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Efforts to Increase the Income of Winduaji Village Community, Paguyangan District, Brebes Regency Through the Introduction of White Oyster Mushroom Cultivation as Functional Food

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ABSTRACT

The purpose of this community service (PKM) is to increase the income of the Agro Tani Mandiri farmer group and to alleviate poverty in poor families in Winduaji Village, Paguyangan District, Brebes Regency. The problems faced by the Agro Tani Mandiri farmer group in Winduaji Village are problems in the production/processing sector and the Human Resources (HR) sector. To overcome these problems, it is done by introducing white oyster mushroom cultivation technology, business management and group management. The way to overcome these problems is through socialization and strengthening the implementation of the program to Agro Tani Mandiri partners and poor families in Winduaji Village, transfer of white oyster mushroom cultivation technology, technology for processing sawdust waste into mushroom planting media (baglog), and improving business management and group administration. The results of this activity are increased knowledge and implementation of partners in mushroom cultivation, increased knowledge and implementation of mushroom management and planting media maintenance to increase harvest yields and product continuity, increased business management capabilities, and group management.

Keywords: White Oyster Mushroom Cultivation, Poverty Alleviation, Winduaji Village

1. Introduction

Sustainable Development Goals (SDGs) are a series of goals set by the United Nations (UN) to realize a better and more sustainable life. The main goal of the SDGs is to achieve a better and more sustainable life for all people on earth. The first point of the 17 SDGs of Indonesia and the world is to end poverty in all its forms worldwide by 2030. The focus of this goal emphasizes the eradication of extreme poverty and providing support to individuals who are in vulnerable conditions. Poverty is one of the complex and multidimensional problems faced by the community in Winduaji Village, Paguyangan District, Brebes Regency. Weak economic conditions cause low community income, limited access to resources, and lack of opportunities to get decent work. The impact of this poverty not only affects family welfare directly, but also affects the overall quality of life, including in terms of education, health, and access to other basic needs.

Winduaji Village, Paguyangan District, Brebes Regency is located at the southern tip of Brebes Regency, and is one of the gateways to Brebes Regency from Banyumas Regency, where Brebes Regency is one of the disaster-prone areas. Winduaji Village is a village in Paguyangan District, Brebes Regency. Winduaji Village is included in the category of extremely poor villages with per capita expenditure of its poor population of IDR 513,339/capita/month in 2023 (Badan Pusat Statistik Kabupaten Brebes, 2023).

Winduaji Village has wood-producing commodities and has a climate with humidity up to 80%, making it suitable for cultivating white oyster mushrooms to overcome poverty. Winduaji Village has the main potential in the form of natural beauty and is supported by the potential of interesting community culture. There are several tourist destinations that can be visited such as Penjalin Reservoir and Tuk Silah Kali Pemali. This tourism potential is one of the sources of income for the local government. One of the forest commodities in Winduaji Village is wood. There are around 30 wood factories operating in Winduaji Village. This sawmill process, in addition to producing quality wood, of course also produces sawdust. The sawdust produced in one day is approximately 1 ton, so the total waste produced in a month reaches 30 tons. This wood waste or sawdust has not been utilized properly, only becoming a material that is burned, causing air pollution for local residents.

One strategy that can be implemented to overcome poverty in Winduaji Village is through the utilization of local potential, namely in producing sawdust that can be used for the industrialization of white oyster mushroom cultivation (*Pleurotus ostreatus*). White oyster mushrooms are agricultural commodities that have high economic value, relatively low production costs, and cultivation techniques that are easy to learn by the local community. In addition, white oyster mushrooms have stable market demand both locally and nationally, thus providing promising business opportunities for farmers and micro-entrepreneurs in the village.

Quoted from Ratnaningtyas et al (2020) Mushrooms are often used as a primary food source due to their important role in improving human nutrition, promoting health, and preventing diseases. Cultivation of edible mushrooms is now considered the most cost-effective biotechnological method, converting organic waste into a high-protein food source while minimizing environmental pollution (Kumar, 2018). Mushrooms of the genus *Pleurotus* have received significant attention from the scientific community due to their medicinal properties, including their ability to modulate the immune system, hypoglycemic and antithrombotic activities, their ability to lower blood pressure and blood cholesterol levels, as well as their anti-inflammatory, antimicrobial, and antitumor activities (Facchini et al., 2014).

Problems in the Production/Processing Sector in the white oyster mushroom cultivation industry in Winduaji Village include not yet mastering the method of making a white oyster mushroom growing medium (bag log) by utilizing sawdust waste; Not yet fully mastering the management of mushroom houses and maintenance of growing media; Not yet mastering business management such as production management, post-harvest handling, marketing and financial management. As for the Problems in the Human Resources (HR) Sector Lack of knowledge about oyster mushroom cultivation techniques; Limitations in business management capabilities; Limitations in terms of group management capabilities

The industrialization of white oyster mushroom cultivation has the potential not only as a source of additional income for the community, but also as a driver of the village economy as a whole. Through this approach, it is hoped that new jobs can be created, community skills in farming can be improved, and market networks for production can be strengthened. Thus, this industrialization is able to provide a sustainable solution to reduce poverty in Winduaji Village.

The development of white oyster mushroom industrialization in Winduaji Village also requires support in terms of technology, access to capital, and skills training for farmers and business actors. Collaboration between government, academics, and the private sector is essential to strengthen a sustainable cultivation ecosystem and ensure that the program is able to provide long-term impacts on community welfare. This Community Service aims to develop white oyster mushroom cultivation as a strategy to overcome poverty in Winduaji Village, Paguyangan District, Brebes Regency. Therefore, the industrialization of white oyster mushroom cultivation in Winduaji Village is expected to be a strategic solution in efforts to overcome poverty by maximizing local potential and empowering local communities. With a holistic and sustainable approach, this program will not only improve people's lives but also support inclusive and equitable economic development.

2. Methodology

1. FGD of the implementing team, the accompanying team, the Agro Tani Mandiri Farmers Group, cooperation partners and the Winduaji Village Government to discuss and socialize all activities that will be carried out.
2. Counseling on white oyster mushroom (*Pleurotus ostreatus*) cultivation technology
 - a. Delivery of material on white oyster mushroom biology, making planting media for white oyster mushroom cultivation
 - b. Preparation of materials and equipment for white oyster mushroom cultivation, will be carried out by members of the Agro Tani Mandiri Farmers Group.
3. Technology transfer for white oyster mushroom cultivation
 - a. Preparation of mushroom houses or barns, which will be prepared by the Winduaji Bumdes mushroom farmer group
 - b. Preparation of tools and materials is carried out by the PKM Team together with the Agro Tani Mandiri Farmer Group and the Winduaji BUMDes
 - c. Training is carried out on making white oyster mushroom planting media with participants from the Agro Tani Mandiri Farmer Group.
 - d. Training is carried out on sterilizing planting media, how to inoculate mushroom seeds, and harvesting mushrooms.
 - e. Training for 15 poor families with stunted toddlers to become mushroom farmers to increase family income

4. Dissemination of information and transfer of business management technology, group administration management and financial records for the Agro Tani Mandiri Farmers Group.

3. Result and Discussion

1. FGD on socialization and consolidation of the Program to be implemented at the Agro Tani Mandiri Farmer Group

The FGD on socialization and consolidation of the Program to be implemented at the “Agro Tani Mandiri” Mushroom Farmer Group and 15 poor families with stunted toddlers was held on September 10, 2024. From the University, this activity was attended by the entire Assistance Team and Implementation Team as well as 5 students from the University of Peradaban who were involved in MBKM activities. This activity was also attended by members of the Agro Tani Mandiri Farmer Group, 15 poor families with stunted toddlers, the Village Head and village officials, as well as assistant cadres from the Healthy Village House. Prof. Dr. Sri Lestari, S.E., M.Si said that the Kosabangsa Program was funded by the DRTPM of the Ministry of Education, Culture, Research and Technology, and supported by LPPM UNSOED and LPPM Universitas Peradaban and Winduaji Village.

2. Counseling on white oyster mushroom (*Pleurotus ostreatus*) cultivation technology

Counseling on white oyster mushroom (*Pleurotus ostreatus*) cultivation technology was conducted by Prof. Dr. Nuniek Ina Ratningtyas. This activity was carried out on September 15, 2024. This activity was carried out to overcome the problem of the lack of white oyster mushroom cultivation skills owned by residents. The method used to solve this problem is to provide counseling and training to partners. In this activity, the community service team acted as resource persons while partners acted as training objects. Partners participated in the activity enthusiastically.

3. Preparation of materials and equipment for the cultivation of white oyster mushrooms

The provision of assistance for tools and materials to the Mushroom Farmer Group was carried out on September 20, 2024. This assistance was given in the form of usage rights. Residents are given the widest possible opportunity to use the equipment provided to develop their business, under the arrangement of the group leader and the Winduaji Village Government, if the equipment is not used for business, then the group leader or village government can transfer the usage rights to other residents who need it more so that it can be more useful. Thus, the equipment provided will be useful and not stalled. The materials and equipment used for the cultivation of white oyster mushrooms can be seen in 3 and Figure 4.



Figure 3. ingredients for mushrooms



Figure 4. equipment for mushrooms

4. Training for poor families with stunted toddlers to become mushroom farmers
Based on data collected by the Healthy Village House Cadres, it is known that out of 60 families who have extreme toddlers with very poor conditions, they have 4 business desires, namely working in the field of mushroom farming, processed mushroom-based products, dry cake business and wet cake business. Therefore, this PKM activity provides skills training and equipment assistance so that the 60 families who have stunted toddlers and are in extreme poverty can be more empowered so that they can be free from stunting and poverty. Activities in the first stage also include providing training to 15 poor families with stunted toddlers who want to try to become mushroom farmers. This activity was carried out on October 11, 2024.
5. Dissemination of information and transfer of business management technology, group management, group administration and financial records for the Agro Tani Mandiri Farmers Group.

In addition to counseling, dissemination, and training, it is also equipped with a pre-test and post-test as an evaluation medium. The following are the results of the pre-test and post-test, namely:

1. As an illustration of the success of the delivery of the material, the results of the pre-test are compared to the post-test. The increase in knowledge about the theory given by 80% shows that the theory given can be well received. This is also supported by the smooth and lively discussion. The theory of white oyster mushroom biology is very important to convey, because as a farmer who will be involved in his business, he must be familiar with the object to be handled.
2. In order for the continuity and success of direct practice as a technology transfer, the materials for the practice must be prepared in advance. The basic material in the form of sawdust has been provided by members of the Winduaji Bumdes who act as mushroom farmers. Other mixed materials such as bran, lime and gypsum are brought by the program organizer, in this case the cooperation partners of the support team.

4. Conclusion

Poverty is one of the complex and multidimensional problems faced by the community in Winduaji Village, Paguyangan District, Brebes Regency. Weak economic conditions cause low community income, limited access to resources, and minimal opportunities to get decent jobs. The impact of this poverty not only has a direct impact on family welfare, but also has an impact on the overall quality of life, including in terms of education, health, and access to other basic needs.

The problems faced in Winduaji Village are problems in the production/processing sector and the Human Resources (HR) sector. To overcome these problems, it is done by introducing industrialization technology for white oyster mushroom cultivation, business management and

group management and functioning of BUMDES institutions. Winduaji Village has wood-producing commodities and has a climate with humidity of up to 80%, making it suitable for cultivating white oyster mushrooms to overcome poverty. The results of this activity are increasing knowledge and implementation of partners in mushroom cultivation, increasing knowledge and implementation of mushroom management and planting media maintenance to increase harvest yields and product continuity, increasing business management capabilities, and group management.

This community service activity was attended by mushroom farmer group participants and 15 families with stunted toddlers and in extreme poverty. This activity received very good support from the participants. Participants were also enthusiastic in practicing mushroom cultivation directly. This was evidenced by questions from participants regarding how to cultivate white oyster mushrooms. Suggestions for further activities are to carry out training using more modern tools so that it can increase community income.

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