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Training and Implementation of Catfish Feed Technology in The Sedana Sari Fish Farmers Group in Selat Village, Abiansemal, Badung, Bali

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A B S T R A C T

Catfish is one type of freshwater cultured fish that has the potential to be developed. Cultivation with advanced technology in intensive systems requires more feed intake good quality pellet feed is needed but at an affordable price. The problem of the high cost of cultivating catfish is a challenge that must be resolved. Activities were carried out in 3 stages including counseling and workshops, planning, the practice of making fish feed pellets, and monitoring and evaluating. The results in the activities of catfish farmers conveyed problems and exchanged experiences of the problems experienced. Furthermore, to find out the sustainability of the program, the team conducted monitoring and evaluation and the activities continued even though there were few problems.

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INTRODUCTION

Catfish became one of the prima donna fish everywhere, and the image of catfish from people's food turned into modern food. The level of public consumption of catfish will continue to increase from time to time. This is to be a demand to meet the increasingly high demand for fish by the community and also meet the need for catfish feed for growth. If fish production increases, then there will be an immediate increase in feed demand (Hadadi et al., 2007; Lestari et al., 2023). Quality feed depends on feed raw materials, so the availability of raw materials must be maintained in quality and quantity (PAKAN, 2012; Putra et al., 2022).

Feed is an important component in fish farming, including catfish and tilapia. About two-thirds of catfish production costs are spent on feed. The feed is given with the hope that, among other things, the feed will make the catfish seeds that are kept able to provide good growth, feed is a basic requirement for fish for survival and biological processes in the fish's body. The fish feed consists of two kinds, namely natural feed and artificial feed. Natural feed is usually used in live form and is rather difficult to develop, while artificial feed can be generally interpreted as feed derived from processed feed ingredients that meet the nutrients needed by fish. One of the most common artificial fish feeds on the market is pellets. Feed plays an important role in fish farming activities. Feed requirements during cultivation can reach around 60-70% of the cost of cultivation (Hadadi et al., 2009; Megawati et al., 2012).

Feed is a determining factor for the success of fish farming. The feed given is by the needs of the fish. The larger the size of the fish, the less amount of feed given, the smaller the size of the fish, the more amount of feed given. Small fish require a larger amount of feed because small fish have a larger growth period than large fish. Feeding habits or eating habits of fish are things that must be considered in feeding fish farming. Fish can grow optimally because of efficient feeding, most of the feed given is only 25% as production results, and the rest is wasted as waste 62% in the form of dissolved materials and 13% in the form of precipitated particles. The amount of waste produced can cause a decrease in the quality of water in the cultivation and will have an impact on the ecological system caused by the presence of this waste, there will be nutrient enrichment (eutrophication), changes in food chain patterns and webs, and increased levels of oxygen demand so that it can cause fish growth. disturbed (Aminullah et al., 2019; Cahyani & Hafiludin, 2022).

Feeding must pay attention to the level of fish satiety and fish appetite so that the feed can be digested optimally. Fish need time to empty their stomachs so that they can stimulate their appetite so the optimum interval and feeding must be adjusted to emptying the fish's stomach so that fish can eat voraciously and fish can grow optimally. Feeding at the right time is related to the frequency of feeding in fish farming and can make fish grow optimally. Selection of feed for freshwater fish does not only involve criteria of nutritional value and cost efficiency but also must consider other criteria such as digestion, poison content, and feed availability. Fish feed consumption is influenced by several factors

including body size, stadia, feed availability, gastric emptying rate, fish body activity and health, and water quality(Hanief, 2014; Mahendra, 2018).

The Sedana Sari Fish Farming Group is a group engaged in catfish farming with tarpaulin ponds. This group was founded in 2019 with 20 members. This group is classified as a very active group even though it has just been formed, but the catfish farming that has been carried out has been successfully marketed and can support the needs of fish farmers. However, there are several main problems experienced by fish farmers, namely the high price of feed and the use of substitutes that are low in nutrients. In connection with the problems faced by the community, it is necessary to seek training and application of the technology for making highly nutritious catfish feed simply, so that it can help the community in solving the problems faced and the impact of catfish farmers will continue to grow more and more to support catfish production in the Selat Village, Badung Regency, Bali

IMPLEMENTATION AND METHODS

1. Counseling on Alternative Fish Feed Pellets

The form of counseling activities is carried out by visiting the two partners which are attended by all members of the partner group. Activities in the form of discussions and workshops on problems and experiences originating from both parties

2. Catfish Feed-Making Training

The production of catfish feed uses ingredients such as fish meal, soybean meal, bran, cassava flour, tofu dregs with a water content of 15% bone and fish meal, corn flour, biophos, salt, fish oil, and vitamin premix. All the ingredients are mixed, added to warm water, and stirred with a dough maker until smooth. The dough is printed using a pellet molding machine. Pellets are accommodated in a baking dish and dried in the hot sun

3. Monitoring and Evaluation of Activity Sustainability

The sustainability of the program is evaluated after 3 months of the third phase of activities being carried out. The Return Team conducted visits to partners by examining the implementation of the program and the equipment assistance provided.

RESULTS AND DISCUSSION

The Warmadewa University Community Service Program is a forum for researchers at Warmadewa University to apply (downstream) research results in the form of science and technology to solve problems that exist in society, problems that develop in the community of Abiansemal sub-district, Badung Regency, where most of the people are freshwater fisheries cultivators is the high cost of feed that comes from fish feed pellets from factories. To reduce the high cost of production, the community is looking for alternative feed sources to reduce the use of factory pellets that are fermented from tofu waste. If previously 2 times of feeding in the morning and evening using pellets, now the community provides the feed with a morning strategy of using fermented tofu dregs and in

the afternoon using factory pellets. The results obtained with this strategy are quite promising, even though the factory fish feed pellets are reduced but the development of fish growth is not disturbed because protein intake in fish has been fulfilled through the use of fermented tofu dregs. Thus, the reduction in production costs can increase the community's profits in cultivating freshwater fish.

Based on the analysis of these problems, the community service team is trying to offer alternative solutions to reduce production costs in freshwater aquaculture, especially catfish. The alternative solution offered is using simple technology to manufacture fish feed pellets that can be produced by yourself. The advantage of this alternative solution is that the material used is environmentally friendly because it comes from waste that still has use value such as tofu dregs and rice bran (rice waste). On the other hand, by making fish feed independently, it is possible to control the protein intake given to fish. Thus, the desired hope is a zero-waste aquaculture system because it utilizes waste for the manufacture of feed. Community service activities with Sedana sari fish cultivator group partners are carried out in 3 stages, namely:

a. Stage 1. Counseling about alternative fish feed pellets

In outreach activities, the team seeks to hold discussions with the community on the problems faced and provide solutions to problems found by partners. The topic discussed in this activity is the use of alternative feeds that are already used by fish farmers, the feed is tofu dregs fermented using tape yeast. The use of tofu dregs can reduce maintenance costs without inhibiting fish growth. Calculation of the composition of protein in feed and ingredients to increase buoyancy is a very interesting discussion. Lamtoro leaf flour can increase buoyancy and is very environmentally friendly

b. Stage 2. The practice of Making Fish Feed Pellets

The practice of making fish pellets was carried out at partner locations, namely the Sedana Sari fish cultivator group. The composition of the fish feed pellets is adjusted to the results of the counseling in the first stage of the activity. The composition that has been formulated is 3.5 kg of fine bran, 2.5 kg of fish meal, 2.5 kg of soybean flour, 2 kg of pressed tofu dregs, 0.2 kg of vitamins, and 0.2 kg of minerals. All ingredients are stirred until homogeneous then added starch which was previously added in hot water for adhesive in the pellet maker. The ingredients are mixed until smooth and then printed with a simple pellet press and accommodated on a baking sheet. Pellets are dried in the sun to dry. The production process is very simple, making this method an alternative in dealing with the problem of high feed costs in fish farming. The implementation of feed production activities is shown in Figure 1 and Figure 2 shows the handing over of simple tools and materials for making pellets.

c. Stage 3. Monitoring and Evaluation

Monitoring and evaluation of programs carried out after 3 months of extension activities and feed manufacturing practices. The results of the evaluation carried out showed that the activities ran smoothly even though there were few obstacles. This success was achieved because the partners are very experienced in fish farming. Previous transfers of knowledge and technology were well absorbed by partners. Until now, partners have applied the results of activities by providing independent feed for catfish farming and partners have been able to formulate ingredients used in making feed according to the nutritional needs of the fish they manage. Partners in this activity are very enthusiastic about developing the results of this activity. Partners try to carry out production to meet the fish feed needs of their members. The partner's hope that should be appreciated is the partner's desire to produce fish feed pellets for sale in the surrounding community by referring to formulation experience carried out in the field. Our team will continue to assist in providing nutritional analysis services if needed.

Figure 1. Production of fish pellets

Figure 2. Present the Tools to Partner Groups

CONCLUSIONS AND RECOMMENDATIONS

Community service programs regarding training and application of alternative fish feed manufacturing technologies have been successfully carried out in Selat Village, Abiansemal District, Bali. Achievement indicators have been successfully achieved, namely:

1) Counseling runs smoothly which is marked by the interaction of the team and partners where there is an exchange of information and discussion of problems faced by partners
2) The practice of making feed with partners runs smoothly until catfish feed is produced and the feed is applied directly by the partner into the partner's catfish pond.
3) Monitoring and evaluation activities were successfully carried out as shown by partners who used the results of the activities after the activities had been running for 3 months.

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REFERENCES

Aminullah, M., Musyaddad, K., & Safita, R. (2019). *PERBANDINGAN PAKAN IKAN (PELET) DENGAN PAKAN ALAMI TERHADAP PERTUMBUHAN BOBOT BADAN IKAN LELE (clarias gariepinus) DI KERAMBAH AURDURI KOTA JAMBI* [Doctoral dissertation]. UIN Sulthan Thaha Saifuddin.

Cahyani, L. R., & Hafiludin, H. (2022). Manajemen Pemberian Pakan Pada Pembesaran Ikan Lele Mutiara (Clarias gariepinus) di Karamba Tancap Balai Benih Ikan Pamekasan. *Juvenil: Jurnal Ilmiah Kelautan Dan Perikanan*, *3*(2), 19–26.

Hadadi, A., Herry, K. T., Wibowo, E., Pramono, A., & Surahman, R. E. (2009). Aplikasi pemberian maggot sebagai sumber protein dalam pakan ikan lele sangkuriang (Clarias sp) dan Gurame (Osphronemus gouramy Lac). *Sukabumi (ID)*.

Hadadi, A., Herry, S., Surahman, A., & Ridwan, E. (2007). Pemanfaatan limbah sawit untuk bahan pakan ikan. *Jurnal Budidaya Air Tawar*, *4*(1), 11–18.

Hanief, M. A. R. (2014). Pengaruh frekuensi pemberian pakan terhadap pertumbuhan dan kelulushidupan benih tawes (Puntius javanicus). *Journal of Aquaculture Management and Technology*, *3*(4), 67–74.

Lestari, P. K., Cinnawara, H. T., Patahiruddin, P., & Muchlis, A. M. (2023). Pengaruh Pemberian Pakan Berbeda terhadap Pertumbuhan Mutlak dan Kandugan Nutrisi Ikan Nila (Oreochromis niloticus). *Eucheuma Journal of Aquaculture*, *1*(1), 1–8.

Mahendra, M. (2018). Pemberian Pakan Komersil yang Berbeda terhadap Pertumbuhan dan Kelangsungan Hidup Benih Ikan Tawes (Barbonymus gonionotus). *Jurnal Perikanan Terpadu*, *1*(2).

Megawati, R. A., Arief, M., & Alamsyah, M. A. (2012). Pemberian pakan dengan kadar serat kasar yang berbeda terhadap daya cerna pakan pada ikan berlambung dan ikan tidak berlambung. *Jurnal Perikanan Dan Kelautan*.

PAKAN, D. D. P. S. B. (2012). *Kandungan Bahan kering, serat kasar dan protein Kasar Pada daun Lamtoro (Leucaena glauca) Yang difermentasi dengan Probiotik Sebagai Bahan Pakan Ikan*.

Putra, I., Aulia, A. H., Dwifani, A. P., Ramadani, D., Saputra, F. F., Diva, F., Karimah, P., Indriartini, R. T., Nafisah, R., & Tifany, S. (2022). Pembuatan Pakan Ikan Tenggelam dengan Bahan Baku Lokal di Desa Simpang Beringin. *Journal of Rural and Urban Community Empowerment*, *4*(1), 5–8.