

Transformation of Fallow Yard Become Potential for Agribusiness of Dragon Fruit

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Abstract. The development of Dragon fruit plant can be a starting point which have an impact on the income of the local community in the rural area. The purpose of this research is to examine the level of profits from the transformation of the fallow yard into a potential for sustainability of Dragon fruit plant. This study is designed using survey approach, which was carried out in the village of Banuroja sub-district of Randangan Regency Marisa. The sample is 48 respondents specified from 30% of the total population (160 farmers). The data analyzed with acceptance analysis, income, B/C ratio and R/C Ratio. The results showed that: the average farming total cost is Rp 2,677,794/year, average admission is Rp 8,495,292/year, the average income of farming the dragon fruit in the yard is the Rp 5,817,498/year. Analysis of R/C ratio values acquired for 3.2 while the value of the B/C ratio obtained is 2.2. This indicates that the Dragon fruit farming in bero grounds that are done by the farmers of the village of Banuroja is feasible to be developed. For increased profits of farming needed a touch of technology and strategic management of agribusiness-based yard management.

Keywords. Transformation; Bero Grounds; Potential; Agribusiness; Dragon Fruits.

1. Introduction

Horticultural crops development can be said to be the favorite and most popular in the community, with a choice of types of plant fruits. The reasoning is that the fruit has a commodity, economic value is higher with a promising market opportunities. Currently, a fruit crop agribusiness became a trend in the society is a dragon fruit (*Hylocyrus undatus*). Fruit that recently discovered, has a range of benefits for the health of the body [1], which became the star in agriculture [2]. Plus, the fruit can be used as business opportunities, because the latter is Dragon fruit is very popular [3], and plants that have a high economic value [4]. Farming is still a new development area and belongs to the still limited [5], [6]. Despite its popularity, price, market opportunities, production and productivity of this fruit is also relatively high, so many people are interested in farming it.

The development of agribusiness of Dragon fruit can be a starting point which have an impact on the income of the local community input in the countryside. However, on the other hand the development of agribusiness Dragon fruit is much constrained by lack of land that owned by farmers. Low level of the land ownership will affect the community's decision in determining what plants being cultivated for the priority scale, and will certainly choose the commodity food crops as needs anyway. In line with that, then the development of Dragon fruit in the yard is an alternative utilization of integrated land use.



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This model becomes the solution in nonproductive land use or deliberately unused into a productive area, with communities that are reluctant to make use of their yard. This is certainly going to be able to contribute to the family income/capita. Development of Dragon fruit in the yard as a form of healthy living patterns in fulfillment of fresh fruit, also became a family business opportunities. This agribusiness approach will establish an environmental sustainability, rural, income generation and social harmony of the society. Therefore, the yard is not only to create beauty and coolness, but more than that is to enhance the economy of the family respectively [7], and influential in the system of revenues that grow and can meet the needs of the living [8].

Dragon fruit farming development in Indonesia has gained attention both from Government or community to be developed. One of the areas that developed Dragon fruit farming in the yard is the village of Banuroja sub-district of Randangan Regency Marisa. The characteristics of Banuroja are the first villages that focus on developing dragon fruit plants. The appearance of this dragon fruit is used as the main side-choice plant by the village community. The location of the plantations around the house makes it easier to maintain. Therefore, dragon fruit gets more attention than other horticultural plants. This is because the society a glance at the development of fruits in the yard has good potential in adding to household income of farmers. As reported is total cost of farming is Rp 11,732,777.87, with a reception in the first year the harvest was Rp 22,500,000. The big amount of earnings in first year revenues of Dragon fruit farming at Rp 10,767,222.13 [9]. Of some feasibility analysis showed that Dragon fruit development deserves to be developed [9 - 15]. Based on the description above, the purpose of the research is to examine the level of profits from the transformation of the fallow yard into a potential for sustainability for Dragon fruit. This study focuses on observing the benefits of dragon fruit on farming done in the yard. Thus, nonproductive yards will be productive for agribusiness of Dragon fruit which has a high economic value.

2. Data and Method

This research was carried out in March to May 2018, in Banuroja Village, Randangan Districts, Gorontalo Province, Marisa, using a survey approach. The research was conducted on the Dragon fruit farm community developer in the yard. The survey method is used to obtain data about the data the total cost, revenues, income of farmers, as well as data on the feasibility of farming the fruit. In the study population of 160 farmers (population meant that is a farmers do agribusiness of Dragon fruit in the yard). The research sample is determined by 30% of the population, so that the sample numbered to 48 respondents. The technique of sampling is deliberate sampling, i.e. with the key considerations that the respondents are the farmers who undertake agribusiness of Dragon fruit in the yard. Primary and secondary data is then carried out with some of the techniques of data collection, namely; observation, interview and recording/documentation. Some data analysis in fruit farming is conducted using the formula [16] as follows:

Analysis of cost of dragon fruit farming:

$$TC = TFC + TVC \quad (1)$$

Explanation: TC = Total Cost (Rp)

TFC = Total Fixed Cost (Rp)

TVC = Total Variable Cost (Rp)

$$TR = Q \times PQ \quad (2)$$

Explanation: TR = Total Revenue (Rp)

Q = Quantity (Kg)

PQ = Price Quantity (Rp)

Analysis of dragon fruit farming income:

$$I = TR - TC \quad (3)$$

Explanation: I = Income

TR = Total Revenue (Rp)

TC = Total Cost (Rp)

To analyze the whether a farming is profitable or not, a feasibility analysis is done using this formula:
Value R/C Ratio (Revenue/Cost Ratio):

$$\frac{R}{C} = \frac{TR}{TC} \quad (4)$$

Explanation: R/C = Revenue Cost Ratio
TR = Total Revenue
TC = Total Cost

When:

R/C > 1 : Profitable

R/C = 1 : Even

R/C < 1 : Unprofitable

Value B/C Ratio (Benefit/Cost Ratio):

$$\frac{B}{C} = \frac{I}{TC} \quad (5)$$

Explanation: B/C = Benefit Cost Ratio
I = Income
TC = Total Cost

When:

B/C > 1 : Profitable

B/C = 1 : Even

B/C < 1 : Unprofitable

3. Result and Discussion

3.1. The development of dragon fruit in the yard

Agricultural development with various featured programs has added important note in the face of Indonesia's agriculture that increasingly known to the world. The right to development will contribute the most to increased socio-economic communities, both in the regions and at the national level [17]. Agricultural Development addressed to the pattern of the development of insightful agribusiness, both on the scale of family, medium or large scale. It is directed at strengthening the power of local community support against any forms of support activities from the development process [18].

Obstacles often faced by farmers is the availability of agricultural land that is narrow with a capital of farming that are minimal. The solution can be done is using lawns for agribusiness of Dragon fruit. Farming in the yard, if it is managed intensively that fit with the yards, along with its potential can meet the needs of household consumption, it can also contribute to the family income [19]. The farming group is primarily by women with a variety of commodities. Land use lawns relatively still limited, so that the development of a range of innovations that are associated with the farm yard not much developed [20]. This is one of the alternative to embody self-sufficiency of food in the household [21].

The transformation of fallow yards of Dragon fruit for sustainability in the village of Banuroja was first done in 2009. The fallow yard is a yard that is not used for a long time or is deliberately left unused because it can restore the level of soil fertility. One of the characteristics of the fallow yard in the village of Banuroja is influenced by the selection of plants that are not in accordance with the designated land area. With the advent of the dragon fruit plant, it became the choice of the village community to develop. From the information obtained, farmers choose this plant because it quickly bear fruit, the prices are relatively high and stable, much sought after consumers, can produce continuously, and of course the process of farming. Besides, it also able to harvests the fruit in the yard for self-consumption as fresh fruit as well as to create variety of processed foods.

Seeing the rapid development of agribusiness Dragon fruit in the yard, there are still some obstacles encountered in the village of Banuroja, such as the selection of seeds which have not been selective, the use of wood from the jungle of dominant pillar, plant management that is less intensive, and lack of cultivation of Dragon fruit to the level of post-harvest. This farming management is important to be done to get the Dragon fruit quality and have high selling potential. Farmers should also consider strategies for farming as well as the selection of factors of production power for proper support yards continuously. Therefore, it will be able to produce quality fruit that is able to compete [22], in other words the opportunities for cultivating fruit are still enormous both for local and international markets [23]. Farming process includes a series of Dragon fruit from: tillage, seedling, mounting pole juncture, planting, maintenance (pruning, fertilizing, weeding, binding, pest control and disease), harvesting and post-harvest. Following things are associated with farming fruits can be seen in Figure 1, 2, 3 and 4.

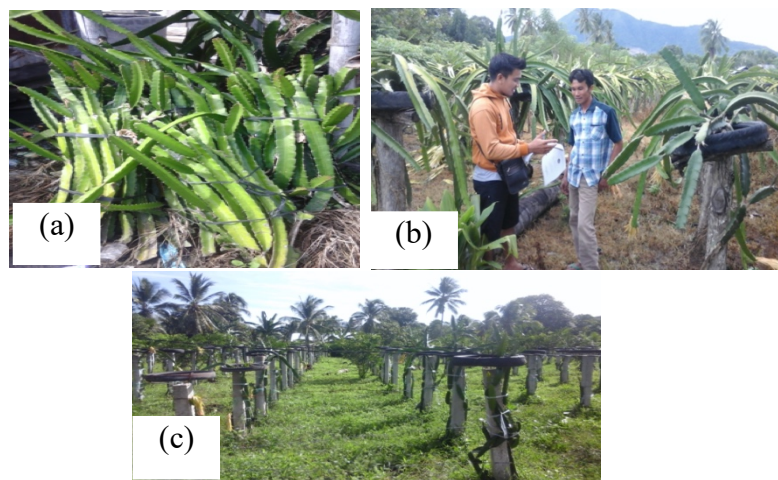


Figure 1. Development of dragon fruit farming in the yard

In Figure 1, the initial activities on dragon fruit farming include: (a) providing the seeds of dragon fruit, (b) providing wooden climbing pole, and (c) providing concrete pile.

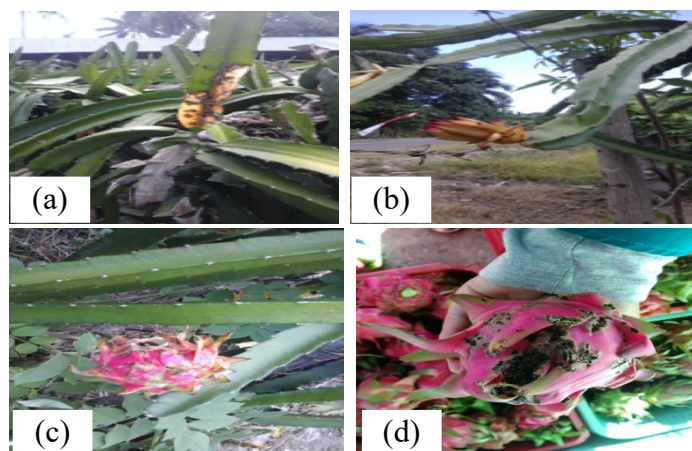


Figure 2. Pest and disease attacks on dragon fruit

In figure 2, on dragon fruit farming there are attacks of pests and diseases encountered, such as: (a) Attacked by *Dothiorella* spots on the stems, (b) falling of the flowers, (c) Antracnose on the fruit, and (d) pest attack on fruit.

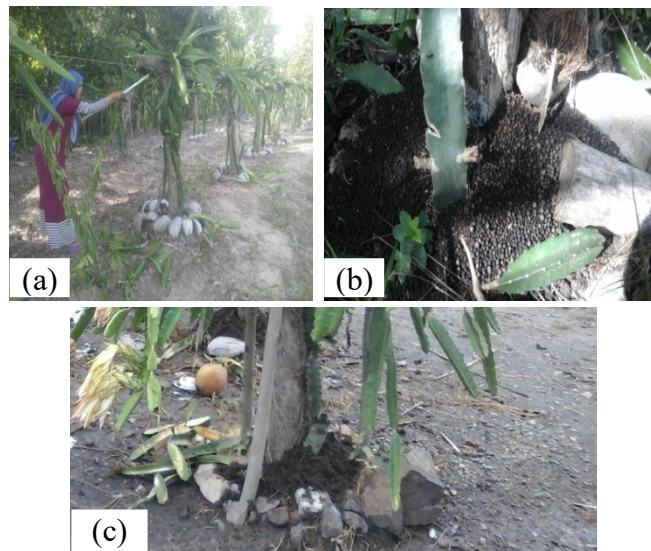


Figure 3. Dragon fruit maintenance activities

In figure 3, dragon fruit maintenance activities include: (a) Pruning, (b) the use of super organic fertilizer, and (c) use of manure. Dragon fruit farming is generally used organic fertilizer. This is to produce dragon fruit products that are sustainable and environmentally friendly.



Figure 4. Dragon fruit post-harvest activities

In figure 4 includes several activities, namely: (a) harvesting, (b) marketing of dragon fruits in traditional market, (c) sale of dragon fruit at small vendors in Banuroja village. Many dragon fruit crops are marketed to direct consumers who come to the Banuroja village, and also sold in front of the house traditionally. Besides that, dragon fruit is marketed also to supermarkets through collecting traders.

In the framework of the success of farming dragon fruits, aspects of management strategy needs to be done, with the aim of increasing crop production to be achieved. Some strategic steps need to be performed on a series of such processes include: (1) the selection of seedlings through cuttings should be selected that have good growth, not stricken with pests and diseases, of productive breeding; (2) processing of land cultivation should add a basic fertilizers in the form of livestock droppings or organic fertilizers; (3) the use of the pillar of the jungle is better to use a concrete pole, because it can be used as well as more capable and long term in supporting Rod of Dragon fruit; (4) aspects of the maintenance must be done intensively like weeding, fertilization, irrigation, vine maintenance, pest control and disease; (5) needs to do a “sarungnisasi” to the Dragon fruit to avoid pests and diseases; (6) the network against potential market was about to be done in order to obtain the optimum selling price and the present sustainable farmers; and (7) the development of quality products at small and medium businesses- Dragon fruit needs to be developed in the center of village community centers to increase the competitiveness of products. Overall, needs improvement of technical and non-technical aspects in order Dragon fruit farming to the more competitive market.

3.2. Analysis of the benefits of dragon fruit farming in the yard

3.2.1. *Costs of dragon fruit farming in the yard.* The cost of farming can be classified into two types namely, fixed and variable costs. The cost of farming is an important factor towards the development of Dragon fruit, and noteworthy by estimating the total cost required to the level of acceptance of farming. So, the expenses toward the factors of production should be considered as effective and efficient as possible. In the farming village of Banuroja in Dragon fruit costs incurred by farmers can be seen in Table 1.

Table 1. The type and value of the total average cost per year on farming the fruit yard

Type of cost	Amount (Rp/year)
Fixed cost	29,658,269
Variable cost	98,107,750
Property tax	768,100
total	128,534,119
average	2,677,794

Source: Primary Data Processed (2018), n=48

On Table 1, expenditure of farming the fruit against a fixed fee of Rp 29,658,269/year, the variable cost is Rp 98,107,750/year, and payments from of Rp 768,100/year. So, the total cost of farming needs to be paid by farmer is Rp 128,534,119/year, with an average spending per farmer reached Rp 2,677,794/year. According to the farmers, in farming the fruit does not require much cost because it has a relatively simple process and is not complicated. Such is the case, the fertilizer needs can be met from manure (organic), can be obtained around the House.

3.2.2 *The income of dragon fruit farming in the yard.* The scale of income whether great or small of dragon fruit farming depends on the number of production plants produced fruits and high selling price. Dragon fruit farming in the village of Banuroja in one year can be done mast four times (Table 2), with income depends on the selling price at the moment of harvest. Moreover, according to farmers that harvest the fruit in each month still can be done, because plants can bear fruit continuously.

In Table 2 shows that the number of overall income of farming dragon fruit in the yard at Banuroja village is Rp 407,774,000/year, with the average receipt per farmer reached Rp 8,495,292/year. The income of farmers in this State is obtained from the harvesting for four times in a year.

Table 2. Acceptance of dragon fruit farming in the yard

Harvest time	Number of acceptance (Rp)
Harvest 1	82,715,000
Harvest 2	115,389,000
Harvest 3	107,625,000
Harvest 4	102,045,000
Total (Rp)	407,774,000
Average (Rp/Year)	8,495,292

Source: Primary Data Processed (2018), n=48

3.2.3. *Analysis of advantages of dragon fruit farming in the yard.* The size of the income will be subject to the income and costs incurred during the implementation of farming of the Dragon fruit [9]. The results of the research on the analysis of benefits presented in Table 3.

Table 3. Analysis of the benefits in dragon fruit farming

Description	Total (Rp/year)	Average (Rp/year)
Revenue (TR)	407,774,000	8,495,292
Total Cost (TC)	128,534,119	2,677,794
Profit (TR-TC)	279,239,881	5,817,498
RCR		3.2
BCR		2.2

Source: Primary Data Processed (2018), n=48

In the Table 3 shows that the benefits farmers reached Rp 279,239,881/year, with an average income per farmer reached Rp 5,817,498/year. This indicates that farming is done in the yard provides additional income in the family of farmer. According to the farmers, the farming of these fruits provide great benefits to increased well-being. Furthermore, the results of the analysis of the feasibility of the retrieved value R/C ratio = 3.2 while the value of the B/C ratio = 2.2. This indicates that the farming in the yard at Banuroja Village farmers deserve to be developed, because the value of $B/C > 1$ and $R/C > 1$. This result is also in line with the analysis carried out in the village of river Reeds Sub district of Central Rimbo said value 1.91 since $R/C > 1$ [9]. The development of the farming village of Banuroja in Dragon fruit continues to gain attention and developed. As with any Variant type of Dragon fruit is increasingly observed by considering the tastes of consumers/buyers. As well as the management of the process of farming increasingly addressed. Therefore, [24] to further increase revenues should pay more attention to the quality of the seeds of the fruit and fertilizer that is used in order to produce fruit with the best quality, so as to increase profits obtained, [22] so that it can generate quality fruit that is able to compete at the level of the market.

4. Conclusions

The results showed that: the average total cost of farming is Rp 2,677,794/year, with the average income is Rp 8,495,292/year, the average income of dragon fruit farming in the yard is Rp 5,817,498/year. Analysis of R/C ratio values acquired for 3.2 while the value of the B/C ratio obtained 2.2. This indicates that the Dragon fruit farming in yards that are done by the farmers of the village Banuroja deserves to be developed, because the value of $R/C > 1$ and $B/C > 1$.

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