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# THE RELATIONSHIP BETWEEN FARMER'S CHARACTERISTICS AND INSTITUTIONS ON THE SUSTAINABILITY OF PASUNDAN CATTLE BUSINESS IN PURWAKARTA REGENCY

(Case in the Tegal Saluyu Group 1 and 2 of Tegalsari Village, Tegalwaru District, Purwakarta Regency)

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#### **Abstract**

The research was carried out in October 2022, located in Tegalsari Village, Tegalwaru District, Purwakarta Regency. This study aims to determine the farmer characteristics, institutions, and their relationship with cattle business sustainability. This research used the case study method. It was conducted on 34 respondents by interview using a questionnaire. The determination of the number of respondents using the Slovin formula with a 5% margin of error. The collected data were analyzed using validity and reliability test, cross-tabulation, and Rank Spearman correlation analysis. The results indicate the condition of the characteristics of farmers, institutions, and the ideal sustainability of the Pasundan cattle business, as well as a positive and significant relationship between the characteristics of farmers and institutions on the sustainability of the Pasundan cattle business.

Keywords: Business Sustainability, Farmer Characteristics, Institutional, Pasundan Cattle

# HUBUNGAN KARAKTERISTIK PETERNAK DAN KELEMBAGAAN TERHADAP KEBERLANJUTAN USAHA SAPI PASUNDAN DI KABUPATEN PURWAKARTA

(Kasus pada Kelompok Tegal Saluyu 1 dan 2 Desa Tegalsari, Kecamatan Tegalwaru, Kabupaten Purwakarta)

#### Abstrak

Penelitian dilaksanakan pada Bulan Oktober 2022, bertempat di Desa Tegalsari, Kecamatan Tegalwaru, Kabupaten Purwakarta. Penelitian ini bertujuan untuk mengetahui karakteristik peternak dan kelembagaan serta hubungannya dengan keberlanjutan usaha. Metode penelitian ini adalah studi kasus yang dilakukan terhadap 34 responden dengan teknik wawancara menggunakan kuesioner. Penentuan jumlah responden menggunakan rumus Slovin dengan batas toleransi 5%. Selanjutnya data yang terkumpul dianalisis dengan uji validitas dan reliabilitas, tabulasi silang, dan analisis korelasi Rank Spearman. Hasil penelitian menunjukkan keadaan karakteristik peternak, kelembagaan, dan keberlanjutan usaha ternak Sapi Pasundan yang ideal, serta hubungan yang positif dan signifikan antara karakteristik peternak dan kelembagaan terhadap keberlanjutan usaha Sapi Pasundan.

Kata kunci: Karakteristik Peternak, Keberlanjutan Usaha, Kelembagaan, Sapi Pasundan

#### INTRODUCTION

Livestock is one of the sub-sectors in agriculture. Like agriculture, animal husbandry can support the community's economy as a source of livelihood. The demand for livestock products continues to increase, along with public awareness to obtain the benefits from livestock products. Livestock products are a source of animal protein to meet the community's food needs.

One livestock product with a high animal protein content is beef. Beef consumption in developing countries like Indonesia tends to increase yearly (Thornton, 2010; Widi, et al, 2018). Based on livestock census data, beef production in Indonesia i2017-2019 increased from 48.3 tons to 50.5 tons of meat (BPS, 2022). Although beef production has increased, the population of beef cattle in some areas has decreased due to technical and non-technical problems (Paly, 2013; Ariningsih, 2014;

Nuhung, 2015). In the West Java region, the beef cattle population decreased in 2015-2019 from 425,826 heads to 412,121 heads (BPS, 2022). There is a discrepancy between the demand and supply of beef in West Java.

Purwakarta Regency is one of the areas in West Java Province that is developing a beef cattle business. Purwakarta Regency is the population base for conserving Livestock Genetic Resources (AnGR). Tegalsari Village is one of the locations for the Pasundan cattle business development, which is located in Tegalwaru District, Purwakarta Regency. The people who run the Pasundan cattle business in Tegalsari Village are members of a cattle group called the Tegal Saluyu Group 1 and 2. The group comprises 50 breeders, with the number of livestocks owned by each member <10 (less than 10), but the total number is the highest in Purwakarta Regency.

As farmers in one of the Pasundan cattle business development areas, Tegal Saluyu 1 and 2 Group members are facing a problem: not being able to manage a professional livestock business because they are used to treating cattle farming as a side job. Most farmers have their main job as farmers and traders, so farmers find it difficult to manage time, energy, capital, and thoughts in running the Pasundan cattle business. These problems have resulted in many farmers being reluctant to continue their livestock business because they think it does not provide optimal profits and good financial guarantees compared to their main job.

Farmers have their attitudes and behaviors in running their livestock business. Positive attitudes and behavior are very influential in the business sustainability undertaken by farmers. As a homogeneous society that runs businesses in the agricultural sector, Tegal Saluyu 1 and 2 group members certainly have specific characteristics that influence their attitudes and behavior in running a business and dealing with rising problems. These characteristics affect the livestock business sustainability level. Therefore it is necessary to evaluate the farmer's habits in their livestock business activities.

In addition to the farmer characteristics, the institutional aspect is an important element in achieving business sustainability. Institutions regulate the relationship between farmer members and related parties inside and outside the livestock group. So, an effective and efficient approach to cooperating with these

parties is necessary. The rules in the institution of a livestock group consist of formal rules (for example, laws and constitutions) and informal rules (for example, customs, norms, and evaluation systems). The problems in the members of the Tegal Saluyu 1 and 2 groups were allegedly related to the ineffective institutional rules of the group.

Based on the condition above, it is necessary to research the condition of farmer characteristics, institutions, and business continuity, as well as the relationship between breeder characteristics and institutions on the sustainability of the Pasundan cattle business in Tegalwaru District, Purwakarta Regency.

#### MATERIALS AND METHODS

#### **Object of Research:**

Objects observed in this study were the characteristics of breeders, institutions, and business continuity of Pasundan cattle.

#### **Research Methods**

The research method used in this study was the case study method. According to Mulyana (2010), a case study is a research method that explains and describes various aspects of an individual, group, or organization. This research was conducted to explain and describe the characteristics of farmers and institutions and their relationship to business sustainability, obtained from interviews using a question questionnaire on Pasundan cattle breeders.

#### **Location and Time of Research**

The research location was Tegal Saluyu Group 1 and 2 of Tegalsari Village, Tegalwaru District, Purwakarta Regency. This research was carried out in October 2022.

The research location was determined purposively in Tegalsari Village, Tegalwaru District, Purwakarta Regency, with the following considerations:

- 1. Tegalsari Village was one of the locations with Pasundan cattle population spread, especially the Tegal Saluyu 1 group, which was a group of Pasundan cattle farmers with a high population number in Purwakarta Regency.
- Tegalsari Village was an area that ran its livestock business by maintaining the purity of Pasundan cattle. Farmers in Tegalsari

Village used natural mating and artificial insemination (only using Pasundan cow's sperm) for their livestock production.

3. Based on survey data from the field, 50 farmer members were members of the Tegal Saluyu Group 1 and 2, which was stated by the head and group administrators.

## **Research Subject**

The subjects in this study were members of the Tegal Saluyu 1 and 2 Tegalsari Village Group. The total number of farmers in these groups was 50, with 34 members selected as respondents. The sample size was determined using the Slovin formula with a 5% margin of error. The formula used is as follows:

$$n = N / (1 + Ne^2)$$

#### **Description:**

n = Sample Size

N = Population Size

e = Error Tolerance (Margin of Error)

# **Data Collection Methods and Data Analysis Methods**

The data used in this study, namely primary and secondary data. Primary data in this study regarding the characteristics of breeders, institutions, and business continuity of Pasundan cattle.

### **Data Quality Test**

In carrying out data quality tests, there were two procedures, namely:

1. Validity test

The validity test used in this study is Pearson's Product Moment with the following formula:

$$r_{xy} = \frac{N(\sum XY) - \sum X \sum Y}{\sqrt{[N\sum X^2 - (\sum X)^2] \cdot [N\sum Y^2 - (\sum Y)^2]}}$$

#### **Description:**

r<sub>xv</sub> = correlation coefficient

N = number of respondents

X = question score for each number

Y = total score of questions

The results of the calculations  $(r_{xy})$  were then compared with the  $r_{tables}$  for each question. If  $r_{xy} > r_{table}$ , then the question was said to be valid.

#### 2. Reliability Test

Calculation was done using the Cronbach Alpha formula as follows:

$$R=\alpha = R = \frac{N}{N-1} \left( \frac{S^2(1-\sum S_i^2)}{S^2} \right)$$

#### **Description:**

α = Cronbach's Alpha reliability coefficient

 $S^2$  = variance of the overall score

 $S_i^2$  = variant of each question

The results of calculations using the Cronbach Alpha formula were said to be reliable if the Cronbach Alpha is > 0.60.

#### **Cross-Tabulation**

According to Santoso and Tjiptono (2001), cross-tabulation analysis presents data in tabular form, namely rows, and columns. Cross-tabulation can make it easier for researchers to identify the relationship between the variables studied because the results are easy to present. One characteristic of using crosstab data is that the data used for input is nominal or ordinal (Sarwono, 2009). So that the resulting output data can be explained descriptively.

## **Spearman Rank Correlation Test**

Rank Spearman correlation was used to test associative correlation if each variable is connected in ordinal form. The formula used to measure the relationship or correlation between farmer characteristics and the sustainability of the Pasundan cattle business in Purwakarta Regency was as follows:

$$r_{s} = 1 - \frac{6\sum d_{i}^{2}}{n(n^{2} - 1)}$$

#### **Description:**

s = Spearman correlation coefficient

d<sub>i</sub> = difference in rank between data pairs

n = the number of data pairs

Correlation criteria used in this study was as shown in Table 1:

Table 1. Spearman Rank Correlation Criteria

Coefficient Intervals	Relationship Level
0.00 - 0.19	Very low
0.20 - 0.39	Low
0.40 - 0.59	Currently
0.60 - 0.79	Strong
0.80 - 1.00	Very strong

Source: Sugiyono (2002)

#### RESULTS AND DISCUSSION

In this study, the indicators observed were farmer characteristics, institutions, and business sustainability. Regarding farmer characteristics, the indicators observed were: the farmer's age, education level, farming experience, livestock ownership, relationships with other individuals, and relationships with related agencies. On the institutional aspect, the indicators studied were the livestock dealer's role and the credit/business loan institution's role. Meanwhile, the indicators studied in the business sustainability aspect were the farmer's capability as managers, fairness or equity in the business, and the farmer's sustainability.

# 1. Data Quality Test

#### a. Breeder Characteristics

Based on Table 2 & 3, the results were that all question items from the farmer characteristic variables were included in the 'valid' category with a correlation score of >0.729 (critical point). In contrast, the reliability obtained was 0.963 and included in the 'reliable' category (above 0.600).

#### b. Institutional

Institutions in livestock businesses function as partners that connect stakeholders. Yaqin *et al.* (2021) state

that the purpose of livestock business partnerships is to support smallholder livestock farming. Partnerships can also reduce livestock imports (Aman and Haryono, 2021). Results of the institutional variables test indicated that all question items were included in the 'valid' category with a correlation score of >0.582 (critical value). The reliability value obtained was 0.874 and included in the 'reliable' category (above 0.600). The results are shown in Table 4 and 5:

### c. Business Sustainability

Sulaksono *et al.* (2021) state that the sustainability of livestock enterprises is influenced by several important dimensions. Business sustainability in livestock business refers to the capacity of a farm to operate in an environmentally responsible manner, maintain economic viability, and deliver social benefits over the long term.

According to the results of the validity and reliability tests on business sustainability variables, it was found that all question items were included in the 'valid' category with a correlation score of >0.476 (critical value), and 0.910 in reliability, putting it in the 'reliable' category (above 0.600). The results are shown in the table below:

Table 2. Validity Test Results for Farmer Characteristics Variable

Question Item	$\mathbf{r}_{\mathrm{h}}$	rt	Notes
A1	0.951	0.729	Valid
A2	0.915	0.729	Valid
A3	0.900	0.729	Valid
A4	0.933	0.729	Valid
A5	0.926	0.729	Valid
A6	0.816	0.729	Valid

Source: Data Processed from Primary Research, 2022

Table 3. Reliability Test Results for Farmer Characteristics Variable

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.963	.972	6

Source: Data Processed from Primary Research, 2022

Table 4. Validity Test Results for Institutional

<b>Question Item</b>	$\mathbf{r_h}$	$\mathbf{r}_{\mathbf{t}}$	Notes
B1	0.709	0.582	Valid
B2	0.662	0.582	Valid
В3	0.662	0.582	Valid
B4	0.709	0.582	Valid
B5	0.709	0.582	Valid
B6	0.709	0.582	Valid
B7	0.585	0.582	Valid
B8	0.585	0.582	Valid
В9	0.709	0.582	Valid

Source: Data Processed from Primary Research, 2022

Table 5. Reliability Test Results for Institutional

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.874	.916	9

Source: Data Processed from Primary Research, 2022

Table 6. Validity Test Results for Institutional

Question Item	$\mathbf{r}_{\mathrm{h}}$	$\mathbf{r}_{\mathrm{t}}$	Notes
C1	0.697	0.476	Valid
C2	0.640	0.476	Valid
C3	0.640	0.476	Valid
C4	0.697	0.476	Valid
C5	0.697	0.476	Valid
C6	0.697	0.476	Valid
C7	0.642	0.476	Valid
C8	0.642	0.476	Valid
C9	0.697	0.476	Valid
C10	0.697	0.476	Valid
C11	0.642	0.476	Valid
C12	0.585	0.476	Valid
C13	0.709	0.476	Valid

Source: Data Processed from Primary Research, 2022

**Table 7.** Reliability Test Results for Institutional

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.910	.930	13

Source: Data Processed from Primary Research, 2022

#### 2. Descriptive Analysis

Based on the frequency distribution obtained from interviews using questionnaires with respondents, the average percentage value of farmer's characteristic variables was 77% (good), institutional was 72.2% (good), and business sustainability was 78.8% (very good).

#### 3. Cross-Tabulation

By using SPSS 17, processed cross-tabulation data was obtained which described the relationship for the independent variables and the dependent variable, namely Farmer Characteristics  $(X_1)$ , Institutional  $(X_2)$  with Business Sustainability (Y) presented in the following table:

## a. Relationship between Farmer's Characteristics and Business Sustainability

The table above shows the results the cross-tabulation between the characteristics of the farmer and the sustainability of the business. Most of the respondents with good characteristics also have good business sustainability, with 29 respondents (85.3%). It is higher than the characteristics of moderately good farmers with moderate business continuity of 3 respondents (8.8%) and the characteristics of moderate farmers with good business sustainability of 2 respondents (5.9%). Meanwhile, there were no respondents (0 or 0%) for the poor farmer characteristics and poor business sustainability category.

Based on the cross-tabulation of farmer's characteristics and business continuity, it can be concluded that favorable traits significantly contribute to the sustainability of their livestock enterprises. Respondents demonstrating strong management skills and a commitment to long-term success were

more likely to ensure the continuity of their businesses. Indey *et.al.* (2021) state that the development of livestock enterprises depends on the farmer's effort to shift their mindset and enhance their characteristics through the acquisition of practical knowledge related to livestock management.

# b. Relationship between Institutions and Business Sustainability

The table above shows the results of cross-tabulation between institutional variables and business sustainability. The results obtained show that the majority of respondents with a good understanding of institutions have good business sustainability (26 respondents or 76.5%) compared moderate when to understanding of institutions with moderate business sustainability (3 respondents or 8.8%), and moderate institutions with good business sustainability (5 respondents or 14.7%). Meanwhile, no respondents respondents or 0%) were within the poor institutional and poor business sustainability categories.

The conclusion drawn from the cross-tabulation between institutional variables and business sustainability suggests that farmers who possess a strong understanding of institutions are more likely to ensure the continuity of their businesses. This is attributed to the essential role of institutions, which serve as partners for farmers, linking them with relevant stakeholders. Achieving success in a partnership is highly expected by all involved parties, with the goal that each business partner can meet the established objectives and demonstrate improvements over previous conditions, thus ensuring the sustainability and development of the business (Fitroh et al., 2022).

**Table 8.** Cross-Tabulation Test between Variables of Breeder Characteristics and Business Sustainability

			<b>Business Sustainability</b>		- Total
			Moderate	Good	Total
	Madauata	Count	3	2	5
Breeder	Moderate	% of Total	8.8	5.9	14.7
Characteristics	Good	Count	0	29	29
		% of Total	.0	85.3	85.3
Total		Count	3	31	34
		% of Total	8.8	91.2	100.0

Source: Results of Primary Data Processing, 2022

Table 9. Cross-Tabulation Test between Institutional Variables and Business Sustainability

			<b>Business Sustainability</b>		- Total
			Enough Good		Total
	T 1	Count	3	5	8
Institutional —	Enough	% of Total	8.8	14.7	23.5
insutuuonai —	Good	Count	0	26	26
		% of Total	.0	76.5	76.5
Total		Count	3	31	34
		% of Total	8.8	91.2	100.0

Source: Results of Primary Data Processing, 2022

#### 4. Spearman Rank Correlation Test

The correlation values obtained from the Spearman Rank Correlation Test are presented in the following table 10. The calculation results of the *Spearman Rank* correlation coefficient can be explained as follows:

# a. Relationship between Farmer Characteristics and Business Sustainability

The correlation coefficient between farmer characteristics and business sustainability was 0.941, indicating a strong relationship between the two variables. The coefficient of determination (R²) of 88.5% highlights the significant contribution of farmer characteristics to business success. The remaining 11.5% is attributed to external factors beyond the scope of this research. This finding is in line with Wickham (2004) as cited in

Muharastri *et al.* (2015), who states that success in business operations requires the presence of positive characteristics in the entrepreneur.

# b. Institutional Relations with Business Sustainability

The correlation coefficient between institutions and business sustainability was 0.856, indicating a very strong relationship. The coefficient 73.3% determination  $(R^2)$ of demonstrates the significant contribution of institutions to business sustainability, while the remaining 26.7% is influenced by external factors not covered in this study. This finding is consistent with prior research, which highlights that institutional support in livestock farming can reduce business risks and promote business sustainability by improving farmer's access to essential resources.

**Table 10.** Spearman Rank Correlation Test of Research Variables

	<b>Breeder Characteristics</b>	Institutional	<b>Business Sustainability</b>
Breeder Characteristics	1,000	0.753 **	0.941 **
Institutional	0.753 **	1,000	0.856 **
Business Sustainability	0.941 **	0.856 **	1,000

Source: Results of Primary Data Processing, 2022

\*\* = significant (0.05)

#### **CONCLUSION**

The findings of this research are as follows:

#### 1. Farmer Characteristics

The characteristics of Pasundan cattle farmers in Purwakarta Regency were classified as good, with 77.0% of farmers meeting the ideal conditions. This indicates that a majority of farmers possess the necessary skills, knowledge, and resources to manage their cattle farming operations effectively. These characteristics, including the farmer's age, education level, farming livestock experience, ownership, relationships with other individuals, and relationships with related agencies, are critical for the successful management of farming businesses. While the results are generally positive, there may still be opportunities for further improvement through training and capacity-building programs.

#### 2. Institutions

The institutional situation for Pasundan cattle farmers was also rated as good, with 72.2% meeting the ideal conditions. This suggests that institutions supporting the farmers, such as livestock dealers and credit/business loan institutions, generally effective in providing necessary assistance and resources. The role of livestock dealers in facilitating market access and distribution channels, as well as the role of financial institutions offering business loans, are crucial in ensuring the sustainability farming of operations. However, these results also indicate that there are areas where institutional support could be strengthened, such as improving farmer's access to financing and optimizing market linkages to expand the reach of livestock products.

#### 3. Business Sustainability

Regarding business sustainability, the condition of Pasundan cattle farmers was classified as good, with 78.8% meeting the ideal conditions. This demonstrates that most farmers are able to sustain their cattle farming businesses over the long term. Key factors contributing to this sustainability include the farmer's capability as managers, fairness or equity in the business, and the farmer's sustainability. Although the results are promising, external factors such as market fluctuations and environmental challenges could still pose risks to the long-term viability of these businesses.

# 4. Relationship Between Farmer Characteristics, Institutional Support, and Business Sustainability

A positive and significant relationship was found between farmer characteristics, institutional support. and business sustainability. The Spearman Rank correlation coefficient, calculated at the 5% confidence level, yielded values of 0.941 for relationship between farmer characteristics and business sustainability and 0.856 for the relationship between institutional support and business sustainability. These findings highlight the importance of both individual farmer traits and institutional support in ensuring the long-term success of Pasundan cattle farming. The stronger correlation with farmer characteristics suggests that the skills and experience of the farmers have a more direct impact on business continuity, although institutional support plays a significant complementary role.

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