

**THEORETICAL STUDY ON THE ACCOUNTING TREATMENT PRESCRIBED FOR
BIOLOGICAL ASSETS AND AGRICULTURAL PRODUCTS BY IAS 41 AGRICULTURE
- first part theory -**

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Abstract. The study theoretically and practically presents the accounting treatment prescribed for biological assets and agricultural produce by the Romanian Accounting Regulations compliant with the International Financial Reporting Standards (IFRS), by IAS 41 Agriculture, or other applicable standards, such as IAS 2 Inventories, for agricultural produce after the harvest. Thus, the initial valuation and the post-recognition one are treated based on the fair value reliably measured less the costs to sale.

The study includes a theoretical part that summarizes the basic notions from IAS 41 Agriculture, such as consumable and bearer biological assets (in the form of inventories), mature and immature, the lands to which they are connected, the bearer plants, the gains and losses from their valuation at the fair value, the specific government grants and the disclosures. As well as a practical part in which case studies are presented in the form of complex examples regarding the prescribed treatment and the entering in the accounts of the transactions with biological assets, based on the Chart of Accounts of the Romanian Accounting Regulations compliant with the IFRS.

Keywords: agricultural activity, biological assets, bearer plants, fair value, cost to sale, arising from changes in the fair value

Clasificare JEL : M41; M40; M 48; M 49.

1. Introduction

Agriculture is the science and art of cultivating plants and raising livestock. We could say that agriculture was the first branch of the world economy, its origin being placed with the birth of human civilization. Agriculture is in fact the key to the rise of *sedentary human civilization*.

The term *agriculture* comes from the Latin words *agri* meaning *field* and *culture* meaning *cultivation*, in the sense of mechanical and chemical processing of the soil, suitable for cultivating plants.

Agriculture provides most of the food, materials needed for clothing and footwear as well as other raw materials for various industries, such as *the biofuel*.

About half of the world's population works in agriculture (according to an estimate from 2002, 42%) making it *the most widespread human occupation*. However, there are big differences between the role played by agriculture in different areas of the planet. In developing (emerging) countries, such as Nepal, about 90% of the population works the land and raises animals. In contrast, only about 2% of the active population is engaged in agriculture in industrialized countries, such as the United Kingdom or the United States.

Only that, unfortunately, agricultural produce account for only 5% (according to a 2005 estimate, 4.4%) of the world gross product, which is calculated by summing all the gross domestic product of all the countries. [1]

Regarding the Member States of the European Union, the share of employment in 2017 in agriculture was the highest in Romania (24% of the total workforce and 23% in 2018), Bulgaria (19% and 18% in 2018), Greece (11%) and Poland (10%).

As far as the added value goes, the services have generated 73% of the total added value in 2017, industry 25% and *agriculture* 2%. [2]

Although agriculture accounts for a significant share of the world's workforce, its share in the GDP and in the added value is low. Thus, since agricultural holdings are less present globally (multinationals), they are not listed on the stock exchanges, they have national status, being *connected to the land*, in the past, the global standardizers of accounting standards have dealt too little (or not at all!) with prescribing some accounting treatments, through a special standard for agricultural activities.

As Barry J. Epstein and Eva K. Jermakowicz (2008) note, in the context of the old *International Accounting Standards (IAS 2 Inventories, IAS 16 Property, Plant and Equipment and IAS 18 Revenue)*, most rules applicable to agriculture have deliberately excluded all or almost all the examples related to agriculture. [3]

In this context, *International Accounting Standard 41 Agriculture (IAS 41)* was originally issued in February 2001 by the *International Accounting Standards Committee (IASC)* and adopted in April 2001 by the *International Accounting Standards Board (IASB)*. In December 2003, the IASB issued a revised *IAS 41 Agriculture*, as part of its initial agenda of technical projects.

In June 2014, the IASB amended *IAS 41 Agriculture* by excluding from its scope *the bearer plants related to agricultural activity* and including them in the scope of *IAS 16 Property, Plant and Equipment*. Initially, *IAS 41 Agriculture* included also the accounting of bearer plants related to agricultural activity. Subsequently, *IAS 41 Agriculture* has undergone various changes as a result of the changes in other standards.

IAS 41 Agriculture has as an **objective** to *prescribe the accounting treatment and disclosures related to agricultural activity*. At the same time, *IAS 41 Agriculture* applies to the accounting of *biological assets (living animals or plants) with the exception of bearer plants, agricultural produce at the point of harvest and specific government grants*.

IAS 41 Agriculture targets the agricultural activity only up to the moment of the harvest, subsequently the part representing the accounting of the products resulting from post-harvest processing being treated by *IAS 2 Inventories*.

2. Methodology of the scientific research

The scientific paper proposes the updating, but mainly the improvement of accounting records in the field of agriculture, based on *Romanian Accounting Regulations compliant with IFRS – IAS 41 Agriculture*, by analyzing the concepts and characteristics specific to the agricultural activity from the literature and the accounting rules as well as the presentation of significant practical examples. In order to obtain the expected result of the scientific research, we have resorted to *the fundamental scientific research methodology*, namely *the exploratory method of investigation*.

3. Results of the scientific research

3.1. Financial reporting of biological assets and agricultural produce

3.1.1. The scope and the exclusions from the scope of *IAS 41 Agriculture*

As can be seen in **Table 1**. *The scope and the exclusions from the scope of IAS 41 Agriculture*, the standard **prescribes exclusively the accounting treatment** for accounting *the biological assets, agricultural produce and grants related to biological assets* only if they are *measured at their fair value*.

Table 1. *The scope and the exclusions from the scope of IAS 41 Agriculture* [4]

❖ IAS 41 Agriculture applies to account for:	❖ IAS 41 Agriculture does not apply to account for:
▪ <i>Biological assets, except for bearer plants related to agricultural activity.</i>	▪ <i>Bearer plants related to agricultural activity (see IAS 16).</i>
▪ <i>Agricultural produce at the point of harvest.</i>	▪ <i>Agricultural produce after harvest (see IAS 2).</i>
▪ <i>Government grants relating to biological assets measured at their fair value.</i>	▪ <i>Government grants related to bearer plants (see IAS 20).</i>
	▪ <i>Land related to agricultural activity (see IAS 16 or IAS 40, as the case may be).</i>
	▪ <i>Intangible assets related to agricultural activity (see IAS 38).</i>
	▪ <i>Right-of-use assets arising from a lease of land related to agricultural activity (see IFRS 16).</i>

Source: Own projection after IAS 41 Agriculture.

Thus, IAS 41 Agriculture **does not prescribe** the accounting treatment applied to *land related to agricultural activity* (treated in IAS 16 *Property, Plant and Equipment* and IAS 40 *Investment Property*), *intangible assets related to agricultural activity* (treated in IAS 38 *Intangible Assets*) or to *right-of-use assets arising from a lease of land related to agricultural activity* (treated in IFRS 16 *Leases*). IAS 41 Agriculture **does not apply** also to the accounting of *bearer plants related to agricultural activity* (included under IAS 16 *Property, Plant and Equipment*) or to *government grants related to bearer plants* (treated in IAS 20 *Accounting for Government Grants and Disclosure of Government Assistance*).

Furthermore, IAS 41 Agriculture **excludes** from its scope the accounting of the processing of agricultural produce after harvest (for example: *processing of harvested trees for the purpose of obtaining wood products, processing into wine the grapes obtained by a winegrower, or of wool into spun wool yarn*, all of which are dealt with by IAS 2 *Inventories*). Thus, if the biological transformation process has ended (for example: *when the corn has been harvested or when the trees have been cut down*) the provisions of IAS 41 Agriculture will no longer be applied.

At the same time, IAS 41 Agriculture introduces the *fair value measurement* in agriculture. Therefore, this standard is the starting point in measuring the fair value of the agricultural assets.

3.1.2. *The general and related definitions of biological assets and agricultural produce*

As can be seen in **Table 2. Biological assets and agricultural produce**, IAS 41 Agriculture makes a clear distinction between *biological assets* (single or group), classified into *consumables* and *bearer*, respectively *mature* and *immature*. Even if *bearer plants* are classified as well as *biological assets*, the standard excludes them from its scope.

Table 2. *Biological assets and agricultural produce* [5]

❖ <i>The biological asset is a living animal or plant.</i>		
❖ <i>The group of biological assets is an aggregation of similar living animals or plants.</i>		
▪ The consumable biological asset (mature or immature) is:	▪ The bearer biological asset (mature or immature) is:	▪ A bearer plant is a living plant that:
the agricultural product to be harvested or sold as a biological asset (for example: <i>wheat, sunflowers, corn, soybeans, flax, and hemp crops, vegetables, spice plants, trees and shrubs for replanting, flower crops, silkworms, fish from fish farms, animals or birds raised to be sold as such or for slaughter, laying birds, trees grown for timber, etc.</i>). The mature biological asset is the one	the source from which agricultural produce are repeatedly harvested or used as such over several periods with multiple production cycles (for example: <i>the animals producing milk, wool, lambs, calves, the bee colonies, the animals for breeding and progeny, the animals for work, the animals in zoos, the animals for riding and training, the trees from the fruit trees orchards, the trees grown</i>	(a) <i>is used in the production or supply of agricultural produce;</i> (b) <i>is expected to bear produce for more than one period; and</i> (c) <i>has a remote likelihood of being sold as agricultural produce, except for incidental scrap sales.</i> For example: <i>tea bushes (shrubs), shrubs for some spices (laurel, cinnamon, etc.), vines, oil palms and rubber trees.</i>

that has reached the harvesting stage (for example: <i>tomatoes are mature and good for consumption</i>).	<i>in forests for timber production and so on etc.) Bearer biological assets are not agricultural produce, but rather are held to produce. The mature biological asset is the one that can be used for periodic harvests (for example: the group of cows on a farm has reached maturity and can be milked).</i>	
<i>The agricultural produce is the harvested produce of the entity's biological assets</i>		<i>The produce of bearer plants is biological assets.</i>

Source: Own projection after IAS 41 Agriculture.

Agricultural activity is the management by an entity of the biological transformation and harvest of biological assets for sale or for conversion into agricultural produce or into additional biological assets.

The agricultural activity includes a series of activities such as: *animal husbandry, forestry, cultivation of annual or perennial plants, cultivation of fruit trees or other plantations, floriculture and aquaculture (including fish farming)*. [6]

Analyzing agriculture in the light of the definitions in IAS 41 Agriculture, Barry J. Epstein and Eva K. Jermakowicz conclude that agriculture differs from *pure exploitation*, in the case of which the resources are simply collected from the environment (for example, *by fishing or by deforestation*), without involving management initiatives such as nursery management, reforestation or other attempts at regeneration. As such, IAS 41 Agriculture **does not apply** to pure exploitation activities nor to the agricultural produce that are harvested and which are therefore non-organic produce. Moreover, the standard does not govern the accounting of agricultural production that is incorporated into processing. [7]

However, in order to be able to classify agricultural activities, IAS 41 Agriculture provides a set of criteria by which *the common characteristics* in the diversity of specific agricultural activities are captured:

(a) **The ability of modification.** *Living animals and plants are capable of biological transformations;*

(b) **The administration of the modification.** *The mode of administration facilitates biological transformation by improving or at least stabilizing the conditions necessary for the development of the process (for example, level of nutrient elements, humidity, temperature, fertility and light). This administration differentiates agricultural activity from other activities. For example, harvesting produce from unmanaged resources (such as ocean fishing or deforestation) is not an agricultural activity; and*

(c) **Measuring the change.** *Qualitative change (e.g., genetic quality, density, degree of ripeness, fat content, protein content, fiber strength) or quantitative change (e.g., number of chickens, weight, volume, length or diameter of fibers, number of buds), determined by biological or harvesting transformations, is measured and monitored as a routine function of administration.*

Thus, according to IAS 41 Agriculture, **biological transformation** comprises the processes of growth, degeneration, production and procreation that cause qualitative or quantitative changes in a biological asset.

Biological transformation of assets leads to the following types of results:

(a) *changes in assets through: (i) growth (a quantitative increase or improvement in the quality of an animal or plant), (ii) degeneration (a quantitative decrease or deterioration in the quality of an animal or plant), or (iii) reproduction (creating additional living animals or plants); or*

(b) *production of some agricultural produce, for example, latex, tea leaves, wool and milk.*

Harvest is the detachment of produce from a biological asset or the cessation of a biological asset's life processes. [8]

In conclusion, biological assets are the core assets of agricultural activity, held for their ability to transform. In this context, Barry J. Epstein and Eva K. Jermakowicz state that biological assets are involved in two types of production: the first involves the **transformation of assets**, for example, by increasing or improving the quality, by degeneration or procreation; the second aims at **creating separable produce**, which initially qualify as agricultural production. [9]

Biological assets can be singular (*a living animal, a living plant*) but are most often administered in **groups** (for example: *herds of animals, clumps of trees or crop fields*). In order to be able to talk about a group of biological assets, its components must meet the condition of homogeneity, both in *nature* (for example: *dairy animals and meat animals*) and in *the activity* for which the group of biological assets is used (for example: *the nut trees that are kept for fruit production will not be in the same group as the nut trees kept for their wood used in furniture production*).

As can be seen in **Table 3. Biological assets – agricultural produce – produce resulting from post-harvest processing**, examples on the differentiation between biological assets, agricultural produce and produce resulting from post-harvest processing are provided.

Table 3. *Biological assets – agricultural produce – produce resulting from post-harvest processing* [10]

Biological assets	Agricultural produce	Produce resulting from post-harvest processing
Sheep	Wool, skins	Yarns, carpets, fabrics, shoes
Trees from a plantation	Cut trees (logs) in the bark	Processed logs, Timber
Milk cows	Milk	Cheese
Pigs	Carcasses	Cold meats
Cotton plants	Cotton	Yarns, fabrics, clothing
Wheat plants / fields	Wheat	Flour, bread
Sugar cane / beet	Harvested sugar cane / beet	Sugar
Tea bushes (shrubs)	Picked leaves	Tea
Vine	Reaped grapes	Wine
Fruit trees	Reaped fruits	Processed fruits, compote
Collected oils palm trees	Reaped fruits	Palm oil
Rubber trees	Harvested latex	Rubber produce
<i>Some plants, such as tea bushes (shrubs), vines, oil palms and rubber trees, usually meet the definition of a bearer plant and fall under IAS 16. However, bearer plants produce, such as tea leaves, grapes, palm oil fruits and latex, fall under IAS 41.</i>		

Source: Own projection after IAS 41 *Agriculture* and IAS 2 *Inventories*.

Therefore, **biological assets** are in fact living animals and plants and are not identical to the harvest or the agricultural production. This distinction between them is extremely important as the prescribed accounting treatment may be different for each of them. In this context, a distinction is made between **biological assets** (living animals and plants) and **agricultural produce** (produce harvested from biological assets), respectively **produce resulting from post-harvest processing**.

Therefore, IAS 41 *Agriculture* does not prescribe the accounting treatment of agricultural produce after the time of harvest or subsequent processing of agricultural produce such as, for example, the *grinding of wheat by the farmer for flour, or the manufacture of bread*, all of which are dealt with by IAS 2 *Inventories* or other applicable standard.

To the extent that these criteria are met, the agricultural activity will meet the financial reporting requirements imposed by IAS 41 *Agriculture*.

Initially, IAS 41 *Agriculture* (2001) also included under its incidence the accounting of bearer plants related to agricultural activity. Subsequently, the IASB amended IAS 41 *Agriculture* (2014) by excluding *bearer plants related to agricultural activity* from its scope and including them in the scope of IAS 16 *Property, Plant and Equipment*. However, IAS 41 *Agriculture* applies to produce derived from such bearer plants.

Moreover, IAS 41 *Agriculture*, in paragraph 5, *defines the bearer plant as a living plant and therefore implicitly biological asset*. However, it excludes bearer plants from the scope of the

standard, it includes them in the scope of IAS 16 *Property, Plant and Equipment*, thus creating some difficulties in applying the professional judgment to the classification of biological assets. Even more, IAS 41 *Agriculture*, in paragraph 44, includes in the category of *bearer biological assets, fruit trees*, which at first sight correspond to the definition of bearer plants, and in paragraph 4, considers *tea bushes (shrubs), vines, oil palm trees and rubber trees as corresponding to the definition of a bearer plant, and includes them under IAS 16 Property, Plant and Equipment*.

The answer is also provided by IAS 41 *Agriculture*, in paragraph 5A, where it excludes *biological assets that are not bearer plants*, as follows: plants grown for harvesting as agricultural produce (for example, *trees planted for use as timber*), annual crops (for example: *corn and wheat crops*) as well as cultivated plants from which agricultural produce are harvested regularly but also occasionally (for example: *fruit trees* from which fruits are harvested but also wood (for fire) in the form of waste).

Bearer plants according to IAS 41 *Agriculture* do not occasionally produce agricultural produce (for example, from *vine or tea bushes* no waste of economic value is occasionally harvested for the entity). However, IAS 41 *Agriculture*, in paragraph 5B, shows the possibility that *when bearer plants are no longer used to generate produce, they could be cut down and sold as waste (e.g. firewood)*.

For an overview of the accounting of biological assets and agricultural produce presented above we use the synthesis provided by the following logical scheme – **Figure 1. Assets specific to the agricultural field – applicable accounting provisions**.

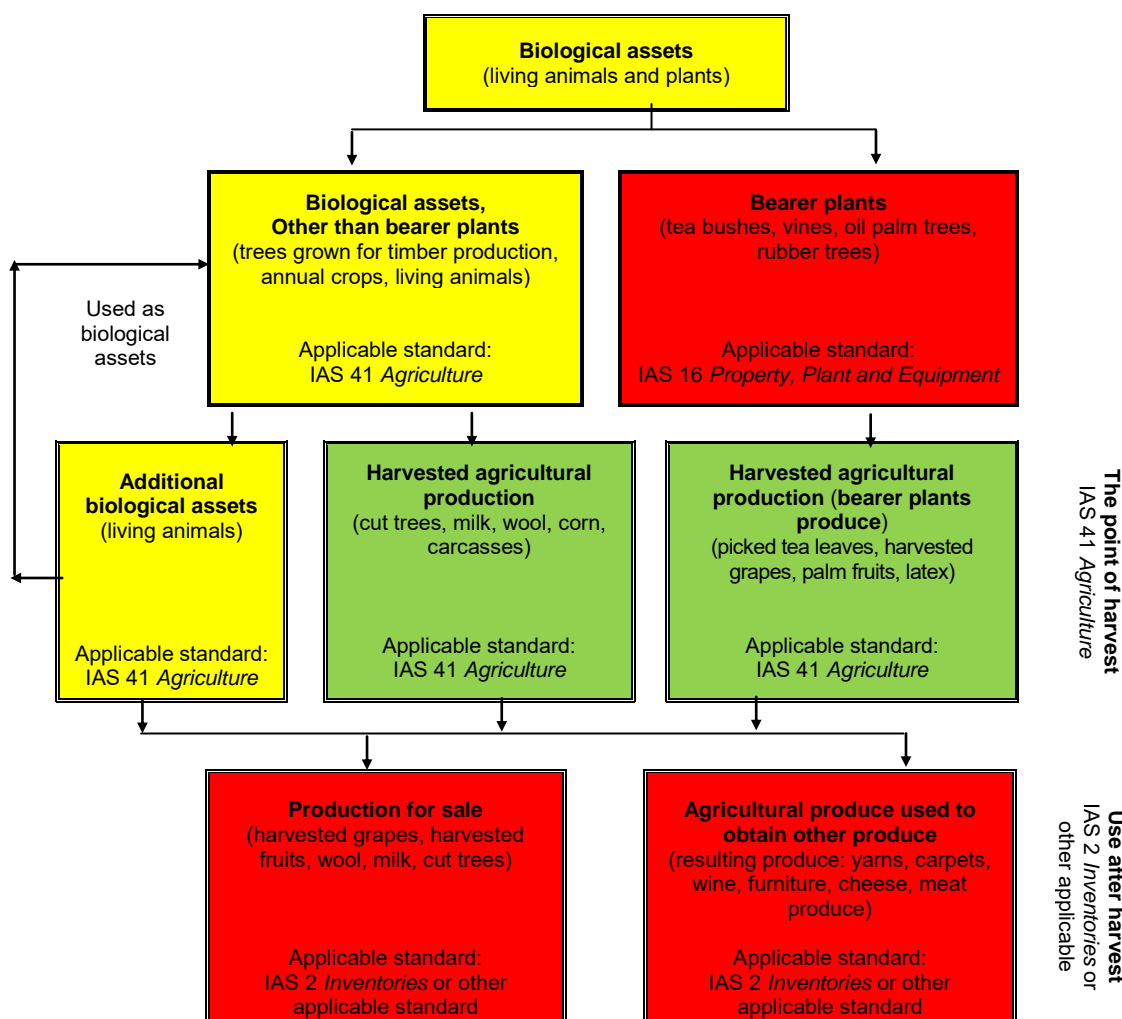


Figure 1. Assets specific to the agricultural field – applicable accounting provisions

Source: Marinela Gughea and Irina Diana Iordache (2017). [11]

3.1.3. Recognition and measurement of biological assets and agricultural produce

IAS 41 *Agriculture* is the exception to the practice with which entities use **historical cost** as a basis for measurement in financial statements. The general rule set out in IAS 41 *Agriculture* with respect to measurement is that any biological asset will be measured at *its fair value less estimated costs to sale both at the time of initial recognition and at the end of each reporting period*. Contracts concluded for the sale of the crop at a later date do not always represent a reliable basis for establishing fair value. The most appropriate source of information for establishing fair value is a **dynamic main market** for that biological asset or agricultural produce.

IFRS 13 *Fair Value Measurement* defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. (IFRS 13, paragraph 9)

As it can be seen in **Table 4. Accounting treatment for the recognition and measurement of biological assets and agricultural produce – applicable accounting provisions**, we summarize the main provisions contained in IAS 41 *Agriculture*, IAS 2 *Inventories* and IAS 16 *Property, Plant and Equipment*, regarding the **recognition and initial and post-recognition measurement** of biological assets including bearer plants and agricultural products (agricultural produce) resulting from biological assets.

Table 4. Accounting treatment for the recognition and measurement of biological assets and agricultural produce – applicable accounting provisions

RECOGNITION CRITERIA	MEASUREMENT RULES	
	ON INITIAL RECOGNITION	AFTER RECOGNITION / AT THE END OF THE REPORTING PERIOD
Accounting treatment of Biological assets except Bearer plants – Applicable standard IAS 41 Agriculture		
An entity shall recognize a biological asset when, and only when: (a) the entity controls the asset as a result of past events; (b) it is probable that future economic benefits associated with the asset will flow to the entity; and (c) the fair value or cost of the asset can be measured reliably. (IAS 41, paragraph 10)	A biological asset shall be measured at its fair value less costs to sell , except where the fair value cannot be measured reliably. (IAS 41, paragraph 12) In such a case, that biological asset shall be measured at its cost less any accumulated depreciation and any accumulated impairment losses¹ . Once the fair value of such a biological asset becomes reliably measurable, an entity shall measure it at its fair value less costs to sell . (IAS 41, paragraph 30) ¹ When determining cost, accumulated depreciation and accumulated impairment losses, an entity applies IAS 2, IAS 16 and IAS 36. (IAS 41, paragraph 33)	A biological asset shall be measured at its fair value less costs to sell , except where the fair value cannot be measured reliably. (IAS 41, paragraph 12) Costs to sell are the incremental costs directly attributable to the disposal of an asset, excluding finance costs and income taxes. (IAS 41, paragraph 5)
GAINS AND LOSSES		
A gain or loss arising on initial recognition of a biological asset at fair value less costs to sell and from a change in fair value less costs to sell of a biological asset shall be included in profit or loss for the period in which it arises . (IAS 41, paragraph 26)		
Accounting treatment of Bearer plants – Applicable standard IAS 16 Property, Plant and Equipment		
The cost of an item of property, plant and equipment shall be recognized as an asset if, and only if: (a) it is probable that future economic benefits associated with	Bearer plants are accounted for in the same way as self-constructed items of property, plant and equipment before they are in the location and condition necessary to be capable of operating in the manner intended by management.	An entity shall choose either the cost model¹ or the revaluation model² as its accounting policy and shall apply that policy to an entire class of property, plant and equipment. (IAS 16, paragraph 29)

<p>the item will flow to the entity; (b) the cost of the item can be measured reliably. (IAS 16, paragraph 7) The cost of an item of property, plant and equipment comprises: (a) its purchase price, including import duties and non-refundable purchase taxes, after deducting trade discounts and rebates; (b) any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management; (c) the initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located (...). (IAS 16, paragraph 16)</p>	<p>Consequently, references to “construction” in the standard should be interpreted as including activities necessary for the cultivation of bearer plants before they are in the location and condition necessary to be capable of operating in the manner intended by management. (IAS 16, paragraph 22A) The cost of a self-constructed asset is determined using the same principles as for an acquired asset. (IAS 16, paragraph 22)</p>	<p>¹⁾ The cost model – an item of property, plant and equipment shall be carried at its cost less any accumulated depreciation and any accumulated impairment losses. (IAS 16, paragraph 30) ²⁾ The revaluation model – an item of property, plant and equipment whose fair value can be measured reliably shall be carried at a revalued amount, being its fair value at the date of the revaluation less any subsequent accumulated depreciation and subsequent accumulated impairment losses. (IAS 16, paragraph 31)</p>
Accounting treatment of Agricultural products (Agricultural produce) resulting from Biological assets including Bearer plants		
1. At the moment of harvest	Applicable standard IAS 41 Agriculture (subsequently IAS 2 Inventories or any other applicable standard applies)	
<p>An entity shall recognize a agricultural produce when, and only when: (a) the entity controls the asset as a result of past events; (b) it is probable that future economic benefits associated with the asset will flow to the entity; and (c) the fair value or cost of the asset can be measured reliably. (IAS 41, paragraph 10)</p>	<p>Agricultural produce harvested from an entity's biological assets shall be measured at its fair value less costs to sell at the point of harvest. Such measurement is the cost at that date when applying IAS 2 Inventories or another applicable Standard. (IAS 41, paragraph 13)</p>	
GAINS AND LOSSES		
<p>A gain or loss arising on initial recognition of agricultural produce at fair value less costs to sell shall be included in profit or loss for the period in which it arises. (IAS 41, paragraph 28)</p>		
2. After harvest use		
2.1. Products for sale	Applicable standard IAS 2 Inventories	
<p>The general asset recognition criteria set out in the <i>Conceptual Framework for Financial Reporting</i> apply.</p>	<p>According to IAS 41 Agriculture, (paragraph 13) inventories comprising agricultural produce that an entity has harvested from its biological assets are measured, at the time of initial harvest, at fair value less costs to sell at harvest. This is the cost of inventories at the time. (IAS 2, paragraph 20)</p>	<p>Inventories shall be stated at the lower of cost and net realizable value. (IAS 2, paragraph 9)</p>
2.2. Products resulting from the processing of agricultural produce after harvest	Applicable standard IAS 2 Inventories	
<p>The general asset recognition criteria set out in the <i>Conceptual Framework for Financial Reporting</i> apply.</p>	<p>The cost of inventories should include all costs of purchase, costs of conversion, other costs incurred in bringing the inventories to their present location and condition. (IAS 2, paragraph 10)</p>	<p>Inventories shall be stated at the lower of cost and net realizable value. (IAS 2, paragraph 9)</p>
2.3. Biological assets	Applicable standard IAS 41 Agriculture	

Source: Projection after IAS 41 Agriculture, IAS 2 Inventories and IAS 16 Property, Plant and Equipment.

3.1.4. Government grants for biological assets

IAS 41 *Agriculture* prescribes a *different treatment regarding the recognition* in the case of *government grants granted for a biological asset measured at fair value less costs to sell* or if a government grant requires an entity *not to engage* in certain agricultural activities compared to government grants allocated for a *biological asset (including bearer plants) measured at its cost less any accumulated depreciation and any cumulative impairment loss*.

Government grants are granted on different terms and conditions. For example, the granting of a government grant may require an agricultural company to cultivate the land in a certain area for five years and return the grant if this condition is not met. In this situation, the government grant is not recognized as income until the expiry of the five years. However, if the terms of the grant allow part of it to be withheld over time, the entity shall recognize the grant as income, on a pro rata basis, until the expiration of the time period required for the grant to be granted. [12]

As can be seen in **Table 5. Accounting treatment for the recognition of government grants for biological assets**, we comparatively present the recognition model of the government grants for biological assets, in accordance with IAS 41 *Agriculture*.

Table 5. Accounting treatment for the recognition of government grants for biological assets

Government grants for biological assets	
Applicable standard IAS 41 Agriculture	Applicable standard IAS 20 Accounting for Government Grants and Disclosure of Government Assistance
<p><i>Unconditional government grants received in respect of biological assets measured at fair value less costs to sell are recognized in profit or loss when the grant becomes receivable. (IAS 41, paragraph 34)</i></p> <p><i>If a grant received in respect of biological assets measured at fair value less costs to sell is conditional, including where the grant requires an entity not to engage in certain agricultural activity, the entity shall recognize the grant in profit or loss only when the conditions have been met. (IAS 41, paragraph 35)</i></p>	<p><i>In the case of a government grant for a biological asset (including bearer plants or if the fair value of the biological asset at initial recognition cannot be measured reliably) measured at its cost less any accumulated depreciation and any cumulative impairment loss, IAS 20 shall apply. (IAS 41, paragraph 37)</i></p>

Source: Own projection after IAS 41 *Agriculture*.

3.1.5. Presentation and disclosure regarding biological assets and agricultural produce

IAS 41 *Agriculture* requires reporting entities to provide a description (narrative or quantified, which it encourages) of each group of biological assets. (IAS 41, paragraphs 41, 42 and 43)

At the same time, an entity shall disclose the aggregate gain or loss arising during the current period on initial recognition of biological assets and agricultural produce and from the change in fair value less costs to sell of biological assets. (IAS 41, paragraph 40)

3.2. Biological assets and agricultural produce in the Romanian Accounting Regulations

In Romania, in accordance with the *Accounting Law* no. 82/1991, republished, with subsequent amendments and completions, *accounting regulations* specific to different categories of economic or non-profit entities, private, public or mixed are issued periodically by the Ministry of Public Finance. These accounting regulations stipulate the way of organizing the simple or double entry accounting, as well as the financial information generated by the financial reporting through the financial statements, whose form and format of presentation they standardize.

Thus, at present, (2020) the entities whose securities **are not** admitted to trading on a regulated market apply the Order of the Ministry of Public Finance no. 1802/2014, *for the approval of the Accounting Regulations regarding the individual annual financial statements and consolidated annual financial statements*, as subsequently amended and supplemented, which **partially transpose** the provisions of Directive 2013/34/EU of the European Parliament and of the Council *on annual financial statements, consolidated financial statements and related reports of certain types of undertaking*. And the entities whose securities **are** admitted to trading on a regulated market (and other categories of entities provided by regulation) apply the Order of the Ministry of Public Finance no. 2844/2016 *for the approval of the Accounting Regulations compliant with the International Financial Reporting Standards*, with subsequent amendments and completions.

Regarding the accounting of **biological assets**, the *Accounting Regulations compliant with the International Financial Reporting Standards* make use of the provisions of IAS 41 *Agriculture*, highlighting distinctly in accounting **bearer biological assets** (OMFP no. 2844/2016, point 62.(3)) and **(consumables) inventory-like biological assets** (OMFP no. 2844/2016, point 85.(1)). [13]

In other words, the *Accounting Regulations regarding the individual annual financial statements and consolidated annual financial statements* (OMFP no. 1802/2014), formerly known as the *Accounting Regulations complying with European directives* [14] in relation to **agriculture – related definitions** and the general concept of **biological assets**, implement **for the most part** the same provisions from IAS 41 *Agriculture*.

Thus, by appealing to the *Accounting Regulations compliant with the European directives* [15] **bearer biological assets** are any assets, other than inventory-like biological assets; for example, dairy animals, vines, fruit trees and trees from which firewood is obtained but not cut down. *Bearer biological assets are not agricultural produce but rather self-regenerating assets.*

A biological asset is a living animal or a living plant.

An entity shall recognize a biological asset when, and only when:

- a) the entity controls the asset as a result of past events;*
- b) it is probable that future economic benefits associated with the asset will flow to the entity; and*
- c) the fair value or cost of the asset can be measured reliably.*

In agricultural activity, control may be evidenced, for example, by legal ownership of cattle or the branding or otherwise marking of the cattle on acquisition, birth or weaning. Normally, future benefits are estimated by measuring their significant physical characteristics.

Biological assets are often physically connected to the land on which they are located (for example, trees in a forest plantation). There may not be a separate market for biological assets that are connected to the land, but there may be an active market for the combined assets, i.e. for the biological assets, the vacant land and its facilities, considered as a whole. An entity may use information about combined assets to measure the fair value of biological assets. For example, the fair value of vacant land and its facilities can be deducted from the fair value of the combined assets to determine the fair value of the biological assets.

Bearer biological assets are pursued distinctly in the category of tangible assets.

With regard to **inventory-like biological assets and agricultural produce**, the *Accounting Regulations complying with European directives* provide. [16]

Agricultural activity is the management by an entity of the biological transformation and harvest of biological assets (living animals and plants) for sale or for conversion into agricultural produce or into additional biological assets.

Biological transformation comprises the processes of growth, degeneration, production, and procreation that cause qualitative or quantitative changes in a biological asset.

Inventory-like biological assets are those that are to be harvested as agricultural produce or sold as biological assets. Examples of inventory-like biological assets are the animals for meat

production, the animals kept for sale, the fish from fish farms, crops such as corn and wheat, and the trees grown for timber.

Agricultural produce are those resulting at the time of harvest from the biological assets of the entity, for example, wool, cut trees, cotton, milk, grapes, harvested fruits, etc.

If the reporting entity processes the agricultural produce, the result are finished products, such as yarn, clothing, carpets, timber, cheese, sugar, processed fruit, etc.

Harvest is the detachment of produce from a biological asset or the cessation of a biological asset's life processes.

Agricultural activity includes a wide range of activities; for example, animal husbandry, forestry, cultivation of annual or perennial plants, cultivation of fruit trees or other plantations, floriculture and aquaculture (including fish farming). These activities have certain common characteristics, namely:

a) the ability of modification. Living animals and plants are capable of biological transformations;

b) the administration of the modification. The mode of administration facilitates biological transformation by improving or at least stabilizing the conditions necessary for the development of the process (for example, level of nutrient elements, humidity, temperature, fertility and light). This administration differentiates agricultural activity from other activities. For example, harvesting produce from unmanaged resources (such as ocean fishing or deforestation) is not an agricultural activity; and

c) measuring the change. Qualitative change (e.g., genetic quality, density, degree of ripeness, fat content, protein content, fiber strength) or quantitative change (e.g., number of chickens, weight, volume, length or diameter of fibers, number of buds), determined by biological or harvesting transformations, is measured and monitored as a routine function of administration.

Biological transformation can lead to the following types of results:

a) changes in assets through: (i) growth (a quantitative increase or improvement in the quality of an animal or plant), (ii) degeneration (a quantitative decrease or deterioration in the quality of an animal or plant), or (iii) reproduction (creating additional living animals or plants); or

b) production of some agricultural produce, for example, wool and milk.

The accounting regulations in Romania provide in the General Chart of Accounts (**Table 6.**) specific accounts for the accounting of bearer biological assets, bearer plants, inventory-like biological assets and agricultural produce.

Table 6. Accounts specific for the accounting of biological assets and agricultural produce

The chart of accounts from the O.M.F.P. no. 2844/2016	The general chart of accounts from the O.M.F.P. no. 1802/2014
1052 Reserves from revaluation of tangible assets	105 Revaluation reserve
1175 Retained earnings due to surplus on revaluation reserves	1175 Retained earnings due to surplus on revaluation reserves
2111 Freehold land	2111 Freehold land
218 Bearer plants	
227 Bearer biological assets under supply	227 Bearer biological assets under supply
231 Tangible assets in progress	231 Tangible assets in progress
241 Bearer biological assets ¹	217 Bearer biological assets
2411 Bearer biological assets measured at fair value	
2412 Bearer biological assets measured at cost	
2818 Depreciation of bearer plants	
284 Depreciation of bearer biological assets measured at cost	2817 Depreciation of bearer biological assets
2918 Impairment of bearer plants	
2931 Impairment of tangible assets in progress	2931 Impairment of tangible assets in progress

294 Impairment of bearer biological assets measured at cost	2917 Impairment of bearer biological assets
326 Inventory-like biological assets in transit	326 Inventory-like biological assets in transit
347 Agricultural produce	347 Agricultural produce
348 Price differences on goods	348 Price differences on goods
356 Inventory-like biological assets at third parties	356 Inventory-like biological assets at third parties
361 Inventory-like biological assets ²	361 Inventory-like biological assets
3611 Inventory-like biological assets measured at fair value	
3612 Inventory-like biological assets measured at cost	
368 Price differences on inventory-like biological assets	368 Price differences on inventory-like biological assets
3947 Write-down of agricultural produce	3947 Write-down of agricultural produce
3955 Write-down of agricultural produce at third parties	3955 Write-down of agricultural produce at third parties
3956 Write-down of inventory-like biological assets at third parties	3956 Write-down of inventory-like biological assets at third parties
396 Write-down of inventory-like biological assets	396 Write-down of inventory-like biological assets
4451 Governmental subsidies	4451 Governmental subsidies
4751 Governmental investment subsidies	4751 Governmental investment subsidies
606 Inventory-like biological assets	606 Inventory-like biological assets
6552 Revaluation of tangible assets	655 Revaluation of tangible assets
6571 Losses from the fair value measurement of bearer biological assets ^{1.1.}	
6572 Losses from the fair value measurement of inventory-like biological assets ^{2.1.}	
6573 Transfer of bearer biological assets	
6583 Net value of tangible and intangible assets disposed of and other capital transactions	6583 Net value of assets disposed of and other capital transactions
6811 Depreciation of non-current assets, of real estate investments and bearer biological assets measured at cost	6811 Depreciation of non-current assets
6813 Impairment losses on non-current assets, of real estate investments and bearer biological assets measured at cost	6813 Impairment losses on non-current assets
6814 Impairment of current assets	6814 Impairment of current assets
7017 Sales of agricultural produce	7017 Sales of agricultural produce
7018 Sales of inventory-like biological assets	7018 Sales of inventory-like biological assets
711 Revenues associated with the costs of the completed production	711 Revenues associated with the costs of the completed production
722 Capitalized costs of tangible non-current assets	722 Capitalized costs of tangible non-current assets
741 Subsidies for operating activities	741 Subsidies for operating activities
7552 Revaluation of tangible assets	755 Revaluation of tangible assets
7571 Gains from the fair value measurement of bearer biological assets ^{1.2.}	
7572 Gains from the fair value measurement of inventory-like biological assets ^{2.2.}	
7573 Revenues from the disposal of bearer biological assets	
7583 Proceeds from disposal of tangible and intangible assets and other capital transactions	7583 Proceeds from disposal of assets and other capital transactions
7584 Amortization of investment subsidies	7584 Amortization of investment subsidies
7813 Reversal of impairment losses on non-current assets, of real estate investments and bearer biological assets measured at cost	7813 Reversal of impairment losses on non-current assets
7814 Reversal of write-down of current assets	7814 Reversal of write-down of current assets
¹⁾ This account bearer plants are not highlighted. 1.1.) - 1.2.) Change in fair value of bearer biological assets. 2.1.) - 2.2.) Differences generated by the change in the fair value of inventory-like biological assets.	

Source: Own projection based on the Romanian Accounting Regulations (April 2020).

For bearer biological assets including bearer plants, and in the event that exceptionally they cannot be measured reliably at fair value, the *Chart of Accounts* from the O.M.F.P. no. 2844 / 2016 provides accounts for accounting for biological assets valued at cost.

In an **empirical study** conducted and published at the beginning of 2018, on 20 agricultural entities in Romania (10 limited liability companies – 50%, 8 agricultural cooperatives – 40% and 2 joint-stock companies – 10%), Partenie Dumbravă and Radu Vlad Berceanu note the **low interest** of the responding entities in applying the provisions of IAS 41 *Agriculture*, especially regarding the **measurement of biological assets at fair value** – *the keystone* of the applicable standard.

We must say that, *in Romania, only a limited number of entities and groups apply the International Financial Reporting Standards – IFRS, including IAS 41 Agriculture.*

Thus, when asked whether *according to Romanian practice, the measurement of biological assets is done at historical cost or at fair value*, 18 entities – 90% have indicated **the historical cost** as a basis for measurement in their financial statements due to the low cost of measuring biological assets and only 2 entities – 10% have indicated **fair value**, which provides superior fidelity to the information in the financial statements, but the measurement costs outweigh the benefits. (Table no. 4 and Chart no. 2 of the study).

Regarding *the impact of measuring biological assets on the fidelity of the information provided by the financial statements*, 17 entities – 85% consider that the impact of measuring biological assets on the fidelity of the information provided by the financial statements is very important and important and only 3 entities – 15% consider it is less important and not at all important. (Table no. 6 and Chart no. 3 of the study).

The study also quantified *the importance of measuring biological assets in managerial decision making in agricultural entities*, so 15 entities – 75% do not use the information regarding the measurement of biological assets in making managerial decisions, and 5 entities – 25% most often use this information. (Table no. 8 of the study).

The conclusions of the empirical study reached by researchers P. Dumbravă and R.V. Berceanu are also based on opinions from the international and national literature, as well as the analysis of various reports from *Great Britain, France and Australia*, on IAS 41 *Agriculture*, but also due to the fact that there is a lack of comparability of information practices in this field.

Thus, *the respondents of the surveys, from the mentioned reports, have invoked, in particular, the costs of measuring and reporting of biological assets at fair value, estimating that they would be higher than the resulting benefits, considerations that support the conclusions regarding the need to revise IAS 41 Agriculture.*

In other words, internationally, opinions on IAS 41 *Agriculture* are **heterogeneous** (empirical study and citations from P. Dumbravă and R.V. Berceanu, 2018 [17]):

- Y.H. Aryanto [18] states that IAS 41 *Agriculture* has generalized fair value measurement for all biological assets, although not all of these assets are in the category of those that are expected to increase capital or sell, a fact which leads to the provision of incorrect information.

- A. Vazakidis, S. Athianos and C.L. Ekaterini [19] support the accounting treatment prescribed by this standard. The authors conclude that the main contribution of IAS 41 *Agriculture* is to provide a comprehensive conceptual framework in agricultural accounting practice.

- B. Barlev and J.R. Haddad [20] consider that fair value in accounting reflects a true and fair view of accounting information.

- V. Lefter and A.G. Roman [21] refer to the importance of IAS 41 *Agriculture* because it is the starting point for a consistent transition from acquisition cost to fair value accounting.

The conclusion that we deduce from the study, in Romania, is that the potential entities targeted by the accounting treatment prescribed for the accounting of biological assets by IAS 41 *Agriculture* **do not apply or are not interested**, for the time being, in the standard provisions

regarding the fair value measurement of biological assets on the initial recognition, after recognition and at the end of the reporting period.

The accounting regulations (partially) complying with the European directives in Romania apply the same provisions of IAS 41 *Agriculture*, regarding the definition and the notion of **biological assets**, but retain only the **measurement at cost, but not** also the measurement at fair value less costs to sell (not only when the fair measurement cannot be done reliably, but permanently), practically the essence of the measurement method prescribed by the standard. [22]



☐ To continue the study, see:

☞ **CASE STUDIES AND EXAMPLES OF THE ACCOUNTING TREATMENT PRESCRIBED FOR BIOLOGICAL ASSETS AND AGRICULTURAL PRODUCTS BY IAS 41 AGRICULTURE (second part case studies)**

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[5] Ibidem pt. [4], paragraphs 5, 5A, 5B, 5C, 44 and 45.

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[8] Ibidem pt. [4], paragraphs 5 and 6.

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