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SOCIAL ECONOMIC CONDITIONS OF THE COMMUNITY AND THE ENTREPRENEURSHIP OF SHEEP MANURE AS ORGANIC FERTILIZER ON CORN WASTE PRODUCTION IN KISAR ISLAND

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ABSTRACT

The agricultural sector in Indonesia is famous for its abundant natural products and soil fertility. The agricultural sector provides the largest contribution as a supporter of food security. The socio-economic condition of the community is one of the determining factors in supporting the agricultural sector. Sheep is one of the potential animal natural resources cultivated by the people on Kisar Island. Breeders are expected to always be able to improve their knowledge in carrying out various business activities, especially in utilizing the production of sheep dung to be used as organic fertilizer for plants. The purpose of this study was to determine the socioeconomic conditions of farmers, to determine the production of maize using sheep dung, to determine the relationship between the use of sheep dung and maize production on Kisar Island, and to determine the relationship between maize waste feed consumption and sheep productivity on Kisar Island. The results showed that sheep farmers on Kisar Island had low bargaining power, limited capital, and information, but the social conditions of the community in a participatory manner were very good in livestock business activities in the area. Sheep farmers on Kisar Island are always in a low bargaining position in marketing their products, due to capital constraints, long distances from marketing locations, lack of accurate information and pressure on family needs. corn production of 2.98 tons/ha/year. The relationship between the utilization of manure and production shows a non-significant relationship ($P>0.05$) where the use of sheep manure has not contributed significantly to the growth and production of maize, Consumption of corn waste feed with sheep productivity on Kisar Island showed a very significant relationship ($P < 0.01$) with the contribution of straw waste feed consumption to sheep productivity of 83.70%.

INTRODUCTION

The agricultural sector in Indonesia is famous for its abundant natural products and soil fertility. The agricultural sector provides the largest contribution as a supporter of food security. Agriculture is one of the most basic activities for humans. To grow and develop agriculture, the government and investors as entrepreneurs have long introduced organic fertilizers to farmers. This is done so that farmers use quality fertilizers on plants, in order to increase high-quality yields and produce healthy plants, which are free from chemicals. With these conditions, it is possible to have an opportunity to cultivate organic fertilizers as a form of utilizing the natural resources in the vicinity in order to meet the needs of agricultural production facilities which continue to increase every year.

Utilization of sheep dung as organic fertilizer can increase plant growth and production that can provide socio-economic value for the community. The social value obtained by the community is in the form of social and economic institutions operating in the countryside. While the economic value leads to an increase in income and community welfare. The results of Ahsani Taqwiem's research (2016) show that the use of food waste for

organic rice farming in Pandem Village, Junrejo District, Batu City can provide economic value both directly and indirectly which is characterized by increased production and community income. Utilization of food waste can be processed to produce high-quality forage feed for fattening animals, because it can produce high protein content and has low digestibility. According to (St-Pierre, 2003) said that the sheep in the starter period with a body weight (BB) of 10 Kg with a PBB of 200g/head/day needed feed with a PK content of 25.49% and a TDN of 80%. Research result (Imani et al., 2018) shows that not all organic farming systems are in accordance with the expected conditions.

Data shows that sheep meat production for the 2018-2021 period has decreased and only in 2021 experienced a slight increase of 3.09%, which is detailed as follows; in 2018 production reached 82.27 thousand tons, decreased to 70.07 thousand tons in 2019, fell again in 2020 to 54.19 thousand tons. Meanwhile, in 2021 it will only increase by 55.86 thousand tons (Zainal, 2022). This condition certainly affects the social and economic conditions of the community.

Kisar Island is one of the areas in Southwest Maluku Regency which has the potential of local genetic resources such as Kisar sheep and corn plants as the staple food of the people in the area. The integration of the kisar sheep and corn business as a mutually beneficial system can be utilized to increase the potential of livestock and corn in the region, so that their exploitation can provide social and economic benefits for the community. However, until now the two potentials have not been maximized. Based on the problems above, the objectives of this research are; knowing the socio-economic conditions, knowing corn production using sheep dung, knowing the relationship between the use of sheep dung and corn production on Kisar Island, and knowing the relationship between corn waste feed consumption and sheep productivity on Kisar Island.

METHOD RESEARCH

Research Location and Time

This research activity was carried out on Kisar Island, Southwest Maluku Regency, Maluku Province with the consideration that the area is endemic to Kisar sheep and corn plants as staple food. This research was conducted in July 2022.

Population and Sampling

Population is a generalization area consisting of: objects/subjects that have certain qualities and characteristics determined by the researcher to be studied and then draw conclusions (Sugiyono, 2021). Population is the totality of each element to be studied that has the same characteristics, it can be individuals from a group, event, or something to be studied. (Handayani et al., 2020). Table 1 illustrates that the study population.

Table 1
Potential of livestock and corn in several villages on Kisar Island

No	Village	Number of Respondents
1.	Yawuru	2 person
2.	Purpura	4 person
3.	Nomaha	3 person
4.	Lebelau	3 person
5.	Oirata Barat	6 person
6.	Oirata Timur	7 person
	Amount	25 person

Source: Kisar Sub-district Office

Based on the table above, the research population is 25 people who directly carry out sheep farming activities and carry out corn planting activities. Thus, the sample determined in this study was 25 people who were determined by saturated/census sampling. According to (P. Sugiyono, 2019), Saturated sampling or census is a sampling technique when all members of the population are used as samples.

Data source

The data collected is divided into primary data and secondary data. Primary data were obtained through direct observation/measurement in the field or through structured interviews using a questionnaire.

Secondary data is obtained from relevant agencies as well as the results of previous studies that are relevant to the research topic being carried out.

Data collection

According to (D. Sugiyono, 2013), "There are two main things that affect the quality of research data, namely the quality of research instruments, and the quality of data collection. In research, besides requiring the right method, it is also necessary to choose relevant techniques and data collection so that the results of the research are objective. According to (Zuriah, 2012) *in* (Puttileihalat et al., 2018) states, "The use of appropriate data collection techniques and tools enables objective data to be obtained". According to (Bungin, 2011), "The data collection method is part of the data collection instrument that determines the success or failure of a study." Therefore, the data collection techniques used must be in accordance with the nature and characteristics of the research conducted or based on the approach used.

The tools and materials needed in this study are: Hanging scales with a capacity of 100 kg. Scales sitting capacity of 5 kg, Roller meter capacity of 100 meters. Sheep dung bag. Questionnaire. Stationery.

Data analysis

Data analysis can be done with several topics as follows:

Corn Crop Waste Production

To calculate the production of corn crop waste, the following method is used:

a. Sampling was carried out on corn plants that were or were ready to be harvested.
b. Sampling for corn plants was carried out using 5 x 5 m2. tiles (Mirella, 2022)
c. Setelah dipotong, ditimbang dan dijemur untuk mengetahui rata-rata berat kering limbah jagung per m^2.

Analysis of the Contribution of Sheep Manure as Organic Fertilizer to Corn Waste Production

Knowing the contribution of using sheep dung as organic fertilizer to corn production, simple regression analysis was used according to the instructions (Gujarati, 1995) as follows:

$$y = \beta_0 + \beta_1 X + \varepsilon$$

where y is maize production (tonnes/ha), X is the amount of sheep manure used as organic fertilizer (kg/ha) and 0 - 1 is the regression coefficient.

Analysis of Corn Waste Contribution as Sheep Feed

To determine the contribution of the use of corn waste as sheep feed to the productivity of sheep, regression analysis was used according to the instructions (Gujarati, 1995) as follows:

$$y = \beta_0 + \beta_1 X + \varepsilon$$

where y is livestock development (head), X is the amount of corn waste used (kg/head) and 0 - 1 is the regression coefficient. The development of livestock is obtained from the number of final livestock minus the initial livestock in the last year. The final number of livestock includes the current number of livestock, the number of livestock that died, the number of livestock consumed and the number of livestock sold.

RESULT AND DISCUSSION

Socio-Economic Conditions of Farmers on Kisar Island

The land for livestock and farming on Kisar Island is located around the residential area of the community. Local wisdom possessed by the community can be used as a solution in overcoming various existing obstacles.

Local wisdom in agriculture is a complete knowledge that develops in certain cultures or ethnic groups, to fulfill their subsistence needs in accordance with existing environmental conditions (Pawluk et al., 1992) in (Wahono, 2001). Local wisdom is a livelihood activity and experience gained from generation to generation in the process of interacting with the environment specifically to understand the livestock system in the area.

Sheep is one of the potential animal natural resources cultivated by the local community. Sheep are endemic to the region and are often used in local traditional ceremonies. Togetherness and cooperation between the community is also very high in maintaining and preserving the potential of sheep.

In addition to social conditions, the economic condition of the community is also helped by the business of sheep farming. Even though the farmer has a high economic motive, it has no significant effect on determining the selling price of sheep. This is because sheep farmers on Kisar Island are always in a low bargaining position in marketing their products. Limited capital, long distance from marketing locations, lack of accurate information and pressure on family needs.

Potential of Sheep Manure as Organic Fertilizer

In Kisar Island, the use of sheep dung on corn plants has been carried out for a long time in maintaining soil fertility and corn production. This local wisdom is carried out because the staple food of the people on Kisar Island is corn and to overcome the shortage of animal feed during the long dry season. The potential availability and use of sewage in Kisar Island can be seen in Table 1.

Tabel 1
Analisis Potensi Kotoran Domba Di Pulau Kisar

Description of Potential Sheep Manure	Amount	Mean Value ± Standard Deviation
Number of respondent's livestock (tails)	629,00	25,16 ± 24,37
Fresh availability of manure (kg/head/day)	344,69	13,79 ± 13,36
Prediction of Sheep Manure Availability		
Kisar Island sheep population	**5.540 ekor**	
Fresh Availability of Kisar Island Manure	13,79 x 5.540 = 76.396,6 kg/hari = 76,3966 ton/hari	
Availability of Kisar Island Manure BK	42% x 76,3966 = 32,0866 ton/hari	

Availability of Kisar Island Manure BK	365 x 32,0866 = **11.711,609 ton/year**
BK Manure production of 1 sheep in a year	11.711,609 : 5.540 = **2,11 ton/ tail/year**
Use of Sheep Manure as Organic Fertilizer	
Use of Manure for 2 Planting Seasons	7,168,00 Ton/ha/year
Kisar Island Corn Area	52 Ha
Sheep Manure Needs Used	52 x 7,168 = 372,736 Ton/year
Advantages of Unused Sheep Manure	11.338,873 Ton/year

Source: Primary Data, 2022

Potential of Corn Waste as Animal Feed

The results of the analysis of corn production at the farmer level show that the average corn production is 2.98 tons/ha/year. With the corn harvested area on Kisar Island of 44.2 ha, the total corn production on Kisar Island is 131,716 tons/ha/year for 2 (two) growing seasons.

Furthermore, from 44.2 ha of corn harvested area in Pula Kisar, it was found that the availability of fresh corn waste was 555,771 tons/year for 2 (two) planting seasons. While in the form of dry matter (BK) for the same harvested area, the availability of corn waste is 111.142 tons Bk/year or 2,514 tons BK/ha/year.

Based on his research (Wahono, 2001) that the corn production range is 15.275 tons/ha/year, and (Rahman & Maarif, 2014). Said that other potentials that can be utilized from corn plants are leaves and corn stover as animal feed, especially for dry season supplies. Corn plant waste from leaves under the cob and trimmings above the cob is 5.56 tons/ha. This shows that maize production in Kisar Island is very low. This can be caused by several factors, namely environmental conditions, planting methods in Pilau Kisar, and others.

Relationship between Sheep Manure Use and Corn Production on Kisar Island

The results of the analysis of the relationship between the utilization of manure and production showed a non-significant relationship (P>0.05) where the use of sheep manure did not contribute significantly to the growth and production of maize. So far, the utilization of sheep dung as organic fertilizer is 7.168 tons/ha/year for 2 (two) growing seasons, which is very low compared to normal needs, which is 15-20 tons/ha/year.

Relationship between corn waste feed consumption and sheep productivity in Kisar Island.

The results show the number of sheep that can utilize corn waste as animal feed on Kisar Island. The results of the analysis showed that an adult sheep can consume about 0.6 kg/head/day (20% of body weight) corn straw waste, so that the total consumption of corn straw in one year with two growing seasons is 0.219 tons/head/year. Thus, for BK corn waste of 111.142 tons/year can meet about 507 adult sheep in a year.

The results of the analysis of the relationship between corn waste feed consumption and sheep productivity in Kisar Island showed a very significant relationship (P < 0.01) with the contribution of straw waste feed consumption to sheep productivity of 83.70%. These results indicate that feed plays an important role in livestock growth which has an impact on livestock development productivity. In a livestock business, feed contributes about 70-80 percent of livestock productivity (Reksohadiprodjo & Brodjonegoro, 1997).

Thus the use of corn straw is very important as animal feed, especially during the long dry season when there is a shortage of grass. Utilization of corn plant waste feed can be used in fresh form, or in preserved form in the form of silage.

CONCLUSION

Sheep farmers on Kisar Island are always in a low bargaining position in marketing their products, due to capital constraints, long distances from marketing locations, lack of accurate information and pressure from family needs.

The results of the analysis of corn production at the farmer level show that the average corn production is 2.98 tons/ha/year.

The relationship between the use of manure and production showed a non-significant relationship (P>0.05) where the use of sheep manure did not contribute significantly to the growth and production of maize.

Corn waste feed consumption and sheep productivity in Kisar Island showed a very significant relationship (P < 0.01) with the contribution of straw waste feed consumption to sheep productivity of 83.70%.

REFERENCES

Bungin, B. (2011). Masyarakat Indonesia Kontemporer dalam Pusaran Komunikasi. *Jurnal ASPIKOM*, *1*(2), 125–136.

Gujarati, D. (1995). Ekonometri Dasar Terjemahan. *Jakarta: Penerbit Erlangga*.

Handayani, D., Hadi, D. R., Isbaniah, F., Burhan, E., & Agustin, H. (2020). Corona virus disease 2019. *Jurnal Respirologi Indonesia*, *40*(2), 119–129.

Imani, F., Charina, A., Karyani, T., & Mukti, G. W. (2018). Penerapan sistem pertanian organik di kelompok tani mekar tani jaya Desa Cibodas Kabupaten Bandung Barat. *Mimbar Agribisnis: Jurnal Pemikiran Masyarakat Ilmiah Berwawasan Agribisnis*, *4*(2), 139–152.

Mirella, A. A. (2022). *Estimasi Ripitabilitas dan Most Probable Producing Ability (MPPA) Induk Domba Sapudi Berdasarkan Berat Lahir dan Berat Sapih*.

Pawluk, R. R., Sandor, J. A., & Tabor, J. A. (1992). The role of indigenous soil knowledge in agricultural development. *Journal of Soil and Water Conservation*, *47*(4), 298–302.

Puttileihalat, P. M., Sukesi, K., & Cahyono, E. D. (2018). *The Role of Actors in Determining Pattern of Communication Network of Eucalyptus Oil Processor Farmers (Case Study in Waisala District, West Seram Regency, Maluku Province)*.

Rahman, R., & Maarif, S. (2014). Pengaruh penggunaan metode discovery terhadap kemampuan analogi matematis siswa SMK Al-Ikhsan Pamarican Kabupaten Ciamis Jawa Barat. *Infinity Journal*, *3*(1), 33–58.

Reksohadiprodjo, S., & Brodjonegoro, A. B. P. (1997). *Ekonomi Lingkungan: Suatu Pengantar*. BPFE Yogyakarta.

St-Pierre, N. R. (2003). Reassessment of biases in predicted nitrogen flows to the duodenum by NRC 2001. *Journal of Dairy Science*, *86*(1), 344–350.

Sugiyono. (2021). *Metode Penelitian Kualitatif. 4th ed*. CV Alfabeta.

Sugiyono, D. (2013). *Metode penelitian pendidikan pendekatan kuantitatif, kualitatif dan R&D*.

Sugiyono, P. (2019). Metode Penelitian Kuantitatif Kualitatif dan R&D (D. Sutopo. S. Pd, MT, Ir. *Bandung: Alfabeta*.

Wahono, F. X. (2001). *Kapitalisme Pendidikan: Antara Kompetisi dan Keadilan*. INSIST

Press, Cindelaras bekerjasama dengan Pustaka Pelajar.

Zainal, M. A. (2022). *Karakteristik Dan Preferensi Konsumen Dalam Pembelian Daging Broiler Di Kabupaten Jember*. Politeknik Negeri Jember.

Zuriah, N. (2012). Kajian etnopedagogi pendidikan kewarganegaraan sebagai wahana pendidikanbudaya dan karakter bangsa di perguruan tinggi muhammadiyah kota Malang. *Jurnal Humanity*, *8*(1).