Hydroponic vegetable agribusiness business development strategy (Case Study in CV. Akar Hydroponics Moncongloe Subdistrict, Maros District)

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Abstract. This study aims to describe the hydroponic vegetable agribusiness at Cv. Hydroponic Roots, Moncongloe District, Maros Regency. Identifying and analyzing factors that must be considered in the development of agribusiness strategies and developing also recommending alternative product development strategies for hydroponic vegetable businesses. The research method used data collection methods, namely observation, questionnaires and *interviews* and the data were analyzed using EFE, IFE, SWOT and QSPM Matrix analysis. The results of the study show that the internal factors of the strengths influence the business development strategy of CV. Hydroponic Roots are well known product quality, good service to consumers, provision of more diverse vegetable production, strategic location, and effective distribution channels. The weaknesses faced by CV. The root of Hydroponics is that human resources are still lacking, packaging creations are lacking, product promotion is lacking, and bookkeeping and filing are still not well organized. While the external factors of opportunities are increasing demand for vegetables, planning outlets in several locations in Makassar City, participating in every existing event, managing strategies for cooperation with various parties and changing consumption patterns of people's lifestyles. The threats that CV. Hydroponic Roots are promotions from other companies that are better, complaints from customers, the technology used, consumer bargaining and the number of company competitors. Based on the results of the matrix analysis of IFAS and EFAS CV. Hydroponic roots are in quadrant I with successive values of 1.79 and 0.84, namely grow and build. Based on the QSPM analysis, alternative strategies that can be implemented by CV. The roots of Hydroponics are maintaining and improving services to retain customers by avoiding production shortages caused by the large number of company competitors, improving the quality of services that companies implement directly or indirectly with

customers, and maintaining and enhancing the company's image to increase the company's superiority in facing competition.

1. Introduction

Currently, there are various ways to develop agricultural products, one of which is hydroponic farming. Hydroponics is agricultural cultivation without soil media. The increasing public demand for vegetables is very high, it is necessary to develop a production development strategy. One way is through the horticulture business which includes the cultivation of vegetables with a hydroponic system.

Hydroponics is one of the modern farming techniques, using water without using soil which emphasizes meeting the nutritional needs of plants. These plants have a wide variety and are a source of carbohydrates, vegetable protein, vitamins, and various important minerals for the body. Production in Indonesia has increased at a rate of around 7-22.4% per year. Meanwhile, annual consumption of vegetables is recorded at 44 kg/capita/year.

At present the agricultural business has developed and encouraged economic growth, but there are obstacles, namely during the dry season the soil becomes dry so that farmers cannot plant crops optimally in the dry season, if the longer agricultural land is cultivated it can reduce soil fertility due to the use of chemical fertilizers (pesticide) which causes degradation of fertility and dependence on chemicals, causing decreased production and quality of vegetables. Therefore, cultivation techniques are needed that pay attention to the use of inputs according to plant needs.

The use of hydroponic cultivation techniques has various advantages. Such as the advantage gained from using this technique is to eliminate pests, fungi, and soil-origin diseases so that it can eliminate the use of pesticides, reduce the use of large planting areas to increase crop yields and reduce high production costs. In addition, techniques can speed up harvest time, measurable water and nutrient use, and guaranteed quality, quantity, and yield continuity.

Currently there are several businesses engaged in agriculture that apply the hydroponic method. One of the companies using this agricultural innovation is “CV. Hydroponic Roots” in Moncongloe District, Maros Regency with an area of approximately 7 hectares with 10 thousand planting holes. CV. This hydroponic root continues to grow in its field with a business age that has reached 5 years. CV Akar Hidroponik is a producer of fresh vegetables grown hydroponically or aeroponically, although it is not the first to produce fresh vegetables grown hydroponically or aeroponically. Production is increasing, consisting of more than 12 kinds of fresh leaf vegetables, including various types of lettuce, pakcoy, kailan mustard, kale, kale, spinach and others.

Table 1. Types of Vegetables and Average Total Production Volume of CV. Hydroponic Roots

Vegetable Type	Average Production Volume/Month (Kg)	Price/Pack 250 gr (IDR)
Brazilian Spinach	33.5	20,000
Green Spinach	75	12,000
Red Spinach	67.2	12,000
Pakcoy	78.5	15,000
Kailan	27.5	16,000
Sawi Shinta	69.5	12,000
Spinach	76	10,000
kale	31	25,000

Green Lettuce	333.5	16,000
Red Lettuce	21.5	16,000
Romaine lettuce	23	16,000
Samhong King	13.5	16,000
Mint leaves	8	12,000
Total	857.5	

Based on Table 1 explains that hydroponic vegetable products at CV . Hydroponic Roots has several types of vegetables and the average production volume/month , including green lettuce 333.5 kg , red lettuce 21.5 kg , pakcoy 78.5 kg, kale 76 kg, mustard greens Shinta 69.5 kg, red spinach 67.2 kg, green spinach 75 kg , kailan 27.5 kg, samhongking 1 3.5 kg, kale 31 kg, kale nero 1 kg , and romaine 23 kg.

2. Research methods

This research is a descriptive research with a quantitative approach (explanations without testing hypotheses) and focuses on the analysis of alternative strategies that will be applied preferentially. Quantitative research uses interactive communication patterns, or detailed interviews. The data in this survey are words, photos, and numbers that are analyzed in individual answers, descriptive conclusions, or both. Survey results should generally be applied to survey locations, not just respondents.

3. Results and discussion

3.1. Internal matrix (IFAS)

The IFAS matrix is obtained from the identification of internal factors which include strengths and weaknesses for CV. Hydroponic Roots. The IFAS matrix is prepared by giving a rating and weighting. The IFAS matrix can be seen in table 2

. **Table 2.** Internal Matrix (IFAS)

No.	Internal factors	Ratings	Weight	Score
1	Strength :			
	- Product quality is well known	3.75	0.2 3	0.86
	- Good service to consumers	3,5	0.2 0	0.70
	- Provision of more diverse vegetable production	3.37	0.1 7	0.57
	- Strategic location			
	- Effective distribution channel	3,12	0.1 8	0.56
		3	0.22	0.66
	Amount	-	-	3.35
2	Weakness :			
	- Human resources are still lacking	1.87	0.2 9	0.54
	- Lack of packaging creations	1.75	0.2 2	0.38
	- Lack of promotional activities	1.37	0.28	0.38
	- Bookkeeping and filing are still not neatly arranged	1.25	0.21	0.26 _
	Amount	-	-	2.57
	Total Weaknesses = 3.35 – 1.56 = 1.79			

In Table 2, shows the internal analysis of the hydroponic vegetable business actors at CV. Hydroponic roots in Makassar City do not experience significant problems because the total strength is greater than the total weakness.

3.2. External Matrix (EFAS)

The EFAS matrix is obtained from the identification of external factors which include opportunities and threats for CV. Hydroponic Roots. The EFAS matrix is prepared by giving a rating and weighting. The EFAS matrix can be seen in table 3.

Table 3. External Matrix (EFAS)

No	External Factors	Ratings	Weight	Score
1	Opportunity :			
	- The demand for vegetables is increasing	3.63 3.38	0.21 0.1 8	0.76 0.6 0
	- Planning outlets in several locations in Makassar City	3,25	0.19	0.61
	- Follow all existing events			
	- Set a strategy of cooperation with various parties	3,13	0.1 8	0.56
	- Changes in consumption patterns of people's lifestyles	3	0.24	0.72
	Amount		-	3,25
2	Threat :			
	- Promotion from the company is better	2.80	0.2 4	0.67
	- Complaints from customers			
	- Technology used	2,5	0.1 4	0.35
	- Bargaining consumers	2.37	0.26	0.61
	- The number of company competitors	2.25	0.1 6	0.36
		2,13	0.20	0.42
	Amount		-	2, 41
	Difference in Total Opportunity-Total Threat = 3.25-2.41 = 0.84			

In Table 3, shows an analysis of external factors on hydroponic vegetable business actors at CV. Hydroponic roots in Makassar City do not experience significant problems because the total opportunities are greater than the total threats.

3.3. SWOT analysis calculations

Identify the position of agribusiness CV. Hydroponic Roots using internal factors and external factors. Table 2 explains that from the calculation of the total strength (S) with a score of 3.35 and weakness (W) with a score of 1.79, the difference between S and W with a score of 1.79 is obtained. In table 3 it is explained that from the calculation of the total opportunity (O) with a score of 3.25 and the calculation of the threat (T) with a score of 2.41 and the difference between O and T with a score of 0.84 is obtained.

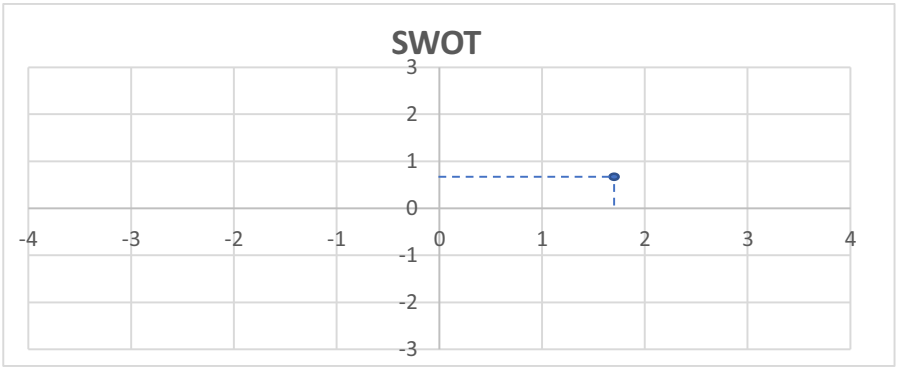

Figure 1. SWOT Analysis Strategy Quadrant CV. Hydroponic Roots

Information:

Quadrant I: This situation is very profitable, the company has opportunities and strengths so that it can take advantage of existing opportunities with maximum strength. The strategy applied to this condition is to support an aggressive growth policy (Growth oriented strategy).

Quadrant 2: In this quadrant the company faces various threats, but the company still has internal strength. Taking advantage of long-term opportunities by implementing a diversification strategy (product/market) must be applied to this situation.

Quadrant 3: In this quadrant the company faces enormous market opportunities, but also faces some internal weaknesses or constraints. Minimizing internal company problems in order to seize a better market (turn around strategy) is the focus of the strategy in this situation.

Quadrant 4: In this quadrant the company is in an unfavorable situation, the company must use a defensive strategy in dealing with various internal threats and weaknesses.

From these results, it was found that the quantitative SWOT calculation results show that in the first quadrant position as explained above, quadrant I indicates a very favorable situation. The company has opportunities and strengths so that it can take advantage of existing opportunities. The strategy that must be applied in this condition is to support growth policies.

Table 4. CV SWOT Matrix. Hydroponic roots

IFE / EFE	POWER(S)	WEAKNESSES (W)
	1. Product quality is well known 2. Good service to consumers 3. Provision of more diverse vegetable production 4. Strategic location 5. Effective distribution channel	1. Human resources are still lacking 2. Lack of packaging creations 3. Lack of promotional activities 4. Bookkeeping and filing are still not neatly arranged

OPPORTUNITY (O)	SO strategy	WO strategy
1. The demand for vegetables is increasing 2. Planning branches in several locations in Makassar City 3. Follow all existing events 4. Set a strategy of cooperation with various parties 5. Changes in consumption patterns of people's lifestyles	1. effective and efficient marketing strategy efforts (S4, S5, O1, O4) 2. Maintain and improve product quality and diversification (S1, S3, O2) 3. Maintain good relations with consumers (S1, S2, O4)	1. Optimizing enterprise management system (W2, W3, O1, O2 , O4) 2. Creating a good working climate by fostering a sense of pride in employees for their work and a sense of managing strategies for cooperation with various parties (W1, O4) 3. Creating various packaging models that attract consumers (W2, O3)
THREAT (T)	ST Strategy	WT Strategy
1. Promotion from the company is better 2. Complaints from customers 3. Technology used 4. Bargaining consumers 5. The number of company competitors	1. Maintain and improve the company's image in order to increase the company's advantage in facing competition (S1, S3, S4, T1, T5) 2. Maintain production continuity with good quality to minimize complaints from customers (S1, S3, T2)	1. Maintain and improve services to retain customers by avoiding production shortages caused by the large number of company competitors (W4, T5) 2. Improving the quality of services implemented by the company directly or indirectly with customers (T2)

Based on the strengths, weaknesses, opportunities and threats obtained from an analysis of the internal and external environment of hydroponic vegetable marketing CV Hydroponic Roots. Then the SWOT matrix is a tool used to help develop four types of strategies, namely:

3.3.1. SO (*Strength-Opportunity*). A strategy that utilizes all the strengths of the company to seize and take advantage of as many opportunities as possible. From the results of the analysis obtained alternative SO strategies, namely:

1. Make sales through effective and efficient marketing efforts . Active marketing, namely making offers through the media or directly to someone, while passive marketing is by using or being used by the business people themselves (S4, S5, O1, O4).
2. Maintaining and improving product quality and product diversification by companies to diversify products or services by creating new products to suit consumer needs (S1, S3, O2).
3. Maintain good relations with consumers (S1, S2, O4). Companies must be able to maintain good relations with suppliers that have been running so far. Suppliers play an important role in supplying high quality vegetables.

3.3.2. ST (*Strength-Threat*). This strategy is based on exploiting existing opportunities by minimizing existing ones. Companies can carry out these strategies, including:

1. Maintain and improve the company's image in order to increase the company's advantage in facing competition (S1, S3, S4, T1, T3). Service to consumers and the quality of products sold can affect the company's image in the eyes of its consumers.
2. Maintain continuity of production with good quality to minimize complaints from customers. CV Akar Hydroponics has strengths in the form of well-known product quality (S1), provision of more diverse vegetable production (S3) and complaints from customers (T2).

3.3.3. WO (*Weakness-Opportunity*). This strategy uses the strengths of the company to:

1. Optimizing the company's management system (minimizing W2 and W3 to achieve O1). With an optimal management system, companies can carry out larger marketing efforts.
2. Creating a good working climate by fostering a sense of pride in employees for their work and setting strategies for cooperation with various parties can be improved (minimizing W1 to achieving O4)
3. Create various packaging models that attract consumers as an object that functions to protect the product, secure certain products inside and can provide an image for the feel of a product (minimizing W2, O3).

3.3.4. WT (Weakness-Threats). This strategy is based on activities that are and try to minimize existing weaknesses and avoid threats. These strategies include:

1. Maintain and improve services to retain customers by avoiding production shortages caused by plant pests and diseases (W4, T3). By improving quality and service, companies can retain old customers and attract more new customers in line with increasing demand.
2. Improving the quality of services implemented by the company directly for example or indirectly with customers, namely providing maximum satisfaction to consumers (T2).

3.4. QSPM analysis

The final stage of the data analysis process after going through the input stages of internal and external factor analysis is the decision stage using the QSPM matrix. This technique objectively indicates which alternative strategy is the best. QSPM uses the input from the first stage and matching from the second stage to objectively determine among the strategic alternatives. Several alternative strategies were analyzed using QSPM.

Based on the results of the QSPM assessment, an alternative strategy sequence is obtained that can be implemented for the development of the CV hydroponic agribusiness business. Hydroponic Roots. From the results of the QSPM analysis, an alternative strategy is obtained as follows:

1. Maintain and improve services to retain customers by avoiding production shortages caused by the large number of company competitors. This strategy has a value of 15.36 or the highest among the other alternative strategies. This should be realized considering the increasing demand for production so that the market for the company's competitors is wide open.
2. Improving the quality of services implemented by the company directly or indirectly with customers. Service quality is one of the experiences that consumers get directly from the company. Good service will get a place in the hearts of consumers, so this strategy is included in the second priority with a value of 14.73.
3. Maintain and improve the company's image in order to increase the company's advantage in facing competition. The positive things that help the company grow must be maintained and increased. This strategy is included in the third priority with a value of 14.48.

4. Maintain good relations with consumers. This strategy is included in the fourth priority with a value of 14.40. Maintaining good relations with consumers can bring loyalty to consumers.
5. Make sales through an effective and efficient marketing strategy. The results of the QSPM analysis put this strategy in the fifth priority with a value of 14.34. An effective and efficient marketing strategy can increase sales of the company's products.
6. Maintain continuity of production with good quality to minimize complaints from customers. This strategy is included in the sixth priority with a value of 14.33. Customer demand for the availability of good quality production will enhance the company's image.
7. Maintain and improve product quality and diversification. This strategy is rated 14.08. Increasing the quality and quality of the products offered will be an added value for the company.
8. Optimizing the company's management system. This strategy is included in the eighth priority with a score of 14.04. One of the advancements of the company is the optimization of the company's management system such as recording, bookkeeping, and archiving of the company's production and operations.
9. Creating various packaging models that attract consumers. This strategy gets a score of 13.77. An attractive packaging model can increase product and company value.
10. Creating a good working climate by fostering a sense of pride in employees for their work and a sense of managing strategies for cooperation with various parties. This strategy is included in the last priority or the tenth with a value of 13.24. One of the internal factors that can improve the quality of the company is by cultivating work enthusiasm and a good environment for the company's own employees in line with the company's vision and mission.

4. Conclusion

1. Internal and external factors that will be input into the SWOT analysis and influence the business development strategy of CV. Hydroponic Roots. The details are as follows:
2. Based on the results of the matrix analysis of IFAS and EFAS CV. Hydroponic roots are in quadrant I with successive values of 1.79 and 0.84, namely grow and build.
3. Based on the QSPM analysis, alternative strategies that can be implemented by CV. The roots of Hydroponics are maintaining and improving services to retain customers by avoiding production shortages caused by the large number of company competitors, improving the quality of services that companies implement directly or indirectly with customers, and maintaining and enhancing the company's image to increase the company's superiority in facing competition.

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