

Analysis Comparative of Healthy Onions of Consumption and Seeds in Sub District Medan Marelan City Medan

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Abstract - This study aims to analyze the comparison of total production cost of onion farming consumption with onion seedling system, to analyze the comparison of red onion farming income consumption with onion seedling system and to compare the income level of onion farming consumption with onion seeding system. This research uses primary data obtained from the farmer. The respondent's farmers were determined by using the census, where all the population members were sampled. In this case the number of onion farmer population in the sub-district of Medan Marelan is relatively small, ie 45 people. Of the onion farmer population is 15 people is a farmer breeder onion seeds while 30oranglainnya is a shallot farmers consumption, so that the entire population serve as a sample. Data analysis method used is statistical analysis of difference test average of two independent samples (independent sample t-test). The results showed that the production cost of shallot seed farming and consumption system was significantly different at 95% confidence level. Average production cost per hectare per season of shallot seed planting was higher than the onion farming consumption. The revenue of onion seed farming and consumption was significantly different in 95% confidence level. Average acceptance per hectare per Season of shallot seed planting is higher than onion farming consumption. Average income per hectare per planting season and income per hectare per month onion seeds and consumption farms is significantly different at the level 95% confidence. Average income per hectare per planting season and per hectare per month of shallot seed farming income is higher than onion farming.

Keywords - Farming, onion consumption, onion seed, production cost, revenue, income, average difference test.

I. INTRODUCTION

Onion is one of the vegetable commodities that have been cultivated for a long time by farmers intensively and have significance for the community, both seen from the economic value and the nutritional content. In the last decade the demand for onion in the country continues to increase, both for consumption and seeds, so that Indonesia must import to meet some of these needs. To reduce the volume of imports, the increase of production and quality of onion yield should be increased.

According to Rahayu and Berlian (2004), seed factor plays an important role to the success of crop production. The use of high quality seed is the first step of increasing production.

The low production of national onion seed is due to the fact that there are not many producers who want to move in the field of onion seed. The obstacles are caused by: a) the

effort of onion seeding requires high capital and wide area and warehouse; b) knowledge and skills of human resources, especially in seed production is still low; c) Low shrimp seed reserve (2-5 months) with high shrinkage weight; d) seed saving problems can be overcome by seed formation, but unfortunately these skills are quite difficult to apply to farmers (Indarawati and Padmono, 2001)

Onion productivity in North Sumatra is relatively low compared to the central areas of onion production such as Central Java. One of the main causes of low productivity is the low quality of seedlings. Until now still a small breeder of seed crops that breed onion seedlings. As a result, farmers difficulty to get quality onion seeds. Farmers in general always use the newly harvested onions to be used as seeds again, whereas, farmers often harvest this field before entering the harvest age. Like the onion varieties Tiron and Bima, usually already harvested farmers at the age of 60

days, when the age of red onions worthy to be seeded is a 75-day-old. In addition, seeds with the same variety used repeatedly and not old enough, resulting in low onion production of North Sumatra.

The low number of onion seed breeders resulted in low seed production, so farmers difficult to obtain seeds during the growing season that can cause the planting schedule to change.

So far, the farmers in Medan Marelan sub-district obtained seeds by ordering from intermediate traders in Java Island, among others, onion seeds of Bima (Brebek) and Bauji (Nganjuk, East Java). This causes the price of seeds are very expensive and become an obstacle for onion farmers in North Sumatra.

One alternative to overcome the problem of the lack of availability of onion seeds in North Sumatra, especially Medan City is to develop a breeder of onion seeds. According to data from the Agriculture and Fishery Agency of Medan City (2017), the number of onion farmers in Medan Marelan sub district is 45 people, of which 15 are farmers breeder while others are onion farmers. One of the problems in accelerating the development of onion seed breeders is that farmers are still reluctant to work as seed breeders, this is due to the lack of knowledge about seeds, cultivation technology, capital and assistance from related institutions, besides onion farmers in this area do not yet know how the income ratio between farming onion and seedlings.

A. Identification of problems

What is the cost of production, income and income of farming and how the comparison of production costs, income and income usahatanbawang on consumption and seeds in the District of Medan Marelan Medan City.

B. Research purposes

To analyze production cost, revenue and income as well as comparison of production cost, revenue and income of onion farming consumption and seedlings in Medan Marelan Sub-district, Medan City.

C. Hypothesis

Total cost of production, revenue and income on shallot seed farming is greater than onion consumption.

II. LITERATURE REVIEW

According to Hernanto (1996), the amount of income to be earned from a farming activity depends on several factors that influence such as land area, production level, employer

identity, cropping, and efficiency of labor usage. In conducting farming activities, farmers hope to increase their income so that the needs of everyday life can be fulfilled. Price and productivity are the source of the uncertainty factor, so that when the price and production change, the income received by farmers also changes (Soekartawi, 2006).

The concept of farm income according to Hernanto (1996), suggests that farming activities will eventually be assessed with money calculated from the production value after deducting or taking into account the costs incurred. This concept is called farm income. The income earned by farmers needs to be analyzed. According to Soeharjo and Patong (1973), there are at least two main objectives of income analysis that are to describe the present state of a business activity, as well as describe the future state of the plan or action. The income analysis represents the success or failure of a farming activity. Revenue represents a reduction of revenue at a total cost. Farm income is the difference between gross income (output) and production cost (input) calculated per month, per year, per planting season. Outside income farming is income earned as a result of doing activities outside of farming such as trading, mocking, and others (Gustiyana, 2003).

III. RESEARCH METHODS

A. Types and Data Sources

The data taken includes two types of data, namely primary data and secondary data. Primary data obtained from interviews, secondary data obtained through several agencies, namely the Central Bureau of Statistics, Food Crops and Horticulture of North Sumatra Province, Department of Agriculture and Fisheries Medan and monographic books Medan Marelan District.

B. Sample Determination Method

Sample determination in this study was conducted by using census, where all members of the population were sampled. In this case the number of onion farmer population in the Sub District of Medan Marelan is relatively small as many as 45 people. Of the onion farmer population is 15 people is a farmer breeder onion seeds while 30 others are onion farmers consumption, so the entire population used as a sample. According Sugiyono (2001: 61) technique of determining the sample when all members of the population used as a sample called saturated sampling. This is often done when the population is relatively small.

C. Data analysis method

To test the hypothesis used the statistical analysis of the average test or t-test (independent sample t-test) with a one-way test used for the study comparing two variables. According to Sugiyono (2010), when the number of samples is different ($n_1 \neq n_2$) and homogeneous variances ($\sigma_1^2 = \sigma_2^2$), so it can be used the pooled variance formula, degrees of freedom (dk) = $n_1 + n_2 - 2$. Mathematically the independent sample t test formula -test (Test-t) is:

$$\frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{(n_1-1)S_1^2 + (n_2-1)S_2^2}{n_1+n_2-2} \left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

Where :

$\bar{x}_1$ = Average sample 1 (onion seed)

$\bar{x}_2$ = Mean sample 2 (onion consumption)

n_1 = Number of samples 1

n_2 = Number of samples 2

s_1 = sample standard deviation 1

s_2 = standard sample deviation 2

With the test criteria:

If $t\text{-arithmetic} \leq t\text{-table}$, then H_0 is accepted and H_1 is not accepted.

If $t\text{-arithmetic} > t\text{-table}$, then H_0 is not accepted and H_1 accepted.

According Soekartawi (2006), to know the total cost of production from farming, can be used the following formula:

$$TC = TFC + TVC$$

Where :

TC = Total Cost (Total Cost) (Rp/ Ha/ Season)

TFC = Total Fixed Cost (Rp/ Ha/ Season)

TVC = Total Variable Cost (Rp/ Ha/ Crop season).

According to Rahardja and Manurung (2000), to know the total total revenue of farming (Total Revenue) TR can be used the following formula:

$$TR = Q \times P$$

Where :

TR = Total Revenue (Rp/ Ha/ Season)

Q = Total Production (Quantity) (Kg/ Ha/ Cropping season)

P = Product Price (Price) (Rp/ Kg/ Planting Season).

According to Hernanto (1989), to determine the value of the depreciation of agricultural equipment used, the straight-line method is as follows:

$$D = (Nb - Ns) / U$$

Where:

D = Device depreciation (Rp/ year)

Nb = New value (Rp/ year)

Ns = Residual value (Rp/ year)

U = Economic age (year)

To know the net income can be calculated using the following formula:

$$\pi = TR - TC$$

$$\pi = Y \times Py - TFC + TVC$$

Where :

π = Revenue (R /Ha/ Cropping season)

TR = Total Revenue (Rp/ Ha/ Season)

TC = Total Cost (Total Cost) (Rp/ Ha/ Season)

Y = Total Production (Quantity) (Kg/ Ha/ Cropping season)

Py = Product Price (Price) (Rp/ Kg/ Planting Season)

TFC = Total Fixed Cost (Rp/ Ha/ Season)

TVC = Total Variable Cost (Rp/ Ha/ Cropping season) (Soekartawi, 2006).

IV. RESULTS AND DISCUSSION

Production Cost, Revenue and Revenue of Red Onion Cultivation Seeds and Red Onion Consumption

Production cost, revenue and income of shallot seed and consumption farming are presented in the table below:

Table 1. Average Cost of Production, Revenue and Revenue per Hectare per Planting Seeds Red Onion Seeds and Consumption at Kecamatan Medan Marelan

Red Onion Farming	Seed			Konsumption		
	Minimum	Maximum	Avarage/ Ha	Minimum	Maximum	Avarage/Ha
Average Production Cost (Rp / Ha / planting season)	111.526.66 6	147.669.16 6	125.542.22 2	111.894.16 6	126.619.16 6	117.505.48 4
Difference				367.500	21.050.000	8.036.737
Average Revenue (Rp / ha / planting season)	180.000.00 0	300.000.00 0	249.300.00	137.500.00	187.500.00	156.716.66

			0	0	0	7
Difference						
				42.500.000	112.500.000	92.583.333
					0	
Average Revenue (Rp / ha / planting season)	41.823.333	162.650.833	123.757.777	23.020.833	75.588.333	40.504.931
Difference						
				18.802.500	87.062.500	83.252.845

Source: Primary Data Processed, 2017

A. Production Costs Red Onion Seeds and Red Onions Consumption per hectare per planting season

From Table 1 above, it can be seen that the production cost per hectare per season of plantation of shallot seed is minimum Rp. 111.526.666 / Ha / planting season, maximum Rp. 147.669.166 / Ha / planting season and average per hectare Rp. 125.542.222 / Ha / planting season while the production cost of shallot farming consumption minimum Rp. 111.894.166 / Ha / planting season, maximum Rp. 126.619.166 / Ha / planting season, and average per hectare Rp. 117,505,484 / ha / planting season, and the difference in average production cost of shallot seed farming and consumption is Rp. 8,036,737 / ha / planting season.

The highest production cost of shallot seed farming is issued for the cost of seeds which reaches 39.64 percent, followed by sequence ie labor cost 33.66 percent, fertilizer 16.16 percent, silver black mulch 5.51 percent and other costs 5.02 percent, as well as onion farming consumption where the highest production cost is the cost of seeds of 42.16 percent followed by labor costs 32.25 percent, fertilizer 15.01 percent and other costs 10.58 percent. This is in line with the results of Hay Draifi Marla (2015) study, which examines the Analysis of Income of Farmers of Bawang Merahdi Pasir in Sanden Sub-district of Bantul Regency, Yogyakarta, where the biggest cost component of production cost is the cost of onion seeds by 48.33 percent of total cost and labor cost work of 15.77 percent.

B. Revenue on Red onion Seeds and Red Onions Consumption per hectare per planting season

Farm revenues are influenced by several factors such as farming area, species and price of farmed commodities. The amount of total revenue and total cost incurred by onion farmers will affect the total income of farmers. The total revenue of onion farmers ranges from Rp. 48,764,970-Rp 152,650,269 per hectare (Damanah 2008), Apriani (2011) and Pamusu et al (2013). Acceptance along with the costs incurred by farmers will affect the income received by onion farmers. The average revenue of onion seedling and

consumption in Medan Marelan District is presented in table 1 above.

Based on Table 1 above, it can be seen that the acceptance of shallot seed farming minimum is Rp. 180.000.000, - / Ha / planting season, maximum Rp. 300.000.000, - / Ha / planting season and average per hectare Rp. 249.300.000, - / Ha / planting season while onion farming income consumption minimum Rp. 137.500.000, - / Ha / maximum planting season Rp. 187.500.000, - / Ha / planting season and average per hectare Rp. 156.716.667, - / Ha / planting season and the difference between the average revenue of onion seedling and onion farming consumption is Rp. 92.583.333, - / Ha / planting season.

C. Red Onion Farming Income Seeds and Red Onions Consumption per hectare per planting season

Farm income is the difference between farm income and farming expenditure (Soekartawi 2006). The average income of shallot seed and consumption farming is presented in Table 1 above.

From the table above can be seen that on the income farming onion per hectare per plant per Minimum plant is Rp. 41.823.333 / Ha / maximum planting season Rp. 162.650.833 / Ha / planting season and average per hectare Rp. 123.757.777 / Ha / planting season while onion farm income minimum consumption Rp. 23.020.833 / Ha / maximum planting season Rp. 75,588,333, Ha / planting season and average per hectare Rp. 40,504,931 / ha / The planting season and the difference in average income onion seeds farming and onion farming consumption is Rp. 83.252.845 / Ha / planting season. The consumption of onion farming consumption above is in line with Ketut Swastika's research (2016) with the title of Comparison of Red Onion With and Without Pheromone Technology, where by using pheromone technology, the income is Rp 97,597,413.38 / Ha / MT, while without pheromone technology Rp 78,605,563.89 / ha / MT.

From the description above can be said that the difference of revenue onion farming onion and onion farming consumption is caused by the difference in production costs and revenue. Where the revenue and production costs of shallot seed farming system is greater than onion farming consumption. So the income of shallot seed farming is higher than onion farming.

D. Revenue on Red onion Seeds and Red Onions Consumption per hectare per Month

The average income per hectare per month of shallot seed farming and consumption can be seen in the table below.

Table 2. Average Revenue per hectare per Month Red onion Seed Farming and Consumption in Kecamatan Medan Marelan

Red Onion Farms	Average Revenue (Rp/ Ha/Bulan)
Seeds	27.232.832,10
Consumption	19.647.449,29
Different	7.585.382,81

Source: Primary Data Processed, 2017

From Table 2 above it can be seen that the average income per hectare per hectare of seedlings is Rp. 27,232,832.10, and onion consumption of Rp. 19,647,449,29 with the difference of Rp. 7.585.382,81. This indicates that farm income per hectare per month of onion seedlings is higher compared with per hectare farm per month onion consumption.

When compared to the average income per hectare per planting season of shallot seeds and consumption as described in Table 1 above (average revenue of seed onion is Rp 123.757.777 / Ha / planting season and consumption Rp 40,504 .931 / ha / planting season), it can be seen that the average income per hectare per planting season of shallot seeds and consumption is greater than the average

income per hectare per month. This is due to the difference in harvest time where the time required for the onion harvest consumption is for 60 days, while onion seedling takes 75 days. In addition to the difference in harvest time, shallot seeds also require storage for 2 - 3 months after harvest, this leads to additional time and labor costs to sort, resulting in per hectare per month less income per hectare per planting season.

E. T Test Result For Difference in Production Costs, Revenue and Income of Red Onion Seeds and Consumption in the District of Medan Marelan

The result of t test of difference of production cost of shallot seed and consumption per hectare per planting season is presented in table below:

Table 3. Test t Differences in Production Costs Average per hectare per planting Seeds Red Onion Seeds and Consumption in the District of Medan Marelan

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Cost production	Equal variances assumed	8.625	.005	4.091	43	.000	8.03674E6	1.96453E6	4.07489E6	1.19986E7

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Cost production	Equal variances assumed	8.625	.005	4.091	43	.000	8.03674E6	1.96453E6	4.07489E6	1.19986E7
	Equal variances not assumed			3.194	16.448	.005	8.03674E6	2.51597E6	2.71490E6	1.33586E7

From the table above for the difference of production cost of onion seed farming and onion farming consumption obtained t count 4.091 and significance value Sig (2-tailed) is 0,000 < 0,05 then H₀ is rejected and H₁ accepted which means there is significant difference between total production cost of shallot seed farming system with consumption per hectare per planting season. Production cost of shallot seed farming is higher than onion farming consumption, this is caused by additional post production cost of harvest that is labor cost for sorting of harvest for

seed so as to obtain good quality seeds, in addition there is also the cost of competence and labeling costs required by the seed certification body. Production cost of shallot seed farming and onion farming consumption can be seen in the table of research results above. Sehingga can be seen that the production cost of shallot seed farming is higher than the production cost of onion farming consumption.

Result of t test of difference of onion seed acceptance and consumption per Hectare per Season of planting is presented in table below:

Table 4. Test t Differences of Average Receipts per hectare per planting Seeds Red Onion Seeds and Consumption at Kecamatan Medan Marelan

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Reception	Equal variances assumed	14.332	.000	13.431	43	.000	9.12896E7	6.79685E6	7.75824E7	1.04997E8

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Reception	Equal variances assumed	14.332	.000	13.431	43	.000	9.12896E7	6.79685E6	7.75824E7	1.04997E8
	Equal variances not assumed			10.261	15.880	.000	9.12896E7	8.89706E6	7.24171E7	1.10162E8

From result of t test of difference of acceptance presented in table above can be seen that difference of farming income of shallot onion and onion farming consumption is t count 13.431 and value of Sig. (2-tailed) is 0,000 <0,05. This implies that H0 is rejected and H1 is accepted, the difference in revenue of onion farming and onion farming is real consumption at 95% confidence level. Revenue onion farming is higher than onion farming income, this is due to the higher selling price of onion seeds

compared to the selling price of onion consumption where the selling price of onion seed is Rp.45,000 / kg while onion consumption Rp.15.000 / kg, so it can be seen that the acceptance of shallot seed farming is higher than the consumption of onion farming consumption.

The result of t test of income difference of shallot seed farming and consumption per hectare per planting season is presented in the table below:

Table 5. Test t Differences of Average Revenue per Hectare per Planting Seed Red Onion Seeds and Consumption at Kecamatan Medan Marelan

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
income	Equal variances assumed	13.329	.001	11.946	43	.000	8.32528E7	6.96909E6	6.91983E7	9.73074E7
	Equal variances not assumed			9.189	16.053	.000	8.32528E7	9.06027E6	6.40510E7	1.02455E8

Based on the result of t-test of income difference as presented in Table 5 above, the difference of revenue on shallot farming and onion consumption is t11.946 and the value of Sig. (2-tailed) is 0,000 <0,05. Then H0 rejected and H1 accepted means, the difference of earnings income onion farming and onion farming is real consumption at 95% confidence level. Onion farm income is higher than onion farming, this is due to the reduction of total revenue and total production cost. Total revenue and total production

cost of onion seedling farming and onion farming consumption can be seen in the table above research results. So it can be seen that the income level of shallot seed farming is higher than the income of onion farming consumption.

The result of t test of income difference of shallot seed farming and consumption per hectare per month is presented in table below:

Table 6. T test Difference of Average Revenue per hectare per Month Red onion Seed Cultivation and Consumption in Kecamatan Medan Marelan

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
monthly income	Equal variances assumed	.286	.595	3.521	43	.001	7.58538E6	2.15420E6	3.24103E6	1.19297E7
	Equal variances not assumed			3.339	24.516	.003	7.58538E6	2.27199E6	2.90144E6	1.22693E7

Based on the result of t test the difference of income per hectare per month onion farming of onion seed and onion as presented in Table 6 above is t 3,521 and the value of Sig. (2-tailed) is 0,001 <0,05. Then H0 is rejected and H1 is accepted, the difference of income per hectare per month onion farming of onion seed and onion farming is real consumption at 95% confidence level, where the farmer's income of onion seed is higher than the onion consumption with difference of Rp.7.585 .382,81.

V. CONCLUSIONS AND SUGGESTION

A. Conclusion

- 1) The production cost of shallot seed farming and consumption is significantly different at 95% confidence level. The average production cost per hectare per season of shallot cultivation is higher than the onion consumption farm.

- 2) Receipt of shallot seed farming and consumption is significantly different at 95% confidence level. The average yield per hectare per season of shallot seed planting is higher than onion farming consumption.
- 3) Revenue per hectare per planting season and income per hectare per month of shallot seed and consumption farming is significantly different at 95% confidence level and average income per hectare per planting season and average income per hectare per month more onion seedling farming high compared to onion farming consumption.

B. Suggestion

- 1) It is recommended that onion farmers in Medan Marelan Sub-district of Medan City choose onion farming seeds because their income is higher than onion farming

consumption and the availability of onion seeds is still very minimal in North Sumatra.

- 2) To the Government of Medan City is suggested to improve the guidance and assistance of onion farming, especially onion seed breeder and provide capital assistance or loan to farmers in the research area, because in on shallot farming requires appropriate cultivation technology and relatively large production cost.
- 3) Need further research on the analysis of household income onion seeds farming and consumption.

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