

Production Obstacles and Marketing Patterns of Swamp Buffalo (Bubalus Bubalis Carabanensis) in West Kutai Regency

Nabil¹, Hamdi Mayulu^{2✉}, Dinar Anindyasari³, Ibrahim⁴

¹Mulawarman University, Samarinda, Indonesia.

²Mulawarman University, Samarinda, Indonesia.

³Mulawarman University, Samarinda, Indonesia.

⁴Mulawarman University, Samarinda, Indonesia.

✉Corresponding author: hamdi_mayulu@faperta.unmul.ac.id

Abstract

The study aimed to determine the factors inhibiting production and marketing patterns of swamp buffaloes in Pulau Lanting Village, West Kutai Regency using survey methods and interview techniques. Data were collected using a questionnaire and analyzed using a descriptive approach for factors inhibiting buffalo production and a qualitative descriptive approach for marketing channel data analysis. Swamp buffalo farmers in Pulau Lanting village do not face significant barriers to swamp buffalo production in terms of feed requirements, grazing land provision, farmer capability, and swamp buffalo health, but require further investigation into the evaluation of feed ingredients to determine the nutritional adequacy of buffaloes so that swamp buffaloes can produce optimally, and additional new knowledge on the impact of inbreeding and diseases that can reduce swamp buffalo productivity. Recording applications are recommended to make it easier for farmers and/or health workers to find out the pedigree of swamp buffaloes, production history, maintenance management records, and health records to monitor health status in the context of efforts to develop swamp buffalo farming businesses.

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1. Introduction

Buffalo (*Bubalus bubalis*) is a ruminant commodity that produces meat and milk (production reaches 1,500-4,500 liters per lactation) (FAO, 2024) which acts as a source of animal protein for the global community whose population continues to increase (Debaky et al., 2019; Borghese et al., 2022; Baruselli et al., 2023). The world population of buffalo reaches 204 million and more than 98% is in Asia, Africa, especially Egypt (0.8%), South America (0.9%) and in Europe (0.2%) (FAO, 2024). The production of buffalo meat around the world as a source of red meat for consumption has become an economic activity, especially in sub-tropical and tropical countries, including Indonesia, which is located in Lanting Island Village, Jempang District, West Kutai Regency, East Kalimantan Province with a buffalo population of 115 heads. The topographical condition of the Lanting Island Village area, which is dominated by swamps and supported by the availability of abundant forage and the support of human resources (breeders), is a strategic environment for the cultivation of swamp buffalo (*Bubalus bubalis carabanensis*). Swamp buffalo are widely cultivated because they have a good ability to utilize low-quality feed commonly found in their cultivation sites and the capacity to adapt well to various environmental conditions (Mayulu et al., 2018; Stasio and Brugiapaglia, 2021), which makes buffalo superior to cows. Swamp buffalo cultivation in Lanting Island Village is adjusted to the topography of the region, which is carried out semi-extensively. The maintenance pattern was chosen in order to produce more quality buffalo meat.

Buffalo meat including meat is lean without any marbling, low fat, low cholesterol and low energy (Naveena et al., 2024; Vas et al., 2024), contains iron, zinc, vitamin-B, conjugated linoleic acid, and has lower atherogenic and thrombogenic indices when compared to beef (Naveena et al., 2024). The contribution of buffalo meat in supporting the adequacy of animal protein globally also contributes to food security which has an impact on the welfare of the community, but the reality is that farmers face various challenges in their cultivation, especially in the production and marketing process, so it is necessary to conduct research related to factors that hinder buffalo production and the marketing pattern of swamp buffalo in Lanting Island Village, Jempang District, West Kutai Regency, East Kalimantan Province.

2. Method

The research was carried out in February-March 2023 in Pulau Lanting Village, Jempang District, West Kutai Regency, East Kalimantan Province, using a survey method with interview techniques. The location of the survey was deliberately determined with the criteria that Lanting Island has a buffalo population. The respondents in the study were all Rumpun Makmur buffalo breeders in Lanting Island Village, West Kutai Regency (as many as 16 people) with the criteria of being a member of the Rumpun Makmur group for at least 2 years and having a minimum of 3 buffaloes. The research data was collected with a questionnaire and analyzed using a descriptive approach method for factors inhibiting buffalo production and qualitative descriptive for marketing channel data analysis. The following formula is used in calculating the percentage of factors inhibiting buffalo production.

$$P = \frac{F}{N} \times 100\%$$

Remarks

P : Percentage

F : Frequency

N : Number of Respondents

The analysis of marketing margin data used is the price at the breeder and consumer level. Here's a formula approach to calculating buffalo marketing margin.

$$M_p = P_r - P_f$$

Remarks:

Mp : Buffalo marketing margin

Pr : Buffalo prices at the consumer level

Pf : Buffalo prices at the producer level

The analysis of farmer's share data used is the percentage of the price received by the farmer with the price paid by the consumer. The following is a formula approach to calculate the price received by farmers.

$$Sp = \frac{Pf}{Pr} \times 100\%$$

Remarks:

Sp : The price received by the breeder

Pr : Buffalo prices at the consumer level

Pf : Buffalo prices at the producer level

3. Results and Discussion

3.1. Characteristics of Buffalo Farming in Lanting Island Village, West Kutai Regency

Domestic buffalo is divided into two species, namely river buffalo (*B. bubalis bubalis*: 50 chromosomes) and swamp buffalo (*B. bubalis carabanensis*: 48 chromosomes) (Minervino et al., 2020; Pineda et al., 2021; Zhang et al., 2022). Swamp buffalo or swamp buffalo is widely cultivated in Indonesia, especially East Kalimantan Province because of its advantages. Swamp buffalo have a high capacity to convert feed with poor nutritional value into high-value food products (meat and dairy), adaptable and survive in a variety of different environmental conditions with different topography, climate, and vegetation (Minervino et al., 2020), allowing buffalo to be raised semi-extensively and extensively (Vas et al., 2024). This is a special attraction for farmers in Lanting Village, West Kutai Regency, East Kalimantan Province to cultivate it.

Lanting Island Village is located in Jempang District, West Kutai Regency, East Kalimantan Province with an area of 151.36 km² of which most of the area is dominated by lakes. These topographic conditions are used by some people to cultivate swamp buffalo semi-intensively, namely herding swamp buffalo every morning until afternoon (if the water conditions in the lake are not high tide and flooding) and including buffalo at night. Swamp buffalo grazing is located at the end of the settlement of Lanting Island with an area of 2,438 ha. The management of swamp buffalo maintenance in Lanting Island Village has been carried out since 1958 and has been carried out from generation to generation (inaugurated by West Kutai Regency in 2012 which was named the "Rumpun Makmur" group). The existence of the lake as a habitat for swamp buffalo is also supported by the availability of abundant forage such as oil kumpai, putri malu and other forage for buffalo to use as feed.

3.2. Obstacles to Swamp Buffalo Production in Lanting Island Village, West Kutai Regency

Swamp buffalo production management is everything that includes in the maintenance of swamp buffaloes starting from the maintenance system, seeds, grazing land, feed, cage, health and marketing, with good production management buffalo cultivation becomes more optimal. Farmers in swamp buffalo farming production activities often face various obstacles including related to feed, grazing land, breeders' knowledge/skills (capability) and swamp buffalo health. Feed in swamp buffalo production has a big role in determining the success of the business, but in Lanting Island Village, feed is not an inhibiting factor in buffalo production because farmers can easily obtain feed to meet the needs of swamp buffalo. The abundance of grass (such as oil kumpi grass) around the lake and supported by semi-intensive maintenance patterns makes it easier for farmers to meet feed needs. The semi-intensive rearing pattern allows the swamp buffalo to choose their own feed at the grazing site.

Farmers in swamp buffalo feed management choose to provide sufficient grass in the lake or around grazing locations and do not provide additional feed in the form of concentrates, this is chosen because of the abundance of grass and the relatively expensive price of concentrates. Feeding

with this pattern is assumed by farmers to increase the body weight of swamp buffaloes faster, although further investigation is needed to find out whether its nutritional needs have been met (evaluation of feed materials). This assumption is supported by the fact that buffalo have a better ability to utilize feed, especially forage, even though the feed consumed is of low quality (Minervino et al., 2020; Vas et al., 2024).

Swamp buffalo production, in addition to being closely related to feed, is also influenced by the availability of grazing land. Grazing land is a place where swamp buffalo look for feed for their survival and good grazing land is manifested by the existence of abundant, comfortable, and easy forage for swamp buffalo to access. Research-based grazing land in Lanting Island Village is not an obstacle for farmers in cultivating swamp buffalo, this is because the potential for grazing land is widely available (2,438 ha), watery, muddy, and swamp-shaped, where these conditions are in accordance with the habitat of swamp buffaloes. The size of grazing land makes it no longer difficult for farmers to find feed, because on grazing land there is forage that can be used by swamp buffaloes to meet their feed needs. The condition of grazing land that is in accordance with the habitat of swamp buffaloes, namely watery, muddy and swamp-shaped (Asiah et al., 2021) and supported by a semi-intensive maintenance pattern, makes buffalo more comfortable so that they are able to produce well.

The production of swamp buffalo in Lanting Island Village, West Kutai Regency is supported by the skills of farmers in raising buffaloes. The skills in raising swamp buffalo have been mastered by the majority of breeders since they were young (93.75%) because the business carried out now is a business that has been passed down from their parents, so it is not an inhibiting factor in the production of swamp buffalo. The skills possessed by the breeder correlated with the breeder's knowledge of especially the impact of inbreeding and his ability to deal with diseases that affect his pet buffalo. The impact of inbreeding on buffalo that is kept semi-intensively and mating naturally needs to be known by farmers because it can increase the possibility of crossbreeding in inbreeding which ultimately affects buffalo productivity (Nur et al., 2018), but this is not understood by farmers in Lanting Island Village due to lack of information related to the impact of inbreeding. The ability to handle diseases in buffalo is an important thing for farmers to have, because if there is a sick buffalo, a farmer can quickly take temporary action before calling health workers. Livestock skills require additional new knowledge in training, especially related to diseases in buffaloes so that farmers are able to apply how to deal with them, so that they can reduce the potential for buffalo to get sick and/or die due to diseases that are not handled properly (Pratama et al., 2020).

Swamp buffalo is a ruminant that is resistant to disease, but the potential for disease still exists so breeders must routinely check the health of buffalo and the type of disease that often attacks the herded swamp buffalo is worms. Buffalo raised by grazing have a higher risk of being infected with worms because of the possibility of herd buffalo consuming worm larvae in grazing pastures, and at the same time in the morning is the phase where many infective larvae appear on the grass surface (Barkah et al., 2021). Farmers in Lanting Island Village as a preventive measure are very routine in checking the health of buffaloes, namely 2-3 times a week and directly observing the behavior of buffaloes when grazing land, but recording activities have not been implemented due to lack of information related to this. Recording is important for farmers to make it easier for farmers to remember the history of disease events experienced by buffalo because with the recording of farmers can find out the pedigree of livestock, record production and record maintenance management and health record in raising buffalo (Utami, 2020).

3.3. Buffalo Marketing Pattern in Lanting Island Village, West Kutai Regency

Marketing is an important buying and selling activity carried out by farmers for the sustainability of the livestock business that is being run. Based on the results of research, buffalo farmers in Lanting Island Village conduct marketing with a simple marketing pattern and breeders only sell swamp buffalo during traditional events once a year and certain traditional events such as those carried out by the community in the Barong Tongkok and Tanjung Isoy areas. The buffalo sold is male buffalo while female buffalo is used by breeders as broodstock to breed. The price of 1 (one) buffalo is relatively expensive, which ranges from Rp. 20,000,000;- Rp. 30,000,000; And the price can

turn out to be more expensive if the swamp buffalo has a large posture and a lot of body weight, but the price actually decreases even cheaper if the buffalo has a disability and/or a small body weight. The age of buffalo that is usually sold by farmers is around 3 to 4 years, this age is still quite ideal, the ideal age to sell buffalo is 3-10 years (Jawamara et al., 2021). The buying and selling process is still carried out directly, namely buffalo buyers usually come directly to Lanting Island Village to see the buffalo and the payment system in the sale of buffalo is carried out in cash, and the delivery of buffalo usually goes by road using a car.

3.4. Marketing Channels

The marketing channel is the process of transferring goods from the producer to the final consumer (Lasaharu and Boekoesoe, 2020) and in the marketing channel, the principle is that the longer the marketing flow, the more complicated the marketing will be and there will be the potential for producers to tend to make small profits which in the end when it reaches consumers the price of the product is relatively more expensive. Here's an illustration of livestock marketing channels.



Gambar 1. Ilustrasi Model Saluran Pemasaran Ternak secara Sederhana

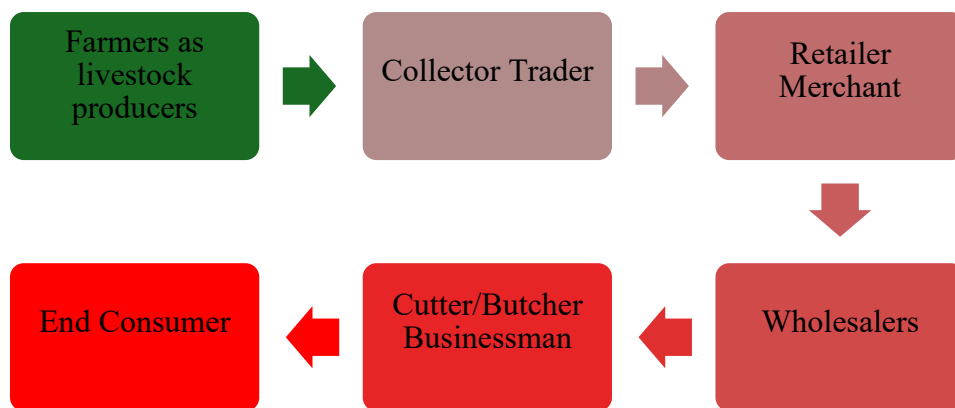


Figure 2. Illustration of a Complex Livestock Marketing Channel Model

Based on the results of the study, it is known that the buffalo marketing channel carried out by farmers in Lanting Island Village has only 1 (one) pattern of marketing channels, namely producers (breeders) selling directly to end consumers without intermediaries. Marketing channels with this pattern are very beneficial for farmers, because farmers get 100% profits and do not burden consumers and with this pattern the entire costs incurred in the sale of buffalo are borne by consumers. This pattern is carried out in accordance with consumer habits when buying buffalo, namely the majority of buffaloes are purchased for the purposes of traditional events and other events around West Kutai Regency, especially the people of Tanjung Isuy, Barong Tongkok and Melak areas.

Marketing methods or marketing strategies are the way that producers use to market livestock products to consumers, with the right marketing method, producers will get maximum profits. Marketing strategies are very important to increase people's purchasing power for livestock products (Liu et al., 2019). Marketing methods that many farmers do include 1) direct sales; and 2) promote on social media through the market place platform. Marketing strategies are intended to explain the manufacturer's desire for the impact of various marketing programs on product demand at a specific target. The marketing method applied by farmers in Lanting Island Village is carried out in 2 (two) ways, namely directly (offline) and online through social media (such as WhatsApp). The online marketing method allows farmers to easily market their products (swamp buffalo) to

consumers with a wider and easier reach considering that buffalo farmers in Lanting Island Village do not have an institution that assists farmers in marketing buffalo. The prospect of swamp buffalo marketing will continue to be improved by encouraging farmers to join cooperatives/institutions in order to increase farmers' opportunities to access buffalo production and marketing inputs that will yield maximum profits (Rusdiana dan Kusumaningrum, 2018).

3.5. Marketing Margins

Marketing margin is the difference between the price or the difference in price paid by the end consumer with the price received by the farmer, the longer the marketing chain, the more marketing institutions involved and resulting in high marketing costs, the inequality of marketing margin income is caused by the long enough marketing chain so that marketing is still inefficient (Jawamara et al., 2021). Based on the results of research on swamp buffalo marketing in Lanting Island Village, it is direct marketing, namely from direct sellers to consumers, this causes there is no marketing margin in buffalo marketing in Lanting Island Village. The marketing model is a simple type of channel, where farmers are directly connected to the market or consumers without any intermediaries such as marketing agencies or middlemen (Aziz dan Husin, 2021).

3.6. Farmer's Share

Farmer Share is the percentage of the price received by the farmer with the price paid by the consumer, the profit received by the farmer is obtained by comparing the price received by the farmer with the price paid by the consumer multiplied by 100%. Based on the results of the research, it was obtained that buffalo marketing in Lanting Island Village is direct marketing to consumers, so that there is no farmer's share in buffalo marketing because farmers get 100% profit from buffalo sales. Direct marketing from farmers to consumers gets 100% profit from buffalo sales, and with this pattern, the marketing costs incurred do not exist because farmers directly sell their livestock to consumers without intermediaries (without going through marketing institutions or middlemen), which causes farmers to make profits 100% (Putra et al., 2020).

4. Conclusion

Swamp buffalo farmers in Lanting Island Village in the production of swamp buffalo do not face significant obstacles both in meeting feed needs, grazing land provision, breeder capabilities and swamp buffalo health, but even so, further investigation is needed related to the evaluation of feed materials to determine the adequacy of buffalo nutrition so that swamp buffalo is able to produce optimally, additional new knowledge in terms of the impact of inbreeding and diseases that are able to Reduce the productivity of swamp buffaloes. Recording applications in swamp buffalo farms are recommended to be carried out to make it easier for breeders and/or health workers to know the pedigree of swamp buffaloes, production history, record of maintenance management and health recording to monitor health status in the context of efforts to develop a swamp buffalo farming business. Swamp buffalo marketing is carried out with a simple pattern, namely farmers directly sell buffalo to end consumers without going through marketing institutions or middlemen with direct marketing methods (offline) and online through social media (such as WhatsApp), so there is no marketing margin and farmer's share in marketing so that the profits obtained by farmers are greater.

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