

Application Of Appropriate Technology For Automatic Bird Pest Removal And Automatic Fish Feed In The Minapadi System In Beutong Nagan Raya District

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Abstract.

The purpose of this research-based service program is to apply the research results of the proposing team's research for community empowerment. The application of the research results was carried out on the program of application of appropriate technology for automatic fish feed and automatic bird repellent on the Minapadi jajar legowo system which is a system of planting rice with fish cultivation in one rice field area simultaneously and the jajar legowo planting system with a spacing of 25 cm . The technology used is automatic feeding and automatic bird repellent. Automatic feeding is done by using a mini water pump that has been modified with the help of a digital timer so that the feed automatically dispenses the feed at the time we specify, which is 3 times a day. The second technology is automatic bird repellent using extracts of herbal ingredients (jengkol) with the help of an automatic sprayer. This technology aims to increase the income of farmers with high productivity of rice yields and increase local fish production. The activity was carried out for 5 months in Beutong Nagan Raya District. The observed results include the feed that comes out of the automatic device as much as 15 gr/second, adjusted for the number and weight of fish. Meanwhile, the air pollution that comes out every 10 minutes is 5 units in a 25m² plot..

Keywords: *automatic fish feed, automatic bird repellent, minapadi.*

I. INTRODUCTION

The businesses of fish cultivators as micro entrepreneurs in Nagan Raya Regency have begun to develop, but unfortunately the types that are kept are foreign fish introduced from outside Aceh and even outside the country. This condition puts pressure on the local native fish population. Meanwhile, Aceh also has the potential for native fish that are not inferior in terms of both quantity and quality, such as fish exclamation (*Osteochilus Vittatus*) and giant prawn (*Macrobracium rosenbergii*) [1]. According to the research results of the research team, the local fish productions that have been successfully increased include exclaimed fish [2], giant prawns [3], banana prawns [4] and local snakehead fish [5], Potential and business opportunities for prospective entrepreneurs are very potential, because the place location This activity is

very strategic, namely having a source of irrigation water whose needs are always continuous and the average human resource worker in the area is a farmer and fish cultivator. increase the income of farmers and fish cultivators. The business group (partner) will make business management, especially rice and fish production to improve the economy, but the problem faced by partners is that they have not received knowledge and science that can increase their production results.

This millennial technology is a system of growing rice with fish cultivation in one rice field area at the same time. Millennial technology (Minapadi legowo with local fish) which is a system of growing rice with fish cultivation in one rice field area at the same time. This technology aims to increase farmers' incomes with high productivity of rice yields and increase local fish production. The priority problems of the partner groups of prospective new entrepreneurs are have not received knowledge and science that can make prospective entrepreneurs to become entrepreneurs with the potential of the area. The mutually agreed solution in this activity is to take advantage of the existing potential by implementing Minapadi legowo technology with local fish which is a system of growing rice with fish cultivation in one rice field area at the same time. The increase in rice and fish production is carried out with automatic feeding technology by using a mini water pump that has been modified with the help of a digital timer so that the feed automatically dispenses the feed at the time we specify, which is 3 times a day. The second technology is automatic bird repellent using extracts of herbal ingredients (jengkol) with the help of an automatic sprayer.

II. METHODS

The implementation of this activity is carried out in rice fields Meunasah Kreung Village, Beutong District, Nagan Raya Regency, Aceh Province. The materials used in this activity are: MAPAN P-05 rice seeds, urea fertilizer, potassium fertilizer, local fish seeds, jengkol, DMA (anti-weed medicine), nets (paddy field fences), and pellets. The tools used in this research are: Hand Tractor, automatic feeder, automatic bird repellent, hoe, bucket, scale, ruler, machete, rapih rope, tarpaulin, plastic folder, label, meter, bamboo stake, safety net, paper, camera, and stationery. The first technological activity was land cultivation in rice fields which would be used as Minapadi system fish cultivation by using a hand tractor which was repeated 3 times to loosen the soil and facilitate rice planting. Furthermore, the formation of kemalir for the maintenance of local fish with a width of 50 cm and a depth of 50 cm. The rice fields are fenced with nets so as not to be attacked by pests and diseases in local fish and rice. Before the rice planting process is carried out, first the formation of straight and clear planting lines is carried out by interesting a planting line tool that has been prepared in advance and assisted by a rope that is stretched from end to end of the land. Then prepare the rice seeds used are superior varieties (MAPAN P-05) for 17 days.

The rice seeds used are 2 seeds per planting hole at the intersection of the lines that have been formed. The rice planting process uses the legowo 4:1 and 2:1 rice

planting system which is the best result [6], namely for the 4:1 method of planting rice which has 4 rows of plants then interspersed by 1 blank row where the spacing is 25 cm. The local fish distribution process was carried out with a stocking density of 1000 fish/plot after 30 days of rice planting. Provide pellet feed type F-999 which is inserted into the automatic tool. Whereas air pollution (jengkol herb) that comes out every 10 minutes as much as 5 units in a plot of 25m². Harvesting is done when 90% of the grain turns yellow or is carried out 10 days before the rice harvest by drying the paddy fields first then fish are caught slowly by shifting the fish and shrimp completely.

III. RESULT AND DISCUSSION

Minapadi System Fish Cultivation Process

The process of fish cultivation in rice fields that will be used as fish farming in the Minapadi system should be carried out in rice fields where the water discharge is always available all the time or using irrigation. The location used is in accordance with the requirements for fish cultivation with the Minapadi system, at the activity location having an adequate area of irrigation (Table 4) the use of irrigation in the Minapadi system, in addition to irrigating rice fields as well as for raising fish and also the latest water quality will make fish growth very high. good. This is in accordance with the opinion [7] which states that the Minapadi model is efficient and effective enough to be applied to irrigated rice fields where the availability of water is always there for the growth of rice and fish. Minapadi irrigation model at the activity location can be seen in Figure 1, below.



Fig 1. Irrigation of activity locations

The conditions for a good location for Minapadi are then used as a pilot Minapadi rice field area. The rice fields used per plot are 25 x 25 m² as a pilot. Before starting the activity, first loosen the soil using a hand tractor. This aims to evaporate toxic gases and nutrients in more fertile soil and to facilitate rice cultivation. This rice field hand tractor activity was carried out 3 times in wet/humid/watery conditions. The

loosening of the soil at the activity site with a hand tractor can be seen in Figure 2. The purpose of tillage according to [8] states that the tillage in Minapadi has a dual function, namely to prepare for the growth of rice, as well as to grow microorganisms as fish food.



Fig 2. Tillage with a hand tractor

In addition to cultivating paddy fields with a hand tractor, making kemalir is also done using a hoe (Figure 3). This is intended in addition to fish rearing containers to avoid direct heat from the sun, also to overcome pests such as snails and to make it easier to harvest fish. According to [9] the purpose of kemalir is to protect fish from pests and the dangers of drought caused by high evaporation. This ditch or kemalir is made transverse/horizontal and parallel to the embankment with a width of 1 meter and a depth of 50 cm. Formation of kemalir with a width of 50 cm and a depth of 50 cm



Fig 3. Making kemalir with a hoe



Fig 4. Formation of planting lines (legowo) with a cropping line scraper

Furthermore, before the rice planting process is carried out, first the formation of a straight and clear planting line (legowo) is carried out by pulling the planting line tool that has been prepared previously (Figure 4) and assisted by a rope that is stretched from end to end of the field. Seeds The rice used is the MAPAN P-05 superior variety. Rice seeds used as many as 2 stems per planting hole at the intersection of the lines that have been formed. The process of planting rice using the legowo rice planting system The fish stocking process was carried out in each plot per species with a stocking density of 500 fish/plot after 30 days of rice planting. According to [10] fish seed distribution is carried out 30 days after rice planting with the aim of avoiding drugs or fertilizers. Stocking of fish seeds is carried out slowly in the afternoon so that the fish do not experience stress due to environmental changes.

Application of Automatic Bird Repellent And Automatic Fish Feed

According to [9] pests that attack rice and fish are birds, snakes or water civets/beavers and goldensnails[11]. Pests in addition to destroying/eating/competitors are also disease carriers/agents for fish life. Pest prevention carried out by farmers in Beutong Village includes simultaneous planting, the use of scarecrows and the use of nets. Prevention of pests, especially birds, in this service program activity is to prevent pests (birds) with an automatic bird repellent using a solution of herbal ingredients (jengkol, garlic, bintaro, and shaved) with the help of an automatic sprayer.



Fig 6. Application of automatic bird repellent in paddy fields

The tool uses a solution of herbal ingredients (jengkol, garlic, bintaro, and shaved) with the help of an automatic sprayer. The tool uses a battery to move the lever which is set for 10 minutes every day. Each plot (25x25 m²) is given 6 tools to repel. In addition to bird pests, the aroma that comes out of herbal ingredients can repel rats, leafhoppers and other insects.



Fig 9. Automatic feed technology in paddy fields.

While automatic feeding is done by using a mini water pump that has been modified with the help of a digital timer so that the feed automatically dispenses the feed at the time we specify, which is 3 times a day. The tool is set according to the weight of the fish, every 1 second the tool will issue a pellet of approximately 15 grams. The plate used is the FF-999 type

IV. CONCLUSION

The technology used is automatic feeding and automatic bird repellent. Automatic feeding is done by using a mini water pump that has been modified with the help of a manual timer so that the feed automatically dispenses the feed at the time we specify, which is 3 times a day. The second technology is automatic bird repellent using extracts of herbal ingredients (jengkol) with the help of an automatic sprayer. This technology aims to increase farmers' income with high rice yields and increase fish production.

V. ACKNOWLEDGMENTS

The author's research was funded by internal research grants from Teuku Umar University, especially LPPM and Quality Assurance as well as the Aquaculture Study Program, Faculty of Fisheries and Marine Sciences.

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