



## Rural Potential, Food Security, and Poverty: A Study in Batu City, East Java

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### Article Information

*History of article:*

Received January 2021

Approved February 2021

Published March

2021

### A B S T R A C T

*This study aims to analyze the potential of rural areas and the linkage of rural potential in an effort to increase food security and alleviate poverty. East Java has great potential as a support for national food security, but the number of people living below the poverty line is the largest in Indonesia, one of which is in Batu City. This research uses a descriptive method. The results showed that each village in Batu City has various agricultural potentials and the majority of the population works in the agriculture and tourism sector. Based on the results of the analysis, it was found that the superior commodity farmers in Batu had opportunities, namely productivity, socialization and training from the government. However, business actors also face obstacles in the form of weather, capital and marketing factors.*

**Keywords:** Poverty, Food security, Rural economy.

**JEL Classification Code:** I3, O1, Q1

## INTRODUCTION

The problems and challenges for realizing sustainable food security in Indonesia are multidimensional in nature, covering economic, social, political and environmental aspects. The identification of Indonesia's food security problems can be reviewed through supply and demand analysis. From the food supply side, these challenges can be in the form of competition for natural resources, the impact of global climate change, and the dominance of small-scale farming. From the demand side, challenges for food security include high population growth and demographic dynamics, changes in consumer tastes, and competition for food commodity demand for human consumption, feed and energy raw materials (Suryana, 2014).

The realization of food security at the macro level in the future will be increasingly difficult because of the tendency of movement of food supply and demand in the opposite direction. Food supply is increasingly difficult because its growth is physically, economically and environmentally constrained. Meanwhile, the demand for food will continue to grow in line with population growth, economic developments and the dynamics of the strategic environment. Indonesia has only succeeded in achieving food self-sufficiency for three commodities, namely rice (self-sufficiency index > 120%), corn (self-sufficiency index > 115%), and consumption sugar (self-sufficiency index > 120%) while the self-sufficiency index for soybeans is still limited to 40% and beef about 75%.

East Java has great potential to support national food security. With a total agricultural land area of 1,101,765 ha. East Java has been named the province with the largest agricultural land in Java Island. The abundance of production factors in the form of land is a very important capital for developing the agricultural sector in order to increase food security. In addition,

the number of households engaged in agricultural services in East Java is also the largest in Indonesia. The abundance of agricultural natural resources in East Java and supported by the large number of agricultural service households is a good potential to support national food security. Most of these agricultural lands and agricultural service households are located in rural areas. Rural areas are the key to success in increasing national food security. Realizing the importance of the role of rural areas in food security efforts, the government also supports rural areas through the allocation of village funds.

In fact, although East Java has natural resources in the form of large areas of land, it seems that the number of people in East Java who live below the poverty line is the largest in Indonesia. One of the factors that influence the level of poverty is food necessities. People who are categorized as poor are people who have an income below the poverty line. The poor in East Java have to bear the cost of consumption for food commodities an average of Rp 236,450 per month. Meanwhile, for non-food needs such as clothing, housing, education and health, they have to pay an average of Rp. 85,307 for one month. The high contribution of food needs compared to non-food needs makes food needs a dominant factor in influencing poverty in East Java, one of which is Batu City. Batu City is located in the mountains so that it produces fruit and vegetable farming to increase food security.

One of the ways to increase food security and poverty alleviation can be done through strengthening the rural economic sector, one of which is through the agricultural sector. Agriculture is closely related to increasing food security and then alleviating poverty. According to Law No. 7/1996, food for households, which can be reflected in sufficient food availability, both in quantity and quality, is safe, equitable and affordable. Affordability can be seen from

how much per capita expenditure by community itself is divided into the lowest commodity is made by the community. The 40%, middle 40% and top 20%.

**Table 1**  
**Average Monthly Per Capita Expenditure by Commodity Group and Expenditure Group (Rupiah), 2018**

No	Commodity Group Food and Not Food	Expenditure Group		
		Lower 40 Percent	Middle 40 Percent	Top 20 Percent
1.	Grains	59.202	61.291	65.529
2.	Vegetables	32.892	42.375	52.177
3.	Fruits	18.481	40.294	88.012
4.	Tubers	4.762	7.772	10.784

Source : Statistik Kesejahteraan Rakyat Kota Batu (2018)

In Table 1 above, rice consumption (staple food) is the most consumed / purchased by 20% and above. Likewise with the consumption of horticulture (vegetables and fruits) and tubers. This is not surprising given the high purchasing power of 20% compared to other expenditure groups. Meanwhile, for the lowest 40% group, the lowest consumption was in terms of staple foods (grains), tubers and horticulture. This is due to the low purchasing power of the people. Based on the results of interviews with the Food Security Service (2019), many of the farmer professions are also in the lowest 40%. So that various programs are carried out to improve the standard of living of farmers. However, the consumption of these grains is mostly consumed compared to other commodities. This shows that the bottom 40% can still enjoy staple foods (grains).

For the middle 40% group, their position is in the middle also in consuming staple foods and horticulture. Of course, it is supported by the purchasing power of the people who are at the middle level as well. Of the commodities above, there are 2 staple foods (rice and tubers), where rice is still predominantly consumed. In fact, the staple food in Indonesia is quite diverse. This means that the government still needs to increase food diversification. Arifin (2004), this policy needs to be done to increase

food self-sufficiency. The realization of food self-sufficiency is expected to be able to reduce the level of poverty in Batu City.

This study has specific objectives (i) to analyze the potential of villages (ii) and to analyze the linkages of rural potential in efforts to increase food security and alleviate poverty. Related to this, there are several previous studies that have become the research references. According to Agboola and Balcilar (2012) food security policies have a major effect on urban poverty. Increasing household scale and increasing expenditure for goods every month will affect the ability of urban communities to meet food needs and increase poverty because they have to spend more for food consumption. Meanwhile, the increase in health and education costs will increase people's ability to use food such as their nutritional adequacy and have more knowledge and be able to reduce poverty.

Arouna et al., (2016) stated that technology has an important role in increasing food security and reducing poverty. Based on research in African states, new technology and innovation in finding new varieties of rice can increase rice production. an increase in production increases the amount of national rice and is able to increase food security. On the other hand, the amount of poverty in Africa has also decreased. On average, farmers

experienced an increase in their income from US \$ 25 to US \$ 58.

While Bene et al., (2016) conducted research by examining various research literature on the development of fish farming to reduce poverty, it turns out that the policy suggestions from these studies experience many weaknesses when applied. Bene gave an example that efforts to increase welfare for workers cannot be applied in several conditions and have inconsistent impacts because they do not have a good conceptual model. Even Bene concluded that the development of methods to reduce poverty through the development of aquaculture is ambiguous. Lack of attention to various aspects such as decentralization, climate change, and demographic transition has made poverty alleviation efforts in the fisheries sector not having consistent success. There is a gap between policy makers, development practitioners, and researchers.

Elmenofi, El Bilali and Berjan (2014) explain about rural development in Egypt. That in carrying out rural development policies, policy makers must involve all parties, both the government as a whole and the stakeholders. The ineffectiveness of rural development that occurs in Egypt is caused by too centralized policies so that there is a gap between policy makers and rural development implementers.

Grabowski and Self (2016) state that rapid structural change has a key role in economic development. These structural changes were accompanied by changes in the agricultural workforce towards a manufacturing workforce. Countries in Asia before 1997 and 1998, such as Indonesia, Japan, Taiwan and South Korea, are considered to have succeeded in carrying out economic development through these structural changes. Structural success is achieved by balancing the price of staple food by means of innovation and foreign access such as food aid and international markets. On the other hand, the

manufacturing sector must be encouraged to absorb labor in the agricultural sector. The volatility of staple food prices has resulted in reduced investment in agriculture and many agricultural sector workers have shifted to manufacturing so that manufacturing is burdened with large numbers of workers. So it is necessary to have policies to stabilize food prices to prevent the massive transfer of agricultural labor to manufacturing so that later rapid expansion can occur in manufacturing.

Larsen and Lilleør (2014) state that socialization in the form of workshops and agricultural training can significantly improve food security and even be sustainable. Food security can be in the form of convenience in obtaining foodstuffs and convenience in obtaining food for consumptive purposes. Socialization and training generally use a system of program adoption from training. Reardon (2014) describes the strategy of rural development in Asia, the Myanmar case study that in carrying out a rural development process must have concepts and recipes (i) Rural Growth, poverty alleviation and sustainable development, (ii) Rural economic growth in both the agricultural and agricultural sectors. food crops and non-agriculture in the form of institutions in rural areas (iii) Increasing the agricultural sector with technology. (iv) Goals to be achieved: Have a broad impact on small-scale farmers and ranchers along the food supply chain, Investments in food distribution channels and markets, and Improve the quality of foodstuffs and their selling prices. Meanwhile, the implementation uses a three-pillar strategy: (i) Hard Infrastructure (roads, sidewalks, irrigation and power plants) at the rural level (ii) Soft infrastructure (input, credit, output market, institutions) at the rural level (iii) Stimulating the private sector to develop rural areas Macro by investing in rural areas, micro by developing individual farmer

skills and Meso by building rural areas and connecting them to one another.

Meanwhile, according to Thanh (2016) a rural development, creating jobs and inclusive growth must cover important aspects including: (i) Deversification and a strong rural economy, (ii) a quality rural workforce (iv) Rural democracy and deconcentration (i) v Improvement of rural infrastructure (vi) Improved quality of life in rural areas (vii) Adequate rural and urban relations (viii) and social protection for rural residents.

According to Zhang (2012), rural development into a tourism village can bring benefits such as maximizing the potential of the village as tourism, for example nature, culture, and society. While the weaknesses are inadequate infrastructure, villagers who still do not have promotional initiatives, do not have planning and the quality of rural village products is not good. Meanwhile, opportunities for villages that are used as rural tourism will receive government support to accelerate rural development and the high demand for rural tourism from urban residents is able to increase rural income. In the meantime, conflicts between traditional and modern cultures and conflicts between development and local wisdom, and competition and intense competition with the same or homogeneous rural tourism products become a separate

threat to rural development as tourism villages.

## METHODOLOGY

This research uses a qualitative approach. The data used are primary data with data collection techniques through questionnaires and interviews. The samples used in this study were farmers of superior commodities in Batu City, including farmers of rice, apples, flowers and mushrooms. To answer the problem formulation in this study, descriptive methods and analysis were used through distributing questionnaires to a sample of farmers.

## RESULT AND DISCUSSION

The economic potential of Batu City is very diverse. The tourism sector and the agricultural sector are the dominant sectors in the economic structure of Batu City. This is in line with the vision of Batu City, namely the growth and development of tourism-based organic agriculture. Therefore, it is not surprising that most of Batu City residents use the land as an agricultural producer as well as a tourist attraction. An example is the land that is used as an object for planting apples as well as for apple picking tours. Not only fruit picking tours, now it has expanded to picking tours for oranges and strawberries. There are even plans to promote flower-picking tours.

**Table 2**  
**Village Potential in Batu City**

No	Rural	sub-district	potential
1	Pandanrejo	Bumiaji	Pick strawberries
2	Bumiaji	Bumiaji	Etawa goat educational tour
3	Bulukerto	Bumiaji	Coffee village
4	Gunugsari	Bumiaji	Pick roses
5	Punten	Bumiaji	Orange of keprok
6	Tulungrejo	Bumiaji	animal livestock agro tourism, nature tourism, arts and cultural tourism
7	Sumbergondo	Bumiaji	Vegetables, roses, apples (many change)
8	Giripurno	Bumiaji	Pick Vegetables
9	Sumber Brantas	Bumiaji	Granola Potatoes

Source : Dinas Pariwisata Kota Batu (2019).

The growing development of agricultural product picking tourism can of course be used to maximize the value of land use owned by farmers. Apart from producing agricultural products that can be sold, they can also generate income from plant-picking tourism. Especially when you want to take the excess results home, you have to pay again. The entrance fee for fruit picking ranges from 20,000 - 25,000. meanwhile, if you want to bring home the fruit picking you will be charged a rate of less than 30,000 per kg. Another potential is the result of arts and crafts that can be used as souvenirs for tourists visiting Batu.

For residents who have houses around tourist attractions, especially on the side of a big road, they have a greater opportunity to get profit. They can sell typical stone products, or at least their agricultural products. Many tourists who

visit can also be used by restaurant and lodging businesses. Complete accommodation can be offered to visitors so that a multiplier effect can be felt by all parties. In this research, the main commodities of Batu City are rice, apples and mushrooms.

This sub-chapter will explain the agricultural potential of rice commodities, including harvested area, production and potential for food security, which can be seen from the total availability of rice, mushroom and apple commodities and the real consumption needs of the people of Batu City. In addition, there is data on harvested area and production rice commodity in Pendem village. Pendem village was chosen because this village is a rice granary in Batu City. The following is a table.

**Table 3**  
**Potential Food (Rice Commodity) 2015-2018**

Year	Commodities	Harvested Area (ha) * in Stone Town	Land Size in Pendem Village (Ha) * Rice Granary Village	Production (Ton) * in Stone Town	Production (Ton) * Rice Granary Village	Total Availability (Ton)	Real Consumption Needs (Ton)
2015	Total Paddy	734,		4.862,8		2.734,0	18.299,0
2016	Total Paddy	679,		4.505,3		2.366,8	19.648,1
2017	Total Paddy	469,		2.904,9		22.276,6	20.064,8
2018	Total Paddy	490,		3035		22.416	20.364,0
	* Paddy field (GKG)		10,7 ton		*75 ton		

Source: Dinas Pertanian dan Dinas Ketahanan Pangan Kota Batu (2019)

\* results of interviews with Pendem Village Farmers

Table 3 above describes the food crop commodity (rice) in terms of harvested area and production, total availability and consumption needs of rice (rice) in 2015-2018. Production in Batu had decreased from 2015-2017 in line with the decreasing harvested area, which could be due to the transition season. One farmer (2019)

argues that the yield of dry rice yields 1 ton 3 kw, usually 1 ton 5 kw can be due to the dry season. However, in 2018, total production increased to 3,035 tonnes accompanied by an increase in the total area of harvested land in Batu by 490 ha.

In Batu, there is a village known as a rice barn, namely Pendem village which is able to produce 75 tons of rice with a land area of 10.7. This shows that the

statements of farmers in Pendem village are proven that the rice supplied to the Batu Food Security Service is not only from Pendem village. This is because the production produced in Pendem village per harvest is only 75 tons with a land area of 10.7 ha. The rest is supplied from other villages in Batu.

Still through the table above, the availability of rice produced by farmers from villages in Batu tends to decline in 2015-2017 to 22,276 tons. The reason is natural, namely reduced production and harvested land, currently harvested land is decreasing due to human settlements or other factors such as poor irrigation systems. Even so, it can still meet the real consumption needs of the people in 2015-2017. Likewise in 2018, the availability

of rice increased to 22,416 in 2018 and was able to meet the consumption needs of the people of Batu which amounted to 20,364 tons. It can be said that there was a food supply surplus of 42 tonnes. This shows that the local government has made efforts to improve food security by conducting training and planting and assistance to the harvesting process.

Apart from monitoring the availability of food plants, the Food Security Service also monitors the availability of horticultural crops and processing of horticultural commodities. Because in Batu, it is known that apple and mushroom commodities are also high in productivity, so this research will focus on the availability of apples and mushrooms and the real consumption needs of apples and mushrooms.

**Table 4**  
**Horticultural Potential (Apple and Mushroom Commodities) 2015-2018**

Year	Commodities	Number of Productive Plants Producing (Trees)	Production (Ton)	Total Availability (Ton)	Real Consumption Needs (Ton)
2015	<b>Appel</b>	1.115.081	67.120	60.408,63	226,85
2016		900.545	54.210	48.789,54	243,24
2017		3.726.093	558.919	50.302,71	248,40
2018		3.726.093	558.919	50.302,71	248,4
Tahun	Commodities	Harvested Area	Production (Ton)	Total Availability (Ton)	Real Consumption Needs (Ton)
2015	<b>Mushroom</b>	41,44	654,17	588,76	14,64
2016		50,29	7.528,36	677,55	15,69
2017		10,02	1.540,31	138,63	16,03
2018		3,67	558,05	50,22	16,2

Source : Dinas Pertanian dan Dinas Ketahanan Pangan Kota Batu(2019)

Table 4 above illustrates the horticultural crop commodities (apples and mushrooms) both from how many productive plants produce apple trees and the area of mushroom land in Batu, the production of these commodities, the availability of apples and mushrooms and the real consumption needs of apples and mushrooms in 2015-2018. In Batu, the number of productive plants producing apples in 2017 and 2018 was consistent at

3,726,093 tons. However, apple production in that year only reached 558,919. This can be caused by factors of weather, humidity, fog which make apple production less than the number of productive plants. This statement is supported by the results of an interview with one of Anan Apple farmers that the process of apple blossoms into apples is more complicated, especially if there is fog (Apple farmer, 2019). In addition, to keep apple production from

plummeting, the Department of Agriculture has attempted to revitalize the land, rejuvenate apples by encouraging apple farmers to use organic fertilizers.

On the other hand, the availability of apples is abundant, namely 50,302.71 tons in 2017 and 2018, an increase compared to the previous year. Even though, the real consumption needs were only 248.40 in 2017 and 2018. The real consumption of apples is not large. This can occur when processed apples such as apple chips compete with other preparations such as potato chips so the real consumption needs are not high. Based on data from the Food Security Service (2019), the real consumption of potatoes is more, namely 471 tons. The results of secondary data are also supported by the statement of one of the SMEs Sari Apple (2019) that processed apples such as apple chips compete with potato chips, jackfruit chips (other fruit chips). Even so, the Food Security Service became an initial milestone in the development of apple cider processing (apple cider, dodol) because at first there was only 1 group of apple cider processing, the group was then fostered, given training and capital if it had led to the home industry. Then, it develops so that the group breaks itself into groups with different brands.

Still referring to the table above, the availability of mushrooms produced by farmers from villages in Batu, amounting to 50.22 tons in 2018, is low in value when

compared to 2015-2017. Even so, the total availability in 2018 of 50.22 was able to meet the real consumption needs of mushroom commodities of 16.26 tons. It can be said, the real consumption of mushrooms is still lower than the consumption of apples because the apple commodity is better known as a characteristic of Batu city. In addition, mushroom production is also below the apple commodity, so efforts are needed so that mushroom production can increase. There is one mushroom farmer who has not received technological assistance for mushroom cultivation such as steamer or training on mushroom cultivation. It is hoped that local government assistance can be more equitable in providing assistance so that the total availability of mushroom commodities will increase.

Based on the results of an interview with the head of the Food Availability and Distribution Division (2019), people who are categorized as underprivileged / poor also work as farmers who then turn into farm laborers (getting poorer) due to being entangled in loans with banks and guaranteeing their land to the bank so that the Defense Service Food also provides social assistance to the poor, whether they are farmers or not. The assistance is in the form of assistance for the availability of staple food (rice) where in 2017, 3100 households received assistance, then in 2018, the recipients decreased to 2,680 households.

**Table 5**  
**Monitoring and Evaluation of Rice Reserve Assistance**  
**Poor Citizens in 2019**

No	Village / Subdistrict	Number of KK	Month: July 2019					Number of Final KK
			Early	Death	Change Address	Able	Doubel	
<b>Bumiaji Subdistrict</b>								
1.	Village Gunungsari	175	6	2	5	-	<b>13</b>	162
2.	Village Tulungrejo	77	-	-	1	-	<b>1</b>	76
3.	Village Sumberbrantas	146	-	-	-	-	-	146
4.	Village Punten	82	3	-	-	-	<b>3</b>	79



5.	Village Sumbergondo	36	-	-	-	-	-	36
6.	Village Bulukerto	109	2	-	-	-	2	107
7.	Village Bumiaji	44	-	-	-	-	-	44
8.	Village Pandanrejo	109	-	-	-	-	-	109
9.	Village Giripumo	185	3	1	6	-	10	175
	<b>Total</b>	<b>963</b>	<b>14</b>	<b>3</b>	<b>12</b>	<b>-</b>	<b>29</b>	<b>934</b>
Junrejo Subdistrict								
10.	Village Torongrejo	160	2				2	158
11.	Village Pendem	59	-					59
12.	Village Tlekung	56	1				1	55
13.	Village Beji	76	-					76
14.	Village Mojorejo	118	-					118
15.	Subdistrict Dadaprejo	141	5				5	136
16.	Village Junrejo	83	2				2	81
	<b>Amount</b>	<b>693</b>	<b>10</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>10</b>	<b>683</b>
Batu Subdistrict								
17.	Subdistrict Sisir	196	4	1	1		6	190
18.	Village Pesanggrahan	369	1				1	368
19.	Subdistrict Temas	98	6	1	8		15	83
20.	Village Sidomulyo	44	-					44
21.	Subdistrict Ngaglik	86	4				5	81
22.	Village Oro-oro Ombo	87	3				3	84
23.	Subdistrict Songgokerto	81	-					81
24.	Village Sumberejo	145	12	1			13	132
	<b>Total</b>	<b>1106</b>	<b>30</b>	<b>3</b>	<b>10</b>	<b>-</b>	<b>43</b>	<b>1063</b>
	<b>Total</b>	<b>2762</b>	<b>54</b>	<b>6</b>	<b>22</b>	<b>-</b>	<b>82</b>	<b>2680</b>

Source: Dinas Ketahanan Pangan (2019)

As can be seen in table 5, the poverty of the population in Batu (each sub-district) has decreased. As an illustration, in Bumiaji sub-district, the initial number of families receiving rice assistance was 963, however, the final number of households was 934. The decrease in recipients of rice assistance was due to 12 affluent people (not included in the poor category anymore) and 14 people died. Meanwhile, in Junrejo sub-district, the decrease in rice aid was caused by 10 people who died and there was no category of the number of people who could afford it. This means that the assistance given has not yet reduced the poverty of the people. Finally, in Batu District, the decrease in rice aid was caused by 30 people died and 10 people were classified as well-off. This means that rice aid has an impact on reducing poverty by 10 people. It can be said that the decline

in rice assistance was predominantly due to mortality compared to changes in status from being poor to being able to afford it.

Although the decline in rice aid is predominantly due to mortality, the Food Security service's efforts to reduce poverty levels should be appreciated. Based on the results of interviews with the Food Security Service (2019), social assistance for the poor is the Harapan Family program by assisting poor residents / farmers by getting a grant in the form of 3 goats that are not allowed to be sold directly but must be bred first so that milk can be sold and given rice assistance, there are training in farming with hydroponic media to cover small areas. For the chronic poor category (unfit for habitation, food availability, malnutrition, and no one is working) the assistance is in the form of rice, guidance, and grants. In addition, it is not only the responsibility of the Food Security office but also the

Social Service so that the assistance is multi-layered, such as housing assistance. for mushroom cultivation, one of which is by initiating mushroom cultivation known as the Mushroom House and providing technology assistance also based on the results of the 2019 Food Security Service interview).

Finally, there is a Sustainable Food Area Utilization program where people can plant crops, especially horticulture (such as spinach, chilies, mustard greens and potatoes) which can then be sold to the market / middlemen in order to increase the purchasing power of the community. In addition, there is assistance with seeds, plastics (media), assistance when planting crops. Then, at a certain time limit, monitoring is carried out, if the community is able, rice assistance will be cut off and

missing from the list of poor people. It is hoped that residents who are no longer classified as poor can become entrepreneurs themselves / become business actors (farmers who are independent and not in debt. In this study, not only discussing poverty from the institutional side (Department of Agriculture, Food Security, Office of UMKM and Department of Tourism) but also involving resource persons (farmers in superior commodities) to determine productivity and business turnover that illustrates the improvement in the standard of living of the community (not poor. again) and whether there is an empowerment of the local workforce. The following is the turnover of Apple farmers, rice farmers and mushroom farmers.

**Table 6.**  
**Omzet and Farmer Labor**

No.	Farmer	Omzet Estimation	Empowerment of Local Workers or Not
1.	Appel Farmer	±Rp.12.520.000 – ±Rp.30.000.000	The number of workers is around 15 people for one harvest that comes from inside Batu
2.	Paddy Farmer	Rp.2.783.000 - ±Rp.2.865.000-	The number of workers is around 13 people for one harvest season originating from inside Batu
3.	Mushroom Farmer	± Rp.21.200.000- ± Rp.63.450.000	The workforce is 6-12 people for mushroom cultivation in one season originating from inside Batu

Source: results of interviews with business actors (2019).

Shown in table 6, there is a range of turnover from farmers on superior commodities in Batu. For the Apple commodity which is a characteristic of Batu and can be processed for various kinds of preparations (apple cider), it is considered potentially profitable, where the turnover of Apple farmers obtained for land owners is up to 2500 m2 or a quarter of a hectare, able to reach a turnover of up to ± Rp. 30,000,000. Mushroom farmers also pocketed the highest turnover of Rp. ± Rp. 63,450,000

The rice commodity in which the resource person came from the village of Lumbung Padi, namely Pendem Village, did not have a large turnover, for a land area of 1800 m2 to 2000 m2, namely ± Rp. 2,865,000. One of the reasons is the large amount of land processing costs (piracy) and labor (for the harvest and planting period). In addition, crop yields sometimes decline due to lack of infrastructure or irrigation management, pest attacks (especially rats) and changes in seasons (dry season).

## CONCLUSIONS

In general, poverty is still attached to the type of village typology related to certain sources of livelihood, such as farmers. Even though there is technology assistance, it is not very effective because the land conditions are not supportive. Another factor is that the quality of seed assistance from the local government is of poor quality (cuttings). Other external factors are the interest in purchasing commodities in a small scope, weather and unavoidable pests that affect productivity and food security indirectly as well as the main driving factors for the problem of poverty, especially in the profession of farmers. Farmers are still not free to market their products, because farmers are involved in debt so that they sell them only to middlemen.

Seeing these conditions, the government also has quite a lot of work programs for poverty alleviation and food security such as rice assistance, empowering farmers to grow food crops (strengthening the purpose of household food security for farmers) and selling them to improve the quality of life of farmers. The Department of Agriculture also supports seedlings, although the quality is not good and there are field extension workers to teach SOPs in planting crops. However, it does not effectively alleviate poverty and increase food security.

These challenges, the researcher suggests that farmers work together with the association to develop their apple commodity. Especially for Apple farmers, there is a special program for farmers with small land areas so that assistance is more evenly distributed and farmers can work together with SMEs to process apple commodities or work with investors to rent out their land for apple picking tours. Especially for rice farmers, wider marketing is needed so that the village icon of the rice barn is not just a name, as the Agriculture Office routinely supplies rice to Pendem

village. Finally, especially for mushroom farmers, they can process mushroom commodities in collaboration with mushroom SMEs and the need for associations to encourage mushroom productivity, from the marketing side can cooperate with tour package makers, mushroom species exhibition projects that have developed in Batu. For all farmers it is necessary to develop technology (terassering), superior seeds so that extreme weather factors are minimized and of good quality.

Regarding the development of further research, there are several suggestions, including:

1. To alleviate poverty, especially in the farmer profession, farmers can focus on increasing added value and marketing superior commodities in their villages. Therefore, cooperation from various parties (travel package makers) is needed to introduce superior commodities such as apples and rice. Especially for rice, irrigation infrastructure is needed so that collaboration with academics and online marketing is needed so that the icon of Pendem village as a rice barn in Batu is not just a name.

2. To strengthen food security through village potential, it is necessary to increase the productivity of superior commodities in Batu City to ensure the availability of superior commodity consumption (rice, mushrooms and apples). The main thing that needs to be done is water irrigation infrastructure, terracing to maintain the level of productivity of superior commodities. Self-sufficiency in food within the scope of the family needs to work together with the association to help with the marketing of cultivated commodities.

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