



THE OPTIMIZATION OF JACKFRUIT ECONOMIC VALUE ADDED THROUGH SOCIALIZATION AND TRAINING ON POST-HARVEST PRODUCTION

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ABSTRACT

This community services aimed at providing knowledge and training to jackfruit farmers in Kalangsono Village in relation to the optimization of post-harvest production of jackfruit products. The training was done in order to empower Kalangsono villagers' potential economy, especially on the jackfruit plantation products owned by most of Kalangsono villagers. The problem arose in the field was the low selling value of jackfruit products although there was large amount of jackfruit supply. As a result, the abundant jackfruit resources did not fully contribute to people welfare. It was caused by the not optimum jackfruit processing, and the people in Kalangsono tended to sell the fruits in raw. This condition was certainly unfortunate and harmed Kalangsono villagers who work in agricultural sector, and utilize jackfruit as their important secondary income. The cause of this situation was the lack capability and knowledge about post-harvest production processing, marketing, and business management. Therefore, this service was expected to add knowledge and skills to Kalangsono villagers in relation to jackfruit post-harvest production processing so that its economic value added improve, and obtain multiplier effects on the community of Kalangsono Villager, Banyu Putih Sub-district, Batang Regency.

Pengabdian ini bertujuan untuk memberikan pengetahuan dan pelatihan kepada petani buah nangka di desa Kalangsono berkaitan dengan optimalisasi produksi pasca panen produk olahan buah nangka. Pelatihan ini dilakukan dalam rangka melakukan pemberdayaan ekonomi masyarakat desa Kalangsono yang potensial terutama pada hasil kebun nangka yang dimiliki sebagian besar masyarakat di desa Kalangsono. Permasalahan yang timbul selama ini adalah banyaknya supply nangka disana tetapi, harga jualnya sangat rendah sekali sehingga melimpahnya sumber daya nangka disana tetapi sama sekali tidak menyumbang kesejahteraan masyarakat sekitar. Hal ini dikarenakan masih belum optimalnya pengolahan buah nangka yang potensial di desa tersebut, masyarakat sekitar cenderung hanya dapat menjual secara mentah semata. Kondisi tersebut tentunya sangat disayangkan dan cenderung merugikan bagi masyarakat desa Kalangsono yang sebagian besar berprofesi pada sektor pertanian dan menggunakan produksi buah nangka sebagai sumber pendapatan sekunder yang sangat penting. Penyebab dari situasi tersebut adalah kurang adanya kecakapan dan pengetahuan tentang pengolahan produksi pasca panen, pemasaran dan manajemen usaha. Adanya pengabdian ini diharapkan dapat menambah pengetahuan dan keterampilan warga masyarakat desa Kalangsono terkait pengelolaan pasca panen buah nangka sehingga economic value added nangka tersebut meningkat dan memiliki multiplier effect terhadap masyarakat Desa Kalangsono, Kecamatan Banyuputih, Kabupaten Batang

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INTRODUCTION

Kalangsono Village is one of the regions in Batang Regency, Central Java Province. Geographically, the area of Kalangsono village is very potential in agricultural development. The agricultural products of Kalangsono are rice, corn, jicama, jackfruit, sugar cane and others. After conducting an observation along Semarang-Pekalongan highways, Jackfruit is one of superior products of Kalangsono, Banyuputih Sub-district, Batang Regency.

Unfortunately, the abundant jackfruit production in Kalangsono has not yet been fully maximized. Farmers who harvest and utilize jackfruit still use traditional and conventional ways. They only sell it, even when it is still on the tree with the low price. Such condition is certainly unfavorable for farmers.

Jackfruit or *Artocarpus heterophyllus* is actually not the main commodity of Kalangsono, but its existence is very meaningful for the people. Based on the results of the interview, jackfruits owned by farmers on non-paddy agricultural land are only used as "secondary earning" that can be used before the harvest comes. In addition, it is also used as "Uang Dapur" for importunate needs such as children's pocket money and buying consumable things such as soap, shampoo, toothpaste and others. It indicates that if the jackfruit can be well managed, it will provide more meaningful usefulness for farmers in Kalangsono.

Even though jackfruit is not the main commodity of Kalangsono, it is one of the most abundant agricultural products in the village. Jackfruit does not really have the economic value for Kalangsono people since they only use it for sale in a whole. Consequently, the price is relatively cheap. In addition, it is only consumed privately. The jackfruit often becomes rotten before being consumed or sold because of the abundant yield.

Knowing the great potential of jackfruit in Kalangsono Village, it will be better to use it to provide more benefits and improve people economy in Kalangsono. Therefore, jackfruit empowerment should be done to make it have higher economic value. One of the efforts is by processing the jackfruit into more varied and modern foods.

Basically, jackfruit is quite flexible and easy to be processed into various types of food. In addition, it has a typical shape, taste and specific aroma. It also has a variety of health benefits. Not only its flesh, the seeds can also be processed into varied and modern foods. They can be processed into chips, syrup, pudding, seed emping, and also jackfruit seed flour for making bread or cake and any other processing.

The orientation of the community service activities in Kalangsono village was focused on processed jackfruit in the form of chips and flour from jackfruit seed as an alternative ingredient for cake or bread. Hopefully, this community service could give positive impact to the economic condition of the village. Based on the description of the situation and SWOT analysis, the main problems of the farmers in Kalangsono in terms of the potential utilization of jackfruits were: 1) How

to process the post-harvest products?, 2) How to process the jackfruit to have high economic value?, and 3) how to find solutions for the limited marketing and packaging of agricultural products?

METHOD

The service was carried out in the Village of Kalangsono, Banyuputih Sub-district, Batang Regency. The participants were village officials and the representative of Kalangsono people. The method used was training and assistance. The activities were carried out with collaborative learning models in which the presenters presented the materials through lecture, followed by question and answer session, and also demonstration and drill method for practice.

DISCUSSION

The Implementation Concepts

The service for jackfruit production in Kalangsono village had two interrelated targets. The first target was to provide an understanding for people about the potential utilization of jackfruit and the processed products as a solution for the economic condition of Kalangsono village. In this first target, the people obtained direct training on how to process jackfruit into various processed foods especially chips and flour of jackfruit seeds. The second target was the education about the production marketing and its continuity so that hopefully, jackfruit products can improve the economic condition of Kalangsono people.

The initial stage of the service was by identifying the problems and constraints in terms of economic development (the production processed jackfruit) in Kalangsono village. Next, the socialization about the potential of jackfruit and its processed production were given as the solutions of the problems. In this stage, people got the training about the production of processed jackfruit by focusing on chips and flour. Then, the products were optimized through marketing education. Hopefully, after the training, the people will be able to improve the economic condition by maximizing the existing potentials in the village.

The next stage was an assistance from the team (POB) to ensure the continuity of these activities. Hopefully, through this assistance, the jackfruit production will run continuously.

The activity began with socialization to the people and village officials of Kalangsono village. It was then followed by the jackfruit-based production training. After that, the activities were the provision of assistance and guidance of production and marketing process from the service team. Further, the activities were as follows: a). The initial stage, in this stage the team collected the data and coordinated the problems and the solutions. This stage has been carried out several times before the proposal was finalized; b). The implementation of preparatory stage, in this stage the service team together with partners coordinated to prepare the activities carry out on April 2017; c). The implementation of jackfruit-based production and its marketing training, the activi-

ties were carried out in April – May 2017; d). The assistance of production and marketing, these activities were carried out in May 2017.

This study used participatory approach as the method of service activities implementation. In this approach, the training implementation was carried out in participatory between the trainers and trainees. The activities were done through several steps as follows: a). Analyzing the problems existed in the service location as well as the solutions; b). Preparing the service, including preparing the participants and assistance, facilitator staffs and instructors consisted of lectures and students, and also training facilities; c). Training implementation covering jackfruit-based processed production training, namely chips and flour and also the product marketing; d). Assistance implementation to all of business persons of jackfruit products; e). Monitoring and evaluation of the training which was conducted periodically for its sustainability.

The initial activities of this service was done by observing the location and asking for permission. The observation aimed to directly find out the condition and environment of target community. It was done by directly visiting the local farmers, especially in Kalangsono village, Banyuputih.

The service team directly observed the local jackfruit farmers' activities in the village. In addition, the team also interviewed them in terms of the condition of jackfruit plantation, its utilization, and how the government empowered the local farmers. Besides, the team also took a closer look about the potentials in the village, such as the products, supporting facilities that could empower and be used maximally together with the people.

Then, the service team also met the chair of local farmers in Kalangsono village and also the village chief. It was aimed to explain the service programs as well ask for the permission. This activity has been conducted on:

a. Socialization

Day, Date : Sunday, July 11th 2017

Place : Kalangsono village office

The result of this activity are:

- 1). The establishment of good relation between the head of farmer community (gapoktan) and the people of farmer group in Kalangsono village;
- 2). The service team directly found out the condition of farmer group in Kalangsono and the targeted community;
- 3). People in Kalangsono Village, particularly farmers and the owner of jackfruit plantations were very enthusiastic about the community service programs proven by their statement saying that they wanted to have this kind of program to help them improve;

b. Programs preparation was done through the following processes:

1). Discussion

The discussion was done among the team members to review the materials and document compiling.

2). Acoordination meeting and introduction to the

programs. A coordination meeting and final preparation. These activities were carried out in the office of Economic Education Department in the following settings:

Day/ Date : Thursday, July 14 2017

Time : 10 – 11 AM

Place : Economic Education Department office in UNNES

Participants : the Service Team

c. The implementation of the training on the processing of jackfruit was successfully done on Saturday to August 22, 2017. It took place in one of the houses of the members of farmer group at 9 AM to 3 PM. This training was delivered using attractive and participative methods so that Kalangsono villagers were enthusiastic in joining the training. In details, the rundown of the training was as follows:

- 1). Opening. This agendum was opened by praying together, and led by a lecturer. The next agendum was speeches from the representative of the lecturer team, the chief of Gapoktan, and the chief of the village;
- 2). Materials delivery (the use of economic value added for jackfruit products to empower farmer groups);
- 3). Motivation and closing of this training took place in August 27, 2017. After the closing, it was known that one of the members of farmer groups, Mr. Nasokha used direct practice method for process jackfruit into chips and dodol, and did direct selling though gapoktan;
- 4). The evaluation was carried out a week after the training in August 13, 2017. It was done by interviewing gapoktan members, and the farmer groups in Kalangsono village, Banyuputih Sub-district. The results showed that the community were satisfied with the programs and wanted it to be carried out again and sustainable.

The Processes and Output of the Service

University as an educational institution is responsible in improving education quality, covering community empowerment in the field of entrepreneurship. The government considers an university as a strategic institution in developing the capacity of micro, small and medium business actors as well as entrepreneurship programs in Indonesia. Moreover, university must actively operates its incubator agency to support the capacity improvement of the Human Resources of micro, small, and medium enterprises (UMKM), and entrepreneurship. Academically, university is believed to have excellence in carrying out its functions to enhance various aspects of MSME needs. For example, Human Resources capacity, technical guidance, building entrepreneurs' spirit, and also capital.

An effort done to actualize the above objectives is through community service done in Kalangsono Village, Batang Regency. To pursues the objectives, the service team invited two cooking teachers from Ibu Kartini Vocational High School in Semarang to deal with the

processing of added value for jackfruit, namely by making chips and fruit dodol. These two people were considered to have strong motivation in entrepreneurship and be able to develop vacuum frying-based fruit chips business. In addition, learning processes, and self-development spirit are the keys of success in entrepreneurship.

The service team introduced a vacuum frying tool, how to use it, and how to take care of it. At glance, it was difficult to use vacuum frying, but through some training processes, it would be easy to do. The difficulty arose because of many components to operate, and the participants did not really understand how to use it. To master this tool, the service team provided a training on how to use vacuum frying.

The training on the use of vacuum frying was given to the two tenants. It was because these tenants complete each other in the production. In brief, the preparations done prior to the training were preparing raw materials in form of fresh fruits, namely jackfruit, and snake fruit or salak. The selection of fresh fruits is the key for the success of chips production. It is because when the fruits are unripe, the results would be brown or wrinkled. The reason of selecting jackfruit and snake fruit was because these fruits grow easily in this area.

The chips produced by the training has not achieved the same quality standard. It could be seen from its shapes (some were curly, some were good), colors (golden yellow, bright yellow, white, and even burnt). Additionally, the snake fruits processed into chips were those which had large size and were sweet. To process snake fruit, we need to peel, separate from the epidermis and seeds, and then slice vertically into 2 or 3 parts. The slices were washed with running until clean, drained and frozen in a -5o C freezer for 24 hours. The frozen snake fruit slices were fried at a temperature of 90-120oC and the pressure of 0.6-0.7 atm for 1.5-2 hours.

In the beginning of frying, the degree was adjusted to 120oC degree, and the pressure would automatically decrease from 0.8 atm to 0.75 atm, and lasted for 20 – 30 minutes. This condition lasted until the condensed vapor disappear. Once it achieved this condition, the frying temperature was decreased to 100oC until the oil bubble decreased, shrunk and disappeared and the pressure would drop from 0.75 to 0.70 atm and lasted for 15-20 minutes. The final stage of the frying pan was to reduce the temperature to 90oC until the rest oil bubbles in the vacuum tube run out. At this final stage the condition of the pressure would be stable between 0.65-0.70 atm. After achieving this condition, sake fruit chips can be removed and drained in a spinner machine for \pm 30 minutes. The yield of snake fruit chips obtained was 23-25%. It means that the production of 1 kg of snake fruit chips requires as much as 4.3-4.5 kg slices.

Jackfruit chips were made from half-ripe until ripe jackfruit depending on the type of chips you want. The maturity level of jackfruit influences the end result of fried foods, that is, if the jackfruit used is half-ripe, it will produce jackfruit chips with a low to fresh sweetness level (not sweet). If the jackfruit used is a the ripe one the result will taste sweet. The selected jackfruit in this service was a jackfruit that had a relatively large size

with a dense texture and pale yellow to reddish yellow color. To obtain maximum results, the selected jackfruit should be naturally ripe and not from curing. The carbi- de ripen jackfruit is not good to process as chips because it has less dense structure and is easy to get damaged when being peeled. Further, to make chips, jackfruit was separated from its epidermis skin, sap, and seeds. The peeled jackfruit was washed using the running water to clean the remaining dirt and sap that was sticking. Next, the jackfruit was frozen in the freezer at -500C for 24 hours. The frozen jackfruit was fried on a vacuum frying machine at a temperature of 80-1200C at a pressure of 0.8-0.65 atm for 1.5-2 hours.

In the initial stage of the frying pan, the temperature used was 1200C. At this stage, the condition of the frying chamber was misty and the pressure would automatically decrease from 0.8 to 0.75 atm and lasted for 20-30 minutes until the fog on the glass vacuum surface disappeared. When it reached this condition, the temperature was lowered to 1000C and the pressure would decrease again from 0.75-0.65 atm and lasted for 15-20 minutes. This condition lasted until it reached optimal conditions, namely when oil bubbles in the vacuum space gradually decreased, shrunk and disappeared. When it came this condition the temperature was lowered back from 1000C to 800C. At this state, the pressure started to stabilize at 0.65-0.6 atm and lasted for 10-15 minutes until the oil bubble was gone. When the oil bubbles have run out, the chips could be removed and drained in a spinner machine for 15-20 minutes. The yield of jackfruit chips obtained was \pm 25%. This means that to produce 1 kg of jackfruit chips, it takes 4 kg of jackfruit.

CONCLUSION

The service activity with the theme of “the optimization of jackfruit economic value added through socialization and training on post-harvest production” in Kalangsono, Banyuputih Sub-district, Batang Regency was aimed to improve people economy though the empowerment of local potentials, namely jackfruit. Meanwhile, the service activity was in form of the socialization of jackfruit potentials, and its production effort to produce higher economy value as well as the training on marketing methods. The problems faced by the community during the service implementation are lack of capital to produce the processed jackfruit caused by the relatively large capital.

By referring to the above explanation, there is a need for continuous assistance to the related community in relation to the effort of post-harvest production of jackfruit by Kalangsono community, Banyuputih Sub-district, Batang Regency. Besides, the government is suggested to give support in form of capital to the people who are involved in the production of jackfruit post-harvest.

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