



COMMUNITY EMPOWERMENT ON SUSTAINABLE RABBIT FARMING BASED ON ZERO WASTE TO INCREASE INCOME IN DESA ALUE BULOH , KECAMATAN BIREM BAYEUN KABUPATEN ACEH TIMUR

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Abstract

The aim of this activity is to increase partners' income and skills. The activity began with an opening ceremony, delivery of materials, technical training on housing for rabbit cultivation, training on rabbit cultivation seeds, assistance in technical rabbit marketing strategies, monitoring and evaluation of activities, and details of solutions offered by the PKM proposing team systematically with priority partner problems. The program package provided is in the form of 50 baby rabbits or 10 boxes of 5 rabbits in a cage measuring 7 x 17 m or 120 m², with a cage density of 5 animals/m², feed equipment and beverage equipment as well as automatic heating as well as vaccines and medicines. The results of a survey conducted by the service team show that the problems faced by farmer partners are: 1.) Lack of partner understanding about rabbit farming which can increase partner income and skills. 2.) Expenditures on animal feed which are quite expensive so that alternative animal feed is needed are vegetables around people's homes.

Keywords: : *Zero Waste Based Application, Cultivating Rabbits, Improving Service Quality*

INTRODUCTION

Desa Alue Buloh is one of the villages located in Alue Buloh Sub-district, Kabupaten Aceh Timur. The majority of Desa Alue Buloh work as farmers, ranchers, fishermen and laborers. The demography of Desa Alue Buloh is a flat plain consisting of residential areas, rice fields and plantations with a rice field area of ± 75 Ha. The topography of Desa Alue Buloh generally includes an area of ± 83 Ha (Dry Land), and based on the altitude of the area Desa Alue Buloh is classified as a medium plain (>100 - 500 masl). Overall, the natural conditions in Desa Alue Buloh are quite potential for agribusiness, because the majority of rice fields so that the commodity developed is rice. In the livestock sector, the livestock raised by residents are rabbits and cattle.

Rabbit business is one type of business that has great potential to be developed. This is inseparable from the various advantages it has, including a relatively short production period of approximately 32-35 days, high productivity, relatively cheap prices, and increasing demand. Some supporting factors for rabbit farming can still be developed, among others, because the domestic demand for rabbits is still very large. This large rabbit population is able to absorb more than 20,000 workers who work on Aceh rabbit farms. Along with the increasing public interest in consuming rabbit meat, there is also an increase in the rabbit farming business. Aceh rabbits can be said to be one of the small businesses that have the potential to be developed.

Things that need to be considered by breeders or prospective breeders, so that the business can be sustainable, including: 1). Cages that meet the technical and health requirements of livestock, 2). Vital cage equipment such as feeders, cage covers and disinfectant sprayers must be available in sufficient quantities. 3). Rabbits of good age have characteristics: dry and clean fur, weight is not below the standard (at least 39 kg / head), agile, has no body defects and does not show the presence of certain diseases. 4). Good feed is that which contains enough food substances needed by cattle (protein, fat, ash, crude fiber, energy, vitamins and amino acids). 5) Animal health,

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including antibiotics, vaccines and vitamins needed to help maintain rabbit health, or treat rabbits for disease. Both the partnership system and the independent system of feeding techniques must be really considered. For those of you who raise rabbits with a partnership system, maybe the feeding method has been taught by the technical service of the core company, but for those of you who cultivate rabbits independently, of course, you have to apply your own methods by yourself or read practical books on rabbit farming procedures. This activity aims to help the community to be able to cultivate broiler rabbits with good rabbit production technical requirements, so that it provides higher economic value and will further prosper the local community.

LITERATURE REVIEW**Rabbit**

Rabbit is one type of livestock that is suitable to be cultivated to utilize its meat. Rabbit meat has good quality with high protein content (20.8%), low fat content (10.2%) and low cholesterol (5.2%) compared to other livestock (Iskandar, 2001). Rabbit cultivation at the present time will be very profitable, in addition to the good quality of rabbit meat and favored by the community, rabbits also have good potential for cultivation. Rabbits have the potential, among others, small body size that does not require much space, does not require large costs in investing in livestock and cages, short adult life (4 - 5 months), high breeding ability and short fattening period (less than 2 months from weaning) (El-Raffa, 2004).

The success of rabbit farming is influenced by three factors: genetics, feed and management. Feed is the most important factor in rabbit farming because it can affect the production, growth, and condition of livestock. The nutritional needs of rabbits during the growth period or age of 4-12 weeks include digestible energy of 2,500 kcal/kg, crude protein 15%, crude fiber 14%, fat 3%, calcium (Ca) 0.5% and phosphorus (P) 0.3% (Cheeke, 1986). The amount of feed given must meet the needs of rabbits, it will affect rabbit productivity. If the amount of energy that rabbits consume more than their energy needs, it will be stored as body fat including meat fat (Ali and Wajdi, 2015).

Pellets

Pellets are a mixture of several feed ingredients that are mechanically processed with a certain pressure through a die to produce a compact feed. Pelleting will change the type or form of feed from mash or flour to crumble or pellet form without changing the feed quality (Mukodiningsih et al., 2014). Pellets can be molded in the form of lumps and small cylinders that differ in diameter, length and level of strength. The purpose of making pellets is to reduce the dusty nature of feed, increase palatability, reduce wasted feed, reduce the voluminous nature of feed and to facilitate handling during storage and transportation (Saenab et al., 2010). The quality of pellets produced can be seen from the nutritional quality, namely energy and protein content, hygienic quality, namely the number of bacteria present, and physical quality such as hardness and durability of pellets (Thomas et al., 1997).

Some of the advantages of feed in the form of pellets according to Nopriani (2006) are increasing consumption capacity as a result of increasing the density of ration material made into pellets. Eating time is faster so that it saves energy and this saved energy will be used by livestock for production. Rations become more homogeneous. Rabbits cannot pick and choose their feed so their activity is limited. The wasted part becomes more pellets are less than the mash form and from an economic point of view reduce production costs. Some of the variables that affect the process of making pelleted feed are moisture content, the source of the ingredients that make up the pellets and the conditioning temperature (Mukodiningsih et al., 2014).



Energy Source Feed Ingredients

Energy source feedstuffs are one of the feedstuffs that belong to class number four in the international classification. This class is in the form of feed ingredients that contain a lot of energy such as carbohydrates. Feed energy is contained in carbohydrate molecules, fat, protein and alcohol (Widodo, 2002). Energy source feed ingredients are feed ingredients with protein content less than 20%, crude fiber less than 18% or cell wall less than 35% (Hartadi et al., 1986). Energy source feedstuffs contain carbohydrates (starch) which are relatively high compared to other nutrients. Feed ingredients that are classified into energy source feed ingredients include grains (cereals), milling waste, tubers, roots and nuts. Some examples of energy feed ingredients are corn, pollard and cassava.

Corn

Maize (*Zea mays* L.) is a type of grain plant from the grass family (graminacea) that has long been known in Indonesia. Corn has a chemical composition of 60 - 61.5% starch, starch is the largest component contained in corn kernels consisting of 27% amylose and amylopectin. 73% (Winarno, 1988). The chemical composition of maize can vary. Its protein and amino acid content is heavily influenced by maize genetics and soil fertility, fertilization, and climate. Changes in the protein content of maize are generally related to changes in the ratio between the protein content in the endosperm and the total protein in the seed. The nutritional content of yellow corn kernels is 86% dry matter; 1.7% ash; 8.9% crude protein; 4% crude fat; 2.2% crude fiber and 68.6% nitrogen-free extract material (Hartadi et al., 1986).

Pollard

Pollard or wheat pollard is an energy source feed ingredient. Pollard is obtained from wheat processing. Pollard is the residue of milling from wheat or called wheat bran which can be used as animal feed. Pollard is rich in protein, fat, minerals and vitamins, but contains a lot of structural polysaccharides in large quantities (Utama et al., 2013). These structural polysaccharides consist of cellulose, hemicellulose, cellobiose, lignin and silica. The nutritional content of pollard is 86% dry matter; 4.2% ash; 16.1% crude protein; 45% crude fat; 6.6% crude fiber and 14.1% extract material without nitrogen (Hartadi et al., 1986).

METHOD

This service was carried out in Desa Alue Buloh, Kecamatan Biren Bayeun, Kabupaten Aceh Timur for 3 months. The method used for problem solving in this PKM activity is a combination of the RRA (Rapid Rural Appraisal) and PRA (Participatory Rural Appraisal) methods. Basically, the RRA method is an intensive learning process to understand rural conditions, done repeatedly, and quickly. It requires a unique way of working, such as a small multidisciplinary team, using a number of methods, methods, and a selection of specific techniques, to increase understanding of rural conditions. It focuses on understanding at the local community level combined with scientific knowledge. Meanwhile, PRA is a refinement of RRA. PRA is carried out by involving more "insiders" consisting of all stakeholders facilitated by outsiders who function more as resource persons or facilitators than as instructors or patronizing teachers. PRA is an approach to studying rural conditions and life from, with, and by rural communities. Or in other words, it can be referred to as a group of methods that enable villagers to share, improve, and analyze their knowledge of village conditions and life, make plans and take action. These two methods are very supportive of each other and are suitable for community partnership empowerment activities.

The RRA and PARA methods are implemented with several mentoring techniques, namely: 1) Lectures, 2) Interactive discussion, 3) Demonstration and hands-on practice. Face-to-face meetings will be held at partner locations while still implementing health protocols. The lecture

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technique is carried out during the process of delivering counseling material on how to cultivate sustainable rabbit livestock based on zero waste. Partners are given the opportunity for discussion and two-way communication with the PKM team regarding partner problems and counseling material. With this interactive discussion, it is hoped that partners will better understand the material on how to cultivate rabbits. After the lecture and interactive discussion activities, the PKM team conducted a demonstration of how to cultivate sustainable rabbit livestock based on zero waste, then after that with the guidance of the PKM team, partners will practice directly until they are skilled. The activity plan that will be proposed to overcome the problems faced by PKM partners is detailed in the following stages:

a. Preparation Stage

This stage is carried out through 3 activities, namely: a) Problem identification. The Service Team together with partners identified problems through observations or field surveys of partners to find out what problems the partners faced in rabbit farming. b) Needs analysis. The Service Team outlines the solutions needed to solve partner problems. c) Program preparation. The Service Team together with partners conducted a Focus Group Discussion (FGD) in compiling all program activities so that program objectives could be achieved.

b. Implementation

This stage is divided into two parts, namely: a.) Counseling. At this stage, the PKM team provides counseling to partners by providing counseling material on how to cultivate sustainable rabbit livestock based on zero waste, through cage improvements to good animal feed for rabbits, so that with the implementation of these activities it is hoped that partner business turnover can increase and solve partner problems so far. b.) Field practice. After the PKM team invited partners or rabbit breeders and also village officials, the next activity was field practice, where the PKM team trained activity participants in web usage.

c. Activity Evaluation

The third stage is to evaluate the level of success of the implementation of the proposed activities, which consists of evaluation during PKM activities and after PKM activities. Evaluation during PKM activities is carried out during training. Meanwhile, the evaluation after PKM activities was carried out through mentoring activities and distributing questionnaires to measure the success rate of PKM. This is done to ensure that PKM partners in Desa Alue Buloh , Kecamatan Birem Bayeun, Kabupaten Aceh Timur have understood and are skilled in feed processing, skilled in using grinding machines and machine maintenance, which can then be used for business sustainability and increase partner income so as to improve partner welfare.

In this PKM program, the service team involved the parties, namely 30 rabbit breeders, and coordinated with the Head of Desa Alue Buloh, Kecamatan Birem Bayeun Kabupaten Aceh Timur and its officials and the Food, Agriculture, Marine and Fisheries Service of Langsa City. In the implementation of this PKM program, the partners have agreed to be actively involved, starting from describing the problems they face and the alternative solutions they have done, helping with preparation, implementation to evaluating the success rate of activities with the PKM team. It is hoped that this activity can help partners in knowing how to cultivate rabbits, optimize the increase in rabbit body weight through cage improvements to good animal feed for rabbits, so that with the implementation of these activities it is hoped that partner business turnover can increase and solve partner problems so far.

After the implementation of assistance on how to cultivate rabbits, the PKM activity partners are expected to be able to practice the knowledge and skills they have acquired directly in their business activities. Furthermore, activity partners are asked to disseminate the benefits obtained in the implementation of this PKM program to other business partners in their environment, such as how to cultivate rabbit livestock. The method used is the DPPH (1, 1-Diphenyl-2-Picrylhydrazyl) method followed by the test of meat cholesterol levels using the Liberman-Burchard method on

rabbit meat after being given antioxidant-enriched and cholesterol-lowering feed from fermented feed on meat for 2.5 months.

RESULTS AND DISCUSSION

The community service program activity with the theme "Community Empowerment in Zero Waste Based Sustainable Rabbit Cultivation to Increase Income in Desa Alue Buloh, Kecamatan Birem Bayeun, Kabupaten Aceh Timur " in Desa Alue Buloh is one of the efforts to create strengthening for partner businesses regarding rabbit livestock cultivation which can increase partner knowledge and skills and expenditures for animal feed which is quite expensive so that alternative animal feed is needed factory feed concoction mixed with bran. The purpose of rabbit farming activities is to improve the skills and economy of the community through counseling on how to cultivate rabbits.

The activity was held on Tuesday for 3 months in Desa Alue Buloh, attended by 30 rabbit breeders. The activity begins with an opening ceremony, delivery of material / counseling, technical training on housing for broiler rabbit cultivation, training on broiler rabbit cultivation seeds, assistance in technical rabbit marketing strategies, monitoring and evaluation of activities, assistance for program sustainability, and details of the solutions offered by the PKM proposing team systematically adjusted to the priority of partner problems.



Material delivery and discussion

A. Technical Training on Rabbit Farming

The objective of the technical training is to provide technical skills in rabbit farming from the initial period. Sustainability program to test the antioxidant content of rabbit meat produced was conducted using rabbit meat aged 2.5 months (10 weeks). The method used was the DPPH (1,1-Diphenyl-2-Picrylhydrazyl) method followed by the test of meat cholesterol content using the Liberman-Burchard method on rabbit meat after being given antioxidant enriching and reducing feed.



Technical training on rabbit farming

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B. Implementation of Rabbit Farming Activities

Rabbit cultivation activities are carried out starting with the inclusion of rabbits as many as 50 rabbit seedlings or 10 boxes of rabbits with the contents of 5 doc / box in a cage measuring 7 x 17 m or 120 m², with a cage density of 8 heads / m² in accordance with the recommendations of north and bell (2004) for the tropics. This is supported by the statement of Ruhyat (2006) where the appropriate cage capacity will ensure the growth and condition of rabbits that are healthy and developing both in early growth (hyperplasia) and the achievement of late growth (hypertropy). Participants were also given the break-even point (BEP) price and BEP production of rabbits raised in order to facilitate bargaining against rabbit brokers, in accordance with the direction of rabbit farming agribusiness in Government Regulation No. 16 of 1977 and Presidential Decree No. 22 of 1990, Decree of the Minister of Agriculture No. 62./Kpts/TN 120/1990 and No.472/Kpts/TN 330/6/1996 and Decree of the Director of Breeding No. TN 270/346/C/III-0296, concerning the regulation of rabbit cultivation development Thus, broiler rabbit revit participants will not be disadvantaged and can get a decent margin. Eventually, they will be able to expand their business beyond the 1,000 broiler rabbits they currently keep in their cages. The location of the cage is still loose land and some distance from the settlement will be a consideration to continue to enlarge the scale of the business into a more economical scale of business at a scale of 2500 to 3000 heads per cage (Jaelani et al. 2008). So that the current cage area of approximately 120 m² is still possible to be enlarged to a range of 250 to 300 m² which can accommodate 2500 3000 rabbits in the future. Increasing the capacity of rabbit content in this cage will make it easier for participants to be included in partnerships with broiler rabbit breeding companies (Yana et al., 2006; Gittinger, 1986; PP No. 44. Year, 1997).



Service team and participants

Based on monitoring during the activity, it is known that rabbit breeders participating in rabbit training, the successful implementation of this service activity is supported by several factors, among others:

1. Participants' enthusiasm and commitment to rabbit farming were high.
2. Housewives are a group that can be worked with in carrying out this training activity. This is an important asset in developing animal husbandry.
3. Government support in this case is the support of the Head of Gampoeng and the Head of RT in Desa Alue Buloh by facilitating this training activity.

Conversely, there are also inhibiting factors for this service activity. These inhibiting factors include the following:

The participants and trainers were busy. Training participants are busy with their routine activities in the household and other activities as work so that the implementation of activities is delayed from the predetermined schedule. These inhibiting factors need to be minimized so that this activity runs effectively and efficiently



CLOSING

Conclusion

The activity of implementing Community Service "Community Empowerment on Sustainable Rabbit Cultivation Based on Zero Waste to Increase Income in Desa Alue Buloh, Kecamatan Biren Bayeun, Kabupaten Aceh Timur" was carried out in Desa Alue Buloh. This activity involved 30 breeders in the village. Service activities begin with a survey of regional potential, data collection, and counseling on derivative products. The activity went well where the participant housewives seriously participated in the training. Training on rabbit farming is expected to increase knowledge. The training is expected to be able to improve rabbit cultivation and can increase income and breeders can create a child livestock business both from a small scale and to a large scale.

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