constantly modifies the market position of a company and its brand.
- Market and media fragmentation affect brand perception. The configuration of applied forms of promotion does not have to be consistent with a brand's own identity. The coordination of trademark building deteriorates.
- A complex strategy and relations in the area of trademarks can make the coordination of brand strategy difficult.
- A tendency towards innovation reacts to past successes, which create pressure on keeping the current state without further progress.
- A tendency towards the change of strategies may have a negative impact if there is internal pressure resulting in identity change leading to weakening its value.
- Pressure to invest elsewhere can occur when a strong brand is already created and thus the pressure to maintain the volume of investments in a given successful strategy recedes.
- Short-term pressures are reflected in the desire to obtain fast profit rather than building long-term partnerships.

Besides these general factors, the factors influencing the structure of work forces in agriculture as a specific sector include:

- A barrier for young and qualified people to enter the agriculture sector due to the wage level in this sector.
- Young job applicants compare job offers in different sectors and thanks to their higher flexibility to travel and move they choose a higher offer outside the agriculture sector.
- The inflow of young qualified workers into agriculture to managerial and non-managerial positions is not stimulated even by work demand of agricultural enterprises.

- The number of applicants per a vacancy in agriculture is lower than in the national economy. Vacancies for unqualified and auxiliary work force are provided to a much higher extent, i.e., unattractive, unpromising work positions, which do not motivate for spatial mobility of work force.
- The offer of available agricultural work force does not provide a big chance for the recovery of an age structure of agriculture labour force.
- The applicants registered for jobs in agriculture are older than recorded applicants in total; the share of the applicants younger than 30 years of age is lower among agricultural applicants than among applicants in general.
- A falling number of graduates from agricultural secondary schools and agriculture-oriented colleges. This factor results in a decrease in young and educated potential employees. The structure of employees is growing older and employees are accepted without required qualifications.

To sum up, the age structure of employees is unfavourable in the long run and at present presents a serious socio-demographic problem. To compare, in 1989 workers under 30 years of age amounted to 21.4% of the total work force in agriculture, in 1995 to as low as 17.8% and in 2000 to 13.5%. Then their share stabilised around the value of 11%, with the average age of employees increasing about four years to 46 years of age since 1989. At present, the number is even higher; agriculture enterprises mostly employ workers older than 55 years, which is determined by the tradition to pass a farm (agricultural enterprise) from one generation to another.

The data demonstrate that both the age and the qualification structure as well as wage conditions do not contribute to the long-term building of a healthy structure of employees, which would have a positive impact on the choice of agricultural enterprises in the eyes of potential employees. Svatoš (2005) states that the specificity of the given sector requires distinctive state regulation even despite a growing non-productive function of agriculture.

There can be no doubt that the greatest capital of each person in their working life is their ability to work (health, moral, professional) which, however, changes in the course of life (Štorová 2013). Ability to work is also grounded in the quality of work and continuance of older people in the work process given adequate stimulation from the organisation (Ziekemeyer 2005). In order to be able to maintain the ability to work, it

is necessary to find a balance between work and personal resources (priorities, professional knowledge and skills). Older workers are carriers of knowledge that has to be preserved in business (Urbancová 2012). In cases of training new workers, it is necessary to transfer knowledge between generations of employees. This, however, entails direct and indirect costs, which have to be incurred in each business to train a new employee when an experienced employee retires or moves to another business. Direct costs that have to be incurred on entrance courses, training of new employees, brochures, and loss of knowledge caused by premature departure are at issue. In terms of indirect costs, this entails expenses on motivation programs, teambuilding, reduced performance of new employees until they are familiar with the job, outflow of knowledge, transfer of crucial knowledge to competition, reduction of work performance over the estrangement period, and so on. (Vnoučková 2013).

Costs connected with the entrance of a new employee to an agricultural business are connected with the pertinent work focus on plant or animal production. It may entail costs connected with training workers in relation to work activities with agricultural machinery. Workers would have to be trained in the area of work safety and driving authorisation. This training has to be arranged periodically by the agricultural business. It is probable that workers in plant production also have to complete training concerning protection of the environment, given the use of chemical agents for fertilisation and protection of agricultural crops or propellant material that could damage the health of people and burden the environment if used improperly. Employees working in animal production have to be trained in the area of work safety with farm animals. Other activities of employees in animal production have to be substantiated by completion of training which concerns prevention of transmission, suppression and eradication of infections of farm animals, the scope of the agricultural business and its transfer to other locations.

Risk Management

Providing business continuity is a major strategic objective for many organisations in all sectors of the economy, including agriculture. The complexity of food supply chains makes it important to develop risk-

management strategies that overarch entire business operations. The recognition of risk is driving many food businesses to develop a risk-management strategy that covers the entire operation, recognising that there are risk connections between areas of the business that are considered independent. There are significant advantages in taking a proactive approach to risk management within the food supply chain.

According to Järveläinen (2013), information technology (IT) is the most important for organisations and generally represents an important resource and asset for effectively working organisations. IT incidents that make data inaccessible may cause businesses to lose customers, reputation and market position. Previous studies on information management have identified data availability as a key priority, and the literature on disaster recovery and business continuity describes ways of preparing for and avoiding IT continuity incidents.

In the event of critical situations, a familiar environment is subject to change, which may eventually lead to chaos. The usual business model of everyday behaviour will no longer work. Everything that was common in the organisation—routines, conventions and processes —will cease to exist.

For all businesses, risk means a threat, potential problem, the risk of damage, possibility of failure, loss or destruction. The risk thus expresses a degree of uncertainty, i.e., the probability of achieving a result different from the expected. Risks in a business are related to the external environment, innovation, changes and resources. Risks can be overcome by appropriate management. Their financial impact can be alleviated by insurance, which is typical for agriculture in the Czech Republic.

In the Czech Republic we work with several risk qualifications, the most detailed of which can be classified as follows:

Work risks

- Technical (technological) risks
- Production risks

Information risks (see also information security)

- Credit risks
- Insolvency risks

- Investment risks – profitability estimate and investment reliability
- Insurance risks – risk size estimate and the insurance event
- Currency risks – risks resulting from exchange rate changes in international trade

Market risks
Marketing risks
Social risks
Trade risks
Legislative risks
Logistic risks
Political risks
Business risks
Project risks
Social risks
Ecological risks
Spontaneous and natural risks
Security risks

Among the most frequent causes of events that the organisations in the Czech Republic deal with and that have the largest impact on business in general include (Urbanec and Urbancová 2014): technological errors of hardware and software (30%), the loss of key workers and knowledge (25%), natural disasters and epidemics (20%), unintentional human errors (10%) and intentional human errors (10%). For 5% of organisations the causes of events that have the largest impact on the organisation cannot be determined because the organisation does not provide a risk analysis.

In the current dynamic, competitive environment, the crucial risk for all businesses is the loss of employees and their knowledge. It is important for agricultural businesses to deal with the identification of risks and their proactive prevention. In the Czech Republic, research in businesses including agricultural ones has been carried out and it can be said that the security of knowledge continuity is an important issue both now and in future, which the agricultural business should focus on. Research results (Urbanec and Urbancová 2014) demonstrated the importance of

securing the knowledge continuity of employees in key positions in the organisations. Applying the continuity management has a significant role not only in the process of knowledge transfer but also in securing the continuity of activities. Not applying knowledge continuity management in a business may have a negative impact on the continuity of activities and it may further bring the organisation to a crisis situation. Therefore, securing the continuity of knowledge and applying the management of knowledge continuity is an essential precondition for preserving the continuity of activities and organisation effectiveness, even in agriculture.

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6

Profitability in Czech Agricultural Enterprises

Hana Urbancová

6.1 Main Factors Influencing Profitability

The Common Agricultural Policy (CAP) is important for strong and competitive EU agriculture and in general for the agro-food industry, which employs 19 million people (Chovancová 2013). The policy assures that agriculture and environmental protection do not exclude one another. It helps the development of the economic and social rural networks and it plays an important role in tackling new problems such as climate change, water management, bioenergy and biological diversity. A decisive reason to create integrated agriculture in Europe was to secure a satisfactory volume of food for inhabitants of Western Europe and currently the CAP contributes to the integration of European agriculture. Hrabánková and Boháčková (2009) regard agriculture as an irreplaceable factor of social and economic development in rural areas.

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The agricultural policy of the European Union focuses on the ability of producers of all kinds of food, from cereals to fruit, vegetables or wine, to make a living in both European and world markets. Reforms of the agricultural policy are also in the interest of a fairer world trade. They have reduced the risk of world markets disruption by EU subventions for excess exports. During international negotiations on the liberalisation of trade in Doha, Qatar, the European Union proposed to cancel all export subsidies until 2013 even if the negotiations failed. As part of the negotiations in Doha, the European Union also offered a significant reduction of import duties on agricultural products. However, even without these measures, the European Union is now the largest importer of food in the world and the largest outlet for food from developing countries.

Financial safety nets are still functioning, however, their use is targeted, for example through financial aid to farmers who were affected by a natural disaster or outbreak of an animal disease. If necessary, the CAP supplements farmers' incomes to provide them with an adequate standard of living. However, the payment of subsidies is conditioned by fulfilling broader goals in the area of hygiene and food security, animal health and living conditions, traditional rural landscape preservation and the protection of wild birds and animals.

Agricultural policy reforms released financial means for the support of quality and international competition of food, innovation in agriculture and food industry and rural development and the diversification of the rural economy. The agricultural policy reforms are now also in the interest of more fair conditions of international trade. They reduced the risk of EU subventions on excess export disrupting world markets. EU financial means are intended for research supporting innovation in agriculture with the emphasis on productivity increase and environmental friendliness.

The most important body for the implementation of the CAP in the Czech Republic is the State Agricultural Intervention Fund, which administers financial support from the European Agricultural Guarantee Fund (EAGF), the European Agricultural Fund for Rural Development (EAFRD) and national top-up payments provided by the Czech government. According to Baun et al. (2009), the Czech Republic was relatively successful in adopting the EU requirements and creating appropriate

administrative structures, however, there were obstacles in the continuity of CAP implementation. An example might be a delayed opening of the application process for the agro-environmental part of the Operational Programme for Rural Development 2007–2013. There were also two major errors in administrative processes while allocating agricultural funds. First, the absence of deadlines for applications processing was criticised as well as the payments of financial support after the projects ended. Second, the rules for the allocation of financial support were criticised, in particular their unceasing changes, ambiguity and lack of accurate interpretation.

Economic results of agricultural businesses in the Czech Republic are usually represented in median values for all businesses, or in simple classification of the businesses. In practice, agricultural businesses in the Czech Republic do not form a homogeneous group with balanced results; therefore, median values of the economic results presented by the Farm Accountancy Data Network (FADN) create a relatively distorted view of the reality. The data are derived from FADN, which was designed for performing a microeconomic analysis and comparison of results from different types of businesses and performance in individual countries of the European Union.

Furthermore, data from the Amadeus database are presented. Amadeus is a database of comparable financial and business information on Europe's largest 510,000 public and private companies by assets. Forty-three countries are covered. Amadeus includes standardised annual accounts (consolidated and unconsolidated), financial ratios, sectoral activities and ownership data. The database is suitable for research on competitiveness, economic integration, applied microeconomics, business cycles, economic geography and corporate finance.

In the field of agriculture, 1165 businesses are registered in the Czech Republic in total. The results derived from FADN (2015) and Amadeus database are presented later in the chapter.

The economic development of agriculture in 2012 can be characterised by a mild increase in the value of agricultural production and operating subsidies, however, agricultural businesses costs continued to grow at the same pace. A key factor was a continuing growth of cereal and oilseed prices, which had a positive impact on the development of income

indicators (gross added value, net added value, income from agricultural activity).

Gross value added (GVA) is a primary indicator of an economic result that expresses the value of total agricultural production after the deduction of production input consumption and taxes. In 2012, the gross added value grew to 17,993 CZK per hectare (ha), i.e., by 5.7%. A higher level of GVA was reached by businesses belonging to legal entities (18,283 CZK per ha). However, the growth pace of GVA of legal entities was slower than that of businesses belonging to physical entities. Gross value added of physical entities grew by 11.2% to 17,181 CZK per ha.

Economic value added (gross value added after write-offs, EVA) presents sources for covering production factors (work, land, capital). At the EU level, the EVA is regarded as a main indicator of production efficiency and income situation of agricultural businesses. In comparison with 2011, a median economic value added grew from 13,342 CZK per ha to 14,029 CZK per ha, i.e., the annual increase in EVA amounted to 5.1%. EVA growth was recorded for both legal entity businesses (2.7%) and physical entity businesses (12.5%). Within the monitored specialisations, the highest economic value added expressed per ha was achieved by agricultural businesses specialising in milk production (15,891 CZK per ha), followed by mixed production, with EVA of 14,613 CZK per ha, field production (13,328 CZK per ha) and cattle breeding (10,027 CZK per ha).

As opposed to the previous year, economic value added per worker (AWU) grew by 3.8% to 505 thousand CZK/AWU. The level of EVA/AWU was at both monitored business forms at the comparable level, 510 thousand CZK/AWU for legal entity businesses and 488 thousand CZK/AWU for physical entity businesses. A higher pace of EVA/AWU growth was achieved by physical entity businesses (6.6%). EVA/UWA of legal entity businesses grew by 2.9% a year. In 2011, the highest economic value added per worker was achieved by agricultural businesses focused on field production (666 thousand CZK/AWU).

Based on the EU FADN methodology, a final indicator of economic result is the income from agricultural activities (IAA), which is calculated as an economic value added reduced by the value of external factors (wage costs, rental of land and buildings and interest expenses) and increased by

the balance of investment subsidies and taxes (investment subsidies minus investment taxes). The income from agricultural activities presents income (of loss) from agricultural production; for physical entities, it also includes the remuneration of unpaid workers. In 2012, the agricultural businesses reached an income from agricultural production at the level of 5560 CZK per ha. Sectoral profit was at the same level as in the previous year. For legal entities, there was a mild decline in IAA, by 6.9% to 3827 CZK per ha, due to higher costs of external factors and a lower volume of paid investment subsidies. Physical entities showed IAA at the level of 10,414 CZK per ha, with an annual growth of 10.1%. Within the monitored production fields, the most profitable specialisation in terms of achieved income from agricultural activities is crop production (6941 CZK per ha). A high level of IAA was also achieved by other production specialisations, milk production (5757 CZK per ha), cattle breeding (5745 CZK per ha), and mixed production (4225 CZK per ha).

6.2 Planning and Forecasting Profitability

Chovancová (2013) states that agriculture in the Czech Republic is the principal beneficiary of EU subsidies, which is a paradox because the importance of agriculture in the Czech Republic was considered as a controversial issue of the Czech accession negotiations. In most of the fourteen regions of the Czech Republic, agriculture contributes to the gross value added by 0–5% only, with the Vysočina region with its more than 10% being an exception. Such small shares of agriculture contributions to regional gross value added are perceived as reflections of a relatively minor economic importance of agriculture in comparison with other production sectors. According to Tomšík (2010), in comparison with other states and priorities in other sectors which were taken into account during negotiations, the agricultural sector in the Czech Republic was never of a primary significance.

Baun et al. (2009) also point at the fact that the situation of Czech farmers is often worse due to administrative measures of the government, which are more strict and demanding than EU requirements. Tomšík (2010) mentions that one of the main distinctive features of the Czech

agriculture is its specific farm structure, which he regards as a possible pitfall of the CAP, specific for the Czech Republic. Czech farms are characterised by their large-scale production, which face different problems than family farms in the Western European agriculture. According to Bojnec and Latruffe (2013), who carried out research in Slovenia, small-sized farms are more profitable that medium-sized farms. The medium-sized farms are too small to be economically effective, but on the other hand they are too big to be profitable. Gorton and Davidova (2004) mention that their research carried out in Central and Eastern Europe did not show that large-sized (corporate) farms are less efficient that small-sized (family) farms. On the one hand, Czech agriculture is characterised by small family farms and on the other hand, by large enterprises such as cooperatives, joint-stock companies or limited liability companies. The present structure developed during the 1990s and the membership of the Czech Republic in the European Union did not bring any essential changes to the structure. Private family farms use more than one quarter of total agricultural land. Their share has slightly increased; however, another wave of their growth is not expected. Almost three-quarters of the used agricultural area is farmed by larger cooperatives or companies.

The Czech Republic has the highest number of small-scale farms of up to 5 ha in the European Union. However, these owners farm the smallest area of the agricultural land. In 2007, the average farm in the Czech Republic had 89.3 ha of the utilised agricultural area, which was 7.1 times bigger than the EU-27 average and 4.1 times bigger than in the old EU-15 (European Commission 2012). The Czech government is against the measures within the "status check" of the agricultural policy, which besides others propose the reduction of subsidies volume for large-sized farms (those which obtain more than 300 thousand EUR from the EU support), which may have a negative impact on Czech farms due to their large median size. The Czech government argues that by estimate, the proposed reduction would negatively affect 800 farms in the Czech Republic.

According to Tomšík (2010), another problem of the Czech agriculture after the Czech accession to the European Union, is the lack of capital. Companies and cooperatives function with a higher share of debt. Large companies make use of their size as an advantage. Not only the amount but also the structure of capital generates conditions difficult for agriculture.

Large farms often face unfavourable structure of their assets. Large agricultural businesses have only a low share of their own agricultural land, which is a consequence of the restitution process. Agricultural businesses are endangered by both long-term negative profitability and sudden fluctuations of operating profit at high indebtedness. The profit/loss of agriculture is characterised as highly variable and with a strong relation to external factors. Economic accounts for agriculture in basic current prices are presented in the Table 6.1. Annual total price indices are presented in Table 6.2.

Accountancy data from Amadeus database are further presented featuring below mentioned characteristics of agricultural enterprises in the Czech Republic in 2010–2013 (n = 1165, Table 6.3).

Basic indicators of agricultural businesses, which are officially available from the Amadeus database (n = 1165 agricultural businesses in the Czech Republic), are presented in Table 6.3. We will analyse the situation of agricultural businesses, their competitiveness and constraints that influence them.

Střeleček et al. (2012) regard as an important limiting factor of the competitiveness of agricultural businesses in the Czech Republic, uneven conditions in agricultural support in comparison with the countries of the former EU-15. The tools of the agricultural policy primarily fulfil the function of securing profit to entities operating in agriculture without an emphasis on improving competitiveness of these businesses. Many countries of the Central and Eastern Europe accepted European legislation as well as the Common Agricultural Policy while waiting for EU membership despite a lower level of agricultural support of new member states compared to that of former member states. The implementation of EU legislation was not followed by an economic success in agriculture of the new member states. It seems that the policy does not work as well as in Western Europe.

Based on the FADN results, it can be said that in 2001–2011 agricultural businesses of legal entities exhibited positive economic results with the help of subsidies. In a selected group of farms an annual decline of profitability of the total capital by 42% could be observed in 2004/2005 and by another 9% in 2005/2006. In 2007, there was a revival in the form of an annual growth of the indicator by 118%, however in 2008 and 2009 the profitability of the total capital fell (especially in 2009 by 86%) and another revival occurred no sooner than in 2009–2011. In

Table 6.1 Economic accounts for Czech agriculture in current prices (million CZK) (2004–2011)

Economic accounts for agriculture (EAA) code	Indicator	2004	2005	2006	2007	2008	2009	2010	2011
10	Crop output	63,010	49,962	49,484	66,401	62,509	51,115	56,951	70,238
13	Animal output	48,868	47,698	47,795	49,151	52,417	42,402	40,890	43,417
15	Agricultural services output	1451	2164	2346	2327	2657	2602	2709	2728
17	Non-agricultural secondary activities (inseparable)	2422	3068	2640	2304	2194	1697	2057	2483
18	Output of agricultural industry (10+13+15+17)	115,751	102,893	102,265	120,182	119,776	97,816	102,606	118,866
19	Total intermediate consumption	74,764	73,104	73,795	86,633	88,908	78,684	78,170	84,025
20	Gross value added at basic prices (18–19)	40,987	29,789	28,470	33,550	30,869	19,132	24,436	34,841
21	Fixed capital consumption	11,813	12,992	13,501	14,181	14,610	14,211	14,255	14,825
22	Net value added at basic prices (20–21)	29,174	16,797	14,969	19,369	16,259	4921	10,181	20,016
23	Compensation of employees	22,668	23,208	23,626	24,362	26,056	24,636	23,984	24,317
24	Other taxes on production	1850	1564	1464	1397	1192	1265	1364	1257
25	Other subsidies on production	7158	19,025	21,123	20,647	25,576	28,674	26,845	27,567

(*continued*)

Table 6.1 (continued)

Economic accounts for agriculture (EAA) code	Indicator	2004	2005	2006	2007	2008	2009	2010	2011
26	Factor income (22–24+25)	34,482	34,258	34,628	38,618	40,642	32,330	35,662	46,326
27	Operating surplus/mixed income (22–23–24+25)	11,813	11,050	11,003	14,256	14,586	7695	11,678	22,009
28	Rents and other real estate rental charges to be paid	2586	3056	3245	3472	3611	3900	3802	4216
29	Interest paid	1388	1522	1568	1434	1444	1349	727	1192
30	Interest received	691	597	645	660	611	394	497	527
31	Entrepreneurial income (27–28–29+30)	8548	7051	6835	10,009	10,143	2840	7645	17,128

Source: Own elaboration based on FADN data

Table 6.2 Annual price indices in the Czech agriculture (2004–2011)

Year	2004	2005	2006	2007	2008	2009	2010	2011
Agricultural producer price	108.1	90.8	102.2	116.8	108.8	75.2	105.4	119.1
Input agricultural price	106.8	103.0	100.4	105.9	110.8	92.3	98.2	108.3

Source: Own elaboration based on FADN data

Table 6.3 Basic data on agricultural enterprises in the Czech Republic (2010–2013)

1165 companies	Operating revenue (turnover) in CZK	Number of employees	ROE using P/L before tax %	ROCE using P/L before tax %	ROA using P/L before tax %	Profit margin %
2010						
Median	42,735	38	4.24	4.20	2.06	2.69
Standard deviation	187,539	113	33.50	26.18	11.38	15.55
Average	78,249	56	8.96	5.91	3.94	3.77
2011						
Median	45,000	23	8.29	6.90	4.06	5.09
Standard deviation	249,065	105	44.76	39.26	11.36	15.06
Average	88,925	48	10.55	7.55	5.17	5.26
2012						
Median	45,000	23	7.22	6.05	3.38	4.41
Standard deviation	167,616	99	48.84	27.02	10.80	13.66
Average	85,101	46	10.78	8.39	4.47	5.03
2013						
Median	45,000	23	7.92	6.17	3.99	4.41
Standard deviation	185,324	97	58.50	27.27	10.88	13.66
Average	92,336	44	8.67	8.82	4.53	5.03

Source: Own elaboration based on Amadeus data

2011, it was already at the same level as in 2007 (6.94%). The same trend was also recorded for operating return on sales.

A new reform of the Common Agricultural Policy has been approved for the period 2014–2020. The new CAP stems from the modification of the former policy with regard to an increase in the competitiveness of

agricultural enterprises. It concerns the following priorities which need to be monitored in the future:

1. Transfer of CAP measures towards a growing productivity and competitiveness of the agricultural sector through:

   - Verification of an advisory system function and creating a network of farmers, advisors, researchers, food producers, customers for creating knowledge and favourable approaches to secure the financing of rural development – human resource issues.
   - Encouragement of joint events for economic competition among farmers to support an efficient use of resources, product development and marketing – competitiveness.
   - Providing stimuli for the use of risk management tools and active prevention strategies – risk management.

2. Improvement of CAP impact on climate change and environment through:

   - increase in the agricultural areas where farming brings benefits for the environment and climate and encouragement of an interest in advanced environmental measures – partnerships and cooperation.

3. Improvement of the efficiency and effectiveness of the policy through:

   - Compensation in the form of direct payments in order to reflect income support and performance in relation to the environment – increasing sales potential/sales strategy.
   - Decrease in disparity in direct payments between member-states and farmers – increasing sales potential/sales strategy.

Particular managerial challenges on the basis of the results of own qualitative research are presented in the following chapter. The research was conducted by means of interviews with owners and managers of agricultural businesses in the Czech Republic.

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7

Managerial Challenges in Czech Agricultural Enterprises

Hana Urbancová

Managerial challenges in five core areas were identified thanks to the implementation of qualitative research performed by interviews with owners and managers in Czech agricultural businesses. To secure representativeness and appropriateness of the data, business size identification data were used following the Czech Statistical Office (standard classification of agricultural business) and Farm Accountancy Data Network (FADN) (agricultural accounting network), where businesses in the Czech Republic are classified according to their so-called economic size, which is given by a standard production, and the size of a business based on the number of its employees. Using the aforementioned division, businesses are classified as follows:

Economic size:

– small business: production up to 632 thousand CZK per year

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– medium business: production between 632 thousand CZK and 12.647 million CZK per year
– large business: production of 12.647 million CZK per year and more

Number of employees:
– small business: up to 20 employees
– medium business: 21–249 employees
– large business: 250+ employees

In the research performed in the Czech Republic, nine interviews with owners and managers of agricultural businesses took place. The interviews lasted 35 minutes on average (40; 40; 30; 35; 30; 45; 25; 30; 45 minutes). The results were recorded electronically (to a notebook), that is, an exact transcript of each interview is available. The respondents did not agree with their names being stated, therefore the results are made anonymous as "Respondent 1," "Respondent 2" and so on.

The structure of a business whose owner or top manager was addressed was as follows:

– regarding the number of employees, we interviewed: four small businesses and five medium businesses
– regarding the economic size, we interviewed: five small businesses, three medium businesses and one large business
– regarding focus, we interviewed: five businesses involved in plant and animal production, one business specialising in animal production only, two businesses specialising in plant production only and one business involved in forestry and farming

The interviews were semi-structured, with the respondents answering ten compulsory questions (same for all respondents) and supplementary questions that resulted from the interviews. The evaluation of the results interpreted as proposals and measures is presented in the sections that follow.

7.1 Sales Potential

What kind of changes do you observe in the conditions of the domestic markets for agricultural products?

In the interviews, the respondents were asked whether they have observed any changes in the conditions in agriculture (in plant or animal production or both) domestically in the Czech Republic. Most of the respondents said that due to being a small business in a private sector whose performance is very much affected by natural conditions, they feel a market risk. Some of small businesses become part of large enterprises that in turn invest in them and in many cases alter the course and functioning of the business. The second group is transformed to such an extent that they exclude the demanding plant production and farm on permanent grassland only, and thanks to EU grants, strive to survive. Respondent 1 even mentioned that "*The fact that we are able to function 'normally' under such circumstances is in my view a matter of luck*."

All respondents agreed that they are affected by the changes in agriculture; unfortunately, their impact is negative. Respondent 2 mentioned that "*the biggest interventions into our business are EU subsidies and its quotas and restrictions*." This was confirmed by Respondent 3, who said that he can feel the change in the conditions in, for example, the intervention of authorities (e.g., milk quotas were recently loosened in the Czech Republic). Overall, the respondents do not positively perceive bureaucratic interventions into agriculture that happen sometimes. One respondent mentioned that he does not think that there was a significant change in the agriculture of the Czech Republic; the conditions remain generally unfavourable. They have experienced this situation since the 1990s and do not feel any changes for the better.

Regarding the question of whether the changes in the conditions are caused by the local or foreign competition, the respondents agreed that they are threatened especially by the competition from abroad (e.g., low purchase prices of hop). Local producers are not perceived as a threat; they only cause pressure on prices. Respondent 4, specialising in plant production, mentioned that their goods are usually sold abroad

(Germany, Poland, Russia). In his opinion, the shopping literacy of the Czechs is not as high as in developed countries of Western Europe. In the Czech Republic, goods are sold that are not for sale in, for example, Germany; however, recently, a change in the behaviour of Czech consumers has been observed. They have begun to prefer quality to low price. Overall, it signals better times of the competition for the Czech agricultural products.

Based on the results of the interviews, it can be summed up that there are ongoing changes in the sector of agriculture. The changes are conditioned by the tools of the Common Agricultural Policy (CAP), which the addressed farmers make use of (e.g., Single Area Payment Scheme [SAPS], support for Less Favoured Areas [LFA], in the past top-up). However, the tools are changing and it is necessary to constantly adapt to them.

Overall, on the basis of the interviews, we can conclude that with the changing market, people have begun to take more interest in what they consume, however, the price is still significantly important for them. Unfortunately, farmers perceive these changes as rather negative. There is a strong local competition in prices only, which are sometimes forced to drop almost in a nonsensical way. A more specific field is forestry, where the market conditions are more balanced and stable as opposed to farm and plant production.

What is your sales strategy?

The question about a sales strategy was difficult for some respondents because three of the addressed businesses were family-run, based on traditions. Therefore, they mentioned not having any sales strategies.

The respondents further mentioned that their sales strategy corresponds with the focus of their business, which is primary production. Their sales strategy is thus accordingly adjusted. Generally, the business management contracts consumers whom they supply. Respondent 5 says that "*Our sales strategy is conditioned by the nature of our activities because we breed animals for meat, but slaughter is excluded (we do not have our own slaughterhouse). So we have our animals slaughtered at a slaughterhouse and we sell meat as a whole, which is convenient for us*."

The respondents further mentioned that it is relatively difficult to find customers for their products. A representative of a medium farm business said that at present they sell their milk in Germany. This change

took place due to contract termination initiated by a former consumer.

One of the respondents answered briefly but clearly that their sales strategy is "*to sell at the highest price*." Managers in businesses with designated sales strategies are allocated rewards based on sales or total company results, provided the manager is also the owner.

A representative of a large company (based on economic results) said that they have a determined sales strategy consisting in the support of a regional market, provided sales product prices are comparable. The strategy, however, does not affect managers' rewards. The only measure in this case is a result profit, which was also confirmed by the representatives of medium businesses, where the sales fee is fixed plus a percentage of the turnover (or profit). One of the respondents was more specific and mentioned that rewards are allocated based on production results—the quality of plant and animal production, remuneration for plant production workers is based on plant yields and quality, remuneration for animal production workers is based on qualitative meat results, and so on.

Overall, small businesses usually do not have a defined sales strategy, while large enterprises do. However, it is based on a single goal, which is a profit (to sell at the highest price).

7.2 Competitiveness

Where do you find the necessary knowledge and information to run the enterprise? How often do you use public and/or private consulting services? Why?

The acquisition of knowledge and information to run a business is crucial for all addressed farmers. Small enterprises try to transfer experience from one generation to another while large enterprises cooperate with external consultancy agencies and other institutions. For small enterprises, any public forms of consultancy are nearly impossible because of exorbitant prices of the companies dealing in the consultancy of farming key areas such as complete management and supervision of all agricultural records (fertilisers, chemicals, grazing, green diesel, stable register and feeds), assessment of erosive lands or processing basic risk assessment of environmental damage. For instance, a consultation with a private

consultant in the area of environmental damage costs approximately 500 to 1000 CZK per hour for small farmers and from 1000 to 1500 CZK per hour for large farmers. However, only larger companies can afford such consultancy services.

The respondents stated that if they need to consult some problematic areas, they try to find information from official sources, such as SAIF (the State Agricultural Intervention Fund) and official pages of other institutions. In case of consultations, it is most often assistance with processing resources for appeal against the decision of SAIF and the preparation of an application for subsidies (consultation of both formal and content requirements).

Overall, small enterprises to a large extent do not use consultancy because of high costs. They rather use official information from available resources, while large enterprises prefer consultancy in preparation for grant applications.

7.3 Partnerships and Cooperation

How do you assess your cooperation with food-processing enterprises and other farmers/agricultural enterprises? Do they help you to take the right decisions in managing your farm?

Regarding the cooperation of farmers and enterprises and competition from abroad, the interviewed Czech farmers are dependent on cooperation with other farmers or institutions in their region. The fact that the cooperation with other farmers and companies is important was mentioned by eight respondents out of nine. Only one was negative, probably because of the problems his company faces with low-quality services of suppliers and negative experiences with cooperation. In contrast, Respondent 5 mentioned that the cooperation improved his supplier relations, which were not so good before.

However, cooperation is still based on a quid pro quo principle. The cooperation is supported among farmers who put emphasis on a synergic effect, which can result from the cooperation (cheaper logistic routes, supply, increase in customer satisfaction, etc.), but primarily everyone thinks of themselves and of benefits for the company as such.

Respondent 7 said that he thinks that all farm businesses must try to cooperate as it is vital at present. He says that "*rural partnership is based on personal relations and direct communication, which is true also for businesses at the regional level. Thanks to personal contacts in our region, we have received many orders. However, recently the Internet is becoming increasingly important*." This results in companies paying increasing attention to their own presentation in the eyes of customers, making their information available on web pages (provided they have any). This all affects their success or failure in the region, the local community or in the whole national market.

The opinion of Respondent 7 agreed with Respondent 8, who said that "*Local relations and cooperation with other businessmen in the region are very important for us. This, although slightly altered, is probably an opinion of every company owner or firm manager and it is true even outside agriculture*." Respondent 9 said that "*Yes, cooperation makes it easier; otherwise we could not function on a long-term basis. We know our suppliers and consumers well and we get along correctly with state authorities. We want to concentrate on farm activities and if we were to start tackling relationship problems, it would hurt us*."

Overall, based on the interviews, local or regional partnerships and cooperation between farm businesses influence one another. The interviewees regard regional relations as crucial because the added value remains in the region. What is more, the business can build a strong regional position and later can expand outside the region.

What sources of investment do you have (e.g., state, or EU funds)?

The acquisition of financial means is relatively difficult for the interviewed farmers. Most of the respondents stated that, to a certain extent, their existence is conditioned by EU funding. It is mainly large and medium businesses that apply for EU grants; they also try to apply for local subsidies. Small and medium businesses are more dependent on state subsidies, without which they could not exist.

Respondent 8 mentioned that, unfortunately, from the position of a farm business manager he cannot comment on the financial issue because from his point of view it is a very subtle matter that should be discussed by the owner only.

Two respondents said that most of the financial sources are corporate resources (own resources) and they are not dependent on any subsidies.

It concerns the enterprise primarily operating in forestry and agriculture (plant production). A good financial situation without the need of state or European grants can be mostly observed in medium businesses with a long-term tradition and partial foreign share. Respondent 9 detailed his answer and gave the following structure of financing: "*State: interest subsidies on the loan (interest rates are around 3.5%, the state pays 2.5% and the farm pays 1%). European: subsidies per ha, subsidies from investment programmes (Rural development – post harvest grain finish, hop fields).*"

Overall, according to farmers' opinions, farming in the European conditions could not exist without subsidies. The addressed farmers receive subsidies from the state funds regularly and try to apply for EU funds; however, their applications are not always successful.

7.4 Human Resources

What knowledge, skills and abilities (competencies of employees) do you require from your employees?

Respondent 1 mentioned that whoever voluntarily decides to work in farming has already fulfilled the most important requirements because the Czech agriculture is suffering from a shortage of workers. When hiring new people, it is important to stress that it is physically demanding work, not suitable for everyone. As most of the activities take place outdoors, it is necessary to work with flexible people who understand that sometimes it is impossible to leave a field, although it is already past working hours. A driver's licence and experience with farm machinery are an integral part. Also, practical experience (such as minor machinery repairs) and the ability to solve unexpected problems are highly valued in agriculture.

Since three enterprises are family-run businesses, the respondents mentioned that for them personally and for their whole families, farming is a philosophy (for one of the respondents the tradition of farming was older than 150 years and even survived collectivisation). A positive relation of the employees to soil and the rural way of life in general is the most important. Another prerequisite is physical condition, willingness to take a heavy workload and resistance to stress, because farming work is

performed under pressure and, in particular, under the pressure of time. An emphasis is also put on good technical skills so that the workers are capable of working with farm machinery and of minor and simple repairs if necessary. A driver's licence and the ability to drive various types of farm machinery is a must.

When defining knowledge, abilities and skills required from employees by their employers in farming, it is necessary to specify what type of position the requirements are for. As the respondents mentioned, women in production usually finished primary school or apprentice school, however, outside the field of agriculture. Men are presupposed to possess technical skills and an ability to work with farm machinery. For most of the qualified professions, it is necessary to have knowledge corresponding to the nature of the position (accountant, agronomist, etc.). No other special requirements for the farm workers were mentioned. All in all, the addressed respondents simply want their employees to manage activities for the completion of tasks required by their position.

Respondent 9 summarised it as follows: "*We want them to orientate themselves in their field, i.e., agricultural or technical education is required for most positions. Some positions (animal keepers…) are not restricted by any requirements. From our employees we require responsible behaviour, ability to solve problems, not postpone them. Of course, every employee is an individual but we try to help. We are aware that it will later be reflected in the total result of the company.*"

To sum up, the respondents stated that the most important requirements in agriculture are responsibility, diligence, willingness to work during weekends, punctuality and compliance with rules. Regarding knowledge, it is the common knowledge of agriculture (knowledge of a production function in agriculture, non-production function and environmental function, which the employees should gain at the secondary school, college or a higher education institution) that is important; everything else can be taught and learned based on knowledge sharing among generations of employees, colleagues and so on. Independent thinking is also important—workers on lower positions must report their decisions, while workers on higher positions are expected to make decisions independently.

What knowledge, skills and abilities are important in managing an agricultural enterprise like yours?

Based on the aforementioned, the respondents agreed that for managerial positions in agricultural enterprises the following requirements are necessary:

Knowledge:

- At least secondary school education in the field (e.g., agricultural secondary school, food secondary school, forestry secondary school, etc.) Unfortunately, most of the graduates start working in other (or related) fields and they do not remain in agriculture.

Skills:

- Organisational skills (work organisation, punctuality, time management, etc.)

Attitudes:

- Reliability and responsibility; diligence; flexibility; loyalty to the company

These characteristics are rather general and may be important in other sectors of the economy as well. According to our respondents, they are important also in agricultural enterprises. Skills and abilities can be learned in formal education (time management), but the basic attitudes should be learnt at home during childhood (loyalty, responsibility). A lot of abilities can be improved by case studies, simulations, role-playing in practice by formal education or informal education (knowledge sharing). The aforementioned characteristics are regarded by the addressed respondents—owners and managers of agricultural enterprises—as primary requirements for workers on managerial posts.

When and how did you apply an employee to a managerial position in your company? Was it by promotion or by direct application from the labour market? What are your experiences in this area?

Thanks to traditions, the representatives of small enterprises answered similarly, for example, "*I am a manager in my company and I hope that my son will continue in my position. I have no experience in addressing workers to a managerial position.*" At the same time, they added that they would like to preserve the tradition even for future generations, that is, the firm should stay in the family.

The representatives of medium businesses and one large business most frequently stated that managerial positions are filled by workers on personal recommendation. They would not allow the form of a commercial (advertisement). Respondent 7 directly stated: "*Last time we addressed new employees for a managerial position 6 months ago by choosing persons based on their references and a consequent selection process.*"

In total, three respondents mentioned that they always try to select an employee from their own company for a managerial position, which is in line with modern trends of human resource management. If it is necessary to look for an employee from external sources (from competition or the labour market), references of a personal nature are crucial for the company representatives and if they were not able to find a suitable worker, only then they would place an ad on the Internet, for example, on www.jobs.cz or www.práce.cz. The respondents further mentioned that they do not have the best experience with the Labour Office and they would not use its services for either technical or managerial positions. This is caused by the fact that labour offices in the Czech Republic offer less important jobs; managerial positions are not available at the labour offices at all. The managerial positions are usually advertised online. Agricultural companies primarily select their workers based on recommendations, training their own employees or recruiting talented students who desire to work in agriculture at secondary schools or colleges.

Based on the respondents' opinions, it can be stated that references are the most important for managerial positions in agricultural businesses. The best is to select candidates for managerial positions among people who have already demonstrated their quality at comparable work posts. For a managerial position, it is necessary to have education not only in agriculture (common knowledge in agricultural functions) but also of an economic character. Agricultural specialisations at Czech schools therefore also develop knowledge and skills in business economy, accounting and business management.

The respondents were further asked supplementary questions in order to identify their opinions in the area of human resources.

Do you think that market competitiveness is affected by the competitiveness of managers (their competencies, i.e., abilities, knowledge and skills)?

There were great differences in the answers between managers or owners of small or medium enterprises and medium or large enterprises. The results show that the interviewed representatives of small businesses (up to 20 employees, usually family-run businesses) conclusively state that the competitiveness on the market is not affected by the quality of managers. According to the addressed respondents, the competitiveness in small enterprises is determined by quality and price, not by people.

The representatives of medium enterprises were rather in doubt whether abilities and knowledge of leading workers is important in order to gain the competitive advantage. One of the two respondents answered: "*To a certain extent yes, but as agriculture is a specific area of business, the main power of competitiveness is rather in the ability of the cooperative to fulfil its commitments and deliver products as agreed.*" The other respondent added: "*I think that there is a connection but to a certain extent. I do not know a prosperous firm which would not have capable managers who are able to react in time to external conditions affecting agricultural companies*."

The representatives of a large agricultural enterprise as well as the representatives of medium businesses agreed that the market competitiveness is affected by the competitiveness of managers (their competencies, i.e., abilities, knowledge and skills). Overall, there is a significant differentiation in individual fields and sizes of agricultural businesses, but most of the respondents mentioned that the market competitiveness is influenced by the competitiveness of managers.

Is finding capable employees important for you? Is it possible in your region?

The respondents said that finding capable employees is important; however, it depends on in what sense capable. Whether a capable employee is an experienced worker or a worker with professional education, which is not clearly defined for managers of agricultural enterprises, is a question. The opinions of the interviewed representatives show that today agriculture usually employs people without professional training and still they are valuable workers. Of course, some positions require professional knowledge. Most of the respondents mentioned that they

regard all their workers as capable because they perform quality work and are willing to learn new things. At the same time, it is necessary to understand that finding good, capable workers is limited geographically, that is, most of the workers commute to work to large cities and they do not want to remain in rural areas and work in farming. In typical rural areas, the situation is simpler because it is rooted in the people to work as close to home as possible and farming is preferred. In contrast, in more urban areas, the trend is to commute to work and "avoid" farming.

The respondents agreed that quality employees are important for them and that they need them. With respect to high unemployment in different regions where the farmers operate, they do not have more significant problems at present; however, it concerns mainly manual work where there are no professional requirements for workers but where there is a focus on their reliability, flexibility and diligence. Thanks to long-term positive experiences, quality workers from other countries, such as Slovakia, Romania or Bulgaria are often hired for seasonal jobs.

It can be concluded that to find the best and most capable employees in the region is a principal factor of doing business in the field. Finding capable workers is important and sometimes difficult. It is difficult to find professionals because those who specialised in the field usually do not stay due to unfavourable conditions in agriculture. However, it is possible to select potentially good workers already at secondary schools.

Would you make use of the offer of a local/regional school or school of higher education to obtain more quality workers or increase their qualification? Which form of cooperation would you prefer?

In total, eight respondents mentioned that they find the offer interesting or that they have already accepted it in the form of university students' professional training and that they have positive experience with it. New and young students bring new insights and opinions enabling a comparison of their new findings with experience accumulated by the business. Thus, it can be said that this may be a way to improve the performance of the business.

Respondent 4 mentioned that he would consider cooperating with a local/regional school or school of higher education in order to receive quality workers or improve qualifications because he himself studied at agricultural schools and at present he still tries to enhance his qualifications.

He would be inclined to propose students' training, which is convenient for all participating parties. Respondent 6 said: "*This form of cooperation is definitely beneficial to us. A few boys started working for our firm after their apprenticeship and both parties knew what to expect*."

The other respondents said that they use the possibility of higher education in cooperation with secondary schools and colleges permanently, and they actively take part in students' training. Respondent 8 said that only six agronomists graduate annually from the college and that the biggest problem is the incapability of human judgment; it is better to educate their own people and help them receive experience, which is possible by the aforementioned practice.

It can be concluded that the respondents are inclined to engage in cooperation with secondary schools and colleges but they stress convenient conditions for all. Some of them already have a long-term cooperation with a school from which they select their workers. Some are considering cooperation with a school. A key managerial challenge is to set up a systematic cooperation between schools and agricultural businesses.

Do you see any possibility of attracting young people (managers) to the agricultural sector? Can you see in it a contribution for either party? Where exactly? How would you try to attract them?

Young people in agriculture are, and in the future will be, very important because they will replace the present aging workforce. Due to the demographic curve of the inhabitants in the Czech Republic, this fact is true for every field, not only for agriculture. Unfortunately, at present, agriculture is not an attractive job for the young generation.

It can be said that the so-called fresh wind, together with new insights into problems and their tackling or innovation, as well as implementation of new technologies, is a benefit in every field. The problem is primarily in the field of currently stagnating agriculture. Respondent 6 said that he employs young managers in his company and they are a great benefit to him as they have brought new ideas and are hard-working. However, they are not used to working outdoors without a computer. It can be a generational issue because Czech agricultural companies usually employ older people (55+). The respondents agreed that any form of awareness is non-existent at both primary and secondary schools.

It can be concluded that the respondents again stressed the necessity of cooperation between schools and businesses and deepening the awareness about agriculture. Unfortunately, without the state contribution (increasing the attractiveness of agriculture, increasing the average wage and so on) the situation in unlikely to improve.

7.5 Risk Management

What risks do you run having your business?

The greatest risk for agriculture is bad weather and the risk of losing subsidies on which most of the addressed respondents are financially dependent. Our respondents confirmed this statement. Besides seasonality and the impact of weather, the respondents also mentioned offer inflexibility—when the consumer needs something, farmers must wait until it grows and thus they risk that the consumers will buy it from another country where they do not have to wait for it to grow.

It can be said that the present vacuum in the area of subsidy policy is rather disturbing for farmers. Natural risks, such as weather and crop failure, also play a significant role and need to be taken into account in farming. What is also unpleasant are several far too bureaucratic regulations (especially for small enterprises), which was indicated by Respondent 5, who said that "*I see risks particularly in the agricultural policy of the EU and state interventions in general, which in my opinion are in some cases implemented and interpreted in an unsuitable way without taking into account regional specificities. In general, I would say that agriculture is very often discussed in the media but in practice it stands on the edge of interest of our political scene representatives*."

It can be summarised that the most frequent risks that farmers face are unexpected events (diseases and disorders), weather, EU financing, the market and purchase prices. These factors can be classified into two key areas as follows:

– natural calamity situations
– large price fluctuations of key products and poor payment discipline of customers

How do you address these risks? What are your experiences in this field?

The respondents try to minimise the risks identified, however, due to their nature, it is not always possible. The weather, which is a key risk factor, cannot be influenced. It is therefore necessary to be able to respond to changes quickly, which is crucial for farm survival. The respondents tackle natural calamity situations by quality insurance of basic risks. For example, Respondent 9 said: "*We have insured several plants and animals. On steep fields we try to farm following the correct agricultural experience and avoiding erosions and landslides, which is quite a problem. In some years, a part of harvest is destroyed by hail, so the prevention by insurance is really worth it.*"

In subsidy policy, managers always prepare for the "worst." It is necessary to follow changes related to the allocation of subsidies, legislation and its changes. Respondent 6 said: "*We regularly follow legal regulations and current topics connected with the agrarian sector and we try to prepare for them diligently and in advance. We have never had problems with authorities or with inspections, so I think we have been doing it well.*" Similar opinions and experience were mentioned by three other respondents who put emphasis on proactive behaviour, where it is necessary to constantly follow current events in agriculture and in business and be prepared for the changes in advance. Sometimes it is hard and it requires a lot of effort. For most of the interviewees, the situation—responding to risks—is rather successful. However, some risks are very demanding financially.

The respondents further mentioned that, unfortunately, they cannot influence price fluctuations and they must respond by changing the volume and kind of production. Consumers must permanently screen their economic value and evaluate the risks. Preparation is systematic: large-scale insurance and the allocation of sales into several time periods—not to sell the whole harvest at once but to leave part of it stored—is the way to achieve a higher selling value and eliminate the risk of sales failure.

Overall, natural risks can be insured, although the weather cannot be influenced. With respect to high price fluctuations of key products, poor payment discipline of consumers can be prepared for by a proactive risk management, which is both time-consuming and financially demanding, or by a systematic proactive approach.

What are the main managerial challenges in doing your business?

The respondents unequivocally agreed that the main challenge is to keep a business "afloat" (dispose of a lot of cash for salaries, machinery repairs, seeds, spray, etc.) and financially secure all employees (both the permanent and seasonal staff) from its activity. This is related to achieving the lowest losses in production and the highest profits and sales while passing products to other steps of processing and production and negotiating long-term purchase prices acceptable for farmers.

The respondents from medium and large enterprises mentioned that at present, with regard to the demographic development of the population, they put emphasis on or they must deal with the support of staff personal development and invest in their knowledge, skills and abilities. At the same time, two respondents mentioned that their greatest challenge is to belong among the best companies in the field and build the brand and image of the company to the highest level possible, while constantly acknowledging that people are its greatest wealth—without human capital no business will survive.

Among managerial challenges, the respondents particularly mentioned modernisation, technology implementation into the process of soil tillage, crop harvest and the implementation of automatic cow milking, tracking tractors, trucks or other farm machinery with GPS systems (managers will have a clear idea about the machinery whereabouts and the use of working hours of the servicemen). Weather is also tracked on the Internet and selected employees watch the weather information and accordingly, effectively start their working process. This, however, emphasises the importance of quality employees and good management, that is, small-scale farm owners or managers of medium and large enterprises.

In technologies, the implementation of new approaches, in crop rotation in particular, is expected. At present, the owners of farm businesses put emphasis on new Internet pages that would provide better information of their service offer, attract new workers to their company and build a strong brand of the employer.

Overall, the main managerial challenges in the addressed businesses are:

– modernisation of equipment, efficient process adjustment;
– building a good brand of the company and employer; and

– personal development of staff (teaching managers to decide independently and be responsible for the consequences resulting from their decisions).

One of the key characteristics of agriculture is the high level of production, market and financial risks faced by producers. To reduce production and/or marketing risks, a producer has the option of using several risk-reducing instruments or strategies such as yield- or revenue-based crop insurance, future hedging and forward contracting. Each of these risk management tools has inherently different characteristics that make it more suitable for particular crops, particular geographical areas and/or particular farm business situations. Given the variety of risk management tools available, it is important, from a management perspective, for farmers to be aware of and understand the attributes of those alternative risk-reducing instruments. A better understanding of the different risk management tools available allows producers to more effectively choose the most appropriate risk management strategies for their own business situation (Schnitkey et al. 2004).

The most useful asset a farmer can have to help with the management of risk is good information. There are many sources of information available to farmers. However, the most appropriate place to look for information depends on the type of risk with which the farmer is dealing. Among the most common risk factors that farmers face are weather, crop and livestock diseases, pests, adoption of new technologies, fluctuating prices and government programmes and policies.

Investigating the factors that affect farmers' preferences for different risk-management information sources would also help various institutions involved in risk-management education in agriculture, such as the Risk Management Agency (RMA) and the Cooperative Extension Service. Better targeting of educational efforts could help farmers improve their risk-management skills, and this could have a positive impact on their management decision making.

Producers who prefer a self-study of educational materials and popular press information sources tend to be younger persons who have used fewer professional services. Older producers do not prefer any of the information sources examined in this study, and this seems to suggest

that risk-management education and outreach programs should be targeted more toward younger farmers. From an extension programming perspective, their results suggest that younger, well-educated farmers with larger operations (i.e., highly leveraged and with a larger asset base) and who are more willing to take risks will be more responsive to the typical delivery mechanisms being used by risk-management extension educators—in-depth training by risk management experts and Internet delivery of educational materials. On the other hand, there is some indication that younger producers with smaller operations may tend to prefer the self-study of educational materials and the popular press. Given these results, a risk-management extension educator can feasibly structure his or her programme by using in-depth training and Internet delivery mechanisms to provide information to producers with larger operations, and by using popular press outlets and mailing of educational materials (for self-study) to serve his or her farmer clientele with smaller operations.

It can be said that one of the better ways to help limited resource farmers manage agricultural risk is their access to printed materials like periodic newsletters, fact sheets and other practical material. A snowball effect will also ensure that the more farmers are reached through initial efforts, that more farmers will get the information, because communication with their peers seems to be one of the best sources of information at their disposal.

Urbanec and Urbancová (2014) show that as far as the agricultural sector is concerned, only one of ten organisations has the ISO/PAS 22399 standard in place. None of them applies the BS 25999 standard. Business Continuity Management application in the Czech Republic depends on the economic sector and the size of the organisation. Only 5% of all organisations having a BC standard are from the agricultural sector.

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8

Good Practices and Unresolved Problems in Czech Agricultural Enterprises

Hana Urbancová

8.1 Good Practices

On the basis of our study, a comparison with similar surveys and data on the labour market, it may be said that the agricultural sector is changing rapidly and it is necessary to adapt to these changes. Therefore, it is necessary to take into account current trends in lifestyle, to which businesses should respond. Current trends include the following:

- A return to alternative ways of life and interest in farming and the countryside. At present, the situation on the food market has triggered increased interest (after years of decline) in "self-supply" agricultural activities (Czech Statistical Office 2011).
- Strengthening of vocational and secondary agricultural education with more emphasis on the needs of agricultural practice.

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- Changes in the rural labour market as the worsening of the situation on the labour market may encourage interest in employment in agriculture with a higher share of qualified candidates (National Training Fund 2013).

With respect to these trends, agricultural businesses are recommended to:

- Adapt flexibly the length and content of work to the individual pace of employees, which is in compliance with the surveys conducted by Galea et al. (2014) and Ng and Law (2014). In positions and divisions where work time is not strictly defined by shifts or follow-up operations, it is advisable to leave the performance of tasks to employees' discretion, and if required, to extend their work break. This measure, however, is conditioned by the completion of all daily tasks. This would be welcomed by those employees who need a longer break due to fatigue. Others will probably not prolong their working hours.
- Not presume that certain work is too exhausting for an older employee; one's opinion needs to be based on an employee's decision and other factors, not only on age. Such a measure will contribute to a better self-fulfilment of the employees and subsequently will increase their satisfaction.

In the Czech Republic, the most important competencies of employees in managerial positions are as follows:

– experience in leadership
– communication skills
– time flexibility
– presentable behaviour and presentation skills
– reliability and responsibility
– organisational skills
– independence
– self-confidence
– dynamic person with a proactive approach

– negotiation skills
– analytical skills
– hardworking
– goal-oriented
– stress resistance

Other requirements mentioned in the advertisements included knowledge in the area of project management, loyalty, creativity, accuracy, systems thinking, decision-making skills, willingness to learn, sense of purpose and being process oriented.

The following managerial competencies can be combined:

– communication skills and negotiation skills
– dynamic person with a proactive approach, goal-oriented and sense of purpose
– analytical skills and decision-making skills
– systems thinking and process-oriented

Our study indicated that knowledge-based organisations in the Czech Republic reached consensus only for basic managerial competencies necessary for the performance of managerial work, that is, knowledge and experience in the given sector, a university degree and speaking a world language. As far as other competencies are concerned, there was no consensus. Other important competencies include leadership experience, communication skills, flexibility, presentable behaviour, responsibility and organisational skills.

The identification of competencies is one of the crucial steps in a competency-based approach. An efficient use of managerial competencies in the process of human resources management depends on how successfully managerial competencies are identified and transformed in the resulting behaviour. The identification of managerial competencies cannot be perceived as a separate factor, but together with other steps leading to the development of a managerial competency model.

The results of the research performed in agricultural enterprises demonstrated that the most important competencies in agriculture are reliability, diligence, willingness to work on weekends, punctuality and compliance with the rules. As regards knowledge, it is general knowledge

of agriculture functioning; everything else can be taught and learned. The respondents agreed that in managerial positions in agricultural businesses it is important to have the following knowledge, abilities and skills:

- knowledge of the field (economic circumstances, agricultural specifics, supply and demand relation)
- reliability and responsibility
- organisation
- diligence
- flexibility
- loyalty to a company
- good communication and ability to negotiate with staff, suppliers and consumers

The results obtained in the qualitative research in a specific agriculture branch are in line with the nationwide results regarding which competencies are important for a managerial position, irrespective of the branch.

At present, a number of organisations are aware of the competency-based approach; however, they are often unable to utilise competencies appropriately. Simultaneously, there is no consensus of which competencies managers have to possess to perform their work at the required (superior) level. In practice, therefore, managerial competencies are often connected with organisational values rather than individual work positions. An efficient utilisation of a competency-based approach depends on the correct identification of managerial competencies and the subsequent development of a suitable competency model, as well as their measuring, evaluation and development. Difficulties may occur in any phase of this process. The difficulties in identifying managerial competencies include measurability and divisibility of competencies; generalising skills over different categories of manager; the changing nature of management; accommodating different styles and strategies of management; and how individual competence contributes to and integrates into organisational competence.

With regard to the results of the research carried out nationwide in the Czech Republic, a knowledge gap can be identified along with areas of interest crucial for agricultural enterprises. These areas will increasingly become even more important in the future.

Recommendations for managers of agricultural enterprises include the following:

- Focus on building the brand of an employer—focus on good selection of agricultural business staff and invest time and adequate resources in the promotion of available jobs.
- Participate in job fairs, which are regularly held by secondary schools and colleges, where it is possible to find potential employees.
- Cooperate with schoolteachers, who will propose the topics of theses custom-made for agricultural businesses, which will thus save expenses and allow selection, education and training of future employees from among the students.
- Cooperate with agricultural schools in course profiling so that they reflect real experience; a fresh agricultural school graduate will be professionally trained to meet the specific needs of a particular company (creating a talent pool).
- Support knowledge sharing inside a company from one generation of staff to another.
- Increase staff motivation, for example, by implementing a modern way of training and development—mentoring, coaching—which are tools that help increase staff motivation and work performance of individuals as well as the whole company.
- Apply modern trends in management—Age Management, Business Continuity Management and Knowledge Continuity Management.

Recommendations for secondary schools and colleges include the following:

- Support cooperation with agricultural enterprises; carry out regular research aimed at identifying graduate competencies that are necessary in practice.
- Propose such diploma theses that the students can target their practical training and professional research at areas that agricultural business managers find problematic (e.g., individual risk management, such as information and knowledge management, product innovation and the like).

- Enable managers to take part in classes in the form of lectures, which would connect both theory and practice; at the same time, it would contribute to building a good name and brand of the school.
- Focus on study fields aimed at the development of competencies that agricultural businesses require from graduates.

In terms of operation recommendations, it is suitable to evaluate present company processes, identify risks that can affect business and decide whether the risk in the company will be prevented systematically (e.g., by standards) or by insurance.

It must be noted that the recommendations result from the performed research ($n = 9$). The results therefore cannot be generalised for the whole Czech Republic. However, common problematic areas can be identified and recommendations suggested, as outlined previously.

Based on the performed research within the identified five basic problematic areas, the following recommendations can be summarised for the Czech Republic:

Increasing Sales Potential/Sales Strategy

Consumers started to take interest in what they consume, but the price is still very important. Do not reduce quality for the sake of the price of products. Instead, build strong brands of products, promote products and increase the use of the Internet and connections with other agricultural enterprises. The higher the demand for quality agricultural products, the lower the price can be reduced, which will be acceptable also for farmers (with a given sales volume) and for end customers.

Determine a particular and simple sales strategy at the management level. Not even a family-run business can survive without a strategy. In small businesses that face existence problems, even simple promotion (the Internet, local regional newspapers, cooperation in regional events, etc.) can help.

Competitiveness

Support applications for state and European subsidies. Despite an unsuccessful application, learn from negative experience and keep applying. Cooperate in applying with universities and official institutions so that the application is competitive among other applicants in the Czech Republic or European Union.

Partnerships and Cooperation

Cooperate with schools, as discussed previously. Cooperate with and create joint ventures (mergers, acquisitions), which will help determine stronger monitoring policies, support brands and increase sales.

Human Resource Issues

Again, cooperate with schools and specialise in the development of identified key competencies.

Put emphasis on the development of professional knowledge in agriculture, creating accredited fields of study with respect to practical requirements.

Risk Management

Identify risks in every enterprise and realise the level of risk in the given enterprise and thus implement a reactive or proactive approach. Decide on a systematic approach to risk elimination (e.g., obtaining ISO standards).

The following subchapter presents the areas of interest that are important for all fields of business. The area of agriculture in the Czech Republic and abroad is not an exception.

8.2 Unresolved Problems and Gaps

According to the National Training Fund (2014), agriculture is one of the sectors of the Czech economy that employs people with a higher average age and in the long term has failed to attract young people. The percentage of employees younger than 30 years old has decreased by half; on the contrary, the number of employees aged 60 years old has increased by 50% over the course of the last 10 years (Czech Statistical Office 2014). The data also show that more than two-fifths of employees are older than 50 years of age. At present, agriculture is perceived as an industry with a relatively lower employment perspective and the overall employment in this sector is expected to decrease, according to the Czech Statistical Office (2014), by one-third by 2020 compared to 2008. Its share with respect to the overall employment in the entire economy is expected to be 2.45%. This figure roughly corresponds to the current share of this sector in overall employment in developed West European countries.

Agriculture lacks certain professions and in the coming years the sector will undergo a change in qualification structure. New trends will support demand for workers with higher or broader qualifications (e.g., the growth of eco-farms and the development of agro-tourism) and the demand for employees with completed secondary or tertiary education is likely to increase (National Training Fund 2014).

A similar development is also expected in forestry professions. These are still characterised by a large share of manual work, which is going to change due to the development in mechanisation. Forestry, like agriculture, is characterised by lower demands for qualified labour, but this is also likely to change, at least partially, in the future. Apart from the requirement of having knowledge in forestry combined with the ability to master more modern technological processes, the importance of ecological knowledge is also likely to grow. Professions with such a qualification structure will be increasingly important to maintain environmental stability and forest biodiversity (National Training Fund 2014; Czech Society for Quality 2013).

Krutílek and Kuchyňková (2006) state that the adverse age structure in agriculture and forestry is the result of a greater number of factors, which include the following:

- The transformation process led to the outflow of unused but also qualified labour, and the production of resources for the development of agricultural businesses was significantly limited. While at present agriculture is witnessing production modernisation, the deficits in qualified labour still persist.
- One of the most important factors is the prevailing lower income, that is, a wage level that does not correspond to the general demandingness of work in agriculture (hard manual work, longer working hours, seasonality, conditions and circumstances at workplaces in animal and plant production, etc.). In combination with the wage disparity, the sector lacks attractiveness for young and qualified people. Lower wages in agriculture are closely related to the financial results of businesses. However, the requirements for labour qualification and quality in agriculture continue to grow, primarily due to technical and technological development. Agricultural businesses have difficulties recruiting such employees.
- Agriculture is not undergoing a generational change to a sufficient extent and is characterised by a "conservative" behaviour of the older agricultural generation.

In particular, these deficits in the area of human capital are the result of an insufficiently innovative approach. They manifest themselves, among other things, in an inappropriate ratio of costs and benefits that are revealed by surveys targeted at the identification of the level of diversification of the European agriculture. Surveys focusing on the educational structure of farm owners also disclose that it is farm owners who are younger than forty years old that tend to practise more significant diversification, demonstrate the ability to accept and adopt new technologies and practices and support more environmentally friendly farming. In the majority of cases they also have higher education (often including some specialisation) compared to older owners (Krutílek and Kuchyňková 2006).

It may be concluded that no major changes for the better can be seen. Agriculture has a significantly more unfavourable age structure than the rest of the national economy. While it employs a much lower number of employees younger than 30 years old, the number of employees older than 60 years of age employed in agriculture amounts to almost double (Czech Statistical Office 2014; National Training Fund 2014).

The unfavourable age structure of employees together with low wages in agriculture represent a long-term problem that continues to grow with the increasing pressure to speed up the generational change due to the strong representation of employees of higher age categories who are about to retire.

In 2013, the Quality Assurance Authority of the Czech Republic and the Czech Society for Quality (2013) started to encourage organisations to apply, on a permanent basis, the principles of Age Management and therefore introduced the Award for the Application of Age Management in businesses in the Czech Republic. This is a response to the activities of the European Union, which designated 2012 the European Year for Active Ageing and Solidarity between Generations. The competition stresses solidarity between generations and its positive impacts on society, civil life, entrepreneurial environment and public administration in harmony with the principles of the National Positive Ageing Strategy (Ministry of Labour and Social Affairs 2013). However, with respect to current demographic developments, employee aging is a topical issue for all companies in all countries.

8.3 Suggestions for Market-Based Services

Current demographic and economic conditions in individual countries lead to a significant increase in competition in the labour market. Every employer from all economic sectors wants to have a competent and talented workforce and the fight for such employees becomes harder and harder. For companies to attract and retain the best employees, it is necessary to build a good employer brand that may appeal to talented employees and to cooperate with schools and universities in development of their competencies, according to the results reported earlier.

Building a strong employer brand is not an easy task in any sector, including agriculture, forestry and fisheries; however, it is essential for companies if they wish to succeed in the labour market and to attract a talented workforce into the industry. To build a good employer brand, companies in all sectors need to focus on the following:

- Clear and efficient specification of the given employer to distinguish it from competitors and help the public remember it easily; this is done through the brand as such (from the marketing point of view).
- Offer recognition, that is, what the company offers to the work force in the labour market and its current employees so that the value of the employer brand can be determined.
- An efficient communication programme on the business website, participation in competitions, fairs, and so on.
- The organisation's own communication strategy with a precise action plan in order to unanimously support its identity and strengthen the position of the employer brand in the strongly competitive environment, headhunting for talented employees.
- Consistency over time to enable the customer to build long-term trust in the employer, which also means increasing the value of its brand. It is important to work with employees to avoid damage to the employer brand by disloyal employees.
- Employer brand monitoring in time and follow-up evaluation and adjustment to the results; this means continuous care of the employer brand. It is very easy to lose a good reputation, but winning it back and retaining it is much more difficult and time-consuming.
- Liability for the employer brand; it is important to support the credibility of information and trust in the employer both within the internal and external (labour market) environment.
- Continuous investment in strategic trends that contribute to good employer brand building in the current turbulent environment is absolutely necessary. The underestimation of such investment may have a negative impact on the perception of the employer by current and future employees and the entire public.

It is necessary to realise that the more attractive the employer and its presentation is for stakeholder groups (i.e., efficient provision of interesting tangible and intangible employee benefits, maintaining of cultural and working environment, engagement of employees in management, support of brand management, image and reputation), the more interest the employer will evoke in the labour market. Such an organisation will not only have the possibility to select candidates from a larger group, but will also gain access to a talented workforce, as indicated by Pop (2008). A research study by Helm (2011), conducted in companies belonging to the US Fortune 500 index—the so-called most admired companies with a good employer brand—demonstrated a relationship between the quality of the employer brand and employee pride and the quality of work done by them. It is possible to conclude that employee pride and satisfaction arising from the work performed has an impact on the brand strength.

In the competitive environment, organisations in all sectors need to pay attention to the following issues when building their brand:

- Importance of the organisation and its success (financial results).
- Organisation reputation (trustworthiness and politeness towards workers and employees).
- The level and fairness of remuneration in comparison with other organisations. The figures should always be stated truthfully, otherwise organisations will lose their employee loyalty. Without internal trust it is impossible to win good employees, as mentioned by both Pop (2008) and Aaker (2003). The majority of employees would give preference to a renowned employer where they expect more interesting financial conditions and a variety of benefits rather than an unknown company with few employees.
- The level of employee care (including care of working environment) and employee benefits compared to other organisations.
- The possibility of corporate training and personal development of employees in general—primarily in the area of employee training, talent management and knowledge sharing, supporting of innovations, and so on.
- Interpersonal relations and the social climate in the organisation.
- Organisation location, living conditions, the surrounding environment, and so on.

These internal factors are in the hands of the organisation and their active improvement will determine how the organisation is perceived by potential employees. However, as Koubek (2011) states, there are factors that are very difficult for organisations to control. They are often referred to as external factors and they are of great importance in agriculture. They include the following factors:

- demographic (employment, education and age structure),
- economic (the growth of the country or regional GDP, average wages, economic cycle, etc.),
- social (population migration, value scale, style of living, and other factors),
- technological (technological development in the given area, innovation potential, and other factors),
- settlement (type of settlement – urban or rural),
- political and legislative (political situation in the country in question, frequent legislative changes, etc.).

In agriculture, the biggest role is attributed to demographic and economic factors, as reported by the Czech Statistical Office (2014). Zacher (2013) confirms the same for all economic sectors.

It is also necessary to realise that efficiently organised communication of the employer towards its current employees (internal resources) and the work force in the labour market (external resources) is an essential part of the entire recruitment strategy, in particular in the initial phase of searching for a job. Not all organisations, however, have sufficient budgets to be able to launch such a promotion. This is often the situation in small agricultural companies in the Czech Republic. Nevertheless, Bursová (2009) states that branding is always desirable and adds that the final effect for the organisation is the improvement of performance through employee commitment, loyalty and supplementing current teams. According to Klementová (2008), candidates for positions in agricultural companies may be specifically addressed by means of targeted presentations, participation in job fairs, organisation of competitions for students (not only those specialising in agriculture), cooperation with cultural, branch and student organisations, regular posting of newsletters/mailings, database search of candidates, publishing offers on the Internet, and personal ads in branch or regional periodicals.

While internal characteristics controllable by organisations have an impact primarily on individual decision making of potential candidates whether or not they will respond to an organisation offer, external factors are objective and not controllable by organisations and therefore have to be accepted and projected into subjective factors in a way to avoid a negative effect on the employer branding process.

The factors described may represent both an opportunity and a threat for the organisation in question. It is important how the organisation views them and how intensely it responds to them. Love and Singh (2011) mention that building a strong employer brand does not have an impact only on a broader group of potential candidates and their work commitment. They confirm the words of Bursová (2009) that a well-managed employer brand has a direct link to an organisation performance. Love and Singh (2011) prove this by saying that long-term monitoring of the twenty "Best Employers" in the United States revealed that the increase in sales and the cash flow of these employers was 8% and 8.2% higher compared to organisations not included in this category.

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Part III

Managerial Issues in Agricultural Enterprises in Hungary

9

Agricultural Enterprises in Hungary

Krisztián Kovács

9.1 Agricultural Enterprises in the Country's Economy

Agriculture has traditionally been an important sector of the Hungarian economy. Hungary benefits from many natural features that provide favourable conditions for agriculture: fertile plains, an advantageous climate, availability of water. The quantity of flowing water per inhabitant is said to be the largest in the world. Although the share of agriculture in the economy has decreased recently, it is still significant. In 2015, about 80% of the land area of the country is suitable for agricultural production, which is one of the highest rates among the European countries. However, it is also true that one-third of the soils and the terrains is unfavourable for efficient farming. A great part of the country is lowland.

In the agriculture of most Central European countries, unlike other sectors, land restitution became a major form of privatization. In fact,

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in Hungary, a mix of restitution, land selling for compensation bonds, and some small redistribution of land to employees of state farms and members of production cooperatives were the methods chosen for land privatization. At the same time, in most countries (including Hungary) the farm equipment fell into the possession of the present and previous members of the cooperatives and their heirs (Burger 2009).

The role of agriculture within the national economy cannot be exclusively measured with output, employment and GDP data that are characteristic of the sector, as the agro-industry has a major effect on its related supply, processing and distribution industries. The term "agribusiness" was introduced to signify this meaning (MRD 2013).

The Hungarian agribusiness is divided in two parts, agriculture and food industry. The share of agriculture in employment has been decreasing since 1995. According to the Hungarian Central Statistical Office (HCSO 2015a), 4.6% of the active population was employed in the agricultural sector in 2014, which is approximately 175,800 people. The food industry employed 3.5% of the total active population in 2014. Within the processing industry, the second largest employer is the manufacturing of food, beverage and tobacco products. That means that in 2014, 8.1% of the total Hungarian active population worked in the agribusiness sector, which amounted to 364,500 people.

The food processing industry is traditionally an important sector of the economy. It provides 1.9% of the GDP, 10% of industrial production and 15% of production for the processing industry. Furthermore, it accounts for 3.5% of the total national employment. The production of the food industry is diverse. Most people work in industries dealing with meat, poultry, dairy, vegetable and fruit, or tobacco processing, and in bakeries.

However, it seems agriculture is an important sector in the Hungarian economy because of the high employment rate. The agriculture and the food industry account for 3.7% and 1.9% respectively of the Hungarian Gross Domestic Product (GDP) (Table 9.1). It means that 5.6% of the total national GDP (approximately 29 billion HUF) is generated in the agribusiness sector, which is not as much as it was in the 1980s (13.9%).

The total area of Hungary is 9.303 million hectares (ha), of which 79.4% (7.387 million ha) is used for agriculture; 46.6% (4.331 million ha) is arable land and 20.8% (1.939 million ha) is forestland. Since 2004,

Table 9.1 Share of agribusiness in the Hungarian economy (1995–2014)

	Share of agriculture in			Share of food industry in		
		Gross domestic product (GDP)	Investments		Gross domestic product (GDP)	Investments
Year	Employment, %	At current prices, %		Employment, %	At current prices, %	
1995	8.0	7.1	2.9	..	3.3	6.8
2000	6.6	4.9	4.7	..	2.7	2.8
2004	5.3	4.3	4.3	3.6	2.4	2.8
2010	4.6	3.0	4.8	3.3	2.0	2.2
2013	4.7	3.7	5.9	3.3	1.9	2.6
2014	4.6	3.7	6.1	3.5	1.9	2.9

Source: Adapted from HCSO (2015a)

the area utilized for agriculture has decreased by 395,000 ha. Cereals occupy about 70% of the arable land. The major cereals are wheat and maize. The average yield of wheat is 4.5 t/ha and that of maize is 6.5 t/ha. Other important crops are potatoes, oilseeds, fruits, vegetables and wine grapes.

The animal production accounts for 34.7% of the total agricultural production. Regarding livestock, 70% of cattle and cows, 63% of pigs and 50% of poultry are bred on corporate (cooperative farms and companies) farms; however, 86% of sheep are kept on individual farms.

The total gross output of the Hungarian agriculture was 2410 billion HUF in 2014 at current basic prices. The crop and horticultural products account for 58.4% of the total Hungarian agricultural output, which is 1407 billion HUF. The gross output value of live animals and animal products was 836 billion HUF in 2014 (34.7%) (Fig. 9.1). Agricultural services provided to producers represented a value of 167 billion HUF in 2014. The share of crop production in total agricultural output was nearly 59%, while the share of live animals and animal products was

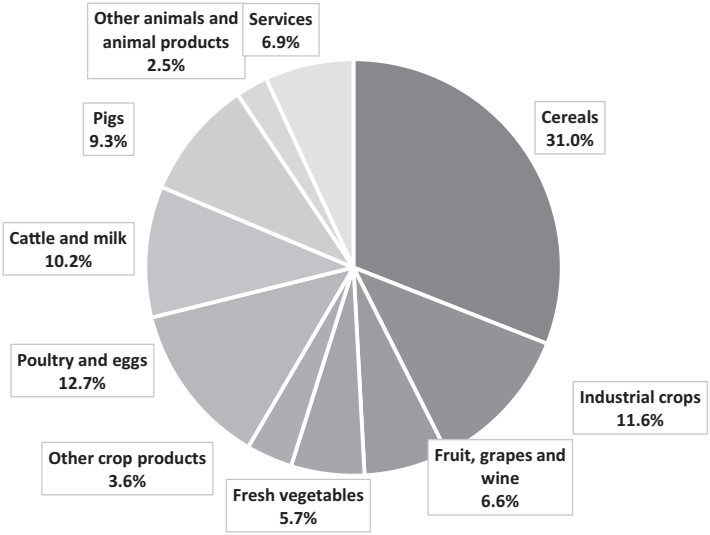

Fig. 9.1 The sectoral structure of the agricultural output in Hungary (2014) (Source: Adapted from HCSO (2015b))

34%. Before 2004, the share of animal husbandry was more than 40%, which has been mostly influenced by the high EU support rate for the crop production sector.

The share of cereals (wheat, corn and barley) in the total agricultural gross output was 31%, which means that this was the biggest product group or sector inside the Hungarian agriculture. Industrial crops (sunflower, rape, potato) accounted for 11.6% of the total agricultural output. The highest output share among the live animal and animal product group in 2014 was the poultry and eggs sector (12.7%), followed by the cattle and milk sector with a 10.2% share.

At the beginning of the transition, the Hungarian Smallholders' Party—being a part of the right-wing coalition government—decided to recreate the smallholder agriculture that had prevailed before post-war collectivization (Swinnen 1997; Swinnen et al. 1997; Csáki and Lerman 1997). Its aim was to establish individual farmers based on the Western model.

In Hungary, the pre-transition farm structure was characterised by a dominance of collective and state farms. Potori et al. (2014) conclude that symbioses between large-scale farms and household plots led to the relative success (high profitability, excellent crop yields and high willingness to invest) of Hungarian agriculture under the former regime. Prior to the transition (1989–1990), three main types of economic organisations were predominant in Hungarian agriculture: state farms, agricultural producer cooperatives and household farms. State farms were enterprises established and owned by the state and operated by hired workers. They were large-scale production units, both in crop production and in livestock. Hungarian collective farms were similar to Western-style agricultural producer cooperatives. Production assets and three-fifths of the collective farm land were in collective ownership, while the members privately owned another one-third of the land. Household plots were small plots cultivated by members of collective farms or state farm workers. There was a law that limited the amount of land and livestock allowed.

In the opinion of Burger (2009), this policy led to the creation of millions of scattered plots of land; such plots could not be mechanised, or only at great expense, and they could not be cultivated productively. According to the Hungarian statistical data, after the "new" land

redistribution, there were 1.8 million landowners among the 10 million inhabitants of the country on the 8 million ha of agricultural and forest area, and the average land area of each farm was 4.4 ha. Thousands of new owners emerged; some of these were retired people, and some the heirs of former owners. The latter had not been engaged in agriculture and most of them did not live in rural areas. Instead of cultivating the land, they rented it to the corporate farms and individual farmers, thus making the production of the latter even more expensive. Fortunately, the structure of land tenure did not become as inefficient as that of land ownership after privatization. Members of many cooperatives had voted against the breaking up of their farm. Thus a part of the big farms have survived either as renamed and restructured cooperatives or as different companies organised in the place of the former cooperatives and state farms. Land tenure is much more concentrated than ownership. In Hungary, the corporate farms at present cultivate 60% of the utilized agricultural area and keep a large part of the livestock. The dragging on of the privatization process, and its poor results, together contributed to the decline of agriculture.

The Hungarian "thousand-year-old" agricultural tradition is based on the country's natural endowments, which are mainly the following factors: favourable climate, good geographical conditions and a high rate of the very fertile soils.

The change in the political system of 1989–1990 led to radical changes in agricultural ownership, land use and farm types. Because of land compensation, proportional disbursement, the transformation of cooperatives and the privatization of state farms, private ownership has become dominant in agriculture. The holding structure has been stable without any major changes for several years. However, the largest share continues to be individuals' cultivation of their own land. Lease held by cooperatives and businesses has tended to rise, while land use under other titles represents a smaller share and has gradually decreased (MRD 2011).

According to Potori et al. (2014), the political, economic and social transitions of the 1990s have resulted in an extremely fragmented, bipolar farm structure in which individual farms and corporate farms predominate. The changes resulted in the dominance of the private ownership of land in Hungary, which has not changed substantially during the last

decade. Land ownership and land use are separated from each other and both are characterised by fragmentation. The changes in ownership have increased the pool of owners. Most of them are not bound to agricultural production and activities, and rent out their land mainly to large economic organisations.

According to the Hungarian Central Statistical Office (HCSO 2015a) database, in 2013 there were 491,315 agricultural holdings in Hungary. Among the EU Member States, Greece (723,010) and France (489,980) had similar numbers. Among the Hungarian holdings, 482,517 were private (98%) and 8798 were agricultural enterprises (2%). The private agricultural holdings used 46% of the total agricultural land, which is 2.12 million ha. Conversely, the small number of agricultural enterprises used 54% of the total agricultural land, which is 2.46 million ha.

According to the HCSO (2007) definition, the agricultural holding is both a technically and economically independent production unit (household) involved in agricultural activity, and which has:

– one bigger unit of livestock (cattle, pig, horse, sheep, goat, buffalo), or
– fifty heads of poultry (chicken, goose, duck, turkey, guinea-fowl), or
– twenty-five rabbits, furry animals or pigeons for slaughter, or
– five beehives.

The statistical office defined the agricultural enterprise as follows: enterprise having legal or non-legal personality and engaged in agricultural activity, excluding the private entrepreneurs and natural persons involved in economic activity. Private holdings are defined as households engaged in agricultural activity and holdings operated by private entrepreneurs having tax-number. The types of production can be:

1. *crop farming*: holding solely engaged in agricultural activity related to the land area—only the land area is exceeding the holding threshold;
2. *animal farming*: holding solely engaged in agricultural activity related to livestock —only the livestock is exceeding the holding threshold; and
3. *mixed farming*: holding engaged in agricultural activity related to land area and livestock—both the land area and the livestock are exceeding the holding threshold.

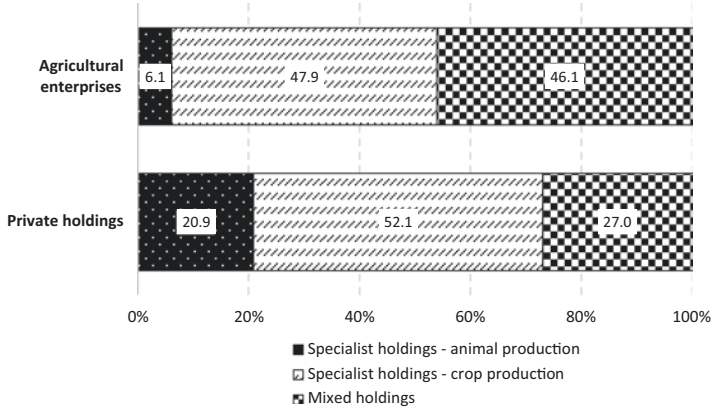

Fig. 9.2 Agricultural holdings by legal forms and type of farming in Hungary (2013) (Source: Adapted from HCSO (2015a))

Regarding livestock production, only 2179 agricultural enterprises kept animals in 2013, compared to 310,252 private holdings. The Hungarian livestock population was about 2.256 million livestock units (LSU). Of the total LSU, 59% were kept in agricultural enterprises and 41% in private holdings in 2013.

There are three types of farms in Hungary: specialised in animal production, specialised in crop production, and mixed holdings (Fig. 9.2). Among agricultural enterprises (8798), 6.1% specialise in animal production, 47.9% in crop protection and 46.1% are mixed holdings. This 46.1% share of mixed holdings is quite big among the EU countries. Regarding private holdings, specialist animal producers account for 20.9% of the total number of holdings (482,517). Of these private holdings, 52.1% specialise in crop protection and 27.0% are mixed holdings.

The most important farm structure indicators are shown in Table 9.2. Because of a growing farm concentration and a bad financial situation in Hungarian agriculture, the number of agricultural holdings decreased dramatically—by 49.2% from 2000 to 2014.

In Hungary, the utilised agricultural area (UAA) slightly decreased (by 0.8%) from 2000 to 2014. It covered an area of 4.5 million ha or about half of the entire Hungarian territory in 2014.

Table 9.2 Farm structure indicators in Hungary (2000–2014)

Hungary	2000	2010	2014	Change from 2000 (%)
Number of holdings	966,920	576,790	491,315	−49.2
Total UAA (ha)	4,555,110	4,610,331	4,589,439	−0.8
Livestock (LSU)	3,097,540	2,467,946	2,256,396	−27.2
Total farm work on holding (AWU)	676,049	444,157	452,064	−33.1
Average area per holding (ha)	4.71	8.00	9.34	98.7
UAA per inhabitant (ha/person)	0.45	0.46	0.44	−2.2

Source: Adapted from HCSO (2015a)

As the number of holdings significantly decreased and the agricultural land only slightly decreased, the average size of the holdings grew; it almost doubled, from 4.71 ha per farm in 2000 to 9.34 ha in 2014.

In Hungary, the number of people regularly working in the agricultural sector decreased over the period under analysis (−27.2%): about 676 thousand people were employed in this sector in 2000, whereas only 452 thousand remained in 2014. However, the agricultural labour force still represented 4.6% of the active population in 2014—one of the highest shares recorded within the EU-28 (Eurostat 2015).

Regarding animal husbandry, the Hungarian livestock population was about 3.1 million LSU in 2014. Compared to 2000, a 27.2% decrease was observed, which amounts to −841,144 LSU.

Table 9.3 presents the regional characteristics of the Hungarian agriculture. The Northern Great Plain (Észak-Alföld) and the Southern Great Plain (Dél-Alföld) together accounted for about 45% of the country's agriculture. Regarding the number of holdings (HCSO 2015a), the territory of Észak-Alföld had the highest value (124,290) in 2013 and accounted for a little bit more than one quarter of the entire population. Moreover, 106,097 farms were registered within the territory of Dél-Alföld in 2013, which accounted for 21.6% of the Hungarian population of agricultural holdings.

In terms of the agricultural area, it is the Southern Great Plain (Dél-Alföld) that displayed the highest figure. In 2013, it accounted for 23.46% of the Hungarian agricultural area, as 1.08 million ha of UAA were recorded within its borders. The Northern Great Plain has a slightly smaller share (22.02%), with 1.04 million ha of agricultural land recorded within its territory.

Table 9.3 Farm structure indicators in Hungary by NUTS 2 regions (2000–2013)

Indicator	Region	2000	2010	2013	Change 2013/2000 (%)
Number of holdings	Hungary	966,920	576,790	491,315	−49.2
	Közép-Magyarország	81,910	46,320	47,797	−41.6
	Közép-Dunántúl	90,860	52,560	44,774	−50.7
	Nyugat-Dunántúl	101,870	61,110	49,628	−51.3
	Dél-Dunántúl	124,240	74,960	61,081	−50.8
	Észak-Magyarország	135,640	73,560	57,646	−57.5
	Észak-Alföld	221,740	143,910	124,290	−43.9
	Dél-Alföld	210,640	124,370	106,097	−49.6
Total UAA (ha)	Hungary	4,555,110	4,610,331	4,589,439	0.8
	Közép-Magyarország	314,340	318,288	348,245	10.8
	Közép-Dunántúl	528,470	507,470	496,954	−6.0
	Nyugat-Dunántúl	502,480	519,091	496,951	−1.1
	Dél-Dunántúl	687,490	675,029	673,327	−2.1
	Észak-Magyarország	485,270	475,850	486,659	0.3
	Észak-Alföld	976,080	1,036,541	1,010,417	3.5
	Dél-Alföld	1,060,980	1,078,062	1,076,885	1.5
Livestock (LSU)	Hungary	3,097,540	2,467,946	2,256,396	−27.2
	Közép-Magyarország	164,090	143,742	144,287	−12.1
	Közép-Dunántúl	442,840	275,532	244,404	−44.8
	Nyugat-Dunántúl	347,440	258,693	240,973	−30.6
	Dél-Dunántúl	406,890	282,301	261,269	−35.8
	Észak-Magyarország	238,790	169,645	152,591	−36.1
	Észak-Alföld	672,540	623,655	584,076	−13.2
	Dél-Alföld	824,950	714,378	628,795	−23.8
Total farm work on holding (AWU)	Hungary	676,049	442,199	452,064	−33.1
	Közép-Magyarország	..	36,794	41,563	..
	Közép-Dunántúl	..	43,282	47,526	..
	Nyugat-Dunántúl	..	45,828	44,932	..
	Dél-Dunántúl	..	56,793	56,790	..
	Észak-Magyarország	..	50,436	50,363	..
	Észak-Alföld	..	100,061	103,823	..
	Dél-Alföld	..	109,006	107,067	..

(*continued*)

Table 9.3 (continued)

Indicator	Region	2000	2010	2013	Change 2013/2000 (%)
Average area per holding (ha)	Hungary	4.7	8.0	9.3	98.7
	Közép-Magyarország	3.8	6.9	7.3	91.7
	Közép-Dunántúl	5.8	9.7	11.1	91.4
	Dél-Dunántúl	5.5	8.5	10.0	82.1
	Észak-Magyarország	3.6	9.0	11.0	206.2
	Észak-Alföld	4.4	6.5	8.4	91.9
	Dél-Alföld	5	7.2	8.1	62.6

Source: Adapted from HCSO (2015a), Eurostat (2015)

Regarding LSU, the region of the Southern Great Plain (Dél-Alföld) proved to be the most important. In 2013, there were 628,795 LSU within its territory, which corresponded to about 27.87% of the country's population of farm animals. The second largest livestock population was observed within the territory of Észak-Alföld (584,076 LSU), which accounted for a little bit more than one quarter of the Hungarian farm animal population in 2013.

In terms of the agricultural labour force, the Southern Great Plain (23.68%) and the Northern Great Plain (22.97%) together accounted for almost 47% of the Hungarian regular labour force; about 210,890 people worked on farms within these two regions in 2013. The other regions, like the Dél-Dunántúl (12.56%), Észak-Magyarország (11.14%), Nyugat-Dunántúl (9.94%) and Közép-Dunántúl (10.51%), had double-digit shares, whereas the territory of Közép-Magyarország registered a lower share (9.13%) in 2013.

9.2 Managerial Issues in Agricultural Enterprises in General

Generally, competitiveness is essential for economic growth. This is especially true for Hungary because it is considered an agricultural country. However, several internal and external factors influence the agricultural

competitiveness. In this chapter, we try to analyse the most important factors that influenced Hungarian agriculture, for example: the sales potential or sales strategy, partnership and cooperation, human resources issues and risk management. The following sections will introduce these factors.

Sales Potential

Hungary is traditionally a net exporter of agricultural and food products. The Hungarian government has also given a political priority to maintaining or increasing agro-food exports. Hungary's foreign trade relations expanded during the last decade. Most of the Hungarian agricultural trade was conducted with the member states of the European Union. Hungary's key trade partners are Germany, Austria, Romania, Poland, Italy, Slovakia, the Netherlands and the Czech Republic. In 2014, the first fifteen exporter and importer countries accounted for approximately 81–91% of the total agricultural foreign trade in Hungary.

Agricultural exports mainly go to Germany (14.4%), Romania (10.6%), Austria (9.4%) and Italy (9.1%). They exceeded 2300 billion HUF in 2014. The main agricultural import partners are Germany (20.7%), Poland (11.0%), Slovakia (9.7%) and Austria (8.6%). Hungarian imports amounted to 1400 billion HUF in 2014. Altogether, Hungary is mainly an exporter country regarding agricultural products, with the trade surplus at over 900 billion HUF in 2014. Table 9.4 presents the top fifteen foreign trade partners of Hungary in agricultural products.

Regarding the product structure of the agricultural foreign trade, five major product groups accounted for 64.6% of total agricultural exports in the first half of 2015: 24% cereals; 14.2% meat; 10.6% feeding stuffs for animals; 9.9% fruit and vegetable products. As we can see, the cereals play a dominant rule in the Hungarian agricultural foreign trade. Hungary exported a value of 228.8 billion HUF of cereals and cereal preparations in the first half of 2015. Conversely, in the same period, Hungary imported 65.5 billion HUF of cereal products as well. The biggest amounts were sold to Italy, Romania, Germany and the Netherlands.

Table 9.4 Hungarian foreign trade in agricultural products (2014)

	Hungarian exports to			Hungarian imports from		
	Receiver country	Billion HUF	Share %	Sender country	Billion HUF	Share %
1	Germany	339.2	14.4	Germany	295.3	20.7
2	Romania	250.2	10.6	Poland	156.9	11.0
3	Austria	220.6	9.4	Slovakia	139.0	9.7
4	Italy	214.7	9.1	Austria	123.0	8.6
5	Slovakia	159.6	6.8	The Netherlands	110.4	7.7
6	the Netherlands	123.5	5.3	Romania	84.9	5.9
7	Poland	100.3	4.3	Czech Republic	82.3	5.8
8	Czech Republic	94.8	4.0	Italy	72.1	5.1
9	France	75.0	3.2	France	63.9	4.5
10	United Kingdom	73.9	3.1	Belgium	39.5	2.8
11	Russia	70.6	3.0	Spain	36.4	2.6
12	Croatia	63.2	2.7	United Kingdom	31.3	2.2
13	Slovenia	47.9	2.0	Slovenia	27.2	1.9
14	Belgium	46.6	2.0	Croatia	22.7	1.6
15	Ukraine	44.3	1.9	Serbia	21.2	1.5
	Top 15	1924.4	81.9	Top 15	1306.0	91.5
	Total exports	2349.6	100.0	Total imports	1427.1	100.0

Source: Adapted from HCSO (2015b)

Hungarian imports are less concentrated in products than Hungarian exports. The top five commodity groups accounted for 53.3% of total agricultural imports. Vegetables and fruits amounted to 14.1%, cereals 10.8% and edible products and preparations for 10.1% of the total amount of agricultural imports. Although Hungary has trade relations with more than 150 countries, both imports and exports are highly concentrated.

The shares of the European Union were 91.5% in import value and 81.9% in export value in 2014. Hungarian exports to the old member states decreased slightly but imports from them fell steeply, while exports to the new member states sank heavily and imports from them declined only slightly. Hungary's agricultural foreign trade with third countries outside the European Union decreased by approximately 25%.

The commodity structure of agricultural trade is presented in Fig. 9.3. The main import commodities are vegetables and fruit, and cereals. The main export commodities are cereals (and preparations), meat and meat preparations and feeding stuffs for animals.

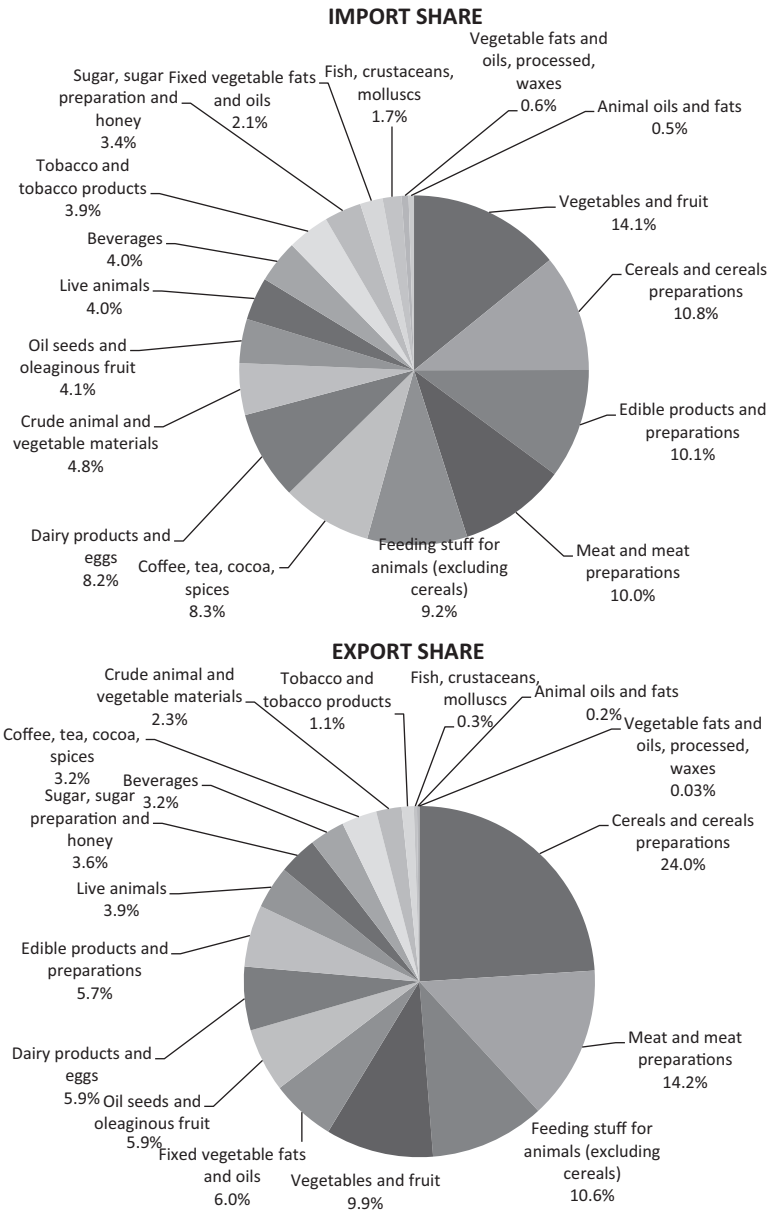

Fig. 9.3 Commodity structure of foreign trade in agricultural products in Hungary (2015) (Note: Data for January–May. Source: Adapted from HCSO (2015a))

Table 9.5 Quantitative measures of agricultural production in Hungary (2000–2014)

Item		Units of measurement	2000	2004	2010	2014
Cereals		*thousand tonnes*	10,025	16,779	12,262	16,614
Of which	Wheat	*thousand tonnes*	3693	6007	3745	5262
	Corn	*thousand tonnes*	4984	8332	6985	6315
Sugar beet		*thousand tonnes*	1976	3527	819	1067
Oil seeds		*thousand tonnes*	710	1576	1604	2297
Potatoes		*thousand tonnes*	864	784	488	567
Vegetables		*thousand tonnes*	1500	2031	1144	1441
Fruits		*thousand tonnes*	1038	1038	766	850
Grapes		*thousand tonnes*	684	789	295	451
Production	Slaughter animals	*thousand tonnes*	1566	1433	1329	1408
	Slaughter pigs	*thousand tonnes*	793	683	553	523
	Cow's milk	*million litres*	2081	1845	1641	1826
	Hen's eggs	*million pieces*	3171	3265	2732	2420
	Wool	*tonnes*	3369	4703	4070	3887

Source: Adapted from HCSO (2015a)

Competitiveness

The natural resources of Hungary are favourable for agricultural production, which offers great crop yields of excellent quality and large quantity, as it is shown in the statistical data. Every year from 2000 to 2014, 10 thousand to 17 thousand tonnes of cereals were harvested on 2–3 million ha (Table 9.5). The two main cereals are wheat and corn. Every year, 3–6 thousand tonnes of wheat and 5–8 thousand tonnes of corn were harvested.

Regarding industrial crops, Hungary harvested less and less sugar beet since 2000, because its sugar industry was particularly weak during this period. Only 819 thousand tonnes of sugar beet were harvested in 2010. The other industrial crop sector is the oil seed sector, where we have to mention the sunflower and the rapeseed, which are popular among Hungarian farmers. Thus, every year the country produces more and more of these two crops. In 2014, farmers harvested 2297 thousand tonnes of oil seeds in Hungary.

The fruit and vegetable sector outputs change quite hectically. We can see a small decrease in the production, then increasing tendencies.

In 2014, Hungary harvested 1441 thousand tonnes of vegetables, including sweet corn, tomatoes, watermelon and peppers. In the fruit sector, the apple production volume increased by more than 120% since 2000. The production of other fruits, like sour cherries or plums, fluctuated strongly from 2000 to 2014.

In general, almost all animal production sectors have decreased their production since 2000, but some sectors after this hard period started to increase their outputs, for example, the slaughter animals sector, where beef cattle contributed to the output numbers. Another promising sector was the dairy sector, which grew after 2010, but unfortunately still cannot reach the production level of the year 2000.

Statistics on livestock use two different units of measurement, the number of heads (number of animals) and LSU. We report the number of heads in Table 9.6. In the cattle sector, the total number of animals is 801 thousand heads, which is almost the same as in 2000. Of the total cattle population, 62% is situated in agricultural enterprises and 38% in private holdings. This ratio is almost the same for cows. Regarding the pig sector, 3.135 million animals create the Hungarian livestock, of which 74% are kept in agricultural enterprises and only 26% in private holdings. The sheep livestock is 1.185 million heads, with 87% kept in private holdings, which is unique in the Hungarian animal production sector. The poultry industry consists of 30.5 million poultry, of which 63% is kept in agricultural enterprises and 37% in private holdings. Thus, we can conclude that in the animal production sector, the large agricultural enterprises dominate over the large number of small private holdings, which is favourable from the perspective of scale efficiency.

Partnerships and Cooperation

Since the accession of Hungary to the European Union in 2004, it has been possible to establish producer groups (PGs). Nowadays the number of PGs has risen to 250. A greater increase in the number of PGs is hindered by the fact that there is a gradual decrease in the number of farmers working outside PGs. More than 20,000 farmers are now operating in PGs. PG members can enjoy a more competitive position and reduce

Table 9.6 Number of animals in different agricultural holdings in Hungary (2000–2014)

		Cattle		Pigs		Sheep		Poultry	
Item		Total number, *thousand animals*	Of which: cows	Total number, *thousand animals*	Of which: sows	Total number, *thousand animals*	Of which: ewes	Total number, *thousand animals*	Of which: hens
2000	Agricultural enterprises	543	261	2483	207	206	153	14,335	4515
	Private holdings	262	119	2351	141	923	744	16,381	9746
	Total:	805	380	4834	348	1129	897	30,716	14,261
2004	Agricultural enterprises	475	225	2369	183	182	131	16,136	5124
	Private holdings	249	121	1690	113	1215	957	16,678	10,322
	Total:	723	345	4059	296	1397	1088	32,814	15,445
2010	Agricultural enterprises	449	203	2323	160	152	105	19,622	5130
	Private holdings	233	106	846	59	1029	739	12,227	7441
	Total:	682	309	3169	219	1181	844	31,848	12,571
2014	Agricultural enterprises	500	229	2328	149	151	102	19,235	5007
	Private holdings	302	130	808	52	1034	754	11,286	6939
	Total:	801	358	3135	200	1185	855	30,521	11,946

Source: Adapted from HCSO (2015a)

their disadvantage against market players that produce and purchase in large volumes by bringing their products jointly to the market. PG members can also form beneficial cooperative arrangements in various areas to improve their productivity and profitability. The aim is to encourage PGs to take on a greater role in the management of markets and in the representation of producers' interests so that their bargaining positions in the market can be improved. Encouraging the growth of PGs will make it easier to supply the processing industry with domestic raw materials of sufficient quality and quantity (MRD 2011).

Baranyai's (2010) studies have shown two important things about the Hungarian farmers' cooperation attitude. On the one hand, a higher cooperation willingness was observed in the younger farmer generations; on the other hand, the attitude of farmers to the collectivisation process back in the communist era still has a serious impact on the issues of cooperation. The negative judgement is paired with aversion to cooperation. Baranyai (2010) declared that trust in loyalty and expertise have a key role in joint machine use as well.

Human Resources

The number of agricultural employees had been continuously declining in Hungary for more than 10 years. Since 2009, this trend was reversed by the economic crisis, which dramatically impacted on other sectors of the Hungarian economy, as well as by the introduction of an easier administration system for the seasonal work permit process (Potori et al. 2014).

No significant change was recorded in the share of off-farm income-generating activities compared to the last decade's data. According to HCSO (2015a), private holdings had approximately 0.5 million unpaid family members who performed agricultural work in 2013. The proportion of male holders was 74% of the agricultural holdings. The proportion of young farmers (34 years old or younger) was 17% and those who are older than 35 but younger than 45 years old was 16%. The proportion of older farmers (aged over 55 years) was 48%. Nearly 60% of farmers had

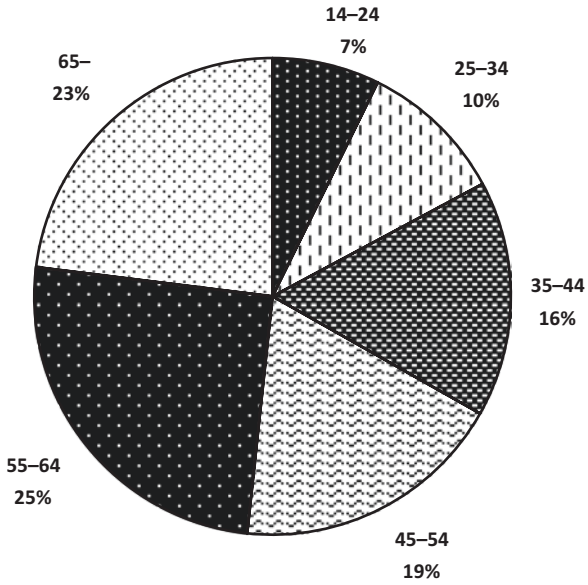

Fig. 9.4 The distribution of private holders and non-paid family workers in Hungarian private holdings by age groups (2013) (Source: Adapted from HCSO (2015a))

no off-farm income-generating activities. This category includes farmers who have income from other sources, for example, pensions. Those with full-time income-generating activities accounted for 35%. The structure of private holders and non-paid family workers in the private holdings by age is presented in Fig. 9.4.

Risk Management

This section introduces a phenomenon called risk, the sources of it and some management strategies to handle it. The terms "risk" and "uncertainty" can be defined in various ways. One common distinction is that risk is imperfect knowledge where the probabilities of the possible outcome are known, and uncertainty exists when these probabilities are not known (Hardaker et al. 1997). Uncertainty is an imperfect knowledge

and risk is the uncertain consequences, particularly exposure to unfavourable consequences. So risk is not value-free, and most of the time indicating an aversion to unfavourable consequences.

Most articles that consider risks use more or less the same categories of risk sources (Olson 2004; Hardaker et al. 1997). The sources of risk can be grouped into five major categories: production, market, financial, legal and human resources.

Production Risk This type of risk comes from the unpredictable nature. The major sources of this kind of risk are weather, pests, diseases, insects, adoption of a new technology, genetics, feed conversion, soil fertility, machinery efficiency and reliability, and finally the quality of feed and other inputs. Moreover, to handle the different sources of risk, there are several strategies to control the **production risk**, such as:

- Diversification, which means the agricultural business should not be dependent on the price of only one product. Thus, it is necessary to produce more than one agricultural product because some products can generate a great profit when others incur a loss.
- Stable enterprises, gives a good and stable financial base of the business, with a good quality of human resources (field experts).
- Insurance can help to survive the hard times. Several kinds exist:
  - life insurance
  - property insurance
  - liability insurance
  - crop hail insurance
  - multiple peril crop insurance
- Extra production capacity gives an opportunity to rent unused machinery to other agricultural firms.
- Sharing leases ensures the use of the state-of-the-art technology at a relatively low cost.

Price or Market Risk Farmers are exposed to unpredictable competitive markets for inputs and outputs, so these types of risk always exist and

are often significant. The price risk includes risks stemming from unpredictable currency exchange rates (Hardaker et al. 1997). The agricultural output prices vary during a year, so the season causes a price risk for the producers. To manage the market risk, the following measures can be used:

- Spread sales during the year and sell the products when their price is the highest; generally, it is not around the harvesting season;
- Enforce contract sales with a processor company to sell the agricultural products before planting and secure future output prices;
- Use hedging or commodity options techniques on the local stock exchange;
- Try to lobby for government farm programs that guarantee a minimum output price.

Financial or Business Risk Olson (2004) distinguishes four basic components of financial risk: (1) the cost and availability of debt capital, (2) the ability to meet cash flow needs, (3) the ability to maintain and grow equity, and (4) the increasing chance of losing equity by larger levels of borrowing against the same equity. The first three components are influenced mainly by internal and external forces; the last one depends on the farmer's decisions on how much debt to take, compared to his equity. Hardaker et al. (1997) argue that the greater the proportion of debt capital to total capital, the higher the multiplicative factor applied to business risk. Only if the firm is 100% owner-financed is there no financial risk. Another kind of financial risk comes from the investment side, because the agricultural producers have an uncertainty of the future of their investment.

Institutional or Legal Risk The government is also a risk source for farmers. Changes in the rules can have far-reaching implications, for example, changing income taxes, new restrictions about the animal welfare, and compulsory disease prevention treatment. Risk can be present in the inability to follow the new rules or restrictions and in not knowing certain rules.

Human or Personal Risk People can bring many risk factors, for instance, death, divorce, injury and illness. Prolonged illness may cause serious losses to production and increased costs (Hardaker et al. 1997).

The goal of risk management is to balance a farm's risk exposure and tolerance with the farm's strategic and financial objectives, such as income, wealth, environmental quality and personal goals. The goal of risk management is not to reduce risk only; other objectives might not be met then. This kind of management involves how we use our farm resources (livestock, land, labour, capital, machines, etc.) best to achieve our personal objectives (Olson 2004).

Risk management is not something different from management of other aspects of a farm, since every farm management decision has risk implications. According to Hardaker et al. (1997), the first step to manage risk is establish context, which means setting the scene and identifying the parameters within which a particular risk or range of risks is to be considered. Hardaker et al. (1997) distinguish three types of risk management aspects: strategic, organizational and dependent on the management level. The second step is to identify risky decision problems, which means to list all possible risk outcomes and consider what might happen, why and how the organization might be affected. The third step is to structure the problem, which means asking the following questions: *Who faces the risk? Who will suffer if things go wrong? What are the basic and proximate causes of the risk? How is the risk currently managed? Is there any alternative option to manage the risk? Who is the decision maker?* It is important to ask these questions to understand what is at issue. The fourth step is to analyse options and consequences. The objective of this step is to divide the risks into low probability and low impact ones, which can be excluded from further study. The most common way to do that is to use such terms as "very likely," "most likely," "serious," and so on. The fifth step in risk management is to evaluate the risk consequences and reach a decision on what to do. After the decision, the next step is implementation and managing, which simply means doing what had been decided. Finally, there is the monitor and review step. Because risk management involves choices made with imperfect information, it is likely that some risk management options

will turn out to be unsatisfactory. This part of the process is essential for learning about the nature of risk.

Hardaker et al. (1997) provide a good overview of different risk-management strategies in the agricultural sector. They distinguish six strategies, as follows:

- Collecting information, which means the better decision is always made if better and more relevant information is available about that specific topic. It is essential that the collected information comes from an objective source; otherwise, it makes the decision biased.
- Avoiding or reducing exposure to risk strategies has three possibilities. The first is postponing a decision to change the existing situation until more information is available in the current situation, the second is stick to the safety standards, and the third is to take a decision that does not depart too much from the status quo.
- Preferring less risky technologies means to choose those kinds of activities that have some kind of guarantee. For example, the conventional dairy sector has fixed prices for the output, but the organic dairy sector prices are dependent on the world market fluctuation, which is more risky than the conventional one.
- Diversification as a risk-reducing strategy is the most commonly used in agriculture. The idea of diversification is to reduce the dispersion of the overall return by selecting a mixture of activities that have net returns with low or negative correlation.
- The flexibility strategy means that the farmers can respond to the exogenous and endogenous changes relatively easily. Flexibility can be asset flexibility, product flexibility, market flexibility, cost flexibility and time flexibility.
- Finally, the most popular risk-management strategy is the sharing of risk with others. Insurance is a very common way to share the risk with other farmers. Many types of insurance are available for farmers, including fire, theft coverage for assets, death and natural calamity. Contract marketing is another way to reduce the risk, where the farmers usually use various marketing agreements to reduce the price risk and other types of risks. Future trading is another way to ensure the output price and delivery. In this transaction, the future contracts are

standardised widely traded contracts, so prices are more competitively determined than in an ordinary contract. The farmer might get a better price by hedging on the future market than by selling on the basis of a contract.

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10

Profitability in Hungarian Agricultural Enterprises

Krisztián Kovács

10.1 Main Factors Influencing Profitability

In the following sections, the main factors affecting profitability will be described. The first factor is land, influencing the plant-producing sectors' profitability the most. The other two factors are livestock and human resources.

Land Use and Plant Production

The Utilised Agricultural Area (UAA) is the total area used by the farm, regardless of the type of tenure or whether it is used as a part of common land. It includes eight major components: arable land area, kitchen garden, orchard, vineyard, grassland, forest, reedy areas and fish ponds (Fig. 10.1).

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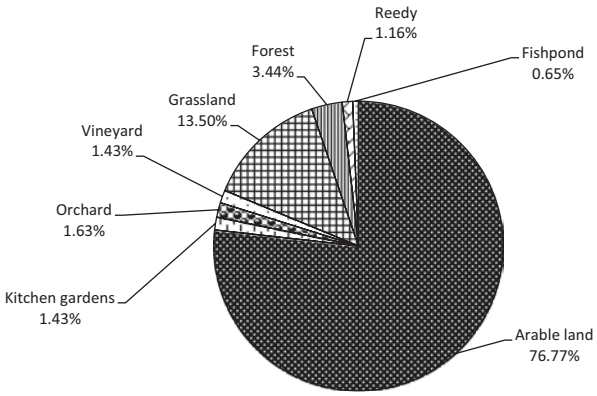

Fig. 10.1 Utilised Agricultural Area by land use in Hungary (2015) (Source: Adapted from HCSO (2015))

Table 10.1 Rents and land prices in Hungary (2010–2012)

Prices		2010 (EUR/ha)	2012 (EUR/ha)	Change (%)
Rental prices	Arable land	103.96	132.65	*28*
	Grassland	51.08	65.29	*28*
	Vineyard	151.08	203.44	*35*
	Orchard	124.10	142.27	*15*
	Forest	49.64	54.98	*11*
Land prices	Arable land	1867.99	2365.64	*27*
	Grassland	905.04	1117.87	*24*
	Vineyard	3285.25	4068.73	*24*
	Orchard	2594.24	2950.86	*14*
	Forest	1440.29	1592.78	*11*

Source: Adapted from HCSO (2015)

The total land of Hungary is 9.3 million hectares (ha), of which 57.5% is utilised agricultural area (5.35 million ha).

The land rents and prices increased dramatically during the last decade. Table 10.1 presents the Hungarian rents and prices by land use categories. The average arable land rental price increased by 28% from 2010 (103.96 EUR/ha) to 2012 (132 EUR/ha). The land price change for arable land was almost the same at 27%. In 2012, the average arable land price was 2365.64 EUR/ha, based on data of National Tax and Customs

Administration of Hungary. The grassland average price increased by 24% from 2010 to 2012, when it reached 1117.87 EUR/ha. The rental price of the grassland was 65.29 EUR/ha. It is quite sure that the land prices and rental prices will continue to increase because the average European land price is much higher than the Hungarian one.

As exhibited in Fig. 10.2, in 2013 the Hungarian arable land was mainly dedicated to the production of cereals (2.816 million ha), industrial crops (888,450 ha) and fodder crops (341,152 ha); the fallow land took up 5.6% of the country's agricultural area (260,040 ha).

Two-thirds of Hungary's total area (9.3 million ha) is devoted to agriculture. Crops cover more than 5 million ha, which represents 80% of the agricultural area, while less than 1.5 million ha is permanent grassland. Cereals are the main crops, covering around 80% of the arable land. The total production of cereals was 16 million tonnes in 2014. The areas under wheat and maize were roughly the same, ranging from 1.113 to 1.191 million ha. These two crops account for 85% of cereal production and for 90% of cereal exports. Table 10.2 shows the main indicators of crop production. The first indicator is

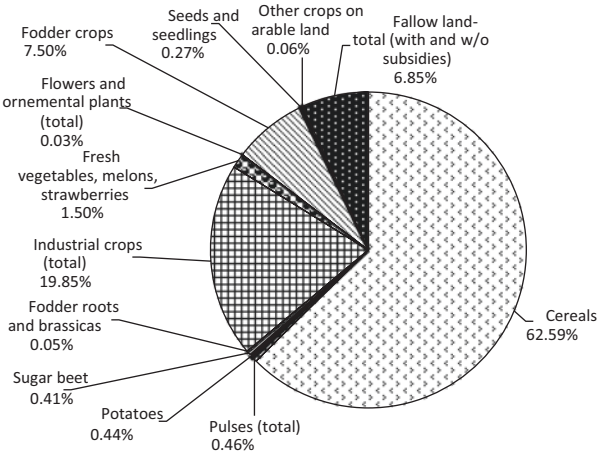

Fig. 10.2 Utilised arable land use in Hungary (2013) (Source: Adapted from HCSO (2015))

Table 10.2 Crop production in Hungary (2014)

Crop	Sown area *(1000 has)*	Total production of main crops *(1000 tonnes)*	Average yields of main crops *(kg per ha)*
Cereals	2817	16,614	5900
Wheat	*1113*	*5262*	*4730*
Maize	*1191*	*9315*	*7820*
Barley	*288*	*1275*	*4420*
Rye	*34*	*96*	*2860*
Oat	*51*	*136*	*2670*
Potatoes	21	567	25,580
Sugar-beet	15	1067	69,200
Sunflower seed	594	1597	2690
Rapeseed	214	700	3270
Silage maize	85	2584	30,370
Alfalfa hay	123	595	4830

Source: Adapted from HCSO (2015)

the sown area, where maize (1.191 million ha) and wheat (1.113 million ha) have the highest sown area among the cereals (2.817 million ha) in 2014. The next important crops are the oil-seeds crops: the sunflower seed (594 thousand ha) and the rapeseed (214 thousand ha), regarding the sown area. Sunflower is well adapted to Hungary's agro-climatic conditions, and sunflower seeds are exported worldwide. Over the last 10 years, sunflower has enjoyed an overall increase in both area and production. Table 10.2 presents the average yields of the main crops as well, which is more than the European averages in quality and quantity.

Livestock and Animal Production

Restructuring (after 1989) has resulted in a significant downsizing of the Hungarian livestock. Livestock units (LSU) decreased sharply after 1989 and continued after Hungary joined the European Union in 2004. Table 10.3 presents selected production indicators for the main animal production sectors in Hungary.

Table 10.3 Animal production indicators in Hungary (2000–2013)

Indicator	2000	2013
Milk production per cow (litre)	5335	6904
Production of cattle for slaughter per cow (kg)	294	210
Production of pig for slaughter per breeding sow (kg)	2093	2649
Wool production per sheep (kg)	4	4
Production of sheep for slaughter per ewe (kg)	22	16
Hen egg production per hen (piece)	217	213
Production of poultry for slaughter per hen (kg)	9738	8542

Source: Adapted from HCSO (2015)

In 2013, the average milk yield reached 6904 litres per dairy cow, which was 29% higher than in 2000 (5335 litres per dairy cow). The production of pig slaughter per breeding sow also increased—by 27% from 2000 to 2013. The average yield of the Hungarian animal production is presented in Table 10.3.

Labour Force

Regarding agricultural qualification levels (Fig. 10.3), the majority (79%) of private holders managed their holdings using their long-term practical experience. Seventy-nine percent have some kind of practical experience of their agricultural business (which represents 382,478 people), and only 3% have a college or university degree (12,998 people). Seven percent of the holders have at least some basic educational qualification and 7% have a secondary level qualification in agriculture. Unfortunately, 4% have no qualifications in agriculture.

To compare the private holders' agricultural qualification level with their non-paid family workers, Fig. 10.4 presents the family workers' qualification level, where the holders are excluded. Of the non-paid family workers, 14% have no agricultural qualification, 79% have some

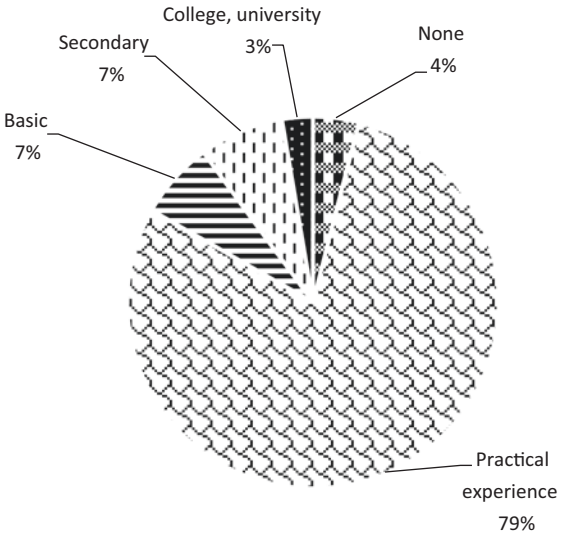

Fig. 10.3 The highest agricultural qualification among private holders in Hungary (2013) (Source: Adapted from HCSO (2015))

practical experience in agriculture and only 1% have a higher agricultural qualification. In case of private farmers producing for sale or providing agricultural services, the proportion of those with higher education qualifications in agriculture was several times higher than the average. Secondary education qualifications in agriculture were the most typical of holders producing for sale. To conclude, the level of agricultural qualifications is much lower among the non-paid family workers than among private holders. Taking into consideration the older age of private holders, it will be a huge problem in the future. Poor qualifications will impede running the business in the state-of-the-art technology with efficient production.

Subsidies

The accession of Hungary into the European Union in 2004 has had a significant impact on the agro-food sector. As Potori et al. (2014) describe the Hungarian EU accession, "*the country became part of a large, organised but highly competitive market which offered great opportunities for the stake-*

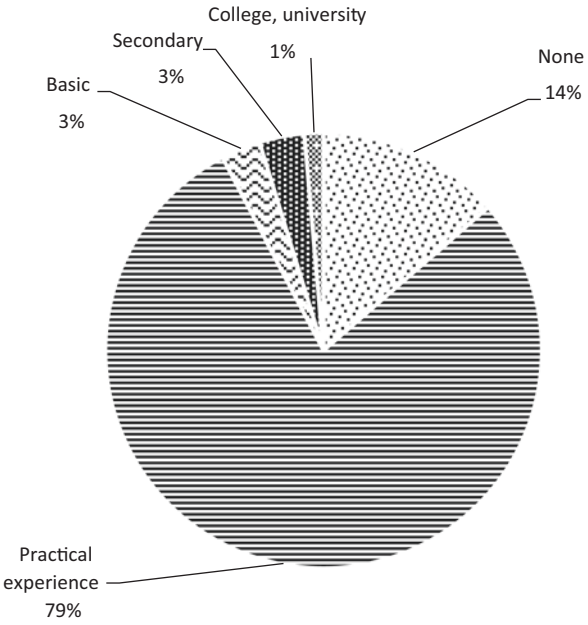

Fig. 10.4 The highest agricultural qualification among non-paid family workers (holders excluded) in private holdings in Hungary (2013) (Source: Adapted from HCSO (2015))

holders but also brought along serious challenges. Newly accessing Member States not only had to cope with competition within the EU but also in their domestic markets, resulting in significant economic, social and environmental changes." Most of the experts said that in general the EU accession has had a positive impact on the Hungarian agriculture. The biggest challenge was to exploit the agricultural financial support as much as possible. According to Potori et al. (2014), if the available subsidies had been used primarily to promote improvements in producer competitiveness, they would have been very beneficial for the country's agriculture. However, the Hungarian subsidies mainly took the form of price support and consequently the opportunities provided by the EU accession were not fully exploited.

Kürthy et al. (2006) agree that since the start of the transition to a market economy in the early 1990s until 2004, only limited progress was made towards market orientation of the agricultural sector in Hungary. Although regulations and subsidies played an important stabilising role, particularly within the livestock sectors, producers became used to the

national intervention mechanisms and production became rather insensitive to market signals.

Apart from the complementary national direct payments (CNDP), several national support programmes have been provided following EU accession as a continuation of pre-accession policy measures (Potori et al. 2014). These included support for on-farm afforestation, subsidised veterinary costs, intra-EU marketing of agro-food products, water management, training, education and research, credit subsidies, producer organisations and social insurance fees. During the 2007–2013 programming period, 45.5% of the HUF 964.3 billion (EUR 3.8 billion) was allocated for Hungary from the European Agricultural Fund for Rural Development (EAFRD). These funds were committed to enhancing competitiveness in the agro-food sector (Axis 1), 32.2% to agro-environmental measures (Axis 2), 13.2% to encouraging economic diversification in the rural areas and improving the quality of rural life (Axis 3), 5.5% to LEADER (Axis 4), and the rest to technical assistance.

10.2 Planning and Forecasting Profitability

The Hungarian agricultural balance of trade has been always positive, but for many years the surplus has been diminishing. Earlier, Hungary was a major food supplier of the neighbouring countries and exported many agricultural products to the former Soviet Union. The traditional Hungarian food surplus with Poland, the Czech Republic and Slovakia has turned into a deficit. In addition, even where Hungarian exports have expanded, this growth is vulnerable and fragile: the production of cereals and sugar are highly dependent on CAP rules, such as intervention purchases, subsidies and the possible changes related to them. The large share of grain exports is a consequence of the relatively unusual disproportion of cereals in arable production.

According to Burger (2009), the share of high value-added products is increasing in imports, and decreasing in exports. A good example is the dairy sector: big volumes of raw milk are exported to Italy while German and other imported cheeses have already achieved a 35% share in the Hungarian market. Imports have increased primarily in the case of

livestock and meat and dairy products, reflecting the weak competitiveness of the Hungarian production. The imports of beverages (e.g., beer), having once been protected by high customs tariffs prior to accession, have soared similarly.

The biggest impact on the profitability is exerted by the agricultural product prices, in particular by the difference between the procurement prices and the manufacturing cost (the sum of all costs for a specific agricultural product). This profit goes more or less directly to the farmer.

Table 10.4 presents the tendency of the average Hungarian procurement price of the main crop and animal products in different years. We may observe that the agricultural product prices vary over the years, depending mainly on the weather conditions of the specific year. The highest increase concerned the pear prices during the period of 2005–2014; the increase reached 50%. However, in the meantime, the apple prices decreased almost the same amount, like the peach prices. The price of different kinds of crops increased by 26% on average since 2005. The cow's milk prices increased by 47%, but after the quota system abolishment (since April 2015), the prices dropped dramatically and nowadays

Table 10.4 Average procurement prices of crop and animal products in Hungary (2005–2014)

Agricultural products	Unit	2005	2010	2013	2014
Wheat	*HUF/kg*	20.5	39.2	47.8	48.4
Maize shelled	*HUF/kg*	20.9	36.9	46.0	39.6
Barley	*HUF/kg*	21.3	29.3	46.6	43.2
Sunflower seed	*HUF/kg*	50.0	90.0	99.2	95.9
Potatoes	*HUF/kg*	25.6	69.3	87.0	63.1
Apples	*HUF/kg*	25.1	32.8	33.8	17.2
Pears	*HUF/kg*	48.5	76.1	79.0	114.3
Cattle for slaughter	*HUF/kg*	267.4	356.3	430.5	416.3
Cow's milk	*HUF/litre*	64.3	71.9	99.2	105.5
Sheep for slaughter	*HUF/kg*	626.2	666.3	756.5	782.0
Pigs for slaughter	*HUF/kg*	274.7	296.4	400.3	385.6
Poultry for slaughter	*HUF/kg*	209.6	262.3	337.7	319.2
Hen eggs	*HUF/piece*	12.3	14.8	17.3	17.6
Honey	*HUF/kg*	322.8	759.8	776.5	952.1

Source: Adapted from HCSO (2015)

Table 10.5 Average market prices of crop and animal products in Hungary (2005–2014)

Agricultural products	Unit	2005	2010	2013	2014
Potatoes	*HUF/kg*	68.1	147.4	173.4	149.4
Apples	*HUF/kg*	119.4	185.0	240.6	225.6
Pears	*HUF/kg*	285.1	360.4	371.9	456.6
Farrow	*HUF/piece*	10262.0	11060.0	12237.0	14500.0
Sows	*HUF/kg*	480.5	519.5	619.8	690.1
Pigs for slaughter	*HUF/kg*	348.2	395.9	470.8	504.2
Pullets for slaughter	*HUF/kg*	483.3	652.1	749.7	658.6
Hens	*HUF/kg*	461.4	642.4	649.4	662.6
Cow's milk	*HUF/litre*	152.1	171.9	187.7	194.7
Hen eggs	*HUF/piece*	19.6	29.4	37.3	35.7
Honey	*HUF/kg*	1141.5	1283.6	1842.7	1909.7

Source: Adapted from HCSO (2015)

Table 10.6 Differences between procurement and market prices for agricultural products in Hungary (2010–2014)

Agricultural products	2010 (%)	2014 (%)
Potatoes	47	42
Apples	18	8
Pears	21	25
Cow's milk	42	54
Pigs for slaughter	75	76
Poultry for slaughter	40	48
Hen eggs	50	49
Honey	59	50

Source: Adapted from HCSO (2015)

it is on the level of 75–80 HUF/litre. The pork, poultry and sheep prices increased by 23% on average during the examined period.

Table 10.5 presents the Hungarian market prices of the main agricultural products. Of course, the market price is higher than the procurement price, and the margin is mainly captured by the processors and retailers. The prices of honey and pig sows reached the highest levels since 2005, the size of the increase being 49% and 33% respectively. To compare the market and procurement price differentials, it is worth noting that changes of the two prices are not proportional. It is caused by

differences in the market power of various participants (or levels) of the supply chain.

Table 10.6 presents the difference between some agricultural products procurement and market prices in different years. As the table shows, for example in 2010, only 18% of the market prices of apples resulted from the procurement prices, thus the rest (82%) was caused by the transaction cost and retail cost. The apple prices depend mainly on the retailer profit margin, not on the producer profit margin. An opposite situation occurred on the slaughtered pigs market, where, in 2014, as much as 76% of the market price was determined by the procurement price and the rest (14%) was added in the distribution channel.

The estimation of profitability in individual farms is a difficult and time-consuming task. Fortunately, the European Union has a data network to support this kind of need—The Farm Accountancy Data Network (FADN). The main role of the FADN is to support the Common Agricultural Policy (CAP) by determining income of the European agricultural holdings and provide farm-level information annually from around 80,000 farms from the European Union, including around 2000 farms from Hungary, which are selected to represent approximately 110,000 enterprises.

The total output of the Hungarian agricultural farm was 65,475 EUR/farm in 2013 (Table 10.7). The dairy (milk) sector produced the highest output with 123,517 EUR/farm in Hungary, thus this sector seems the most productive in the FADN database. The second largest output comes from the granivore sector with 107,940 EUR/farm. This sector also includes poultry and pig producers.

The most financially supported sector is the dairy sector in Hungary. In 2013, dairy farmers received 16,405 EUR/farm in subsidies, excluding the supports for investments. The average subsidy was 15,900 EUR/farm.

The most profitable farms are horticulture and crop farms in Hungary; they brought on average 28,927 and 21,780 EUR/farm in 2013 according to the FADN database. That means that plant cultivation like grain or fruit and vegetable production are the most profitable farms nowadays in Hungary.

Table 10.7 Economic indicators in Hungarian farms in 2013 (averages in EUR)

Description	Code	All farms	Field crops	Horti-culture	Wine	Other permanent crops	Milk	Other grazing livestock	Granivores	Mixed
Total output	SE131	65,475	62,655	84,184	50,464	34,148	123,517	23,381	107,940	50,960
Total output crops	SE135	40,734	56,372	82,745	46,551	32,862	31,706	9528	9553	24,958
Total output livestock	SE206	20,312	1101	x	11	47	81,254	13,346	93,429	22,131
Subsidies excl. on investment	*SE605*	*15,900*	*19,962*	*2564*	*6160*	*8168*	*38,449*	*23,639*	*7042*	*13,886*
Direct payments	*SE630*	*10,247*	*15,443*	*1891*	*2468*	*3329*	*16,405*	*12,710*	*2799*	*7955*
Support for rural development	*SE624*	*2650*	*1685*	*307*	*2736*	*3382*	*8651*	*4948*	*3690*	*2779*
Gross farm income	SE410	34,921	40,082	50,535	36,346	27,270	58,492	22,925	26,175	25,076
Farm net value added	SE415	28,858	33,596	42,808	25,601	22,214	48,208	19,693	21,212	20,379
Farm net income	SE420	17,094	21,780	28,927	13,452	15,592	20,493	15,979	9573	10,041
Farm net value added/AWU	SE425	18,528	25,741	15,487	11,197	12,780	17,113	15,557	12,582	15,774
Family farm income	SE430	23,027	37,092	30,617	13,897	27,726	14,462	19,419	4796	8568
Total assets	SE436	172,157	196,245	155,982	248,793	106,053	288,949	157,784	136,605	137,490

(*continued*)

Table 10.7 (continued)

Description	Code	All farms	Field crops	Horti-culture	Wine	Other permanent crops	Milk	Other grazing livestock	Granivores	Mixed
Total liabilities	SE485	28,313	25,943	46,958	24,861	13,151	60,121	13,534	39,331	22,449
Net worth	SE501	143,844	170,302	109,024	223,931	92,903	228,828	144,250	97,274	115,042
Farm capital	SE510	129,390	131,161	134,213	224,367	79,654	240,792	115,794	124,066	107,938
Gross investment	SE516	7792	9377	12,587	9174	3773	8517	4132	7324	5273

Source: Own elaboration on the basis of the FADN database

Table 10.8 Average food consumption per capita (kg) in Hungary (2005–2013)

Agricultural products	2005	2010	2013
Meat	63.5	56.7	55.5
Poultry	29.8	24.6	24.9
Pork	26.7	25.3	24.0
Beef and veal	3.1	2.5	2.2
Fish	3.6	3.5	3.7
Milk	166.8	156.8	147.5
Eggs	16.0	13.7	12.4
Fats	36.5	34.6	33.1
Flour and rice	97.3	88.2	85.0
Potatoes	66.8	60.5	58.6
Sugar and honey	31.6	29.2	28.5
Vegetables, fruits	194.8	190.0	186.5

Source: Adapted from HCSO (2015)

The last thing that matters for profitability is the domestic consumption of the products. Table 10.8 presents the Hungarians' average food consumption per capita per year in kilograms. In 2013, 55.5 kilograms of meat were consumed on the domestic market. This is 14.4% less than in 2005. Within the meat consumption, the highest share was taken by poultry, which accounted for 45% of the total meat consumption in 2013. The second largest consumption was pork, which made up 43% of the total meat consumption. The consumption of milk, eggs and honey increased by 17.7% on average since 2005. The fruit and vegetable consumption also increased—by more than 4.5% since 2005.

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11

Managerial Challenges in Hungarian Agricultural Enterprises

Krisztián Kovács

To identify the basic managerial challenges in the Hungarian agriculture, after a desk research and statistical data collection, a qualitative research was conducted with agricultural firm owners and managers. During the qualitative research, several interviews were conducted to identify good practices or a lack of some competencies in the interviewees' work. The interviewees are classified by economic size and sector, based on the Farm Accountancy Data Network (FADN) methodology. The economic size of an agricultural holding is measured as the total Standard Output (SO) of the holding. Based on these criteria, the holdings were classified as follows:

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Economic Size

1. Large business: (FADN class number 10–14): SO value is more than 500,000 EUR
2. Medium business: (FADN class number 6–9): SO value is between 25,000 and 500,000 EUR
3. Small business: (FADN class number 3–5): SO value is more than 2000 and less than 25,000 EUR

Agricultural Sector Type

1. Plant cultivation holding
2. Animal production holding
3. Mixed holding

Within this research performed in Hungary, eight interviews were conducted with agricultural managers and owners in 2015. The interviews were 45–60 minutes long. The results of the interviews were recorded in paper form in Hungarian. The respondents were anonymous. We refer to them as "Interviewee 1," "Interviewee 2," and so on.

The structure of the agricultural businesses that took part in the qualitative research was as follows:

- Based on the economic size, we interviewed two small businesses and six medium businesses.
- Regarding the sector of activities, there were two businesses dealing with animal production (dairy sector and sheep sector) and six businesses dealing with plant cultivation (cereal sector), fruit (sour cherries and apples), vegetable (cucumber and pumpkin) and ornamentals.

The interviews were structured in 10 compulsory questions for all respondents, concerning their sales potential and sales strategy, competitiveness, partner relations, human resources issues and risk management strategy. The following sections conclude the results of the interviews structured by the interview questions.

11.1 Sales Potential

What kind of changes do you observe in the conditions of the domestic market for agricultural products?

Several changes were mentioned during the interviews. A general dissatisfaction was observable among the interviewees. Some new solutions come up, but in general they seem unsatisfactory. During this research study, our interviewees mentioned the following changes on the domestic agricultural market:

- Interviewee 1 mentioned an increasing domestic demand for local agricultural products. Therefore, it is a good opportunity for small producers to sell their produce on the local market.
- Interviewees 2, 4, 5 and 7 argued that arable farmers need higher financial support from the government. Sometimes they have liquidity problems during the year, but they have no opportunity to obtain short-term liquidity loans from the financial sector, thus they need this kind of support.
- Changes of the land law, which highly limited the purchase of agricultural lands. Interviewees 7 and 8 said that the new law was not prioritising animal producers enough.
- More complicated administration duties regarding financial support from the government.
- A low level of agricultural long- and short-term loan conditions. There is no specialised loan for farmers.
- Unpredictable agricultural prices, which makes it hard to plan the whole agribusiness. The prices change sometimes +/−200% within a five-year interval.
- The new EKAER (Electronic Trade and Transport Control System) has changed the rules of transport in Hungary, which govern the movement of goods inside the country. The objective of the system is to strengthen the market positions of compliant economic operators, to make circulation of goods more transparent, to eliminate fraud related to food products often endangering human health and; last but not least, to eliminate tax evaders. Thanks to EKAER, the actual route

of the goods can be tracked because transport-related data (name and quantity of goods, consignee, consignor, registration number of vehicle, etc.) have to be registered in a central electronic system before starting the transport (EKAER 2015). This system requires more administration for the agricultural farmers and traders, but results in more transparent trade as well as acts against tax evaders, especially foreign agricultural traders.

- The Public Work Program (PWP), which was introduced by the Ministry of Social Affairs and Labour, was not successful and effective among farmers, because it absorbs the rural unqualified labour force into the Program. It means that nowadays it is hard to find enough labour for the seasonal works (like fruit and vegetable harvesting, section, planting, animal caring or milking etc.). The unqualified people prefer to work for the local government and clean the environment or sweep streets.
- A high level of vulnerability with regard to prices and government support.
- A high level of marketing risk.
- A low level of profitability, especially in the animal producing sectors, as Interviewees 7 and 8 said.
- Unpredictable relations with retailers and processors.
- A lack of information about marketing and regulation requirements for farmers.
- Decreasing competitiveness with regard to the cereal sector, because the production volume is low, thus the international bargaining position is also low, even if the quality of Hungarian agricultural products is exceeding the standards.
- The younger generation of farmers has no business advantage. Although the government support tries to foster their business activities, overall, it is not very successful, as interviewees 3 and 5 said.
- Adverse weather events multiplied during the last decade, which has a negative effect on profitability and makes especially the fruit and vegetable sector very unpredictable and risky. Lately, there is a frost in the orchards almost every spring. During the summer heat, Hungarian agriculture if often affected by droughts.

- More foreign (mainly Polish) competitors are in the apple sector, which leads to lower producer prices, as Interviewee 6 complained.
- Interviewee 6 also argued that the low level of integration in the fruit sector causes high production costs and a low level of profitability.
- Some of the fruit and vegetable sector interviewees complained about a low level of R+D+I activity, which makes it necessary to purchase practical knowledge abroad, which has a high cost. The Hungarian higher education system is not practice-orientated.
- The basic input in animal production, especially in the pig and poultry sector, is corn, the price of which has been fluctuating rapidly during the last 10 years.
- Plant producer interviewees mentioned that before planting or sowing, it is very hard to tell the agricultural product price after harvesting. This fact makes the financial planning hard in the plant production sector.

What is your sales strategy?

Our respondents' answers about their sales strategy concerned direct sales to retailers, export markets or to the consumer. A young arable farmer respondent applies some kind of what he called *liquidity approach*, in which he sells the crops proportionally, in accordance with the main cost items occurring during the next production period. Every time he sells a small proportion of wheat or corn, depending on the seasonal agricultural production cost level and his firm liquidity. This approach ensures the monthly liquidity of the agricultural business in the crop sector.

Some respondents are members of a Sectoral Producers' Organisation (PO), through which they sell their agricultural products. This organisation sells a big production volume to the retailers or to the processing companies. The sectoral regime requires national authorities to recognise any group of producers that applies for the PO status if it meets certain requirements. A recognised PO may set up an operational fund to finance its operational programme.

11.2 Competitiveness

Where do you find the necessary knowledge and information to run the enterprise? How often do you use public and/or private consulting services? Why?

Small and medium-sized farms generally use public consulting services, like the village consultant network or interbank organisations to gain some new information about the current regulations, marketing trends and prices. Furthermore, they use some private consultant company services as well, mainly to improve their production technology and project management skills. Sometimes farmers use private consulting companies from another country like the Netherlands, Germany or Austria. As interviewees 3, 4 and 6 mentioned, this can happen, because they cannot find the right sector specific consultant company in Hungary. Among the interviewees, mainly the fruit and vegetable and poultry sector managers use a foreign company to consult.

It is also common that the agricultural managers use the internet to see the actual agricultural trends in the market, or in the technology. They search for financial support via internet as well. They use the Ministry of Agriculture web portal and the Agricultural and Rural Development Agency website to find information about the available financial support and regulations.

Market channel integrators also provide good technological information about their products, thus it is good to use them to gain more knowledge about the production. We can distinguish two kinds of integration in agriculture: horizontal and vertical integration. The vertical integration is the process in which several steps in the production and/or distribution of a product or service are controlled by a single company or entity, in order to increase that company's or entity's power in the marketplace. From the supply chain point of view, vertical integration members are at different levels of the supply chain, like producers and processors making an integration. In Hungary, the poultry sector is a good example, where the Gallicoop or the MasterGood Group have a successful vertical integration. The horizontal integration is much simpler than the vertical integration. Horizontal integration (also known as lateral integration) simply means a strategy to increase your market share by taking over a

similar company. This takeover, merger, buyout can be done in the same geographical area or even in other countries to increase your reach. The members of that integration operate on the same level of the supply chain. In Hungary, there is a quite successful integration in the milk sector, with a big integrator: Alföld Tej Ltd.

11.3 Partnerships and Cooperation

How do you assess your cooperation with food processing enterprises and other farmers/agricultural enterprises? Do they help you to take the right decisions in managing your farm?

The relationships with food processing enterprises and other agricultural enterprises are generally good among the interviewees. Contractual relationships prevail, but the personal trust also plays an important role in the partnership. Generally, they have a fruitful cooperation with the Producer Organisation, because they get better prices, higher bargaining power against the retailer chains as well as harmonised product quality and a reduced level of market risk. Processor companies often utilise their bargaining power against the small agricultural enterprises to force price competition among the small producers. An interviewee from the fruit and vegetable sector mentioned that the partnership and cooperation with Producer Organisation (PO) are good, because the other agricultural enterprises within the organisation have the same business goals and the same profit requirements.

What sources of investment do you have (e.g. state, or EU funds)?

Most of the financial resources are the farmer's own sources when they invest, but there are some other, mainly EU sources as well. In the investments, there is a general average ratio of 30–40% EU sources and 50–60% farmer's own financial sources. A young farmers set-up support is popular among farmers. Sometimes farmers use agricultural loans as well to finish their investments, but the Hungarian banks requirements for this kind of agricultural investments are not favourable for the farmers. The average repayment period is too long from the point of view of banks, thus they offer their loans at a relatively high price for the farmers.

11.4 Human Resources

What knowledge, skills and abilities (competencies of employees) do you require from your employees?

What is really needed for this type of businesses is the basic agricultural knowledge coupled with vocation, diligence, conscientiousness and a good workload. In this field, it is also good if the employees have strong motivation, accuracy, and reliability. Most of the agricultural managers during the interviews mentioned these above-mentioned competencies. The employee have to be an expert in the task he or she is responsible for and does not need to see the whole picture of the supply chain. This is not true for the managers, because they have to see through the task and understand the logic order of it. The workers have to work on an expensive machine, thus they are responsible for expensive resources and they can cause a serious damage within a couple of minutes, which may erase the annual profit of the enterprise. Therefore, diligence and reliability are extremely important in agriculture.

We have to distinguish full-time and seasonal workers. The seasonal workers have a great workload and specialisation in their tasks. Full-time workers need to have a system approach view to know the whole production process. Their responsibility is higher than that of the seasonal workers.

What knowledge, skills and abilities are important in managing an agricultural enterprise like yours?

As most of the respondents said, it is essential that the agricultural enterprise managers should be highly motivated to engage in the agricultural production. Moreover, the manager needs to have a wide range of agro-technological, economic, and marketing knowledge to manage the enterprise. This type of work requires a very complex knowledge of different fields. Managers have to know the agricultural production workflows in details. Managers also need financial knowledge to analyse the financial performance of their enterprises or to get a favourable loan from the bank. They need an updated marketing knowledge to sell their products at the highest price and the desired quantity. The leader of the enterprise should be familiar with the local laws (regarding contracts as well)

and regulations; otherwise, they will spend their profit on penalties. Managers have to optimise several things, for example their time, workload, capital, resources. Overall, they have to perform the farm management in the right way, which means: making and implementing decisions involved in organising and operating a farm for maximum production and profit. Farm management draws on agricultural economics for information on prices, markets, agricultural policy, and economic institutions such as leasing and credit. It also draws on plant and animal sciences for information on soils, seed, and fertilisers, on control of weeds, insects, and disease, and on rations and breeding; on agricultural engineering for information on farm buildings, machinery, irrigation, crop drying, drainage, and erosion control systems; and on psychology and sociology for information on human behaviour. In making his decisions, a farm manager thus integrates information from the biological, physical, and social sciences (Bliss 2015).

When and how did you apply an employee to a managerial position in your company? Was it by promotion or by direct application from the labour market? What are your experiences in this area?

Some of the agricultural managers assign employees to managerial positions by inviting applications directly from the labour market. After the selection, the candidate takes part in a kind of 3-month-long trainee program in the company to gain enough practical knowledge (like animal husbandry, plant cultivation, soil protection, fertilisation, animal welfare etc.) to manage their field in the enterprise. Some of the managers prefer to promote an old loyal and reliable employee to a managerial position. The interviewees' opinions varied between these two options.

11.5 Risk Management

What risks do you run having your business?

In general, there are several risk factors arising in agriculture. Most of the literature sources (Baquet et al. 1997; Gomez-Limon et al. 2003; Isik and Khanna 2003; Toledo and Engler 2008) distinguish five risk factors in agriculture: productive risk, marketing risk, financial risk, human risk

and environmental risk. Each of these factors plays a very important role in the annual profit margin of an agricultural enterprise.

Among the environmental risks, most of the interviewees mentioned the weather risk, which has the highest impact on their business. Drought and hail are the two main weather risk factors in Hungary.

Regarding the human resources risk, the respondents mentioned that there is a huge deficit in the low educated and reliable workers on the labour market. It is difficult to find a good blue-collar worker for seasonal work as well.

As far as the market risk is concerned, the interviewees mentioned, that price and currency fluctuation cause a high risk during the production cycle. First of all, there is a fluctuation of the input prices, including seed, fertilisers, pesticide, and energy (fuel and heating). On the other hand, the output product prices are also fluctuating annually. Because of these facts, the agricultural business is risky.

Most of the respondents mentioned the bureaucratic risk factor related to the EU financial support and regulations. These factors make it difficult to plan business activities. The regulations usually change very often, thus it is hard to comply with them, for example, different regulations on the EU support or tax laws.

How do you address these risks? What are your experiences in this field?

To manage the risk factors in the agribusiness, it is essential to build a social capital. That means the managers have to have an expert in almost every field of their business, who can advise or give them good tips concerning market trends or how to access the newest funding opportunities.

Most of the interviewees agreed that managing the human resources risk is sometimes more difficult than the other risk factors together. Thus, they need strong motivation skills and they have to find a good way how to recruit their workers. They can motivate their workers with a good salary or offering good working conditions for them. That is a great way to motivate blue-collar workers with a low level of education. They can borrow work forces from other companies or they can use subcontractors to get enough blue-collar employees for the seasonal periods. The motivation of well-educated employees is even harder, because they need to get a high salary, good working environment, but they also need some opportunity to express their creative mind as well. Unfortunately, it is

hard to motivate the young generation to choose the agricultural sector as a lifelong learning carrier.

Regarding the financial risk factors, managers can insure their output prices on the stock exchange (like using hedge or option trading). They have to diversify their financial sources, for example doing two kinds of production, like milk and meat or fruit and arable farming. Making contracts with their input suppliers and buyers stabilises prices, quantity and quality for a long time, which makes their business growth predictable, and decreases the uncertainty. Most of the small and medium-sized company manager interviewees agreed that to survive during the financially negative months, they should have enough free money to pay their bills, thus they need to generate savings after they sell their agricultural products.

To evade the weather risk factors one should make investments, like irrigation system installations. Irrigation ensures the arable and fruit production quantity and quality for a long time. To avoid hail or frost damages in the orchards, one can set up an ice net on the top of trees, which protects the fruit production.

What are the main managerial challenges in doing your business?

The biggest managerial challenge in Hungarian agribusiness in the interviewees' opinion is to focus on different fields at the same time. They should be good at the financial part of their business, but they should keep the biological deadline of harvesting, but in the meantime, they should consider the weather conditions. They have to respect the laws and EU regulations but they have to be competitive on the domestic market or sometimes on the wold market as well. They have to make a profit, but they have to be competitive on the market. This seems a general dilemma in all kinds of business, not just in agribusiness. You need to plan your business at least annually, but there are so many risk factors affecting your profitability. What is specific regarding agribusiness, is that during the year, you have to be liquid every month, but some sectors bring income only once a year, while the costs are incurred every month. The managers of agricultural enterprises have to find a reliable workforce, but the working conditions are not favourable for the new generation. They have to organise different fields like human resources, machinery capacity, financial planning, storages, transportation, input materials purchasing, fertilisers, pesticides to achieve a profit from their activity.

11.6 Good Practices and Unresolved Problems

Most of the fruit and vegetable interviewees mentioned the advantages of joining a Producer Organisation, which is the best-selling strategy for a small-scale producer to increase their profit. These producers generally lack knowledge, information and resources to meet quality standards and formal market specifications. The usual lack of formal contractual agreements may discourage them to invest to meet these requirements. As Bosc et al. (2003) suggest, small-scale farmers can improve their competitiveness, negotiation capacity and political representation inside Producer Organisations. These organisations can assume several functions in the commodity chain, like collection, grading, post-harvest and storage. In Hungary, some sectors have this kind of Producers Organisations, for example, the fruit and vegetable, poultry, and dairy sectors. But in some sectors they are not so popular.

Another sector specific good practice was to take advantage of foreign consultancy services, which was mentioned by most of the interviewees belonging to the fruit and vegetable sector. They said that they use Dutch and German consultancy companies to help them increase their technical competitiveness at the national and international levels. Foreign consultancy services are used not only by managers in the fruit and vegetable sector, but also in the poultry sector.

Regarding the recruitment of new employee to a managerial position in their company, the managers of large-scale companies mentioned that they organise a special 2 or 3-year-long trainee program for the promising young candidates, where they can learn the sector and company specific technical and managerial knowledge. At the end of the program, the company offers them a full-time managerial position with competitive salaries and other benefits.

Regarding the problems of the agricultural sector, most of them resulted from the history. Hungarian agriculture was a prosperous sector of the economy prior to the transition. The privatisation of land and the loss of its major markets made it vulnerable. Its production shrank, it became more extensive and profitability decreased.

Profitability improved only due to EU subsidies provided after the accession. The food industry became dominated by transnational firms. However, many of them have shut down their Hungarian branches recently, owing to other orientations and changing EU rules. The agricultural trade balance is still positive but the share of unprocessed products and grain is growing in the exports. Earlier, animals and animal products, fresh and processed vegetables and fruits made up the major part of exports. It is a promising sign that the concentration of farm holdings is advancing. Large corporate and individual farms produce the bulk of the traded products. Unfortunately, only rarely do small farms cooperate for the sake of increasing their efficiency and trade opportunities. Hopefully, the lifting of restrictions in the near future relating to the selling and buying of land will promote concentration (Burger 2009). According to Potori et al. (2014), it is a deficiency that, following the EU accession, the Hungarian land policy did not focus on the viability of small farms. For assisting their development, strengthening the local farmers, rationalising and increasing their land use would be required.

To solve the agricultural problems and gaps we have to analyse the main external and internal causes of the decline of the Hungarian agriculture. The following list was developed by Burger (2009):

The major external causes of the decline:

- the collapse of the Soviet market;
- a decline of production on those farms, which earlier had produced mainly for the Soviet market;
- a shrinkage of domestic demand for food products owing to the falling living standard;
- a growing competition from liberalised imports;
- curbing of state subsidies;
- an increase in input and energy prices.

The major internal causes of the decline:

- owing to the worsening financial situation and indebtedness of farms, many of them have turned to more extensive production, mainly to grain production;

– many agricultural enterprises have gone bankrupt. However, most of the internal causes are connected with the disarray induced by the privatisation of agriculture. This process caused significant losses of capital and thus contributed to the decline;
– the shortage of land and its bad condition for animal husbandry farms;
– low sectoral prestige for the young generation, which causes a high demand for qualified blue-collar employees.

11.7 Suggestions for Market-Based Services

The higher education system has a great responsibility to enhance the domestic agricultural competitiveness and productivity. However, it is really hard to say that they can solve everything in terms of specific knowledge. Through some market-based services, universities, colleges and research centres can help the agricultural managers to improve their efficiency. The services that the higher education institution can do include: developing new educational programs for agricultural managers at an international MBA level to foster their technical and managerial knowledge and improve their language and communication skills. These kinds of programs can enhance international relations, later business relations with MBA students in another country. The universities can also organise sector specific conferences with workshops to enhance the local agricultural managers' innovative capacity to foster new high value-added developments. The organisers can invite well-known national and international experts or researchers to make a presentation about sector specific problems or solutions.

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Part IV

Managerial Issues in Agricultural Enterprises in Central Europe: A Synthesis of Country Studies

12

A General Overview of Agriculture and Profitability in Agricultural Enterprises in Central Europe

Judit Kocsis and Klára Major

The agricultural sector traditionally plays an important role in the economy of Central European countries: Poland, Hungary and the Czech Republic,[1] but apart from the similarities, many different characteristics can be found. The three countries have, as might be expected, different natural features, but also their political background differs in spite of their common history as part of the Soviet bloc for more than forty years and now as European Union new member states after long common and parallel procedures of accession. Moreover, other significantly dissimilar historic and social factors render the structure, weight, composition and significance of agriculture different in each country under study.

Despite all the differences, the three countries have some common problems to solve. One of them is rapid aging in the agricultural sector, which is a general problem in Europe. It would be necessary to make agriculture more attractive for young people. An international research team has been set up to achieve a comparative study on the managerial problems in agriculture in Hungary, Poland and the Czech Republic. This part summarizes the results of the separate country reports.

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Case studies of the three countries show that the lack of capital and unfavourable loan conditions render the state of agricultural business difficult. Local, and especially EU subsidies play a primary role without which the whole sector would experience serious consequences, but the weight of subsidies seems to be slowly declining in income and profitability. The studies have shown that small, innovative farms, especially in horticulture, particularly in Poland, and large estates in crop production, primarily in Hungary and in the Czech Republic, are the most effective and profitable ones. Medium-sized enterprises seem to be more problematic everywhere. Furthermore, smaller enterprises and farms seem to produce more processed goods, thus the value added is higher.

It is also important to improve profitability, which can be achieved through modernisation, improving technological and informational resources. Another problem is the low educational level of the agricultural workforce. The efficiency can be increased if the participators are more educated. Low wages can be lifted if the profitability is higher. Specialisation, finding niches like organic farming, traditional foods and increasing quality can be the key to successful performance in the competitive market, considering the fact that most consumers are price-sensitive. The managers' role is also very important regarding a success in this sector. They have to understand the working of the system and have a variety of skills.

12.1 Size of the Sector

The agricultural sector traditionally plays an important role in the economy of the three countries. The structure, weight, composition and significance of agriculture, however, differs across the countries, resulting from dissimilar natural, historic and social factors. The three countries have different natural features and their political background also differs although they have had a common history as part of the Soviet bloc for more than 40 years and now as member states after long procedures of accession to the European Union. Compared to the EU-27 average, all three countries have a higher share of agriculture in the GDP. Some comparative statistics are shown in Table 12.1.

Table 12.1 shows data calculated from different reports where agribusiness is simply defined as the sum of agriculture and food industry (Kovács 2015: 3). The agricultural sector cannot be considered only on its own and described only by employment, output and GDP data—as related supply, processing and distribution industries form an inseparable part of it: the term "agribusiness" signifies this strong relation. Agribusiness is defined as agricultural production, processing and upstream industries altogether, that is, the whole scope of activities related to the production activities of a farm, manufacturing and distribution of farm equipment and supplies, and the processing, storage, and distribution of farm commodities.[2] Agribusiness also plays a more important role in the countries' economies than the EU-27 average, as Table 12.1 shows. The ratio is especially high in Poland; that is, despite the relatively lower output of agriculture compared to Hungary, Poland produces a significantly higher ratio in terms of the GDP, almost twice as much as in the case of Hungary and more than that in the case of the Czech Republic.

Agribusiness plays the lowest role in the Czech Republic, both in terms of share in the GDP and employment. It is moderately more important in Hungary, where it has a large ratio in employment compared to the employment in agriculture. In Poland, employment in agriculture by far outnumbers the employment in the food-processing industry. Overall, Polish agricultural industry is an important player at the EU level. Poland accounts for 7.8% of the agricultural area of the European Union, the

Table 12.1 Agricultural characteristics of Central European countries (2013)

	Hungary	Czech Republic	Poland	EU-27
Share of agriculture in GDP, %	3.7	2.3	2.4	1.7
Share of agribusiness in GDP, %	5.6	5.0	10.3	4.4
Employment in agriculture, forestry, hunting and fishing, %	4.6	4.0	12.5	4.5
Employment in agribusiness, %	8.1	7.8	14.1	8.3
Number of agricultural workers per 100 ha of agricultural land	2.37	2.76	19.4	No data
Agricultural industry output within EU-28, %	2	1.6	5.8	–

Source: Own calculation based on Eurostat data and data from Bryła 2015; Kovács 2015; Urbancová 2015

fifth largest share (Bryła 2015: 4). Considering the economically active agricultural population, this country makes up almost 28% in the European Union, the biggest among the EU countries. The value of agricultural production in Poland regarding its commercial output increased by 24% in real terms between 2002 and 2012. As far as its global output is concerned, the growth was only 11%, signifying an increased market orientation of Polish agriculture.

In Hungary, the importance of agriculture in the economy has decreased in recent years, although it is still a very important part. Hungary has favourable conditions for agriculture as about four-fifths of its area is suitable for agricultural production, which is one of the highest rates in Europe, although one-third of these lands are unfavourable for efficient farming. In Hungary, 47% of the country is arable land and 21% is forest land; the former has somewhat decreased recently. The importance of agribusiness in Hungary radically declined compared to its position in the 1980s when it made up approximately 14% of the GDP (Kovács 2015: 3).

The share of agriculture is less important in the Czech Republic than in the other two countries; in 2013, its share in the GDP slightly increased due to a growth of the value of livestock products. About 116,500 people, i.e., 4% of the economically active population, were employed in agriculture, a significantly lower rate than in the other two countries.

Agriculture in the Czech Republic is characterised by individuals and enterprises managing a combination of animal and crop husbandry and landlords specialising exclusively in crop husbandry. Approximately 53.5% of the territory (4,219,900 ha) is considered agricultural land, a slight decrease compared to the previous years. Of this territory, 3,521,000 ha was cultivated, also annually decreasing by approximately 4900 ha. Of the agricultural land, 71% is arable, the size of which diminishes very quickly, 27% is permanent grassland and the rest consists of orchards, vineyards, hop fields and gardens (Urbancová 2015: 6).

In terms of employment in agriculture, Poland has unique features compared to the other two countries. The ratio of economically active population in agriculture in Poland is about three times as high as in the two other countries, despite the decrease in recent years. The difference is also reflected in the number of agricultural workers per 100 ha of agricultural land (see Table 12.1). On the other hand, the ratio of labour

force in the food-producing sector is higher in the other two countries (3.5 or 3.8 versus 1.6), which shows that food production in Poland forms part of agriculture in general rather than being a separate sector. Generally, the importance of agribusiness is considerably higher in Poland, it makes up about 10% of the GDP, almost twice as much as in the other two countries, and it is a heavyweight player in the European Union.

In all three countries, employment in agriculture has been shrinking. The total size of economically active population in agriculture in Poland was 2.8 million people in 2012, a significant decrease compared to 2005 when it was 3.37 million (a loss of 13%). Employing additional workers is very rare.

12.2 Farm Structure

Table 12.2 shows the patterns of agricultural land use through the share of agricultural holdings categorised by their size. The total area of the holding consists of the agricultural area utilised by the holding (arable land, kitchen gardens, permanent grassland and meadow and permanent crops) and other land. The agricultural area utilised for farming includes the area under main crops for harvest in the year of the survey. The

Table 12.2 The size of agricultural holdings in Central Europe (2007)

	Hungary	Poland	Czech Republic	EU-27
Ratio of agricultural holdings, <5 ha (%)	89	68	50	70
Ratio of agricultural holdings, 5–20 ha (%)	7	26	22	19
Ratio of agricultural holdings, 20–50 ha (%)	2	4	11	6
Ratio of agricultural holdings, > = 50 ha (%)	2	1	17	5
Number of agricultural holdings, total	626,320	2,390,950	39,400	13,700,400
Utilised agricultural area (1000 ha)	4228.6	15,477.2	3518.1	173,376.4

Source: Adapted from Eurostat (2015)

percentages show the ratio of agricultural holdings of a given size compared to the total utilised agricultural area by countries (Eurostat 2015).

The ownership structure of the three countries is generally fragmented but it reveals important differences, as shown in Table 12.2. The agricultural land in Hungary has the most fragmented ownership structure, where the small proprietors dominate. In Poland, small-scale owners of a bit higher size dominate whereas in the Czech Republic holdings of a larger size have an important role, too.

The typical Polish agricultural unit is a family-owned farm on a relatively small land where the members of the family work. In Poland, one of the disadvantages is the fragmentation of agriculture: the average size of farms is relatively small, about 9.3 ha. The overall majority of farms (99.7%) were private in 2013. There were 2,122,119 agricultural producers, of which 99.3% were natural persons, that is, family farmers. Of all the farms, only 30.5% marketed at least three-quarters of what they produced. The area composition of farms is less disadvantageous if one distinguishes farms where the principal source of income is agricultural activity: the average size in this group is 17.4 ha (Bryła 2015: 5).

Besides being rather fragmented, as a result of the historical processes, the farm structure in Hungary is bipolar. On the one end, there are very small farms occupying less than 10 hectares, on the other end, there are corporate farms cultivating more than 300 ha. However, relatively small-sized holdings dominate the structure of land ownership; most of them are not cultivated by the owners, but leased. Land tenure is much more concentrated than ownership. In 2013 there were 491,315 agricultural holdings in Hungary, 98% of which were private holdings. Land ownership and land use are separated and both are characterised by fragmentation. The majority of corporate farms cultivate more than 50 hectares and there are many that cultivate more than 300 hectares. Corporate farms cultivate 60% of the utilised agricultural area. The role of cooperate farms is important in production of crops, cattle and cows (70%), pigs (63%) and poultry (50%). On the other hand, agricultural enterprises play a very important role and a small number of them used 54% of the total agricultural land (Kovács 2015: 5–6).

The structure of agricultural enterprises in the Czech Republic is more concentrated than in Poland or Hungary. Enterprises of natural persons

(individual farmers and families) made up 91.7% of the total agricultural entities (44,120), and managed 30.4% of the acreage of the utilised agricultural land at the end of 2013. Larger enterprises (3999 entities) managed 69.6%. In 2010, the average size of an agricultural entity was 152 ha, compared to the EU average of only 14 hectares/entity. The average acreage per entity has been increasing for the last 15 years. Most of the agricultural land is rented and about 22% was owned by the entity that managed it in 2010 (Urbancová 2015: 6).

To sum up, despite the differences in the ownership structure, the Czech and Hungarian agriculture share important common features, that is, the importance of large-scale cooperative farms and enterprises, although in case of the latter, small-scale entrepreneurs are also present. On the other hand, Polish agriculture is dominated by myriads of small-scale entrepreneurs and enterprises.

The differences in ownership and cultivation structure within the three countries stem from historical factors. Traditionally, Polish agriculture used to be dominated by small farms from the independence after the First World War on, whereas in the other two countries larger estates were also present up until communism and confiscation of the estates of the aristocracy and large-scale enterprises. Thus, the large-scale state estates and cooperatives during communism fell within the line of a long tradition that has still lingered on since the transition of 1989.

The Polish agriculture was not collectivised during the communist era, a rare exception among ex-socialist countries. After the uprising in 1956, the communist leadership abandoned the idea due to a harsh resistance. The socialist sector, however, existed in Poland in roughly a quarter of all agriculture, on nationally owned land, often confiscated from German landowners after the Second World War. This state-owned land was than privatised to farmers after 1989 (Kocik 1996; Giovarelli and Bledsoe 2001).

In the Czech Republic, during collectivisation of agriculture, individual land ownership was not generally abolished, only the rights of use were given to the state and cooperative farms; but many, those branded "kulak," were forced to give their lands to the state. At the end of the socialist period, 68% of the agricultural land was in cooperatives and 29% in state farms. During the transition to market economy, the primacy of the owners' rights was re-established in cooperatives and in case

of the state farms, the lands were returned to the former owners. Despite the restitution, the pattern of use remains largely collective (Myant 2010: 43–64; Giovarelli and Bledsoe 2001).

The composition of farms by size is complex in Hungary. During socialism the sector was almost totally collectivized, but from 1960 subsistence farming was allowed to correct the failures in the operation of the co-operatives. After 1989, the lands, with exception of state farms and natural reserves, were privatised through various means: restitution, selling for compensation bonds, and small-scale redistribution to employees of state farms and members of the co-operatives were the main methods. The possession of farm equipment fell into the hands of the present and previous members of the cooperatives and their heirs. The privatisation of the land resulted in 1.9 million private land owners with an average size of 4.4 ha, but the huge majority of them do not use it as farms – they rather rent it to the corporate farms and individual farmers. During privatisation many cooperatives survived as renamed and restructured cooperatives or as different companies organised in place of the former cooperative and state farms (Kovács 1996; Giovarelli and Bledsoe 2001).

12.3 Products

The composition of the production of the three countries is similar to a large extent, with significant differences, such as the higher ratio of vegetable production in Poland and higher ratio of cereals in the Czech Republic and Hungary (Table 12.3).

Regarding the composition of production in Poland, crop gross output exceeded animal gross output (58.0 vs 49.8 billion zlotys) and the share of crop production has increased since 2005. Cereals were the most important crops, followed by vegetables and industrial crops. Sugar beets diminished due to the consequences of the EU policies. In animal production, the share of poultry has grown, whereas that of calves and pigs lessened, resulting from both changes in demand and agricultural policies.

Table 12.3 Principal agricultural products in Central European countries (2015)

	Main agricultural products	
	Crops	Animal
Czech Republic	Wheat, potatoes, sugar beets, hops, fruit	Pigs, cattle, poultry, dairy products
Hungary	Wheat, maize, sunflower seed, potato, sugar beet	Pigs, cattle, poultry, dairy products
Poland	Wheat, potatoes, fruits, vegetables	Poultry, eggs, pigs, dairy products

Source: Adapted from Eurostat (2015), Central Intelligence Agency (2015)

In Hungary, the production of cereals (wheat and maize) occupies about 70% of the arable land. Other important crops are potatoes, oilseeds, fruits, vegetables and wine grape. The share of crop production in total agricultural production of Hungary was nearly 59%, animals and animal products 34%, a slight decrease in the latter since 2004 due to the EU policies of a high support rate for crop production. The cereals (wheat, corn and barley) make up the largest share (31%), which makes it the most important sector. Regarding live animal and animal product groups, the poultry and eggs sector made up the largest share (12.7%) in 2014, followed by the cattle and milk sector (10.2%).

In the Czech Republic, almost 60% of the total value of the agricultural production consists of crop husbandry, mostly grains (45.9%) and oil seeds (22.7%). The most important cereals are wheat and barley, produced on 80% of the territory with cereals. Oilseeds rape is grown on almost 1/6 of the land under crops, and fodder crops are grown on 1/5. As far animal husbandry is concerned, the most important sectors are milk production (61.4%), beef (22.7%) and pork (10.5%). The production of pork only covers 55% of the pork consumed in the Czech Republic, whereas the same ratio is 80% for poultry and 90% for eggs. On the other hand, about 30% of beef is exported as well as 25% of the produced milk. Similarly to other countries in the region, the number of livestock has dramatically decreased during the last 25 years.

12.4 Foreign Trade

At the EU level, the three analysed countries are not within the most important exporters and importers, such as France, Germany, Italy, the Netherlands, etc. but as to the local economies agricultural export plays a vital role with usually notable surpluses in export and import.

The accession to the EU in 2004 brought about significant changes in the structure of agricultural exports and imports (Fig. 12.1). The share of EU-15 has increased in agri-food exports, with the exception of Hungary, where it remained virtually the same. As a result, the entry to the common market opened up new possibilities for the Czech Republic and especially Poland. On the other hand, the role of the New Member States' market grew in significance for Poland and Hungary, whereas it remained almost the same for the Czech Republic, although their importance is the highest in the Czech Republic among the three countries. Parallel to the enlargement of the EU, exports towards the rest of the world have decreased remarkably in all three countries.

Hungary is traditionally a net exporter of agricultural and food products, the agricultural export surplus was 922.5 billion HUF, approxi-

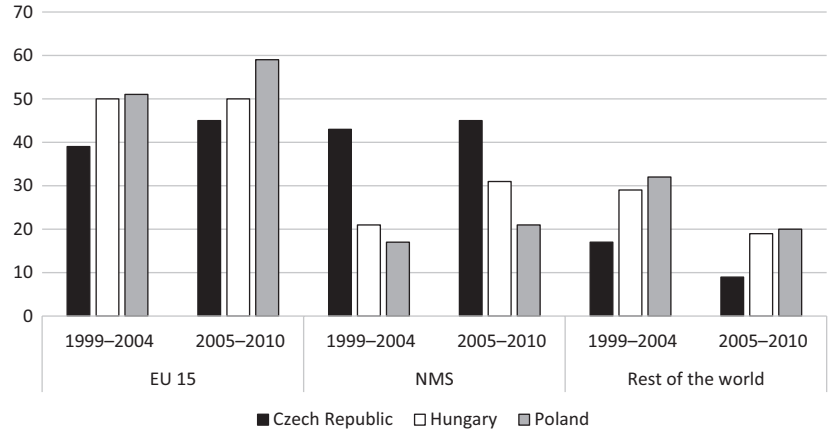

Fig. 12.1 Agri-food exports of Central European countries by destination (%) (1999–2010) (Note: NMS – New Member States. Source: Adapted from Jámbor (2013: 26))

mately 3 billion EUR. Its most important partners are Germany, Austria, Romania, Poland, Italy, Slovakia, the Netherlands, and the Czech Republic. All of them are EU members. The most important non-EU member trade partners are Russia, Ukraine and Serbia. The main export partners are Germany (14.4%), Romania (10.6%), Austria (9.4%), and Italy (9.1%). Regarding imports, the most important countries are Germany (20.7%), then Poland (11.0%), Slovakia (9.7%), and Austria (8.6%). The EU plays an essential role in both exports and imports, as it accounts for 91.5% of the value of imports and 81.9% of exports. Recently, the country's agricultural foreign trade with third countries outside the EU has decreased by approximately 25%.

Regarding the composition of agricultural exports, it is rather concentrated: five major product groups make up about 2/3 of total exports. Top product categories in agricultural exports are: cereals (24%), meat (14.2%), feeding stuff for animals (10.6%), fruit and vegetable products (9.9%). The import is less concentrated, the top five commodity groups account for 53.3% of agricultural imports. Top product categories in agricultural imports are: vegetables and fruits (14.1%), cereals (10.8%), food products and preparations (10.1%). Hungary is a major cereal exporter and importer as well.

The basic agricultural products in Hungary are cereals, of which wheat and maize are the most important, they make up 32% and 38% of the total cereal production respectively. Regarding industrial crops the weight of sugar beet is decreasing due to EU regulations but that of oilseeds (sunflower and rape) has been increasing sharply. The production of fruit and vegetable sector, on the other hand, is quite hectic and no definite tendencies can be found: for instance, the production of apple has been increasing whereas that of cherry and plum decreasing.

The picture in the animal production sector is also hectic, but to a lesser extent. Up to 2000, the output generally fell but some sectors have been developing since then, such as slaughter animal and dairy. In animal production, the agricultural enterprises prevail over private holdings, with the ratio between 62% and 74% in terms of the number of animals. The only exception is sheep, where private holdings are in a huge majority.

The neighbouring countries play the primary role in the Czech foreign trade in agricultural products, half of exports and more than two-fifths of imports are carried out with them. Besides, Russia, China, United States, Japan, Republic of Korea and Switzerland are important partners. Regarding the size of exports, Russia was the largest market for the Czech Republic in 2013, making up 3.7% of total exports, and the importance of China is also growing steadily.

The most important commodities exported from the Czech Republic are mainly dairy products, sugar, live cattle and pork livestock. Milk, dairy products and sugar are decreasing in value, while the rest is increasing. As for the imported commodities, pork, rice, fish, vegetable fats and oils, wine, unroasted coffee and cocoa are the most important, of which the ratio of pork is outstanding, as more than 45% of imports consisted of pork to cover the shortage of domestic production.

The following countries are important in Czech agricultural imports in 2013: Italy (rice, wine, vegetables), Germany (pork, fish, vegetable fats and oils, tea and cocoa), Spain (fruits and nuts, vegetables, spices, wine) and Poland (pork meat, vegetable fats and oils, rice and vegetables). Regarding exports of agricultural goods, Germany (milk and milk products, live cattle), Slovakia (milk and dairy products, sugar, pork livestock and meat, poultry, beer) and Hungary (milk and dairy products, butter, sugar, pork livestock and meat, poultry) are the most significant.

The value of Polish agricultural exports grew almost six times from 2003 to 2013, to the level of USD 25.9 billion, whereas imports increased by 4.7 times (USD 18.4 billion). The trade is dominated by processed products (over 80%). Regarding exports, the importance of fruit and vegetables decreased while that of tobacco, meat and concentrates grew considerably. Meat, dairy, tobacco and concentrates account for over half of the revenues from Polish food exports. The most important agricultural export partners are Germany by far, than United Kingdom, the Czech Republic, the Netherlands, Italy, France and Slovakia. Outside the EU, Russia and Ukraine play an important role.

Poland has a global importance in the production of selected agricultural products. It ranks second in rye production worldwide, third in oat, fourth in apples, seventh in potatoes and sugar beets, eights in rape and twelfth in cow milk and barley.

Table 12.4 The role of agriculture in exports of Central European countries in extra-EU trade (2012)

	Agricultural exports. EUR million		
	Raw goods (%)	Processed goods (%)	Total
Czech Republic	21	79	539
Hungary	47	54	1166
Poland	23	77	4023
EU-28	21	79	111,018

Source: Adapted from European Parliament (2014: 18)

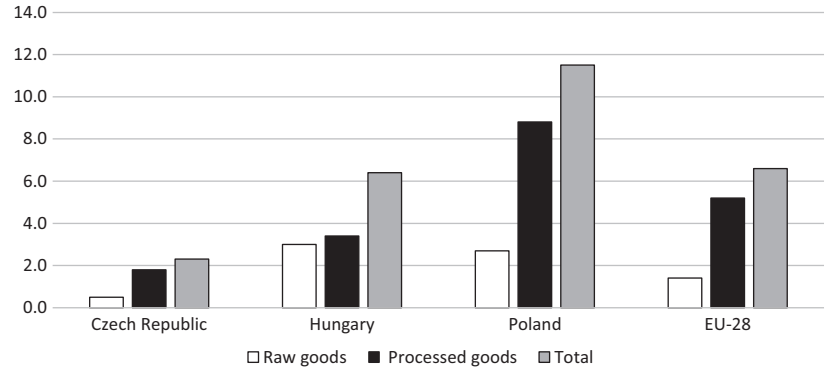

Fig. 12.2 Share of agricultural goods in total exports in Central European countries in extra-EU trade (%) (2012) (Source: Adapted from European Parliament (2014: 18))

Table 12.4 and Fig. 12.2 show the proportion of agricultural exports (extra-EU), regarding raw and processed goods. The value of agricultural exports is provided for each country per year in EUR million. The above data also show that agriculture has a major share in the extra-EU exports in Hungary and Poland, where the value of agricultural exports per capita is virtually the same (€117.7 and 104.5 respectively), which is twice as much as in the Czech Republic (€51.3). In Hungary, within the total agricultural exports outside the EU, raw goods and processed goods have more or less the same weight. However, in the other two countries, the trade in processed goods plays a more significant role – almost three times as much as the exports of raw products. This indicates a different structure of agribusiness in Poland and the Czech Republic compared to

Table 12.5 The role of agriculture in imports of Central European countries in extra-EU trade (2012)

	Agricultural imports, EUR million		
	Raw goods	Processed goods	Total
Czech Republic	512	441	953
Hungary	126	174	301
Poland	1457	2059	3516
EU-28	51,289	64,469	115,768

Source: Adapted from European Parliament (2014: 19)

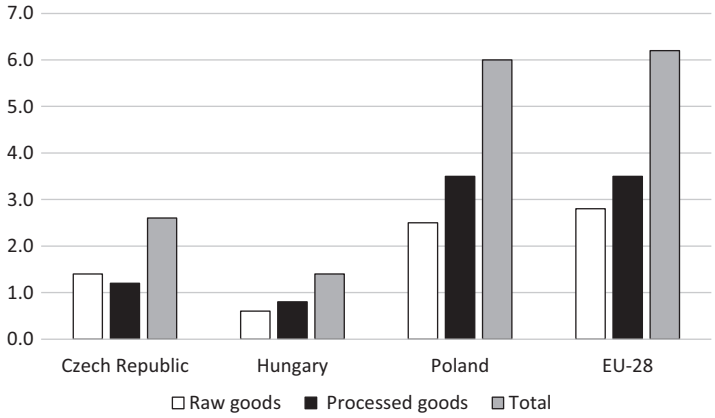

Fig. 12.3 Share of agricultural goods in total imports in Central European countries in extra-EU trade (%) (2012) (Source: Adapted from European Parliament (2014: 19))

Hungary, since processed products have a higher value added than raw products. This is a negative structural characteristic of the Hungarian agribusiness compared to the other two countries.

Regarding imports from outside the EU (Table 12.5 and Fig. 12.3), Hungary and Poland import more processed goods (57% and 58% respectively), while the ratio is exactly the opposite for the Czech Republic. It is worth mentioning that total agricultural imports per capita are three times larger for Poland and the Czech Republic (€91.3 and €90.7) than for Hungary (€30.4).

To sum up the agricultural trade outside the EU, Poland and Hungary are heavily dependent on exports towards the rest of the world, thus any

crisis or embargo could have a major impact on their economies. As for imports, Poland and the Czech Republic are dependent on the rest of the world, whereas the vulnerability of Hungary is significantly smaller.

12.5 Human Resources

Aging

The number of employees in agriculture is decreasing in the Czech Republic, as it shrank by 30% between 2000 and 2013. The number of the people working in the agricultural sector had decreased in Hungary until 2009 due to an economic crisis, which slightly reversed the tendencies. Other indicators have decreased as well, such as the utilised agricultural area (by 0.8%) and the number of holdings, however, the average size of the holdings has grown. The population working in agriculture is aging like in most of the EU member states. In 2015, 48% of farmers belonged to the 55+ category.

Table 12.6 shows the number of persons younger than thirty-five years old and those who are older than sixty-five years old among agricultural holders in the three countries and the EU-27. The farm holder is the legal or physical person taking benefit of the agricultural activity. They are only accounted for as individual holders and not holders of group holdings. The percentages show the proportion of the number of agricultural hold-

Table 12.6 The age structure of agricultural holders in Central European countries (2007)

Characteristics of agricultural holders	Hungary		Poland		Czech Republic		EU-27	
	Persons	%	Persons	%	Persons	%	Persons	%
<35 years old	46,850	8	293,750	12	3590	10	822,670	6
>= 65 years old	171,840	28	387,900	16	6760	19	4,584,020	34
Being a natural person	618.670	100	2,387,250	100	36,460	100	13,441,000	100

Source: Adapted from Eurostat (2015)

ers of the given age compared to the total number of agricultural holders in a given country. Aging of the agricultural population is a serious problem in the EU and in the three countries under study as well. In the Czech Republic, over half of farmers belonged to the 55+ category, the ratio increased by nearly 50% between 2000 and 2013. However, the highest ratio of farmers being 65 years old and more was observed in Hungary (28%) among the 3 countries in our study.

Education

Generally, the educational composition of the labour force in agriculture is very unfavourable compared to other branches of the economy, although the situation is improving slowly. The educational structure of the agricultural workers has been improving in the Czech Republic. In 2011 approximately 31% of the workers had the GCSE (General Certificate of Secondary Education) and an additional 11.7% a university degree, although it is far less favourable compared to the general educational structure of the Czech workers. The agrarian sector is a branch with lowest salaries, educational level and rate of mobility. In the Czech Republic, the ratio of the unpaid workers is low, it was about 20.5% in 2013.

In Poland the educational structure of agricultural workers is not favourable, only 2.8% have a degree in higher education, although the situation is improving. The income level is also very low compare to other sectors of the economy, the level of own capital among farmers is low.

The educational structure of the agricultural labour force is unfavourable in Hungary, too. Only 3% of private holders have a college or university degree nowadays. 568,000 individual farmers were assisted by 509,000 unpaid workers (47%) in 2011. Approximately 10% had agricultural education of any kind. Within the educated category, 20% had a higher degree and 44% had secondary training. Among individual farmers and assisting family members 76% worked only on the basis of their practical experiences without any agricultural training, and 14% without any practical knowledge. As for the agricultural enterprises, 73%

of managers (6700 people) had some agricultural training, and 44% had a higher degree training in agriculture.

12.6 Managerial Issues in Agricultural Enterprises in General

Due to the different structure of agriculture and composition of production, the three countries face different challenges despite important similarities. A low prestige of agriculture, ageing of owners, managers and workers, low educational level and low salaries, as well as a lack of capital are major common problems. Hungary and the Czech Republic face similar problems in agriculture, which has been stagnating in output recently. In Hungary, the share of raw products is very high that renders the profitability much lower than possible. Poland is a net winner of the last decade in agriculture as its production is increasing as well as its profitability, as the Polish agriculture produces processed goods in large quantities but it uses a very big amount of labour force to achieve that. The agricultures of these countries clearly show other signs of structural problems, for instance Hungary is both exporter and importer of cereals, and the Czech pork production covers only half of the local demand, whereas it is an important pork exporter. Furthermore, the share of employment in agriculture of Poland is outstanding not just in the EU, but in the neighbouring countries as well. In the Czech Republic, the average size of a typical agricultural entity is relatively large, be it an individual farm or an enterprise. In Poland, a typical agricultural unit is a farm, cultivating a relatively small land, based on the labour of the owner. In Hungary, the structure is bipolar, on the one end of the spectrum, there are farmers operating on a small plot of land, where family members assist; on the other end, there are large cooperatives and enterprises.

In Poland and Hungary, cooperation among individual farmers faces important obstacles, such as the negative image of the cooperatives (collectivisation, 'kolkhoz'). Since the accession to the EU, the establishment of producer groups (PGs) has been made possible in Hungary, and their number is around 250 today, with more than 200,000 farmers. Due

to the negative image of collectivisation, the attitude of farmers to official cooperation is traditionally negative in Hungary, especially among the older generations. In the Czech Republic, sales cooperatives and organisations are essential in agricultural activities related to cattle, pork, dairy products, sheep, eggs, fruits and vegetables, bakery and milk products. Centroodbyt, a national sales cooperative founded in 2004, unites the organisations active in cattle and pork, it provides its members with marketing and monitoring services in the Czech Republic, in the EU and farther abroad. In 2013, approximately 10% of the total pork production was negotiated through this association. On the milk market, 36 sales organisations were registered and represented almost two-thirds of the milk processing. For the chicken eggs commodity, there were two large sales associations in 2013, Czech Eggs Inc. had 12 members, Golden Eggs Inc. – five producers. As for fruit and vegetable producers, there were 14 organisations in 2013 and one in bakery and milk products.

The output of the Polish agriculture significantly increased in value and in quantity in the last 10 years, and the quality of agricultural and food products has turned high. Rural inhabitants have started to show growing entrepreneurship and innovative solutions. They have modernised their machines and equipment, however the Polish agriculture has the third worst position in the EU regarding the level of technical equipment per working unit. The fastest growth was in labour intensive sectors and in those where a large size of land is required. Organic farming has also grown considerably. Farmers hardly get bank loans and they also lack the willingness to participate in common investment projects. They are reluctant to undertake collective actions and create cooperation institutions, like cooperatives and producer groups. But on the other hand, the production of cattle, pork and crops is concentrating. The ratio of economic 'grey sphere' is high. The income of farmers is highly dependent on EU subsidies (approximately 50%).

Regarding the agricultural policy of the EU, it is focusing on the ability of producing a sufficient quantity of food to feed European and world markets as well. The Common Agricultural Policy (CAP) is important to achieve a strong and competitive EU agriculture. The labour productivity

Table 12.7 Labour productivity in agriculture in Central European countries

Labour productivity	Czech Republic	Hungary	Poland	EU-28
In agriculture (ths €/persons)	22.62	14.07	5.92	17.52
National average (all industries, ths €/persons)	27.40	20.72	23.18	55.01
Relative labour productivity of agriculture (as a percentage of national average, %)	82.56	67.90	25.55	31.85

Source: Own calculation based on Eurostat statistics

of the agricultural sector is very different in these countries. Table 12.7 shows some summary statistics on the labour productivity in the three countries based on Eurostat statistics. The labour productivity of the agricultural sector in terms of how much euros it can earn shows a very different picture. At one extreme, the labour productivity of the Czech Republic is even higher than that of the EU-28 average, whereas Poland's labour productivity is less than a third of the EU-28 average. This remarkable difference in the relative productivity of labour in agriculture is present, although the average labour productivity of these countries compared to the EU-28 average is quite similar. Therefore, the role these sectors play in the countries' income level and GDP is very diverse. Agriculture is a relatively developed sector in the Czech republic with its 82% of labour productivity of the national average. At the other extreme, in Poland, labour productivity of the agricultural firms is just one quarter of the national average.

The country studies show that profitability is a key issue in the background of managerial problems. In each country large estates seem most profitable at the moment, but small farms with intensive agriculture, especially horticulture, have demonstrated a much higher growth in profitability recently. Medium-sized farms seem to be entrapped: they are too big to be profitable and too small to be effective. Subsidies fundamentally determine the profitability of the sector in general. Without EU and national subsidies, the sector would face serious problems, but the dependency seems to lessen. The biggest problem in the field of profitability is the lack of capital and the scarcity of favourable loans and appropriate financial means.

12.7 Main Factors Influencing Profitability

The accession to the EU caused significant income increases in the Polish agricultural sector. Parallel to the growing income, employment decreased which means that the income calculated per persons employed full time has increased – in 2012, it almost doubled compared to the pre-accession period. Between 2004 and 2012, the cumulative value of support which came from three main sources – two grants from the national budget, one of them being CAP co-financing, and EU payments – reached almost 85 billion euros. The most often used support are the direct EU payments, 1.4 million of Polish farmers applying for them annually. Between 2004 and 2009, the large impact of increased subsidies can be seen in the growth of income of agricultural entrepreneurs. The share of subsidies in the income increased from 38.8% to more than 60%. Subsequently, a significant decline was observed in 2011, when it was below 50%, and in 2013, it was below 40%. The average monthly income per farmers' household in 2013 was around 1184 Euros, which is above the average monthly income of households of employees (1006 Euros). Data show that between 2005 and 2009, the income of agricultural households grew more dynamically than the rest of economic sectors.

In the Czech Republic, the value of agricultural production and operating subsidies increased mildly around 2012, however the costs grew virtually at the same pace. The growth per hectare in 2012 was 5.7%. The value was higher among legal entities, that is larger estates, but the rate of growth was higher among physical entities, that is, farms (11.2%). As for economic value added (EVA), the patterns are similar. Between 2011 and 2012, the average growth was 5.1%, but it was significantly lower in legal entities (2.7%) than physical entities (12.5%). Regarding the income from agricultural activities (IAA) per hectare, the picture is more striking: legal entities faced a decline of 6.9%, whereas physical entities showed an annual growth of 10.1%. In addition, the value of IAA per hectare was almost three times higher among physical entities than among legal entities, thanks to higher costs of external factors and a lower volume of paid investment subsidies.

In Hungary, the price of land, livestock and human resources are the most important factors in profitability. As most of the agricultural businesses rent land, the 28% growth in 2012 compared to 2010 was a dramatic increase and the prices of agricultural products changed basically at the same pace.

12.8 Planning and Forecasting Profitability

In Poland, profitability depends on the profile of farms: most profitable farms in Poland produced grain-eating animals, whilst the lowest income occurred in unspecialised farms. The Polish study states that the profitability of the Polish farms depends on their size.

On the other hand, the Czech study shows that medium size farms are most problematic in terms of profitability: small farms are more profitable and large estates are economically effective, medium size farms are too small to be effective and are too big to be profitable. In addition, Czech medium-sized farms are over five times bigger than in the EU. In comparison to the other two countries, the Czech agricultural sector has not had primary significance. In all but one Czech regions, the share of agriculture in GDP is below 5%, thus it is not of primary importance for decision-makers. One of the most important problems is the lack of capital in the Czech Republic. Companies and cooperatives function with a high share of debt. Agricultural businesses are endangered by a long term negative profitability and sudden fluctuations of operating profit at high indebtedness. External factors play a very important role. Statistics show that between 2001 and 2011 agricultural legal entities made profit only with the help of subsidies. Profitability changed hectically for instance in 2004/2005, it fell by 42% in terms of total capital and by another 9% the following year. Later, it grew significantly, but for instance in 2011, it was on the same level as in 2007 (6.94%).

Forecasting profitability in Hungary has been made difficult by the sharply fluctuating market prices of agricultural products, resulting from the weather conditions. Similarly to the other two countries, Hungary is highly dependent on subsidies. The most supported sector in 2013 was

the dairy sector, but the most profitable sectors were horticulture and crop farms.

Notes

1. In this book, we refer to Central Europe when analysing Poland, Hungary, and the Czech Republic. These 3 countries are included in our analyses due to the availability of these country studies in our international research project. Nevertheless, some other countries may be classified as Central European as well, especially Slovakia.
2. Based on the definitions given by Kovács (2015) and Merriam-Webster Online Dictionary.

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13

Managerial Challenges in Central European Agricultural Enterprises

Judit Kocsis and Klára Major

Parallel to the quantitative study, qualitative research studies were conducted in the three countries. Managerial challenges were identified in five core areas. Interviews with owners and managers of agricultural business entities were carried out by standard criteria: interviewees were classified by economic size and sector, based on the FADN (Farm Accountancy Data Network) methodology (agricultural accounting network) and also following the Czech Statistical Office (standard classification of agricultural businesses). According to the classification, three large groups can be distinguished by either their economic size or by the number of their employees: small businesses, medium businesses and large businesses.

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13.1 Methodology of the Qualitative Research

In the Czech Republic, nine interviews were performed (Urbancová 2015). Based on the number of employees, four small businesses, five medium businesses and no large businessess were involved. According to their economic size, five small businesses, three medium businesses and one large business were addressed. Regarding their production profile, five businesses dealing with plant and animal production, one business engaged in animal production only, two businesses involved in plant production only and one business operating in forestry and farming were included. The names of the respondents, similarly to the other country studies, were kept anonymous.

In Hungary, eight interviews were performed altogether (Kovács 2015). The structure of agricultural businesses that took part in the research was as follows: based on their economic size, two small businesses, six medium businesses and no large businesses were involved; according to the sector of activity, two businesses dealing with animal production (dairy and sheep sectors) and six businesses dealing with plant production (cereal, fruit, vegetable and ornamentals sectors) were examined.

In Poland, five interviews were conducted (Bryła 2015). Their sample was constructed with a view of having a good representation of agricultural enterprises of various sizes and operating in diverse sectors. The production profile of the agricultural businesses participated in this research was as follows: one business dealing with cereal production, one business specialising in milk production, one business dealing with pig production and two businesses with multidirectional farms. According to the number of employees—according to the aforementioned classification—the agricultural enterprises involved in the study were small, which reflected the typical agricultural situation in Poland.

All interviews in all three countries were structured in the same way. All respondents were asked ten compulsory questions in five main areas regarding their sales potential and risk management strategies,

competitiveness, partner relations and human resource issues. The questions were structured as follows:

- Increasing sales potential/sales strategy:
  - What kind of changes do you observe in the conditions of the domestic markets for agricultural products?
  - What is your sales strategy?
- Competitiveness:
  - Where do you find the necessary knowledge and information to run the enterprise? How often do you use public and/or private consulting services? Why?
- Partnership and cooperation:
  - How do you assess your cooperation with food processing enterprises and other farmers/agricultural enterprises? Do they help you to take the right decision in managing your farm?
  - What sources of investment do you have? (e.g., state or EU funds?)
- Human resources issues:
  - What knowledge, skills and abilities (competencies of employees) do you require from your employees?
  - What knowledge, skills and abilities are important in managing an agricultural enterprise like yours?
  - When and how did you recruit an employee to a managerial position in your company? Was it by promotion or by direct application from the labour market? What are your experiences in this area?
- Risk management:
  - What risks do you run having your business?
  - How do you address these risks? What are your experiences in this field?

Some researchers complemented the compulsory questions with additional ones when necessary. The picture resulting from the synthesis of the interviews is presented in the following sections.

13.2 Main Findings of the Interviews

Hungarian interviewees complained about financial problems. Different types of loans (short-term liquidity loans as well as long-term investment loans) should be specialised and tailor-made for agricultural farmers and enterprises. Another main problem they face is unpredictability and changeability of prices, which makes efficient planning and strategy implementation hard. Constantly changing regulations, forms of subsidies and support and related government programs also makes strategy-making difficult. A lack of information, especially about marketing, regulations and forms of possible cooperation, is also a risk. Farmers, retailers and processors have unpredictable relations and a low level of trust, which renders possible forms of cooperation and effective collaboration increasingly difficult. Profitability is low; that is true in general in the animal-producing sector, but the cereal sector also faces a strong competition that makes profits lower.

Czech interviewees generally have a negative perception of bureaucratic interventions into agriculture, be it on behalf of the local authorities or of the European Union. They regard that "the biggest interventions into our business are EU subsidies and its quotas and restrictions." They feel that the situation has not improved since the 1990s.

A low level of managerial knowledge, expertise, know-how and agricultural education are key factors that impede efficiency and profitability of agricultural production in Hungary. Younger generations of farmers do not have better knowledge in this regard. As for human resources, agricultural managers lack good motivation, accuracy, reliability, responsibility and expertise in their tasks. Managers in agribusiness have to fulfil very complex requirements in Hungary; they have to be familiar with the local and EU financial regulations, managerial issues as well as specific issues in agriculture, such as harvest times and weather conditions, and also they have to make market predictions about what is worth producing. They have to run their business in competitive environments. Thus, they should have a holistic approach, taking consideration of all sorts of possible risks.

Czech respondents said that farmers are required to be responsible, diligent, willing to work anytime, punctual, compliant with rules and to think independently. Managers of larger enterprises should have business

skills and economic training as well. Farmers usually do not consider managerial skills an important success factor in the competitive market; quality and price of products matter, not the quality of producers. Interviewees in all countries expressed that relevant agricultural knowledge may not be learnt at schools; experience and expertise may be acquired in practice and on the basis of tradition. Thus, small farmers want to keep their farms in the hands of the next generation and managers of larger enterprises recruit staff based on personal recommendation. It is only for managers of larger enterprises that education is valued. It also can be difficult to find capable workers—those who graduated do not want to stay on the farm and, in most cases, agriculture is not an attractive field for young people.

The practice of passing the know-how and knowledge from one generation to another and acquiring the expertise through working with parents seems interrupted in an increasing number of Polish and other cases. It is more and more common that farmers do not have successors. It is not only potential agricultural employees, but it is the offspring of farmers as well who are keen on choosing professions unrelated to agriculture and moving to urban areas. This may lead to a necessary consolidation of land in the hands of fewer, more competitive enterprises, but it also may lead to depopulation of large areas.

The consumers regard price as the most important factor when they consider buying agricultural goods and quality matters less. Thus, the market is very competitive in terms of prices but not in terms of quality. This way, those who produce quality goods find selling them almost insurmountable. Within the present circumstances, the Czech interviewees argued that having a defined sales strategy was not a viable option. In most of the cases, producers sell to only one or two businesses, thus they virtually lack a real sales strategy. Czech interviewees agreed that it is very difficult to go beyond the familiar buyers and they face difficulties in finding other customers. These kinds of producers fear the risk of European integration and trade liberalisation, especially imports from more competitive producers such as those in Germany. Only large enterprises have defined sales strategies, but they are rather simple; the goal is to sell at the highest price. Because of the high costs, smaller enterprises do not use consultancy services. Rather, they use official information

from available resources, whereas large enterprises prefer such consultancy services, especially for preparation of grants and applications. Polish interviewees agreed that selling their entire output to a single food processor in the framework of a long-term contract ensures a certain level of stability and promotes vertical marketing channel integration, including the transfer of know-how and a better adjustment to market requirements. But on the other hand, it makes them more dependent.

In the Czech Republic, local and regional cooperation and partnerships between farms and businesses seem a viable option. The interviewees regard them as crucial to strengthen the region and the cooperation upon which they could later base their expansion beyond their region. In Poland, and to some extent in Hungary, farmers' reluctance to engage in any kind of cooperation is a legacy of communism. They have a very individualistic approach that may have a negative impact on their efficiency and competitiveness. It results in such problems as lack of willingness to take common actions; lack of trust, even among neighbours; lack of leadership; too complex legal procedures; differences in the size of potential partners; passiveness of local authorities; and lack of willingness to support.

Financing the operations faces obstacles in all three countries. It is difficult to get a loan of any kind and the existence of many farms is largely conditioned by EU funding and local subsidies. It is the larger enterprises that are able to successfully apply for EU grants and other important subsidies, smaller ones do not have the knowledge to compete.

13.3 Sales Potential

Small enterprises and farms integrated into a supply chain lack any real form of sales strategy; only larger enterprises have a definite vision. Small ones base their activities on tradition. The sales strategies of the larger ones are usually very simple: sell at the highest price. As for financing, small-scale actors are dependent on area-based payments, only larger enterprises may opt for loans. Overall, the interviewees complain about the bureaucratic procedures and difficulties in getting loans and subsidies.

Czech respondents were rather pessimistic about the changes in conditions: "*The fact that we are able to function 'normally' under such*

circumstances is in my point of view a matter of luck" (Urbancová 2015). Small businesses in the private sector are strongly affected by natural conditions and feel a high level of market risk. Many small businesses that have become part of a larger enterprise had to change their course and functioning and they gave up the demanding plant production and farm only on permanent grassland and strive to survive on the EU grants. The biggest changes recently were the introduction of EU subsidies, quotas and restrictions. They are generally considered negative by the respondents. Most of them do not feel any changes for the better since the 1990s. They especially complained about the bureaucratic procedures. Large-scale Czech producers feel especially threatened by the competition from abroad, whereas local producers feel only the pressure on prices as a result of foreign producers. Czech consumers are beginning to value quality and not just the low prices nowadays, which could be a threat to local businesses that often produce lower quality products. On the other hand, these negative feelings are common among producers operating on consumer markets, while the respondent specialising in forestry sees the market conditions as more balanced and stable. Family businesses in the Czech Republic do not have any sales strategy because their activities are based on traditions. Those businesses that have only contacts in wholesale are dependent on one or two partners and only look for new partners when they are forced to. This relation is convenient for them. On the other hand, larger companies in the Czech Republic have defined sales strategies, which are very simple: to sell at the highest price, so the profit is the clear goal and the sales price is fixed plus a certain percent of the turnover or profit. More elaborated schemes are rather rare.

In Poland, most of the interviewees sell their entire output to a single food processor within a framework of a long-term contract. On one hand, it gives a certain level of stability and an easy transfer of know-how and better adjustment to market requirements. On the other hand, it makes them extremely dependent on the business customers, with a weak bargaining power. That situation results in low prices. Only one of the Polish interviewees has a diversified sales strategy. He produces milk to the dairy cooperative but sells also to the nearby inhabitants and produces other goods like pork, potato and cereals for private consumers.

Diversifications could be a good means of risk reduction, but lack of specialisation may also have negative consequences for successful farm management. Negative attitudes to cooperation affects the sales potential. Strategies and examples of cooperation among the interviewees are based on family ties. As for financing sales activities, only one of the interviewees uses other options than direct area payments.

Similar to the attitudes of the Czech respondents, the Hungarian ones also seem to see the dark side of the future. Many of them would require a higher financial support from the government in general and to solve their liquidity problems in particular. They also complained about the loan conditions. Constant changes of the laws, especially land law, cause uncertainty. The subsidies and financial support are allocated in a very bureaucratic way and some new regulations also make running business more bureaucratic, such as the introduction of EKAER (Electronic Trade and Transport Control System), although it reduces the possibility of tax evasion mainly by foreign agricultural traders. In Hungary, the main problem is high fluctuation and unpredictability of agricultural prices and government support, which cause a high level of marketing risk and vulnerability. Almost all interviewees complained about low profitability levels and the negative consequences of foreign traders, such as Polish apple exporters and other cereal traders. There is a very low level of trust and unpredictable relations between the actors (producers, retailers and processors), which results in high production costs and low profitability. The involvement of research, development and innovation is considered low in Hungary and the agricultural higher education less suitable to fulfil the requirements of the real needs of the agricultural profession, especially in terms of practice-orientated studies. As a result, the younger generation of farmers has no real advantage in the daily business. The situation of Hungarian respondents regarding their sales strategy is similar to that of respondents in the other countries. That is, the virtual lack of it. Some of the respondents directly sell their products to retailers or consumers, home or abroad. Only one of them mentioned some kind of strategy that he called liquidity approach, where he sells crops proportionally to costs, which ensures the monthly liquidity of the agricultural business in the crop sector.

13.4 Competitiveness

The acquisition of knowledge and information is crucial for all actors to successfully run a business.

The Czech interviewees argued the smaller the actor, the more likely it acquires knowledge and expertise through traditional channels such as family, friends and acquaintances. For small enterprises, any public forms of consultancy are nearly impossible because of exorbitant prices charged by the consultancy firms. However, larger companies can afford these kinds of services. Those who cannot afford to pay consultancy firms try to find information from official sources such as SAIF (State Agricultural Intervention Fund) and official internet pages of other institutions.

The situation in Hungary is somewhat different. Small- and medium-sized agricultural farms generally use public consulting services like the village consultant network or professional organisations to gain some information on current regulations, marketing, trends and prices. Furthermore, they often use the service of some private consultant company mainly to improve their production technology and project management skills. Sometimes farmers consult foreign companies, mostly from the Netherlands, Germany and Austria, because the necessary sort of knowledge is not available in Hungary. It is also common that the agricultural managers use the Internet to see the actual agricultural trends in the market, or in the technology. They search for financial support via the Internet as well. They mainly use the Ministry of Agriculture web portal and the Agricultural and Rural Development Agency website to find information about the available financial support and regulations.

The main flow of information in Poland, according to the interviews, is learning from one's parents and exchange of information among friends. Another important source of advice and even training is commercial partners, such as cooperatives and input providers as well as state advisory services. Some interviewees pointed out that they gather knowledge and information from specialised press and literature as well as TV programmes for farmers. Only larger enterprises use professional advisory services of private institutions, especially for preparing applications for EU funds. Below that threshold, the smaller farms have to cope otherwise.

To sum up, it would be very important to make information about EU subsidies and governmental grants easily available, disseminated and more accessible through the Internet and other (local) sources, since small enterprises have few opportunities to ask consultants or advisory companies. Integrators in a supply chain can also be a good source to improve competitiveness. There are two kinds of integration in agriculture: horizontal and vertical. In horizontal integration, enlarging the market share is carried out by taking over similar companies. Members of the merger are in the same level of the supply chain. In case of vertical integration, members are on a different level of the supply chain, their goal is to control the distribution/production of a product in order to increase their company power in the marketplace, like producers and processors making an integration.

13.5 Partnerships and Cooperation

According to the interviews in the three countries, cooperation and partnership work fairly well in the Czech Republic and Hungary, but the situation is less favourable in Poland.

Respondents in the Czech Republic agreed that cooperation among farmers is inevitable, especially for small enterprises, due to the strong competition from abroad. Personal trust plays an important role in the partnership in Hungary, too. Cooperation is based on "quid pro quo" principles, i.e., farmers emphasise the synergic effects of the cooperation such as cheaper logistic routes, supply or higher consumer satisfaction. Farmers are not willing to cooperate for just the sake of cooperation.

Hungarian interviewees declared that relationships among food processing enterprises and other companies are generally good. Contractual relationships prevail. The cooperation, especially in a producer organisation, is fruitful because farmers belonging to it get higher prices and they have higher bargaining power against the retail chains, thus they can ensure the product quality and lower the market risk. Producer organisations function well because members are of practically the same size and have the same business goals and profit requirements. When the relationship is unbalanced, such as usually between Hungarian processor companies and smaller agricultural enterprises, the cooperation is not harmonious.

In Poland, the situation of cooperation and partnership is less favourable due to historical factors. Farmers lack the willingness to cooperate and the level of trust is very low, even among neighbours. As an exception, an interviewee mentioned that he was able to buy a milk cooler, which improved his competitiveness but also created his role as an integrator of a local network of farmers specialising in milk. Thus, instead of bringing the milk to the dairy cooperative they got their milk stored at his farm. Instability characterises vertical channel integrations in Poland as well. The relationships with processors are short-term, due to regular financial problems of the processors or lack of trust and dishonesty towards intermediaries, who stand between small-scale producers and processors. One interviewee changes the partners each year.

Bank loans are very rarely used financial instruments in Hungary due to harsh bank requirements and high interest rates. Hungarian farmers usually use loans only to finish their investments. To set up a farm, young farmers use special funds (Young Farmers' Tender). When it comes to investment in general, farmers rely mostly on their own resources, covering typically 60–70 percent of the value of the investment, and the rest consists of EU sources.

The picture is similar in the Czech Republic. Farmers in small enterprises mostly use their own resources for investment. Mainly large- and medium-sized enterprises are successful in applying for EU grants and local subsidies for investment. Small and medium businesses are dependent on state subsidies, without which they could not exist. The addressed farmers receive subsidies from the state fund regularly and try to apply for EU funds; however, the application is often not successful. On the other hand, medium businesses with a long-term tradition and a partial foreign capital share do not need the state or European grants due to their good financial situation.

13.6 Human Resources

Respondents in all three countries mentioned that agriculture is suffering from a lack of workers, thus "*whoever voluntarily decides to work in farming has already fulfilled the most important requirements*." Being a farmer is

a physically demanding work that requires flexibility, resilience, toughness, perseverance and a lot of abilities such as operating and repairing machinery and solving unexpected situations, willingness to adopt a high workload and resistance to stress, plus financial skills are also useful. A positive relation to the land and the rural way of life in general are the most important.

As the study from the Czech Republic indicates, the following requirements are necessary for managerial positions in agricultural enterprises according to the respondents: (1) knowledge: at least secondary education in the field, (2) skills: responsibility, work organisation, punctuality and time management, and (3) the following abilities: reliability, diligence, flexibility and loyalty. These characteristics are regarded by the addressed respondents—owners and managers of agricultural enterprises—as the primary requirement for managerial positions.

In addition, the Hungarian study emphasised that agricultural enterprise managers need to have a very strong desire to engage in agriculture and to have a wide range of agro-technological, economic and marketing knowledge to manage the enterprise. They are to have a very complex knowledge of different fields, including financial knowledge to analyse the activity or get a favourable loan from the bank. They should also have an up-to-date market knowledge to successfully sell their products.

Representatives of small enterprises in the Czech Republic all agreed that keeping the farm in the family is important: "*I'm a manager in my company and I hope that my son will continue in my position. I have no experience in addressing workers to a managerial position*." Medium and larger businesses tend to fill managerial positions on personal recommendation. They do not have good experience with the Labour Office; usually they do not use its services. Agricultural companies choose their employees based on recommendations in the first place, training their own workers or recruiting talented students. Only some Hungarian agricultural managers have positive attitudes towards recruiting from the labour market to managerial positions.

One of the Czech interviewees mentioned that farming is a philosophy. The respondent was from a family-run business that has been farming for more than 150 years and even survived collectivisation. As to the unqualified employees, men are supposed to possess technical skills and ability to

operate farm machinery; there are no such prerequisites for women. As for qualified professions, knowledge corresponding to the nature of the position is a must but no further requirements were mentioned.

The Polish interviewees require from their employees industriousness, reliability, obedience and honesty ("*they should not steal anything*"). Usually farmers prefer their employees to originate from farming families and especially from the neighbourhood whom they have known—respondents do not use employment agencies.

Hungarian employers emphasised that employees have to be experts of the special tasks they are responsible for and they do not need to see the whole picture of the supply chain. Because the employees work on expensive machinery and costly resources, in which they can cause a serious damage, diligence and reliability are extremely important. This is especially true for full-time workers. Seasonal workers have lower responsibilities and need fewer qualifications. Hungarian respondents also mentioned that there is often a shortage of available labour force, especially during harvests.

13.7 Risk Management

Respondents from all three countries agreed that five risk factors in agriculture can be identified in the scientific literature: productive risk, marketing risk, financial risk, human risk and environmental risk. Each of these factors plays a very important role in the annual profit margin of an agricultural enterprise. Regarding the environmental risk, most of the Hungarian interviewees mentioned the weather, especially drought and hail. Regarding the human risks, a respondent mentioned the lack of an educated and reliable workforce on the labour market. It is difficult to find workers for seasonal work as well. Regarding market risk, fluctuations of price and currency were mentioned, including input prices such as seed, fertiliser, pesticide and energy, as well as output prices. Lastly, most of the Hungarian respondents mentioned the bureaucratic risk, because the EU financial support and regulations are so complex and difficult to apply. A Czech respondent expressed a very similar opinion. In addition, some respondent mentioned the rigidity and nature of the

production cycle—that is, when a customer needs something, farmers must wait until it grows, and if the customer cannot wait, he or she chooses another supplier. Dishonesty of customers is another problem that was mentioned often. Building trust and word of mouth are the most effective methods to defend oneself against unreliable customers. Besides the aforementioned methods, building social capital is essential in agribusiness to manage the risk factors efficiently. That means managers should know experts in almost every field to give advice or tips. Most of the interviewees agreed that managing the human resources risk is sometimes more difficult than all the other risks combined. Recruiting and motivating workers is crucial, motivating well-educated workers is a very difficult task because besides the high salary and good working environment, they need opportunity to express their creativity. In managing the financial risk, two methods were mentioned: diversifying the financial resources and having enough cash flow. To tackle the weather risk, quality insurance is a good means.

The most important issues relate to the risk managers face, and solutions mentioned included finding reliable information resources; successful negotiations with processors; achieving a favourable, long-term contract; recruiting and motivating staff; and increasing staff knowledge, skills and abilities. Modernisation and implementation of suitable technology is another key issue through which risks can be dealt with. Czech and Hungarian managers have a fairly positive attitude to risk management. Polish interviewees, however, expressed more pessimistic views and have a reactive, passive approach. For instance, when reducing financial risks, they mentioned that limiting or even avoiding bank loans is a good method. They believe they have no influence on the level of risk. They do not take insurance and in case of a disaster, they expect the public authority to help them.

13.8 Good Practices

Polish agriculture is characterised by an unfavourable agrarian structure. Experts claim that it is the quality of labour that is decisive. The success depends on the recognition of market niches for the small-scale

producers. Bigger agricultural users may also aim at reducing unit costs. One of the general good practices is the successful uptake of EU subsidies and funding. Another good practice is the usage of advisory and counselling services. Finding export possibilities and changing towards export orientation is also a good practice. Internationalisation proved a successful strategy among Polish food processors after the EU accession. Turning towards tradition, localisation and naturalness, producing authentic products is another good practice. Taste, product uniqueness, traditional recipes, healthiness and smell have become very important factors in food marketing and consumption.

13.9 Unresolved Problems and Gaps

In Hungary, the major causes of problems are the following: the collapse of the Soviet market, shrinkage of domestic demand, growing competition due to import liberalisation, curbing of state subsidies, increase in input prices, a switch to extensive production, disarray induced by the privatisation of agriculture, and a low prestige of employment.

The Czech study emphasised the following problems and gaps:

- rapid aging of the agricultural workforce,
- poor employment perspectives,
- a lack of certain professions and problems in adapting to the changing qualification structure, scarcity of qualified labour that will be necessary to run the modernised, technology orientated farming in the near future,
- a low level of income, which makes agriculture less attractive for young and qualified people,
- conservative behaviour of older agricultural generations that thwarts the spread of innovative approaches, diversification and adoption of new technologies and practices.

The Polish study reveals distinctive features of the Polish agriculture compared to the other two countries in terms of problems and gaps. The unsatisfactory absorption of EU structural funds may be regarded as a

common problem, but the lack of willingness to cooperate, shortage of cooperation skills and the inability to take collective decisions and actions, resulting from the bad experience from the communist era, is a special characteristic of the country. In addition, most of the farmers do not use elaborated information sources and rely on their own knowledge and experience when they make their own decisions, only a small ratio (about 12%) use advice from producers or sellers.

13.10 Suggestions for Market-Based Services

The authors of the country analyses highlight the importance of the following services: education, flow of information, recruitment and building a strong brand. Building a strong employer brand is not an easy task, but it is essential for companies if they wish to succeed in the labour market and attract a talented workforce as well as recruit the appropriate persons.

The Hungarian and Czech studies underline the importance of involvement of universities and research centres in helping agricultural managers to improve efficiency and foster their technical and managerial knowledge and language and communication skills.

After the EU accession, the volume and scale of production of processed food has significantly increased in Poland. It can be stated that one of the main beneficiaries of this progress was the Polish agriculture, in contrast with the stagnating situation of the Czech and Hungarian agriculture, characterised by a relatively high share of raw products. As the composition of Polish agriculture is unique, with its myriad of relatively small-sized farms, the adaptability of small units may be the key factor to its success. Furthermore, it seems that smaller farms are more flexible, whereas large farms are more efficient, while medium-sized farms show neither the advantage of being profitably small nor efficiently large.

Cooperation fails due to distrust in each country; it works better in those cases where the participants have already known each other and already have connections and, especially, common interests. The Polish agriculture has made slow headway despite the general reluctance to cooperation, characteristic since communism, while the other two

countries have deeper and longer traditions of cooperation, but in a less balanced way.

Regardless of the fact that agricultural activities demand special skills such as flexibility, complex ways of thinking and persistency, it is a highly underestimated sector by social and financial measures, which leads to aging and a low educational level of the agricultural population. A fresh wave of creative, adaptable, educated farmers with innovative approaches seems to emerge from towns and they start new enterprises with elaborated, highly processed products.

The share of, and reliance on, EU and governmental subsidies and grants are of fundamental importance within the finances of the agricultural businesses everywhere, but their importance is decreasing parallel to the increase of profitability, caused primarily by the expanding scale of production of processed goods, especially in Poland.

Overall it can be concluded that despite all the differences, the three countries have some common problems to solve. One of them is rapid aging in the agricultural sector, which is a general problem in Europe. It would be necessary to somehow make agriculture more attractive for young people. Another problem is low profitability, which can be addressed through modernisation, new technologies and better access to information. A further problem is the low educational level of the agricultural workforce. Efficiency can be increased if the participators are more educated. Low wages can be lifted if the profitability is higher. Specialisation, finding niches like organic farming, traditional foods and increasing quality can be the key to successful performance in the competitive market in spite of the fact that most of the consumers are price-sensitive. Managers' roles are also very important for the success in this sector. They have to understand the working of the system and have a variety of skills.

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The initially published affiliation for Hana Urbancová in chapter 5, 6, 7 and 8 was incorrect. The correct Affiliation is as follows:

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