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## COMPARATIVE STUDY OF SHALLOT FARMING INCOME USING BULB SEEDS IN TABALONG REGENCY OF INDONESIA

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### ABSTRACT

Shallots are a national superior vegetable that has a fairly important role and needs to be cultivated intensively. After the production of shallot farming business, so far, the calculation of farm business analysis has not been carried out by farmers in Tabalong Regency, so it is not known about the net income of farming, the feasibility of farming and the feasibility of farming technology packages in onion farming using seeds and onion farming using bulbs. The purpose of this study is to analyze the income and feasibility and comparison of the income of onion seed seeds and bulb seeds. The data analysis used is revenue, cost and revenue analysis, and t-test analysis. The results showed that the income of onion farming using bulb seeds was Rp. 125,153,394,-/ha, while based on the feasibility analysis of onion farming with these bulbs, it was feasible to work with an RCR value of 1.76. The income of onion farming using bulb seeds is Rp. 181,720,502,-/ha, while based on the feasibility analysis of onion farming with these bulbs, it is very feasible to work with an RCR value of 2.54. Based on the comparative test analysis using the t-test, it was shown that there was a very significant difference between the income of onion farming using seed seeds, compared to onion farming using bulbs, with a t-count value of 7,598 and sig. by 0.0000.

### KEY WORDS

Shallots, seed seeds, bulb seeds, comparative, farm income.

Shallots are a national superior vegetable that has a fairly important role and needs to be cultivated intensively. The average consumption of shallots for 2016 was 2,826 kg / capita / year and in 2020 shallot consumption reached 2,699 kg / capita / year (Susenas, BPS in Shallot Trading Performance Analysis, 2021).

According to the Secretary-General's agricultural data center and information system, the Ministry of Agriculture in 2021. Shallot consumption in households during the period 2002 - 2021 fluctuated relatively but tended to increase from year to year. During the period 2002 - 2021, the largest consumption of shallots occurred in 2007 which reached 3,014 kg / capita / year at 44.50%, the second place in 2014 reached 2,487 kg / capita / year by 20.44% third place reached 2,764 kg / capita / year by 17.00% in 2012, while the lowest consumption occurred in 2013 of 2,065 kg / capita / year.

Shallot production until now has not been optimal and is still reflected in the diversity of cultivation methods that are characterized by the specific agroecosystem where shallots are cultivated. The development of high-value farming commodities to increase farmers' incomes is important in improving the capabilities of the agricultural sector. This is because the ability of the agricultural sector to contribute directly to economic growth and the welfare of farming households depends on the level of farm income and the surplus generated by the sector itself.

Tabalong County has shallot potential. This is shown by the number of shallot planting areas in Tabalong Regency is in second place and Hulu Sungai Tengah Regency after Tapin Regency with an area of 23 hectares. The total shallot harvest area in Tabalong Regency is 23 ha with a production of 1,610 quintals in 2020 (BPS South Kalimantan, 2020).

After the production of shallot farming business, so far, the calculation of farm business analysis has not been carried out by farmers in Tabalong Regency, so it is not known about



the net income of farming, the feasibility of farming and the feasibility of farming technology packages in onion farming using seeds and onion farming using bulbs.

Based on the description above, it can be said that there is a need for research on comparative studies of the net income of farming, the feasibility of farming and the feasibility of technology packages in onion farming. This is considered necessary because there are still many who do onion farming using bulb seeds, but there are still farmers who do onion farming using seed seeds continuously. So researchers are interested in doing this research.

It aims to analyze:

- Analyze the income, profitability, and feasibility of onion farming using bulb seeds and seed seeds;
- Analyze the difference in income and profit between onion farming using bulbs and onion farming using seeds;
- Analyzing the feasibility of changing onion farming technology using seed seeds.

Benefits of this research:

- As one of the literature for the benefit of further research in the same as well as related interests;
- As one of the recommendations/input materials for regional local economic development for the community.

### METHODS OF RESEARCH

This research is planned to be carried out in Ribang Village, Uwie Village and in Lumbang Village, Muara Uya District, Tabalong Regency, South Kalimantan Province. The implementation of the research is carried out from April 2022 until it is completed, namely from making research proposals, taking data, processing data to making research reports.

The data collected includes primary data and secondary data. Primary data is the main data obtained directly from respondent farmers using pre-prepared questionnaires. Meanwhile, secondary data was obtained from relevant agencies such as the Food Security, Fisheries, Food Crops and Horticulture Office of Tabalong Regency, South Kalimantan Province, the Central Statistics Agency of Tabalong Regency and the Muara Uya District Extension Center as well as through literature studies related to research topics and titles, which were sourced from books, the results of previous research.

Shallot farmers who will be respondents in this study consist of two groups, namely farmers who do onion farming using seed seeds and farmers who do onion farming using bulb seeds. The selection of the research site was determined deliberately (purposive sampling), because in Lumbang Village, Uwie Village and Ribang Village, the districts that do the most onion farming in Tabalong regency. The respondents for this study were 66 people with details of doing onion farming using bulb seeds in Lumbang Village as many as 21 people, in Uwie Village as many as 27 people and farmers who did onion farming using seeds in Ribang Village as many as 18 people.

Calculating the depreciation value of equipment used in farming using the Straight Line Methode. In general the formula can be written as (Eunuch, 2004):

$$D = \frac{Na - Ns}{Up}$$

According to Soekartawi, in Suci Maulidya Arba, (2018). The total cost of farming is the sum of the total costs (total implicit costs plus the total explicit costs) incurred by the farmer, which can be formulated as follows:

$$TC = TEC + TIC$$

Soekartawi, in Suci Maulidya Arba, (2018). Explains that the revenue of farming is the total production multiplied by the price of production. The calculation of farm revenues can be formulated as follows:



$$TR = P \times Q$$

Eunuch, in Leny Nuzulianur Puteri, 2020. The formula for calculating farm income is as follows:

$$I = TR - TCE$$

According to Soekartawi (2003): profits can be increased by minimizing costs by maintaining the level of receipts obtained, and increasing total receipts by maintaining a fixed total cost. This can be written as follows:

$$\pi = TR - TC$$

Cashmere and Jakfar, in Fitri Mahyudi, and Husinsyah. (2019 ). The feasibility of business economically can be assessed by the following equation:

$$\frac{R}{C} \text{Ratio} = \frac{TR}{TC}$$

The Independent Sample t Test was used to test hypotheses about the differences between two or more populations, each sample group independent of the other sample group (William Scaly Gosset (1876-1937), in Irwan Gani and Siti Amalia, 2014). Independent Sample t Test Analysis Tool can be written as follows.

$$t = \frac{x_1 - x_2}{\sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2} \left( \frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

Hypothesis: H0;  $\mu = \mu_0$ , versus H1;  $\mu \neq \mu_0$ .

H0 = There is no significant difference between the average income of onion farming using seed seeds and onion farming using bulb seeds.

H1= There is a significant difference between the average income of onion farming using seed seeds and onion farming using bulb seeds.

The Marginal Benefit Cost Ratio (MBCR) can be used to measure the feasibility of new technologies/introductions compared to farmer technologies (FAO, 2003; Swastika, 2004; Malian, 2004, in Dhyani NP. 2017), which can be formulated as follows:

$$MBCR = \frac{\text{Income (I)} - \text{Income (P)}}{\text{Total Cost (I)} - \text{Total Cost (P)}}$$

## RESULTS AND DISCUSSION

Marriage will usually increase a person's sense of responsibility to work because work is of higher value and valuable and important because of the increased responsibility to the family and usually the married are more satisfied with the work compared to the unmarried. The main actors of onion farming (farmers) use seed seeds all unite to mate but in the main actors of onion farming use bulb seeds with unmarried status as many as 2 people.

Age has a very important role in terms of physical strength that a person has. A person's physical strength is one of the determining factors in the level of productivity in carrying out activities or businesses. Productive is a term used to designate the working age, which is the age with a range of 15 to 64 years. The term non-productive refers to the age that is no longer able to work, namely those who are 65 years old and above.

Education consists of non-formal education and formal education, a learning process that can ultimately improve knowledge, skills and change the attitudes of the main actors (farmers). Farmers who do onion farming using seed seeds that have elementary /



equivalent education as many as 7 people 38.89% and farmers who do onion farming using bulb seeds who have elementary / equivalent education as many as 15 people 31.25%. Education that is still relatively low, resulting in being able to affect the knowledge, skills of farmers and not easily mastering with the existence of new technologies, also results in being slow in accepting changes in new agricultural technological innovations compared to people who have high education.

The number of family members is all members of the household, but does not include the head of the household. The number of family members, is a dependent of the household that must be financed by the household. In general, this family consists of wives, children and other family members who live in the same kitchen. The results of the study where the family members of farmers tried to farm shallots using seed seeds and the farmer's family tried to farm shallots using bulb seed seeds from 1 person to 6 people the number of family members including the farmer himself.

The farming experience is one of the non-formal learning processes that farmers indirectly feel. Through the experience of farming business that is passed, farmers can overcome the same problems. The number of farmers trying to farm shallots using seeds has 3-4 years of experience as many as 10 people. Meanwhile, the number of farmers trying to farm shallots using bulb seeds has experience between 3-4 years as many as 23 people.

Farmland has various types of land, both dry and wetlands. Farming land in the research area in the form of dry land is in Ribang Village and in Uwie Village, rice fields are in lumbang village.

Farmers trying to farm shallots using seed seeds have a dominant land area of 0.26-0.50 hectares, as many as 9 farmers 50%. Meanwhile, farmers trying to farm shallots using bulb seeds have a dominant land area of < 0.25 hectares, as many as 35 farmers 72.92%.

*Input Production of Shallot Farming Using Seed Seeds and Shallots Using Bulb Seeds.* Land for onion farming activities using seed seeds and onion farming activities using bulb seeds. The majority of land ownership for onion farming uses seed seeds on average 0.40 ha, owned and for onion farming using seed seeds on average 0.19 ha, owned by themselves.

To increase the production output of farming businesses, farmers need large capital in order to use farming technology optimally, onion farming capital using seed seeds and onion farming business capital using bulb seeds. The capital of onion farming using seed seeds is Rp. 99,570,168,40,-/ha and onion farming capital using bulb seeds Rp. 83,207,771.80,-/ha. The difference between onion farming capital using seed seeds and onion farming using bulb seeds is Rp. 16,362,396.60,-/ha.

Some of the equipment used for onion farming using seed seeds and onion farming using bulb seeds, as for the depreciation costs of the tools used in the form of hoes, machetes, sickles, hand sprayers, water pumps, arco, buckets, measuring cups and soil ph meters and agricultural production facilities in the form of seeds, compost, husk charcoal, PGPR, *Trichoderma Harzianum*, fungicides, dolomite, organic fertilizers, pestisda (karbopurun), SP36 and NKP fertilizer for red farming business onion farming. The depreciation cost of equipment and onion farming activities using seed seeds is Rp. 848,255.57,-/ha, the cost of production facilities is Rp. 44,412,491.31,-/ha and depreciation costs of onion farming activities using bulb seeds of Rp. 292,845.07,-/ha, the cost of agricultural production facilities is Rp. 66,253,467.18,-/ha

Farm labor is the second factor of production besides land, capital and management, the amount of labor is used in onion farming. The use of labor costs outside the family in onion farming using seed seeds is Rp. 34,474,711.75,-/ha, labor costs in the family as much as Rp. 19,309,722.23,-/ha. The financing of outside labor outga in the onion farming business using bulb seeds is Rp. 26,639,675.12,-/ha and labor costs in the family Rp. IDR24,528. 509,-/ha.

The use of seeds for onion farming using seed seeds and onion farming using bulb seeds are all seeds planted with government-aided seeds, some varieties of onions grown by farmers. Shallot farming uses an average of 1.69 seeds per farm, a variety of lokananta



grown. Shallot farming uses an average of 260.63 bulb seeds per farm, the majority of which are varieties of bima brebes grown.

*Explicit costs and implicit costs of onion farming using seed seeds and onion farming using bulb seeds.* Farming costs consist of explicit costs and implicit costs, explicit costs are costs that are actually incurred in real terms by the main actors or farmers, namely land rental costs, borrowed capital, depreciation costs for farming equipment, costs of agricultural production facilities in the form of fertilizers, compost, husk charcoal, mulsa, PGPR, Trichoderma Harzianum, UV plastic, herbicides, hood frames (pipes / bamboo), hood frames (pipes / bamboo), fungicides and insecticides as well as extra-family labor costs (TKLK) consist of seedbed activities, Planting land preparation, Moving to plant seeds and maintenance, Harvesting and post-harvest while costs that are not actually incurred by the main actors are called implicit costs, namely the cost of renting one's own land, own capital costs and out-of-family labor costs (TKDK).

Regarding the amount of costs in each component used in the production process of onion farming using seed seeds and the production process of onion farming using bulb seeds. It can be seen that the average cost of onion farming activities using seed seeds is Rp. 100,648,673.25,-/ha and onion farming activities using bulb seeds amounting to Rp. 118,738,715.02,-/ha So that there is a difference in costs between the two farming activities of Rp18,090,042,-/ha can be seen in table 1.

Table 1 – Average explicit costs and implicit costs of onion farming using seed seeds and onions using bulb seeds In 2022

Description	Seed farming		Tuber seed farming	
	Per farm (IDR)	Per hectare (IDR)	Per farm (IDR)	Per hectare (IDR)
Explicit fees				
Land lease	0	0	0	0
Land tax / PBB per planting season	19. 444	58. 229	4. 702	24. 296
Tool depreciation	296. 483	848. 256	51. 699	292. 845
Agricultural production means	17. 143. 681	44. 412. 491	12. 621. 378	66. 253. 467
TKLK	13. 791. 944	34. 474. 712	5. 355. 208	26. 639. 675
Sum	31. 251. 553	79. 793. 688	18. 032. 986	93. 210. 283
Implicit cost				
Cost of renting one's own land	500. 000	1. 545. 262	194. 345	999. 922
TKDK	19. 309. 722	4. 660. 417	24. 528. 509	19. 309. 722
Sum	7. 723. 888	19. 309. 722	4. 660. 417	24. 528. 509
Total explicit and implicit charges	39.475.441,73	100.648.673,25	22.887.747,78	118.738.715,02

Source: Primary Data Processing, 2023.

Production in agriculture is a result obtained from agricultural land within a certain time, everyfarming activity expects maximum results. In this study the calculations are in the form of tubers that are usually directly sold by farmers. The harvest is directly sold to get money used that can be used for his needs. The average onion farming business using seed seeds is greater in production per hectare in the amount of one-time harvest, which is 10,407.23 kg / ha compared to the production of onion farming using bulb seeds, which is 9,093.45 kg / ha, the difference in production is 1,314 kg / ha, even though onion seed farming can already be obtained bulb production with a period of 90 days.

The value obtained from the amount of farm production is multiplied by the selling price of the unity product in one growing season. Where cash receipts are obtained from the proceeds; Harvest sold while non-cash receipts are the value of unsold products. Acceptance of onion farming using seed seeds, amounting to Rp. 26 1,514,190,-/ha, onion farming using bulb seeds amounting to Rp. 218,438,678,-/ha, as much as receipts, amounting to Rp. 43,075,512/ha.

Income from farming gives value in the form of money earned by farmers after subtracting the amount of receipts by the total cost of production which is actually the cost incurred by farmers during one production. The income of onion farming using seed seeds is



greater, amounting to Rp.181,720. 502,-/ha compared to onion farming using bulb seeds amounting to Rp.125,153,394,-/ha. The difference in income is IDR 56,567,107,-/ha.

The revenue profit obtained is reduced by all costs incurred in the production process, farm profits are obtained from the sale of products that have been reduced by the total operational costs of the farming business consisting of farm business costs that are actually incurred such as land rent, borrowed capital, costs of agricultural production facilities, extra-family labor (TKLK) and costs that are only calculated such as the cost of renting one's own land, own capital costs and labor costs in the family (TKDK).

The greater profit of farming is obtained by the shallot farming business using seed seeds, which is Rp. 158,117,027,-/ha compared to onion farming using bulb seeds, which is Rp. 93,649,282,-/ha. The difference in the profit of onion farming using seed seeds with onion farming using bulb seeds is Rp. 64,467,745,- /ha.

The feasibility of farming determines the amount of profit received by the main actors (farmers), to determine the level of feasibility of onion farming using seed seeds with onion farming using bulb seeds. Onion farming using seed seeds is very feasible because R/C 2.54 while onion farming using bulb seeds can be said to be feasible because R/C is 1.76.

This study has a hypothesis, namely it is suspected that there is a difference in income from onion farming using seed seeds with onion farming using bulb seeds, the results of the t-test are in the following table.

Table 2 – t Test Results

Result	Revenue / ha	Advantages / ha
Average Shallot Seeds	181.720.502	158.117.027
Average Shallot Bulbs	125.228.394	93.649.282
db (free degree)	64	64
T count	7,598	9.355
Sig.	0,000	0,000

Source: SPSS data processing.

Based on the independent t test with the help of IBM SPSS 26 presented in Table 44, it shows that there is a significant difference between the income of onion farming using seed seeds, compared to onion farming using bulbs. It is proven, with the results of the t test Test, that the value of sig. The income and profit between seed seeds and tuber seeds is 0.000, meaning that the probability is smaller than the real test level ( $\alpha = 0.05$ ).

The technology of onion farming using seed seeds is feasible compared to onion farming using bulb seeds because the Marginal Benefit Cost Ratio (MBCR) > 1, namely the MBCR is 2.01. The MBCR value of 2.01 is interpreted as every additional cost of Rp 100,000/ha, which will provide an additional receipt of Rp 201,000/ha. With the MBCR value, farmers are expected to be able to change the way onion farming seeds are used from bulb seeds to seed seeds to increase profits. In line with the opinion of Ginandjar et al. (2020), farmers will change and adopt technology or technological changes if they provide changes in high incomes.

## CONCLUSION

The income of onion farming using bulb seeds is Rp. 125,153,394,-/ha, the profit of onion farming using bulb seeds is Rp.93,649,282,-/ha while based on the feasibility analysis of onion farming with bulbs this is feasible to be cultivated with an RCR value of 1.76. The income of onion farming using seed seeds is Rp. 181,720,502,-/ha, the profit of onion farming using seed seeds is Rp.158,117,027,-/ha while based on the feasibility analysis of onion farming with these seeds is very feasible to be cultivated with an RCR value of 2.54.

Based on the comparative test analysis using the t-test, it was shown that there was a very significant difference between the income of onion farming using seed seeds, compared to onion farming using bulbs, with a t-count value of 7,598 and sig. by 0.0000.



The technology of onion farming using seed seeds is feasible compared to onion farming using bulb seeds because the *Marginal Benefit Cost Ratio* (MBCR) > 1 is 3.66.

There is a need for a government policy to encourage onion farming business actors through related agencies to cultivate or cultivate shallots using seed seeds because onion farming using these seeds is very profitable and very feasible to cultivate.

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