

## Development strategy of passion fruit agro-industry: evidence from South Sulawesi, Indonesia

R A Nadja<sup>1</sup>, J Langkong<sup>1</sup>, A Amrullah<sup>1</sup>, M Arsyad<sup>1</sup>, M H Jamil<sup>1</sup>, N M Viantika<sup>1</sup>, A N Tenriawaru<sup>1</sup>, Rahmadanih<sup>1</sup>, Akhsan<sup>1</sup>, A Sulili<sup>1</sup>, Nurlaela<sup>2</sup> and N M Ginting<sup>3</sup>

<sup>1</sup> Department of Socio Economic of Agriculture. Faculty of Agriculture, Universitas Hasanuddin, Makassar, Indonesia

<sup>2</sup> Universitas Sulawesi Barat, Sulawesi Barat, Indonesia

<sup>3</sup> Department of Agribusiness, Faculty of Agriculture, Universitas Musamus, Merauke, Indonesia

Email: rahmawaty\_osek@yahoo.com

**Abstract.** The purpose of this study was to know the passion fruit agroindustry environment in Gowa District and to formulate an agribusiness development strategy of passion fruits. The research employed survey method and use qualitatively and quantitatively approaches, also by formulating data by using analysis of internal and external factors, matrix analysis of IE (internal-external), and finally conducting it in Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis to formulate development strategy of passion fruit agroindustry. There are five combinations of procedures that need to be implemented to achieve development strategy such as developing a variety of passion fruit products, make a unique and attractive design of products, institutional strengthening in agroindustry passion fruit, the use of information technology for marketing products and improving coordination between stakeholders (government, farmers, traders, processors) need to be implemented. For practitioners and consultants the findings of this study should enhance their ability in empowering the small scale business of agroindustry in developing their business by encouraging them to produce derived products; Performs innovation on display packaging; Institutional strengthening and using information technology for products marketing; also improves coordination between stakeholders (government, farmers, traders, processors). This research fills a gap in the literature as there has been minimal prior research with the specific focus on development strategy in passion fruit processing SMEs business; thus, it develops a foundation for further study in this area.

### 1. Introduction

Even though the industrial exploitation of passion fruit generates agroindustrial waste potentially dangerous to the environment [1], however, the commodity is essential in improving the welfare of the farmers and small and medium enterprises in developing countries and Indonesia is no exception. As Indonesia's economic crisis in 1998 and 2007 happened, it gave a positive impact on small and medium industries in the field of agriculture evidenced by the ability of the agricultural sector, especially Small and



Medium Enterprises (SMEs) to survive and even rose by 0.22 percent in Indonesian economy. Therefore, it is necessary to have a development plan in encouraging employment creation and demand for labor [2], enhance agricultural development [3] through agroindustry development.

Development of fruits, mainly tropical fruit has good prospects. The market potential is directly proportional to the amount of production. Total production of fruits Indonesia in the range of 2000 to 2009 tended to increase with production growth rate by an average of 9.30 percent annually [4].

Several things caused the ability of the SMEs in the agriculture sector to thrive and survive in the Indonesian economic crisis in 1997-1998 and 2007. They were SMEs performance tended to be better in terms of generating productive employment, SMEs had more advantages in terms of flexibility than large enterprises, and SMEs often achieved increased productivity through investments and changes [5].

One of SMEs which was able to survive and continue to develop its business was passion fruit processing SMEs in Gowa Regency. The ability of passion fruit cultivation and processing continues to persist due to the persistence of demand for the product [6]. However, the development and growth of passion fruit agro-industry were not very significant, where Gowa Regency as passion fruit producing areas in South Sulawesi is not accessible to the public as well as Berastagi in Medan. This is due to several aspects. Therefore, to develop the agro-industry, to enhance the quality of the products, and to guarantee the continuity of the product, the researchers conducted this research entitled Development Strategy of Passion Fruit Agro-industry "A Case Study in Gowa Regency." This research is expected to produce a strategy for the development of passion fruit agribusiness in Gowa Regency.

The paper is organized as follow Section two presents a framework for studying forming a development strategy of passion fruits. Section three gives a brief overview of some small scale business that works along as an agro-industry that placed and operated their business in the same location in Gowa, its geographical condition. Section four provides a development strategy of passion fruits agro-industry, that done by classifying and clarifying activities of the proposed strategy and the real condition of what was happening in the field. Section five provides a summary of the results and discusses possible applications of the model.

## 2. Methods

### 2.1. Research site, types and data

The research was conducted in Gowa Regency, South Sulawesi, Indonesia. The data used in this study were primary and secondary. The primary data was obtained from observation and questionnaires that had been prepared by direct interview techniques to passion fruit agribusiness and agroindustry entrepreneur.

### 2.2. Sampling

In determining the respondents in this research, the researcher used a purposive sampling technique. The first phase to identify the respondent was having a prior consultation with the ministry of agriculture in Gowa Regency. Based on the discussion, it was obtained that there are some producing areas and SMEs passion fruit processing area. From the information collected the selection of the key respondents (purposive) was held by considering the representation, the amount of production, as well as distance. In determining the key respondents, the researcher considered from the level of education, length of involvement in the passion fruit agroindustry.

### 2.3. Analysis

The obtained data and information were processed and analyzed qualitatively and quantitatively. Data processing was done using the tools of the calculator and computer software Microsoft Excel 2007 to find out the passion fruit agro-industry environment, the analysis of internal and external factors, matrix

analysis of internal-external (IE), and the space matrix analysis of passion fruit agro-industry. The next step was conducting a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis to formulate development strategy of passion fruit agroindustry.

### 3. Results and discussion

#### 3.1. Identification of internal and external factor strategies

The strategies formulated through several phases, namely data collection, analysis and decision-making [7]. To determine the appropriate strategy for the development of passion fruit agro-industry in Gowa Regency, then it was also done by classifying and clarifying activities of the proposed strategy and the real condition of what was happening in the field. The results of the identification of the strategic factors are outlined as follows:

##### 3.1.1. Internal strategy factors

###### Strength:

- Passion fruit of Gowa Regency has a distinctive taste that is popular among consumers.
- Price of passion fruit processed products competes with similar products and substituted products.
- Availability of natural resources (Availability of large tracts of land, supported by appropriate climatic conditions).
- The great access for Gowa Regency to get supporting materials from other areas.
- Availability of adequate water infrastructure, road infrastructure and transportation.
- Gowa Regency has provided industrial area covering 925 Ha.
- The people of Gowa Regency have local knowledge to support the development of industry, especially the passion fruit industry that characterizes this area.
- There are policy supports in the development of infrastructure, farming, industry and marketing from the central and local governments.
- Gowa Regency is popular as a passion fruit producing area.

###### Weakness:

- Gowa Regency is passion fruit production center that tend to has decreasing production.
- Product quality of passion fruit is relatively low related to the low production technology.
- The product strength in the market is relatively low because the processed products are not standardized yet, and the packaging of passion fruit processed products is still simple and less attractive in terms of promotion.
- The low ability of SMEs to get capital from bank loans.
- Parts of supporting raw materials are still imported from other area.
- Availability of electrical energy is relatively weak.
- The quality of cultivated land is decreased which affects the production of passion fruit reducing in capacity.
- The licensing service policy is still not adequate in Gowa Regency

##### 3.1.2. External strategy factors

###### Opportunities:

- Domestic market opportunities outside of the South Sulawesi province which has not been exploited to its full potential.

- International market opportunities are large enough which have not currently utilized.
- Addition of investment opportunities for supporting industry and auxiliary industry of processed passion fruit products.
- There are still farmer interests to plant passion fruit in increasing their profit.
- Waste treatment technology and other processed products with passion fruit as the raw materials are still available.
- The government is promoting creative industries combined with tourism.

#### Threats:

- The existence of rival products in processed passion fruit product likes passion fruit juice from similar products.
- Short-term investments are more promising, especially consumption and retail sectors.
- The presence of passion fruit rival commodities to be cultivated such as vegetables in the center of passion fruit plantations.
- There is considerable competition in the land use with other sectors
- The low level of interest of young people in the agricultural sector business and the migration to big cities.
- There is still a lack of trust among passion fruit businessmen.

### 3.2. Analysis of internal and external strategy factors

After identifying the internal and external strategic factors which were owned by the passion fruit agroindustry in Gowa Regency, then the researcher analyzed these factors by arranging the matrix of Internal Factor Analysis Summary (IFAS) and External Factor Analysis Summary (EFAS).

The arrangement of IFAS and EFAS matrix was conducted to determine the important level of internal factor and external factor identification, which was indicated by weights and influential levels possessed based on the rating in determining the development strategy of passion fruit agro-industry in Gowa Regency. Internal factor analysis using IFAS matrix was obtained strengths which can be developed and weaknesses which should be minimized in passion fruit agro-industry development in Gowa Regency. From the IFAS result analysis, it was received that the passion fruit agro-industry strength in Gowa Regency is currently the passion fruit flavor which is favored by consumers (0.275), the availability of natural resources (0.238) and the existence of infrastructure, aquaculture, and industrial marketing development from the central and local government (0.233). The weakness of passion fruit agro-industry in Gowa Regency that must be minimized is the auxiliary and supporting raw materials are still imported from other regions (0.185), Gowa Regency is the center of passion fruit production with production conditions tended to decrease (0.173), and the licensing service policy is still not sufficient in the Gowa Regency (0.179).

Weakness which is necessary to get attention by passion fruit agro-industry business people is the raw materials and auxiliary materials which used are obtained from other areas [8]. The more dependent the passion fruit agro-industry businessmen on auxiliary materials from other areas, the more influential the production system will be depended to other areas.

The high level of the effects caused by the businessmen spends enormous transportation costs to get the raw materials when one of the auxiliary materials is not obtained it will affect the quality of the product. In addition, the government as the policymaker gives its support by not to make complicated permit requirements for the development of passion fruit agro-industry in Gowa Regency. After knowing the strengths and weaknesses, the analysis of opportunities and threat in the development of passion fruit agro-industry in Gowa Regency should also be identified.

The greatest opportunity is the international market opportunity which does not use yet which is very large (0.357), the encouragement of creative industries by the government (0.305), and waste treatment technology and other processed products, with passion fruit as raw materials, are still available (0.343). The amount opportunity of passion fruit agro-industry development in Gowa Regency because processed products which are currently processed is still very less.

In addition to the enormous opportunities which will develop the passion fruit agroindustry development, some threats should be anticipated during the process of its development. Some of the threats that must be expected include The existence of rival products such as processed passion fruit juice product from similar products (0.241), There is considerable competition in the land use with other sectors (0.242), and short-term investments are more promising, especially consumption and retail sectors (0.264). The most severe threat which must be anticipated is the presence of passion fruit rival commodities to be cultivated, such as vegetables in the center of passion fruit plantations (0.270). This threat factor gets very high scores because it will influence the passion fruit cultivation which is done, where the intercropping of the vegetables and passion fruit happened, there will be competition to get soil nutrient elements between passion fruit and vegetable crops.

### 3.3. *Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis*

Analysis of passion fruit agroindustry development strategy in Gowa Regency which consists of identifying the internal and external factor strategies, analyzing internal and external factor strategies, analyzing the Internal and Eksternal (IE) matrix and analyzing space matrix become inputs in formulating strategy in the development of passion fruit center. The formulation of development strategies was done by Strength, Weakness, Opportunity and Threat (SWOT) analysis approach. The SWOT analysis matched the internal and external factors which are influential.

From the SWOT analysis table will be obtained 13 formulated strategies that can be developed. Following a position of passion fruit agro-industry which was in quadrant I, then five strategic priorities formulations were set, namely:

- Conducts development of a variety of passion fruit derived products.
- Performs innovation on display packaging that characterizes the packaging and becomes the main attraction.
- Institutional strengthening of passion fruit agro-industry.
- The use of information technology for products marketing.
- Improves coordination between stakeholders (government, farmers, traders, processors).

**Table 1.** SWOT matrix analysis of passion fruit agro industry development.

<p style="text-align: center;"><b>Internal</b></p> <p style="text-align: center;"><b>Eksternal</b></p>	<p><b>Strength (S)</b></p> <ul style="list-style-type: none"> <li>• A distinctive flavor.</li> <li>• The products has competitive price.</li> <li>• Availability of natural resources.</li> <li>• The amount of access.</li> <li>• Availability of facilities and infrastructure.</li> <li>• Availability of industrial zones covering an area of 925 Ha.</li> <li>• Local knowledge.</li> <li>• Government support.</li> <li>• The popular name of Gowa Regency as producer region of passion fruit.</li> </ul>	<p><b>Weakness (W)</b></p> <ul style="list-style-type: none"> <li>• The production tends to decrease.</li> <li>• Low quality</li> <li>• The product power in a market is relatively weak.</li> <li>• Low access to get working capital.</li> <li>• Supporting and auxiliary raw materials part are still brought from other areas.</li> <li>• Availability of electrical energy is relatively less.</li> <li>• The quality of land cultivation decreased.</li> <li>• The Licensing Service policies are still not adequate in Gowa Regency.</li> </ul>
<p><b>Opportunities (O)</b></p> <ul style="list-style-type: none"> <li>• Domestic Market Opportunities.</li> <li>• International Market Opportunities.</li> <li>• Additional investment opportunities for supporting industries and industrial auxiliary products processed passion fruit.</li> <li>• Waste treatment and processing technology of other processed products with passion fruit as their raw materials are still available.</li> <li>• The government is promoting the creative industries combined with tourism.</li> </ul>	<p><b>Strategy (SO)</b></p> <ul style="list-style-type: none"> <li>• Conducts development of a variety of passion fruit derived products.</li> <li>• The use of information technology for products marketing.</li> <li>• Optimization of resource utilization in order to increase production.</li> </ul>	<p><b>Strategy (WO)</b></p> <ul style="list-style-type: none"> <li>• Cooperation with agro-industries businessmen from the upstream to the downstream.</li> <li>• Repairing facilities, infrastructure that supporting the economy.</li> <li>• Easy access for the passion fruit agro-industry businessmen to get capital.</li> </ul>
<p><b>Threats (T)</b></p> <ul style="list-style-type: none"> <li>• Rivalry with similar products.</li> <li>• Short-term investments are more promising.</li> <li>• The presence of passion fruit rival commodities to be cultivated.</li> <li>• Competition in the land use with other sectors.</li> <li>• The low level of interest of young people in the agricultural sector business and the migration to big cities.</li> <li>• There is still a lack of trust among passion fruit businessmen.</li> </ul>	<p><b>Strategy (ST)</b></p> <ul style="list-style-type: none"> <li>• Establish partnerships with suppliers of packaging and auxiliary materials.</li> <li>• The use of cultivation technology to increase the passion fruit production and post-harvest handling.</li> <li>• Institutional strengthening of passion fruit agro-industry.</li> </ul>	<p><b>Strategy (WT)</b></p> <ul style="list-style-type: none"> <li>- Improvement and consistency of quality become better.</li> <li>- Performing display packaging innovation to have a specific packaging and become its own attraction.</li> <li>- The application of good management and administration.</li> <li>- Improve coordination between stakeholders (government, farmers, traders, processors).</li> </ul>



### 3.4. *Passion fruit agro-industry development strategies in Gowa Regency*

It is important to note that five strategic priorities in the development of passion fruit agroindustry in Gowa Regency, namely 1) Conducts development of a variety of passion fruit-derived products; 2) Performs innovation on display packaging that characterizes the packaging and becomes the main attraction; 3) Institutional strengthening of passion fruit agro-industry; 4) The use of information technology for products marketing; 5) Improves coordination between stakeholders (government, farmers, traders, processors). Based on the five formulation strategies obtained, another agroindustry development strategy concept which can be performed is the product uniformity within one brand, by the following conditions:

- If they produce the same product for example producing passion fruit syrup, SMEs businesspeople must be able to meet the quality standards which have been determined previously so that the resulting products have uniformity. Controlling can be performed by significant industry or government that controls and can be investing in passion fruit industrial clusters in Gowa Regency.
- If the processed products produced by each processing unit consist of a wide range of products. So there is cooperation between multiple units. As an example for A subdistrict produces a variety of processed foods, B subdistrict produces beverages products, C subdistrict produces a by product of passion fruit. With different products produced in industrial centers of passion fruit, equalization of a brand for each product provides benefits to business people.
- Brand matching. The presence of the same brand between the processing units and other processing is meant that the resulting product can compete in the market, competing with large industry or similar products. The determination is based on the agreement of passion fruit farmers and entrepreneurs associations that exist in Gowa Regency.
- The development of agro-industry to increase competitiveness can be performed by the cooperation between passion fruit center areas in Gowa Regency. Such as: Parigi and Bontolempangan subdistricts as the biggest cultivation centers in Gowa become passion fruit suppliers of raw materials to Tombolo'pao and Tinggimoncong, so that the production of various processed products of passion fruit continuously run. The cooperation between the centers of passion fruit in Gowa, reducing the pressure from outsiders (competitors), so that the added value obtained by passion fruit businessmen in Gowa Regency.

An existing of cooperation between the centers of passion fruit creates strong partnerships to support the industry and supports both the local and regional scale such as universities, research institutes, banking, business associations, and government. Provide opportunities and chances for business people to get capital, training, market information and product promotion support. In addition, the benefits of business people gained are the creation of a cooperative network with some supporting industries in the production process, so there will be an information exchange.

The existence of collective learning for the businessmen to the development and improvement of competitiveness, where information and creative ideas are exchanged and developed as an effort to improve quality, increasing in technology, as well as increasing market segmentation are served in stages. The success of passion fruit agro-industry development strategy in Gowa is highly dependent on the stakeholder's commitment supported with periodic monitoring and evaluation. The government needs to encourage the active participation of the business community in the passion fruit agro-industry and other products from upstream to downstream, which in turn can increase the income and welfare of passion fruit

agroindustry business people and also widely will be able to improve the regional economy within the regional development framework.

#### 4. Conclusion

Two principal findings are: Firstly, on the passion fruit agro-industry environmental condition, the passion fruit agroindustry is in a growing position and needs integration for the future development vertically. Secondly, there are five strategic priorities in the development of passion fruit agro-industry, namely 1) Conducting development of a variety of passion fruit derived products; 2) Performing innovation on display packaging that characterizes the packaging and becomes the main attraction; 3) Institutional strengthening of passion fruit agro-industry; 4) Stepping up of information technology for products marketing; 5) Improving coordination among stakeholders (government, farmers, traders, processors).

#### References

- [1] Karina MM, Leao, K.L. Sampaio, Alessandra A.C, Pagani M, Aparecida AP D S 2014 *Industrial Crops and Products*
- [2] Darma R and Arsyad M 2010 Determinants of Unemployment in Indonesia: A Study on Development Program of Rural Employment in Pinrang District, South Sulawesi *Ryokoku J. Econ. Stud.* **50** 147–59
- [3] Ekasari Z K, Saleh S A M, Jusoff K, Salman D, Kasirang A, Arsyad M, Amidah A A and Fudjaja L 2013 Communication pattern and conflict in agricultural extension *Asian Soc. Sci.* **9** 27
- [4] Badan Pusat Statistik 2010 Total Produksi Buah Indonesia
- [5] Siregar H *Transformasi Struktural, Industrialisasi dan Pengembangan Usaha Mikro, Kecil dan Menengah. Makro Mikro Pembangunan* (IPB Press)
- [6] Hamty Y 2013 *Kajian Pengembangan Sentra Produksi Markisa di Kabupaten Gowa* (Institut Pertanian Bogor)
- [7] Freedy R 2013 *Analisis SWOT* (Gramedia Pustaka Utama)
- [8] Latief R, Dirpan A, Tahir M M and Albanjar F V 2018 The application status of Good Food Production Method (GFPM) production of corn crackers in SME Mawar Merah Luwu Utara *IOP Conf. Ser. Earth Environ. Sci.* **157** 012035



Reproduced with permission of copyright owner. Further reproduction prohibited without permission.