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Improvement to Production of Cassava as An Economic Potential of The Residents of Dawuhan Village

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Abstract

The potential of cassava tubers as a food ingredient that is widely available in Indonesia, especially the dawuhan village as a thematic KKN location that has abundant agricultural products and can be developed as processed products that have a higher economic value and is able to increase economic productivity for local villagers. Processed cassava products into cassava chips are products that have high market value, especially as products that can lift the image of the village to become a guided village with cassava chips that have a high flavor. The ability of rural communities to process products is still limited in terms of technology use and the ability to process these processed products to be more delicious, tasty and trendy. Utilization of production equipment such as chopper machines, slicing machines and a good packaging system can increase cassava chips processed products into products that have a high selling value and can be a source of income for the majority of rural communities, even later can encourage rural tourism of local specialties. The results of the application in the field can be produced that increasing production capacity and production quality can continue to be developed by utilizing these production tools and developing better packaging technology so that processed cassava chips products can compete with other products that have already developed.

Keywords: Cassava, cassava chips, chopper machines, packaging, slicing machines,

INTRODUCTION

Dawuhan Village is one of the villages in the Kademangan District, Blitar Region, East Java. Most of the population from Dawuhan Village, the majority of them are farmers and there are also several farmer groups. Cultivated commodities are rice, corn, and cassava. At Dawuhan Village, the majority of people there work at cassava agriculture. The results of the agriculture were used by the people of community to be made into food products from cassava.

Dawuhan Village in the Blitar Region is one of the areas that still do not have the potential to be seeded, although the potential of the region is quite large but the courage to diversify the product to its potential is still limited. In the village of Dawuhan itself, farmer groups have been formed to be able to interact with one another to improve their abilities and skills in production that can improve their economy. Dawuhan Village through its farmer group has developed business products of cassava chips (cassava) carried out by the women community of residents of Dawuhan Village.

Cassava production activities into processed products in the Dawuhan Village are still very conventional. Farmer groups still use simple equipment in peeling the skin and cutting cassava, resulting in the production process of cassava chips spending a lot of time and labor. The problem of producing cassava chips not only lies in the process of

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exfoliation and cutting of cassava, but the results of cassava chips do not have a varied taste so that the lack of consumer interest in the Blitar and surrounding areas. Packaging of cassava chips products is also only sold with conventional packaging and also does not have a brand for cassava chips sold by the people of Dawuhan Village.

Farmer groups in the Dawuhan Village area are farmer organizations as a place that allows farmers to have economic activities for the common interest among members of the farmer groups to meet their common needs, solve problems together to achieve the welfare of farmers and their families. Farmer groups in the Dawuhan Village area consist of three Farmer Groups First as Dahlia Group, Farmers Group Second as Orchid Group and Farmer Group Third as Rose Group which is a farmer group located in Dawuhan Village, Blitar Region, established since in 2006. The three farmer groups have an area agriculture of one hundred eighteen hectares of rice fields with members of thirty three family and actively attend regular meetings that are held every wednesday kliwon.

Farmers groups in Dawuhan Village in Blitar Region, as the target group in the Thematic of Community Services Program are scattered in several farmer groups in several hamlets in this village area. The distribution of farmer groups is quite large and on average has group members amounting to eleven families, each of which has a different activity depending on productivity and the results of their processing. Farmer groups in the Dawuhan Village have a thirty three groups of families that have different built characteristics depending on the production of the garden or rice field owned by each member.

Based on the results of market surveys and analysis, the need for various types of industries that utilize cassava as raw material is very large because cassava can produce up to 14 kinds of derivative products used by the food industry, pharmaceutical industry, chemical industry, building materials industry, paper industry and biofuel industry, whereas in terms of technology the use of cassava as a food ingredient or as a fuel is not a new technology especially technology that is not affordable for our nation (Saleh Widodo, 2007).

Then it is necessary to increase the public's attention to the processing of cassava as a processed product that has quality, taste and has a high selling value. Food and processed cassava products as a source of energy and nutrients, there are certain components or properties that have physiological effects or functional properties and affect health. The superiority of functional properties of cassava as a source of carbohydrates lies in dietary fiber, starch digestibility and glycemic index (Widowati and Wargiono 2009).

METHODS

The implementation of activities that will be used to overcome the problems faced by the study community includes the following stages (Adrianus, 2006):

a) Identification of field problems in the target audience of several members of the Farmer Group in Dawuhan Village, which are carried out through interviews and field observations;
b) Preparation and debriefing of the mechanism for implementing of the Thematic of Community Services Program activities which consist of providing its to preparation and debriefing materials that students need in the field;
c) The implementation of the real programs at the fields study that will be held in the field study to achieve the expected results.

The method of implementing this activity applies a training method developed according to As'adi Muhammad's theory (Adrianus, 2006), that the implementation of this activity adheres to the principle of learning while repeating and trying to improve (learning by doing & trial and refinement) and learning while implementing it directly with real work tools and working materials. And the implementation is done by empowering the target groups as follows:

a) Face-to-face (understanding of problems and program socialization) to reveal the ability of knowledge and understanding sensitivity owned by the group targets;
b) Installation of cassava chopper production equipment to understand the workings of the tools and specifications;

c) Training activity of production to develop of motoric skills to produce the achievement of the target group's abilities as expected.

The implementation of a real work lecture with this thematic real work course scheme develops training in the production of cassava chips in the Farmer Groups of Dawuhan Village to improve the economy of the local community. The production process of cassava chips as part of the implementation of thematic real work lectures was developed according to standard procedures in the good processing of cassava chips production (Wulandari et al., 2009).

The development of cassava utilization as a functional food ingredient is very prospective in terms of the availability of raw materials. This is due to the high level of cassava. This opens business opportunities for producers of fresh cassava and intermediate (flour) products. As one of the processed products that can be developed as potential food ingredients and also as a source of economic potential for the community is cassava chips. The process of procedure to produce cassava chips products is carried out with cassava stripping, washing, confining, frying, and seasoning and product packaging (Salunkhe et al., 1998).

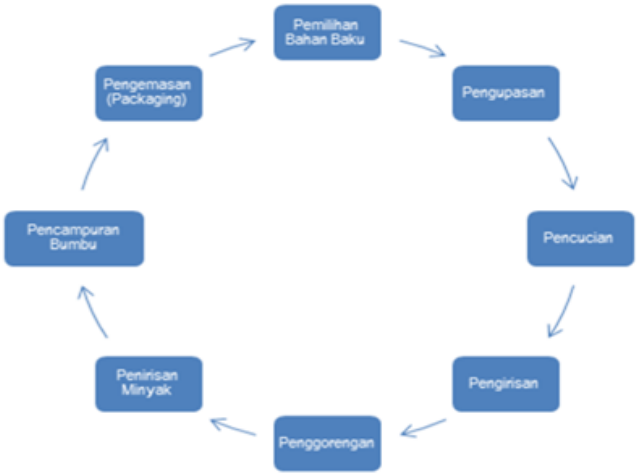

Figure 1. The process of producing cassava chips.

RESULT AND DISCUSSION

The results of several cassava processing operations into processed products in the form of cassava chips, several results were obtained, namely:

a) Slicing process

After stripping and washing cassava from the skin of the fruit, then it is done by crushing cassava into thin shapes with a certain thickness as needed. To cut or slice cassava most people will use knives or other sharp objects that can be used and take a long time, in its development with more market demands then the use of tools or machine volume to accelerate the production process so that it can help business capacity that can increase production volume cassava chips, using semi-automatic or automatic cassava slicer or cutting machine (Sugihantoro, 2010). The motor works of thats machine is driven by an electric motor on the motor shaft mounted driver pulley, and the main shaft is pulley driven and the pulley is connected to the v-belt so that when the motor is turned on the driver pulley will rotate and rotate pulley driven. Because both pulleys are mounted on the motor shaft and the main shaft will also rotate, where the main shaft is mounted rotating disk, the blade will also rotate. So that the disc that has been attached to the knife will slice the cassava cassava stored in the feed and the incision falls into the receptacle.

Figure 2. Cassava crushing process and the products.

The production results obtained in this chopper machine are able to produce 1 kg of cassava chops in 1.5 minutes more than the manual chopper which is able to produce 1 kg of cassava chops within 6 minutes (table 1). The time needed for each cassava chopper is 1 second. So in one hour this machine can produce as much as 40 kg of cassava chopped more than a manual chopper that can only produce as much as 10 kg of cassava chops in one hour. However, keep in mind also that the time is calculated from the effective time without rest, the addition of cassava ingredients, and damage to the machine and other things such as operator turnover and others. This chopped cassava sheet is circular. From the results of the observations obtained a comparison between conventional methods compared to using slicing machine tools, namely:

Table 1. Comparison of results of slicing process

No	Method	Thickness (mm)	Capacity (kg/hr)	Quality of Product
1	Traditional (manual)	1.5 – 3.5	3-4	diverse
2	Conventional	1.5 - 3	10	fixed
3	Copper Machine	1-2	40	fixed

With the thickness of cassava slices constantly up to 2 milimetera thickness can be produced of slicing of cassava with a production capacity of up to 40 kg per-hour, and this machine durability can be relied on for constant of slicing of cassava production.

b) Draining process

The process of processing cassava into chips is done by frying. The process of frying this product will make the processed more delicious because it can produce processed that has a dry and savory taste but still contains oil in it. To eliminate or reduce the content of oil in the results of fried foods can be done with an oil slicing machine. The use of this spinner machine can reduce the oil content in food especially for foods that use the frying process. By using a spinner machine to reduce the oil content will decrease and foods that use the frying process with oil can be consumed without having to worry about the dangers (Wulandari et al., 2009).

The spinner machine can be used with a production capacity of five kilograms with each production process. The need for electrical power to use a spinner machine of 200 watts and the required voltage of 220 volts with an intake requirement of 0.5 to 1.0 house power. The size of the spinner machine actually has a dimension of 100 centimeters in length and if the width is up to 85 centimeters and the height of the spinner machine is up to 80 centimeters. The materials used in the manufacture of tubes, baskets, tubes and cylinders all use materials from stainless steel so that it is safe to use besides that the process of cleaning the machine is also very easy. And if the frame used is indeed made of iron so that the machine can be sturdy to accommodate a large amount of capacity.

This slicing process by inserting the results of fried chips into the spinner machine for approximately 10 minutes. After that, the results of the fried food can be moved in the container provided as shown in figure 3.

Figure 3. Draining oil with a spinner.

From field observations it was found that the oil content of the sliced cassava chips ranged from 10.17% - 19.5%. The highest oil content in cassava chips samples was in the 500 rpm round treatment with a duration of 80 seconds while the lowest value was at 400 rpm rotation with a duration of 40 seconds. According to Wulandari and Nunuk (2009) the main principle of oil-slicing machines is to reduce the oil content of materials by using high-speed techniques (centrifuges) so as to be able to pull some oil out. This can also be seen from the surface of the sweet potato chips produced which are drier. Based on previous research (Wulandari, et al., 2009), cassava chips which were drained using an oil-thinner (spinner) machine were able to reduce oil content by 7.14% - 22.35%.

CONCLUSION

From the description of the activities above, several points of conclusions from the service activities that have been carried out, namely:

1. We are as the team group of f the Thematic of Community Services Program in Dawuhan Village has succeeded in designing cassava slicing machines as a tools that can be help Farmers Group at Dawuhan Village to increase the quantity and quality of production of cassava chips products.
2. The use of slicing machines to produce slicing cassava as be raw materials to produce cassava chips products that are more even and consistent in thickness according to the needs with the ability to reach 40 kilograms per-hour.
3. The use of a draining machine in cassava chips products can reduce the oil content reaching 10.17% - 19.5% and improve the quality of products to be more savory.

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