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Mushrooms Cultivation Training From Corn Cobs Waste as an Effort to Improve The Economy of Rural Communities

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Abstract:
Corn cobs can be used appropriately and will be of very high value and benefit the community itself, one of which can be used as a medium for corn cob mushrooms. The mushrooms produced can be consumed alone or traded in large markets. Based on the above problems, the authors took the initiative to provide assistance to the village with the aim of utilizing and holding "Training for Making Corn Cob Mushrooms". The use of the corn cob itself to reduce agricultural waste as corn commodities This service aims to provide basic knowledge for community empowerment through the use of waste in Wukirharjo village as well as ways to develop the potential of natural resources in the village. This service in the form of assistance, in addition to partnering with the village head of Wukirharjo and his staff, also includes PKK women and Posyandu cadres. The method applied in this service is by providing assistance and training at the local Village Hall. The expected result of this service is a motivation for the community to be more creative in their work through the use of goods or waste around them so that they have economic value that can spur a better economy and support the welfare of the people in Wukirharjo village. This service can be said to be successful when there is a change in people's knowledge and skills regarding formulation, making growth media, and mushroom cultivation techniques using corn cobs.

Keywords: Community Service, Corn Cob Mushroom, Training, Wukirharjo Village

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Introduction

Tuban district is one of the regencies in East Java Province, Indonesia. Tuban Regency is located on the North Coast of East Java. The district with a population of around 1.2 million people consists of 20 sub-districts and thousands of cities in Tuban District. Tuban Regency has a strategic location, namely on the border of East Java and Central Java Provinces by being crossed by Daendels National Road

On the North Coast. Tuban Regency is directly adjacent to Rembang in the west, Lamongan in the east, and Bojonegoro in the south. The administrative center of Tuban Regency is located 100 km northwest of Surabaya City , the capital of East Java Province and 210 km east of Semarang City , the capital of Central Java Province. Therefore, in ancient times Tuban was used as the main port of the Majapahit Kingdom and became one of the center for the spread of Islam by the Walisongo (Wikipedia, 2022).

The area of Tuban Regency is 1,839 km^2, and the sea area is 22,608 km2. The astronomical location of Tuban Regency is at coordinates 111 o 30'–112 o 35 east longitude and 6 o 40'–7 o 18' south latitude. The length of the coastal area is 65 km. The altitude of the land in Tuban Regency is between 0-500 masl. Most of the Tuban Regency has a dry climate with conditions varying from slightly dry to very dry in 19 sub-districts, while those with a slightly wet climate are in 1 sub-district..

Tuban is a tourist destination, because apart from having beautiful beaches (Kalista et al., 2019), it is also a

religious city (Kholifah & Wardhono, 2022). Tropical plants can grow well in this city, such as Siwalan (Kalista et al., 2022), which is the icon of the city of Tuban.

Wukirharjo as part of Tuban located at Parengan Sub-District is a village that has potential in the field of corn farming, corn is a plant that takes its seeds and leaves the skin and cob (Adi, 2016)

Corn cobs are leftovers from the processing of the agricultural industry in corn, the number of which will continue to grow along with the increase in production capacity. The content of corn cobs can be calculated using the Residue to Product Ratio (RPR) value of corn cobs which is 0.273 (at a moisture content of 7.53%) and a calorific value of 4451 kcal/kg. used as raw material for traditional combustion, charcoal making and animal feed can actually be used as a mushroom growing medium (Mahardhika & Dewi, 2016).

However, the limited knowledge of the Wukirharjo community about the use of corn cobs, eventually caused unwanted problems such as the amount of waste scattered around the residence. This happens because of the lack of knowledge and experience known to the community themselves. Wukirharjo village has not been able to provide facilities and infrastructure related to the information needed by the community (Nihayah, 2020).

Based on the results of field observations, interviews with the people of Wukirharjo. After harvesting and the corn is sold by leaving the husks and corncobs, it turns out that the corncobs are only used as fuel, animal feed and traded without any other use. But with enough skill, corncobs can be used for something more useful (Amrul et al., 2018).

The implementation of Community Service Activities carried out by Lecturers and students consisting of several study programs at the PGRI Ronggolawe University Tuban in 2022 in the form of training with the use of local agricultural waste, is expected to be a solution related to the large amount of agricultural waste that lacks benefit for the community and the environment (Setiawati, 2022).

In the implementation of community service in Wukirharjo village, it is realized by training activities by utilizing agricultural waste, namely corncobs as a medium for growing mushrooms that are safe for consumption. Mushroom cultivation with corncob media can be an effort for the community to reduce the amount of waste that is wasted in the surrounding environment (Rofiqah & Andriani, 2020).

With this activity, it is hoped that it can add insight, experience, and community ability in processing corncob waste into something more useful and relatively high selling value. Thus the community can produce food products that are healthy, safe, and environmentally friendly (S. S. et Al, 2020).

Method

In the implementation of community service training on mushrooms from corn cobs in Wukirharjo Village, there are several stages as shown in Figure 1 below:

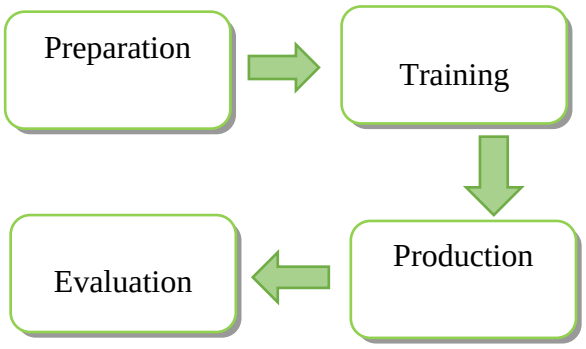

Figure 1. Stages of Community Service Activities through Corn Cob Processing Training in Wukirharjo Village

The first thing to do is identify the problems faced by the community, namely the lack of abundant use of agricultural waste, especially corncob waste. In the village of Wukirharjo, corn cobs are only used as fuel and animal feed. The community service team thinks about solutions related to overcoming these problems (Sari, 2018).

After getting a solution. The second thing to do is to propose a solution in the

form of empowering rural communities through mushroom cultivation training by utilizing corncobs as a medium for growing mushrooms. The proposal was submitted to the village head. After the proposal is accepted, the third stage is the planning of training activities including the preparation of tools and materials, training implementation, product creation and evaluation of activities (Indah & Wardi, 2022).

The first stage is the preparation of training tools and materials. Next is the implementation stage where the villagers of Wukirharjo are gathered and given training as planned. The next stage is the manufacture of products, namely mushrooms with corncob media. And the last is the evaluation and reporting stage, namely by making articles published in scientific journals and mass media which aims to disseminate knowledge and skills to the general public.

In the implementation of this community service activity, the method used is training with the Learning by doing system, with the first step providing material on processing corn cobs into mushroom growing media which is delivered directly by speakers who are proficient and experienced in this field. Furthermore, the community service team with the presenters invited the participants to do it directly step by step according to the material that had been delivered.

Results and discussions

Corncob mushroom training has four stages, namely preparation, training, production, and evaluation stages.

1. Stages of Preparation and Training

The stages of preparation carried out by the community service team by visiting the Wukirharjo Village office through the Head of Wukirharjo Village, Mr. Karsono, that he conveyed that Wukirharjo Village has an abundant corn harvest so that the corn produced only leaves corncobs whose use is only used as fuel and used as animal feed (G. A. I. et Al, 2021).

The community service team offered a training to be held in Wukirharjo Village and received permission from the village head. He conveyed that the targets of this training were PKK women, Posyandu cadres, and local village communities.

The results of interviews with several communities involved in this service activity said that this activity was very useful as a motivation for the community to be more creative in their work through the use of goods around them. So far, there has never been any direction or motivation that spurs the creative economy of the citizens. This activity is one of the opening horizons of people's thinking to be able to use used goods or other waste to have economic value (Halbi, 2021).

This activity was carried out at the Wukirharjo Village office, Parengan District, Tuban Regency, all tools and materials would be prepared then the team explained to the training participants how to process corn cobs as a mushroom growing medium [13].

2. Preparation of tools and materials

Before the corn mushroom cob training was carried out, the first thing to do was to prepare the tools and materials used. Tools and materials can be seen in Table 1 below.

Table 1. List of Tools used during the Training.

No	Tools	Amount
Preparation Tools		
1	Gunny Sack	1piece
2	Plastic Sheeting	1piece
3	Board	1piece

The tools used are prepared as needed before the activity takes place, the equipment used by the community service team is personal equipment (Nihayah, 2020).

The materials used in the training for making Corn Cob Mushrooms. The training can be seen in the table below:

Table 2. List of Materials used in Training

No	Materials	Amount
Preparation Material		
1	Corn Cob	1sack
2	Bran	5kg
3	Urea	1 kg
4	Yeast	7 kg

The raw materials used above are using raw materials that are safe to use, so they can be consumed and marketed (Febriati et al., 2019).

3. Manufacturing Process

The stages of processing corncob mushrooms are as follows:

Prepare a place to stack the corncobs by making a box from the boards that have been provided with a size of 5 m × 1 m. Place the burlap sack as a base for the cob. The burlap sack was chosen because it has a hot material and absorbs water for a long time so that it is able to maintain moisture. After the place is ready to be used, stack the corncobs with a height of approximately 15 cm.

Figure 3. Preparation Corn Cob

1. Mix all the prepared ingredients, namely yeast, rice bran, and urea into one and mix well. Then sprinkle evenly and sufficiently. Don't spend it, just half of the dose that has been prepared earlier.
2. Cover again using corncobs as high as approximately 15 cm, then sprinkle the yeast, bran, and urea mixture again until evenly distributed, and finish all the mixture.

Figure 1. cover again the corn cobs

3. After that we just have to wait a few days to see the growth of the fungus
4. The last step is harvesting, harvesting can be done on the 14th day after the media making process.

4. Benefits

This training will certainly have a positive impact on the community. The impacts given are as follows:

a. Waste Reduction

Governments around the world are currently trying hard to reduce waste and air pollution produced both by industry and by society itself. Many programs are offered, but waste and pollution are increasingly widespread and occur anywhere, both in urban and rural areas, even though in rural areas it is relatively lower. The Industrial Engineering Study Program at PGRI University always strives to help government programs in the form of cooperation programs and independent work programs.

The impact given from this training is the reduction of waste, because previously the people in this village only disposed of corncob waste and also only used it to be used as fuel and animal feed. With this training, you can minimize corncob waste in the village by using it as a mushroom cultivation medium (Halbi, 2021).

b. Business Opportunities

The government always tries to increase community empowerment efforts so that they have a greater income with their own cultivation efforts having an

impact that can be felt directly by community. Training should be on target and not too difficult for them to do. Wukirharjo residents are very enthusiastic about participating in the training conducted by the Engineering Study Program in order to help government activities in the field of community service. By cultivating mushrooms from corn cobs, the people of Wukirharjo village can create mushrooms from corn cobs a business opportunity, mushrooms from corn cobs can be sold either processed (ripe) or sold raw (Febriati et al., 2019)

Conclusion

In Wukirharjo village, the corn waste can be found in every place there and people don't have any creation to make them useful. The corn cob is thrown to be waste because the majority of people in Wukirharjo village work as corn farmers. This training program to produce mushroom that we have done in Wukirharjo village, it is a solution to the disposal of corn cobs waste that has accumulated and can be used as a business opportunity which can be an income for the villagers.

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