

Hydroponic Ecoprenaurship Training at AWH Tebuireng Middle School

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Abstract

AWH Tebuireng Jombang Middle School is a boarding school-based school with a superior program of instilling student character. concern for the environment, especially the use of waste in schools and the character of entrepreneurship. This service intends to conduct hydroponic cultivation education at AWH Tebuireng Jombang Middle School. The target of the service is the teachers and students of SMP AWH Tebuireng Jombang. This service aims to provide environmentally oriented waste utilization training based on hydroponic plant entrepreneurship. The method of this activity is delivery of material, discussion and practice. The benefit of this dedication is a means of knowledge and entrepreneurial practice by utilizing environmental preservation. The results obtained in the activity were that students and teachers at SMP AWH Tebuireng Jombang received education and practice about vegetable hydroponic ecoprenaurship by utilizing school waste. Lectures and practices on ecoprenaurship, hydroponic vegetable cultivation, utilization of waste for nutrients and hydroponic growing media, procurement of seeds and seedlings for hydroponic vegetables, management of hydroponic vegetable plants, hydroponic harvesting and sales of hydroponic crops. From the results of the questionnaire, 78% of service participants stated that they wanted to practice ecoprenaurship activities in hydroponic vegetable cultivation.

Keywords: AWH Tebuireng Middle School; Ecoprenaurship; Hydroponics

INTRODUCTION

Schools are one of the institutions in the field of learning whose role is very important in producing or creating superior and quality human resources for the progress of a nation (Subarkah. P et al., 2023). Edu-ecoprenaurship is a form of environmental and entrepreneurship education that is important to develop in schools. Ecoprenaurship has raised environmental awareness by reducing waste, including by separating dry (inorganic) waste and wet (organic) waste, to make waste recycling easy and flexible (Achmad, 2015). The simulations and training provided to schools on how to improve the environment so that it is not polluted are very simple, so anyone can do it (Manasikana et al., 2023). Ultimately, this education has an important role in preserving the environment. Ecoprenaurship has also increased an independent economy in obtaining mutual benefits. Profits will increase in proportion to individual creativity supported by good cooperation between one another.

Hydroponics is a method of growing with media other than soil (Ahmad DN, 2021). Hydroponic media can vary, so to make it more useful you can use waste media. Edu-ecoprenaurship is a multifunctional activity, apart from being useful as a means of increasing knowledge as well as practicing environmental awareness which can foster an entrepreneurial spirit (Hoodgets, 2019). Entrepreneurship by selling vegetable crops is expected to make a lot of profit (Perwitasari, 2022). There are various forms of ecoprenaurship, including hydroponic plant cultivation. Hydroponic plants consist of various types of ornamental plants, vegetable plants, herbal plants and fruit plant (Edi, S., 2020). Vegetable plants are needed by all levels of society, from parents to children (Soeleman, 2020). The following is the background to this training:

- a. AWH Tebuireng Jombang Middle School is a strong Islamic boarding school-based school with character cultivation. Among the characteristics needed are a caring attitude towards the environment and entrepreneurial skills.
- b. AWH Tebuireng Middle School requires a beautiful, green school environment with lots of plants to create a comfortable school environment.
- c. The entrepreneurial skills needed at AWH Middle School are businesses that are easy to do in a school or boarding school environment.
- d. School and cottage waste management is not yet optimal. So, it is hoped that waste-based hydroponics, with growing media from inorganic waste and hydroponic nutrients from organic waste, will be able to increase the benefits of waste in schools.
- e. The existence of lots of fast food and snacks has resulted in young people and children not liking vegetables. Even though vegetables are foods with abundant nutritional value because they are rich in vitamins and minerals needed by the body (Herwibowo K, 2018). By hydroponically cultivating vegetables, it is hoped that it will attract interest in eating vegetables for all students and teachers at AWH Middle School.

The solution to the partner's problem is to carry out entrepreneurship-based environmental education, through hydroponic plant training at AWH Tebuireng Jombang Middle School by using school waste media for nutrition and hydroponic growing media. The targets of the service are teachers and students at AWH Tebuireng Middle School, Jombang. The aim of the service is to provide environmentally oriented waste utilization training based on hydroponic plant entrepreneurship.

The benefits of this community service activity are a means of knowledge and entrepreneurial practice by utilizing environmental conservation. The results obtained from the activity were that students and teachers at AWH Tebuireng Jombang Middle School received education and practice regarding hydroponic vegetable ecopreneurship by utilizing school waste. Form this activity with lectures, demonstrations, and individual practice. The implementation of the service is carried out in stages so that the results obtained from the training can really be applied well.

IMPLEMENTATION METHOD

At the planning stage, the community service activity team prepares all needs related to the implementation of service activities including time, place, speakers and facilities and infrastructure for community service activities (Hidayatullah A.S et al., 2023). This service activity is carried out in partnership (collaboration) between the service team of lecturers and students of the Science Education Study Program, Faculty of Education, Hasyim Asy'ari University with the principal, deputy head of curriculum and student affairs and the Intra-School Organization (OSIS) Management of AWH Tebuireng Middle School, Jombang. The involvement of AWH Middle School teachers and OSIS in this activity was to help prepare the service event for success as well as being active participants in the activity. This activity was carried out with the aim of providing environmentally oriented waste utilization training based on hydroponic plant entrepreneurship. This activity is carried out through lectures, individual practice and demonstrations. The description of the activities is as the Figure 1.

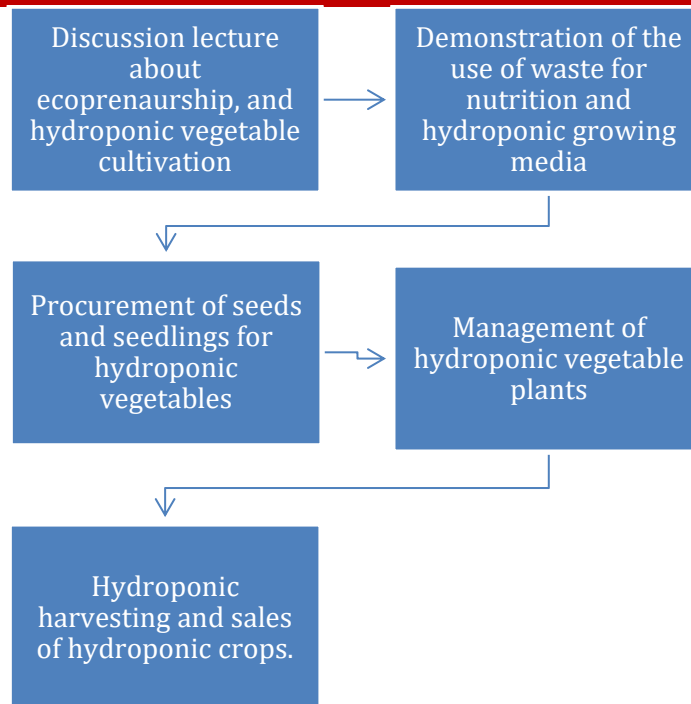


Figure 1. Flow Diagram of Service Activities

RESULT and DISCUSSION

This service will be carried out in August 2022 with the aim of providing training on environmentally sound waste utilization based on hydroponic plant entrepreneurship. The implementation of this activity is carried out in stages through a series of sequential activities, namely lectures, demonstrations and individual practice. The sequence of activities is as follows:

1. Discussion Lecture on Ecoprenaurship and Hydroponic Vegetable Cultivation

The first material provided in this training, namely an introduction to ecoprenaurship, is about the definition, urgency and benefits of studying ecoprenaurship. This discussion lecture was conducted using power point (PPT) media. Ecoprenaurship is an effort to return to caring about a green environment but still bringing economic benefits. This business has raised environmental awareness with several programs including reducing waste by separating organic and inorganic waste, recycling waste into other things that can be used.

The ecoprenaurship simulation and training provided to schools on how to improve the environment so that it is not polluted is very simple, so anyone can do it. Ultimately, this education has an important role in preserving the environment. Ecoprenaurship has also increased an independent economy in obtaining mutual benefits (Herwibowo K, 2018). Service participants enthusiastically participated in this event from start to finish. This can be seen from the enthusiasm of the questions in the discussion session. To create a more enthusiastic atmosphere, the service team also gave door prizes to participants who were active in the discussion. From the questionnaire distributed, it was found that through discussions about ecoprenaurship, the participants became enthusiastic about carrying out activities that support ecoprenaurship. The following is a picture of carrying out community service activities as seen in Figure 2. as follows:



Figure 2. Activities During Training

In the second material, a discussion lecture on hydroponic vegetable cultivation was given after the service participants knew the urgency of ecopreneurship. One form of ecopreneurship carried out in this service is hydroponics and the types of plants that are cultivated are vegetables. Hydroponics was chosen because this method has many advantages, including a medium that does not require a large area of land, is easy, can use waste into a useful medium, and most importantly the crop yields can also be optimal (Praag, C. M. and Cramer, 2022). The vegetables that will be practiced are pokcoy vegetables. This is because pokcoy is a type of nutrient-rich vegetable that is liked by many Indonesian people. Planting it hydroponically is very easy and doesn't take a long time.

In carrying out service activities, results were obtained based on observations before carrying out the activity by carrying out a simple test through the distribution of pre-posttests given to service participants before and after the activity assistance, followed by questions and answers with the participants (Mukaromah, et al., 2022). Service participants were enthusiastic about following the second material from start to finish. This can be seen from the enthusiasm of the questions in the discussion session. To make the atmosphere more interesting and fun, the service team also provided games for participants who were active in the discussion. From the questionnaire distributed, it was found that through discussions about ecopreneurship, 78% of participants became enthusiastic about carrying out activities that support ecopreneurship. The following are the results of the questionnaire from service participants as seen in Figure 3. as follows:

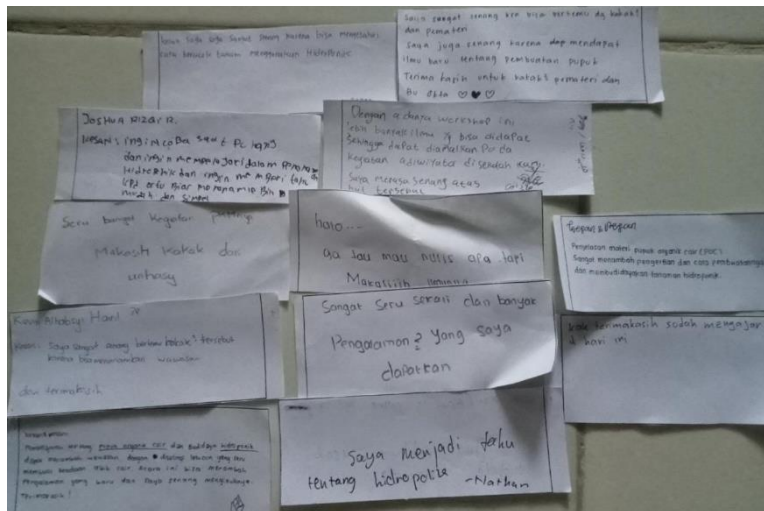


Figure 3. Results Of Training Participant Satisfaction Questionnaires

2. Demonstration on the Use of Waste For Nutrition And Hydroponic Growing Media, Procurement of Seeds and Seedlings For Hydroponic Vegetables, Management of Hydroponic Vegetable Plants

After receiving education or material about ecoprenaurship and hydroponic vegetable cultivation, the next stage is demonstration or training. The equipment prepared is for making organic liquid fertilizer (POC) nutrients and making hydroponics. In making nutrition, the main ingredients are organic waste, namely vegetable waste, EM4, palm sugar, sufficient water (Dani, 2020). The success of making organic liquid nutrition can be observed if the waste has turned into liquid and the smell of the waste has disappeared and becomes fragrant (Vandre, 2021). The organic liquid nutrient fermentation process must be continuously observed every day, namely the place is opened to remove fermentation gas (Myers, 2018). The results of this organic liquid nutrition are natural hydroponic plant nutrition. It is hoped that through organic nutrition the growth of hydroponic plants will be maximum so that the vegetable harvest will be optimal (Marhaba, 2018).

In the hydroponic cultivation demonstration, the equipment prepared was inorganic waste media in the form of unused plastic bottles, rockwool and vegetable seeds. Plastic bottles are used as a hydroponic growing medium, the substitute for soil is rockwool and the type of vegetable cultivated is pokcoy (Jahro, 2019). This hydroponic method still uses water which will later be absorbed by the rockwool. Plant nutrition or fertilizer for plants is to use organic liquid nutrients (POC) made in the previous stage (Perwitasari, B., Tripatmasari, 2022). The following is a picture in Figure 4. of the stages of making liquid organic nutrition for hydroponic cultivation carried out at school:



Figure 4. Stages Of Making Liquid Organic Nutrition

3. Hydroponic Harvesting and Selling Hydroponic Crops

To complete this service regarding ecoprenaurship and hydroponics, the next stage is the practice of mass planting or cultivation, intensive hydroponic care, harvesting and selling the harvest. The time provided by the school to carry out this service is during class meetings so that AWH Middle School students coincide with their return home and long school holidays. This causes this stage to be less than optimal. However, the service team worked around this by doing individual practice at home which was carried out by several students at home and monitoring the results of this individual practice at home via social media.

At the maintenance stage of hydroponic cultivation and sales of hydroponic cultivation products, monitoring is carried out via the Instagram social media page. The service team distributed a hydroponic set that had started to grow to 10 students who were then looked after at home and monitored the results via social media. Students who successfully carry out treatment will receive rewards from the service. Meanwhile, the sales stage has not been carried out optimally considering the small harvest. The following is Figure 5. of the participants who are active and enthusiastic in carrying out the individual practice stages of hydroponic cultivation at home:



Figure 5. Active and Enthusiastic Participants in Individual Hydroponic Practice

4. Impact of Changes in Partners After Participating in the Activity

After carrying out this activity there are several impacts caused by partners which can be seen from the results of the partner satisfaction questionnaire. From the questionnaire it was found that partners felt they had benefited in the form of new knowledge about easy entrepreneurship by utilizing the trash around them. Apart from that, they also get direct experience of practicing gardening using hydroponics. Another advantage written in the partner questionnaire is that they can find out how to garden pokcoy vegetables using cheap planting media, namely trash. Partners hope that this service activity will continue to the next stage, namely productive packaging, and sales.

CONCLUSION

1. This service is carried out using discussion, demonstration, and individual practice methods. The description of the activities is in the form of a discussion about ecoprenaurship and hydroponic vegetable cultivation; demonstration of using waste for nutrition, hydroponic growing media; procurement of seeds and seedlings for hydroponic vegetables; management of hydroponic vegetable plants, harvesting and selling hydroponic crops.
2. From the results of the questionnaire after the community service event, 78% of service participants stated that they wanted to practice ecoprenaurship activities in hydroponic vegetable cultivation.
3. The advantage of this service is the training method in the form of knowledge and practice, but there is also a weakness, namely that this training must be carried out over a sufficient period so that the results of entrepreneurship are also there.

ACKNOWLEDGEMENTS

Thank you very much to those who helped with the service activities, both implementing and creating articles. LPPM Hasyim Asyari University Tebuireng Jombang which has funded this service. AWH Tebuireng Jombang Middle School which has become a place of service. The service team is always united so that it can be carried out well.

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