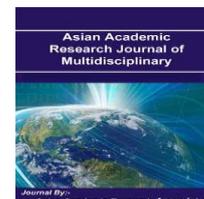




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**FARM INCOME, EFFICIENCY AND ALTERNATIF CROPS FOR THE
AGROTOURISM DEVELOPMENT AREA OF GUMANTAR, NORTH LOMBOK,
INDONESIA**

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Abstract

The development agrotourism in Gumantar Village, Kayangan District, North Lombok Regency is through the selections of site and crops, and then followed the management of site and crops. This paper attempts to find out answers to the research questions of whether or not the crops grown are efficient and providing better income for the producers, then what are the best alternative crops to be developed in the development area. This study calculates income from crops and its efficiency in the farming operations in the agrotourism development area of Gumantar and its surroundings. Results of the calculation of income and efficiency are then compared to find out alternative crops that can improve the livelihood of agricultural producers in the area. Data for the calculation and analysis are obtained through three methods: farm recording, surveys to the surrounding area of the agrotourism development; secondary data collection. The study found that three crops (tomato, Golden melon, and chili) are the best alternatives when there is no constraints faced by the agricultural producers. However, farmers can adjust their crop choices according to their conditions, such as availability of fund for financing farm operations, their familiarity to the crop growing, and their farming objectives.

Keywords: Agrotourism, Crop selection, Dryland agriculture, Farm efficiency, Farm income

1. INTRODUCTION

North Lombok (NL) Regency, Indonesia, is developing its economic through several sectors, including tourism and agriculture (PS), and priorities are made in accordance with supporting resources available for the region. North Lombok has about 89% of dry land, and only 11% of wetlands from a total of 77,174 ha of agricultural land in 2015 (BPS Lombok Utara, 2015), and accordingly priority was given to dryland for agriculture. Similarly, North Lombok has also potential in tourism, both in nature (Dinas Pariwisata Provinsi NTB, 2016), or be created such as through agrotourism development (Department of Tourism, 2016; Walker, 2009; Zainuri, Sjah, Sauqi, & Jayaputra, 2016). However, agrotourism is developed by capitalizing on the natural resources by integrating it with agricultural activities, business, education, and conservation of the nature (Blacka et al., 2009; Goel, 2018).

Making use of the resources available to the regency, then North Lombok develops agrotourism. One of the sites, where agrotourism is being developed, is in Gumantar Village in Kayangan District (Zainuri et al., 2016; Zainuri, Sjah, Sauqi, & Jayaputra, 2017b). The development agrotourism in the site is through the selections of site and crops, and then followed the management of site and crops. The site is selected for its capacity to provide interesting view. Crops are chosen for its beautiful appearance and profit advantage. The management is primarily focus on placing the crops (seasonal and perennial) on the site in such way that the beautiful view becomes enjoyable (Zainuri, Sjah, Sauqi, & Jayaputra, 2017a).

Regarding crops grown on the land of the agrotourism development area, there exists a big question mark on whether or not the crops grown are efficient and providing better income for the producers? Accordingly, finding better crops as alternatives to be farmed in the area is the next question follows. This paper provides attempts to answer these main questions. The answers to these questions are believed to be able to improve the condition of the livelihood of crop growers in the area.

2. RESEARCH METHODS

This study calculates income from crops and its efficiency in the farming operations in the agrotourism development area of Gumantar and its surroundings. The farm income is calculated for each crop by reduction production cost from total revenue. Total revenue is

calculated by multiplying total production and its price (Abbott & Makeham, 1990; Seitz, Nelson, & Halcrow, 2002; Sjah, 2010). Farm efficiency is determined the calculation of R/C ratio, i.e. comparing the revenue to its production costs (Hocking, 1980; Levy & Sarnat, 1990; Myers & Majluf, 1984).

Results of the calculation of income and efficiency are then compared to find out alternative crops that can improve the livelihood of agricultural producers in the area. Data for the calculation and analysis are obtained in three methods. One is through farm recording (Kay & Edwards, 1994; Olson, 2004). In this way, farmers are given instruction to operate their farms with certain applications. The costs of operations within the agrotourism area of Gumantar and its consequences (i.e. the farm results) are recorded. These operations are conducted by supervised farmers, and they are asked to record on provided forms. Secondly, surveys (Babbie, 2004; Fink & Kosecoff, 1998; Thomas, 1996) are conducted to farmers in the surrounding area of the agrotourism development. The surveys are thus targeted to any crops that farmers grow in the surrounding area of the agrotourism development. Finally, this study also collects data from available resources such as from previous studies (Cooper & Schindler, 2003; Sekaran, 2000; Sjah, 2011; Zikmund, 2003) in North Lombok.

3. RESULTS AND DISCUSSIONS

3.1. Crops grown on the agrotourism area of Gumantar and its surroundings

Crops are grown within and at the outside of the agrotourism development area of Gumantar, North Lombok, Indonesia. Crops within the development area are melon, chili, and tomato. This crop selection is based on the soil conditions and climate, its potential to generate profit, and its beautifulness or attractiveness. This crop selection is directed by the extension team of the University of Mataram. Its agronomic application is also guided and supervised by the team. These seasonal crops were surrounded by perennial crops, such as coconut and fruits (mango, sapodilla, custard apple, etc.).

In outside of the agrotourism development area it can be found more diverse crops of seasonal and perennial crops. In dry land areas of North Lombok, there are crops such as paddy (of dryland type), corn, peanut, beans (of several kinds), and cassava. Analyses of income and efficiency of these crops and the crops grown within the development areas of Gumantar, are presented in the following.

3.2. Income from crops

Income from crops farmed in the agrotourism development area of Gumantar and its surroundings is presented in Table 1. Income here is defined as total revenue minus total cost, with note that farm family workers were not paid or were excluded from the calculation (Soekartawi, 2002; Suratiyah, 2006).

There were crops that generated higher income than other crops. The highest income per hectare gained from crops grown within the development area, are among the highest. The top of income is from tomato, followed by melon (Golden melon). These two crops are crops that are recommended and supervised its farming by the team of the University of Mataram. Chili is a crop grown in the development area and also grown outside the area. Due to unfinished harvest (by this report) of chili within the development area, then data for this are obtained from farmers outside the development area, and these data were available from report study by Fitri (2017). Chili takes third position, after tomato and melon, in regard to income level.

Table 1. Per hectare farm cost, income, and efficiency of crops grown in the agrotourism development area of Gumantar, North Lombok

Commodity	Cost (Rp)	Production (kg)	Price (Rp/kg)	Total Revenue (Rp)	Income (Rp)	R/C ratio
Corn ¹	6,724,793	3,814	3,141	11,981,214	5,256,421	1.78
Paddy ¹	6,778,385	918	3,860	3,543,480	-3,234,905	0.52
Peanut ¹	8,421,439	1,782	11,400	20,316,832	11,895,393	2.41
Chili ²	7,121,757	2,398	17,000	40,766,000	33,644,243	4.72
Tomato ³	112,083,333	51,667	6,694	345,856,667	233,773,333	3.09
Golden melon ³	92,500,000	65,286	3,523	230,001,571	137,501,571	2.49

Source:

¹Survey to farmers around the agrotourism development area of Gumantar (2018)

²Study report by Fitri (2017)

³Farm trial in the agrotourism development area of Gumantar (Zainuri et al., 2017b).

The remaining crops, including corn, paddy, and peanut have lower income. Rice, here is of dryland type, experienced loss or generated revenue below its production cost. This is the crop in this report that has a negative income.

On the other side of income is cost of production. It appears from Table 1 that the higher income from crops also requires high production cost. This implies that farmers have to make decisions according to their financial condition. It is clear from the table that farmers can gain higher income from farming tomato or melon. This is can executed under

the condition that farmers have sufficient fund to finance the farm activities. When farmers have insufficient funding for the farms, then their alternatives become limited to only crops that generate lower income, but requires also only limited farm budget. The choices for farmers under budget of below Rp 10 million are chili, peanut, corn, or dryland rice. Some farmers are sometimes forced to choose not the best alternatives, as also found in Central Lombok (Sjah, Russell, & Cameron, 2006), or East Lombok (Sjah, Cameron, & Woodford, 2006).

3.3. Crop farm efficiency

Efficiency of crop farming in the agrotourism development area of Gumantar and its surroundings is defined here as the ability of inputs used to generate income (Kahan, 2013; Soekartawi, 1991), and therefore can be calculated through comparing the income generated to cost incurred.

Table 1 indicates that farm efficiency is generally correlated to farm income, that is, more income can mean high efficiency. However, this is not always the case. Sometimes, higher income can be less efficiency. For example, tomato produced the highest income in the table, its income per hectare is some Rp 200 million more than income from chili, which has the highest efficiency ratio. In this case, it is important to note here that high or even the highest efficiency ratio could not be judged to have reached its efficiency. Maximum level of efficiency of a business operation is individual and could be different from one business to another. Clearly, the higher efficiency ratio indicates higher efficiency, but cannot conclude whether maximum efficiency has been reached or not. This maximum efficiency has to be further researched to be accurate.

3.4. Alternative crops for the agrotourism development area

Discussion on this section is closely related to two previous sections. Income and efficiency of crops determine crop selection for farmers, while also noting that farmers are constrained by some factors, such as working capital. It is also important to consider the farmer objectives on farming.

According to Table 1, the income of crops from the highest to the lowest, are consecutively tomato, Golden melon, chili, peanut, corn, and rice. This order, is somewhat reversed in the term of return to cost ratio and makes the following order, from the highest to the lowest, as the following chili, tomato, Golden melon, peanut, corn, and paddy.

The best alternatives appear to be growing tomato, Golden melon, and chili. This selection is supported both by farm income and its efficiency. Income from the crops of tomato and melon are the champions, while the champions from the efficiency aspect are chili and tomato. Coincidentally, these three best crops have been recommended by the team to be grown in the initial development of agrotourism area. Paddy should not be considered as a choice for it has negative farm income. The other two remaining crops in the table, peanut and corn, can be considered for its lowest production cost. This last selection may be more appropriate for farmers being constrained by limited budget for farming, as several studies reported financial problem faced by farmers (Dinham, 2003). These two last mentioned crops are the crops that farmers have more experience than other crops, which could mean familiarity of farm practices. In particular, corn is currently one of the most recommended crops by the Government of West Nusa Tenggara (Suwardji et al., 2009).

In addition, in supporting the selection of the three best crops to be developed in the agrotourism development area of Gumantar, crop selection can be matched with farmers objective in running their farms. Majority of farming objectives were guided by economic rational, including higher income, better price, more production, and sort of, as found in the other sides of Lombok Island (Sjah, 2000; Sjah, Cameron, & Woodford, 2002; Sjah, Cameron, et al., 2006)

4. CONCLUSIONS AND RECOMMENDATIONS

The study found that three crops (tomato, Golden melon, and chili) are the best alternatives the agricultural producers in the agrotourism development area of Gumantar, supported by higher farm income and efficiency ratio. Other crops, such as peanut and corn can become alternatives when farm budget are constraining. Farmers can also make crop selection guided by their farming objectives, with majorly in economic motives and familiarity to the crops. The unrecommended crop to be grown in the development area is paddy.

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