



PISSN: 2655-4356

Jambura Journal of Animal Science

(Animal Science Department, Faculty of Agriculture, State University of Gorontalo)

<https://ejournal.ung.ac.id/index.php/jjas/index>



e-ISSN: 2855-2280

Research Article

FARMERS' BEHAVIOR IN DEVELOPING LOCAL DUCK FARMING ON THE COAST OF LAKE TONDANO

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Jambura Journal of Animal Science, Volume:6, Issue:2, May.2024

Keywords:

behavior;
farmers;
ducks;
local

Abstract: Duck farming produces technological products such as Day Old Duck (DOD), ducks and eggs which were related to food availability based on food security and independence, as well as improving food quality and safety. The local duck business on the coast of Lake Tondano, Minahasa Regency, North Sulawesi was an activity that has long been carried out to support the family economy. The problem was how far the farmer's behavior was in developing local ducks. The aim of this research was to examine the behavior of duck farmers in an effort to develop local duck. The research method used was a survey method located on the coast of Lake Tondano. The number of respondents was 30 farmers who breed local ducks in rice fields. The data analysis used was descriptive analysis. The research results show that 100% of farmers on the coast of Lake Tondano develop local duck businesses in a traditional and unsustainable manner. Ducks were grazed in rice fields after the rice harvest. The food consumed was small animals including pests and rice plant residues that fall after harvest, plus snails (in the research area called "renga") obtained from Tondano Lake. Farmers moved ducks to other rice fields after the feed in the previous rice field was insufficient. Based on the research results, it was concluded that farmers' behavior had been passed down from generation to generation so that the application of technology was difficult for them to immediately accept. Suggestions require socialization about sustainable local duck business management.

Citation APA Style

Elly F H, Kalangi J K J, Imbar M R, Siahaan R. 2024. Farmers' Behavior in Developing Local Duck Farming on The Coast of Lake Tondano.

Jambura Journal of Animal Science, 6 (1) 109-116

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INTRODUCTION

Ducks in Indonesia were a type of poultry that was commonly developed as a producer of eggs and meat. On the other hand, people were used to consuming duck eggs and meat. The people of North Sulawesi generally like to eat duck meat, but the duck meat sold usually comes from rejected ducks. Duck farming was one of the types of poultry cultivated by farmers in Indonesia which acts as a source of income, opens up employment opportunities and was a source of animal protein from both meat and eggs (Rahman et al., 2019).

Local ducks were one of the poultry commodities that had a role in supporting livestock development on the coast of Lake Tondano, Minahasa Regency, North Sulawesi. This livestock had the opportunity to supply meat and eggs to meet the needs for animal protein from livestock (Elly et al., 2015), and also had a role in creating jobs for rural communities (Matitaputty and Bansi., 2018). Local ducks can be relied on as a source of income (Kusumayana and Nafisah, 2017). Several studies show that the level of community income related to animal husbandry was not yet fully sufficient to meet their daily needs. This condition was because the results of livestock activities cannot be relied on as the main income (Aziz and Kurniawan, 2019).

Ducks were waterfowl so they were suitable for development in rice field agroecosystems. Agroecosystem was an artificial ecosystem within the scope of agriculture such as rice fields, and there were two main components in it, namely living and non-living components. Humans play a role in cultivating the land to plant rice, and also develop livestock such as ducks. In this case, an agroecosystem was an environmental system that was managed directly by humans for the purposes of producing food, fiber and various agricultural products.

Duck farming produces technological products such as DOD, ducks and eggs which were related to food availability based on food security and independence, as well as improving food quality and safety. The development of duck farming businesses in certain areas was carried out at the same time as post-rice harvest, so ducks were neglected. The duck farming system was carried out between planting distances (Gandia et al., 2023). The local duck farming business on the coast of Lake Tondano, Minahasa Regency was an activity that had long been carried out to help the family economy. The duck farming business was carried out traditionally in the sense that the ducks were moved from one paddy field to another. The problem was the extent to which farmers' behavior in developing local duck businesses. The aim of this research was to examine the behavior of farmers in developing local duck businesses on the coast of Lake Tondano.

MATERIAL AND METHOD

The research method used was a survey method carried out in North Sulawesi, Minahasa Regency located on the coast of Lake Tondano. The data collected was primary and secondary data. The data collection technique was interviews and direct observation of duck farmers. The location was determined using purposive sampling, namely South Tondano District, considering that the district was on the coast of Lake Tondano and had duck farmers. The sample villages were determined using purposive sampling, namely Tataaran, Koya and Tonsaru Villages, with the consideration that these villages had farmers who develop integrated ducks and rice. The number of respondents was 30 duck farmers who integrated local ducks in their rice fields. The data analysis used was descriptive analysis. Descriptive analysis was carried out with the aim of describing a situation or phenomenon that occurs using scientific procedures to answer actual problems. The descriptive method studies problems in farming communities and certain situations, including relationships, activities related to duck farmer behavior and the influences on a phenomenon (Bungin, 2015).

RESULT AND DISCUSSIONS

Ducks had the potential to be developed in Minahasa Regency, especially in the coastal area of Lake Tondano. The potential for development can be seen from the area of rice fields and the population of ducks on the coast of Lake Tondano. There were 5 (five) districts on the coast of Lake Tondano, namely Remboken, South Tondano, West Kakas, Langowan and West Tondano Districts. The area of rice fields for each district was presented in Figure 1.

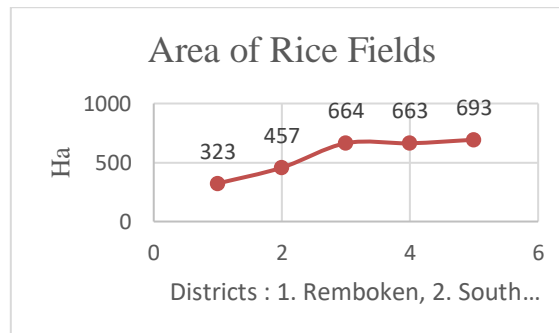


Figure 1. Area of Rice Fields in Five Districts, Coast of Lake Tondano

Based on Figure 1, it shows that the largest area of rice fields on the Lake Tondano Coast was West Tondano (693 Ha or 24.75%). This area of rice fields supports the development of duck farming. Duck population data in five districts on the coast of Lake Tondano was presented in Figure 2.

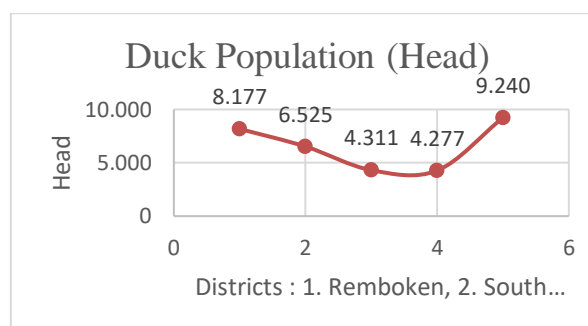


Figure 2. Local Duck Population in Five Districts, Lake Tondano Coast

The data in Figure 2 shows that the largest duck population was in West Tondano District (9,240 head or 28.40%). Ducks were grazed in rice fields that had been harvested (Figure 3).



Figure 3. Ducks grazed in rice fields

Figure 3 shows ducks grazing in rice fields after harvest. The results of the research show that 100% of farmers breed local ducks in a traditional and unsustainable way, mostly releasing them or grazing them in rice fields after the harvest. This condition agrees with several researchers, who state that local ducks were developed by farmers using traditional methods. Several researchers state that the duck business was still categorized as traditional based on the condition of the duck business released in rice fields (Mangisah and Sukamto, 2016). Farmers herding their ducks in the rice fields results in the ducks not being looked after and having difficulty getting food, as well as disturbing farmers in the fields. This causes a decrease in duck

egg production. The ducks consume rice remains/waste that fall out during harvest and animals found in the rice fields (Figure 4).



Figure 4. Leftover Rice That Had Fallen Out in the Rice Fields as Duck Feed

The food consumed was small animals including pests and rice plant residues that fall after harvest (Figure 4), supplemented with snails (in the research area called "renga") obtained from Lake Tondano. Before being grazed, ducks were given "renga" food, but some farmers give them "renga" in the afternoon before the ducks were penned (Figure 5).



Figure 5. Giving "Renga"

The results showed that the ducks were herded into the pen in the afternoon. The cage for ducks was built simply. The poles use bamboo or beams and were lined with roofing sheet to function as walls and covered with netting. The location of the cage was in the middle of a rice field used for grazing ducks (Figure 6).



Figure 6. Duck cage

Figure 6 shows that the ducks were in the cage all night, and the cage was made without a roof. Such cage conditions can affect the productivity of ducks. Duck cages were built in such a way that they were easy to move. Farmers move ducks to other rice fields after there was insufficient feed. This activity was carried out by farmers even to locations far from where they live. The locations of the rice fields occupied by farmers were in other villages, districts and even in other regency. The location chosen was the location of the rice fields after harvest. Farmers will also make tents as a place to live while in the rice fields (Figure 7).



Figure 7. The farmer's Hut was Close to the Duck Cage

Duck farmers on the coast of Lake Tondano were generally native residents and live in districts and villages on the coast of the lake. Some duck farmers still had large areas of land for yards or rice fields. This land was privately owned and passed down from generation to generation, inherited from parents, or the results of buying and selling. Other duck farmers do not own land, but had developed duck farming businesses for generations. Duck farming on the coast of Lake Tondano was germplasm that had been developed by farmers for generations.

Farmers from the start planned to use the land they owned to develop duck farming. The development of ducks tends to be a type of laying duck to meet consumer demand. On the other hand, growing consumer needs had an impact on increasing demand for duck meat. Especially the people of Minahasa Regency and North Sulawesi in general.

Local duck business on the coast of Lake Tondano, Minahasa Regency was an activity that had long been carried out to help the family economy (Polakitan et al., 2015). However, in general, farmers still use traditional rearing systems, not yet commercially oriented (Budi et al., 2015; Thermolen et al., 2016). This had become a habit which was the local wisdom of farmers on the coast of Lake Tondano. The productivity of laying ducks in cages was higher than the productivity of grazing ducks because the quality of the feed provided was better (Imawan et al., 2016). The advantage of developing ducks in rice fields was that in this case the ducks function as fertilizer, pesticide, herbicide and energy for weeding rice. On the other hand, ducks get a shelter area, even though the conversion of agricultural land had an impact on the narrowing of the shelter area (Indreswari et al., 2014). The rapid increase in population causes agricultural land ownership to become increasingly narrow, on average less than 0.5 Ha (BPS, 2020). This condition causes land use for farming development to become smaller, which had an impact on farmers' income. Alternative businesses were really needed by farmers in order to improve their welfare, one of which was local ducks (Satrio et al., 2015), which was recommended, namely the INTIP system.

Duck farmers in the research area to use rice fields ask permission from the rice field owners. This condition shows that the land used for grazing ducks was on borrow. Based on several studies, it shows that there was conflict between duck farmers and rice field owners. This was because farmers do not ask for permission to graze their ducks in the rice fields (Afrinalsari and Susilawati, 2020). Farmers' motivation should be encouraged to improve welfare through improving behavior in running a business (Indayani et al., 2021).

CONCLUSION

Based on the research results, it can be concluded that farmers' behavior had been passed down from generation to generation so that the application of technology was difficult for them to immediately accept. Suggestions require socialization about sustainable local duck business management.

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