



Control of Clove Plant Disturbing Organisms in Amerta Masa Farmer Group in Asahduren Village, Pekutatan District, Jembrana Regency

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A B S T R A C T

Amerta Masa Farmer Group is a farmer group in Asah Duren Village that focuses on cultivating cloves. The problem faced by the Amerta Masa Farmer Group is the lack of knowledge about the control techniques of Clove Plant Disturbing Organisms. Control using root infusion techniques is very effective, efficient and more selective, but this method requires expertise or trained personnel so that in its implementation there is no difficulty in obtaining roots suitable for this application. Therefore, the service team provides assistance and direct practice in overcoming the problem of controlling organisms that disturb clove plants. After the implementation of the activity, it was obtained that, partners have been able to practice controlling organisms disturbing clove plants so as to increase production by 10-20%. Mitra hopes to get continuous assistance in cultivating cloves so that they can remind the production of clove plants.

1. INTRODUCTION

1.1. Research Background

Asahduren Village is one of the villages producing coconut, clove, banana, and durian. Asahduren is one of 8 (eight) villages located in Pekutatan District, Jembrana Regency, Bali Province. The area of Asahduren Village is 6.13 Km² or about 4.73% of the area of Pekutatan District and 0.73% of the total area of Jembrana Regency. The people of Asahduren Village mostly make a basic livelihood as farmers. The total population in Asahduren Village consists of 892 households, consisting of 1882 men and 1830 women. Asahduren Village is divided into 4 hamlets namely More Hamlet, Asahduren Hamlet, Temukus Hamlet, and Segah Hamlet. Amerta Masa Farmer Group is a farmer group in Asah Duren Village that focuses on cultivating cloves.

One of the problems faced by the Amerta Masa Farmer Group is the lack of knowledge about control techniques for Clove Plant plant-disturbing organisms. The low productivity is partly caused by the attack of Plant Disturbing Organisms (OPT) which can result in yield loss and decreased product quality [1]. Losses due to the main pest attack of stem borer pests *Nothopeus sp.* and BPKC disease (*Pseudomonas syzygii*) in cloves is still a threat in efforts to increase productivity and yield quality [2]. In accordance with the Decree of the Minister of Agriculture Number 887/Kpts/07.210/9/97, concerning OPT Control Guidelines, Plant Protection is implemented by implementing an Integrated Pest Control (IPM) system. The use of chemical pesticides is the last alternative if several control techniques have been carried out and do not get effective results [3][4][5].

Pest and disease control is still not optimal because the area that must be controlled is much wider than the area controlled. In addition, there is still low awareness of farmers to carry out self-control and the principle of integrated pest control has not been consistently applied at the farm level.



To increase the effectiveness of control, pest control activities are sought to be carried out at attack centers or areas that have the potential to become sources of attack. Control must be carried out simultaneously in a relatively compact area, carried out repeatedly so as to reduce the attack rate and raise awareness for farmers to carry out control activities independently.

The decrease in clove production due to pest attacks can reach 10% to 25%. The most destructive pest that is often found attacking clove plants is the Clove Stem Borer (PBC) [6]. The presence of pest attacks, it is very influential on the production of clove plants for research on how to control stem borer pests (*Hexamitodera semivelutina* Hell) was carried out to see the success rate of secondary metabolites (bioinsecticides) by infusion of roots on clove plants. One of the control methods used is by infusion of roots. According to [7] Control using root infusion techniques is very effective, efficient, and more selective, but this method requires expertise or trained personnel so that in its implementation there is no difficulty in obtaining roots suitable for this application.

2. MATERIALS AND METHODS

This applied research activity was carried out at the Amerta Masa Farmer Group in Asahduren Village, Pekutatan District, Jembrana Regency. The method of implementing PKM activities to control clove plant disturbing organisms in the Amerta Masa Farmer Group in Asahduren Village, Pekutatan District, Jembrana Regency is using interviews, face-to-face (counseling), and direct practice. Interview and discussion methods to be able to find out the problems experienced by partners. Face-to-face methods and providing direct counseling, so that partners gain knowledge about how to control organisms that disturb clove plants. Direct practice, is guided by instructors who are competent in their fields so that partners can apply directly the methods provided.

Plans and Procedures for PKM Activities to be carried out are a). Approach to the group, selection of place as well as selection participants, which will then be referred to as training participants. Interviews and questions and answers about problems faced by partners, as well as planning activities that show steps to solve the problems faced. Partners will first be given material that has been prepared by the team in the form of modules regarding the control of plant-disturbing organisms of clove plants. Direct application to the group starts from counseling and direct practice in controlling plant-disturbing organisms of clove plants.

3. RESULT AND DISCUSSION

The activity began with counseling in the form of providing material on controlling organisms disturbing clove plants. The activity continued with the direct practice of controlling organisms that disturb clove plants. Some control techniques that can be done to overcome PBC pests [8] include a) Biological, namely by transmitting a suspension of *Beauveria bassiana* fungus into the hoist hole [9] b). Chemically by inserting cotton swabs into those that have been dipped in chemical insecticides into the hoist hole [10], c). Mechanically, namely by opening the hoist hole and taking the larvae inside

then destroyed [11]. In this activity, pest control is carried out in the following ways.

1. Neem leaves are blended to make a solution with a concentration of 50%
2. Neem leaf solution is added detergent in 1 liter of solution as much as 10 ml
3. Leave for 24 hours. Add water and soap. Mix thoroughly. Store in bottles for at most 3 days.
4. Inject neem leaf vegetable pesticides into the holes made by the stem borer then cover them with Vaseline.

Plants that experience clove vessel rot are given antibiotics to plants [12]. To control clove vessel rot is by the infusion method. The stages of controlling vessel rot in cloves are cutting 2 roots and then inserting 1 plastic ice wax for each root about 150 ml - 250 ml (6 gr - 10 gr) oxytetracycline antibiotics. Ice plastic that already contains oxytetracycline solution is raised like an infusion so that it can be absorbed by the roots slowly and can be absorbed until the clove wood vessels.



Figure 1. Counseling on controlling plant-disturbing organisms of clove plants



Figure 2. The practice of controlling plant disturbing organisms of clove plants.

The objective that has been attained through community activities is the dissemination of knowledge among members of the partner group regarding the management of pests affecting clove plants. It has been seen that a significant proportion, specifically 82%, of individuals have effectively implemented

the acquired knowledge at an applicable level. Mitra has successfully implemented a method to manage pests affecting clove plants, resulting in a notable increase in production ranging from 10% to 20%.

The community service program offers advantages to partner organizations, particularly those who have effectively managed the detrimental organisms affecting clove plants, resulting in increased clove production. Mitra aspires to get ongoing support in the cultivation of cloves in order to enhance the productivity of clove plantations.

4. CONCLUSION

The community service initiatives conducted at the Amerta Masa Farmer Group in Asahduren Village, Pekutatan District, Jembrana Regency have been executed with efficiency and effectiveness. Mitra has successfully implemented a method to manage pests affecting clove plants, resulting in a notable increase in production ranging from 10% to 20%. Mitra aspires to have ongoing support in the cultivation of cloves in order to enhance the productivity of clove trees.

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