Patterns of Pig Farms in Fakfak District, West Papua Province, Indonesia

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ABSTRACT

In the lives of indigenous people in Papua, pigs are in first place as domesticated livestock. Keeping pigs is closely related to socio-cultural values because they are used as matrimonial assets, determine social status, and are used in customary practices and cultural ceremonies. The study aims to find out the profile of farmers and their understanding of raising pigs. The research was conducted using a survey method on the population of pig farmers in Fakfak and Pariwari. Field data were collected from 20 pig farmers using a survey method based on a structured questionnaire. The data was tabulated and calculated using Minitab version 17 to get the mean and frequencies of each variable measured. The result showed that most of the farmers are of productive age with an education level of senior high school. The highest percentage of family members involved in raising pigs is 1-2 people per family. The pigs raised are Veredeld Duits Landvarkencross (VDL) breed pigs. Pigs are kept in pens made of stone walls. The feed given to pigs consists of tofu dregs, food stall waste, household waste, and forage (water spinach, sweet potato leaves, taro leaves). They are mated naturally with a litter size was only 3-4 per sow. They are healthy and growing well. In general, pig diseases that are often found are diarrhea, bloating, worms, and scabies. Raising pigs is only used as a side business for savings and sudden needs. Income is generated through the sale of live livestock (piglets or adult pigs) and pork.

Keywords: Farmers, Pattern, Pigs, West Papua

INTRODUCTION

The central government is currently being directed towards its development in the Eastern Indonesia region. One of the programs that has been implemented is livestock extensification. One of the livestock commodities that has economic value and can adapt well to the people of Papua is pigs in addition to cattle, goats, and local chickens. This livestock is only as life savings (Phiri, 2012; Truebswasser et al., 2018; Iyai et al., 2018; Mekonnen et al., 2012; Vithanage et al., 2013; Mbaso and Kamwana, 2013; Nguthi, 2007; Widi, 2015). These livestock are sold when there is an immediate need and simply to meet family

consumption. This causes suboptimal production and profits for breeders and surrounding communities. The reared livestock still has no impact on the farmer's economy and the regional economy (Soetrisno, 1999). In the lives of indigenous people in Papua, pigs are in first place as domesticated livestock. Keeping pigs according to local community culture is closely related to socio-cultural values because they are used as matrimonial assets, determine social status, and are used in customary practices and cultural ceremonies (Pattiselanno and Iyai, 2005). Apart from that, because pigs are classified as prolific livestock with a frequency of giving birth 2 to 3 times per year (Iyai, 2013) and generate income (Warastuti, 2001; Iyai et al., 2018), many people's pig farming businesses have been developed with the main aim of producing meat. The existence of pig farming businesses in Fakfak, as is the case in several regions in Indonesia such as North Sumatra, Bali (Kristiawan et al., 2019), and Kalimantan, is generally part of the culture of the local community and has been passed down from generation to generation. The maintenance system varies according to regional conditions, the culture/customs of the local community, and the purpose of raising the livestock itself. This means that this livestock business develops according to the socio-economic conditions of the local community with feeding practices that still depend on food ingredients that are easy to obtain and available at all times.The livestock farming community in Fakfak has so far not been one of the suppliers of agricultural commodity needs in nearby districts and cities such as Sorong, and Manokwari as the capital of West Papua Province. By only relying on limited knowledge (Daulay, 2011), community agricultural commodities can be produced. So far, only plantation commodities, especially nutmeg, have become export commodities in this region.Limited livestock production in Fakfak, especially pig farming, is due to human resources not being optimal in raising pigs. In general, pigs are raised extensively by providing basic feed such as feed ingredients from gardens (cassava, batatas, and other agricultural waste). Most community farming businesses utilize food waste (agricultural waste, market waste, household waste, and restaurant waste) to raise pet pigs (Marani, 2004; Widayati et al., 2018). Feeding like this causes pig growth to not be optimal. Therefore, it is necessary to study the pattern of raising pigs in Fakfak district, West Papua Province, Indonesia to find out the profile of farmers and their understanding of raising pigs.

MATERIAL AND METHODS

The research was located in the Fakfak town and Pariwari sub-district, Fakfak Regency (Figure 1), and was carried out from November to December 2023. The research was conducted using a survey method on the population of pig farmers in Fakfak Regency. The population of Fakfak district is 18,294 and Pariwari district is 23,670 people with the number of pig breeders in each district being 59 people for Fakfak district and 21 people for Pariwari district.

Fakfak and Pariwari subdistricts were chosen as sample locations for the study because the pig population of those subdistricts is more than the pig population of other subdistricts in the Fakfak district. Field data were collected from 20 pig farmers using a survey method based on a structured questionnaire. The farmers selected as respondents are as follows. Firstly, pig farmers who already have at least two years of livestock experience. Secondly, breeders who maintain sows that have progeny. The sampling of respondents was done by adopting the method of purposive random sampling under predetermined criteria and then randomized so that each sample had the same opportunity to be selected.

Data collection includes primary and secondary data. Primary data consisted of the sex of the farmers, age, education, long business in raising pigs, and number of people involved in the pig business. The data was obtained through direct observation and interviews with farmers using a list of questions prepared. Secondary data was obtained from relevant agencies. The data was tabulated and calculated using Minitab version 17 to get the mean and frequencies (percentages) of each variable measured.

Figure 1. Map of Fakfak

Source: https://petatematikindo.wordpress.com/2013/02/02/administrasi-kabupaten-fak-fak/

RESULTS AND DISCUSSION

Fakfak

Fakfak society is very diverse, with 7 indigenous tribes and 3 different religions. Information regarding indigenous tribes (indigenous people) in Fakfak includes the Mbaham, Ma'tta, Mor, Onin, Irarrutu, Kimbaran, and Arguni tribes. Meanwhile, there are 3 sibling religions in Fakfak, namely Islam, Protestantism and Catholicism. Based on data from the Fakfak Regency Central Statistics Agency in 2020, the religious percentage in this sub-district is Islam 82.43% and Christianity 17.57% (Protestant 9.64% and Catholic 7.93%).

The local philosophy is called *"Satu tungku tiga batu"* which means a stove/cauldron with three stones/legs. The majority of local ethnic groups are members of Mbaham, Ma'tta, Wuh, who traditionally cook with a cauldron that is balanced over three stones. The cauldron symbolizes life, while the three stones symbolize the pronouns you, me, and they. Another saying to reflect this is *"Ko, on, kno mi mbi du Qpona"* which means you, me, and they are related. There is a monument symbolizing this philosophy located in the center of Fakfak to commemorate its multiculturalism and tolerance.

Pariwari

The area of this sub-district is around 587.00 km^2. The population of this sub-district in 2020 was 23,670 people, with a density of 40.32 people/km^2, which was divided into 6 villages and 3 sub-districts.

In general, residents in this area work as farmers. Corn, peanuts, soybean, cassava, and sweet potatoes are

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the leading crops managed by residents, and some grow nutmeg, cocoa, and other crops such as chilies, shallots, garlic, ginger, and others. Many Christian Papuans keep pigs, and others raise chickens, cows, and goats.

In the life of Papuans, pigs are very important domesticated livestock. Apart from considering the benefits obtained from raising pigs (proliferative benefits), as a culture of the local community, pig farming has a close relationship to social and cultural values because it is in line with the practice of customs and cultural rituals. Several things are connected to the social value of pigs, for example: as a dowry, a determinant of social status (a measure of wealth), sacred animals, and as a medium of exchange. In Papua, pigs are traditionally farmed on a small scale and according to the socio-economic conditions of the local community.

Profile of the farmers

Based on the study farmers who raise the pigs in Fakfak have characteristics as presented in Table 1.

Table 1. Characteristics of pig farmers (N=20) in the area of Fakfak and Pariweri

Variables	Number of people	Percentage (%)
Gender		
· Male	13	65
· Female	7	35
Age		
· 20 – 29	5	25
· 30 – 39	4	20
· 40 – 49	7	35
· 50 – 60	4	20
Education		
· Elementary school	1	5
· Junior high school	3	15
· Senior high school	10	50
· Diploma and above	6	30
Long business in pigs		
· 0 – 1	5	25
· 1 – 2	5	25
· 2 – 3	2	10
· 3 – 5	2	10
· 5 – 10	6	30
Number of people involved in the pig business		
· 1 – 2	11	55
· 2 – 4	6	30
· 5 – 6	3	15

Gender

The results of the interviews with farmers showed that males (65%) dominated the gender of farmers. These findings were as results of Iyai and Randa (2011) who stated that gender plays a prominent role in small-scale pig keeping, men played more prominent roles as pig farmer managers than women (>50%). Another

finding by Iyai and Saragih (2015) confirmed that males of Arfak tribes in a coastal area of Manokwari were more prominent in the pre-production and production process of raising pigs. The pre-production process included clearing land, buying livestock seeds, making cages livestock, participating in training, pig farming ownership, and managing the division of work. The production process included feeding of pigs, cleaning sometimes, mating arrangements, maintaining in the garden, gestation process (parturition), caring for young pigs, and caring for sick pigs.

Age structure

The farmers' age was 40-49 years (39%). It means that most of the farmers are of productive age. According to Otampi et al. (2017), the productive age is the age in the range of 15-64 years, while the non-productive age is the age of 65 years and above. Productive age is very important because mature age has an excellent impact on the development of capture power and mindset so that the knowledge obtained by farmers is improved (Prawira et al., 2015); Sumiati, 2011; Mekuriaw and Asmare, 2014). This condition allows them to easily accept technological innovations related to their work.

Educational Status of Farmers

The level of education is expected to help the community in the efforts to increase the production of pigs. It has an impact on the management of the livestock business. Table 1 shows that the education level of farmers is very diverse and the majority (50%) of them are those who have attained a senior high school education level. Luanmase et al. (2011) stated that the level of education reflects a person's ability to accept and cope with innovations. The higher the education level, the easier it will be for a person to receive new information related to the livestock business.

Long Business in Pigs

The length of time in raising pigs reflects the farmer's experience in raising pigs. The research results show that breeders in the Fakfak and Pariwari districts have a farming time of 5-10 years (30%). The results of this research are under research by Iyai et al. (2020) that farming experience of <10 years was found in farmers in the Fakfak district.

Number of People Involved in the Pig Business

The highest percentage (55%) of family members involved in raising pigs is 1-2 people per family. This number illustrates that not all family members are involved in raising pigs. The family members involved are usually the mother and children. This result is different from the findings of Iyai et al (2020) who stated that the number of family members owned by farmers in Pasir Putih Fakfak is dominated (54.29%) by 4-6 people. This large number of family members can become social capital (Mulyadi, 2012; Koentjaraningrat, 2002; Raharjo, 2004) for farmer families as workers. Farmers can run their pig businesses on a household scale. The high number of family members in Pasir Putih village is an indication of the collegial life (Koentjaraningrat, 2002) of Papuans in the Land of Papua. The cultural pattern of life of the Fakfak people is one stove with three stones which is the philosophy of life of the Mbaham Matta Wuh ethnic group which is interpreted as "Ko, on, kno mi mbi du Qpona" which means "you, I and he/she are families".

Pig Raising Management Aspects

The results of field observations show that the pigs raised in the Fakfak and Pariwari districts are Veredeld Duits Landvarkencross (VDL) cross-breed pigs (Figure 2). The characteristics of the pig are a large, rather long head, large long ears, half hanging towards the face parallel to the head, a long spine, an almost round width a large body, and lots of meat (Dewi, 2017). Pigs are kept in pens made of stone walls. This condition

is different from the Papuan people in general who keep pigs loosely and cages made from wood which is easily obtained in the forest.

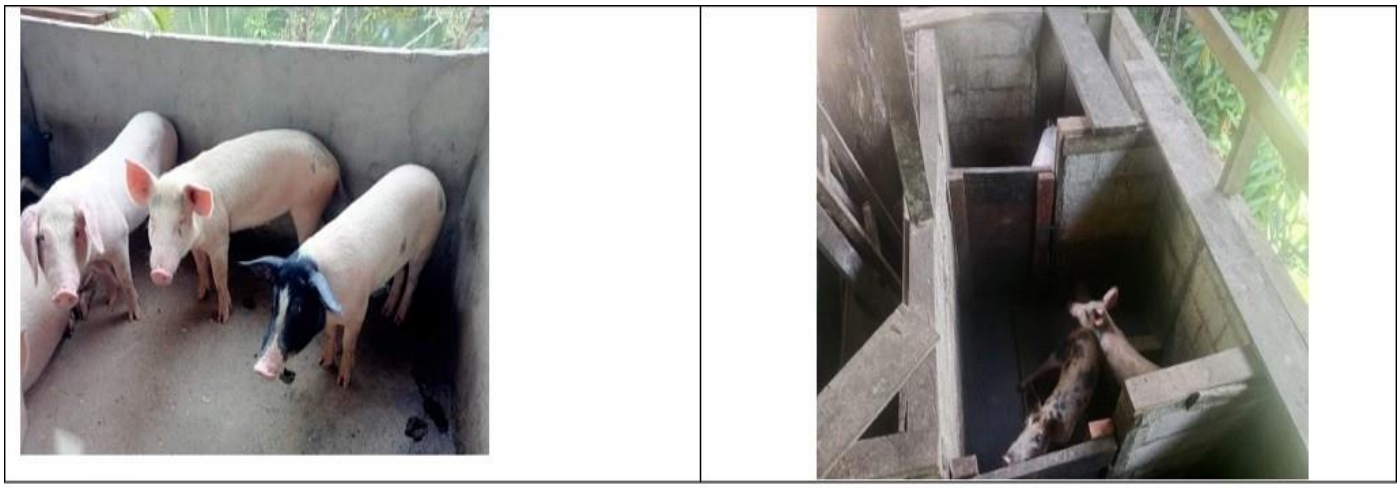

Figure 2. Types of VDL pigs kept by the community.

Feed Management Aspects

The cost of feed is the highest production cost in a livestock business therefore farmers try to find raw materials (used for making feed) that are affordable and available at any given time. The feed given to pigs in the Fakfak and Pariwari sub-districts consists of tofu dregs, food stall waste, household waste, and forage (water spinach, sweet potato leaves, taro leaves). The feed is cooked with water and salt before being given to the pigs (Figure 3). This feed is given to pigs because it is difficult and expensive to obtain concentrated feed from factories. The research of Pattiselanno et al (2021) showed that the practice of processing feed for pigs which is generally carried out by farmers is carried out by mixing several types of feed, to obtain a better feed composition in terms of availability/nutrient content. This is done so that farmers can get a feed composition that complements the lack of nutritional value in one of the feed ingredients and it is hoped that the nutritional value content of animal feed can be increased.

Figure 3. A. Process of cooking pig feed; B. Water spinach and sweet potato leaves for pig feed

Breeding Management

Artificial Insemination is not yet an option for farmers in the sub-district in breeding pigs. Similar things were also found in other areas, for example in Manokwari (Iyai and Randa, 2011). Natural mating is carried out by gathering boars and sows in one cage. Keeping and gathering boars during mating seasons along with sows and gilts will improve and release estrus time and in turn follicle development, example in Thailand can be drawn by Am-in et al. (2010). However, litter size was only 3-4 per sow in Fakfak and Pariwari even though naturally, each sow can have a 4-11 litter size. Sayori et al 92023) showed that the litter size of sows in Papua is still low. Moreover, the sow's body weight can be the best indicator and has causal effects on the dynamics of follicle growth and the number of born piglets. However, a few numbers of boars are found in every pig-keeping system in Fakfak and Pariwari might be the reason why the productivity of the sow per se is low (Figure 4).

Figure 4. Low Productivity of The Sow

Health Aspect

In general, pig diseases that are often found in Fakfak are diarrhea, bloating, worms, and scabies. Iyai et al (2020) found diseases such as worms, respiratory diseases, venereal diseases in livestock, and diseases due to reproductive disorders in Pasir Putih Fakfak village. Cage cleanliness is one of the best ways to control disease in pigs. Dewi (2017) stated that good health management in pigs is by carrying out a vaccination program; controlling parasites; adequate feeding; eliminating all kinds of stress with a good housing system; separating diseased pigs; and cleaning the cage if disease occurs.

Economic Aspect

Based on interviews with the farmers, raising pigs is profitable. Income is generated through the sale of live livestock (piglets or adult pigs) and pork. The price is in Indonesian Rupiah (IDR) 1,500,000 ($100US) per piglet (3-month-old) and the price of pork is IDR 120,000 ($8US) per kg.

According to Soeharsono et al. (2010), people living in rural areas mostly rely on off-farm income from agriculture which is supported by the livestock sub-sector. Raising pigs for people in Fakfak and Pariwari is only used as a side business for savings and sudden needs, such as to finance schools, health costs, building houses, and others. The results of this study are by Truebswasser et al. (2018); Iyai et al. (2018) who stated that the livestock business is not a major business but a side business or family savings that can be cashed at

any time. However, the role of livestock farming greatly contributes to farmers' income in rural areas.

CONCLUSION

Most of the farmers are of productive age with an education level of senior high school. The highest percentage (55%) of family members involved in raising pigs is 1-2 people per family. The pigs raised are VDL crossbreed pigs. Pigs are kept in pens made of stone walls. The feed given to pigs consists of tofu dregs, food stall waste, household waste, and forage (water spinach, sweet potato leaves, taro leaves). The feed is cooked with water and salt before being given to them. They are mated naturally with a litter size was only 3-4 per sow. The piglets are healthy and growing well. In general, pig diseases that are often found are diarrhea, bloating, worms, and scabies. Raising pigs is only used as a side business for savings and sudden needs. Income is generated through the sale of live livestock (piglets or adult pigs) and pork.

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