Increasing the Capacity of Mushroom Production and Their Processing in the “Argodadi Pinilih” Disabled Group

Eni Istiyanti1,*, Sarjiyah2, Arni Surwanti3, and Ahmad Suseno4

1Department of Agribusiness, Faculty of Agriculture, Universitas Muhammadiyah Yogyakarta, Indonesia
2Department of Agrotechnology, Faculty of Agriculture, Universitas Muhammadiyah Yogyakarta, Indonesia
3Department Management, Faculty of Economics and Business, Universitas Muhammadiyah Yogyakarta, Indonesia
4Department of Chemistry, Faculty of Science and Mathematics, Universitas Diponegoro, Indonesia

Abstract. The disabled group "Argodadi Pinilih" has 40 active members and already has a complete board. The Covid 19 pandemic caused some members to lose their jobs. This situation has encouraged members of the disabled group to take up other businesses, including oyster mushroom cultivation. The oyster mushroom business is carried out in a mushroom house which is placed inside the house or yard and the maintenance activities are carried out by the members of the disabled group themselves. The results of oyster mushrooms are all sold to traders around the house because the production of oyster mushrooms is still small. The problems faced by partners are (a) the production capacity of oyster mushrooms is still low, (b) limited skills in processing food from mushrooms, (c) marketing of oyster mushrooms and their processing is still limited. The solutions and output targets to be achieved are (a) increasing the production capacity of oyster mushrooms (b) increasing skills in the manufacture of processed food made from oyster mushrooms, and (c) expanding the marketing of oyster mushrooms. The activities carried out were (a) counseling and technical training on oyster mushroom cultivation as well as providing 2,200 baglogs, (b) training on processing food made from oyster mushrooms, namely in the form of crispy mushrooms and mushroom satay, and providing oil slicer (spinner), and (c) counseling on strategies online marketing and promotion. The results of the dedication showed that there was an increase in the production of oyster mushrooms produced, group members also became skilled in processing oyster mushrooms into crispy mushrooms and mushroom satay. The mushroom market share was getting wider, for starting to promote mushrooms through WhatsApp online media. Group members' knowledge of mushroom cultivation and marketing strategies increased, as evidenced by the pre-test results of 78.46 and 88.46 post-test with an increase of 12.75%.

Keywords: disabilities; mushroom; skill

1 Introduction

Disabilities are people who have physical and/or mental disorders that can interfere with or constitute an obstacle and difficulties for them to carry out an activity properly or

* Corresponding author: eniistiyanti@umy.ac.id
normally but are still able to carry out their activities in a different way. Disabilities are divided into two, namely physical and mental disabilities [1]. Based on 2020 running data from the Central Bureau of Statistics (BPS), the number of people with disabilities in Indonesia reaches 22.5 million, or around five percent of the total population.

Argodadi Village is one of the villages in Sedayu District, Bantul Regency, which is 4.5 km from the capital of Sedayu District and 17 km from the capital of Bantul Regency. The area of Argodadi Village is 11.21 km² or 1,121 ha or 33% of the total area of Sedayu District. The population of Argodadi Village is 11,196 consisting of 5,567 males and 5,629 females [2]. Based on data collection conducted by PKK cadres, in Argodadi Village there are 190 people with disabilities.

Argodadi Pinilih is a disabled group in Argodadi Village with 40 active members. This disabled group already has a complete management structure with chairman Basuki, secretary Ika Mujiasih, and treasurer Wahyuningsih and is equipped with a Dalijo Public Relations section, Partiyem business section, and Mutmainah data section. This group holds regular meetings every month to discuss issues or information related to the business of each member. Up to now, people with disabilities have had difficulty getting jobs, especially during the Covid-19 pandemic. Most of the members of the “Argodadi Pinilih” Disability Group started to cultivate oyster mushrooms. Oyster mushroom cultivation activities are carried out in simple mushroom houses which are inside or in the yard. The maintenance activities are carried out by the members of the disabled group themselves at each member's house.

In agroclimatology, the fungus lives at an altitude between 500 and 1300 asl (above sea level) at an ideal outside temperature of 1200 C to 1800 C with humidity ranging from 85% to 95% [3] However, mushrooms can be cultivated in areas with an altitude of 0 - 500 m above sea level, with profitable results and are feasible to develop [4]. As is the case in Argodadi Village, which is a lowland area, it fulfills the requirements for developing oyster mushrooms, provided that it needs watering activities so that the air humidity in the mushroom house is maintained.

Mushroom cultivation business in addition to increasing people's income can also improve skills for the community which brings a lot of profit [5] in the form of (1) utilization of free time with a productive business, (2) utilization of remaining land for useful business activities, (3) expansion of diversification in the field of farming, (4) increased knowledge, skills and insights in the field of cultivation, especially mushroom agribusiness, (5) improvement of management skills, particularly in marketing. Oyster mushroom also has enormous benefits for health because it contains balanced nutrients, especially the carbohydrate and protein content that is needed [6]. The period from growing to harvesting oyster mushrooms takes 120 days, divided into 7 days of baglog making, 30 days incubation, and 80 days of mushroom growing period. Each baglog can be harvested 4-5 times and mushroom production per baglog is 1-2 kg [7]

The production capacity of oyster mushrooms cultivated by members of the Argodadi Pinilih disabled group is still low because baglog as a planting medium for cultivated oyster mushrooms ranges from 200 to 250. During the harvest period, which is around 2-3 months, the average daily production is 4 to 5 kg. All oyster mushroom harvests are sold to traders or stalls around the residence with prices ranging from IDR 10,000 to IDR 12,000. IDR 60,000 for 2 months. Often there are requests from traders in large quantities (10-15 kg) but they cannot be fulfilled because the harvest is not up to 10 kg per day.

Oyster mushrooms that have been harvested, if not immediately sold, will be easily damaged. The effort to anticipate that not all of the oyster mushrooms can be sold is processing. Oyster mushroom processing aims to increase the added value of mushrooms as well as to avoid damage [8]. If oyster mushrooms are left, what people with disabilities do
is cook them for their own consumption as a vegetable. This is due to limited skills in processing oyster mushrooms.

Referring to the situation analysis described earlier, the problems faced by the “Argodadi Pinilih” disabled group are related to mushroom farming, namely (a) oyster mushroom production capacity is still low, (b) the skills of the disabled in processing oyster mushrooms are limited, and (c) marketing of oyster mushrooms and their processing is still limited. Solutions to existing problems include counseling and technical assistance for mushroom cultivation according to standards and by providing baglogs, training in food processing with raw oyster mushrooms, and implementing appropriate marketing strategies.

The objectives of empowering the disabled group "Argodadi Pinilih" are to increase mushroom production capacity, improve skills in processing mushrooms, and increase the market share of oyster mushrooms.

2 Methodology

2.1 Increasing mushroom production capacity

Increasing mushroom production capacity is carried out through the following activities: Counseling on mushroom cultivation techniques aims to make cultivation techniques including mushroom maintenance activities carried out by members of the "Argodadi Pinilih" disabled group according to standards so that mushroom yields increase. Providing baglog to members of the disabled group who cultivate oyster mushrooms so that oyster mushroom production increases.

2.2 Improving the skills in terms of processed food made from mushrooms

Improving the skills of members of the "Argodadi Pinilih" disabled group in terms of processed food made from mushrooms is carried out through training activities for making processed foods from mushrooms. This training is expected to increase the empowerment of members of the disabled group [9]. The service team facilitates materials for training, namely mushrooms and additional ingredients, while partners provide tools for making processed food from oyster mushrooms and a place for training.

2.3 Improving the understanding of marketing strategies

Improving the understanding of members of the "Argodadi Pinilih" disabled group about marketing strategies is carried out through counseling about the importance of marketing strategy and content creation training for online promotion.

2.4 Monitoring and evaluation of activities

2.4.1. Evaluation before implementation of activities

The indicators used include the skills and abilities of members of the "Argodadi Pinilih" disabled group to participate in the activities to be carried out. Before carrying out extension activities and technical training on mushroom cultivation, online marketing, and promotion strategies as well as training on making processed food from oyster mushrooms, it is necessary to conduct a pretest to determine the level of knowledge of the participants on various matters related to counseling and training materials.
2.4.2. Evaluation during the activity

The indicators used include the understanding of members of the "Argodadi Pinilih" Disabled group of activity material, willingness, and motivation to implement it to achieve maximum results. Participants who are always present to participate in technical counseling activities on oyster mushroom cultivation, training on making preparations from oyster mushrooms, and online marketing strategies will get a good score.

2.4.3. Evaluation after the activity is complete

After the implementation of the activity, a post-test was also carried out to find out whether there was additional knowledge and understanding of standard oyster mushroom cultivation techniques, online marketing strategies, and processed food from oyster mushrooms. In addition to the posttest, the evaluation after the activity included interest and ability to be able to continue the results of appropriate technology transfer, training, and mentoring that had been carried out. Do members of the “Argodadi Pinilih” disabled group continuously carry out a standardized oyster mushroom production process, process oyster mushroom-based food, and carry out online promotions?

Community empowerment of members of the "Argodadi Pinilih" Disabled group was carried out through a gradual transformation of knowledge and abilities. The first stage was the transfer of knowledge and technology at the educational level which results in new knowledge and skills in cultivation, processing, and marketing techniques. The second stage was the transfer of knowledge at the management level in the framework of socialization and dissemination to disseminate knowledge and technical skills of mushroom cultivation and manufacture of processed food made from mushrooms and marketing them to the public [10].

3 Results and Discussion

3.1 Increase in oyster mushroom production capacity

The activity began with counseling about oyster mushroom cultivation by team members namely, which explained how to place baglog in a kumbung, watering, controlling pests and diseases, harvesting, and post-harvesting. The placement of baglog must be arranged in such a way as to facilitate watering and harvesting. Pests that often attack oyster mushrooms are caterpillars and insects. Control of pests and diseases of oyster mushrooms can be done by: (a) sanitation and environmental hygiene where the mushrooms are raised, (b) regulation of aeration and air circulation, light, temperature, and humidity, (c) proper use and storage of raw materials, (d) treatment using the right equipment, (e) monitoring, setting traps in vulnerable places using special glue or lights [11]. Pests on mushrooms should not be eradicated using pesticides but with natural ingredients, for example, papaya extract and cayenne pepper [12]. Harvesting must be done precisely; one stalk of oyster mushroom must be taken altogether. In one baglog, it can be harvested 3 to 5 times with an interval of 2 to 3 weeks from the first harvest to the next.

The next activity was that the community service team provided 2,200 baglogs of oyster mushrooms to the heads of the disabled groups which were then distributed to 7 people, the group leaders received 400 baglogs while each member received 300 baglogs. The group members who received baglog assistance cared for the mushrooms well so that within one month after being reared, the oyster mushrooms could be harvested. Oyster mushroom yields range from 1-2 kg per member, which was then collected in groups, as much as 8-10 kg per day, then sold to customers or the market. The price of oyster
mushrooms ranged from IDR 10,000 to IDR 12,000. 50% of the sales proceeds were handed over to the members who did the maintenance of the mushrooms and a portion went to the cash for the disabled group.

Figure 1. Symbolically handing over the baglog from the community service team to the disabled group

Figure 2. Results of oyster mushrooms belonging to the disabled group "Argodadi Pinolih"

Figure 3. Counseling on oyster mushroom cultivation by the community service team
3.2 Improvement of skills in processing oyster mushrooms

The activity began with the provision of assistance in the form of a spinner which functions to drain the oil so that the resulting crispy mushrooms become dry and last longer. The spinner was given a capacity of 3 liters according to production capacity and electric power. Oyster mushroom processing aimed to increase the added value of mushrooms as well as to avoid damage [8]. Oyster mushrooms that have been harvested, if not immediately sold, will be easily damaged. As an anticipation, if a lot of mushrooms are harvested, some of the oyster mushrooms can be processed into crispy mushrooms or mushroom satay.

Fig. 4. Delivery of spinners from the community service team to disabled groups

The community service team explained how to make crispy mushrooms, namely the mushrooms were washed and then drained for 5-6 hours. The drained mushrooms were then cut into 2 – 2.5 cm pieces and then coated with flour made from a mixture of flour, rice flour, and tapioca flour added with spices such as garlic. The next stage was frying until dry and then putting it in a spinner to make the oil crispier and last longer. The way to make mushroom satay is cut mushrooms about 1.5 cm long, then boil in boiling water for about 5 minutes, then drain and mix with mashed spices consisting of garlic, shallots, peppercorns, chilies, coriander, salt, soy sauce, and pecel seasoning. Mushrooms that have been smeared with spices are then grilled, mushroom satay is ready to be served.

Fig. 5. Members of the disabled group practice making crispy mushrooms and satay
3.3 Increase in market share for oyster mushrooms and their processed products

This effort was carried out by giving members of the disabled group an understanding of the importance of marketing strategies so that the market share was wider [13]. The activities carried out were in the form of counseling and discussion, the service team explained the marketing strategy based on the 4P concept [14] consisting of product, price, place, and promotion. Participants took part in the counseling enthusiastically by asking questions that were not clear, so that the discussion could take place lively.

The application of a marketing strategy with the 4P concept in oyster mushroom farming and its processed products, namely: (a) business actors must be able to make products that are acceptable to society. Entrepreneurs can start by developing their products for the better. Oyster mushrooms that will be sold must be fresh and clean, the same goes for their preparations. Make sure processed products (crispy mushrooms and mushroom satay) don't expire.

Price is a sensitive thing in a business. Consumers will use price as a reference to compare the same goods from other entrepreneurs. Price determination can be done by looking at market prices or calculating the Cost of Goods Sold and the profit margin desired by the entrepreneur. The price of oyster mushrooms is determined based on market prices, which range from IDR 10,000 to IDR 12,000.

Place or location is one of the business determining factors. A strategic location is a busy location, passed by many people so that interested potential customers find it easy to find the place. Argodadi village where the disabled group is located is easy to reach using private vehicles.

Promotion is the spearhead for introducing products to the public. Promotional activities are easier to do online through social media such as Facebook and Instagram or through bazaars and product exhibitions. Disabled groups have started promoting mushroom products and their preparations through WhatsApp (WA). The results showed that mushroom marketing had become wider, not only around the residence. This situation is in line with MSMEs Potato Eggrolls g-Lis 114, where online marketing can increase sales [13]. Nowadays, online marketing is more effective, especially for relatively durable products, such as crispy mushrooms. Online marketing has been initiated in the woven bamboo group in Tangkil Hamlet, Muntuk Village, Dlingo, where through online marketing woven bamboo products can compete with competitors [15].
3.4 Analysis of pretest and posttest results

Prior to carrying out technical counseling activities for mushroom cultivation, online marketing strategies, and training on making processed mushrooms, it was necessary to conduct a pretest to determine the level of knowledge of the participants on various matters related to the material. After the implementation of the activities, a post-test was also carried out to find out whether there was additional knowledge and understanding of the counseling and training materials. The results of the pre-test and post-test analysis are presented in Table 1.

Table 1. Results of the “Argodadi Pinilih” Disabled Group Empowerment Pre-Test and Post-Test

<table>
<thead>
<tr>
<th>Question Number</th>
<th>Pre-Test Value</th>
<th>Post Test Value</th>
<th>Value Increase (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6.15</td>
<td>5.38</td>
<td>-12.50</td>
</tr>
<tr>
<td>2</td>
<td>9.23</td>
<td>9.23</td>
<td>0.00</td>
</tr>
<tr>
<td>3</td>
<td>8.46</td>
<td>8.46</td>
<td>0.00</td>
</tr>
<tr>
<td>4</td>
<td>9.23</td>
<td>10.00</td>
<td>8.33</td>
</tr>
<tr>
<td>5</td>
<td>8.46</td>
<td>7.69</td>
<td>-9.09</td>
</tr>
<tr>
<td>6</td>
<td>9.23</td>
<td>8.46</td>
<td>-8.33</td>
</tr>
<tr>
<td>7</td>
<td>10.00</td>
<td>9.23</td>
<td>-7.69</td>
</tr>
<tr>
<td>8</td>
<td>6.15</td>
<td>10.00</td>
<td>62.50</td>
</tr>
<tr>
<td>9</td>
<td>6.92</td>
<td>10.00</td>
<td>44.44</td>
</tr>
<tr>
<td>10</td>
<td>4.62</td>
<td>10.00</td>
<td>116.67</td>
</tr>
<tr>
<td>Average</td>
<td>78.46</td>
<td>88.46</td>
<td>12.75</td>
</tr>
</tbody>
</table>

Based on Table 1, it can be seen that the average value of the pretest was 78.46 and the posttest was 88.46, which means that there was an increase in the score from the pre-test to the post-test by 12.75% of the number of respondents, both pretest and posttest, 15 people. The biggest increase in value was found in question number 10 which asked about the time interval between the first and the next harvest in one baglog. At the time of the pretest most of the participants were still wrong, but after following the counseling they understood and answered the posttest correctly. There are several questions whose post-test scores were lower than pre-test scores, namely questions 1, 5, 6, and 7, although the percentages were small. This was because the participants did not know whether the pretest answers were correct or not, so the posttest answers were different.

4 Conclusion

The existence of mushroom cultivation counseling activities and the provision of baglog assistance to members of the "Argodadi Pinilih" disabled group could increase the production capacity of the resulting oyster mushrooms. Group members also became skilled in processing oyster mushrooms into crispy mushrooms and mushroom satay after being given mushroom processing training. The mushroom market share was getting wider, and every day you can sell 8-10 kg of mushrooms because you started promoting mushrooms through the online media WhatsApp. Group members’ knowledge of mushroom cultivation and marketing strategies increased, as evidenced by the pre-test results of 78.46 and 88.46 post-test with an increase of 12.75%.
We recommend that all members of the "Argodadi Pinilih" disabled group carry out intensive mushroom cultivation so that mushroom production increases because oyster mushroom farming has good prospects and can become a provision for disabled people to be independent.

References

[5]. U. Sariawiria, Budidaya Jamur Tiram.No Title (Kanisius, Yogyakarta, 2006).