

Development Strategy For Sustainable Farming Of Purple Sweet Potatoes In West Muna Regency Indonesia

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Abstract: The aims of this study was to determine the strategy to develop sustainable farming of purple sweet potato commodity in Wulanga Jaya Village, West Muna Regency. The samples were determined by purposively with 30 samples, comprising 17 farmers, 6 traders, and 7 stakeholders that were related to the development of sweet potato. To analysis the data, it used SWOT analysis. The results of this study indicate that the strategy of developing sustainable farming in the purple sweet potato commodity is in region I (aggressive strategy). The situation in a region-I (first) is very beneficial for sweet potato farming. The strategy that must be applied is to support growth-oriented strategy. This strategy tends to focus on SO (Strength-Opportunities). In other words, it utilizes strengths to take advantage of existing opportunities.

Keywords : Strategy, SWOT, Purple Sweet Potatoes, Sustainable Farming.

1. INTRODUCTION

Improving food security is one of the main objectives of agricultural development in Indonesia. There have been many ways taken to achieve that goal. Moreover, agriculture sectors should not only be able to fulfill the growing food necessities for all of the population, but also to increase the income and welfare of farmers. Food diversification is one of the ways to fulfill people's needs for food. Tuber commodities can be the main solution for food sovereignty. Tubers have high productivity, nutritional content and high demand in addition to making it a major food commodity besides rice. This is in line with one of the focus of agricultural commodity development policies in 2015-2019, namely the development of local staples: sago, corn, tubers (cassava, sweet potatoes) [1]. Sweet potato is one type of tuber commodity that has an increasing demand from year to year. This is reflected in the high amount of sweet potato consumption. In 2014, the total consumption of purple sweet potato by households amounted to 657,430 tons which then increased in 2015 to 870,394 tons [1]. Purple sweet potato is substitute food for rice in West Muna Regency [2]. This commodity has no interference with pests and diseases in West Muna. The productivity of sweet potato according to the farmers is quite good. However, it is still relatively low or around 5.04 tons per ha or just under the level of sweet potato productivity in Southeast Sulawesi province which was approximately 10.1 tons per ha [3]. The price of sweet potato in Muna reaches about Rp. 3,472 per kg. Cultivating purple sweet potato in Wulanga Jaya Village is very easy and does not require special treatment. Purple sweet potato takes only about 3 months and 15 days to be available harvested. During vegetative growth, purple sweet

Sustainable farming methods aim not only at producing food, but also protecting the water supply, maintaining valuable seeds, preserving biodiversity, and nourishing a land. By applying sustainable methods for food crops, farmers and planters, farmers can plant on narrow land without chemical fertilizers and pesticides. Therefore, it is necessary to have a strategy for sustainable farming development in the purple sweet potato commodity in Wulanga Jaya Village, West Muna Regency.

2 MATERIAL AND METHODS

The location of the study was conducted in the village of Wulanga Jaya. The location of the study was determined purposively, considering that the village is one of the central areas of sweet potato. The total sample comprises 30 people, consisting of 17 farmers, 6 traders, and 7 stakeholders related to the development of purple sweet potato.

2.1 Data Analysis

The data analysis method used in this study is the SWOT analysis. SWOT analysis is the systematic identification of various factors analysis to formulate a company's strategy. This analysis is to maximize the strengths and opportunities, but simultaneously minimize weaknesses and threats. The decision-making process is always related to the development of the company's mission, goals, strategies, and policies. Thus, the planner must observe the strengths, weaknesses, opportunities, and threats [2]. The SWOT analysis method is considered as the most basic analysis method. It looks at a problem from four different sides. The results of the analysis usually recommend object research to maintain strengths and increase benefit of the opportunities, while reducing deficiencies and avoiding threats. If used correctly, a SWOT analysis will help us see forgotten and visible factors. According to [3], SWOT analysis is divided into four fundamental components namely:

S = Strengths, a strength of the current organization or program.

W = Weaknesses, a weakness of the current organization or program.

O = Opportunities, an opportunity outside the organization.

T = Threats, both external and internal threats of an organization.

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- Wa Kuasa Baka: Faculty of Culture Science, Universitas Halu Oleo, Kampus Hijau Bumi Tridharma Anduonohu, Kendari 93232. INDONESIA. E-mail: wakuasabaka@uho.ac.id potatoes do not need fertilizer pesticides/fungicides. However, some farmers apply herbicides to control weeds around the plant. This is, actually, un-recommended because the farmers had better pull out the weeds manually as a model of natural farming.

Internal Factors External Factors	Strength	Weakness
	Opportunities	S-O Strategy
Threats	S-T Strategy	W-T Strategy

3 RESULTS AND DISCUSSION

3.1 Internal factors

Internal factors are indicators consisting of strengths and weaknesses to determine the strategy of sustainable farming development of the purple sweet potato commodity in Wulanga Jaya Village, West Muna Regency. After the interview with purple sweet potato farmers, stakeholders and traders, the Internal Strategic Indicators are obtained which are weaknesses and strengths. The development of sweet potato farming in Wulanga Jaya Village is listed.

Strength

The strength factor is one of the indicators contained in 12 internal factors in the form of strengths. The strength factor considered as a considerable factor influencing the development of purple sweet potato farming in Wulanga Jaya Village is as follows.

1. The experience of farmers building gardens
2. Farmer Group Institutions
3. Land
4. Production of Purple Sweet Potatoes
5. Marketing of Purple Sweet Potatoes
6. Farmer's Local Wisdom

Weakness

Weakness that exists in Wulanga Jaya Village is an obstacle in sweet potato farming which six of 12 are:

1. Facilities and infrastructure owned by farmers
2. Farmer's relationship with the Government
3. Farm Scale
4. Farming Technology
5. Farmers' Capital and Finance
6. Post Harvest Handling

3.2 External Factors

The external factor is an indicator consisting of opportunity and threat to determine the strategy in the prospect of sustainable farming of purple sweet potato commodity in Wulanga Jaya Village. After conducting interviews and drawing conclusions based on the results of the questionnaire, external strategic indicators obtained as opportunities and threats in developing sweet potato farming in Wulanga Jaya Village are as follows.

Opportunities

The opportunity factor is an indicator that is considered as a potential that can be utilized in the development of purple

sweet potato farming in Wulanga Jaya Village. Several types of potentials that must be utilized in achieving these objectives are:

1. Purple sweet potato demand
2. Government's Supports
3. Price of Purple Sweet Potatoes
4. Fertilizer
5. Regional Commodities
6. Technology Development

Threats

The threat indicators existing in Wulanga Jaya Village are:

1. Weather and climate change
2. Price of Seeds
3. Price of herbicides
4. The existence of pests and diseases

3.3 IFAS EFAS Matrix Analysis

This analysis aims to assess and evaluate strategic indicators that influence the purple sweet potato farming in Wulanga Jaya Village. It is known that respondents gave higher responses to the strength indicators and fewer weakness indicators. Based on the results of this analysis, it is known that the development of sweet potato farming in Wulanga Jaya Village has strengths that are able to overcome the existing weaknesses.

TABLE 1.
FINAL RESULTS OF IFAS ANALYSIS

No	Internal Factors	Purple sweet potato farming development in Desa Wulanga Jaya	Rate	Weight %	Score
A.	Strength	Farming experience	3,47	0,10	0,34
		Farmers organization	3,50	0,10	0,35
		Land	3,13	0,09	0,28
		Total production	3,20	0,09	0,29
		Marketing	3,17	0,09	0,28
		Local wisdom	3,70	0,10	0,39
		Total Scores			
B.	Weakness	Infrastructure and solution farming	2,93	0,08	0,24
		A relation between government and society	2,57	0,07	0,19
		Farming scale	2,97	0,08	0,25
		Farming technology	2,43	0,07	0,17
		Farming finance and saving	2,17	0,06	0,13
		Post farming activities	2,03	0,06	0,12
		Total Score			
Total					3,03
Deviation score between strengths and weaknesses					0,83

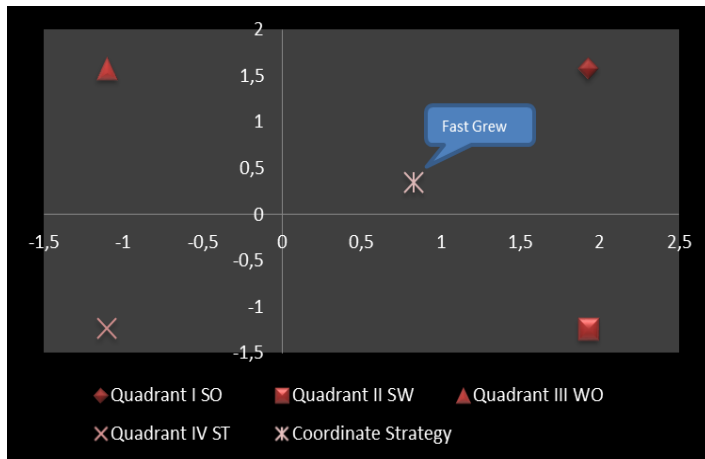
TABLE 2.
FINAL RESULTS OF EFAS ANALYSIS

No.	External Factors	Purple sweet potato farming development in Desa Wulanga Jaya	Rate	Weight %	Score
A.	Opportunities	Purple sweet potato demand	3,53	0,13	0,47
		Banking support	1,73	0,06	0,11

		Price of purple sweet potato	3,53	0,13	0,47
		Fertilizing	2,10	0,08	0,16
		Prime commodity	2,17	0,08	0,18
		Technology development	2,27	0,08	0,19
Total Skor					1,58
B.	Threats	Climate change	3,00	0,11	0,34
		Seeds price	2,50	0,09	0,23
		Pesticide price	2,60	0,10	0,25
		Disease and pest	3,33	0,12	0,42
Total Score					1,24
Total					2,82
Deviation score between Opportunities and Threats					0,34

External Internal Matrix Stage

After calculating the weights of each internal and external factor, it is then analyzed by a position matrix. This matrix is to see the position of the sweet potato development strategy. Based on the table, $X > 0$ is 0.83 and the $Y > 0$ is 0.34. The coordinate point can be seen in the following picture.



The result shows that the total weighting score on sweet potato farming in Wulanga Jaya Village is in a form of internal factors. Meanwhile, the worth is 0.83 which means that the strengths are greater than weaknesses. The external factors are in a coordinate point of 0.34 which the opportunity in the research area is greater than the threat. These results also indicate the purple sweet potato farming in West Muna is considered as region-I (aggressive strategy). The situation in a region-I is a feasible land. In this case, farmers have the opportunity and strength to take advantage of the exiting opportunities. The strategy that must be applied in this condition is to support an aggressive growth policy or growth-oriented strategy. Furthermore, this aggressive strategy is more focused on SO (strengths - expertise), namely by using strengths to take advantage of existing opportunities.

TABLE 3.
SWOT MATRIX DEVELOPMENT OF PURPLE SWEET POTATO FARMING IN WULANGA JAYA VILLAGE, WEST MUNA REGENCY

IFAS	STRENGTH (S)	WEAKNESSES (W)
	<ol style="list-style-type: none"> 1. Farming experience 2. Farming organization 3. Land 4. A productivity of purple sweet potato 5. Marketing of purple sweet potato 6. Local wisdom 	<ol style="list-style-type: none"> 1. Facility and infrastructure 2. Relation with government 3. Farming scale 4. Farming technology 5. Finance and Saving 6. Post harvesting activities
EFAS	SO STRATEGY	WO STRATEGY
	<ol style="list-style-type: none"> 1. Fulfill a high demand for sweet potato by increasing and maintaining productivity by recognizing sweet potato as a leading commodity with a higher price. 2. Utilizing the farmer's experience in cultivating sweet potato to elevate the productivity. 3. Increase production of sweet potato and still sustain local wisdom of agriculture technique to deter overexploitation especially on land use. 4. Achievable market and high price potato can make potato become a leading commodity of West Muna Regency. 	<ol style="list-style-type: none"> 1. Support limited-capital farmers to make them able to gain infrastructures and expand their business. 2. Apply efficient technology of agriculture especially planting and weeds control. It, therefore, needs banks and government's help to enforce those technologies.
	THREATS (T)	WT STRATEGY
	<ol style="list-style-type: none"> 1. Climate change 2. Seeds price 3. Herbicides price 4. Pest and disease disturbance 	<ol style="list-style-type: none"> 1. Post-harvest treatment and storing systems should be done properly. 2. Expend farming scale and control potato's price.
	ST STRATEGY	
	<ol style="list-style-type: none"> 1. Utilizing the farming experience of farmers to increase the productivity of potato and to avoid crop failure. 2. Subtitude Herbicide practice with take out weeds manually and use green technologies to make it more sustainable. 3. Utilizing the farming experince of farmers to increase production by taking into account the price of seeds and the price of herbicides which can increase at any time Take out weeds manually and use green technologies to make it more sustainable. 4. Sustain local wisdom (Kalasa) practicing to deter disease and pest. 	

4 CONCLUSION

The strategy of developing sustainable farming in the purple sweet potato commodity is in region I (aggressive strategy). The situation in a region-I (first) is very beneficial for sweet potato farming. The strategy that must be applied is to support growth-oriented strategy. This strategy tends to focus on SO (Strength-Opportunities). In other words, it utilizes strengths to take advantage of existing opportunities.

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