



STARTER FEED PROCESSING FOR SUPPORTING PIG FATTENING IN PARTNERSHIP WITH “SEHATI” FARMER’S GROUP OF TUATUKA VILLAGE

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ABSTRACT

Since the establishment of a Memorandum of Understanding (MoU) between the Department of Animal Husbandry-State Agricultural Polytechnic of Kupang (Politani Kupang) and the farmer’s group of Tuatuka village in East Kupang district of Kupang regency, the department have carried out various and gradual community service programs at the location. However, problems the farmers are still facing in breeding their pig livestock are: limited capital to increase business scale and availability of feed and the low quality of livestock breeds. As a continuation of the activities that have been initiated previously, the Animal Feed Technology (AFT) study program initiated to help partner farmers by building a system of partnership cooperation that can help overcome some of the problems faced, especially related to the availability of animal feed. Based on the situation analysis that has been carried out at the location, the study program has determined the topic of the community service which is: "Starter Feed Processing for Supporting Pig Fattening in Partnership with ‘Sehati’ Farmer’s group of Tuatuka Village". By doing so, it is expected to support the farmers in establishing a stronger foundation of pig breeding and fattening.

Key words: Pig Fattening, Starter Feed, “Sehati” Farmer’s Group, Tuatuka Village



INTRODUCTION

In recent years, the Department of Animal Husbandry, State Agricultural Polytechnic of Kupang (Politani Kupang) with its three study programs, has concentrated various community services in Tuatuka Village, East Kupang District, Kupang Regency, East Nusa Tenggara (NTT) Province by a Memorandum of Understanding (MoU) established by these two parties (Jurusan Peternakan, 2018). The community service activities that have been carried out include improving pastures, feed gardens, livestock health services and also improving management of pig breeding (Bulu *et al.*, 2019a; Bulu *et al.*, 2019b; Wea *et al.*, 2020). Especially for the business of raising pigs, the farmers in that location are still complaining about some of the problems they face, namely: limited capital to increase business scale and availability of feed and the low quality of livestock breeds. This is also further exacerbated by the attack of the *African Swine Fever* (ASF) virus which causes most of the livestock to become sick and even die. Therefore, as a continuation of the MoU that have been initiated previously, we have taken the initiative to help farmers by building a system of partnership cooperation that can help overcome some of the problems above.

Administratively, Tuatuka Village is one of 6 villages in East Kupang District, Kupang Regency, NTT Province that places pigs as a strategic commodity in the community. Pigs are developed as part of the livelihoods of the Tuatuka Village community, most of whom work as livestock farmers. The dominant activity of the Tuatuka Village community is managing agricultural land for food crops and horticulture, as well as raising pigs. Pig farming, although traditionally managed in limited numbers (2 – 3 heads) and utilizing local seeds, is still an option for the community because it provides benefits as an alternative source of income.

The ‘Sehati’ Farmer’s group is one of the farmer groups located in RT 02/ RW 03, Tuatuka Village, Central Kupang District, Kupang Regency, NTT Province. The distance of the ‘Sehati’ Farmer’s group from the Kupang State Agricultural Polytechnic campus is \pm 20 Km. The business activities of members of the ‘Sehati’ Farmer’s group have been running since 2010 until now. Especially for the business of raising pigs, it has been carried out so far by approximately 15 members of the ‘Sehati’ Farmer’s group who play a significant role in supporting household economic income.



The 'Sehati' Farmer's group is a community service partner who has collaborated with Politani Kupang since 2016. The activity began with the introduction of livestock waste management and continued in 2017 through the introduction of cage technology and pig breeding. Based on the results of the assistance, it is known that the introduction of technology provided in community service activities by Animal Husbandry department of Politani Kupang, has succeeded in motivating some members of the 'Sehati' Farmer's group to develop pig breeding system (Pello, 2019).

The 2018 follow-up evaluation and survey conducted by the Department of Animal Husbandry service team found that pig farming in the 'Sehati' Farmer's group had obstacles in terms of capital availability, quality seeds, yield processing technology, and marketing models. The business capital owned by group members is currently not able to increase the number of pigs kept while capital loans are difficult to obtain due to collateral requirements. Quality of pig breeds are generally limited because the dominant breeder uses local breeds (village pigs) resulting in a very long rearing time to reach selling weight (12-15 months). The knowledge of partner members about processing pork products is also generally still low, while marketing of pigs generally has a varied time and is more dominantly adapted to the urgent needs of farmers. This condition in the end has resulted in the cultivation of pigs in the 'Sehati' Farmer's group not developing optimally and affecting efforts to increase the farm income of members of the farmer's group.

Responding to and considering the various problems found as obstacles in the business of pig farming in the 'Sehati' Farmer's group, a collaborative solution was offered from the Animal Feed Technology Study Program, Department of Animal Husbandry, Politani Kupang with members of the 'Sehati' Farmer's group partner through communal partnership service for sustainable pig breeding and fattening. The partnership was implemented in the form of the introduction of knowledge and skills in fattening pigs through feed processing for pigs in the Starter phase.



METHOD

The community service was conducted by using blended training that applied both online and offline sessions. The online session was performed during the plot demonstration where the process of manufacturing the starter feed for pigs was conducted and recorded in the Mini Feed Factory of Politani Kupang and later would be uploaded on Youtube to be shared with the farmer’s group. The offline session was carried out at the location itself where the topic of processing starter feed for pig fattening was further elaborated and discussed with members of the farmer’s group.

RESULTS AND DISCUSSION

Composing the Topics in a Form of Leaflets

Related to the Community Service of the TPT study program, to support the knowledge and skills of the members of the farmer groups not only in the field of animal feed processing, a summary of the material compiled in the form of leaflets is also carried out. The topics of the leaflets vary, which discusses aspects such as caging management, livestock waste management, and strategies for dealing with African Swine Fever (ASF). These materials are assigned by the committee (in coordination with the Head of the Study Program) to the teaching staff in the Animal Husbandry Department to be made collectively in groups. The following table shows a description of the leaflet material and its distribution to the assigned members of the teaching staff group.

Leaflet Topic	Assigned Group
Ration Formulation for Grower Phase Pigs	Dr. Theresia Nur Indah Koni, S.Pt.,M.Si*
	Ir. Agustinus Semang, M.Si
	Asrul, S.Pd, M.Si
	Ir. Bactharuddin Badewi, M.Si
Concentrate Production for Pigs	Catootjie Lusje Nalle, S.Pt, M.Agr.St., Ph.D*
Standards for Nutrition Needs and Feeding for Pigs	Catootjie Lusje Nalle, S.Pt, M.Agr.St., Ph.D*
Ration Formulation for Starter Phase Pigs	Helda, S.Pt., M.Si*
	Dr. Cytske Sabuna, S.Pt., M.Si



Leaflet Topic	Assigned Group
	Abner Tonu Lema, S.Si., M.Si
	Ima Malawati, S.Pt.,M.Sc
Management of Pig Livestock at Starter Phase	Yelly Magdalena Mulik, S.Pt., M.Si*
	Dr. Redempta Wea, S.Pt.,M.P
	Andy Yumina Ninu, S.Pt., M.Sc
	Tri Anggarini Yuniwati Foenay, S.Pt., MS
Organic Fertilizer Production from Pig Waste	Dr. Bernadete Barek Koten, S.Pt.,MP*
	Ir. Jacobus S. Oematan, M.Si
	drh. Yanse Yane Rumlaklak, M.Si
	drh. Gerson Yohanis Imanuel Sakan, M.Sc
Caging Management for Pigs	Aholiab Aoetpah, S.Pt., M.Rur.Sc., Ph.D*
	Ir. Thomas Lapenangga, MS
	Defrys R. Tulle, S.Pt.,M.P
	Vivin Elmiyati Se'u, S.Pt., M.Si
Pigs Reproduction and Breeding	Dr. drh. I Gusti Komang Oka Wirawan, MP*
	Ferdinan Suharjono Suek, S.Pt., M.Si
	Max A.J.Supit, S.Pt., GDipSc., M.FoodTech
	drh. Hermilinda Parera, M.Sc
	Stormy Vertygo, S.Si., M.Sc
ASF disease and Its Treatment	Dr. drh. Petrus Malo Bulu, MVSc*
	drh. Jois Moriani Jacob, MVSc
	Dr. drh. Andrijanto Hauferson Angi, M.Si
	drh. Devi Yasintha Jois Apriyani Moenek, M.Sc
Sanitation and Biosecurity	Dr. drh. Ewaldus Wera, M.Sc*
	drh. Aven Bernard Oematan, M.Sc
	drh. Victor Lenda, M.Sc
	drh. Eni Rohyati, M.Si
	drh. Novianty Nelly Toelle, M.Sc



Leaflet Topic	Assigned Group
Pig Farming Business Analysis	Dr. Melkianus Dedimus Same Randu, S.Pt., M.Si*
	Johanis A. Jermias, S.Pt., M.Sc
	Devi Anthonia Juliana Ndolu, S.Pt., MP
	Sondang Perlindungan P. Leoanak, S.Pd., MA
	Dr. Ir. Bambang Hadisutanto, M.P

* : Coordinator for each leaflet topic

Leaflets that have been composed were then made into copies to be brought during the Community Service to be given given to members of the farmer's group.

Online Plot Demonstration

The Community Service was first initiated by giving a demonstration plot to the farmers on how the animal feed provided was manufactured. However, due to the COVID-19 pandemic, it was further decided to record the demonstration plot in advance that would then be given to the farmers to watch instead of performing it on location. The demonstration plot carried out is related to the starter phase of pig feed processing where the results from the feed processing will be supplied to the farmer's group periodically during the Community Service period (\pm 5 months).

The demonstration plot for processing animal feed for starter phase pigs was carried out at The Mini Feed Factory, Department of Animal Husbandry, State Agricultural Polytechnic of Kupang as seen in Figure 1. It involved 1 speaker who was also assisted by 3 members of the teaching staff, 2 technicians and 3 students. The feed processing process includes 4 stages, which were (Helda *et al.*, 2021):

1. Feed ingredients mill
2. Weighing of feed ingredients
3. Mixing Feed ingredients
4. Animal feed pelleting



Figure 1. Plot Demonstration on How the Animal Feed for Starter Phase Pigs was Manufactured.

A total of 3 sacks of animal feed for the starter phase pigs were prepared to be handed over to the farmer group in the Community Service location at Tuatuka village.

Offline Discussion & Counselling

Offline discussion & counselling was carried out directly at the service location on Thursday, September 2, 2021, which is in the GMIT Gloria Tuatuka Church yard while still paying attention to health protocols. The activity was opened by the Vice Director 3 followed by the delivery of information related to the Community Service by the department (represented by the Head of the Department) and the farmer's group (represented by the head of the farmer's group). The symbolic handover of the animal feed from Politani Kupang to the farmer's groups was also carried out at the opening ceremony. All of these activities could be seen on Figure 2.



Figure 2. The opening which was attended by Vice Director 3 (top left), Head of Farmers Group (top right), Head of Animal Husbandry Department (bottom left) as well as Symbolic Delivery of Animal Feed (bottom right).

Furthermore, members of the farmer group were directed to participate in the delivery of topic entitled Pig Feed Formulation at Starter Phase. During the discussion, the speaker emphasized the aspect of providing cheap feed but must be able to meet the nutritional needs of livestock to support the success of livestock business. One way is to use local feed ingredients and make formulations that suit the nutritional needs of livestock (Leo, 2021).

Some of the basic knowledge needed in the preparation of feed formulations, including (Helda *et al.*, 2021):

1. Knowledge of digestive organs and organ systems to determine the nature and form of feed to be given.
2. Knowledge of the nutritional needs of livestock based on the phase/age of livestock to determine the form and amount of ration to be given.

3. Knowledge on the nutritional content of feed ingredients to determine the type and amount of ingredients used.
4. Knowledge of ration preparation techniques to facilitate the formulation of rations according to available feed ingredients.



Figure 3. Training on Animal Feed Formulation for Farmer's group of Tuatuka

Shortly after birth, the piglet's enzyme activity (pre-starter-starter) begins to work to digest milk as the first and main source of nutrition. Milk contains lactose and fat as an energy source for the growth and development of piglets. However, with increasing age, enzyme activity will increase with the aim of digesting other substrates obtained during feeding. Feeding should meet the standards of nutritional needs. It is intended to (Helda *et al.*, 2021):

1. Meet the basic needs for life.
2. Optimal growth and production.
3. Maximum economic benefits of livestock business.
4. High animal welfare.

In addition, it is also explained about the stages in the preparation of rations which include (Helda *et al.*, 2021):

1. Determine livestock needs using the livestock needs table from the Indonesian's National Standard (SNI).
2. Selecting feed ingredients, using the nutritional composition table of feed ingredients.
3. Arrange feed to meet livestock needs with several methods that can be done, namely:
 - Trial and Error



- Pearson's Square Method
- Algebraic/Mathematical equations
- Linear Programming
- Excel
- Specialized software (eg: Winfeed 2.8, Feednetrs-2002, Feedlive 5)

At the discussion session with farmer groups, the Department of Animal Husbandry, Politani Kupang also offered voluntary service assistance in terms of consultation, especially regarding the laboratory analysis of nutrition for local feed ingredients that may be located around the Tuatuka location as well as in the preparation of feed formulations.

CONCLUSION AND RECOMMENDATION

Based on the Community Service already conducted for the 'Sehati' Farmer's group of Tuatuka village, several things could be deduced:

1. The training on how to develop animal feed especially for pigs at starter phase has been done successfully as planned for the members of 'Sehati' Farmer's group.
2. The Community Service conducted also serves as a continuation based on the MoU already established between both partners where the study program of Animal Feed Technology (TPT) would contribute to providing the animal feed during the period of pig breeding and fattening.
3. Follow-up supervision and gradual discussion should also be performed in order to monitor the progress as well as overcome any obstacle faced during the process.

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