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The Development of Rural Poultry Farming Program to Kampong Chicken Farmers of Treman Village North Sulawesi

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Abstract. The purpose of research was to empower the members of rural poultry farming to increase productivity of kampong chicken. The development of Science, Technology and Arts (IPTEKS) for society in Treman Village aimed to increase nutrient for society, to help them to build rural poultry industry belongs to community, and to supply kampong chicken to “Damar Merah and El’Shadai” farmer’s groups of Treman Village. The materials were kampong chicken supplied by kampong chicken breeder in Treman Village. The research method used is survey method, with the respondents amounted to 20 farms determined by purposive sampling ie farmers belonging to the group, the development of science and technology for the region. Data analysis used is descriptive analysis. The result show that increasing of skill and competence of “Damar Merah and El’Shadai” farmer’s groups after granting new hatching machine and *Day Old Chick*. Both of groups can accept new application in modern poultry farming management through modern breeding system. The development of rural poultry farming program to kampong chicken farmers of Treman Village, North Sulawesi can increase knowledge, skill, and income of the kampong chicken farmers.

1. Introduction

Treman Village is, one of 12 villages in Kauditan Regency, located at the west end of North Minahasa District, North Sulawesi Province. This village is about 3 km north of regency, about 5 km from Bitung City, 20 km from the district capital, and 35 km from the province capital. The total area is 1447 ha. The number of population are 2381 people i.e. 1187 men and 1194 women in 684 families. Education levels of people i.e. elementary school 1231 people, junior high school 665 people, senior high school 522 people, Diploma (D) 27 people, D3 29 people and S1-S3 higher educations (bachelor-master-doctoral degrees) 191 people. The livelihood of the people i.e. 356 farmers, 129 government employees (ASN), 168 “tukang”/skilled labors, and 6 army/police officers. The Kauditan Regency is closed to Bitung City which known as a fishery producer area. Unavailability of employment for productive ages leads to high unemployment rate. In facing economic crisis, economic sectors have resilience such as micro, small and medium sectors and informal businesses. Therefore, the most realistic economic recovery to undertake should be started from those sectors. This strategy can be applied as a tool to strengthen community participation in national and local economic development. The agricultural sectors in North Minahasa include food crops, plantation, animal husbandry, and fisheries. Agriculture crops are dominated by rice, corn, peanuts, soybeans, cassava and sweet potatoes. Coconut plantations are also dominant in this area. Land are under coconut trees are widely planted by farmers with corn, paddy, and bananas. The fishery sector is dominated by fishing areas for supplying North Sulawesi Province. The livestock sector is an important for North Minahasa in addition to agriculture and fisheries. The development of agriculture,



livestock and fisheries are mutually supportive and beneficial, so the integrated system provides great benefits to both. On one side, agricultural products such as maize, cassava, tomatoes, agricultural waste such as coconut cake can be used as animal feed to have added value. The fishery sector provides the economic values. The fish waste products can be managed to be fish flour and liquid waste fish oil.

In 2017, Damar Merah and El'shadai farmer's groups were formed as a follow up of RPJMD program of North Minahasa District. Treman Village was a main producer/income source of copra harvested 3 times a year and cloves harvested once a year, made family have a very low income level. Poultry farm traditionally kept under coconut trees, by searching food for their selves, the average ownership of 10 - 20 roosters and hens. The traditional marriage system takes time from laying eggs to raising children 115 days. It has not been able to become a business venture to be income source for people.

Treman Village is closed to Bitung City (Harbour City) and Manado, the Capital of North Sulawesi Province, is very potential for business development of domestic chicken. Agricultural, livestock and fishery development are mutually supportive and beneficial, providing integrated benefits. In one side, agricultural products such as maize, cassava and even rice additional harvests such as bran can be used as animal feed that added value. Fishery waste could also be used as a source of animal protein for livestock. Another impact directly felt by farmers was the increasing of income and welfare which if a week of DOC production can reach 40,000 and eggs reach 10,000 while chicken production can reach 1,500 per day. Selling price for a DOC was Rp 4,000 – Rp 5,000; an egg was Rp 1,200 – Rp 1,500, and chicken meat was Rp 25,000/Rp 35,000 / kg, and life chicken was Rp 28,000/kg.

Treman Village formed farmers/fisheries groups "Damar Merah" and "El'shadai" based on the Decree of North Minahasa Regency No 19a dated January 20, 2005 to develop farming/ livestock business oriented agribusiness and environmentally friendly. The structure of organization "Damar Merah" and "El'shadai" consisted of chairman, secretary, treasurer and 17 members. The farmers' group was originally formed from the "mapalus" group which is "gotong royong" (work together) to prepare the labour to cultivate and to clear the land, to cultivate, to harvest and to raise livestock. This program was determined based on the habits of farmers groups in this area in managing the farming business. The habit is the mutual assistance activities between farmers to manage their farm business where farmers in one village help others in the form of manpower and done in rotation. Some farmers who do the activities of "Mapalus" were recruited in a group of livestock farmers "Damar Merah" and "El'shadai". This activity was supported by Agricultural Extension Workers Penyuluh Pertanian Lapangan (PPL). The groups did short-term group activities including weekly meeting and established social gathering/arisan and mapalus. In long-term activities, The Damar Merah and El'shadai groups are not business-oriented yet.

The low quality of feed given in the form of rice, bran, forage, rice grains, sand, and insects. The nutrient content of the ration was 8.52 - 14.10% protein, 5.70 - 11.63% fat, crude fibre 6.88 - 14.07%, 0.45 - 0.91% phosphorus and 0.02 - 1.04% calcium[1]. These diet are sufficient for basic life and little production only. Introduction of technology through agricultural and fishery product innovations can be utilized as a source of potential livestock rations. Processing can be done through physical, biological and chemical processes and local raw materials techniques. Utilizing the waste of fishery companies of Bitung City both solid and liquid waste. However, the knowledge of waste management needs technology touch to optimize utilization of fishery byproducts to be animal feed in the forms of fish meal and fish oil [2]. Analysis content of fish skipjack flour from head fish waste (HSW) was 45.32% protein, filleting waste (FW) was 49.19% protein, and Arachon waste (SW) was 48%. The processing of liquid boiling waste of fish oil processing contained 10% protein and linoleic fatty acid needed by domestic poultry[3].

The low quality of egg-laying, due to the very strong nature of the incubator caused low production with average time of 115 days. The effective way to eliminate the nature of brooding in domestic poultry with the artificial insemination to kampong chicken. Artificial insemination in poultry is one of the chicken technologies and is a valuable technique in the livestock industry of birds [4].

Conservation of kampong chicken cement using diluents to fertility and fertile spermatozoa period of post artificial insemination. Based on pre-field survey and discussions to local group members and associations, priority issues need to be addressed by members of farmer groups of "Damar Merah" and "El'shadai" with companion from universities are:

1. Livestock business conducted by "Damar Merah" and "El'shadai" groups is still traditional so that the result is not optimal yet;
2. Lack of knowledge of group members about raising domestic poultry as a source of income that can improve the economy;
3. Lack of knowledge of livestock groups to produce poultry chicken with high productivity by using artificial insemination techniques;
4. Lack of knowledge of group members about the utilization of feed ingredients of the existing rations in the area and how to formulate rations for livestock according to the standard to increase productivity;
5. Lack of ability of group members to adopt appropriate technology to increase livestock population by using simple sedan engines;
6. Lack of team members' ability to adopt technology to reduce mortality rates by using herbal ingredients derived from existing plants in the area as a substitute for synthetic antibiotics;
7. Group members perform their production processes without recording so that activities are performed without accurate data because it is only based on the memories of group members, and
8. Lack of knowledge of farmers on post-harvest technology.

Poultry commodity especially kampong chicken is one of the commodities source of animal protein that fulfil the taste of society, affordable by people's purchasing power widely, high nutritious, fast growing, relatively short productive age, easily developed biotechnology and easy application⁵. Development of kampong chicken North Sulawesi can be achieved by applying product processing technology. Lecturers and students of Sam Ratulangi University can develop community creativity development as a direct target of Science, Technology and Arts (IPTEKS). This effort is a part of university duties to increase the income of the community so that Student Creativity Research/PKM aimed to apply IPTEKS to broaden the society's insight and to increase the income of farmer's groups.

2. Materials and Methods

To achieve the objectives, the consultative method was used in breeding chicken, hatching machine, training the selection of hatching eggs, practicing preparation of rations, and producing of nugget, kampong chicken meatball and ice cream. Preparation of diet/rations use local raw materials. The process of producing skipjack tuna oil as a source of energy, omega-3 and omega-6 used local raw material as a substitute for maize. This Community Partnership Program (CPP/PKM) was held at Village Hall of Treman Village, Kauditan District, Province North Sulawesi. The target audience of this PKM activity was "Damar Merah" and "El'shadai" Farmer's groups of Treman Village (80% of these members were women group/PKK)

2.1. Procedure

Based on the priority problems of livestock farmers group "Damar Merah" and "El'shadai", the group empowering was a necessary. The empowerment was done to handle some priority issues that can be done with several methods including extension materials (institutional strengthening; technology products: producing kampong chicken nugget, kampong chicken meatball, and ice cream; product display, and cash flow analysis) and production preparation (the consulting; training: preparation and designing; purchasing of supported raw materials; finance analysis) (Figure 1).

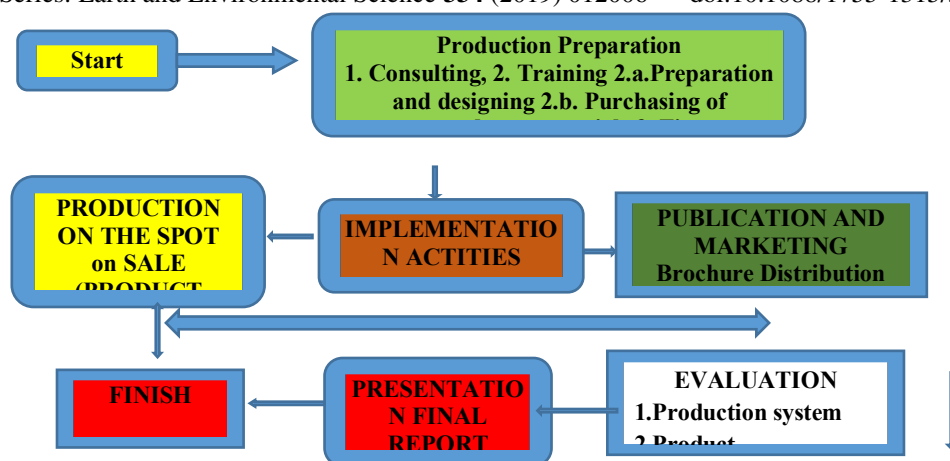


Figure 1. Flow diagram method of rural poultry farming program of Treman Village.

3. Results and Discussion

Consultative and practicing methods of PKM to Damar Merah" and "El'shadai groups were done through IPTEKS implementation. Activities had been implemented include how to breed chickens, making hatching machine (Fig.2.a), preparation of rations by using local raw materials, food processing technology products such as kampong chicken nuggets and meatball and ice cream (Fig.2.b). This activity was attended by 40 - 50 people, 10 lecturers and 10 students and the Head of women group/PKK of Treman Village.

Rural poultry farming using native breeds is being practised in many developing and underdeveloped countries throughout the world[5]. According [6], local or indigenous chicken breeds of Africa and other part of the world include the Bisaya in the Philippines, the indigenous fowl of the Polvaba province of Ukraine, the golden –speckled native fowl of Czechoslovakia.

Research in village poultry in different countries has revealed that the genetic potential of village chicken is generally not the major constraints to their production[7]. The increasing of annual egg production was from 116 eggs to about 140 eggs per hen. The average egg weight to the flock also increased from 43 to 49 g through six generations of selection in a nondescript flock of Indian Desi fowl [8]. The activity was carried out in direct application form. Practicing activities were started from chicken breeding technique, hatching machine operation, feed mixing, nugget and meatball and ice cream producing can be seen in the picture of farming below. The activity of the community activity program was expected to increase the knowledge of chicken breeding ranging from chicken breeding techniques, utilization of local feed, hatching, breeding, feeding, and management of livestock products such as nuggets, chicken meatballs and ice cream.

The evaluation showed that the farmer group's responded to the technology provided through the community partnership program/PKM. This can see through high society enthusiasm and strongly support of government officials of Treman Village to the undertaken activities. According to[9] that food security is an issue that has always been the attention of Indonesian government. The government proclaimed main program of agricultural development such as increasing food security. Increased food security has a very basic development perspective. This is because access to food and balanced nutrition as fulfilment of basic food needs, is the most basic rights for humans. According [10], the consumption of animal protein from livestock is still low so it needs to be strived to provide food products, source of animal protein from livestock in from fresh and processed products[10].



Figure 2. Hatching machine



Figure 3. Ice cream production

Kampong chickens are raised using traditional production techniques by almost every village household. They are a side –line activity and are not considered the main source of family earnings. The members of a family generally work in crop cultivation, as labourers, or as traders. Although some families keep more than 1000 birds, they still work in other activities for their main livelihood. In some cases, farmers have integrated their native chicken operations with freshwater fish farming by contracting the cages above fish-pond.

4. Conclusion

The Community Partnership Program/PKM of Damar Merah" and "El'shadai farmer's groups can be adopted by farmers of Treman Village, This PKM can increase the knowledge, skills and income of kampong chicken Damar Merah dan Elshadai farmer's groups of Treman Village. The application of breeding system strategy in this program was to improve genetic characters i.e. good genotype and productive phenotype characters. The feeding program was ad libitum feeding that availability of food in food container which composition based on ISO calories and energy and local food resource. This activity (PKM) applied simple hatching machine to increase *Day Old Chick*. The end products were nugget chicken and ice cream production for housewives to provide healthy, safe and halal food for families.

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