

Socialization of Local Feed Utilization for the Giri Sari Tilapia Farmer Group in Bedulu Village Gianyar

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Abstract

Tilapia farming is one of the freshwater aquaculture activities with significant potential to improve community livelihoods. However, the high cost of commercial feed remains a major challenge in aquaculture production. This community service program aimed to introduce the utilization of locally available feed resources as a cost-effective alternative to the Giri Sari Tilapia Farmer Group in Bedulu Village, Blahbatuh District, Gianyar Regency. The program was implemented through educational socialization, including lectures, interactive discussions, and question-and-answer sessions, followed by evaluation using pre-test and post-test instruments. The partner group consisted of 11 members, all of whom were actively engaged in tilapia farming. Monitoring was conducted through direct observation of participants' involvement throughout the activity, while evaluation was carried out by comparing pre-test and post-test results to assess improvements in participants' knowledge. The results indicated that participants actively engaged in all stages of the program and demonstrated improved understanding of feed management and the potential use of locally available feed ingredients as an alternative to commercial feed. Interactive discussions also identified the need for continued assistance in feed formulation and the practical application of local feed resources. This activity represents an initial step toward strengthening the capacity of fish farmers to adopt more efficient, affordable, and sustainable feeding practices.

Keywords: Community service; local feed; tilapia farming; farmer empowerment; Bedulu Village

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INTRODUCTION

Tilapia (*Oreochromis niloticus*) is one of the freshwater aquaculture commodities with considerable potential to support food security and improve community welfare. Tilapia is widely cultivated due to its rapid growth, high adaptability to various environmental conditions, and increasing market demand, making its cultivation a promising source of income for local communities (Kurnianingsih et al., 2023). Despite these advantages, tilapia farming continues to face several challenges, particularly the high production costs associated with the use of commercial feed. Feed costs can account for approximately 60–70% of total production costs, significantly affecting the economic efficiency of aquaculture businesses. Therefore, more affordable feed alternatives are needed by utilizing locally available raw materials while

maintaining the nutritional requirements of fish (Surianti et al., 2022). The utilization of local raw materials as fish feed ingredients has become one of the strategies for improving aquaculture efficiency. A study conducted in Klungkung, Bali, demonstrated that locally formulated feed could support tilapia growth performance comparable to commercial feed when formulated according to the nutritional requirements of the fish. In addition to its economic potential, the utilization of local feed ingredients can promote farmers' independence by reducing their dependence on feed materials obtained from outside the region (Sunarno et al., 2018). The Giri Sari Tilapia Farmer Group, located in Bedulu Village, Blahbatuh District, Gianyar Regency, consists of 11 members who are actively engaged in tilapia farming. Based on preliminary field observations and discussions with the partner group, all members still relied on commercial feed as their primary feed source. Furthermore, their knowledge regarding the potential utilization of locally available raw materials as alternative feed ingredients was limited, indicating that opportunities to improve feed management and potentially enhance production cost efficiency had not yet been optimally explored.



Figure 1. Preliminary Survey at the Community Service Location

The main problems identified among the partner group included a high dependence on commercial feed, limited information regarding locally available raw materials that could potentially be utilized as alternative feed ingredients, and the absence of previous assistance in local feed formulation and application. These conditions indicated the need to strengthen the farmers' knowledge and capacity as an initial step before introducing independent feed production technology. Socialization and extension activities represent important approaches to strengthening community capacity. Such activities provide participants with opportunities to acquire new information, engage in discussions, and understand the potential benefits of an innovation before its practical implementation. Previous community service programs have demonstrated that extension activities combined with interactive discussions can improve farmers' knowledge and readiness to adopt aquaculture technologies and feed innovations (Monalisa et al., 2026; Hasnidar et al., 2025).

Several previous community service programs have focused on the utilization of local feed ingredients, independent feed production, and the application of technologies in tilapia farming. However, most of these programs have primarily emphasized technical implementation and feed production, while the assessment and strengthening of farmers' knowledge and readiness prior to adopting local feed technology have received relatively limited attention. This represents an important gap because successful technology adoption requires not only access to technology but also an adequate understanding of its principles, benefits, and potential applications. In the Giri Sari Tilapia Farmer Group, the challenge was not limited to dependence on commercial feed; the members also had limited knowledge regarding the types of locally available feed ingredients, their potential benefits, and the basic principles of their utilization as alternative feed.

Therefore, the distinguishing feature of this community service activity was its focus on the initial stage of farmer empowerment through structured socialization, accompanied by pre-test and post-test evaluations to quantitatively assess changes in participants' knowledge. Unlike programs that directly introduce feed formulation and production practices, this activity emphasized strengthening participants' basic knowledge and readiness before proceeding to technical training. This stage was designed to provide a foundation for subsequent assistance involving local feed formulation, pellet production, and the independent application of locally formulated feed in tilapia farming. Through the socialization of local feed utilization, members of the Giri Sari Tilapia Farmer Group were expected to gain a better understanding of the types of locally available feed ingredients, their potential economic benefits, and their possible application in tilapia farming. This knowledge is essential as an initial foundation before implementing further technical assistance involving feed formulation and hands-on training in independent feed production. Based on these conditions, this community service activity aimed to introduce the utilization of locally available feed ingredients as alternative feed resources for tilapia farming and to improve the knowledge of members of the Giri Sari Tilapia Farmer Group in Bedulu Village, Blahbatuh District, Gianyar Regency through structured socialization, interactive discussions, and pre-test and post-test evaluations. The activity was expected to serve as an initial step toward supporting the future adoption of more efficient, economically viable, and sustainable local feed practices.

METHOD

This community service activity was conducted with the Giri Sari Tilapia Farmer Group, located in Bedulu Village, Blahbatuh District, Gianyar Regency, Bali. The partner group consisted of 11 members who were actively engaged in tilapia farming as one of their sources of household income. Based on preliminary observations and coordination with the group management, the farmers were highly dependent on commercial feed as their primary feed source, which contributed to relatively high production costs. In addition, the members had limited knowledge regarding the potential utilization of locally available raw materials as alternative fish feed ingredients. Therefore, this community service activity focused on the socialization of local feed utilization as an initial stage of assistance to strengthen the capacity of the partner group. The activity consisted of three main stages: preparation, implementation of the socialization activity, and monitoring and evaluation.

1. Preparation Stage

The preparation stage began with coordination with the management of the Giri Sari Tilapia Farmer Group to determine the schedule, location, and requirements for implementing the activity. The partner group's problems were subsequently identified through field observations and discussions with group members to obtain an overview of the existing tilapia farming practices and the challenges encountered by the farmers. The results of this initial identification were used as the basis for preparing socialization materials tailored to the needs of the partner group. At this stage, the community service team also prepared presentation materials, pre-test and post-test instruments, participant attendance sheets, and activity documentation.

2. Implementation of the Socialization Activity

The socialization activity was conducted using an interactive lecture method combined with discussion and question-and-answer sessions. The materials covered the importance of feed management in tilapia farming, the introduction of various locally available raw materials with potential use as feed ingredients, the potential benefits of local feed utilization in reducing dependence on commercial feed and supporting production cost efficiency, and opportunities for its application in tilapia farming. The materials were delivered interactively to encourage participants to actively share their experiences and discuss the challenges encountered in their tilapia farming activities.

3. Monitoring and Evaluation

Monitoring was conducted through direct observation of participants' attendance, participation, and engagement throughout the activity. The community service team also recorded participants' responses during the presentation and discussion sessions as part of the program evaluation. The activity was evaluated using pre-test and post-test instruments administered to all participants. The pre-test was conducted before the presentation of the materials to assess participants' initial knowledge regarding local feed utilization, whereas the post-test was administered after the socialization activity to assess changes in their understanding. The evaluation results were analyzed descriptively by comparing participants' scores before and after the socialization activity. In addition, feedback obtained from participants during the discussion sessions was used as a basis for developing recommendations for subsequent assistance activities, particularly training in local feed formulation and its practical application in tilapia farming. The implementation of the community service activity can be summarized into four sequential steps: (1) identification of the partner group's problems; (2) activity preparation and development of socialization materials; (3) implementation of the socialization activity through interactive lectures, discussions, and question-and-answer sessions; and (4) monitoring and evaluation using pre-test and post-test assessments and observation of participant engagement.

RESULT AND DISCUSSION

1. Socialization Activity

The community service activity was conducted in Bedulu Village, Blahbatuh District, Gianyar Regency, involving the Giri Sari Tilapia Farmer Group, which consists of 11 tilapia farmers. This activity represented the initial stage of the assistance program and aimed to improve the participants' knowledge regarding the utilization of locally available feed ingredients as alternatives to reduce dependence on commercial feed. Before the presentation of the materials, all participants completed a pre-test to assess their initial knowledge of feed management and the potential utilization of local feed ingredients. Subsequently, the community service team delivered the materials through an interactive lecture supported by presentation media. The materials covered the importance of feed management in tilapia farming, types of locally available raw materials with potential use as feed ingredients, the potential economic benefits of local feed utilization, and opportunities for its application in tilapia farming. The materials were delivered interactively, allowing participants to follow and

understand each topic effectively. Throughout the activity, the participants demonstrated high enthusiasm, as indicated by full attendance and active involvement in each session.



Figure 2. Presentation of materials on local feed utilization to the members of the Giri Sari Tilapia Farmer Group

2. Discussion and Question-and-Answer Session

Following the presentation, the activity continued with an interactive discussion and question-and-answer session. During this session, participants shared their experiences and various problems encountered in tilapia farming. One of the major concerns raised by the participants was the increasing price of commercial feed, which contributed to higher operational costs. Participants also reported limited information regarding the types of locally available raw materials that could potentially be utilized as alternative feed ingredients. The community service team provided information on various locally available feed resources and explained the basic principles of their utilization as ingredients in tilapia feed. The discussion was interactive and provided participants with opportunities to exchange experiences and obtain initial information regarding possible solutions to their feeding-related problems. This active interaction indicated that combining socialization with discussion encouraged participant engagement in the learning process.



Figure 3. Pre-test and post-test activities

3. Monitoring and Evaluation

Monitoring was conducted through direct observation of participants' attendance, participation, and responses throughout the activity. The observations showed that all participants attended the activity from beginning to end and demonstrated a high level of participation. Participants actively responded to the materials, asked questions, and discussed opportunities for applying local feed in their existing tilapia farming activities. The activity was evaluated using **pre-test and post-test instruments** to assess changes in participants' knowledge after the socialization. The evaluation focused on participants' understanding of feed functions and management, the potential benefits of locally available feed ingredients, and opportunities for utilizing local feed in tilapia farming. The results indicated an improvement in participants' knowledge following the socialization activity.

Table 1. Pre-test and Post-test Evaluation Results

Indicator	Pre-test Post-test	
Number of participants	11	11
Mean score	61.8	86.4
Highest score	78	98
Lowest score	48	76
Percentage increase	–	39.8%

Note: The percentage increase was calculated based on the increase in the mean score from 61.8 in the pre-test to 86.4 in the post-test, corresponding to an improvement of 39.8%. The evaluation results demonstrated an improvement in participants' knowledge after participating in the socialization activity. The mean score increased from 61.8 in the pre-test to 86.4 in the post-test, representing an increase of 39.8%. The highest score increased from 78 to 98, while the lowest score increased from 48 to 76. These findings indicate that the socialization activity was effective in improving participants' understanding of feed management and the potential utilization of locally available raw materials as alternative feed ingredients for tilapia. The improvement in test scores was also accompanied by active participation during the discussion and question-and-answer sessions. Participants' engagement indicated considerable interest in local feed innovation, particularly in relation to its potential to reduce dependence on commercial feed. Nevertheless, the present evaluation was limited to immediate changes in participants' knowledge; therefore, the results should not yet be interpreted as evidence of changes in actual feeding practices or production efficiency.

4. Outcomes of the Activity

The socialization activity produced a positive immediate learning outcome, particularly in terms of improving the knowledge of the Giri Sari Tilapia Farmer Group regarding local feed utilization. Participants gained new insights into locally available raw materials that could potentially be utilized as alternative feed ingredients and developed a better understanding of their potential role in supporting feed self-sufficiency. This improvement in knowledge was

supported by the evaluation results, in which the mean score increased from 61.8 in the pre-test to 86.4 in the post-test, representing a 39.8% increase. In addition to improving knowledge, the socialization activity provided participants with an initial understanding of the potential of local feed to reduce dependence on commercial feed and support production cost efficiency. However, this activity was limited to the socialization and knowledge-building stage. Changes in feed expenditure, production efficiency, fish growth, actual adoption of local feed, and farmers' income were not measured during the present activity. Therefore, improved production cost efficiency should be regarded as a potential benefit expected from the future application of local feed rather than as an economic impact that has already been achieved. The longer-term outcomes and impacts need to be evaluated during subsequent stages of the assistance program through training in local feed formulation and production, practical application of the formulated feed in culture ponds, and monitoring of fish growth, feed utilization, and production costs. This distinction is important to ensure that the conclusions drawn from the activity remain consistent with the indicators that were actually measured.



Figure 4. Group photo with members of the Giri Sari Tilapia Farmer Group

5. Constraints and Follow-up Activities

No major technical or administrative constraints were encountered during the implementation of the socialization activity. However, several participants still required further assistance in feed formulation techniques, pellet production processes, and determining appropriate proportions of locally available raw materials according to the nutritional requirements of tilapia. Participants also expressed interest in practical demonstrations so that the knowledge acquired during the socialization could subsequently be applied in their farming activities. As a follow-up, the community service team plans to conduct further assistance consisting of local feed formulation training, hands-on pellet production, feed trials in tilapia culture ponds, and evaluation of fish growth and production cost efficiency. Such continued assistance is expected to facilitate the transition from increased knowledge to practical adoption. In the longer term, these activities are expected to support the farmer group in independently utilizing locally available resources as more economical and sustainable alternative feed ingredients.

CONCLUSION

The community service activity through the socialization of local feed utilization for the Giri Sari Tilapia Farmer Group in Bedulu Village, Blahbatuh District, Gianyar Regency, was successfully implemented according to the planned stages. The activity achieved its primary objective of improving participants' knowledge and understanding of feed management, the potential use of locally available raw materials as alternative feed ingredients for tilapia, and their potential contribution to improving the efficiency of aquaculture practices. Monitoring through direct observation and evaluation using pre-test and post-test assessments demonstrated an improvement in participants' understanding of the materials presented. Participants also showed active engagement throughout the activity, particularly during the discussion and question-and-answer sessions, indicating strong interest in further developing local feed innovations for tilapia farming. This socialization activity therefore represents an important initial step in strengthening the capacity of the farmer group and provides a foundation for subsequent technical assistance, particularly in local feed formulation, independent feed production, and practical application in tilapia farming.

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