



Income Analysis of Seaweed Cultivation with Long Line Method

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Abstract

Seaweed cultivation activities have provided business opportunities to increase income and welfare at family and community level in coastal areas. This is indicated by the number seaweed farmers that continue to increase from year to year. Whereas the livelihood of the community was basically dominated by fishermen, but in fact, nowadays many fishermen are turning the profession into seaweed farmers due to the more promising income and an easy production process of seaweed. This study aimed to determine the costs incurred in seaweed cultivation and income level earned by seaweed farmers. The results of this study were expected to provide additional knowledge and information for the community as well as become a reference for seaweed farmers in improving seaweed cultivation. The study purpose for the government is a recommendation for stakeholders, the private sector, and entrepreneurs in order to develop seaweed cultivation to empower and improve the standard of living of the community. The method of data collection of the study was conducted by observation and questionnaire interview. The results showed that income/profit of seaweed farmers in a raft was Rp. 2.610.000, - with average revenue of Rp 6.232.500 and the average cost of Rp. 3,622,500. Thus cultivation of seaweed in Tanggetada village showed that the R/C ratio of a rift obtained was 1.72, which is greater than 1. It is concluded that seaweed cultivation conducted by farmer respondents in Tanggetada village is worth to be developed.

Keywords: Income Analysis, Long Line Method, Seaweed

A. Background

Seaweed in the world of science is known as algae, which is very popular in the world of economics. Seaweed is one of the marine commodities that have a long history of its utilization and export process. More than a century ago, seaweed has been exported to several countries and traditionally, some types of seaweed have been utilized by the community, particularly in coastal areas where seaweed was processed into several types of food products.

In Indonesia, seaweed is developed in coastal areas. Seaweed is grown in nature by attaching itself to corals, mud, sand, rocks and other hard objects. Various types of seaweed potentially and relatively easy to cultivate as its technology is quite simple and relatively easy to operate, it also does not require the beach seed and feeds during the cultivation, it just needs the condition of water fertility and photosynthesis process.

Tanggetada Sub-district is one of the sub-districts in Kolaka District located near to the beach. Of the 12 villages and 1 sub-district in Tanggetada sub-district, there are 6 villages and 1 urban village located in the coastal area. This location is a potential area for the development of seaweed cultivation. One of the most well-known coastal villages with developed seaweed cultivation is Tanggetada village. Based on the result of observation, the total area of seaweed cultivation in Tanggetada village is 230.000 m², with production center located in kampong I Tanggetada, kampong II Sogae, and kampong III Nona.

Based on the facts in the field, it shows that the villagers of Tanggetada who cultivate seaweed have provided business opportunities to increase the income and welfare of families and communities in the coastal areas. It is indicated by the number of seaweed farmers that increased over the year. Community in Tanggetada village is basically dominant in their livelihood as fishermen, but currently, there are many fishermen have slipped to the seaweed farmers due to the more promising income with the easy production process. On the other hand, it is assumed that the involvement of the family member in production activities is more normally distributed than when it relies only on their work as fishermen who are dominated only by heads of households as income contributor. Thus, it is necessary to conduct research on the income analysis of seaweed cultivation using long line method in Tanggetada village, Tanggetada sub-district. Based on the explanation in the background, then the main object of the study was to calculate the income level obtained by seaweed farmers of applying seaweed cultivation using long-line method in Tanggetada village.

B. Method

1. Population and Samples

The population of this study included the entire population of seaweed farmers in the village of Tanggetada that were 44 farmers. Based on the number, the sampling method was carried out with the census on all seaweed farmers.

2. Method of Data Collection

The data collection was performed by observation and interview questionnaire.

3. Method of Data Analysis

Data obtained from the study were analyzed using descriptive analysis and quantitative analysis to determine net income with the following formula:

$$\pi = TR - TC \quad (\text{Soekartawi, 1985})$$

Where:

π = income(Profit)

TR = Total Revenue

TC = Total Cost

C. Results and Discussion

1. Cost Analysis of Seaweed Cultivation in Tangketada Village

a. Fixed Cost

Fixed costs are unchangeable (constant) costs or expenses that are not spent in a single production period of 2 years. Fixed costs for a raft can be seen in the following table.

Table 1 : Fixed costs of seaweed cultivation for a raft seaweed

| No. | Details | Volume (unit) | Price (unit) (Rp) | Total Price (Rp) | Depreciation (2 years) | Total |
|-------|--------------------|---------------|----------------------|---------------------|---------------------------|--------------------|
| 1. | Main rope | 9 kg | 35,000,- | 315,000,- | 50 % | 157,500,- |
| 2. | Strap rope | 40 kg | 35,000,- | 1,400,000,- | 50% | 700,000,- |
| 3. | Rope binding seeds | 3 bales | 50,000,- | 150,000,- | 50 % | 75,000,- |
| 4. | Anchor | 12 unit | 25,000,- | 300,000,- | 50 % | 150,000,- |
| 5. | Main float | 8 pieces | 25,000,- | 200,000,- | 50 % | 100,000,- |
| 6. | Small float | 1.050 pieces | 200,- | 210,000,- | 50 % | 105,000,- |
| 7. | Pile | 12 | 2,500,- | 30,000,- | 50 % | 15,000,- |
| 8. | boat | 1 unit | 1,500,000,- | 1,500,000,- | 50 % | 750,000,- |
| Total | | | | | | 2,052,500,- |

Source: Primary data, analyzed in 2011

b. Variable cost

Variable costs are costs that are used up in one production period or one harvest. The use of variable costs or not fixed costs on seaweed cultivation can be seen in the following table.

Table 2 : Variable costs of seaweed cultivation for a raft seaweed

| No. | Details | Volume (Unit) | Price (Unit) | Total (Rp) | Percentage % |
|-------|----------------------------|-----------------------|--------------|--------------------|--------------|
| 1. | Seaweed seeds | 400 kg | 2,500,- | 1,000,000,- | 64 |
| 2. | Planting cost | 100ropes for planting | 1,500,- | 150,000,- | 09 |
| 3. | Cleaning | 8 time | 15,000,- | 120.00,- | 08 |
| 4. | Harvesting/post harvesting | 10 hari | 300,000,- | 300,000,- | 19 |
| Total | | | | 1,570,000,- | 100 |

Source: Primary data, analyzed in 2011

Based on Tables 1 and 2, it can be determined that the cost incurred for seaweed cultivation for 1 raft is:

$$\begin{aligned} \text{Cost} &= \text{Fixed cost} + \text{Variable Cost} \\ &= \text{Rp. 2,052,500} + \text{Rp. 1,570,000} \\ &= \text{Rp. 3,622,500} \end{aligned}$$

c. Production and Production Price

Harvest of seaweed in Tangketada village can be carried out during planting period between 40-45 days. The average seaweed produced in one raft was 6,232.50 kg of wet seaweed and 623.25 kg of dried seaweed. The price of dried seaweed at the time of data collection was Rp. 10,000/kg, so that the average revenue of seaweed farmers in seaweed cultivation of one raft is: 623.25 kg X Rp. 10,000 = Rp. 6,232,500. Respondents of seaweed farmers in Tangketada village on average have seaweed farming business of 2 (two) rafts.

Seaweed production is classified based on the number of rafts owned by the respondent farmers. Thus, for every 2 rafts, it can produce dried seaweed of 1,100 kg-1,500 kg, and for 3 rafts, it reaches 1,800 kg - 2,000 kg. The result of interviews with respondents suggested that the difference of seaweed production is caused by the number of stretches cultivated by each seaweed farmer. The number of stretches is the number of strap rope used to bind/plant the seaweed seeds so the strap is one of the factors which affect the increased production.

d. Analysis of income of Seaweed cultivation in Tanggetada Village

Income/Profit is the amount of seaweed production multiplied by the prevailing price at the time of the research minus the costs incurred in the process of seaweed cultivation. To know the income of seaweed farmer in Tanggetada village for 1 (one) raft, it used the formula as follows:

$$\begin{aligned} \text{Farmer's income} &= \text{Revenue} - \text{Cost} \\ &= \text{Rp 6,232,500} - \text{Rp 3,622,500} \\ &= \text{Rp. 2,610,000} \end{aligned}$$

So the income of seaweed farmer respondents for 1 raft is Rp. 2,610,000,-.

To know whether seaweed cultivation business in Tanggetada village is profitable or not, it uses the formula of R/C Ratio, as follows:

$$\begin{aligned} \text{R/C Ratio} &= \text{TR/ TC} \\ &= \frac{\text{Rp 6,232,500}}{\text{Rp. 3,622,500}} \\ &= \text{Rp. 1.72} \end{aligned}$$

The average R/C ratio obtained in a raft of seaweed was 1.72 of which greater than 1. It suggested that the seaweed cultivation conducted by respondent farmers in Tanggetada village is worth to be developed.

D. Conclusion

Based on the study of the income analysis of seaweed cultivation using long line method in Tanggetada village, it can be concluded that:

1. The net income obtained by seaweed farmers in one cycle harvesting time of 40-45 days with 1 raft is Rp. 2,610,000,-
2. Seaweed cultivation by respondent farmers in Tanggetada village is worth to be developed.

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