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Sri Hartini  
Faculty of Animal  
Husbandry,  
University of Papua

Sangle Y. Randa  
Faculty of Animal  
Husbandry, University of  
Papua



Andoyo Supriyantono  
Faculty of Animal  
Husbandry  
University of Papua  
Email:  
[andoyo@yahoo.com](mailto:andoyo@yahoo.com)

Stepanus Pakage  
Faculty of Animal  
Husbandry, University  
of Papua



Lambertus. E  
Nuhayanan  
Faculty of Animal  
Husbandry,  
University of Papua

Marlyn N. Lekitoo  
Faculty of Animal  
Husbandry,  
University of Papua



Bambang Tj.  
Hariadi  
Faculty of Animal  
Husbandry,  
University of Papua

A. P. E. Widodo  
Faculty of Animal  
Husbandry,  
University of Papua





Trisiwi W. Widayati  
Faculty of Animal  
Husbandry,  
University of Papua

Hanike Monim  
Faculty of Animal  
Husbandry,  
University of Papua



Luke Y. Sonbait  
Faculty of Animal  
Husbandry, University of  
Papua

Dwi Djoko Rahardjo  
Faculty of Animal  
Husbandry, University of  
Papua



Rizki Arizona  
Faculty of Animal  
Husbandry, University of  
Papua

Marlyn N. Lekitoo  
Faculty of Animal  
Husbandry, University  
of Papua



## COUNSELING: HOW TO PREPARE PIG FEED WITH CONVENTIONAL METHODS

Sri Hartini<sup>1</sup>, Andoyo Supriyantono<sup>1</sup>, Lambertus<sup>1</sup>. E. Nuhayanan<sup>1</sup>, Bambang Tj. Hariadi<sup>1</sup>,  
Trisiwi W. Widayati<sup>1</sup>, Sangle Y. Randa<sup>1</sup>, Stepanus Pakage<sup>1</sup>, Marlyn N. Lekitoo<sup>1</sup>, A. P.  
E. Widodo<sup>1</sup>, Hanike Monim<sup>1</sup>, Lukas Y. Sonbait<sup>1</sup>, Rizki Arizona<sup>1</sup>, Dwi Djoko Rahardjo<sup>1</sup>

<sup>1</sup>Faculty of Animal Husbandry, University of Papua, Manokwari, West Papua, Indonesia  
Correspondence author : [andoyo@yahoo.com](mailto:andoyo@yahoo.com)

**Abstract.** Livestock commodities that are business opportunities for the Papua region are pig farming businesses. According to community culture, pigs are livestock commodities used in traditional ritual ceremonies. The time and place of the community service implementation will be held on December 2, 2023. The extension team will conduct counseling at the Sairo Village Hall. The extension team started the activity at around 11:00 WIT after meeting with the head of Sairo village. The participants who attended were 22 people. The community service method is conducted through counseling through lectures and discussions. Leaf Leat assisted with this lecture. The result

was that 22 people in Sairo Village attended the community service activity, supported and attended by the Sairo Village Chief; the event went smoothly, with enthusiastic participants asking questions during the discussion session. Community service activities conclude that counseling has been given, and it is hoped that it can be practiced by the people of Sairo village using local feed in the surrounding environment.

**Keywords:** pig, extension, feed. Papua

## INTRODUCTION

Livestock development, as an integral part of agricultural development, aims to, among others, increase the income and welfare of farmers, the availability of employment and business opportunities, and the achievement of a balance between the utilization and preservation of natural resources and livestock genetics (Untung, 2002). Based on the objectives of the development of the livestock sub-sector, the livestock business can be developed with various livestock commodities. Pig farming is one of the livestock commodities that is a business opportunity for the Papua region. This is because pigs are livestock commodities used in traditional ritual ceremonies according to the local community's culture (Bambang, 1995). In addition, they can consume food efficiently, are prolific (can give birth between 10 – 14 heads), and give birth twice a year (Wheindrata, 2013). Pigs are monogastric livestock that can convert various foodstuffs efficiently; for example, agricultural waste, animal husbandry, and inedible human food waste can be used by pigs for meat production (Prasetyo, 2012).

Pig feed in Manokwari, especially in Sairo Village, is usually given only kale and sweet potato leaves (Widayati *et al.*, 2023). This forage feed has not been able to meet the nutritional needs of pigs in terms of energy and protein. This results in less-than-optimal pig growth. One of the obstacles often faced in the pig farming business is farmers who still rely on kitchen waste feed as animal feed and have not utilized other sources such as tofu dregs, corn, and betatas leaves as additional nutrients for the growth of pigs. Therefore, the ration used must be as needed, but the nutritional value of the pigs must also be paid attention to to increase production (Aritonang, 1996; Sihombing, 1997).

Providing quality feed such as commercial feed (manufacturer) is a consideration because of the high price; on the one hand, farmers also have not received data from technical and economic aspects that are certain about the difference in production performance between pigs given local feed and commercial feed. The animal feed industry produces commercial feed, the nutritional composition of which is complete and has been adjusted to the physiology of livestock growth. Commercial feed in Manokwari has been widely found and marketed in various brands, according to the producing company, so which brand can increase the productivity of pigs is also unknown. The success of a pig farming business is determined by several primary factors, namely breeding and feed management. To produce optimal livestock productivity according to its genetic potential and to have proper cultivation management, adequate feed is also needed in terms of quality and quantity, according to the standard needs of pigs (Sinaga, 2010).

Understanding of good feed for pig growth needs to be given to pig farmers in Sairo village. Good feed can be prepared from ingredients that can be obtained around the village so that the village community can provide good food according to the growth phase to the raised pigs. The people of Sairo village are empowered to understand good feed for pigs according to the growth phase through counseling. According to Ediset and Anas (2013), extension services are one of the activities that can support the creation of empowerment in

livestock farming communities in managing and producing effective and efficient livestock output.

## METHODS

### 1. Time and Place

The counseling will be held at Sairo Village Hall, North Manokwari District, Manokwari Regency on December 2, 2023. The location of Sairo village as presented in Figure 1.

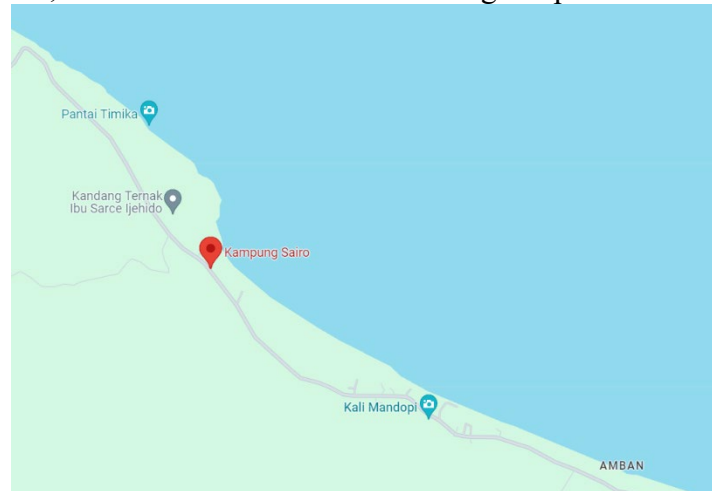


Figure 1. Map of Sairo Village, North Manokwari District

### 2. Event Participants

The participants of the activity were Sairo villagers who raise pigs. At the time of counseling, there were 22 pig farmers, with an extension team from the Faculty of Animal Husbandry, Papu University, Manokwari, West Papua as many as 13 people.

### 3. Extension Methods

Counseling is carried out by lecture and discussion methods. This method was chosen based on *face to face communication techniques*. The method is directly used at the time of agricultural extension / meeting face to face with the target so as to get a response from the target in a relatively short time. According to Alim (2010), there are various kinds of agricultural extension methods that can be done based on communication techniques, the number of targets and the senses of target recipients.

### 4. Extension Procedure

The extension team made preparations to go down to the field to conduct counseling. The preparations carried out include an extension team meeting to determine the time and method of counseling carried out. The meeting was held in the meeting room of the Faculty of Animal Science and decided that counseling would be carried out at the first opportunity if the counseling material on pig feed was ready to be made.

The team compiled extension materials based on literature relevant to pig feed. Then the team made *leaflets* to be distributed to farmers and compiled power points to be presented in front of the extension participants.

On Saturday, December 2, 2023, the extension team conducted counseling at Sairo Village Hall. The extension team started the activity at around 11:00 WIT, after previously meeting with the head of Sairo village. The participants who attended were 22 people, after the day before were invited through an official invitation circulated by students who were carrying out MBKM activities in the village.

## RESULTS OF DISCUSSION

### 1. Implementation of Counseling

Counseling was carried out by lecture method while at the village hall of Sairo village. Some things that farmers need to know regarding pig feed are: 1. Nutrition for pigs; 2. Feed Ingredients for Pig Feed; 3. How to Determine the Proper Preparation of Pig Feed; 4. Preparation of pig feed.



Figure 2. Implementation of Counseling

#### Nutrition for pigs

The type of nutrition needed by pigs consists of carbohydrates, proteins, fats, minerals, vitamins and water. Carbohydrates can be obtained from corn, rice bran, plantain peels, food stall waste, corn husks, keladi, sweet potatoes; protein can be obtained from fish waste, tofu dregs, CP11 broiler rations, mung bean shells, soybean shells; fats can be obtained from animal fats, plant fats, coconut oil; minerals can be obtained from fish bones, vegetable waste, banana stems, clamshells, salt; Vitamins can be obtained from vegetable waste and fruit waste—fruits and water can be obtained from rainwater, well water, river water.

#### Feed Ingredients for Pig Feed

In principle, all food that can be eaten by humans can also be eaten by pigs, but pig feed should not contain a lot of crude fiber because crude fiber will interfere with pig growth. Len et al. (2008) reported that the amount of crude fiber in rations at high levels reduced body weight. The types of feed ingredients commonly used for pig feed and their nutritional content are presented in Table 1.

Table 1. Types of pig feed ingredients and their nutritional content

| Feed ingredients    | Protein (%) | Ca (%) | P (%) | Energy (kcal/kg) |
|---------------------|-------------|--------|-------|------------------|
| Fish waste          | 31,21       | 12,97  | 21,84 | 2709             |
| Tofu dregs          | 23,85       | 0,32   | 1,58  | 3200             |
| Pig ration CP 551   | 19,50       | 0,90   | 0,70  | 3035             |
| CP11 broiler ration | 22,00       | 0,90   | 0,60  | 3000             |
| Vegetable waste     | 15,80       | 2,11   | 1,35  | 3906             |
| Mung bean shell     | 15,10       | 1,08   | 0,84  | 3521             |
| Food stall waste    | 13,72       | 0,73   | 0,29  | 3174             |
| Soybean shells      | 12,76       | 0,80   | 0,59  | 3348             |
| Corn                | 8,49        | 0,01   | 0,78  | 3245             |
| Rice bran           | 7,35        | 0,01   | 4,55  | 2879             |
| Plantain peel       | 5,18        | 0,22   | 0,75  | 2907             |
| Taro peel           | 4,26        | 0,05   | 0,88  | 3002             |
| Banana stem         | 2,91        | 2,10   | 0,29  | 3315             |
| Corn husks          | 1,59        | 0,16   | 0,37  | 3100             |

### How to Determine the Proper Preparation of Pig Feed

The preparation of pig feed must be adjusted to the phase, for example whether the pig is in the growth or production phase (bunting or lactation). The steps to compile pig feed are as follows:

1. Determine the phase of the livestock of pigs for which rations will be made.  
Phases of pig livestock:
  - a. Prestarter (piglets before milk release), age 4-8 weeks, body weight (BB): 5-10 kg.
  - b. Starter (loose milk pig), age 8-12 weeks, BB: 10-20 kg.
  - c. Grower (pigs in infancy), age 12-20 weeks, BB: 20-50 kg.
  - d. Males (prolific male pigs)
  - e. Female/Dry mother (non-pregnant or lactating sow)
  - f. Bunting females
  - g. Lactating/lactating females
2. Selecting energy source feed ingredients, see Table 1. Example: food stall waste or rice bran.
3. Selecting protein source feed ingredients, see Table 1. Examples: fish waste, tofu dregs, CP11 broiler ration.
4. Selecting feed ingredients sources of minerals and vitamins, see Table 1. Examples: fish bones, vegetable waste, shells, salt, fruit waste.
5. After all feed ingredients are ready, feed preparation is made according to the following instructions.

### Preparation of pig feed

The following is the preparation of feed that can be given to pigs according to the phase for one pig. The feed ingredients used are sources of energy, protein, vitamins, and minerals (see previous explanation). To make it easier for farmers to prepare their pig feed, each feed ingredient is measured using 5 kg paint cans and sweetened condensed milk cans.



Figure 3. Paint cans 5 kg and milk cans 385 g

The following are some examples of pig feed that can be imitated because it is prepared using feed ingredients that are around us.

**1. Prestarter feed (age 4-8 weeks, BB 5-10kg).**

Nutrients needed: Protein 23.7%, Energy 3265 kcal/kg.

The need for pre-starter pig feed per head per day= 1.53 kg.

Feed ingredients: fish waste, tofu dregs and CP11 broiler ration

The amount of each feed ingredient:

| Feed Ingredients    | Total Dosage       |
|---------------------|--------------------|
| Fish waste          | 1 can of milk      |
| Tofu dregs          | 1/2 can of paint   |
| CP11 broiler ration | 1 1/2 cans of milk |

**2. Starter Feed (>age 8-12 mg, BB 10-20 kg)**

Required nutrients: Protein 20.9%, Energy 3265 kcal/kg.

The need for starter pig feed per head per day = 4.03 kg.

Feed ingredients: fish waste, tofu dregs, keladi, vegetable waste, food stall waste, and CP11 broiler rations.

The amount of each feed ingredient:

| <b>Feed Ingredients</b> | <b>Total Dosage</b> |
|-------------------------|---------------------|
| Fish waste              | 1/2 can milk        |
| Tofu dregs              | 1/2 can of paint    |
| Taro peel               | 1 can of milk       |
| Vegetable waste         | 1 1/2 cans of paint |
| Food stall waste        | 1 can of milk       |
| CP11 broiler ration     | 2 milk cans         |

**3. Grower Feed (>age 12-20 mg, BB 20-50kg)**

Nutrients needed: Protein 18%, Energy 3265 kcal/kg.

The feed requirement of grower pigs per head per day = 8.09 kg.

Feed ingredients: fish waste, tofu dregs, soybean skin, keladi, vegetable waste, food stall waste, and CP11 broiler rations.

The amount of each feed ingredient

| <b>Feed Ingredients</b> | <b>Total Dosage</b> |
|-------------------------|---------------------|
| Fish waste              | 1 can of milk       |
| Tofu dregs              | 1 can of paint      |
| Soybean skin            | 1/2 can of paint    |
| Taro peel               | 1/2 can of paint    |
| Vegetable waste         | 3 1/2 cans of paint |
| Food stall waste        | 1/2 can of paint    |
| CP11 broiler ration     | 2 cans of milk      |

**4. Feed for Male and Female Pigs/Dry Parents**

Nutrients needed: Protein 13%, Energy 3265 kcal/kg.

Feed needs of male and female pigs / dry brood per head per day = 9.25 kg.

Feed ingredients: tofu dregs, soybean skin, keladi, vegetable waste, and food stall waste.

The amount of each feed ingredient

| Feed Ingredients | Total Dosage        |
|------------------|---------------------|
| Tofu dregs       | 1/2 can of paint    |
| Soybean skin     | 1 can of paint      |
| Taro peel        | 1 can of paint      |
| Vegetable waste  | 3 1/2 cans of paint |
| Food stall waste | 1/2 can of paint    |

**5. Bunting Female Feed**

Nutrients needed: Protein 12.9%, Energy 3265 kcal/kg.

The feed needs of pregnant females per head per day = 10.45 kg.

Feed ingredients: tofu dregs, soybean skin, keladi, vegetable waste, and food stall waste.

The amount of each feed ingredient

| Feed Ingredients | Total Dosage     |
|------------------|------------------|
| Tofu dregs       | 1/2 can of paint |
| Soybean skin     | 1 can of paint   |
| Taro peel        | 1 can of paint   |
| Vegetable waste  | 4 cans of paint  |
| Food stall waste | 1/2 can of paint |

**6. Feed Lactating/Lactating Females**

Nutrients needed: Protein 16.3%, Energy 3265 kcal/kg.

The feed requirement of lactating females per head per day = 12.98 kg.

Feed ingredients: fish waste, tofu dregs, soybean skin, keladi, vegetable waste, food stall waste, and CP11 broiler rations.

| Feed Ingredients    | Total Dosage        |
|---------------------|---------------------|
| Fish waste          | 1/2 can milk        |
| Tofu dregs          | 1/2 can of paint    |
| Soybean skin        | 1 1/2 cans of milk  |
| Taro peel           | 1 1/2 cans of paint |
| Vegetable waste     | 8 cans of paint     |
| Food stall waste    | 1 can of paint      |
| CP11 broiler ration | 3 cans of milk      |

### **Q&A (Discussion)**

In the question and answer session (discussion), many community members were enthusiastic to ask some important things related to pig feed, such as the following description:

1. Question: What should be considered from local ingredients to prepare pig rations?  
Answer: Local ingredients such as agricultural waste or plant residues can be used as an economical and easily available source of feed.
2. Question: Can people make their own rations at home without the need to buy from outside?  
Answer: Yes, people can make their own rations by utilizing local ingredients available around the house, such as leaves, vegetable waste, and other feed ingredients.
3. Question: How to detect whether the pigs are getting enough nutrients from the ration given?  
Answer: Detecting nutrient adequacy can be done by monitoring pig growth, body condition, and reproductive performance. If there are signs of lack of nutrition, it is necessary to make adjustments to the ration.
4. Question: What is the role of livestock health in the preparation of rations, and how to maintain the health of pigs?  
Answer: The health of pigs is very important in the preparation of rations. Disease prevention efforts, such as vaccination and cage hygiene, can help support optimal livestock health and performance.
5. Question: How to effectively draw up rations for pigs by utilizing limited local feed sources?  
Answer: Developing an effective ration involves selecting local feed ingredients that contain the required nutrients as well as supplementing if needed.
6. Question: Does a good ration consist only of natural feed ingredients, or does it need to be added commercial feed?  
Answer: A good ration may consist of natural feed ingredients, however, to meet more specific nutritional needs, commercial feed is sometimes required as a supplement.
7. Question: How to maintain the quality of pig rations so that they do not spoil quickly in the village environment?  
Answer: Good storage and hygiene management of the cage can help prevent contamination and maintain the quality of the ration so that it does not spoil quickly.
8. Question: Are there alternative sources of protein that can be utilized from the environment for pig rations?  
Answer: Yes, some alternative sources of local protein can be used such as nuts, seeds, or fish waste that can be processed into pig feed.
9. Question: How to carry out feed rotation to prevent saturation of nutrients and give variety to the ration of pigs?  
Answer: Feed rotation involves substitution or variation in the type of feed given in order to prevent nutrient saturation and provide a good variety to the pig ration.

### **CONCLUSION AND SUGGESTION**

#### **Conclusion**

1. The formulation of pig feed given through counseling is expected to be practiced by the people of Sairo village so that community empowerment is successful;
2. Making pig feed with local feed ingredients is done with simple techniques;

3. Keladi, vegetable waste and food stall waste found in Sairo village and its surroundings can be used as pig feed ingredients for all phases. Other feed ingredients such as tofu dregs, fish waste, soybean skins can be obtained elsewhere outside Sairo village but are easily found in Manokwari Regency.

#### **Suggestion**

Good feeding should be accompanied by good drum management so that optimal growth of pigs can be achieved.

#### **ACKNOWLEDGMENTS**

Thank you to the head of Sairo village for allowing the extension team of the Faculty of Animal Husbandry, University of Papua to carry out activities. To the people of Sairo village who have actively participated in counseling, the extension team expressed high appreciation.

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