

Strategy to increase Barangan Banana production in Kabupaten Deli Serdang

I Adhany, D Chalil and R Ginting

University of Sumatera Utara

agb.unusu@gmail.com

Abstract. This study was conducted to analyze internal and external factors in increasing Barangan Banana production in Kabupaten Deli Serdang. Samples were determined by snowball sampling technique and purposive sampling method. Using SWOT analysis method, this study found that there were 6 internal strategic factors and 9 external strategic factors. Among that strategic factors, support for production facilities appears as the most important internal strategic factor, while the demand for Barangan Banana as the most important external strategic factor. Based on the importance and existing condition of these strategic factors, using support for production facilities and realization of supporting facilities with farming experience are the strategies covering strength-opportunity (SO), organizing mentoring to meet the demand for Barangan Banana are the strategies covering weakness-opportunity (WO), making use of funding support and subsidies to widen the land, using tissue culture seeds and facilities and infrastructures are the strategies covering strength-threat (ST), increases the funding support to widen the land, the use of tissue culture seeds and facilities and infrastructures are the strategies covering weakness-threat (WT) are discussed and proposed to increase Barangan Banana productivity in Kabupaten Deli Serdang.

1. Introduction

Barangan Banana (*Musa paradisiaca sapientum* L.) is one of local North Sumatera typical fruit. With sweeter flesh, yellow peel, redish yellow flesh, dry and distinctive flavored flesh, Barangan Banana is suitable as fresh consumption table fruit. The demand is stable and high, indicating by the stable distribution not only in North Sumatera but also to Jakarta, Bekasi, Riau, and Batam even overseas. In 2005-2015 the Bananas' export volume tends to increase, the highest was reached in 2014 at 26,694 tons and the lowest was in 2010, which only reached 14 tons [1] China was the main exporting country with export volume of 7,847 tonnes (35.17%) in 2015. The other countries was dominated by Middle-East region countries such as Kingdom of Saudi Arabia (3,499 tonnes), Japan (2,968 tonnes), Malaysia (2,847 tonnes), UAE (2,763 tonnes) and Kuwait (2,342 tonnes) [1]

In fact, the distribution has not fulfilled the whole demand to begin with. However, the Barangan Banana's production tends to decrease by years. In Kabupaten Deli Serdang, which notably centre of Barangan Banana production in North Sumatera Utara, In 2011, the banana production was still 1,750,604 quintals, yet only recorded 298,305 quintals in 2014 [2]

In 2016, land area of banana in Kabupaten Deli Serdang has reached 1,513,74 ha, with 3 main districts namely STM Hulu (674.5 ha), STM Hilir (260 ha), and Biru-Biru (129 ha). However, this might still be developed as Kabupaten Deli Serdang has 59,537 ha dry land. Therefore, Kabupaten Deli Serdang's Department of Agriculture has designed 100 ha Barangan Banana extensification program



[3] indicates that the internal factors which influence the banana commodity development are farmer's knowledge and cultivation of banana, farmer's motivation, communication facility, high production of banana and farming management, farmer's low purchasing power to production facility. Meanwhile, the external factors are banana seed aid from government, banana's market prospect, government concern in order to boost farmer's skill.

[4] points that the excess factors are farmer's financial basis, low-waged labor, raw material supply, production facility availability. Lackness factors are low-quality human resources either businessmen or labor. Limited financial basis (capital). Unstable market segmentation, limited market information, and often time unfulfilled buyer's demand.

[5] exhibits that production increment strategy in order to boost participation of farmer, can be achieved by intensive regulation, through setting the basic price guarantee, thus soy farming generates appropriate advantage to farmer. Besides, it requires farmer's empowerment and capacity development through capital supply support and socialization also revamping the trading mechanism through revitalization of Bulog as prior importer. Establishing long term elements, instances infrastructure development, irrigation system, research and development, strengthening of agricultural institutions, incentive system, macro economy regulation supports.

Relating to its overviews, thus it is needed an empirical research to be utilized as a basis on strategy to increase Barangan Banana's production. This research aims to analyze internal factors (strengths and weaknesses) and external factors (opportunities and threats) in term of Barangan Banana production's increment in Kabupaten Deli Serdang, to optimize strengths and opportunities, also to overcome the weaknesses and threats upon the strategy to increase Barangan Banana's production in Kabupaten Deli Serdang.

2. Research Method

This study was conducted in 3 districts namely STM Hulu, STM Hilir, and Biru-Biru, which are determined purposively as these were recorded as the main production centers of Barangan Banana in Kabupaten Deli Serdang but the production decreased significantly in 2011-2014 (Table 1).

Table 1. Banana Production (quintal) according to districts in Kabupaten Deli Serdang in 2011-2014

District	2011	2012	2013	2014
Gunung Meriah	34,300	19,275	9,662	30,550
STM Hulu	240,305	152,584	120,720	80,795
Sibolangit	744	1,157	726	351
Kutalimbaru	1,639	540	2,550	2,300
Pancur Batu	11,030	2,652	1,267	1,610
Biru-Biru	141,250	32,194	2,393	8,373
STM Hilir	124,700	179,479	201,321	151,250
Jumlah	1,676,268	387,881	338,630	275,229

Source : *Dinas Pertanian Deli Serdang, 2016.*

Respondents in this research consist of 4 groups namely KUPT Department of Agricultural staff, extension agent, head of farmer group, and the Barangan Banana farmers. Farmer samples are selected by snowball sampling technique, with a total of 60 farmers or 20 farmers from each village. Department of Agricultural staff, extension agent and head of the farmer group are selected by purposive sampling by considering their understanding about the whole strategic factors including in the analysis, with a total samples of 6 persons.

Barangan Banana production increment strategy formulation is analyzed by SWOT analysis. The strategy is expected to be implemented by the Agriculture Office in Kabupaten Deli Serdang. Based on previous studies and field observation, 15 (fifteen) strategic factors in increasing Barangan Banana production in Kabupaten Deli Serdang were identified namely farming experience, farmer's capability to control pest and disease, Barangan Banana selling price, farmer's financial basis (capital), land area,

Barangan Banana demand, labor availability, seed usage with plant tissue isolation method and facilities-infrastructures. These factors were then classified into (a) external factor, that is the factor which cannot be controlled by department of agriculture Kabupaten Deli Serdang and (b) internal factor, that is the factor which can be controlled by department of agriculture Kabupaten Deli Serdang. Each of the factors were scored and weighted, based on their existing condition and importance, respectively. The score is calculated based on the set indicators and parameters. In internal factors, score 1 and 2 are weakness while 3 and 4 are strengths. In external factors, 1 and 2 are threats while 3 and 4 are opportunities. The weighting is done by paired comparison technique with value 1, 2, and 3 [6].

The difference between the total weighted score of strength and weakness in internal factors and and opportunity and threat of external factors were then used to determine the matrix position. Strategy details of the matrix position were elaborated in matrix SWOT including (a) SO (Strength-Opportunity) Strategy, (b) ST (Strength-Threat) Strategy, (c) WO (Weakness-Opportunity) Strategy, and (d) WT (Weakness-Threat) Strategy. [7].

3. Results and Discussion

Based on score and weight calculation of each strategic factors, IFAS and EFAS Tables details can be arranged as follows.

Table 2. Table of IFAS

Internal Factors	Score	Weight	Total
Strengths			
Support for production facilities	4	0.30	1.20
Realization of supporting equipment	4	0.18	0.72
Total			1.92
Weaknesses			
Training	1	0.10	0.10
Mentoring	2	0.10	0.20
Extension agent	1	0.11	0.11
Funding support	1	0.21	0.21
Total		1.00	0.62
Difference (Strengths - Weakness)			1.30

Table 2 shows that support for production facilities is the most important factor in increasing the production of Barangan Banana, weighting 0.3. The condition of the existing fact it self is good enough, with the score 4. Therefore, support for production facilities can be optimized more for the production development of Barangan Banana in Kabupaten Deli Serdang. Furthermore, the realization of supporting equipment is likewise good and can be used. However, there are some weakness in internal factors even with relatively small weight.

Table 3 shows that selling price of Barangan Banana and demand for Barangan Banana are the most important factor in increasing the production of Barangan Banana, weighting 0.16. Table 3 also shows that all opportunities are in the good condition, by score of 4. Farmer has been planting Barangan Banana more than 15 years. This high experience causes the farmer is able to cope the pests and disease which strike the crops. Hence, the selling price of barangan is quite high by approximately > Rp. 10.000 per bunch. Score 4 for demand, showing that high and continous demand, meaning that regardless how much the production by the farmer, is invariably able to be absorbed by the market. It becomes an important factor to increase the production. Fund used by the farmers also points an excellent condition, by the score of 4, in which the farmer itself utilize the individual owning (financial supply) without the agricultural department or government's aids. However, it does exist some threats onto the external factors, instances of facilities and infrastructures which are notably not optimal yet. Furthermore, based on the calculation of weighted score difference of internal factors and

Table 3. Table of EFAS

External Factors	Score	Weight	Total
Opportunities			
Farming Experience	4	0.07	0.28
The Ability of the Farmers to control pest and diseases	4	0.07	0.28
Selling Price of Barangan Banana	4	0.16	0.64
Fund used by the Farmers	4	0.11	0.44
Demand for Barangan Banana	4	0.16	0.64
Labor Availability	4	0.07	0.28
Total		0.64	2.56
Threats			
Land area	2	0.08	0.16
The Use of Tissue Culture Seeds	1	0.15	0.15
Facilities and Infrastructures	2	0.12	0.24
Total		0.35	0.55
Difference (Opportunities - Threats)			2.01

external factors on Table 2. IFAS and Table 3. EFAS, the coordinate point (1.30 ; 2.01) in quadrant I is obtained.

Quadrant I shows that the production of Barangan Banana in Kabupaten Deli Serdang has relatively big opportunity and great strength. In such condition, the production increasement strategy should be more emphasized in increasing the condition that has been good. However, in reality, up until this study is done, the business condition is not yet optimized. The main problem lies on the Fusarium attack which reduces the planting area significantly. It is not effective to eradicate Fusarium disease with pesticide, and the impact is quite in a long time. Therefore, it is better not to plant the land that already got attacked anymore.

According [8], the most effective way is by using superior seeds from tissue culture. However, there are different views from interviewees in weighting. Therefore, the average geometric value of culture tissue is only 0.15. From the position of quadrant I strategy, the activities/programs that can be used to increase the production are arranged as follows.

Table 4. The Alternative Strategy to Increase Barangan Banana Production in Kabupaten Deli Serdang

Internal	Strengths	<i>Weakness</i>
External	1. Support for production facilities	1. Training
	2. Realization of supporting equipment	2. Mentoring 3. Extension Agent 4. Funding support
Opportunities	<u>SO Strategies</u>	<u>WO Strategies</u>
1. Farming experience	1. Using support for production facilities and realization of supporting facilities with farming experience (S1, S2, O1).	1. Organizing mentoring to meet the demand for Barangan Banana (W2, O5).
2. The ability of the farmers to control pest and disease		2. Organizing training to optimize farmers' experience. (W1, O1).
3. Selling price of Barangan Banana	2. Using support for production facilities to optimize labor availability and to utilize the selling price of Barangan Banana (S1,O3, O6).	3. Using of extension agent to utilize the selling price of Barangan Banana (W3, O3).
4. Fund used by the farmers		4. Providing funding support to
5. Demand for Barangan Banana		

6. Labor availability	3. Optimizing funding support and production facilities to meet the demand for Barangan Banana (S1,S2, O5). 4. Using subsidies by making using of production facilities to control pest and disease (S1, S2,O2).	increase fund used by the farmers (W4, O4).
<u>Threats</u>	<u>ST Strategies</u>	<u>WT Strategies</u>
1. Land's wide 2. The use of tissue culture seeds 3. Facilities and infrastructures	1. Using of funding support and subsidies to widen the land, using tissue culture seeds and facilities and infrastructures (S1,S2,T1, T2, T3).	1. Increases the funding support to widen the land, the use of tissue culture seeds and facilities and infrastructures (W4,T1,T2, T3).

4. Conclusion

Farming for Barangan Banana in Kabupaten Deli Serdang still has potential to be developed. This can be seen from the result of strategic factors analysis which shows bigger strength compared to the weakness and bigger opportunity compared to the threat. Therefore, if weakness and threat can be handled well, and the strength can be used well, the big opportunity can be potential to increase Barangan Banana production in Kabupaten Deli Serdang.

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