



Research Paper

## Analysis Of Shallots (*Allium Cepa* L.) Farmers' Business Competitiveness In Nglinggo Village, Gondang District Nganjuk Regency, East Java Province

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### ABSTRACT

The existence of competitiveness can demand the country's ability to create added value to maintain the quality and quantity of commodity production. Competitiveness can be said to exist in a commodity if it has comparative advantages and competitive advantages. Shallot (*Allium Cepa* L.) is multi-functional layered tuber vegetables that needed as a spice of cooking around the world. Nglinggo Village in Gondang District, Nganjuk Regency, has a large potential production with an area of 350 hectares of shallots. The research was done with the purpose to knowing how the private and social benefits as well as the level of competitiveness on a comparative and competitive basis of shallots in this research area.

The research was carried out from September to October 2020 in Nglinggo Village, Gondang District, Nganjuk Regency, East Java Province. The location selection was based on the national shallot-producing center and the method of determining the respondent was stratified random sampling with a total of 41 respondents. The data used are primary and secondary data. The data analysis method uses the Policy Analysis Matrix (PAM).

The results showed that the shallot farming in Nglinggo Village was entirely feasible and able to compete at local or international. This is shown by the results of private profits of Rp. 78,415,005.66 and social benefits of Rp. 257,063,235.56 per hectare per season. In addition, the PCR and DRCR values were 0.68 and 0.36, respectively. This means that the shallot farming business has a competitive and comparative advantage that is able to finance its business factors at both private and social prices and has higher opportunities forexport.

Efficient use of production inputs, one of which is the use of various pesticides in shallot production in Nglinggo Village, in order to increase private and social profits so that they can control the local and international market share.

**Keywords:** Analysis, Competitiveness, Farming business, Shallots, Nganjuk District

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### I. INTRODUCTION

Shallots (*Allium cepa* L) is a spice commodity whose production level is always increasing. The increase is indicated by a reduction in the number of shallot imports and an increase in shallot exports to several countries. This indicates that there is competitiveness in the shallot commodity.

Shallots are multi-functional bulb vegetables. The main use of shallots is as a spice in the daily kitchen and as a food seasoning. There are 20 shallot-producing countries in the world, among the largest producers are China with production of 23,849,053 tons, India with production of 19,415,425 tons, and Indonesia is ranked 15th with production of 1,446,869 tons (FAO, 2016).

According to data from the Ministry of Trade of the Republic of Indonesia, the level of demand for shallots in Indonesia from 2014 to 2017 has experienced a fluctuating increase. The level of demand for shallots in 2014 reached 631,627 tons. Meanwhile, in 2017 the demand for shallots in Indonesia is projected to reach 735,186 tons, an increase of 1.23% from 2016 which touched 725,349 tons (Dispendag, 2020).

Shallots are widely cultivated in Indonesia. Based on statistical data in 2018, the island of Java is the center of shallot production with the largest production in Central Java with a total production of 445,585 tons. In addition, East Java province is also able to produce 367,031 tons and in West Nusa Tenggara Province with a total production of 212,885 tons (BPS, 2019).

East Java is the second largest shallot production center after Central Java. East Java has some of the largest shallot-producing areas such as Probolinggo Regency, Kediri City, Malang City, Situbondo Regency and Nganjuk Regency. In some of these regencies/cities, Nganjuk Regency is a red onion producing area out of a total production of 1,524,084 tons in 2018 (BPS East Java, 2019).

In Gondang Sub-district, there is Nglinggo Village with a fairly large red onion production potential with a range of land area reaching 350 hectares (Village Hall, 2019). Most residents in Nglinggo Village make a living as shallot farmers (Village Hall, 2019).

The 2015 shallot import balance data shows that imports from India amounted to 1.59 thousand tons. Meanwhile, the amount of shallot production in Gondang District in 2016 was 433,978 quintals or equivalent to 43.4 thousand tons (BPS, 2017). The balance is high enough to see how the level of competitiveness between local and international production is. Competitiveness itself means the level of producer's ability to farm a commodity with low production costs and good quality. The good quality of a product will have more potential to be sold to the international level. The potential possessed by Nglinggo Village in Gondang District has contributed greatly to increasing East Java and national GRDP.

The research objectives to be achieved are to determine: (1) the comparison of private and social benefits of shallots; (2) the comparative and competitive competitiveness of shallot farming in Nglinggo Village, Gondang District, Nganjuk Regency.

## **II. RESEARCH METHODS**

### **A. Time and Location of Research**

This research was carried out for two months, from September to October 2020. The research location is in Nglinggo Village, Gondang District, Nganjuk Regency, East Java Province.

### **B. Data Collection Method**

Primary data was obtained by observing at the research site and conducting direct interviews with respondents, while secondary data was obtained from data sources related to the research.

### **C. Respondent Determination Method**

The sampling technique uses the Slovin formula as follows:

$$n = \frac{N}{1 + N(e)^2}$$

Description : n = Sample; N = Total Population, and e<sup>2</sup> = 15% precision value

The number of samples representing the population of 609 farmers is 41 samples. The method used is Stratified Random Sampling, which is a method that uses a random sample with certain strata.

### **D. Analysis Method**

#### **1. Analysis of Farming Profits**

Farming profits are the difference between the total revenue and the total production costs (cash costs and non-cash costs) with the formula: Profit = Revenue – Total Cost.

In addition, there is a level of feasibility of farming based on the ratio value and calculated by the formula:

$$R/CRatio = \frac{Revenue}{TotalCost}$$

#### **2. Analysis of Private and Social Benefits**

##### **a. Private Benefits**

Private profit or Profitability Private (PP) is used to determine competitive advantage. The private profit formula is:

$$PP = Revenue - (\text{foreign input} + \text{domestic input})$$

If the PP value > 0 means that the cultivated commodity has a profit above normal and is able to compete.

##### **b. Social Benefits**

Social advantage or Social Profitability (SP) is used to determine comparative advantage. The formula for social benefits is:

$$SP = Social Revenue - (\text{Foreign Input} + \text{Domestic Input})$$

If SP > 0 means that the cultivation system used is efficient and has a comparative advantage. Data on revenue, foreign inputs, and domestic inputs for social benefits use social prices (shadow prices). Social prices are determined by calculating through the following methods: (1) method of allocation of domestic and foreign cost components; (2) shadow pricing method. Shadow prices for commodities with export potential are calculated

based on the FOB (free on board) value. Then it is multiplied by the 2020 shadow exchange rate. Then this value is reduced by transportation and handling costs.

### **3. Competitiveness Analysis**

The method used in this study is the Policy Analysis Matrix (PAM) method. There are four steps taken to use this method. First, determine the inputs used in the shallot farming business. Second, identify whether these inputs are classified as foreign inputs (foreign factor costs) or domestic inputs (domestic factor costs). Third, separate all input costs into domestic and foreign cost allocations using the 2010 input-output table. Fourth, determine the input and output shadow prices and then analyze using the Policy Analysis Matrix (PAM) method.

#### **a. Analysis of Comparative and Competitive Advantage**

##### **1) Comparative Advantage**

Comparative advantage is known when the commodity system can finance its domestic factors at social prices or when  $DRCR < 1$ . The formula for calculating comparative advantage is: based on domestic input costs (G) divided by the difference between revenue (E) and foreign input costs (F). Data on revenue, foreign inputs, and domestic inputs for comparative advantage use social (shadow) prices. The closer the ratio value is to 1, the smaller the level of comparative advantage.

##### **2) Competitive Advantage**

Competitive advantage is known when the commodity system can finance its domestic factors at private prices or when  $PCR < 1$ . Competitive advantage or Private Cost Ratio (PCR) is calculated based on domestic input costs (C) divided by the difference between revenue (A) and foreign input costs (B). The closer the ratio value to 1, the smaller the level of competitive advantage. Conversely, if the value of the ratio is much smaller than 1, the level of competitive advantage is large.

#### **b. Identification of Government Policy**

Government policies that apply in onion farming activities in Nglinggo Village can be approached by looking at the divergence effect in the Policy Analysis Matrix (PAM) Table 5. Identification of government policies includes output policies, input policies, and input-output policies.

## **III. RESULTS AND DISCUSSION**

### **A. Overview and Research Locations**

Nglinggo Village is one of the villages located in Gondang District, Nganjuk Regency, East Java Province. It has an area of 665.01 Ha with a population of 4,534 people.

Nglinggo Village is located at an altitude of 69 m above sea level with an average daily temperature of 31°C. Its topography is in the form of lowlands such as rice fields and rivers that stretch. The type of land owned is silty soil and is black with a slope of 5° (Monographic Data of Nglinggo Village, 2019)

Residents in Nglinggo Village also have various kinds of work with the majority of which 530 people are farmers (530 people) and 1,561 people are farm laborers (1,561 people).

### **B. Characteristics of Respondents**

The characteristics of the respondent farmers in this study include age, gender, education level and land area owned.

#### **1. Age**

According to the data obtained at the research site, the respondent farmers have varying ages between 30 - 69 years. Respondent farmers who fall into the category of productive workers are 39 people with a percentage of 35.13%. While in the non-productive age category there are 2 people with a percentage rate of 4.87%.

#### **2. Education Level**

Respondent farmers consist of various levels of education ranging from elementary to masters degrees. The majority of respondent farmers are respondent farmers with the last education level of high school and as many as 26 people. While the level of education that has the least amount is SD (Primary School) with a total of 6 people and a percentage of 14.6%

#### **3. Farmer's Land Area**

Land is one of the inputs in farming that can affect farmers' income. The wider the land owned, the higher the chance of increasing productivity in farming.

### **C. Results of Competitiveness Analysis of Shallot Farming**

#### **1. Profit Rate**

Profit is the difference between total revenue (Total Revenue) and total costs (Total Cost) which consists of cash costs and non-cash costs. The results of the analysis of the benefits of onion farming can be seen in Table 1.

**Tabel 1.** Results of Analysis of Benefits of Shallot Farming

Description	Value
Revenue (Rupiah)	277,723,011.36
Cash Fee (Rupiah)	154,327,955.70
Non-cash fees (Rupiah)	44,980,000.00
Total cost (Rupiah)	199,307,955.70
Profit (Rupiah)	78,415,055.66
R/C Ratio	1.393436656

In Table 1 above, it can be seen that onion farming generates total revenue of Rp. 277,723,011.36 per hectare per season. Meanwhile, the total cost was Rp. 199,307,955.70 per hectare per season, which was divided into cash costs of Rp. 154,327,955.70 and non-cash costs of Rp. 44,980,000.00 per hectare per season. The components that consist of cash costs are seed costs 25.37%, fertilizer costs 3.33%, pesticide costs 11.62%, irrigation costs 2.11%, transportation costs 0.3%, tractor costs 0.5%, fuel 0.1%, land rent 15.05%, and labor costs 19.92% of the total cost. Meanwhile, non-cash costs are depreciation costs for farming support equipment.

The profit obtained from the difference between the total revenue and the total cost is Rp. 78,415,055.66 per hectare per growing season with an R/C Ratio of 1.39. This means that each additional cost incurred by farmers of Rp. 1 will result in an income of Rp. 1.39. Therefore, it can be concluded that shallot farming is able to generate profits and is feasible for farmers to cultivate.

## 2. Analysis of Private And Social Benefits

Private profit analysis is the farmer's profit obtained from the actual price or prices that occur in the field. While the analysis of social benefits is the farmer's profit obtained from the price calculated based on the social price or shadow (shadow price). The results of the PAM analysis of private and social benefits of onion farming in Nglinggo Village can be seen in Table 2.

**Tabel 2.** PAM Analysis Results of Private and Social Benefits on Shallot Farming in Nglinggo Village (Rupiah Per Hectare Per Season) in 2020

Description	Revenue (Rp)	Cost (Rp)		Profit (Rp)
		<i>Tradable</i>	<i>Non-tradable</i>	
Privat Price	277,723,011.36	35,667,076.39	163,630,879.31	78,415,015.66
Social Price	414,453,575.26	14,773,295.05	142,617,044.65	57,063,235.56
Divergence effect	-136,730,563.9	20,903,781.34	21,013,834.66	-178,648,179.90

Source : Primary Data, Processed (2020).

The results of the analysis of the private and social benefits of onion farming in Nglinggo Village show positive numbers. Private and social benefits are obtained from the difference between revenues and total production costs. Private income is smaller than social income, this is because the private output price of shallots is Rp. 15,500.00 and the price of social output of shallots is Rp. 23.131.07. So that at the private price level shows a profit of Rp 78,415,000,66 per hectare per planting season, while at the social price level, the profit is Rp 257,063,235.56 per hectare per growing season. Private profits show a lower figure than social benefits. This shows that the shallot farming business in Nglinggo Village is entirely feasible and able to compete both domestically and abroad.

## 3. Analysis of the Competitive and Comparative Advantage of Shallot Commodities

Competitive advantage is measured by the Private Cost Ratio (PCR) unit which is calculated based on non-tradable costs at the private price level divided by the difference between revenue and tradable costs at the private price level. PCR value < 1 means that the farm has a competitive advantage. Meanwhile, comparative advantage is measured by the Domestic Resource Cost Ratio (DRCR) which is calculated based on non-tradable costs at the social price level divided by the difference between revenue and tradable input costs at the social price level. DRCR value < 1 means that the farm has a comparative advantage. The results of the competitive and comparative advantage analysis can be seen in Table 3.

**Tabel 3.** Analysis of competitive and comparative advantages of farming in Nglinggo Village 2020

Description	Value	Remark
PCR	0.68	Have a competitive advantage
DRCR	0.36	Have a comparative advantage

The results of the PAM analysis of shallot farming in Nglinggo Village show that the PCR and DRCR values are  $< 1$  which means that the shallot farming in Nglinggo Village has a competitive and comparative advantage. The PCR value shows the number 0.68 which means that to increase the output of the shallot farming business in Nglinggo Village in one unit at private prices requires an additional cost of 0.68 or less than one unit. This figure can also mean that the onion farming business has been able to finance its business factors at the private price level.

For the value of DRCR (0.36) which shows a smaller number than PCR (0.68) which means that the onion farming business in Nglinggo Village is already economically efficient and able to finance its business factors at the social price level or has a comparative advantage (competitively competitive). The DRCR value which is lower than the PCR value means that this shallot farming business is more efficient if it is produced domestically and has higher opportunities for exports.

#### 4. Identification of Government Policy

Identification of applicable government policies in farming activities shallots in Nglinggo Village can be approached by looking at the effect of divergence in the Policy Analysis Matrix (PAM). The results of the identification of government policies can be seen in Table 4.

Tabel 4. Identification of Government Policy on Shallot Farming in Ngilinggo Village 2020

Description	Mark	Remark
Output Transfer (TO)	-136,730,563.9	No subsidies to <i>output</i>
Input Transfer (TI)	20,903,781.34	There are incentives from producers to the government
Factor Transfer (TF)	21,013,834.66	There is a negative subsidy in the policy
Net Transfer (TB)	-178,648,179.90	No incentives on policy

Soruce : Primary data, processed (2020)

In the last line in the results of the PAM analysis above, there is a divergence effect or the impact of existing government policies on onion farming in Nglinggo Village. There is an output transfer (TO) which is the difference between private price receipts and social price receipts. According to Adiputri (2016) that the TO transfer value is used to influence government policies in order to be able to provide benefits for economic actors. If the TO value  $> 1$  means that there is an incentive from consumers to producers and vice versa. The results above show that the TO value is negative ( $TO < 0$ ) Rp 136,730,563.9 this means that there is no incentive from consumers to producers or in other words, there is no output subsidy which causes the social price of shallots to be higher than the private price.

Next is the Input Transfer for foreign inputs (IT) which is the difference between the total cost of foreign inputs at private prices and the total costs of foreign inputs at social prices. If  $TI > 0$  means that there are incentives from producers to the government through the implementation of import tariff policies, and vice versa. The value of TI shows a positive Rp. 20,903,781.34 which means that there is an incentive given by producers to the government or farmers to pay foreign input costs that are larger, namely Rp. 20,903,781.34 than the value it should be because there is intervention from the government.

Then there is the Input Transfer indicator for domestic inputs (TF) which is the difference between the cost of domestic inputs at private prices and the cost of domestic inputs.

## IV. CONCLUSIONS AND RECOMMENDATIONS

### A. Conclusion

Based on the results of research and discussion, conclusions can be drawn, as follows:

- Private price gains (PP) and social price gains (PS) are IDR 78,415.005.66 and IDR 257,063,235.56 per hectare per season, respectively. When the PS value  $> 0$  and the PP value also  $> 0$ , this indicates that onion farming in Nglinggo Village is feasible and able to compete both domestically and abroad.
- The results of the analysis of PCR and DRCR values  $< 1$ , which means that the shallot farming business in Nglinggo Village has a competitive and comparative advantage. The DRCR value is 0.36 while the

PCR value is 0.68. Units closer to 0 indicate more efficient farming activities. Because  $DRCR < PCR$ , onion farming in Nglinggo Village is more economically efficient and able to finance its business factors at the social price level or has a comparative advantage (competitive) and has higher opportunities for exports.

## **B. Suggestion**

The suggestions from this research are as follows:

1. There is a need for government intervention in increasing the competitiveness of shallot commodities such as market pricing policies, subsidies and taxes that apply in farming.
2. Farmers should pay more attention to the level of use of various pesticides in their farming business so that input costs for pesticides can be reduced.
3. Farming support facilities and infrastructure such as roads and irrigation need to be improved so that distribution and farming activities are more efficient.

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