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INCREASING CASSAVA FARMERS' INCOME BY CREATING VALUE ADDED OF CASSAVA AS *TAPE* AND CHIPS

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ABSTRACT

This study aims to discover and prove that by creating added value of cassava as *tape* and chips can increase cassava farmers' income. Indonesian government has food security programs at the same time improving the welfare of farmers. This study will support and help a Jember regency government to achieve the Indonesian government programs. Researchers want to continue a previous research about business feasibility study of foods processing with using cassava as raw material. In this study, researchers use a survey method and multicase study with data collection technique through the documentation, interviews and observations. Data analysis included data collection, data reduction, data display, verification and conclusion ying and concluded. To improve the quality and validity of the data, researchers conducted a credibility test, transferability test, auditability test and confirmability test. The results of this study concluded that cassava farmers have benefited in farming cassava, but the profit is very small and requires a long time of about eight months, so if revenue from the profits of agriculture cassava is calculated per day then income of cassava farming is not meaningful or not enough to support the farmer family. Besides, waiting period of harvest of cassava for 8 months, then it's basically a lot of cassava farmers unemployed. The cassava farmer who run business in producing *tape* have created high added value so as to produce a huge advantage compared to the profits of farmers of cassava and also compared to the same business which cassava purchased from other parties / other farmers. The cassava farmer who run business in producing cassava chips have created a high added value so as to produce a huge advantage compared to the profits of farmers of cassava and also compared to the same business which cassava purchased from other parties / other farmers.

Keywords: farmer, cassava, *tape*, chips, added value

1. Introduction

Indonesia is a country that includes three (3) cassava-producing countries in the world. In 2014 the production of cassava in Indonesia stood at 23.436.384.00. tons or productivity 233.55 Ku / Ha. In East Java in 2014 had cassava production rate of 3.635.454.000 tonnes or with productivity 231,39 Ku / Ha with relative productivity high enough, one of them is Jember. Jember has a productivity rate of 204.36 Ku / Ha. Production of cassava in Jember is dominated by a few districts, namely districts Sumberbaru, Sukowono and Tempurejo. In addition to be a main meal instead of rice, cassava and cassava are also developed for domestic industry, such as tape, Suwar suwir, chips, tapioca flour until prol tape. Cassava production in Jember district in 2010 found the number as many as 55 228 tonnes. However, in the next 3 years cassava production has decreased continuously. In 2014, cassava production increased to 59 733 tonnes. Cassava production in Jember district dominated by districts Sumberbaru consistently followed by other districts.

In the mid-2000s emerged a variety of innovative products made from raw cassava ranging from just chips are packaged in a modern up with brownies made from tape. Call it Maichi which was grounded in 2011's until now. The chips are well known for their specifics serving cassava chips with a spicy taste and attractive packaging. Can be seen from the examples Maichi cassava products when processed properly and combined with innovative ideas can make cassava products as excellent product that can be accepted by the public. Here is the business name of cassava chips production ever in Jember. The following table shows the companies of cassava chips in Jember. UD Lestari Mandiri, Queen UD, UD Barokah Jaya, Tera Cuwi, King Chip Gie Zelyn Food Sukses Makmur, Risky Court. There are 12 businesses or companies engaged in the business of making cassava. Among them are Super Madu Sari Source Honey Honey Honey King Sae Sae 86 96 Sweet Sweet Honey Bee Sweet Honey Vela Madu Sari Triangle with a productive capacity of each business ranging from 2 ton.

For businesses both small enterprises, micro enterprises or medium-sized enterprises, especially in the agriculture and agribusiness sector stagnated in an

effort certainly is not desirable and undesirable. Of course every farmer and entrepreneur in the field of agribusiness want to improve the business from time to time. But stagnation and stagnation sometimes venture into something that can not be avoided, and sometimes even backward steps. Many things can affect business conditions of farmers and entrepreneurs in the field of agribusiness, which started flagging market, tighter competition, decreased productivity, increased production costs and others.

The results of the study Roziq et al (2013) by conducting a survey of cassava farmers in the district of Pakusari found that the problems faced by farmers of cassava which are disease caterpillar, lack of capital, difficult market, poor quality of cassava during the rainy season, the price of cassava low at harvest and no change or innovation effort and difficulty of access to bank credit. The results of the study provide advice so that farmers earn more income than crops of cassava, farmers should develop into a business from raw cassava as cassava chips and cassava.

Roziq et al continued research in 2015 about the business feasibility analysis from raw cassava, financing models and marketing strategies for entrepreneurs cassava farmer in Jember. The study concluded that business feasibility analysis covering production, marketing and financial aspects of that business generated from raw cassava as business cassava chips, cassava businesses and entrepreneurial efforts cassava flour for cassava farmer meets eligibility and very profitable to run. The findings of the study that in order to increase the income of farmers of cassava, farmers should develop the business of planting cassava into businesses in processing cassava raw such as cassava chips, cassava tape and cassava flour. Farmers of cassava should prioritize business of tape and cassava chips because it will need little capital but generate huge profits.

1.1 Purpose Of The Study

The Purposes to be achieved from this research are: (a) analyze the value added of agribusiness in cassava farming into cassava chips and its impact on

farmers' income (b) analyze the value added of agribusiness in cassava farming into cassava tape and its impact on farmers' income

2. Methodology

This case study was conducted through a survey on farmers who have agricultural businesses cassava, tape production enterprises and enterprises of cassava chips. Data used in this study of primary data in the form of opinion about agriculture business cassava farmers, businesses and tape production of cassava chips. Data were collected by conducting structured interviews with farmers and directly observing the production process tape and cassava chips production location. Analysis of the data in this study using Miles and Huberman approach consist of (a) data collection, (b) data reduction, (c) data display and (d) conclusion drawing / verification.

3. Findings And Discussion:

3.1 *Analysis of Cassava Farming and Tape*

3.1.1 *Analysis of Cassava Farming*

Here are the results of the survey, observation and interviews with a cassava farmer and businessman cassava named Pak Susyanti located in Central Source RT 07 RW 02, Desa Poler. Agricultural land cultivated one hectare but the amount of land planted with cassava ½ hectares. The length of time of planting to harvesting cassava need 8 months with a total production of cassava during harvest 1.5 tons. If sold by way of weigh Rp. 140.000 / quintal. If the sale to slash amount Rp. 1.200.000, paid in cash and by way of estimates. Total sales at harvest are Rp. 2.100.000 (Rp. 140.000 x 150 quintals) . Yields of cassava was used alone for cassava production efforts. Number of cassava stem yellow type planted 1,000 stems / trees with a total cost of cassava seedlings Rp. 100.000. Others farming cost consist of (a) fertilizer Rp. 180,000, (b) wages for weeding initial land Rp. 100.000, (c) cost of labor for arranging land Rp. 100.000, (d) cost of labor of spreading manure Rp. 50.000, (e) cost of labor for planting cassava Rp. 50.000. and (f) cost of harvest and transport Rp. 300,000. Total cost of

cassava production amounted to Rp.880.000. The total sales revenue was Rp. 2.100.000. So that the amount of profit of Rp.1.220.000. If the calculated cost per kg, the production cost of farming cassava Rp 587 calculated from Rp. 880.000 / 1.500 kg. While the selling price per kg Rp. Rp 1.400 calculated from Rp. 2.100,000 / 1,500 kg. Then the profits of farming cassava per kg Rp. 813 calculated from Rp. 1.400 - Rp. 587.

Based on interviews with Pak Susyanti that the obstacles encountered in farming cassava, among others, (a) the presence of white caterpillar and (b) destroyed wild boar (pig). Cassava farm experience difficulty in marketing / selling. In sales never gained slash at the time not yet harvested cassava. The farmer never received loans from commercial banks, rural banks or cooperatives. Although based on the calculation of cassava farming is profitable but Pak Susyanti would get much more profit if he process cassva became tape and sell its.

3.1.2 Analysis of Cassava Tape

Based on the interview Pak Susyanti, at the same survey and observations of production and processing of cassava into a tape obtained information that the calculation of the cost of the process of making cassava both derived from farm crops of cassava and cassava purchases from other farmers. The raw material comes from the tape business cassava crops of 1.5 tons at a cost of Rp. 880.000 and if sold at Rp. 2.100.000 during the planting period of 8 months. However, because the production of tape a lot, then the need for raw materials also obtained by purchasing from other farmers were 6 quintals or Rp. 840.000. If compared with cassava supplied from the crop and by buying cassava from other growers, Pak Susyanti have advantages in raw material costs or experience the efficiency with which the production cost of cassava farmer Rp. 880.000. Pak Susyanti gain of 1.5 tons while the purchase cost of raw materials amount to Rp. 840.000. Pak Susyanti only received cassava number 6 quintals, or if the count is calculated by the sum of Rp. 880.000 to buy cassava then Pak Susyanti only got 6 quintal 29 kg of cassava that is by counting from $(Rp. 880.000 / Rp. 840.000) \times 6$ quintals. If

calculated from planting cassava production costs per kg Rp. 587 and the purchase cost of cassava per kg to Rp 1.400 is calculated from the amount of the purchase of Rp. 840.000 / 600 kg, in order to produce the tape of cassava from the crop itself obtain the efficiency of raw material per kg of cassava Rp 813 calculated from Rp.1.400 - Rp. 587.

The production capacity of tape owned Pak Susyanti at 6 kw per day, or 180 kw per month. Trade mark of cassava named "Grup Tape Manis". Total cost of cassava production 6 quintals of cassava to 325 kg tape (tape requires a ratio of 1 kg 1.85 kg yam) is required in addition to the cost of raw material costs cassava Rp. 200.000 or fees other than the process of cassava to produce 1 kg of tape requires a processing fee of Rp 615 was calculated from (200.000 / 325 kg tape). When calculated the cost to produce 1 kg of cassava required processing fee of Rp. 333 for processing into cassava is Rp 200.000 / 6 quintals (600 kg cassava). If cassava from the crop itself Rp. 587 kg of the total production cost per kg of cassava tape Rp. 920 is calculated from the cost of Rp. 333 plus yields itself Rp. 587 kg. To produce 1 kg of tape needed 1.85 kg of cassava crop itself and costs Rp. 615 tape the production cost per 1 kg Rp. 1700 is calculated from the cost of Rp. 615 plus the cost of cassava Rp. 587 / kg x 1.85 kg = Rp. 1,085. But if cassava is obtained from the purchase of the tape outside the production cost per 1 kg Rp. 3165 is calculated from the cost of Rp. 575 plus the cost of cassava Rp. 1,400 / kg x 1.85 kg = Rp. 2590.

If cassava is obtained by buying from other farmers, the production process is produced tape as much as 3.25 quintals per day, or 325 kg per quintal with a selling price of Rp. 430,000 or Rp. 4.300/ kg of the obtained results tape sales of Rp 1.397.500, -. In a day of production Pak Suyanti make a profit of Rp 368. 875 calculated from the total sales of Rp. 1.397.500.- reduced production cost tape Rp 3.165 per kg x 325 kg = Rp. 1.028.625 or per 1 kg tape makes a profit of Rp1.135 of the selling price per kg Rp. 4.300 - the cost of production per 1 kg Rp. 3.165.

But if the raw material is obtained from the harvest cassava cassava farmer himself then with the production process of the tape produced a tape as much as

3.25 quintals per day, or 325 kg per quintal with a selling price of Rp. 430.000 or Rp. 4.300 kg of the obtained results tape sales of Rp 1.397.500, -. In a day of production Pak Suyanti make a profit of Rp 845.000 was calculated from the amount of sales of Rp. 1.397.500.- reduced production cost tape. Rp 1.700 per kg x 325 kg = Rp. 552 500 or per 1 kg tape makes a profit of Rp 2.600 from the selling price per kg Rp. 4.300 - the cost of production per 1 kg Rp. 1.700.

Based on this calculation, it can be concluded that Pak Susyanti can create value added of cassava as tape and very profitable if the raw material in the production of cassava own rather than buy cassava from farmers or other parties. When compared with a profit of cassava farming per kg Rp. 813 with a waiting period of 8 months with production of tape, Pak Susyanti has created value added or profit of Rp. 2.600 per kg tape with gains each day. If converted into 1 kg of cassava in the ratio of 1 kg tape requires 1.85 kg of cassava, the profitability of tape per kg of cassava is Rp. 1405 is calculated on the profit per 1 kg tape Rp. 2.600 / 1.85 kg of cassava. It is concluded that Pak Susyanti as cassava farmer become producer of tape have created value added per kg Rp. 592 calculated from Rp. 1.405 - Rp. 813.

3.2 Analysis of Cassava Farming and Chips

3.2.1 Analysis of Cassava Farming

Based on the survey, observation and interview with a farmer and businessman cassava chips cassava named Pak Joko Santoso has agricultural land planted with cassava more than ½ hectare. The length of time of planting to harvesting cassava 8 months with a total production of cassava during harvest as much as 2 tons. If sold by way of weigh price of Rp. 120.000- / quintal. If the sale to slash Rp. 1.800.000, - but all harvesting costs are borne by the buyer.

Yields of cassava used alone for the production of cassava chips business. Number of cassava stems planted varieties of cassava tales about 2,000 stems / trees with a total cost of Rp 100.000. Others cost of cassava farming consist of (a) manure 40 bags amount Rp. 200,000, (b) freight of seeds and manure amount Rp. 210,000, (c) fertilizer (urea and NPK) amount Rp. 200,000, (d) labor of weeding

land amount Rp. 210,000, (e) labor of cassava seedlings amount Rp. 120,000. The total cost of cassava production is about 2 tons of Rp.1.040.000 and sold at a price of Rp. 120,000 / quintal x 20 quintals) amount Rp. 1.800.000, -. So the total profit of cassava farming Rp.760.000, its calculated from total sale revenue Rp. 1,800.000 – the production cost of farming cassava amount Rp.1,040.000. the production cost of farming cassava / cassava per kg amount Rp 520 calculated from Rp.1.040.000 / 2,000 kg. While the selling price per kg Rp. 900 calculated from Rp. 1,800,000 / 2,000 kg. So total profit of farming cassava per kg Rp. 380 calculated from Rp. 900 - Rp. 520.

Based on interview with Pak Joko Santoso that the obstacles encountered in farming cassava is relatively nothing because it is not too difficult. Pak Joko Santoso not require funds received from outside sources eg bank loans. Cassava farming no trouble marketing / selling. Farming cassava does not require the help of funds from the credit / financing banks and also never received cassava business loans from commercial banks, rural banks or cooperatives.

3.2.2 Analysis of Cassava Chips

Based on the survey, observation and interview with a farmer and businessman cassava chips cassava named Pak Joko Santoso noted that costs of materials needed for the production of cassava chips per day needs about 70 kg to as much as 225 packs of cassava chips.

Table 1
Costs of Material of Cassava Chips

No.	Description	Price (Rp)
1	Cassava raw 70 kg @ Rp. 1.200	84.000
2	Herbs and spices	23.000
3	Salt	2.000
4	Cooking oil 7 litre @ Rp. 12.000	84.000

Source: field data

The following details the use of the depreciation cost of equipment for producing cassava crackers per day needs about 70 kg to as much as 225 packs of cassava chips.

Table 2
Depreciation Cost Of Equipment

No	Description	Total	Price (Rp)	Period of usage	Depreciation /Month (Rp)	Penyusutan /day (Rp)
1	Knife	7	70.000	2 years	2.917	97
2	Large skillet	2	350.000	3 years	9.722	324
3	Basket	8	48.000	2 years	2.000	67
4	Cormorant	2	300.000	4 years	6.250	208
5	Trades tool	1	60.000	1,5 years	3.333	111
	Total				24.222	807

Source: filed data

The following details of others cost associated with the production process of cassava chips per day needs about 70 kg into cassava chips as much as 225 packs weighing 90 grams /pack

Table 3
Others Cost Associated with Production Process of Chips

No.	Description	Per Month (Rp)	Per Day (Rp)
1	Electricity costs 10% of household needs	8.000	267
2	Firewood	450.000	15.000
3	Labor costs 2 persons Rp.1.200.000 per month	2.400.000	80.000

Source: field data

Here is a breakdown of costs / cost of goods sold per day of production of cassava chips require about 70 kg of cassava into cassava chips as much as 225 packs weighing 90 grams per plastic packaging.

Table 4
Costs of Goods Sold

No.	Description	Per day (Rp)
1	Materials cost	193.000
2	Labor cost	80.000
3	Overhead cost:	
	- Firewood cost	15.000
	- Electricity cost	267
	- depreciation cost	807
	- Plastic packaging ½ roll	23.000
4	Total Cost Of Goods Sold	Rp. 312.074

Source: survey data

Based on the results of the calculations in Table 4 cost of goods sold amounted to cassava chips. Rp. 312. 074 with the amount of packaging as much as 225 packaging weight per package of 90 grams so that cost of goods sold per package of Rp. 1.387. Sales of cassava chips per day to spend on average cassava as much as 70 kg to 225 plastic packaging plastic packaging at a price per Rp. 2,000 the number of sales per day Rp. 450,000. So the advantages of production of cassava chips per day Rp. 137. 926 calculated from sales of Rp. 450,000 minus the cost of goods sold amounted to Rp. 312 074. Profit per plastic packaging Rp. 613. Compared in ratio needs 70 kg of cassava per day to produce a total profit of Rp. 137 926 then gains the use of 1 kg of cassava Rp. Calculated from Rp 1,970. 137 926/70 kg. When compared with the advantages of producing cassava only Rp. 380 per kg of cassava for 8 months of planting and processing gains further into cassava chips Rp. 1,970 Pak Joko Santoso then farmers have created value-added cassava Rp. 1,590 per kg of cassava per day.

In the tape business, each 1 kg of cassava has created an value added of Rp. 592 while in the cassava chips business, each 1 kg of cassava has created an value added of Rp.1.590. So cassava chips business has created an value added 3 times greater than the tape business. The first best business with using raw cassava for cassava farmers is cassava chips business because it is very

profitable, easy to process and requires a little working capital and investment and affordable for farmers because it can be processed with simple equipment / traditional and can utilize the equipment in the family kitchen; (4) The second best business with using raw cassava for cassava farmers is tape business because it is very profitable, easy to process and requires little working capital and investment, but greater than the cassava chip business because it can be processed with simple equipment / traditional; (5) Central Government and Local Government (provincial and district) and other related parties shall assist wewujudkan cassava farmer entrepreneurs by conducting cooperation and coordination with relevant parties to create an entrepreneurial farmer from raw cassava through regulations and policies that support the growth of an entrepreneurial farmer, aid financing, training, mentoring and marketing and (6) Successful entrepreneurs for cassava farmer can be an example for other farmers to make a new effort made from cassava raw and supported and assisted by the Central Government and Local Government and other related parties, it can create food security while farmers get richer.

4. Conclusions And Recommendations:

4.1 Conclusions:

Based from the results of the study, the researcher arrived at the following conclusions: (1) Problems faced by cassava farmers are diseases such as white caterpillar, wild boars destroyed, soil conditions and irrigation; (2) Cassava farmers have gained an advantage in cassava farming business the benefits are small and require a long time of about eight months, so if revenue from cassava farm profit is calculated per day then pengasilan of cassava farming is not mean or not enough to feed a family of farmers , besides, with the harvest waiting period for 8 months, then it's basically a lot of cassava farmers unemployed.

(3) The cassava farmers who have process their cassava become tape has been creating high added value so as to produce a huge advantage compared to the profits which gained farmers from cassava farming and if cassava obtained / purchased from other parties / other farmers.

(4) The cassava farmers who have process their cassava become chips has been creating high added value so as to produce a huge advantage compared to the profits which gained farmers from cassava farming and if cassava obtained / purchased from other parties / other farmers.

(5) In the tape business, each 1 kg of cassava has created an value added of Rp. 592 while in the cassava chips business, each 1 kg of cassava has created an value added of Rp.1.590. So cassava chips business has created an value added 3 times greater than the tape business.

4.2 Recommendations

Based from the conclusions, the following are recommended: (1) the farmers of cassava should have efforts to create value added so that business profit can be increased, reducing the period of unemployment, provide jobs, increase incomes and welfare for farmers cassava ; (2) The cassava farmers should not only planting cassava and sell cassava crops but should have tried to make the business of processing cassava for example, cassava chips and tape; (3) The first best business with using raw cassava for cassava farmers is cassava chips business because it is very profitable, easy to process and requires a little working capital and investment and affordable for farmers because it can be processed with simple equipment / traditional and can utilize the equipment in the family kitchen; (4) The second best business with using raw cassava for cassava farmers is tape business because it is very profitable, easy to process and requires little working capital and investment, but greater than the cassava chip business because it can be processed with simple equipment / traditional; (5) Central Government and Local Government (provincial and district) and other related parties should assist cassava farmer by conducting cooperation and coordination with relevant parties to create an entrepreneurial farmer through regulations and policies that support the growth of an entrepreneurial farmer, aid financing, training, mentoring and marketing and (6) Successful entrepreneurs for cassava farmer can be an example for other farmers to make a new effort made from cassava raw and supported and assisted by the Central Government and Local

Government and other related parties, it can create food security while farmers get richer.

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