Feasibility Analysis of Rice Field Farming with Hazton Technology Taba System in Meli Village, Donggala Regency

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ABSTRACT

The application of technology to increase rice production is carried out in Meli Village, Balaesang District, Donggala Regency by using the Hazton method, namely the technological method in rice cultivation with the number of seeds from 20 to 30 planting holes and the age of the seeds is quite old, around 30-35 days. How much is the production of lowland rice farming with Hazton technology with the Tabela system in Meli Village, Balaesang District, Donggala Regency, and how much is the income and feasibility of lowland rice farming? With Hazton technology with the Tabela system in Meli Village, Balaesang District. Donggala Regency. The average paddy rice production using the Hazton table technology system for respondent farmers in 1 harvest is 6.910 kg/0.8 ha with an average net income of Rp.19,976.348 -/0.8 ha. and an R/C ratio of 4.1. Greater than 1 (Eligible). Assuming each expenditure of Rp. One hundred will earn an income of Rp. 410.

Keywords – Appropriateness; Hazton Technology; Table System

INTRODUCTION

The agricultural sector is a sector that has a very important role in the economy in some developing countries. We can see this clearly from the role of the agricultural sector in providing job opportunities to the population. Agricultural development needs to be given better attention, even if it is a priority, because the agricultural sector can have the ability to generate surpluses. Indonesian agriculture is tropical agriculture because most of its area is in the tropics, which is directly affected by the equator, which cuts Indonesia almost in half. Indonesia is still a country that plays an important role in the overall national economy. One of the food crop commodities in Indonesia is rice, the production of which is still a staple food. Rice is an agricultural crop and is the main crop (1).

The Rice plant (Oryza sativa L.) is an annual plant with a round and hollow stem morphology called straw. The leaves are elongated with internodes in the direction of the leaf stem. On the main stem and tillers form clumps in the vegetative phase and form panicles in the generative phase (1).

The government's efforts to increase rice production include applying technology and innovation in agriculture. Innovation and technology are carried out in various ways, starting from combining technology such as Minapadi. Research on rice varieties, cultivation techniques, and improvements in cropping system technology. The cropping system applied to increase rice production is divided into two types. The first type is the Tapin system, which includes the jajar legawa planting system, the SRI planting system, the Tapak Kind system, and the Hazelton group planting technique. The second type is direct seed sowing. Direct seed sowing is planting rice without making a nursery first (2).

The application of technology to increase rice production is carried out in Meli Village, Balaesang District, Donggala Regency by using the Hazton method, namely the technological method in rice cultivation with the number of seeds from 20 to 30 planting holes and the age of the seeds is quite old, around 30-35 days.

This study aims to determine how much lowland rice farming produces with Hazton technology with the Tabela system in Meli Village, Balaesang District. Donggala Regency, and to find out how much income and the feasibility of lowland rice farming with Hazton technology with the Tabela system in Meli Village, Balaesang District, Donggala Regency.

METHODOLOGY

This research has been carried out in Meli Village, Balaesang District, Donggala Regency, from the beginning of March to the end of May 2019. This location was chosen purposively because Meli Village is one of the centers for lowland rice production with the Hazton technology table system. Balaesang, Donggala Regency. Determination of respondents was carried out purposively by interviewing respondents of lowland rice farmers directly, as much as 20% of the total population of lowland rice farmers in Meli Village ± 125 farmers in Meli Village, Balaesang District, Donggala Regency.

Analysis of the data in this study to determine the income of farmers from lowland rice farming used the following formula:

$\pi = TR-TC$

$TR = Y.Py$

$TC = FC + VC$

Information:

π = Farming income or profit (Rp)
TR = Total Revenue (total revenue) (Rp)
TC = Total Cost (total cost) (Rp)
Y = Gained production (kg)
Py = Production price (Rp)
FC = Fixed costs (Rp)
VC = Variable costs (Rp)

Knowing the feasibility of lowland rice commodities, the Revenue Cost Ratio (R/C) formula is used, namely:

$R/C = TR/TC$

Provided that:
R/C = 1, then the farm is not profitable or not losing (input)
R/C < 1, it means that the farm is not feasible to run
R/C > 1, it means that the farm is feasible (profitable)

RESULTS AND DISCUSSION

Characteristics of Respondent Farmers

Based on data from direct interviews with respondents, the characteristics in question are age, education level, number of family dependents, and farming experience.

Respondent Farmer Age

The age of the respondent farmer will affect his ability and attitude in managing the farm, especially the physical ability to work and his way of thinking. In general, relatively young and healthy farmers have greater abilities, are quicker to accept innovations, and are willing to take risks. Still, on the other hand, they lack experience. Meanwhile, relatively older farmers already have a lot of business experience. Still, they tend to be very careful in making decisions, especially those related to applying innovative technology in their farming. The characteristics of respondent farmers based on age classification are shown in Table 1.

Table 1. Age Classification of Farmers Respondents Lowland rice in Meli Village

No.	Age Classification (Year)	Amount (Person)	Percentage (%)
1.	30 – 40	18	72
2.	41 – 50	6	24
3.	51 – 60	1	4
	Amount	25	100

Source: Primary Data After Processing, 2019

Based on Table 1, it can be seen that most of the respondent farmers aged 30-40 years amounted to 18 people (72%) then, followed by respondents aged 41-50 totaling six people (24%) then with respondents 51-60 total one person (4%).

Respondent Farmer Education Level

The level of education is a supporting factor in a farming activity related to the ability to think. The higher the level of education a person has, the better his farming planning techniques and the easier it is to apply new technology compared to someone with a relatively low education level. However, the level of higher education is not only the only condition for improving decisions but must also be accompanied by farming experience. The level of education owned by respondent farmers in Rice paddy in Meli Village is very varied. The details can be seen in Table 2.

Table 2. Classification of Education Level of Respondent Farmers for Rice Farming in Meli . Village

No.	Level of education	Amount (Person)	Percentage (%)
1.	SD	10	40
2.	JUNIOR HIGH SCHOOL	13	52
3.	SENIOR HIGH SCHOOL	2	8
	Amount	25	100

Source: Primary Data After Processing, 2019.

Based on Table 2, it can be seen that most of the respondents farmers with elementary school education are ten people (40%) then, followed by respondents with junior high school education totaling 13 people (52%) and respondents with high school education as many as two people (8%). This shows that the education level of the respondents is still relatively low because most of them only graduate from Junior High School (SMP).

Number of Dependents of Respondent Farmer's Family

The number of dependents of the farmer's family is one factor that influences farmers' income. The more dependents the family has, the more needs must be met, but the amount of labor required is also large. Dependent family members consist of wives, children, and other families who live together, for more details on the number of dependents of paddy farmers can be seen in Table 3.

Table 3. Classification of the Number of Dependents of Farmer Families Respondents for Lowland Rice Farming in Indonesia Meli Village

No.	Number Family Dependents (Persons)	Number (Persons)	Percentage (%)
1.	1 – 2	18	72
2.	3 – 4	7	28
	Amount	25	100

Source: Primary Data After Processing, 2019

Table 3 shows that the average family dependents of the respondents ranged from 1-to 2, namely 18 people (72%), 3-4 as many as seven people (28%), and this shows that the number of family dependents greatly influences response actions in meeting daily needs. Day in his family.

Respondent Farmer's Farming Experience

Farming experience is the length of time a farmer has been involved intensively in farming activities in the garden. The more experience in farming, the more selective they will be in adopting and implementing innovation. On the contrary, relatively less

experienced farmers will actively seek factual information about the farming being implemented. So the experience of farming is based on how long a farmer has been in carrying out farming. For more details on the level of experience in farming respondents, see Table 4.

Table 4. Classification of Farming Experiences of Respondent Farmers' Rice Fields in Meli . Village

No.	Farming Experience (Years)	Amount (Person)	Percentage (%)
1.	10 – 15	10	40
2.	16 – 20	11	44
3.	21 – 25	3	12
4.	26– 30	1	4
	Amount	25	100

Source: Primary Data After Processing, 2019

Table 4 shows that the most farming experience, which is between 16 – 20 years, is 11 (44%) respondent farmers than 10-15 years as many as ten people (40%), 21-25 years as many as three people (12%), and 26 – 30 years one person (4 %). This is because most of the respondent farmers are young. However, this time interval shows a sufficient level of experience in farming. The longer the experience of farmers, the greater the opportunity for farmers to earn a higher income. On the other hand, farmers who do not have experience in farming have fewer opportunities to earn income.

Farming Condition

Land area

Land area is the amount of land managed by farming for farming to produce production. The wider the area of land managed and supported by good farming processing techniques, the more the production can increase. In this study, the highest land area was 0.6 ha, and the lowest was 0.3 ha.

Table 5. Classification of Farmers' Areas of Respondents for Rice Farming in Meli . Village

No.	Land Area Classification (Ha)	Amount (Person)	Percentage (%)
1.	0,5	7	22
2.	<0.5	18	78
	Amount	25	100

Source: Primary Data After Processing, 2019

Table 5 shows that the total area of land that respondents mostly cultivate is rice farmers, namely <0.5 ha for as many as 13 people (52%) and respondents who have a land area of 0.5 – 0.8 as many as 12 people (48%). The area of land used in rice farming will affect the amount of income that farmers will obtain because the larger the land area, the greater the production that will be produced, but the greater the production costs paid.

Use of Seeds

Seed is one of the factors that determine paddy rice production. The seeds used by rice farmers in Meli Village are local. Local seeds are seeds produced by farmers who are taken from their production. The details regarding paddy rice seeds are shown in Table 6.

Table 6. Use of Seed by Respondent Farmers for Rice Farming in Meli . Village

No.	Use of Seeds (Rp)	Amount (Person)	Percentage (%)
1.	>1000.000	23	85,5
2.	< 1000.000	2	1,5
	Amount	25	100

Source: Primary Data After Processing, 2019

Table 6. Shows that the highest use of seeds is (Rp 1,000,000 which is 85% while those using seeds) Rp 1,000,000 as much as 15%.

Use of Fertilizers and Pesticides

Fertilizer is one of the production factors that can increase crop yields due to the availability of nutrients in the soil to support plant growth and production. Based on the research results, the respondent farmers of rice fields in Meli Village use urea, Fonseka, and ZA fertilizers.

Plant-disturbing organisms (weeds, pests, and diseases) are one of the factors that can interfere with plant growth and development. Based on the research results, the respondent farmers for lowland rice in Meli Village, the average use of fertilizers and pesticides for lowland rice is Rp. 2,555,956 / 0.8 ha or IDR 3,042,805.

Labor Use

In general, the use of labor in lowland rice farming is grouped into several activities. Namely, tillage, improvement of bunds, planting, spraying, fertilizing, harvesting and post-harvesting. The research results show that the average cost of using labor is Rp. 3,206,000 / 0.8 ha or IDR 3,816,667.

Rice Farming Costs

Farmers carrying out their farming cannot be separated from the burden of costs that must be issued and calculated to produce production. The research shows that the average total cost incurred for rice farming with the Hazton system is Rp. 6,627,152 / 0.8 ha or Rp. 7,889,467.

In carrying out farming activities, farmers must incur production costs in a production process for one planting season. The costs that farmers in farming activities must incur consist of two types, namely fixed costs and variable costs.

Fixed cost

Fixed costs are costs that are relatively fixed in number and continue to be issued regardless of the size of the product obtained. These fixed costs include land tax and equipment depreciation costs, but for this study, all respondents managed their land, which was obtained from parental gifts and purchased by themselves.

Variable Cost

Variable costs are costs incurred in farming whose size is influenced by the resulting production. The variable costs include the cost of seeds, fertilizers, pesticides, and labor costs. The average cost incurred by respondent farmers in rice farming activities in Meli Village during one planting season is Rp. 6,627,152./0.8 ha or Rp. 7,889,467.

Farm Receipt

Revenue is the result of multiplying the number of products obtained with the selling price of the product. Thus, revenue is determined by the size of the number of products produced and the selling price.

The average amount of dry milled unhulled rice produced by paddy rice farmers is 6,910 kg/0.8 ha or 8,226 kg/ha during one growing season. The selling price of paddy rice received by farmers is Rp. 3,850 /kg so the total income of respondent farmers during one planting season is Rp. 26,603,500/0.8 ha or Rp.31,670,833.

Farming Income Analysis

Farming income is the difference between total revenue and expenditure in the form of fixed and variable costs in one growing season. Rice farming income analysis is presented in Table 7.

Table 7. Average Income, Costs and Income of Paddy Farmers in Meli Village, 2019

No.	Description	Amount (Ha)	Total (Rp)
1.	Reception		26,603.500
	- Production	6.910/ kg	
	- Price	3,850/ kg	
	Amount		26,603.500
2.	Cost		6,627,152
3.	Income (Total 1 – 2)		19,976.348
4.	Eligibility(R/C)		4.1

Farming Eligibility

To determine the feasibility of paddy rice farming in Meli Village, it is carried out using Revenue Cost Ratio (R/C Ratio) analysis, with the following formula:

$$R/C = TR/TC$$

Information:
- R/C = Ratio of Revenue and Cost
- TR = Total Revenue
- TC = Total Cost

Provided that:
- R/C > 1, rice farming is feasible to cultivate
- R/C = 1, rice farming goes home/break even
- R/C < 1, rice farming is not feasible to cultivate

Based on the calculation of the income obtained and the costs incurred by the rice farmers in Meli Village (Table 5), the R/C Ratio value of 3.7 is obtained. This shows that if the value of the R/C ratio > 1, then rice farming in Meli Village is feasible to cultivate. The value of the R/C Ratio obtained shows that each expenditure is Rp. One hundred will get an income of IDR 410.

CONCLUSION

This study concludes that the average lowland rice production using the Hazton table technology system for respondent farmers in 1 harvest is 6.910 kg/0.8 ha with an average net income of Rp. 19,976.348 -,/0.8 ha. and R/C ratio 4.1. Greater than 1 (Eligible). Assuming each expenditure of Rp. One hundred will earn an income of Rp. 410.

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