Empowerment of NU Community Through Business Development of Banana Chips

Khoirul Hidayat : Trunojoyo University, Indonesia
M. Adhi Prasnowo : Maarif Hasyim Latif University, Indonesia
Shafiq Nurdin : Polytechnic of Unisma Malang, Indonesia
Abdul Halim Fathani : Islamic University of Malang, Indonesia
E-mail: irul_ie@yahoo.co.id

Abstract: *Rural Community Cowek majority NU members who always keep the tradition and culture of NU which always makes togetherness and mutual cooperation as well as not to damage the existing tradition in a society which is often called Islamic archipelago. One is cultivated by the community and the results are very abundant in this country are bananas, especially the banana is a fruit of the plant regardless of the season and take place throughout the year and the very easy process of planting. Post-harvest handling processes are often only picked bananas and then directly sold to the consumer either to the village below and Pandaan was stricken with a fairly cheap price. The process of improving the business results of the processed products to increase the selling bananas do with one of them being the manufacture of banana chips produced by the local community, of course, the expected results in the form of processed bananas, banana chips will improve the community economy. The results of dialogue with the people who have does business of making banana chips, agreed efforts to address production constraints primary preferred treatment is a tool for the process of slicing bananas, in this case, to be made is slicer banana mechanically by an electric motor, which aims to make the production process manufacture of banana chips can be increased. The method used in this NU community development activities is the Participatory Rural Appraisal (PRA) is the public involved in this. It started with a discussion with the community in identifying community problems, determining the priority issues that must be resolved. The results of this community empowerment felt by the results in the presence of a banana slicer machine is capable of producing 50 kg/hour, which was previously only 10 kg/hour. In addition to higher yields, the result is also more evenly incision size, and are no longer too thick or too thin as it is today. With the banana,*

slicer machine can solve the problems of society and can increase turnover and increase their excretion of NU community welfare.

Keywords: Empowerment, NU Community, Banana Chips

A. INTRODUCTION

Cowek village is a village located in District Purwodadi, Pasuruan and an area of approximately 1008.6 hectares. Cowek village has a strategic location in the path of the unfortunate tourist district, Pasuruan and Bromo and is located on the hills Sempu. The natural state is generally a rice field (about 106.598 hectares), and moor/field (about 154.754 hectares). Most of the technical irrigated agricultural land so that is an area that has a high productivity of agricultural products is quite high. But despite its natural potential that is complete and quite abundant but has not been able to provide the maximum benefit of the villagers Cowek due to limited human resources for many of its citizens because of the average elementary and secondary school graduates. Village Community Cowek majority of NU members who always keep the tradition and culture of NU which always makes togetherness and mutual cooperation as well as not to damage the existing tradition in a society which is often called Islamic archipelago.

One is cultivated by the farmers and the results are very abundant in this village are bananas, especially the banana is a fruit of the plant regardless of the season and take place throughout the year and the very easy process of planting. Post-harvest handling processes are often only picked bananas and then directly sold to the consumer either to the village below and Pandaan was stricken with a fairly cheap price. Banana plantains produced include jackfruit, kepok banana, horn banana and banana honey, the most widely planted is a type of plantain jackfruit.

The process of improving the results of operations of refined products to increase the selling bananas do with one of them being the manufacture of banana chips of various flavors (while the taste there is the original flavor, sweetness, flavor roasted corn and spicy flavor) produced by SMEs banana chips, of course expected processed products such as bananas, banana chips of various flavors will boost the economy of the village residents Cowek. Where the processed banana plantains jackfruit is the most widely planted by the community and sales of bananas is indeed low. Selection of bananas for

chips in addition to the abundant fruit skin also has characteristics remain green even when ripe. The rind is rather thick, large-sized fruit. The length of the fruit can reach 28 cm, the shape of the curved pieces, weighing 150-180 grams apiece. Reddish yellow fruit flesh with a sweet taste slightly sour and fragrant aroma.

The process of making banana chips comprising the step of stripping, slicing, and frying. Three stages must be carried out simultaneously and in a short time. If the phase peeling, slicing, and frying, the intervals are too long, then it is possible that not fry sliced bananas, will oxidize to brown. Moreover, if it is still unripe bananas, then once peeled, will be directly oxidized. Half-ripe bananas do not oxidize easily.

Until the chopper had to peel one by one and a half-ripe bananas next to them, and once peeled, chopped directly using a manual chopper. Sliced bananas that fall into the container, directly inserted into the skillet to fry until dry. This banana incision requires skill. Good skill picking bananas with the right level of maturity, as well as the skills to operate equipment chopper.

Chopper tool is used for this is in the form of a plank of wood shavings were placed supine, and bananas lengthwise moved repeatedly over the blade mounted on the board. Bananas will be cut with the same level of thinness. Banana chopper generally female, and always wear gloves. To gloves to avoid injuries from the knife, keeping the slices hygienic results, also in order to protect the hands from the banana juice.

From observations in addition to production constraints due to the tools slicing bananas that are still manual also drying still hanging with the sun so when the weather changes, it will affect the quality of the product, packaging is very simple and less attractive and marketing problems that still have not been up for only depend on the stall small -warung in rural areas under the rural Cowek, partly Purwodadi Subdistrict and some areas poor Lawang.

Some of the constraints felt by SMEs, banana chips which seek to increase the sales of bananas in a way of making chips that have been implemented is the slicing and drying are still manual, mixing flavors are still using makeshift tools, the packaging is very simple and less attractive and marketing problems still not maximized.

Under these conditions, required treatment in stages, one of which is a machine that is able to save time and costs as well as improve the

optimization of production processes of manufacture of banana chips are preferred in this case is a mechanical banana slicer machine.

B. METHODS

The method used in this NU community development activities is the Participatory Rural Appraisal (PRA) is the public involved in this. It started with a discussion with the community in identifying community problems, determining the priority issues that must be resolved. The results of discussions with the community will be studied by the team to find a solution so that the appropriate solution given in solving community problems. After obtaining a solution, then the banana slicer machine manufacture and conduct workshops and mentoring operation of the machine and how to perform maintenance. Monitoring and evaluation are made to see results that have been done, whether it is in accordance with what has been planned or not and to see the effectiveness of this community development program..

C. Result and Discussion

The observations were made to obtain information regarding the condition of society and banana chips production process. Observations were also done to look at surrounding communities SMEs banana chips. This is done to look at the opportunities available resources in a nearby partner. The resources in question are primarily human resources needed to support improvements that will be done in the partners and resources in the form of raw materials, namely bananas.

Banana chips are processed foods from bananas thinly sliced then fried in oil use up bananas change color and become a crunchy texture. According to SNI 01-4315-1996, banana chips are snack food products made from sliced bananas and fried, with or without food additives are permitted.

Banana chips industry widely spread in various regions in Indonesia and became a mainstay commodity livelihood of local communities. The process of making banana chips is very easy and simple to use the auxiliary equipment. At first, banana sliced thin with a thickness of approximately 2 mm. Excision can be performed transverse or longitudinal liking, and the banana slices drained moment to lower the water level is so ready to be fried.

Once cooked, fried banana chips are removed and drained. To enhance the flavor, spices included extras like brown sugar water. Once cool, banana chips packed in air-tight plastic wrapping and are ready to be marketed.

Bananas can be used as an alternative staple food they contain a high carbohydrate, so it can replace most of the consumption of rice and wheat. For this purpose, use raw bananas which are then processed into various products, either through the development of cassava and flour and processed from the fruit like a bananas sale, banana juice, and banana chips.

Carbohydrates bananas is a complex carbohydrate moderate and are available in increments so that it can provide energy in a time not too fast. Compared with sugar, syrup, banana carbohydrates provide the energy a little bit slower, but faster than rice, biscuits and similar bakery. The energy value of banana 136 calories for every 100 grams, but protein and fat content in bananas are very low at only 2.3 percent and 1.3 percent. Bananas contain a lot of minerals such as magnesium, potassium, phosphorus, calcium, and iron. The content of vitamins in bananas is vitamin A, which is about 0.003 to 1.0 mg / 100 grams of bananas, B, B6, C; vitamin C in table bananas (banana ready to be eaten without being processed) is about 10 mg / 100 grams of processed banana while about 20 to 25 mg / 100 g banana also contains serotonin. Bananas also contain acids which include malic acid, citric acid, and oxalic acid. When bananas are still raw is the main organic acids oxalic acid, but as it gets older and mature major organic acid is malic acid. While the pH decreased from 5.4 (crude) to 4.5 when the bananas to ripen.

Banana chips are snack food products made from sliced bananas and fried, with or without food additives are permitted. The raw material in the manufacture of banana chips is unripe bananas. Banana chosen is an old and still raw so easily sliced/chopped into thin. Some companies use terms of three-quarters (fruit which is roughly half its maximum size, with the corners of the fruit which is obvious), three-quarters full (the fruit with the corners are not so prominent) and full fruit (fruit angles virtually disappear altogether). Bananas are either used for starch is in the maturity level of three-quarters full, or at the maturity of 75-80%, which is kepok bananas old but still green. At this maturity levels of starch in bananas has reached its optimum.

The process of making banana chips can be as simple as peeling a banana skin, meat slicing bananas with 2-3 mm thick lengthwise or

crosswise, soaking the slices or chunks of banana to improve the texture and color of banana chips, draining and frying. Before frying banana slices can be dried first. Good banana chips are those that have a high degree of crispness and bright colors.

The raw material is banana chips. Bananas are to be made into crisps been old and still raw to be easily sliced, particularly processed banana species such as banana kepok, horn, jackfruit, cotton, and other types of processed bananas. Banana chips can be made in multiple flavors depending on seasoning were added. Additional materials required as a flavor enhancer, among others, refined salt to taste salty; granulated sugar, brown sugar, and sugar ants for sweetness; chili powder for a spicy flavor; and condiments for the chips with a distinctive flavor. Preparation of raw materials also includes auxiliary raw materials and additional raw materials such as water and cooking oil

Chips is a product produced through the stages of stripping, slicing, and frying. Chips absorb a lot of oil during frying. More or less oil is absorbed will affect the taste, texture, and appearance of chips. Usually, the process is carried out in the food industry generally uses deep fat frying. The purpose of processing bananas into banana chips is to provide added value and improve/extend the benefit of a banana. The processing of banana chips, in general, a lot is the conventional way and the way of vacuum (vacuumfrying). Processing in a conventional manner, namely by using a crock fryer where the condition of fried food open to the air. Generally, the equipment used in the form of a frying pan containing cooking oil, and then heated with a stove or furnace. While processing by vacuum frying is frying is done in confined space conditions and with low pressure, good conditions for vacuum frying the fruit is at a temperature of 90 to 100°C, a vacuum pressure of 70 cmHg with old frying pan 60 to 90 minutes.

Quality is a combination of product attributes were assessed by organoleptic (color, texture, taste, and smell). Digest elements of quality can be understood as follows: Quality includes an attempt to meet or exceed customer expectations, Quality includes products, services, people, processes and the environment, Quality is an ever-changing condition (eg, deemed qualified this time may be considered to be inferior in the future).

Classification of quality characteristics of foodstuffs there are two groups, namely: (1) physical characteristics / visible, including the appearance of the colors, size, shape, and physical disabilities; viscosity and

consistency; ie flavor sensations of smell and tasting combinations, and (2) the hidden characteristics, the nutritional value and microbiological safety. The quality properties are properties that can directly be observed, analyzed or measured from the product. Properties that can be objectively physical properties (chemical composition, moisture content, ash content, weight and size) or a subjective organoleptic properties (taste, smell and texture). These properties can be measured by means of physical and sensory testing.

Quality according to ISO-9000 as a degree from a series of characteristics of the product or services that meet the needs or expectations expressed. To guarantee the quality of products, in Indonesia has set quality standards banana chips issued by the National Standardization Agency (BSN) is SNI No. 01-4315-1996. With the standard of product quality, then the consumers will benefit because it will obtain a good quality product.

Banana chips have pretty high nutritional value, especially the energy value of 100 g banana chips obtained the energy of 519 kcal. The energy value is much higher than with beef cattle, which ranges from 120-430 kcal per 100 g. Value banana chips higher energy than the energy value of rice is only 364 kcal. The high energy value is derived from the ratio of carbohydrates and oil absorbed during frying chips. That is why, banana chips suitable for use as a food supplier of energy, especially when it's busy activities.

Quality banana chips are determined by three main factors, namely flavor and crispness and wedge shape is not broken. How to slice a banana is one of the major constraints in generating high quality banana chips. The most banana chips industry is still using the manual method, using a knife to slice a banana, so that the slices are not optimal. In addition, there are several home industry, using a blade that is placed on the rotating disc. If the banana is still long, slicing process can be done easily. But if the banana is already short (because it is sliced), then sliced bananas produced much torn. Therefore, in addition to poor hygiene, the thickness of the slices of banana. Produced is not uniform. Whereas slice thickness greatly affects the crispness of banana chips. It is necessary for the design of a banana slicer machine capable of producing banana slices with a uniform thickness, more hygienic, safe, and can improve production capacity. The use of agricultural tools and machines have long been used and followed its development with the development of human culture. The use of agricultural tools and machines used to refine and improve the welfare of the people in order to obtain

greater production efficiency of human resources, time efficiency, and lower costs.

Slicer is one form of surgery by cutting the size reduction. The purpose of the slicer is to reduce the size of materials to form chips. The quality of the results depends on the characteristics of the slicing blade, while the slicer efficiency is strongly influenced by the nature of the geometry and kinematic conditions of the functional part. The banana slicer using crab eyes engine mounted on a disc rotating on its axis as a medium sliced with a thickness that can be set by adjusting the distance of the blade against the anvil dial. On this tool, the author uses the electric motor as a power source. Then the electric motor is connected with a slicing cylinder to rotate. The cylinder rounds will be slicing ingredients. Slicer is also equipped with a hopper as a container entry of material so that the material easier to cut and not easily ejected.

D. Conclusions

The results of this community empowerment felt by the results in the presence of a banana slicer machine is capable of producing 50 kg per hour, which was previously only 10 kg per hour. In addition to higher yields, the result is also more evenly incision size, and are no longer too thick or too thin as it is today. With the banana, slicer machine can solve the problems of society and can increase turnover and increase their excretion of NU community welfare.

References

Anggono, W. dan Siahaan, 2009, Sustainable Product Development Alat Pengangkut Sampah Dengan Sistem Terpisah Dan Kompatibel Dengan Semua Jenis Motor, Jurnal Jurusan Teknik Mesin dan Industri FT UGM, ISBN 978-602-8125-51-2 hal 165-169.

Cohen L. 1995. Quality Function Deployment: How to Make QFD Work for You. Massachussetts: Prentice Hall.

Ekawati Y. and Bazarado M., "Designing Food Products Based on Carrots Using the Product Design Phase of Quality Function Deployment". ARPN Journal of

Engineering and Applied Sciences. 11(5): 3109 - 3116. (2016)

Ernanda, Wignjosoebroto, S. Sudiarno, A. 2010. Perancangan Gerobak Sampah Yang Ergonomis Dengan Menggunakan Metode Kansei Engineering Dan Metode Quality Function Deployment, ITS Surabaya.

Febrianto, 2009, Perancangan Ulang Gerobak Angkut Dengan Pendekatan Antropometri, Tugas Akhir Teknik Industri Universitas Muhammadiyah Surakarta.

Hurst, K. 2006. Prinsip – Prinsip Perancangan Teknik. Erlangga. Jakarta.

Lin, M.C. 2004. Using Fuzzy QFD for Design of Low-end Digital Camera, International Journal of Applied Science and Engineering, 2, 3:222-233

Mardi Yatmo Hutomo, (2000). Pemberdayaan Masyarakat dalam Bidang Ekonomi:Tinjauan Teoritik dan Implementasi

Moldovan L. 2014. QFD Employment for a New Product Design in a Mineral Water Company. Procedia Technology. 12: 462-468.

Nawangpalupi. C.B, dan Pambudi. N. F. Rancangan Tempat dan Gerobak Sampah Untuk Perbaikan Sistem Pengumpulan Sampah di Taman Hutan Raya, Jurnal Ilmiah Teknik Industri UMS, ISSN 1412-6869 hal 153-166

Nurdin, S. Ahlan, 2014. "Perancangan Odong-Odong Portable untuk Semua Jenis Kendaraan Bermotor Dengan Metode Quality Function Deployment" Prosiding Seminar Nasional Industrialisasi Madura 2014 ISBN 2302-4135.

Nurmianto, E. 2004. Ergonomi Konsep Dasar dan Aplikasinya. Edisi Kedua. Penerbit Guna Widya, Institut Teknologi Sepuluh Nopember. Surabaya.

Ulrich, K.T. and Eppinger, S.D. 2008. Product Design and Development (third edition). McGraw-Hill, Inc., New York.

Hurst, K. 2006. *Prinsip – Prinsip Perancangan Teknik.* Erlangga. Jakarta.

Nurmianto, E. 2004. *Ergonomi Konsep Dasar dan Aplikasinya*. Edisi Kedua. Penerbit Guna Widya, Institut Teknologi Sepuluh Nopember. Surabaya