

INCREASING THE PROFITABILITY OF CITIZENS THROUGH CLARIIDAE CULTIVATION VEGETABLE PLANTS WITH AQUAPONIC TECHNIQUES IN CISEENG VILLAGE, BOGOR REGENCY

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Abstrak

Desa Ciseeng terletak di Kecamatan Ciseeng, Kabupaten Bogor. Produk Keunggulan utama Desa Ciseeng adalah di sektor pertanian dan peternakan, namun di desa ini sering terjadi kekeringan yang membuat aktivitas terhambat sehingga berdampak pada kebutuhan ekonomi masyarakat sekitar. Pada sektor pertanian dan peternakan masih banyak kekurangan desa salah satunya adalah faktor kekeringan dan faktor banjir dikarenakan desa ini hanya terdapat di beberapa tempat yang memiliki irigasi air. Melalui kegiatan pengabdian diharapkan solusi ini dapat diselesaikan oleh masyarakat. Pelaksanaan Pengabdian Kepada Masyarakat ini bertujuan untuk memberikan bimbingan dan pelatihan budidaya clariidae dan sayuran dengan teknik aquaponik, dengan ini masyarakat tidak hanya dapat membudidayakan clariidae tetapi juga dapat menanam berbagai sayuran dalam satu ember yang sama yang digunakan sebagai wadah budidaya clariidae Budikdamper, ini merupakan salah satu solusi pangan masa depan yang dapat dikembangkan untuk memenuhi kebutuhan pangan masyarakat, khususnya kebutuhan protein hewani dan nabati. Solusi ini dilakukan mengingat keterbatasan lahan untuk budidaya ikan dan mulai menurunnya kualitas dan kuantitas air, Budikdamper menjadi salah satu pilihan yang dapat diterapkan untuk mengatasi solusi pangan masa depan.

Kata Kunci: Akuaponik, Budidaya, Ikan Lele, Sayuran

Abstract

Ciseeng Village is located in Ciseeng District, Bogor Regency. Product The main advantage of Ciseeng Village is in the agriculture and animal husbandry sector, but in this village it is often there is a drought which makes activities hampered so that it has an impact on the needs of the local economy. In the agricultural and livestock sectors, there are still many village shortages, one of which is the drought factor and the flood factor is because the village This is only found in a few places that have water irrigation. Through service activities It is hoped that this solution will be resolved by the community. Implementation of Devotion to This community aims to provide guidance and training for clariidae farming and vegetables with aquaponics techniques, with this the community can not only cultivating clariidae but can also grow a variety of vegetables in the same bucket used as a container for clariidae farming Budikdamper, this is one of the future food solutions that can be developed for meet the food needs of the community, especially the needs of animal protein and vegetables. This solution was carried out considering the limited land for fish cultivation and starting to decrease water quality and quantity, Budikdamper becomes a one option that can be applied to address future food solutions.

Keywords: Aquaponic, farming, Clariidae, vegetables

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INTRODUCTION

Partner communities who are Clariidae farmers living in Ciseeng Village generally carry out catfish cultivation activities in medium block ponds, but only partially only people who use the technique, the rest ride on other blocks. Most of the families in Ciseeng Village work as construction workers with a level of income 1,000,000 per month while housewives are at home with activities day-to-day taking care of the children and cleaning the house. The activities of the wives in this village can be more employed in encouraging family income and those who encourage the creation of household food need risk (Emelia, 2014). So that farming activities are part that can be done simultaneously with taking care of catfish. These additional activities they can do at their own house (Purwati & Elidar, 2022). Some of the things that become problems to make society catfish cultivators as well as vegetable farmers through aquaponics technique.

1. They do not have the knowledge and skills in cultivating catfish and vegetables using aquaponics.
2. They don't have the knowledge and skills how to grow vegetables that will planted at the same time as catfish farming.
3. They have no knowledge about liquid organic fertilizer from onion extract and its benefits to plants. They also don't have the skill of how to make liquid organic fertilizer.
4. They do not have knowledge about the types of vegetables that can be cultivated along with catfish.
5. They do not have the capital to start vegetable cultivation and internal equipment aquaponics activities.

Partner communities who are catfish farmers who live in Ciseeng Village need to be given knowledge about aquaponics techniques or fish and vegetable cultivation at the same time in one container, the types of vegetables and the nutrients contained in them as well as benefits for health. This is expected to make the community of these partners aware the importance of consuming vegetables to maintain health. They also need to be given skills on how to cultivate vegetables and raise fish in aquaponics with use. Through these two things, it is hoped that the partner community will be motivated to doing activities at home by growing vegetables and cultivating catfish for their needs family food or additional family income (Uliya & Harimuti, 2020). Cultivation of vegetables and catfish in a bucket aquaponically it is very suitable to be given to the people in this village so that they can produce the vegetables they need in their own homes to minimize daily expenses. The crop cultivation system in this way is considered to be applicable by partner communities in their yards. This is supported by the statement of (Surtinah & Nurwati, 2018) that the cultivation of vegetables and Clariidae in bucket containers with Aquaponics systems can be done on a narrow area, regardless of the season. Besides that, the cleanliness of cultivated plants is easier to maintain, no need to do processing land and weed control, and the use of both water and fertilizers is very efficient.

METHOD

Community Service Activities by a team of lecturers from UT in Ciseeng Village with This program is carried out in several stages of activities:

1. Socialization (counseling) about various vegetables, namely: spinach, mustard, kale, and lettuce; nutrients contained in it and its health benefits.
2. Explanation and how to use a bucket as aquaponic container Working Steps for Making Budikdamber The working steps are: carried out include the following:
 - a. Prepare a plastic cup as a container for vegetable seeds, make a hole in the bottom of the glass use a sharp object or solder.
 - b. Put the finely crushed coconut shell charcoal into a plastic cup as much as of the size of the glass. Next, put the kale seeds on the charcoal then cover with a tissue. If what is entered is kale seeds that are has been sown then enter along with the roots. Then cover again with charcoal as much as 50-70% the size of the glass.
 - c. Connect the plastic cup to the bucket using a 7-12 cm wire that has been formed.
 - d. Fill the bucket with 60 liters of water or according to the size of the bucket.
 - e. Fill the bucket with catfish seeds size 7-8 or 10-12 cm (the bigger the better).

The number of catfish seeds stocked according to the volume of water, next is the glass in the bucket. Vegetable cultivation activities in a hydroponic way that are taught to the community partner is the hydroponic axis system (static) (Patola, 2017). This system is very simple and very suitable for beginner. Here are the tools used in the form of an aqua bottle, aqua glass, axes and tube which will be the place to put the aqua bottle. Cultivated vegetables are spinach, mustard, lettuce and celery. Here are the tools. In this community services activity, partner communities are provided with the necessary tools and materials so that they can practice their own vegetable and catfish cultivation activities how to Aquaponics in their yards armed with the skills they get from the UT community services team. After the practical activities are completed, the partner community is asked to maintain their crops and fish seedlings. 1.5 months later, the UT community services team carry out monitoring to see whether or not the partner community is implementing skills taught, as well as distributing questionnaires and interviews to dig deeper into information about the obstacles they face in implementing innovation given by the UT community services team and their expectations in implementing this innovation effectively sustainable.

RESULTS AND DISCUSSION

Implementation Of Community Service Activities

1. Preparation and Debriefing

Community service activities were carried out on June 19, 2022 in Bogor Regency which located in the village. As for the first activity, the implementation of activities is more focused on the socialization of catfish farming activities using aquaponics techniques (Pratopo & Thoriq, 2021). As for in this activity the majority was attended by forty housewives. As for this activity, there are several stages of events arranged in convey the material as well as in the introduction of aquaponics equipment in catfish and vegetable cultivation in an aquaponics container. The parties involved in Pk Mini activities consist of the village community, village managers and the FST UT community service lecturer team with their respective

fields of expertise. Before the field implementation activities are carried out, first, the equation of goals and objectives is carried out perspective in solving problems faced by society. For Therefore, before the implementation of PPM activities began in the community, lecturers had approached as a form of making village cooperation and permits for activities carried out the public service community activities carried out in phase one focus on the necessary debriefing given to the community related to two discussions:

2. Provision of family nutritional needs

Lecturers who are involved in the activity of providing material are FST lecturers who master the field of material provided to support the achievement of the objectives of the program implementation this community service. Communities as targets in community service activities must have basic knowledge of family nutritional needs, aquaponics systems, and product development (Kurniaty, Sukmawati, 2021). Knowledge, this is needed as a provision for the community when carrying out cultivation activities as well as practices in the use of technology results. In addition, in debriefing activities to the community implementing team also needs to have the ability to take pictures of the real conditions of the community in Ciseeng Village related to environmental management and utilization of home yards, as information to formulate approaches that are in accordance with local wisdom existing in the local community (Zidni et al., 2019). The provision of nutrition-related materials is expected to encourage community in the use of food that is around the house in meeting family nutritional need (Windiana et al., 2021). Methods of Implementation of Community Service Program Planning in Ciseeng Village In this Phase 1 community service activity, there are several programs that run continuously simultaneously and systematically to develop the potential of Ciseeng Village which is able to complete nutritional needs independently (Wijaya et al., 2017). The method of implementing the activity is by: The community approach carried out by the FST lecturer team through friendship activities to village officials as a permit and access to carry out community service activity (Megasari & Trijuno, 2020). Socialization of nutritional needs of the community through the potential of the environment so that nutritional exposure is carried out by discussion.

3. Training on Aquaponic System Design and Development

Aquaponic design training is given to provide insight to the community about the various designs of aquaponic systems that can be built according to the conditions of the land available (Wibowo, 2021). This information needs to be conveyed so that there is no wrong perception that Aquaponics systems are fixed and rigid. System design and development training aquaponics involves all elements of society that are formed in several groups, fostered the proposed aquaponics model is as follows:

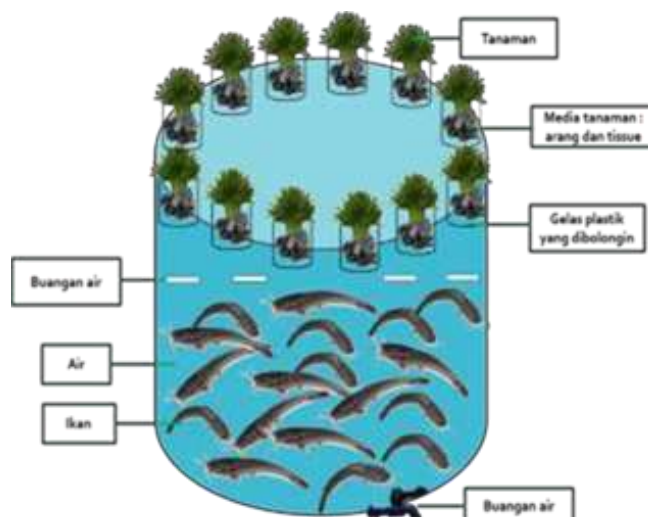


Figure 1. Budikdamper design

The type of fish developed is Clariidae. While the types of plants developed are kale, mustard greens, and spinach. The selection of these types of fish and plants is based on the ease of cultivation. The advantage of Clariidae cultivation is stocking density, where 300-500 Clariidae seeds can be stocked per m², while tilapia is only 50 per m² (Miska, 2017). Besides being easy to cultivate, catfish is also easy to market because it is liked by the whole community. So that in addition to being used to meet family nutrition, aquaponics can also be used to increase family income through selling fish. Fish farming is believed to be easy to implement in Ciseeng village, considering the area doesn't problems with clean water (Marisda, D. H., Saad et al., 2020). The proposed aquaponic vegetable growing system uses a system of 8 hours off and 8 hours on to save on electricity used by the water pump (Nugroho et al., 2012). The model offered as in the picture above is a downflow system by utilizing the distribution of water from below directly to the plant roots. Plants are grown using pots and using box gutters as water distribution channels.

CONCLUSION

In phase 1 activities went well where the activities with socializing community service activities and the delivery of activity materials delivered by the team proceeded according to the activity agenda. The community has a good level of enthusiasm in carrying out the activities by being present on time and the number of participants in this phase I activity is forty people. Practical activities for the process of cultivating catfish and vegetable crops will be carried out in the second week of July 2022 with a scheme of tools that will be given to the target groups that will be used as a means of growing vegetables and fish cultivation in budikdamper. Additional special time allocation is needed for the evaluation and evaluation phase of the results of the practice activities that will be carried out in December 2022 with the community scheme documenting cultivation results, both vegetable crops and fish products. The suitability of community service activities with the needs of the community is in accordance with the expectations of the community where, the location of the community is a catfish cultivation area but minimal vegetable crops, so this activity is sufficient to support the

expectations of the related community utilization of technology and types of plants grown. The conclusion describes the answer to the purpose of service obtained. The conclusion does not contain a repetition of the results and discussion, but rather a summary of the findings as expected in the objectives. recommendation Additional special time allocation is needed for the evaluation and assessment phase of the results of the practice activities that will be carried out in December 2022 with the community scheme documenting cultivation results, both vegetable crops and fish products. As for fish farming in ponds, it is necessary to measure the amount of feed and types of plants used in the pond.

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