



Assessing the Potential of Buffalo Livestock in Geumpang, Pidie District

Investigasi Potensi Ternak Kerbau di Kecamatan Geumpang Kabupaten Pidie

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ABSTRAK

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Penelitian ini bertujuan untuk mengidentifikasi potensi ternak kerbau di Kecamatan Geumpang, Kabupaten Pidie, Aceh. Metode yang digunakan adalah analisis Location Quotient (LQ) dan Growth Share. Data yang digunakan adalah data sekunder dari Dinas Peternakan dan Badan Pusat Statistik Kabupaten Pidie. Hasil analisis LQ menunjukkan bahwa ternak kerbau merupakan sektor basis di Kecamatan Geumpang dengan nilai LQ sebesar 3,73. Sementara itu, hasil analisis Growth Share menunjukkan bahwa ternak kerbau merupakan sektor potensial dengan nilai growth negatif (-2,70) dan nilai share positif (33,43). Meskipun mengalami penurunan populasi akibat wabah penyakit, ternak kerbau di Kecamatan Geumpang memiliki potensi yang baik untuk dikembangkan lebih lanjut. Penelitian ini memberikan informasi penting bagi pemerintah daerah dan stakeholder terkait dalam merumuskan kebijakan dan strategi untuk mengoptimalkan potensi ternak kerbau di Kecamatan Geumpang..

ABSTRACT

This research is to determine the viability of buffalo farming in Geumpang District, Pidie Regency, Aceh. LQ and Growth Share analysis were employed. Secondary data from the Animal Husbandry Service and Pidie Regency's Central

Statistics Agency were utilized. The LQ study findings suggest that buffalo farming is a base sector in Geumpang District, with a LQ value of 3.73. Meanwhile, the Growth Share study indicates that buffalo farming is a viable sector, with a negative growth value (-2.70) and a positive share value (33.43). Despite a population drop caused by disease outbreaks, buffalo farming in Geumpang District offers high potential for ongoing development. This research offers crucial information for local governments and relevant stakeholders in developing policies and strategies to maximize the potential of buffalo farming in Geumpang District.

INTRODUCTION

Indonesia is known as an agricultural country with abundant natural resources, including livestock. One type of livestock that has great potential but has not been optimized is buffalo. Buffalo is one of the large livestock that has high economic and cultural value, especially in rural areas. Buffalo is not only used as a source of meat and milk, but also plays an important role in agricultural activities and traditional ceremonies (Borghese et al., 2022).

Buffalo maintenance that has been carried out due to habit or hereditary factors has a great influence on maintenance patterns that are not carried out every day because they are only passed down from parents and are not supported by livestock officer counselling. This is by statement from Di Stasio & Brugiapaglia (2021) that there is a lack of public interest in raising buffaloes and the assumption that buffaloes must be kept in large grasslands because area herding contributes to the low buffalo population.

The potential of buffalo livestock must be optimized in order to support the achievement of meat self-sufficiency, various efforts must be made immediately to achieve the expected conditions (Eldawy et al., 2021). It is necessary to make a comprehensive development plan, starting from upstream, cultivation and downstream so that an effective strategy is obtained that can spur the development of buffalo livestock. To achieve this starting by looking at the potential of the region in Aceh Province which is the basis for developing buffalo livestock and for the next steps arranged strategies its development (Pratiwi et al., 2024).

Buffalo is one of the livestock that has long been known by the Indonesian people. Buffalo is a native livestock of Indonesia with evidence from molecular genetic research (Solikah & Bramastia, 2024). Buffalo livestock that have developed and spread throughout Indonesia are swamp buffalo (*Bubalus bubalis*) and river buffalo (River buffalo), but buffalo are still raised traditionally (Soliman, 2018) Buffalo has several main roles nationally, namely as a producer of meat that supports the government's program in terms of self-sufficiency in meat other than beef, as working livestock, milk producers, and fertilizer (Khan et al., 2021). In addition, buffalo is an important part of business development to support sustainable livestock development in rural communities. Rahayu et al., (2024) stated that buffalo breeders in Geumpang District, Pidie Regency have a livestock tradition that has been passed down from generation to generation, namely buffalo are kept as a savings and loan business and are kept traditionally with local wisdom.

The buffalo population for Pidie Regency is a superior commodity, but the problem in its development is still very slow and even tends to decrease the buffalo population, namely a decline that occurred from 2017 to 2022 by 4.2%. Floriand et al.,

(2020). said that the buffalo population in Indonesia has decreased every year. This is not only caused by internal factors or the natural characteristics of the buffalo itself, such as silent estrus, long gestation period Brata et al., (2021) This quite worrying rate of decline should be a concern for the local government so that the predicate as a buffalo production center can be maintained further. Efforts to suppress the decline in the local livestock population specifically for the region or (plasma nuffah) which is related to the cultural patterns of the local community require a specific strategy and planning so that it can be more programmed and effective in its implementation.

Geumpang District, Pidie Regency, is one of the areas in Aceh Province that has a fairly large buffalo population. Based on data from the Pidie Regency Central Statistics Agency, in 2023, the buffalo population in Geumpang District reached 517 (BPS Pidie Regency, 2024). This figure shows that Geumpang District has great potential in developing buffalo livestock. However, this potential has not been optimally utilized. Several factors that influence the development of buffalo livestock in Geumpang District include geographical, social, economic, and cultural factors of the local community. Buffalo livestock are large ruminant livestock that are most widely raised by farmers in Indonesia, especially in Geumpang District, Aceh Province. Buffalo livestock are domestic animals that most of their lives are regulated and supervised by humans and are kept for their benefits for human interests. The benefits of buffalo for human life can be classified into economic aspects, plowing rice fields, fulfilling nutrition and socio-cultural (Pratiwi et al., 2024).

Geumpang District has natural conditions that support the development of buffalo farming, this area has extensive land and fertile soil conditions so that it is suitable for livestock grazing areas. In addition, the availability of water is also quite abundant with the presence of large rivers flowing in the area. In terms of social and cultural, the people in Geumpang District have a close relationship with buffalo farming. Buffalo are not only considered as livestock, but also have high cultural value. Buffalo are often used in traditional ceremonies and religious activities, such as at weddings (Souhoka et al., 2020). Therefore, the local community has an emotional attachment to buffalo farming which has become part of their lives. However, in terms of economy, the development of buffalo farming in Geumpang District still faces various obstacles, most of the farmers in this area are small-scale farmers with limited access to capital, technology, and markets (Sari & Arta, 2022; Yusmini et al., 2019). In addition, infrastructure and supporting services such as feed provision, animal health care, and marketing products are also inadequate (Syadsali, S., et al. (2021).

The existence of the region and the number of buffalo livestock population is expected to be able to supply livestock needs, so it is necessary to analyze the potential of the development area to see whether the region is classified as a basic or non-basic sector so that it can affect the development of buffalo livestock in the sufficiency of meat to meet the market. The basic sector has the potential to be exported outside the region, while non-basic is only sufficient for use in the region itself. According to Rusastra, et al., (2002) what is meant by basic activities are activities of a community whose results, either in the form of goods or services, are intended for export outside the community or are oriented outward, regionally, nationally and internationally. While non-basic activities are community activities whose results, either in the form of goods or services, are intended for the community itself in the economic life area of the community.

The basic sector has the potential to export outside the region, while non-basic is only sufficient for the region itself. According to (Ron Hood, 1998. Economic Analysis: A Location Quotient. Primer. Principal Sun Region Associates, Inc) that what is meant by basic activities are activities of a community whose results, either in the

form of goods or services, are intended for export outside the community or are oriented outward, regionally, nationally and internationally. While non-basic activities are community activities whose results, either in the form of goods or services, are intended for the community itself in the economic life area of the community.

To find out whether the area is a basic or non-basic sector, use the location Question (LQ) method, this method is an initial way to find out the capabilities of a region in a particular activity sector. This technique presents a comparison relative between the capability of a sector in the investigated area with the capability of the same sector in a wider area (Wang et al., 2024).. The Location Quotient (LQ) method aims to identify a superior commodity and determine whether a region is included in a base or non-base.

The sector base area can function for exchange purposes and can be analyzed by looking at the relative comparison of business activities in a region with other wider regions. According to El Debaky et al., (2019) in developing an area, it is necessary to pay attention to the potential and suitability of the agro-ecosystem and the efficiency of resource use.

The advantages of the LQ method include: (1). The LQ method takes into account direct and indirect exports; (2). The LQ method is simple and inexpensive and can be applied to historical data to determine trends (Bappenas RI, 2017). Therefore, an investigation is needed deep identify the potential and constraints in developing buffalo livestock in Geumpang District. In this study, the Location Quotient (LQ) and Growth Share methods will be used to analyze the potential of buffalo livestock in Geumpang District. The LQ method is used to identify the base sector or leading sector in a region, in this case buffalo livestock in Geumpang District (Bendavid-Val, 2021). Meanwhile, the Growth Share method is used to analyze the growth of a sector in a region compared to other regions or wider regions (Diniz & Vieira, 2020)., by using these two methods, it is expected to obtain a clear picture of the potential of buffalo livestock in Geumpang District and the factors that influence its development. The results of this study can be a basis for local governments and related stakeholders to formulate policies and strategies in developing buffalo livestock in Geumpang District so that this potential can be optimized to improve community welfare. In addition, this study is also expected to contribute to the development of science, especially in the fields of animal husbandry and regional economics. By using the LQ and Growth Share methods, this study can provide new insights in analyzing the potential and growth of a sector in a region. The results can be used as a reference for similar research in other regions with different characteristics.

In its implementation, this research will involve various related parties, such as local government, livestock service, research institutions, as well as business actors and local communities. The involvement of various parties is very important to ensure that this research can provide real benefits for the development of buffalo livestock in Geumpang District and its surrounding areas. Thus, this research is expected to provide a significant contribution in efforts to optimize the potential of buffalo livestock in Geumpang District, through a comprehensive approach and involving various related parties, it is hoped that with the results of this research can be a basis for formulating appropriate policies and strategies in developing sustainable buffalo farming and providing a positive impact on improving the welfare of local communities.

METHOD

Research Location

This research will be conducted in Geumpang District, Pidie Regency, Aceh. The location selection is based on the great potential of buffalo farming in this area which has not been fully developed. It start 1 May 2024 until 28 May 2024.

Research Sample

The sample of this study was buffalo farmers in Geumpang District. The sampling technique used was purposive sampling, where the selected farmers were those who had experience in raising buffalo, both traditionally and modernly.

Research Instruments

Questionnaire: Used to collect quantitative data on livestock numbers, productivity, feed, livestock health, and constraints faced.

In-depth Interview: Used to gather qualitative information regarding the experiences of farmers, socio-economic conditions, and their views on the development of buffalo farming in the area.

Observation: Researchers will conduct direct observations on how buffalo are kept, existing facilities, and environmental conditions where the livestock are kept.

Data collection technique

Data is collected through several techniques, including: Interviews, Field observation, and Documentation including data on livestock statistics in the Geumpang District, as well as related regulations or policies.

HASIL DAN PEMBAHASAN

Research result

Based on data obtained from interviews, observations, and statistical analysis, the following are the main findings of this study:

Characteristics of Buffalo Farming in Geumpang

Number of Livestock: In Geumpang District, there are around 500 buffaloes spread across several villages. Most farmers have between 5 and 10 buffaloes per farm.

Maintenance System: Most farmers in Geumpang use a traditional system of raising buffaloes, where the buffaloes are allowed to graze on open pastures. Some farmers have also begun to adopt a semi-intensive system of raising buffaloes with supplementary feeding.

Types of Buffalo: The buffalo farmed in Geumpang are mostly meat buffalo, with a few breeders also using the buffalo to pull plows or other loads.

Livestock Productivity and Health

Meat Production: The average meat production per buffalo in Geumpang reaches 150-200 kg per head per year, depending on the type of feed given. Although meat productivity is relatively good, most farmers reported fluctuations in meat quality, which is influenced by feed and livestock health factors.

Animal Health: Farmers in Geumpang generally do not conduct routine health checks. Several cases of diseases such as worms and mastitis in buffalo were found, although not on a large scale. Lack of access to animal health services is one of the main obstacles in maintaining livestock health.

Feed and Infrastructure

Feed: Most of the feed given to buffaloes is wild grass and other green plants that grow around the farm. However, some farmers have started to develop feed crops such as corn and gamal to improve the quality of feed.

Infrastructure: Livestock infrastructure in Geumpang District is still limited. Roads to farms are often damaged, making it difficult to access livestock distribution. The livestock facilities also vary, with some farmers using semi-modern cages, while others still rely on traditional cages.

Market Demand

Buffalo Meat Demand: The demand for buffalo meat in Geumpang and the surrounding areas is quite high, especially during certain seasons. Buffalo meat is also in demand in the Aceh market in general. However, access to a wider market and distribution of livestock products are still limited, given the constraints of infrastructure and long distances.

Discussion

Based on the research results, there are several factors that influence the potential for developing buffalo farming in Geumpang District:

1. Natural Resource Potential and Local Excellence

Geumpang has great potential in terms of natural resources that support buffalo farming, especially abundant natural feed. The presence of extensive grasslands provides advantages in raising buffalo traditionally. However, to increase productivity, the application of a more modern maintenance system and the provision of additional feed is very necessary.

2. Technology and Management Limitations

Although farmers in Geumpang have experience in raising buffalo, the application of technology in maintenance is still limited. A more organized maintenance system and supporting technology such as more efficient breeding techniques and the use of better quality feed can increase livestock production.

3. Animal Health Challenges

One of the major challenges identified is the lack of access to adequate animal health services. Livestock diseases, although not yet widespread, remain a threat. Therefore, vaccination programs and routine check-ups need to be introduced and encouraged to reduce the risk of disease and improve overall livestock health.

4. Infrastructure and Market Access

Limited access to markets and inadequate infrastructure are obstacles for farmers to market their livestock effectively. Improvement of roads and distribution facilities will greatly assist in facilitating the marketing of livestock products and expanding the market for farmers in Geumpang.

5. Government Policy and Support

Government support is needed to introduce new technologies in livestock farming, as well as provide training and assistance to farmers. In addition, the government's role in improving road infrastructure and facilitating market access will be

very important to increase the competitiveness of buffalo livestock products from Geumpang

CONCLUSSIONS

The potential for buffalo farming in Geumpang District is quite large, but there are still various challenges that need to be overcome, especially related to maintenance technology, livestock health, and market access. Therefore, strategic steps are needed such as improving livestock technology, counseling on livestock health, and improving infrastructure to support the development of buffalo farming in this area. Government support in terms of policies and facilities is also very important to ensure the sustainability and progress of this sector.

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