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Local Strategies for Sustainable Dragon Fruit: A Mixed-Method SWOT Analysis of Agribusiness Development in Sinjai

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Abstract: This study aims to formulate alternative strategies and determine the priority strategies that can be implemented in developing dragon fruit farming. The type of research used in this study is a mix method, namely a combination of quantitative and qualitative research methods, taking the case of the Dragon Fruit Farming Group in Sukamaju Village, Tellulimpoe District, Sinjai Regency. Respondents in this study used a census of 20 dragon fruit farmers. The results of the study indicate that the IFAS value of 4.85 and the EFAS value of 5.10, this farm still occupies a strategic position for continued development because the opportunity score is more dominant than the threat score. In the SWOT diagram, the position of the development strategy is located in quadrant 1 or referred to as an aggressive strategy. The priority strategy that can be implemented is to improve the quality of dragon fruit by utilizing developments in agricultural technology to meet the increasing demand for products according to consumer tastes and maintain the sustainability of dragon fruit marketing.

Keywords: Farmer's business; Business Development strategy; SWOT; Analytical

1. Introduction

Horticultural agribusiness is a source of cash income, especially for farmers and communities. This business is carried out by farmers and communities with consideration for the geographical area. Its advantages include high selling value, availability of land and technology resources, and the growing market potential in Sinjai Regency. Dragon fruit products can be obtained from markets in Sinjai Regency, especially in Sukamaju Village. The availability of all resources helps to produce dragon fruit optimally. Thus, the dragon fruit agribusiness will become a source of economic activity that can help reduce the poverty rate and provide employment in rural areas (Adiyanto, 2011).

Development priorities throughout Indonesia are almost inseparable from the agricultural sector. The agricultural sector continues to play an important role in growing the Indonesian economy, so the government continues to pay special attention to agricultural development (Soetriono et al., 2006). The dragon fruit business is one alternative for community empowerment to increase income, improve living standards, open up business opportunities, and create jobs. On a macro scale, the dragon fruit business can contribute significantly to the country's foreign exchange and be a source of revenue for the government (Wicaksono, 2018).

One of the horticultural commodities, namely fruits, that is currently being developed and cultivated is dragon fruit. A place that is considered to have great potential in Sinjai Regency is Sukamaju Village, Tellulimpoe District, where a farmer

group has been formed. The development of dragon fruit cultivation in this area began in 2013. The land used is yard land that the owners utilize for dragon fruit cultivation.

It started with a farmer who had experience in dragon fruit cultivation. He saw a valuable opportunity to increase his family's income, and eventually other farmers became interested in trying to cultivate dragon fruit. This interest was due to the desire to utilize the available yard land and the open market opportunity for dragon fruit. The program has grown year after year, and currently there are 20 dragon fruit farmer groups in Sukamaju Village with a total of 105,000 plants. The Sinjai Regency government has recognized this area as a dragon fruit production center.

The problem faced by dragon fruit farmers in Sukamaju Village is that they still run their farms as usual or based on habits and routines. In other words, they do not yet have a strategy to deal with the uncertainty of climate change, the threat of disease, market price fluctuations, or problems arising from the agribusiness system. One of the serious problems faced by dragon fruit farmers in Sukamaju Village is the presence of various diseases that attack dragon fruit, and there is no effective way to deal with them. Given the above conditions, it is interesting to examine strategies for developing dragon fruit farming so that farmers' businesses can grow and their products can excel and compete with products from other regions, thereby shifting consumer interest in the market to products from Sukamaju Village.

2. Methods

This research method uses a case study method, which is research conducted by observing directly in the field. The case study method is a method that describes the type of research on a particular object over a period of time, or a phenomenon found in one place that may not necessarily be the same in other areas (Sugiyono, 2016).

2.1. Research Location and Time

The research location is the place or area where the phenomenon being studied occurs and where data sources can be obtained, while the research time is the specific time frame or period during which research activities (such as observation, data collection, and analysis) are carried out, with the duration of the research determined based on the availability of data sources, objectives, and scope of the research. (Darmadi, 2011). The research location was in Sukamaju Village, Tellulimpoe District, with a time frame from June to August 2025.

2.2. Types and Sources of Data

This study uses a qualitative descriptive analysis research method, which involves collecting data from dragon fruit farmers. The study observes the selected research objects, then analyzes and concludes (Zuhroh, 2012). The data sources are primary and secondary data. Primary data. Primary data is data obtained directly from the first source in the form of information and opinions from respondents and facts in the field through interviews and observations, while secondary data is data obtained from books to supplement the primary data.

2.3. Data Analysis

The data analysis technique uses a descriptive method. After identifying internal and external factors, the IFAS (Internal Strategic Factors Analysis Summary) and EFAS (External Strategic Factors Analysis Summary) tables are compiled to formulate internal and external strategic factors to facilitate the formulation of more effective strategies to achieve objectives and increase competitiveness (Kurniawan, 2021).

3. Results and Discussions

3.1. Identification of SWOT Analysis of Internal and External Factors in Dragon Fruit Farming

This analysis is necessary to identify strengths and weaknesses, as well as opportunities and threats to the development strategy of dragon fruit farming as material for consideration in the formulation of a development strategy. Based on the research results, data on internal and external factors that influence the development of dragon fruit farming in Sukamaju Village, Tellulimpoe District, Sinjai Regency, were obtained. The detailed analysis results are as follows:

Table 1. Identification of SWOT Analysis of Internal and External Factors

External Factors	Strength	**Weakness**
Resource Aspects	Using personal capital, without loans from anywhere	Dragon Fruit Processing Industry Not Operating
	High business motivation	Lack of Knowledge About Pest and Disease Control
	Suitable soil conditions	Farmers' awareness of the high nutritional content and health benefits of dragon fruit is still low
		Low Quality of Dragon Fruit Production
Business Performance Aspects	Good dragon fruit quality	Plants Are No Longer Productive
	Sufficient number of farmer groups	

Internal Factors	Opportunities	Threats
Politics and Law	Government Policy Support	Quantity and Quality of Agricultural Extension Workers
Economy	Increasing demand for dragon fruit products	Prices Determined by Traders
		Short Experience in Dragon Fruit Farming
Social Affairs	Availability of Production Facilities in the Market	High Incidence of Diseases that Cannot be Eliminated
	Interregional Trade	
Culture	Dragon Fruit Production Center in Sinjai Regency	

Source: (Rakunti, 2014)

3.2. SWOT Analysis as a Dragon Fruit Farming Development Strategy IFAS Matrix Analysis (Internal Factor Analysis System)

Based on the results of the questionnaire data analysis that has been answered by respondents, the respondents' assessment of internal factors in dragon fruit farming in Sukamaju Village, Tellulimpoe District, Sinjai Regency can be seen in the IFAS matrix in the following table:

Table 2. Internal Factor Analysis System (IFAS) Matrix

No	SWOT Analysis Factors	Weight	Rating	Skor
Strength				
1	Private farmer business capital	0,13	4,00	0,50
2	High business motivation	0,13	3,65	0,46
3	Suitable soil conditions	0,08	3,90	0,33
4	Good dragon fruit quality	0,08	3,50	0,29
5	Sufficient number of farmer groups	0,08	3,50	0,29
6	Family labor	0,08	4,00	0,33
	Total of strengths	0,58	22,55	2,20
Weaknesses				
1	Dragon Fruit Processing Industry Not Operating	0,08	3,25	0,27
2	Lack of Knowledge About Pest and Disease Control	0,08	3,60	0,30
3	Low Quality of Dragon Fruit Production	0,13	2,90	0,36
4	Plants No Longer Productive	0,13	3,15	0,39
	Total of Weaknesses	0,42	12,90	1,33

Source: Analysis of research results

Based on the calculations in Table 2 above, the total IFAS score for dragon fruit farming in Sukamaju Village, Tellulimpoe District, Sinjai Regency is 3.53, consisting of a strength score of 2.20 with the highest strength factor score of 0.50, namely dragon fruit quality (farmers' private capital), and a weakness score of 1.33 with the lowest weakness factor score of 0.27, namely the dragon fruit processing industry is not running. Considering the existing strengths and weaknesses, dragon fruit farming still occupies a fairly strong strategic position to continue to be developed because the strength factors are more dominant than the weakness factors.

3.3. EFAS Matrix Analysis (External Factor Analysis System)

Based on the results of the questionnaire data analysis answered by the respondents, the respondents' assessment of internal factors in dragon fruit farming in Sukamaju Village, Tellulimpoe District, can be seen in the IFAS matrix in the table:

Table 3. External Strategy Factor Analysis System (EFAS) Matrix

OPPORTUNITIES (O)	**Bobot**	**Rating**	**Skor**
High Market Demand	0,13	3,60	0,50
Availability of Production Facilities in the Market	0,13	3,60	0,40
Government Policy Support	0,08	2,65	0,45
Inter-regional Trade	0,08	4,95	0,22
Dragon Fruit Production Center Village in Sinjai Regency	0,08	3,90	0,41
Subtotal	**0,50**	**18,7**	**1,98**
THREATS (T)	**Bobot**	**Rating**	**Skor**
Prices Determined by Traders	0,08	3,85	0,32
Short Experience in Dragon Fruit Farming	0,08	2,15	0,18
Quality and Quantity of Agricultural Extension Workers	0,08	2,75	0,23
High Incidence of Diseases That Cannot Be Eliminated	0,13	3,80	0,48
Growing Interest in Organic Farming	0,13	1,45	0,18
Subtotal	**0,50**	**14.00**	**1,39**

Source: Analysis of research results

Based on the calculations in Table 3 above, the total EFAS score for dragon fruit farming in Sukamaju Village, Tellulimpoe District, Sinjai Regency is 0.50, consisting of an opportunity score of 1.98 with the highest opportunity factor score of 0.45, namely High Market Demand, and a threat score of 1.39 with the lowest threat factor score of 0.18, namely Increasingly Popular Organic Farming. Considering the existing opportunities and threats, dragon fruit farming still occupies a strategic position to be further developed because the opportunity score is more dominant than the threat score.

3.4. Alternative SWOT Matrix Strategies for Dragon Fruit Farming Development

SWOT analysis is a form of descriptive analysis (providing an overview) of a situation and conditions. This analysis places the situation and conditions as input factors, which are then grouped according to their respective contributions. SWOT analysis looks at the strengths, weaknesses, opportunities, and threats that exist in a company or organization (Nurunisa, 2011).

SWOT analysis is used to identify and analyze strategic factors in the agribusiness system, both internal (strengths and weaknesses) and external (opportunities and threats) in the current conditions. It then compares the internal environment with external factors (Halim, 2018).

The function of SWOT analysis is to correctly combine four elements or aspects on how to utilize strengths and overcome various risks. The benefit of SWOT analysis for companies is as a strategy for determining the future of business continuity (Rakunti, 2014). The benefit of SWOT analysis is that it helps describe the quantity and quality of various resources that can be utilized to implement predetermined strategies (Sondang P. Siagian 2014).

The SWOT matrix is a tool used to compile factors as strategic alternatives that can clearly illustrate how internal strengths and weaknesses can be adjusted to the opportunities and threats faced in developing dragon fruit farming in Sukamaju Village, Tellulimpoe District, Sinjai Regency. This matrix produces four possible strategic alternatives, namely S-O strategy, W-O strategy, W-T strategy, and S-T strategy. These strategic alternatives can be seen in the SWOT Matrix in Table 4 below.

Table 4. SWOT Matrix Strategic Alternatives

Internal Factors / External Factors	**Strength**	**Weakness**
	1. Farmers' private capital. 2. High business motivation. 3. Suitable soil conditions. 4. Sufficient Number of Farmer Groups. 5. Family Labor.	1. Family Labor Force 2. Dragon Fruit Processing Industry Not Operating 3. Lack of Knowledge About Pest and Disease Control 4. Low Quality of Dragon Fruit Production 5. Plants No Longer Productive
Opportunities	**SO Strategy**	**WO Strategy**
1. High Market Demand 2. Availability of Production Facilities in the Market 3. Government Policy Support for Interregional Trade 4. Dragon Fruit Production Center Village in Sinjai Regency.	1. Utilizing natural resources effectively as a means to increase dragon fruit farming productivity. 2. Optimizing dragon fruit production to meet consumer demand.	1. Increase farmers' knowledge in using digital markets to meet demand. 2. Establishing relationships with 3. stakeholders to increase productivity.
Threats	**ST Strategy**	**WT Strategy**
1. Prices Determined by Traders 2. Short Experience in Dragon Fruit Farming 3. Quality and Quantity of Agricultural Extension Workers 4. High Incidence of Diseases That Cannot Be Eliminated 5. Increasing Demand for Organic Farming.	1. Using experience as a means of pest and disease prevention. 2. Creating household-scale businesses that utilize dragon fruit farming waste.	1. Seeking access to government assistance 2. Forming farmer groups to increase production and minimize the spread of pests and diseases.

Source: Research Results Analysis.

3.5. Priority Decision Making for Strategic Alternatives in SWOT Analysis

Based on the IFAS (Internal Factor Analysis System) and EFAS (External Factor Analysis System) assessments conducted on dragon fruit development strategies in Sukamaju Village, Tellulimpoe District, Sinjai Regency, a total IFAS score of 3.53 was obtained, with a strength score of 2.20 and a weakness score of 1.33. Meanwhile, the total EFAS score was 3.37 with an opportunity score of 1.98 and a threat score of 1.39. To determine the development of dragon fruit farming in Sukamaju Village, Tellulimpoe District, Sinjai Regency based on the assessment of internal and external factors, the number of strengths and weaknesses on the X-axis was subtracted, and the reduction between the number of opportunities and threats on the Y-axis, resulting in a value of X = (S-W) = (2.20-1.33) = 0.77 and a value of Y = (O-T) = (1.98-1.39) = 0.59. Therefore, the numbers on both axes (X;Y) = (0.77;0.59) are positive for the development of dragon fruit cultivation. For further explanation, see Figure 1 below:

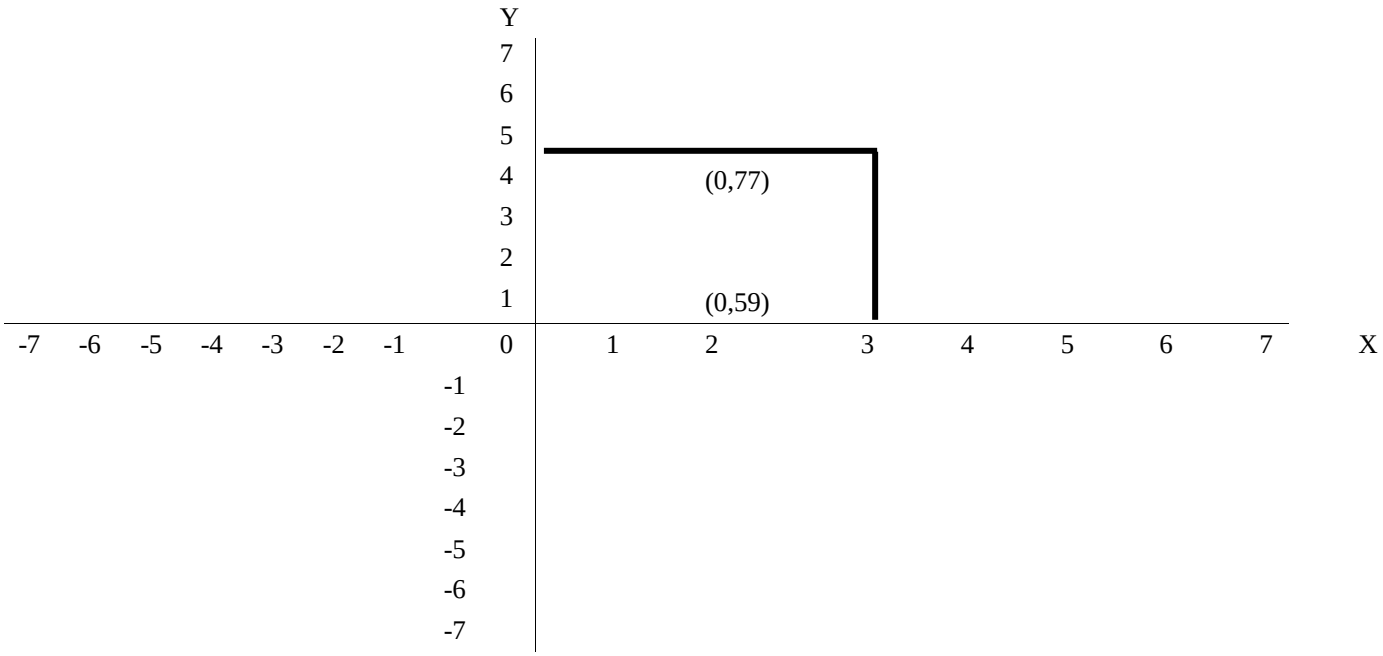

Figure1. SWOT Diagram Analysis

The results of data analysis on the SWOT diagram obtained coordinates (0.77; 0.59), which are located in quadrant 1, namely aggressive strategy. This strategy indicates a very favorable situation. Based on the diagram above, the priority alternative strategies that can be applied to dragon fruit farming in Sukamaju Village are to improve the quality of dragon fruit by utilizing developments in agricultural technology to meet the increasing demand for products in line with consumer tastes and to maintain the sustainability of dragon fruit marketing.

4. Conclusion

Based on the results of the study, the IFAS value is 3.55 and the EFAS value is 2.04. This farming business still occupies a strategic position for further development because the opportunity score is more dominant than the threat score. In the SWOT diagram, the development strategy position is located in quadrant 1, or what is known as an aggressive strategy. The priority strategy that can be implemented is to improve the quality of dragon fruit by utilizing developments in agricultural technology to meet the increasing demand for products in line with consumer tastes and to maintain the sustainability of dragon fruit marketing.

It is hoped that the government can play a greater role in assisting farmers, especially dragon fruit farmers, by providing guidance and training to farmers. In addition, farmers must also be more open to all forms of change or new innovations in farming so that dragon fruit farming can run even better.

5. Recommendation

Theoretically, this study reinforces the value of the SWOT matrix as a tool for prioritizing context-specific interventions in smallholder agribusiness, bridging internal capabilities with external sustainability opportunities. Practically, the findings call for collaborative governance. Farmers need to embrace innovation, while local governments and agricultural agencies must design dedicated support systems—such as training on post-harvest technology and digital marketing—to de-risk the adoption process and enhance the triple bottom line (economic, social, environmental) of dragon fruit cultivation.

While insightful, this single-case study limits generalizability. Future research should validate this strategic framework across different regions and explore the economic and environmental impact of implementing the recommended technology-driven quality strategy.

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Project administration: A. Nurazizah

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Writing – original draft: Megawati

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