

# Shallot Development Strategy In Minahasa Regency, North Sulawesi

Conny N. Manoppo\*, Sudarti and August L. Polakitan

North Sulawesi Assessment Institute of Agricultural Technology, Kalasey-Manado Agricultural Campus, Indonesia

**Abstract.** North Sulawesi has the potential for developing shallots, but the development has not been maximized. The study aims to analyze the internal and external factors in shallot farming and formulate the strategies that can be implemented in the development. The research was conducted in Tonsewer Village, West Tompaso, Minahasa, North Sulawesi, involving 35 farmers and analyzed using SWOT. The results showed that the internal strengths were good physical condition and quality of shallots, land area, use and availability of seeds, availability of organic fertilizers, farmer's mastery of cultivation techniques and experience. Weaknesses were shallot production still low, lack of farmer capital, availability of inorganic fertilizers, lack of labor, and not appropriate input usage. Opportunities were shallot production, shallot demands, average input prices and availability of inputs, support from Farmers' Group Association and government, selling prices and market access. Threats were the inadequate infrastructure and supporting facilities, the big traders' bargaining position, and the lack of agricultural extension ability. The strategy used was SO strategy (strengths and opportunities), which is to take advantage of Farmers' Group Association support so that farmers get quality seed assistance, take advantage of government support in channeling capital, take advantage of average input prices and availability of inputs, take advantage of market access.

## 1 Introduction

North Sulawesi Province is one of the potential areas for the growing of shallots. Based on the Decree of the Minister of Agriculture No. 45/kpts/PD.200/1/2015 determined three districts in North Sulawesi to be the development of horticultural agribusiness areas. In particular, shallots are set in the medium plains of Minahasa Regency, East Bolaang Mongondow, and lowland North Minahasa Regency [1].

Minahasa Regency is one of the centers of shallot production in North Sulawesi. In 2013 this district accounted for 32% of shallot production in North Sulawesi Province [2]. Beside that, the harvested area of shallots in 2017 was 672 ha, production was 2,880 tons and productivity was 4.29 tons/ha [3]. Data on the population of North Sulawesi in 2017 was 2,461,028 people. The consumption of shallot in the North Sulawesi Province is 4.56 kg/cap/year [4]. So the consumption needs of shallots in North Sulawesi are 11,222

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\* Corresponding author: [connybptpsulut17@gmail.com](mailto:connybptpsulut17@gmail.com)

tons/year. This means that North Sulawesi still requires consumption of shallots of 8,342 tons/year, which must be imported from outside the region.

As a national superior vegetable, the performance of shallot production and consumption has always been a concern of stakeholders so that efforts to increase shallot production are needed to meet national needs [5]. The Minahasa Regency [3] stated that the harvested area of shallots in Minahasa Regency in 2016 was 290 ha, with a production of 2,453 tons [6]. The average productivity is 8.46 tons/ha, compared to the national productivity which can reach 10 tons/ha [7] so that the productivity of shallots still has the opportunity to be increased. The use of tolerant varieties is one of the most efficient and inexpensive technology options [8].

The main limiting factors in shallot farming are the availability of high-quality seeds, the high intensity of pest and disease attacks in certain seasons [9–13]. Meanwhile, [14] stated that the low competitiveness of Indonesian shallots is caused by the high cost of farming, especially for seeds, labor, and pesticides. Certified shallot superior variety seeds are needed as the main requirement to start the shallot production process in order to obtain high yields and quality. Certified shallot seeds are still a rare item and have not been able to meet the needs of farmers [15]. Nur [8] stated that the use of tolerant varieties is one of the most efficient and inexpensive technology options.

Shallots of the Lansuna variety are shallot varieties from North Sulawesi that have been released and have good performance and have the potential to be developed in Minahasa Regency, North Sulawesi Province [16]. The seed factor plays an important role in the success of plant production. The use of high quality seeds is the first step to increasing production [17]. The production of the Lansuna variety of shallots at the farmer level has only reached 10 t/ha, this yield can still be increased by the application of integrated crop management technology. The results of the North Sulawesi AIAT research on several shallot varieties in Pinabetengan, Minahasa Regency, showed the results of the Lansuna variety achieved on technology using plastic mulch reached 17.6 t/ha and without mulch 16.5 t/ha [18].

The innovation system in the agricultural business still tends to be carried out partially and there is no practice of an innovation system that integrates all types of innovations that are oriented from upstream to downstream [19]. The existence of systemic problems in onion farming activities resulted in the development of this commodity being said to be slow. Knickel et al., and Vogelesang et al. [20,21] said that solving complex problems in the agricultural sector requires various stakeholders. Concrete efforts need to be made immediately to develop these prospects; therefore it is necessary to immediately formulate what strategies must be taken to develop the prospects of shallots to be more sustainable promising and more profitable. So the purpose of this study is to identify internal factors (strengths and weaknesses) and external factors (opportunities and threats) in shallot farming in Minahasa Regency and formulate strategies that can be carried out in developing shallot farming in Minahasa Regency.

## **2 Methods**

The study was conducted in Tonsewer Village, West Tompasso District, Minahasa Regency, North Sulawesi from January to December 2019. The selection of research locations was carried out deliberately with the consideration that the location is a shallot production center in North Sulawesi Province. The research respondents were 35 people who were chosen intentionally.

The data collected consists of primary data and secondary data. Primary data are data on the state of farming and farmers' backgrounds obtained from observations and interviews

using questionnaires. Secondary data from the Minahasa Regency BPS, Minahasa Regency Agriculture Office and other relevant agencies.

Data analysis was carried out through qualitative and quantitative descriptive analysis. Qualitative descriptive analysis was used to get an overview of the shallot farming environment. Quantitative analysis uses IFAS (Internal Factor Analysis Summary) and EFAS (External Factor Analysis Summary) matrices. The rating scale for the IFAS matrix (strengths and weaknesses) is: 1 = major weakness/poor condition 2 = minor weakness/mediocre condition 3 = minor weakness/good condition 4 = major strength/very good condition.

SWOT analysis (strengths, weakness, opportunities, threats) is used to improve strategy-setting efforts, namely as a framework/systematic guide in discussions to discuss basic alternative conditions that may be considered in agribusiness farming. SWOT analysis is intended to identify various internal factors and external factors to formulate strategies [22]. According to Rangkuti [23], the SWOT matrix clearly describes how the external opportunities and threats faced by the company can be adjusted to the strengths and weaknesses it has. Susanawati et al. [24] stated, SWOT analysis is the identification of various factors that exist systematically in order to formulate a strategy. This matrix produces four sets of possible alternative strategies, namely S-O (Strengths-Opportunities), W-O (Weaknesses-Threats), S-T (Strengths-Threats) and W-T (Weaknesses-Threats).

### **3 Results and Discussion**

#### **3.1 Internal factors**

To achieve maximum productivity, the shallot cultivation system must be carried out intensively so that it requires extra skill and tenacity from each individual farmer. and quality of shallots, farmers' mastery of cultivation techniques, experience of farmers in shallot farming, land area, use and availability of seeds, and availability of organic fertilizers. Internal factors that become weaknesses in shallot farming are: shallot production, farmer's capital, availability of labor, availability of inorganic fertilizers, and the amount of input used. Lack of capital adequacy results in low farmer initiative to implement technology so that the quality and quantity of the product decreases [19].

The score of the strength factor of the physical condition and the quality of shallots has a rating of 3 and a weight value of 0.09. This shows that the existing condition of shallot quality in Minahasa Regency is quite good and farmers consider the physical condition and quality of shallot to be very important in developing shallot farming in Minahasa Regency. The seed factor plays an important role to support the success of plant production, besides that the use of high-quality seeds is the first step to increase production [25].

The internal factor of farmers' mastery of cultivation techniques has a rating of 3 with a weight of 0.08. This means that farmers' mastery of cultivation techniques is quite good and farmers consider mastery of cultivation techniques very important in the development of shallot farming. Rahmadona et al. [26] stated that cultivation techniques are important in farming because they can determine the amount of output produced. The results of [27] showed that, internal factors that affect shallot agribusiness are the skills and experiences of farmers.

The internal factor of the experience of farmers in shallot farming has a rating of 4 and a weight of 0.09. This shows that the internal factor of farmer experience is considered very important in farming and can be one of the supporting factors for the development of farming in Minahasa Regency. The average shallot farming experience of farmers in Minahasa Regency is 17 years. From these results, it can be said that the experience of

farmers has been in cultivating shallots for a long time. This experience is the initial capital for farmers in cultivating shallots, because with this experience, farmers can face various obstacles in cultivating shallots. In addition, farmers can also make decisions according to the circumstances they face. The experience of farming shallots owned by respondent farmers can affect the ability of farmers to master cultivation techniques in their farming activities [26,28]. The longer the respondent has experience in farming, the higher his ability to cultivate crops also was stated by [29]. The same thing was said by [30], that experience can also shape attitudes as process of adding knowledge owned by farmers including experience using new technology.

**Table 1.** Analysis of internal factors of shallot farming in Minahasa Regency

Internal Factors		Rating	Score	Rating x Score
<b>Strength</b>				
1.	Physical condition and quality of shallots	3	0.09	0.27
2.	Farmers' mastery of cultivation techniques	3	0.08	0.24
3.	Farmer's experience in onion farming	4	0.09	0.36
4.	Land area	3	0.07	0.21
5.	Use and availability of seeds	4	0.09	0.36
6.	Availability of organic fertilizer	3	0.08	0.24
Total Strength			0.5	1.68
<b>Weakness</b>				
1.	Shallot production	2	0.11	0.22
2.	Farmer's Capital	2	0.11	0.22
3.	Availability of manpower	2	0.10	0.20
4.	Availability of inorganic fertilizer	2	0.09	0.18
5.	Number of input usage	2	0.09	0.18
Total Weakness			0.5	1
Total (Strength+ Weakness)				2.68

Land area is an internal factor of strength because it has a rating of 3 and a weight of 0.07. One of the factors that affect the level of production is land area. It can also be said that land area has a positive effect on yield or production. The wider the farm area, the higher the results obtained. Vice versa, the narrower the area of land used for farming, the less production is produced. The existing condition of the shallot farming area in Tonsewer Village, West Tompasso District, Minahasa Regency, is relatively narrow. The average arable land tenure is 0.25 ha. However, farmers consider these factors to be less influential on the development of the shallot farming they are running, because the larger the area of land used, the greater the capital that must be spent. On the other hand, farmers do not have sufficient capital for onion farming. The land area has a significant and positive relationship to the income level of shallot farmers in Sakuru Village, Monta District, Bima Regency [31]. The variable land area has a positive influence on the level of shallot production [32].

The internal factor of the strength of the use and availability of seeds has a score of 4 which is the highest score in the internal factor and has the highest weight value of 0.09. This shows that the shallot seeds used by farmers and the availability of shallot seeds are good and farmers consider this very important. [28] said that the use of seeds is a production factor that influences the amount of production in shallot farming. W. Adiyoga Seed plays very important role in an effort of improving crop production and increasing crop yield [33]. The efficacy of other production inputs will be depended on the seed, so that however much a farmer puts to use other productive inputs (land, fertilizer, labor, etc.), an output realization will still be determined by the seed. Seed is considered as an integral

part of agriculture since it provides the maximum limit of crop yield of all other production inputs

The availability of organic fertilizer is an internal factor of strength because it has a rating of 3 and a weight of 0.08. This shows that the availability of organic fertilizers is quite available and farmers consider these factors to be influential on the development of shallot farming. Organic fertilizers are beneficial for both soil and plants, among which can bind greater groundwater, can increase soil aggregation, soil pores, and groundwater [34].

The internal factor of shallot production has a rating of 2 and a weight of 0.11. This shows that the existing condition of shallot production is still low compared to its production potential (14 tons/ha). The average production of shallots using the Lansuna variety is 10 tons/ha, and farmers consider that shallot production is still possible to be increased, this greatly affects the development of shallot farming.

One of the obstacles inherent in Indonesian farmers is the lack of capital. Whereas capital is very important in supporting the increase in production and living standards of farmers. Lack of capital will affect income. The results of the analysis show that farmer's capital is an internal factor of weakness because it has a rating of 2 and a weight of 0.11. This shows that the farmer's capital does not fulfill the shallot farming and farmers consider this factor very influential on the development of shallot farming. [31] working capital, land area, and labor simultaneously have a significant and positive relationship to the level of income of shallot farmers. In farming business requires working capital where this capital has a very large role in the procurement of production facilities and labor wages.

Every business that is run must require manpower. The outpouring of labor is expressed by the outpouring of labor. Research conducted by [35,36] which states that labor can reduce risk and family labor can increase productivity. An internal factor that includes the weakness in onion farming in Minahasa Regency is the availability of labor used. This factor has a rating value of 2 and a weight value of 0.10. This shows that the condition of the availability of labor used is less and is caused by the insufficient number of workers needed. Mulyadi [37], that labor is one of the important production factors in farming because it can affect the amount of costs incurred in farming.

The availability of inorganic fertilizer is an internal factor of weakness because it has a rating of 2 and a weight of 0.09. This shows that the availability of inorganic fertilizers is less available and farmers consider these factors to be influential on the development of shallot farming. In contrast to the research results of [38] that the use of inorganic fertilizers has no significant effect on the production of shallots. The integrated use of both the organic and inorganic fertilizers continuum inputs was felt the best option to increase both yield potential and quality of garlic crop [39]

The internal factor of the use of input has a rating of 2 and the total weight of 0.09. This shows that the condition of the amount of input use is quite good and this factor is considered important for farmers. Farmers know the importance of using farm inputs (seeds, fertilizers, pesticides and agricultural equipment) according to the recommended dose and time, although some farmers still do not comply with the recommended dose and time, this is due to limited capital. Tinaprilla [40] states that the ability to combine the use of technical inputs at a minimum cost level will affect the efficiency of business actors or farmers.

The total strength-weighted rating is 1.68, where this value is greater than the weak-factor weighted total rating, which is 1. The total weighted rating for the strength and weakness factors is 2.68. The weighted rating is the value of  $x$ , which will determine the position of the shallot agribusiness development in the SWOT position matrix.

### 3.2 External Factors

The results of the analysis of external factors that become opportunities and threats for the development of shallot agribusiness in Minahasa Regency (Table 2) show that: the demand for shallots, the average input price and the availability of inputs, farmer group association support, government support, the selling price of shallots in farmer level, and market access are opportunities for the development of shallot farming. On the other hand, agro-industry supporting infrastructure and facilities, bargaining position, and support for agricultural assistants/extensions pose a threat to shallot farming.

The external factor of the opportunity for shallot demand in Minahasa Regency has a rating value of 4 and a weight of 0.10 which means that the existing condition of shallot demand is very good and is considered quite important by farmers. The higher the demand for shallots, the higher the development potential of shallots.

The external factor is that the average input price has a rating of 3 and a weight of 0.07, which means that the average price of farm inputs (seeds, fertilizers, pesticides and medicines) received by farmers is quite good and is considered important for farmers. Farmers know the importance of using farm inputs according to the recommended dose, but some farmers don't know the importance of using farm inputs according to the recommended time.

The external factor is the opportunity for farmer group support and farmer group combination to have a rating of 3 and a weight of 0.07. This shows that, the existing condition of support from farmer groups and farmer group associations is good and this factor is considered important for farmers. The role of farmer groups in onion farming is as a learning class that can improve knowledge and skills, as a production unit of onion farming is a business that can be developed more efficiently and potentially, as well as a vehicle for cooperation so as to make onion farming more efficient and able to face threats. Limited capital and capabilities of farmers, causing farmers to really need the support of farmer group / farmer group association that can be used by farmers.

**Table 2.** Analysis of External Factors of onion farming

External Factors		Rating	Score	Rating x Score
<b>Opportunity</b>				
1.	Shallot request	4	0.10	0.40
2.	Average input price and input availability	3	0.07	0.21
3.	Farmer group support/Farmers group association	3	0.07	0.21
4.	Government support	3	0.07	0.21
5.	The selling price of shallots at the farmer level	4	0.09	0.36
6.	Market access	4	0.10	0.40
Total Opportunity			0.5	1.58
<b>Threat</b>				
1.	Agro-industry supporting infrastructure and facilities	2	0.17	0.34
2.	Bargaining Position	2	0.16	0.32
3.	Support for agricultural assistants/extensions	2	0.17	0.34
Total Threat			0.5	1
Total (Opportunity + Threat)				2.58

The external factor of opportunity for government support has a rating of 3 and a weighted value of 0.07. This shows that the condition of government assistance is good and farmers consider government assistance to be very important in developing shallot farming. Farmers expect continued assistance from the government.

The external factor is the opportunity for the selling price of shallots at the farmer level to have a rating of 4 and a weight of 0.09. This shows that the condition of the selling price

of shallots at the farmer level is quite good and is considered important for farmers. The thing that causes the high selling price of shallots at the farmer level is due to the large number of wholesalers from outside the sub-district who buy shallots.

The external factor of market access opportunity has a rating of 4 and a weight of 0.10. This shows that market access conditions in Minahasa Regency are good and are considered important by farmers. The sub-district and village markets have strategic locations and the condition of the roads is paved.

The external factor of the threat of infrastructure and supporting facilities for agro-industry has a rating of 2 and a weight value of 0.17. This shows that the condition of infrastructure and supporting facilities for agro-industry is not good, but is considered important by farmers. Public transportation facilities are not adequate and the shallot agro-industry still does not exist, but the road conditions are paved.

The external factor of the threat of bargaining position has a rating value of 2 and a weight value of 0.16. This shows that the bargaining position of farmers is not good. This is due to the fact that the shallot farming owned by the farmers is not yet agribusiness patterned and the lack of market information in Minahasa Regency. The level of demand and the need for high consumption of shallots makes this commodity profitable if it is cultivated. However, shallots are also vulnerable to price fluctuations, especially when the holidays are approaching. To maintain price stability and the availability of shallots, it is necessary to have a common point of view from the central government to the community so that this can be realized as well as the role of government intervention in determining prices.

The external factor that poses a threat to the development of shallot farming in Minahasa Regency is the support of agricultural extension workers. Data analysis shows the rating value of this factor is 2 and the weight is 0.17. Agricultural extension workers have an important function to provide the latest information about the development of onion farming technology. With the extension, it is hoped that all agricultural information that develops can be absorbed and accepted by farmers. In addition, the role of PPL is also very important in motivating farmers to cultivate shallots so that it will further increase productivity and will increase the welfare of shallot farmers. Mardiharini et al. [41] states that government extension workers play a major role in increasing the capacity and capability of shallot farmers. The role of the extension agent is characterized by attractiveness, service, availability of innovation, and accessibility of farmers. For this reason, regular counseling is needed for onion farmers on the progress of onion cultivation so that farmers do not miss information and can use production factors appropriately so that they can achieve efficient production levels. Astuti et al. [36] said, agriculture extension and access credit also have a negative and significant effect in the dry season. That Means farmers who participate in extension are more technically efficient compared to farmers who have no access to agriculture extension. This is also in line with research carried out by [42–46].

The total opportunity weighted rating is 1.58 where this value is greater than the threat factor weighted total score, which is 1. The total opportunity weighted rating with the threat factor is 2.58. The total weighted rating of this external factor is the y value which will determine the position of the shallot farming development in the SWOT position matrix.

### **3.3. Shallot Agribusiness Development Strategy**

#### *3.3.1 Alternative Shallot Agribusiness Development Strategy*

The results of the SWOT analysis, obtained 4 main strategies for developing shallot farming in Minahasa Regency, North Sulawesi, namely, the strength-opportunities (SO)

strategy, the weakness-opportunities (WO) strategy, the strength-threat (ST) strategy and the weakness-threat (WT) strategy (Table 3).

**Table 3.** Alternative Strategies for Development of Shallot Farming in Minahasa Regency

<p>IFAS</p> <p>EFAS</p>	<p><i>Strength (S)</i></p> <ol style="list-style-type: none"> <li>1. Physical condition and quality of shallots</li> <li>2. Farmers' mastery of cultivation techniques</li> <li>3. Land area</li> <li>4. Farmer's experience in onion farming</li> <li>5. Availability of organic fertilizer</li> <li>6. Use and availability of seeds</li> </ol>	<p><i>Weakness (W)</i></p> <ol style="list-style-type: none"> <li>1. Shallot production</li> <li>2. Farmer's Capital</li> <li>3. Availability of manpower</li> <li>4. Availability of inorganic fertilizer</li> <li>5. Number of input usage</li> </ol>
<p><i>Opportunities (O)</i></p> <ol style="list-style-type: none"> <li>1. Support for farmer groups/ farmer group associations</li> <li>2. Government support</li> <li>3. Shallot request</li> <li>4. Average input price and input availability</li> <li>5. The selling price of shallots at the farmer level</li> <li>6. Market access</li> </ol>	<p><i>Strategy (SO)</i></p> <ol style="list-style-type: none"> <li>1. Utilizing the support of farmer groups/ farmer group associations so that farmers receive quality seed assistance and increase farmers' mastery of shallot cultivation techniques.</li> <li>2. Utilizing government support in channeling capital to expand onion farming land.</li> <li>3. Utilizing the average input price and the availability of inputs, the selling price of shallots and market access to improve the physical condition and quality of shallots</li> <li>4 Utilizing the support of the farmer groups/ farmer group associations to increase the experience of farmers in onion farming agribusiness</li> <li>5. Take advantage of the selling price and demand for shallots in utilizing the availability of organic fertilizers</li> </ol>	<p><i>Strategy (WO)</i></p> <ol style="list-style-type: none"> <li>1. Utilize market access, demand for shallots and selling prices at the farmer level to increase the amount of shallot production.</li> <li>2. Utilizing government support in inorganic fertilizer assistance</li> <li>3. Utilizing the demand for shallots in increasing farmer capital</li> <li>4. Utilize the average input price so that farmers are more effective in using the amount of input.</li> <li>5. Utilizing the selling price of shallots to increase the mastery of the workforce used in cultivation techniques</li> </ol>
<p><i>Threats (T)</i></p> <ol style="list-style-type: none"> <li>1. Agro-industry supporting infrastructure and facilities</li> <li>2. Facilitator (Agricultural Extension)</li> <li>3. Bargaining position</li> </ol>	<p><i>Strategy (ST)</i></p> <ol style="list-style-type: none"> <li>1. Improving the infrastructure and supporting facilities for Agroindustry so as to increase the production of shallots.</li> <li>2. Increase the knowledge of all assistants (agricultural extension workers) to improve the quality of physical conditions and the quality of shallots.</li> <li>3. Utilizing the experience of farmers in onion farming to maintain the bargaining position of farmers.</li> </ol>	<p><i>Strategy (WT)</i></p> <ol style="list-style-type: none"> <li>1. Improving the infrastructure and supporting facilities for agro-industry to support the workforce.</li> <li>2. Improve the ability of assistants (agricultural extension workers) to increase farmers' mastery of cultivation techniques.</li> <li>3. Increase farmers' control over cultivation to maintain their bargaining position.</li> </ol>

Strength-opportunities (SO) strategies implemented in the development of shallot farming between strengths and opportunities are:



1. Utilizing the joint support of farmer groups so that farmers receive quality seed assistance and increase farmers' mastery of shallot cultivation techniques.
2. Utilizing government support in channeling capital to expand onion farming land.
3. Utilizing the average input price and the availability of inputs, the selling price of shallots and market access to improve the physical condition and quality of shallots.
4. Utilizing the combined support of farmer groups in increasing the experience of farmers in onion farming agribusiness.
5. Utilizing the selling price and demand for shallots in utilizing the availability of organic fertilizers.

Weakness-opportunities (WO) strategy. The strategies implemented in developing shallot farming between weaknesses and opportunities are:

1. Utilize market access, demand for shallots and selling prices at the farm level to increase the amount of shallot production.
2. Utilizing government support in farmer capital assistance.
3. Utilizing the demand for shallots in increasing farmers' capital
4. Utilizing the average input price so that farmers are more effective in using the amount of input.
5. Utilizing the selling price of shallots to increase the mastery of the workforce used in cultivation techniques.

Strengths and threats (ST) strategies implemented in the development of shallot farming between weaknesses and opportunities (strengths and threats) are:

1. Improving infrastructure and supporting facilities for Agroindustry so as to increase shallot production.
2. Increase the knowledge of all assistants (agricultural extension workers) to improve the quality of physical conditions and the quality of shallots.
3. Utilizing the experience of farmers in onion farming to maintain the bargaining position of farmers.

The strategies implemented in the development of shallot farming between strengths and opportunities (weaknesses and threats) are:

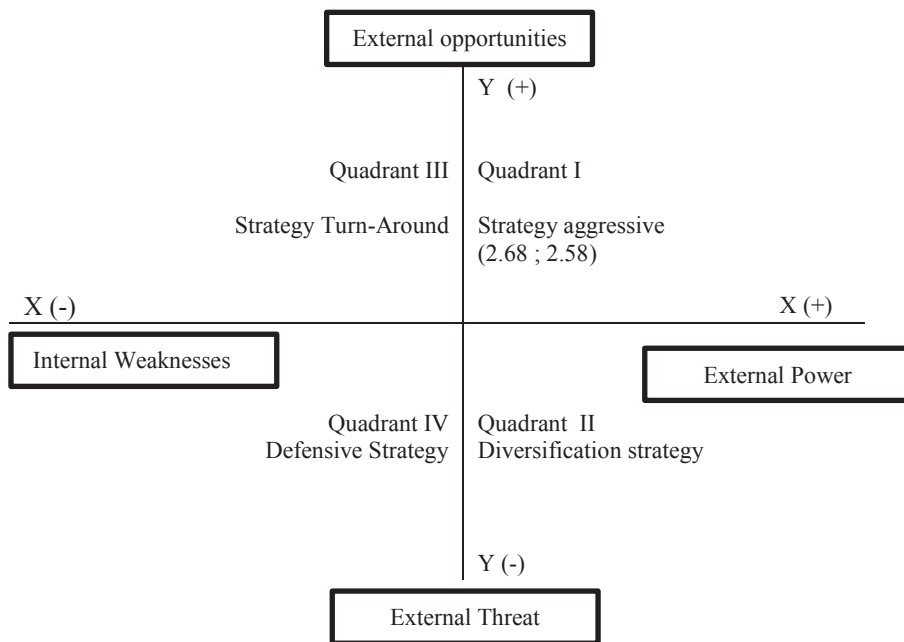
1. Improving the infrastructure and supporting facilities for agro-industry to support the workforce.
2. Improve the ability of assistants (agricultural extension workers) to increase farmers' mastery of cultivation techniques.
3. Increase farmers' control over cultivation to maintain their bargaining position.

### *3.3.2. Shallot Farming Development Strategy*

The result of combining the internal factor evaluation matrix with the external factor evaluation matrix, it can be seen the position of the shallot agribusiness development strategy in Minahasa Regency. The position of the agribusiness development strategy is analyzed using a position matrix so as to produce a coordinate point (x,y). The value of x is the total of internal factors (strengths + weaknesses) and the value of y is the total of external factors (opportunities + threats). From Tables 1 and 2 it is known that the value of x is 2.68 and the value of y is 2.58 (Figure 1).

The matrix of the position of the shallot agribusiness development strategy in Figure 1. shows the value of  $x > 0$  which is 2.68 and the value of  $y > 0$  is 2.58. This means that the position of the shallot farming development strategy in Minahasa Regency is in quadrant I (SO Strategy). Quadrant I is a quadrant bounded by the x-axis and y-axis which are both positive and the recommended alternative strategy is an aggressive strategy, namely the SO

(Strength-Opportunity) strategy, where this quadrant has the most profitable position because of the strengths and opportunities in The position matrix is greater than its weaknesses and threats, so that with its strengths, shallot farming agribusiness is possible to take advantage of existing farming opportunities and develop them. The SO strategy is made based on the mindset of developing aquaculture in the future, namely by using all strengths to take advantage of opportunities.



**Fig. 1.** Matrix of Shallot Agribusiness Development Strategy Position

Shallot farming in Minahasa Regency is in quadrant I, meaning that the shallots have strength factors in good condition, but shallot farmers have not taken advantage of the opportunities that exist so that shallots have not developed. For this reason, an aggressive strategy is needed, namely to expand and increase growth to the maximum by taking advantage of existing opportunities and strengths (strength-opportunities strategy). The results of Susanawati et al. (2019) research explain that alternative shallot development policies can be achieved through collaboration with financial institutions related to farming capital.

## 4. Conclusions and Suggestions

### 4.1. Conclusion

The internal factors of strength in shallot farming in Minahasa Regency are having good physical condition and quality shallots, land area, use and availability of seeds, availability of organic fertilizers, farmers' mastery of cultivation techniques and experience of farmers in shallot farming. Internal factors are weaknesses, namely farmers are still lacking in onion production, lack of farmer capital, the availability of inorganic fertilizers is still not sufficient, the availability of labor used is less and the amount of input used is still not in accordance with the recommendations of the Department of Agriculture. Opportunity

external factors are shallot production, demand for shallots are met, the average input price in accordance with market prices and the availability of these inputs, support from farmer group association and the government, high selling prices at the farmer level and easy market access. The external threat factors are inadequate infrastructure and supporting facilities for agro-industry, the bargaining position of big traders and the lack of ability of Agricultural Extension Officers in onion farming agribusiness.

The alternative strategy used is the SO (strengths and opportunities) strategy, namely utilizing farmer group association support so that farmers receive quality seed assistance, utilizing government support in channeling capital to expand shallot farming land, utilizing average input prices and the availability of inputs to improve physical and economic conditions. shallot quality, take advantage of market access, demand for shallots and selling prices at the farm level to increase the amount of shallot production, utilize farmer group association support to increase the experience of farmers in shallot farming agribusiness.

## 4.2. Suggestion

From the results of this study are hopefully it can be a material consideration for government and farmers in development of shallot farming in Minahasa Regency, as areas that have good shallot potential agriculture in North Sulawesi Province as an effort to develop shallots, it is necessary: Cooperation undertaken between the various parties should be accompanied by consistency and strong commitment such as continuous coaching and good supervision. This is done so that in an effort to achieve the expected results can be more efficient.

Shallot farmers in Minahasa Regency should take advantage of their experience in maintaining the physical condition and quality of shallots by using quality seeds, so that there is an increase in productivity which has an impact on fulfilling consumer demand for shallots. As well as the Regional Government through related institutions should formulate policies that support the development of shallot farming in the form of capital assistance, training and sustainable development, development and improvement of the quality of facilities and infrastructure as well as policies to support the bargaining position of farmers and the selling price of shallots at the farm level.

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