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Technical Guidance on Raising Superior Local Chickens in Alebo Village, Konda Subdistrict South Konawe Regency

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ABSTRACT

This service program aims to increase the knowledge and skills of partner breeders regarding feed formulation techniques using local raw materials and superior local chicken breeding techniques using automatic hatching machines as well as seed production systems intensively and semi-intensively raised. The implementation of this service program uses group and individual counseling methods, which include non-physical and physical activities. Non-physical activities take the form of theoretical counseling using lecture and discussion methods. In contrast, physical activities are carried out using demonstration methods and field visits related to feed formulation techniques using local raw materials and superior local chicken rearing techniques using automatic hatching machines and intensive and semi-intensive seed production systems. The results of the implementation of this service program showed that the technical guidance activities for raising superior local chickens, which were carried out in Alebo Village, Konda District, South Konawe Regency, received a positive and enthusiastic response from the local village government and partner breeders. This technical guidance activity for raising superior local chickens that combined non-physical activities in the form of theoretical counseling with lecture and discussion methods with physical activities in the form of demonstrations and field visits can be a solution to problems experienced by partner breeders. Implementation of this service program is effective in increasing the knowledge and skills of partner breeders regarding feed formulation techniques using local raw materials and superior local chicken raising and breeding techniques using automatic hatching machines as well as seed production systems intensively and semi-intensively raised.

INTRODUCTION

Local chickens are one source of poultry meat and eggs in Indonesia. Statistical data shows that the contribution of poultry meat to national meat production (5,157.79 tons) is 4,254.85 tons or 82.49%. However, poultry meat production is dominated by broiler chicken meat, amounting to 3,936.15 tons or 76.31%. Meanwhile, production of free-range chicken meat, including local chicken, has only reached 275.42 tons or 5.34% (Dirjen of PKH, 2022). On the other hand, the potential and opportunities for developing local chickens are quite wide open. One indicator is that demand for local chicken meat and eggs trends to increase from year to year. This is because local chicken meat and eggs have a savory and delicious taste, so people like it, and cannot be substituted by imported chicken meat and eggs. It's reinforced by the opinion of Yusuf and Hermanto (2022) that the shift in interest from consuming imported broiler meat to local chicken is currently quite large because the

taste of local chicken meat is preferred. Apart from that, opportunities in the market are still wide open.

Superior local chickens are Kampong chickens that have undergone a genetic selection process for several generations and or are produced from crossbreeding between several local chicken lines. Superior local chickens have important economic values, such as fast growth and high egg productivity, and are resistant to disease compared to Kampong chickens in general. Many local chickens are starting to be genetically crossed so that they can be used for egg and meat production nationally (Lesatari et al., 2021). Several superior local chicken breeds have been developed currently in various regions in Indonesia, including in Southeast Sulawesi, such as in Alebo Village, Konda District, South Konawe Regency, namely the Kampung Unggul Balitbangtan (KUB) chicken, the Sentul Terseleksi (SenSi) chicken, the SenSi x KUB crossbreed chicken (Senkub), Kampong Super chicken (KS) and Lala Batikan chicken (Elba). These local chickens are easy to cultivate using semi-intensive or intensive rearing systems. Therefore, many people or breeders were interested in developing superior local chickens as their primary or side business. However, generally, it is still on the micro, small, and medium business scale.

The results of the field survey show that the rearing of superior local chickens in Alebo Village, Konda District, South Konawe Regency, especially in the Lawero Kampong chicken breeder group, is carried out through a breeding system. The mating method is carried out naturally with a sex ratio of 1: 5, and the hatching method uses an automatic hatching machine with a small to large capacity (3,400 eggs). The housing system consists of Parent Stock (PS) chicken breeding cages, brooding cages, and Final Stock (FS) chicken rearing cages with a semi-intensive rearing system for meat chickens and an intensive system for laying hens. Meanwhile, most of the feed supplies use local raw materials that are formulated themselves. The breeding products produced are DOC's final stock of superior local meat chickens and ready-to-slaughter meat chickens, which are sold at the age of 10 – 12 weeks, especially for KUB, SenSi, Senkub, and Kampong Super chickens. Apart from that, this livestock business also develops Elba chickens, the final product being consumption eggs.

The Lawero village chicken breeder group in Alebo Village, Konda District, develops superior local chickens using a nucleus-plasma partnership system that involves the local community as plasma breeders. Therefore, they need support from various parties, including universities/ academics, such as technical guidance on raising superior local chickens for breeders with professional management. According to Rusdiana and Soeharsono (2019), superior local chicken farming businesses with good professional management can optimally increase the economic value of farmers. A superior local chicken business supported by the availability of natural resources, feed, and farmer labor is a promising alternative to pursue. In addition, technological innovation in superior local chicken farming is very profitable and reliable as a source of income for farmers.

The results of discussions with the Lawero Kampong chicken breeder group and the Alebo Village Head revealed that the breeders have a strong desire to continue developing superior local chicken farming businesses, starting from rearing DOC to producing broiler chickens ready to be slaughtered. However, there are several problems; it is likely that breeders still need to learn the techniques for preparing and formulating feed according to needs at each production phase using local raw materials. Apart from that, partner breeders also still need to learn effective and efficient breeding techniques and systems for raising superior local chickens.

This service program aims to increase the knowledge and skills of partner breeders regarding feed formulation techniques using local raw materials and superior local chicken breeding techniques using automatic hatching machines as well as seed production systems intensively and semi-intensively raised.

METHODS

Time and Location

This community service program has been implemented for one month, from November – December 2023, and is located in Alebo Village, Konda District, South Konawe Regency, Southeast Sulawesi Province, Indonesia.

Solution Approach Method

The solution approach method applied to solve the problems of partner breeders in this service

program is the group and individual counseling method with two forms of activities, namely non-physical activities and physical activities.

a. Non-Physical Activities

Non-physical activities in the form of group and individual counseling. Group counseling applies lecture and discussion methods. Meanwhile, individual outreach applies the door-to-door method to each member of the partner breeder. Apart from that, partner breeders are given tools such as brochures and leaflets so that the technological innovations introduced to them are easier to understand.

b. Physical Activities

Physical activities are carried out in the form of field visits at the locations of superior local chicken breeding units owned by partner breeders with several activities as follows:

- Demonstration of feed formulation using local raw materials,
- Demonstration of egg-hatching management,
- Demonstration of seed production systems.

Steps for Implementing the Community Service Program

a. Socialization of Program

Socialization of this service program was carried out at the beginning of the activity by involving breeders and other stakeholders such as village heads and community leaders. This socialization activity aims to equalize perceptions as well as gather support from local stakeholders so that the planned community service program can run successfully.

b. Implementation of Program

The implementation of this service program involved 4 and 1 students from the Animal Husbandry Study Program at the Faculty of Animal Husbandry, Halu Oleo University, respectively, in both non-physical and physical activities.

c. Monitoring and Evaluation

Monitoring the service program aims to ensure that all stages of the program can run well. Meanwhile, program evaluation aims to determine the progress of program implementation so that it can eliminate inhibiting factors and optimize supporting factors for the success of program implementation and its sustainability after the completion of this service program implementation.

RESULTS AND DISCUSSION

Socialization of Program

The stages of implementing this service program begin with socializing activities with village heads, community leaders, and partner members (local superior chicken breeders) in Alebo Village, Konda District, South Konawe Regency. Some of the things that were socialized were the stages, methods, and techniques for implementing activities, as well as the final goals to be achieved. In implementing the socialization program, partner breeders and the local village government provided suggestions and criticism. Their response was very supportive of the implementation of this service program. Rusdin et al. 2023 who carried out the socialization of community service programs in Anggoya Village, Poasia District, Kendari City, found the same thing, namely that breeders were willing to take part in a series of activities that had been programmed.

Non-Physical Activities

Non-physical activities in the form of group counseling were attended by 15 members of the partner breeder group. This counseling uses lecture and group discussion methods (Figures 1 and 2).

Figure 1. The atmosphere of group counseling activities.

In this counseling, partner breeders receive teaching materials on feed formulation techniques using local raw materials, techniques for breeding superior local chickens, and egg hatching management using automatic hatching machines, as well as techniques for maintaining and rearing DOC for superior meat chickens. Apart from that, partner breeders also received teaching materials about the nucleus-plasma partnership system in superior local chicken farming businesses.

Figure 2. Another atmosphere in counseling activities. One of the service team members was seen answering questions from the participants.

During the counseling, there were several questions from partner breeder members regarding local feed raw material sources that could be used in formulating rations to be given to superior local chickens, such as protein and energy source feed raw materials, as well as how to process feed and gave method it to superior local chickens which they were raising. The existence of these questions proves that partner breeders actively participate in the counseling activities given to them. Next, the community service team answered all questions completely.

Physical Activities

1. Feed Formulation Demonstration

Feed formulation uses local raw materials using the simple estimation method. The desired protein content is 17%, and metabolic energy is 2,700 kcal/kg. The feed raw materials used consist of yellow corn (55%), fine bran (15%), fermented sago dregs (20%), and fish meal (10%). The assumed nutritional content of the feed ingredients used is as in Table 1.

Based on the nutritional content of feed ingredients in Table 1, the calculation of crude protein content is as follows:

1. Yellow corn: 8.6 x 55% = 4.73%,
2. Rice bran: 11.32 x 15% = 1.70%,
3. Fermented sago dregs: 23.08 x 20 % = 4.62%,
4. Fish meal: 64.33 x 10% = 6.43%.

The total crude protein content is 17.48%. Meanwhile, the calculation of metabolic energy levels is as follows:

1. Yellow corn: 3340 x 55% = 1,837 kcal/kg,
2. Rice bran: 1650 x 15% = 247.50 kcal/kg,
3. Fermented sago dregs: 1543 x 20% = 308.60 kcal/kg,
4. Fish meal: 3122 x 10% = 312.2 kcal/kg.

The total metabolic energy levels = 2,705 kcal/kg.

Table 1. Nutritional Content of Feed Raw Materials

No.	Raw Materials	Crude Protein (%)	Energy Metabolism (kkal/kg)
1	Yellow corn[1]	8/6	3,340
2	Fine bran[1]	11/32	1,650
3	Fermented sago dregs[2]	23/08	1,543
4	Fish meal	64/33	3,122

Notes: [1)] Rauf *et al.* (2014); [2)] Kasmira (2012); [3)]Anonimous (2011).

The prepared feed contains a protein content of 17.48% (desirability 17%) and metabolic energy of 2,705 kcal/kg (desirability 2,700 kcal/kg). The composition of this feed can be adjusted to the nutritional needs at each phase of chicken production. An illustration of feed formulation demonstration activities is presented in Figure 3.

Figure 3. Feed formulation demonstration atmosphere: a) Weighing raw materials, b) and c) mixing feed standards manually.

2. Demonstration of Egg Hatching Management

The superior local chicken breeding system uses automatic hatching machines as a substitute for broodstock. Several things that were demonstrated to partner breeders regarding the hatching management of superior local chicken eggs were

techniques for selecting hatching eggs, hatching stages, and post-hatching DOC handling.

- *Hatching Egg Selection*

The criteria for selecting hatching eggs taught to partners are:

1. Hatching eggs come from healthy parents, and egg productivity is high.
2. Eggs are no more than one week old.
3. Normal egg shape, not too oval or round, and length to width with a ratio of 7:5 (ideal egg index = 70-75%).
4. The weight and size of the eggs and the color of the eggshell must be uniform, according to the strain of the chicken.

- *Hatching Stages*

The hatching stages taught to partners are:

1. Preparation for hatching: preparation of the hatching machine, hatching equipment, and hatching machine equipment are available, as well as fumigation of the hatching machine and hatching eggs used.
2. Regulation of temperature, humidity of hatching machine, egg rotation, and ventilation.
3. Placement of eggs in the hatching machine rack.
4. Candling technique (egg telescope).
5. The egg turns automatically.

Even though some members of the partner breeders have a relatively low level of education, it is believed that the application of automatic hatching machine technology in the superior local chicken breeding system, which is taught to the partner breeder, can improve their perception of the benefits and importance of using automatic hatching machines in breeding superior local chickens. Hikmah et al. (2019) stated that breeder's perceptions of a new technology are independent of their level of education. The perception of breeders with high and low levels of education is generally the same that the use of automatic hatching machines is in a good category and can be accepted by all groups.

Illustrations of demonstration activities for breeding and hatching management of superior local chicken eggs are presented in Figure 4.

- *Post-Hatching DOC Handling*

The hatching process lasts for 21 days, where on days 20 to 21, the egg begins to crack at the top, and then the egg hatches completely into DOC (Figure 5). The hatched chicks are left in the hatching machine for up to 24 hours so that the chicks' feathers dry and their movement is normal. After that, the chicks are taken down from the hatching machine and moved into a brooder equipped with a heating device for 1 - 2 weeks. Next, they are raised in litter cages until sold/slaughtered at the age of 8 - 12 weeks. The period for raising DOC in this community service program is in accordance with the opinion of Munawaroh et al. (2018) that breeders usually buy DOC from breeding companies and are bred/fattened within a period of 2 months of rearing or 60-70 days depending on market demand.

Figure 4. Demonstration of egg-hatching management: a) Harvesting eggs in the partner's superior local chicken breeding cage for hatching using an automatic hatching machine; b) Placement of eggs in an automatic hatching machine; c) Monitoring hatching eggs in the hatching room.

Figure 5. DOC conditions when hatching on one of the simple automatic hatching machines in the hatching room.

3. Seed Production System Demonstration

Demonstration of a superior local chicken seed production system using semi-intensive and intensive rearing systems and natural mating methods with a sex ratio of 1: 4-5. Breeding products are hatching eggs and final DOC stock of superior local meat chickens, especially KUB, SenSi, and Super Kampung chickens. Apart from that, partner breeders are also developing laying-type Elba chickens, with the final product being consumption eggs. During the implementation of this service program, partner breeders in the core group were able to produce superior local chicken DOC of ±2,100 per month and 150 eggs for consumption per day or around ±4,500 eggs per month. Illustrations of demonstration activities for local chicken seed production systems are presented in Figure 6.

Figure 6. Demonstration of a superior local chicken seed production system under intensively raised: a) KUB chicken and b) SenSi and Kampong Super chicken.

Evaluation and Monitoring

The results of evaluation and monitoring show that all stages of activities can be followed well by all partner breeders. The application of group and individual counseling methods, as well as field activities (demonstrations) in this service program, is very appropriate and effective in increasing the knowledge and skills of partner breeders regarding feed formulation using local raw materials, egg hatching management using automatic hatching machines and superior local chicken seed production systems. It's in line with the opinion of Malia and Malihah (2011) that choosing the right counseling method will increase the knowledge and skills of breeders. It was further explained that the choice of counseling method needs to be adjusted to the level of knowledge, experience, culture, social, and economic of the community.

Obstacles found in implementing this service program include those related to breeder resources, such as the relatively low level of education of partner breeders, especially in the plasma group who have only completed primary and junior high school education. However, there is one member of the partner breeders in the core group who has a Bachelor's level of education and is believed to become an enlightener and guide for the plasma breeder members to develop their business in the future. Therefore, further training efforts for partner breeders are needed as a continuation of this service program.

CONCLUSIONS

It was concluded that the community service program in the form of technical guidance activities for raising superior local chickens in Alebo Village, Konda District, South Konawe Regency, has been implemented through non-physical activities using lecture and question and answer methods as well as physical activities using demonstration methods and field visits related to feed formulation using local raw materials, hatchery management using automatic hatching machines, and superior local chicken seed production systems. This method is considered to be a solution in solving the problems of partner breeders. In addition, this service program is quite effective in increasing the knowledge and skills of partner breeders. The hope is that they can increase the productivity of the superior local chickens they raise, which can have an impact on increasing the income of their partner breeders and members in the future.

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