Indonesian Journal of Devotion and Empowerment

IJDE
Indonesian Journal of Devotion and Empowerment

TRAINING ON HYDROPONIC CULTIVATION OF PAKCOY VEGETABLE WICK SYSTEM WITH UTILIZATION OF PLASTIC CUP WASTE IN PETUNJUNGAN VILLAGE

[1]Dhea Silviana, [2]Adinda Liliana Pratiwi, [3]Novita Sari, [4]Novianti Fajar Laila, [5]Moh Rezza Bachtiar

[1,2,3,4,5] *Universitas Negeri Semarang*

ARTICLE INFO

Article History:
Received Sept, 22, 2020
Accepted Dec, 25, 2020
Available Dec, 31 2020

Keywords:
Cultivation,
Vegetables,
Hydroponics,
Training

ABSTRACT

Kegiatan pelatihan budidaya hidroponik yang dilaksanakan oleh mahasiswa KKN BMC UNNES 2020 kepada masyarakat RT.05 RW.01 di Desa Petunjungan bertujuan memberikan pengetahuan mengenai pemanfaatan limbah gelas plastik sebagai media hidroponik sistem wick. Manfaat langsung dari kegiatan pengabdian kepada masyarakat ini ialah sebagai tambahan pengetahuan, keterampilan dan pengalaman kepada masyarakat dengan pemanfaatan limbah gelas plastik sebagai alternatif media tanam. Manfaat turunan yang diharapkan adalah dengan pemanfaatan limbah gelas plastik sebagai media hidroponik dapat meningkatkan penghasilan bagi buruh tani dan petani serta dapat menyejahterakan masyarakat di desa Petunjungan. Kegiatan pelatihan kepada masyarakat ini dilaksanakan dalam bentuk pelatihan dengan pemberian materi dan praktik pemanfaatan limbah gelas plastik sebagai media hidroponik. Metode kegiatan yang digunakan dalam pelatihan kepada masyarakat ini adalah metode ceramah, tanya jawab, demonstrasi dan praktik. Evaluasi kegiatan yang digunakan dalam pelatihan masyarakat ini adalah aspek pengetahuan dan keterampilan.

Hydroponic cultivation training activities conducted by students of KKN BMC UNNES 2020 to the community RT.05 RW.01 in Petunjungan Village aims to provide knowledge on the utilization of plastic glass waste as a hydroponic media wick system. The direct benefit of this community service activity is in addition to knowledge, skills and experience to the community with the use of plastic glass waste as an alternative planting media. The expected derivative benefits are by utilizing plastic glass waste as a hydroponic medium to increase income for farmworkers and farmers and can prosper the community in Petunjungan village. This training activity to the community is carried out in the form of training with the provision of materials and practices for the utilization of plastic glass waste as a hydroponic medium. The methods of activity used in training to the community are lectures, question and answer methods, demonstrations and practices. Evaluation of activities used in this community training is an aspect of knowledge and skills.

Address: L Building, Campus Sekaran, Gunungpati, Semarang, Indonesia, 50229

Correspondent Address:
Universitas Negeri Semarang
Email: adindalilianapratiwi@students.unnes.ac.id

INTRODUCTION

Petunjungan Village is one of the villages located in Bulakamba Subdistrict, Brebes Regency, Central Java Province. Based on the main data of Petunjungan Village in 2020, Petunjungan Village has an area of 385 ha. The population of Petunjungan Village is 13,270 people, consisting of 6,806 men and 6,464 women, with 3,816 heads of families. There are 33 RT and 6 RW in Petunjungan Village. Most of the people of Petunjungan Village work as farmworkers.

No	Job		Amount
1	Employees	PNS	99
		TNI/Polri	6
		Private	355
2	Self-employed/traders		2.428
3	Farmers		2.790
4	Farmworkers		5.923
5	Breeder		520
6	Services		13
7	Retired		55
8	Other		1081

Table 1. Job Data Petunjungan Village Community (Source: Main Data of Petunjungan Village 2020)

Farmworkers are people who work for other people's farmland, who will later earn wages from landowners. This shows that, there are still many people in Petunjungan Village who do not have agricultural land, so one of the crop cultivation systems that can be applied is hydroponics because it does not require agricultural land.

Based on the observations, Petunjungan Village also has problems related to plastic cup waste that until now has not been utilized by the local community. Therefore, we chose to use the plastic cup waste as a hydroponic medium with wick system, because the people of Petunjungan Village, especially RT.05 RW.01, are less utilizing the plastic cup waste. So far, the people of Petunjungan village only use the land media as a medium in cultivating crops, while the agricultural land now, is decreasing.

Hydroponics comes from the Greek word hydro which means water and ponos which means power. Hydroponics is also known as soilless culture or cultivation of crops without soil. Khairuddin (2016) argues that hydroponics is a cultivation of plants using water media or without using soil and emphasizes on meeting the nutritional needs for plants. Water needs in hydroponic plants are less than the need for water in cultivation by using soil media. Hydroponics use water more efficiently, so it is suitable to be applied to areas that have a limited water supply.

This training aims to provide education to the people of Petunjungan Village, especially RT.05 RW. 01 concerning the utilization of plastic glass waste as a hydroponic planting medium. The hydroponic system used in this training is the wick system. Wick system is one of the systems that exist in hydroponics. In the wick system, the plant will be placed in a container placed in a water storage area. The water storage container has previously been given a solution of nutrients such as fertilizers and plant fertilizers. This system can be made easily using only ropes or woolen fabrics and containers made of plastic.

This training provides benefits to the community in the form of knowledge about the cultivation of pakcoy vegetables using plastic cups as hydroponic media with wick system. Nugraha (2019) argues that hydroponics can be done in a narrow area with the help of several planting media and is quite easy to do. This shows that hydroponic systems are easy for people to practice in their homes.

PROBLEM

The problem experienced by the community in Petunjungan Brebes Village is the lack of knowledge and skills in vegetable cultivation by utilizing plastic cup waste. So far, the people of Petunjungan village only use the land media as a medium in cultivating crops, while the agricultural land now, is decreasing. Therefore, it is necessary to conduct training on crop cultivation by utilizing plastic glass waste. This training aims to provide education to the people of Petunjungan Village, especially RT.05 RW. 01 concerning the utilization of plastic glass waste as a hydroponic planting medium. The hydroponic system used in this training is the wick system. Wick system is one of the systems that exist in hydroponics. In the wick system, the plant will be placed in a container placed in a water storage area. The water storage container has previously been given a solution of nutrients such as fertilizers and plant fertilizers. This system can be made easily using only ropes or woolen fabrics and containers made of plastic.

METHOD

This training was held on July 20, 2020. The methods used in this training are lectures, Q&A, and practice. The method of implementation used in this training begins with a lecture. The lecture method is used to explain to the trainees what hydroponics is and the steps in its implementation. The next step is the Q&A method; this stage is carried out to find out the response of the trainees. The next stage is the practice of directly cultivating pakcoy vegetable hydroponic plants with wick system.

The first stage of this training is preparation. Preparation includes preparing tools, materials, training places, and participants who will participate in the training.

The second stage after preparation is the implementation stage. The training was held in one

meeting. At the beginning of the meeting the provision of material on hydroponics and given an explanation of hydroponics wick system. The next stage is the training practice of hydroponic cultivation of wick system. At this stage the participants practiced directly in accordance with the material described.

The third stage after the implementation is the evaluation stage. The evaluation stage is the last stage in this cultivation activity. At this stage, it is done by: a) assessing the ability of the trainees in understanding the materials provided, b) assessing the level of activeness of participants in the training activities, c) assessing the suitability of the training participants' practice results with the materials provided.

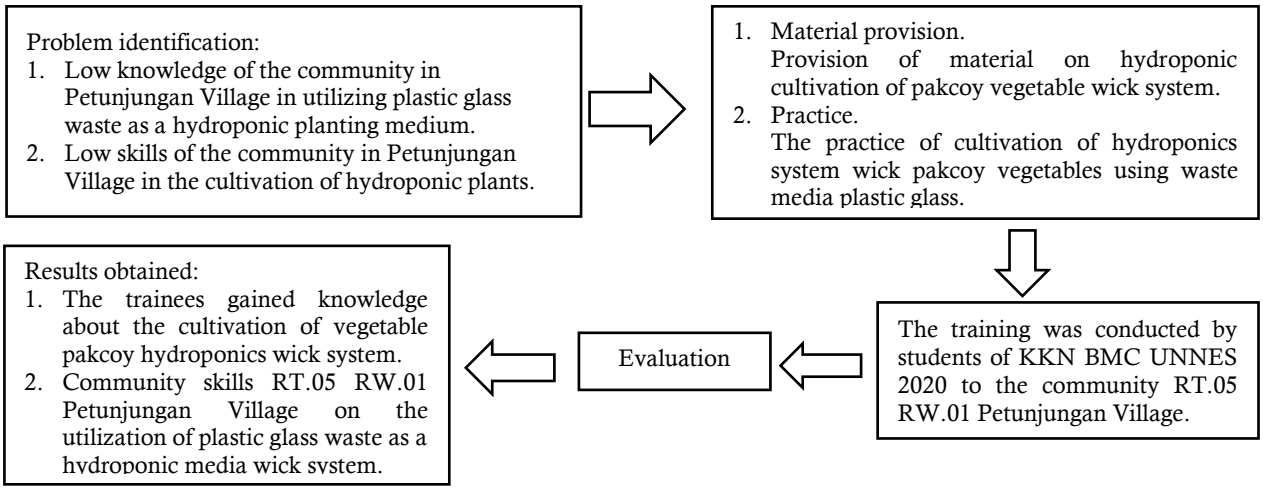

Figure 1. Flowchart of Pakcoy Vegetable Wick System Hydroponics Training Activities

RESULTS AND DISCUSSIONS

The training activities conducted to the community by students of KKN BMC UNNES 2020 in the form of providing materials and practices, followed by 4 people RT.05 RW.01 Petunjungan Village. This activity was held on Monday, July 20, 2020, the provision of materials on hydroponics wick system.

Participants of this pakcoy vegetable cultivation training are mostly farmworkers and farmers with agricultural products in the form of shallots, rice, and palawija. So far, planting media used only using agricultural land.

Briefly the stages carried out by participants during the practice of cultivation of hydroponics pakcoy vegetable wick system, as follows.

Tools and materials:

1. Seed pakcoy.
2. Plastic cups used mineral water.
3. Cutter.
4. Flannel fabric that has been cut lengthwise (± 13 cm).
5. 2 bottles of 500 ml.
6. Hydroponic nutrition.
7. Water.

Measures:

1. Dissolve hydroponic nutrients A in 500 ml of water, and B in 500 ml of water. Use a 500 ml bottle, to make it easier to measure the amount of water needed. Use plastic cups of mineral water to mix the two hydroponic nutrients.
2. Prepare 1 plastic cup of mineral water, make four holes at the bottom using a cutter.
3. Then slice both sides of the plastic cup with a rectangular shape, with a width of ± 2 cm, but do not break, as seen in figure 3.
4. Put the flannel that has been cut lengthwise on the plastic glass hole as an axis.
5. Prepare 2 pieces of rockwool, then each rockwool in the contents of 1 pakcoy seed.
6. Place the Rockwool filled with pakcoy seeds, into a plastic cup of used mineral water that has been wicked.
7. Then place it on top of a plastic cup filled with water and hydroponic nutrients.
8. Change water, at least once every 4-5 days.

During the training, participants were very responsive and active in the activities. Participants earnestly and attentively pay attention to the material presented by the presenter. At the time of practice, participants also had a high enthusiasm. This is shown if there are things that are poorly understood, participants will immediately ask, especially in practical activities.

Figure 2. Training Implementation

Figure 3. Hydroponic Cultivation of Pakcoy Vegetable Wick System

Based on observations, the trainees were able to practice the material quite well, this was based on the evaluation of the practice of using plastic waste as a hydroponic planting medium. After being given the training, the participants admitted that the training increased their knowledge and skills on hydroponics. In addition, the trainees also understood more about the utilization of plastic glass waste as a hydroponic medium.

Training activities in the community conducted by students of KKN BMC UNNES 2020 have been successful in improving the knowledge and skills of the petunjungan village community, especially in the RT.05 RW.01 environments, regarding the utilization of plastic glass waste as a hydroponic medium of wick system. This can be seen from the enthusiasm of the participants in participating in the training. Participants' ability to understand the material and apply the material includes both.

The results of participants' practice in hydroponic cultivation of pakcoy vegetable wick system based on observations have been good. Hopefully with hydroponic cultivation training pakcoy vegetable wick system can improve the skills and results of crop cultivation in the environment. So that it can increase the income of trainees.

The success of this training activity is supported by the following factors:

1. Support from Field Assistance Lecturer of KKN BMC UNNES 2020.
2. There is support from the community in Petunjungan Village, especially in RT.05 RW.01.
3. Awareness of the participants of hydroponic cultivation training pakcoy vegetable wick system with the use of plastic glass waste as an alternative to limited land in Petunjungan Village.

CONCLUSION

The training model of hydroponic cultivation of pakcoy vegetable wick system with the utilization of plastic glass waste as an alternative to limited land in Petunjungan Village aims to increase the knowledge and ability of training participants in hydroponic cultivation of pakcoy vegetable wick system and utilization of plastic glass waste. After participating in the training, it is expected that participants can practice the cultivation of pakcoy hydroponics with wick system. Participants are very enthusiastic in participating in this activity. In addition, based on the evaluation results, further activities are needed to facilitate the trainees so that they can improve their ability in hydroponic cultivation of pakcoy vegetable wick system and utilization of plastic cup waste. This is done in order to increase the yield of aquaculture activities.

REFERENCES

Khairuddin, K. 2016. *Hidroponik, Sistem Bertanam yang Tepat di Era Sekarang*. https://www.kompasiana .com/berkahkhair/57ebc689757a61381ce94e8 3/hidroponik-sistem bertan am-yang-tepat-di-era sekarang?page =all. Diakses pada 17 Agustus 2020 pukul 07.00 WIB.

Nugraha, A. W. (2012). Pemberdayaan Masyarakat Desa Sumberdadi dengan Pelatihan Hidroponik dan Pupuk Organik. Tulungagung. *Jurnal IPTEK*, 3(1): 25-32.

Oktarina, N., Widodo, J., & Fachrurrozie. (2019). Penguatan UMKM Melalui Pemanfaatan Media Sosial untuk Meningkatkan Jangkauan Pemasaran di Kecamatan Toroh Purwodadi. *Jurnal Pengabdian kepada Masyarakat*, 23 (2): 170-174.

Pemerintah Desa Petunjungan. 2020. Data Pokok Desa Petunjungan Tahun 2020.