

## Identification of Livestock Development Inhibiting Factors Bali Cattle Transmigration and Local Community in Konawe District

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### Abstract

*Bali cattle are an important component in the life of farmers in addition to farming or other livestock businesses. The advantages of Bali cattle can be used as labor and manure can be used as manure. This study aims to identify the inhibiting factors for the development of Bali cattle for transmigrant and local communities in Konawe Regency from June-August 2021 using a purposive sampling technique so that there are 6 villages as research samples. Each village was taken as many as 10 respondents at simple random so that a total of 60 respondents were obtained. The research results obtained were then analyzed descriptively into percentage values. The results of the analysis show that Konawe Regency in general has prospects and potential for the development of Bali cattle because of the availability of feed, livestock breeds, productive age of breeders, 66.7% male and 33.3% male workers, experience in raising livestock, and relatively livestock marketing easy but the identified inhibiting factors are limited working capital, relatively small land for farmers, relatively low formal education, the use of natural feed is still dominant (55%), livestock diseases, and limited field extension workers.*

### Keywords

barriers; development; bali cattle; konawe



## I. Introduction

The development of the Bali cattle population in Southeast Sulawesi from 2020-2021 shows an increase of 4.44%, namely in 2020 as many as 227,265 heads and in 2021 as many as 237,360 heads (Statistics Agency for Southeast Sulawesi, 2021). Likewise, the population of Bali cattle in Konawe Regency from 2020-2021 also experienced an increase of 3.69%, namely in 2020 as many as 39,458 heads, and in 2021 as many as 40,914 (Konawe Statistics Agency, 2021). The development of the beef cattle population in this area tends to increase from year to year, however, we need to identify what are the supporting factors and inhibiting factors in their maintenance.

Possible inhibiting and supporting factors in the development of the Bali cattle population in Southeast Sulawesi, among others, are due to the availability of feed with relatively low quality because it only supplies feed from natural grass around it without optimal efforts to use superior forage, the maintenance system tends to be traditional, hereditary, the presence of cases of the disease, the family workforce involved, the scale of the business is still relatively small, the market potential as an agribusiness business, the capital, and counseling system that presents the application of cultivation technology and market information.

## **II. Review of Literature**

To equalize the distribution of the population between provinces in Indonesia, the government has implemented a population movement program which is commonly known as the transmigration program. The aim of this program is not only to evenly distribute the population, workforce, opening, and development of new production areas, it is also hoped that it can increase the standard of living of transmigrants and the surrounding community. Transmigrants generally in Southeast Sulawesi from 1995 to 2020 reached 11,138 families and 45,721 people, placed in South Konawe Regency and Konawe Regency (before and after the division) reached 4,473 household heads (40.2%) and 17,032 people (37.3 people). %. These transmigrants included 270 families from West Java (1,019 people), Central Java 229 families (831 people), East Java 496 families (1,356 people), Yogyakarta 64 families (206 people), and Bali 344 people head of the family (1,118 people). Konawe Regency in 2020 after separating from North Konawe Regency totaled 224,345 people consisting of 22 sub-districts, three of which were selected as research locations, namely Tongauna, Pondidaha, and Unaaha Districts.

Transmigrant farmers are quite optimal in utilizing production factors compared to local farmers (Suherman et al., 2021; Sol'uf et al., 2021; Soekardono et al., 2021; Luth, 2021; Firman dan Hadiana, 2021). The government's effort to increase beef cattle productivity is to bring in cattle from Europe (*Bos Taurus*) such as Limousine and Simmental (Nubatonis dan Dethan, 2021; Efendy dan Firdaus, 2021; Almakmum et al., 2021). In the implementation of government politics in the regions, it is not possible to only prioritize one aspect (economics) but it is important to pay attention to other aspects, namely environmental sustainability so that the implementation of green government is very important in supporting environmental sustainability in the political process of government in the regions (Dama, 2021). The Government of the Republic of Indonesia was formed to protect the whole of the Indonesian people (Angelia, 2020). The beef cattle population to achieve meat self-sufficiency is the livestock sub-sector which has the potential as a new source of growth in the agricultural sector, households directly involved in the livestock business continue to grow, the spread of beef cattle production centers in various regions and supports food security and as a source of income, both of which play a role. Improve food availability and accessibility (Marjaya dan Setiawan, 2021; Herdiansah et al., 2021; Hanum et al., 2021). Beef cattle also have an important social function in society apart from their function as a producer of meat, fertilizer, and labor (Haloho dan Saragih, 2021; Haloho dan Tarigan, 2021).

## **III. Research Methods**

The research was carried out in June-August 2021 in Tongauna, Pondidaha, and Unaaha Districts, Konawe Regency, Southeast Sulawesi Province with the research population being Balinese cattle breeders in Tongauna, Pondidaha, and Unaaha Districts, Konawe Regency. The research location was determined by stratified sampling, namely stratifying 9 sub-districts which are transmigrant settlement areas. Each sub-district was taken 2 sample villages that had the largest population of cattle by purposive sampling so that there were 6 villages as research samples with 10 respondents from each village so that a total of 60 respondents were obtained.

The data used in this study are primary data obtained from farmers using direct interview techniques with the help of questionnaires as well as direct observations in the field to observe the characteristics of respondents including age, land area, education level, livestock experience, the labor involved and several livestock ownership (scale business)

as well as maintenance management covering seed sources, feed availability, housing, disease prevention and management and livestock marketing. Furthermore, the data obtained is analyzed and analyzed into percentage values and the data is reviewed descriptively.

## IV. Discussion

### 4.1 Characteristics of Transmigration and Local Farmers

Age is a factor that affects the workability and mindset of farmers in determining the style and pattern of management of livestock business maintenance and other businesses, from 30 transmigrant farmers respondents 73.3% belonged to productive age and 26.7% belonged to unproductive breeders. Local breeders 93.3% are classified as productive age and only 6.7% are classified as unproductive age. This is in line with the statement (Asiz et al., 2021) The age of the workforce can be divided into two groups, namely the productive group (15-54 years) and the non-productive group (age 55 years).

The age of breeders based on the results of the study showed that transmigrant and local breeders were still productive with an average age of 46 and 44 years. This result is by the opinion (Munadi et al., 2021) that the productive age workforce is between 15-54 years. The working ability of transmigrant and local farmers in the research location is very productive, making it possible for the development of livestock business in the future.

The younger the age, the easier it is to accept changes from outside because farmers always want to try something new to increase their knowledge and skills in diversifying their business (Sani, et al., 2021). In general, young and healthy breeders have stronger physical abilities than older breeders (Sani, et al., 2021). The level of education is something that can affect the development of the livestock business. Relatively high education and young age cause farmers to be broader in thinking and dynamic. The level of formal education of respondents in the research location can be seen in Table 1.

**Table 1.** Education Level of Transmigrant and Local Farmers

Level of education	Transmigrant Farmers		Local Breeders		Total	
	Person	%	Person	%	Person	%
SD	16	53,3	5	16,7	21	35
SLTP	8	26,7	9	30	17	28,3
SLTA	6	20	12	40	18	30
PT	0	0	4	13,3	4	6,7
Total	30	100	30	100	60	100

**Source:** Primary Data Processed, 2021

The level of education of farmers in Table 1 shows that local farmers tend to have higher levels of education than transmigrant farmers. 46.7% of local breeders are educated at the elementary–junior high school level, while the senior high school level–university level reaches 53.3%. When compared with transmigrant farmers, they have a lower education level, namely, 80% only have elementary school education-junior high school, while only 20% high school educated breeders and no college.

This shows that the level of education of local farmers is relatively higher than that of transmigrant farmers. However, it is also stated that the high level of education of local farmers is not positively correlated with the pattern of rearing Balinese cattle which is still classified as traditional because it is still an extensive hereditary rearing pattern when compared to transmigrant farmers who have applied a combination of intensive and extensive (semi-intensive) rearing patterns intensive.

Transmigrant farmers have a relatively low level of education but they have a high work motivation to develop a livestock business. Transmigrant farmers also know good farming practices, are quite optimal in utilizing production factors and are open to accepting innovations compared to local farmers. Transmigrant farmers are quite optimal in utilizing their production factors such as work performed on their agricultural land, having work experience, work motivation is quite high in using agricultural technology, cooperative enough to accept innovations (counseling). Meanwhile, local breeders are still influenced by local cultural and environmental factors so they are less open to accepting innovations in their farming business.

The experience of raising livestock is a factor that determines the success of the implementation of a livestock business. This is in line with the knowledge gained during breeding. The longer it takes to raise cattle, the more experienced a farmer will be in managing his livestock business. The experience of raising respondents at the research site can be seen in Table 2.

**Table 2.** Identity of Transmigrant and Local Farmers according to Livestock Experience

Farming Experience	Transmigrant Farmers		Local Breeders		Total	
	Person	%	Person	%	Person	%
0 – 5	3	10	3	10	10	10
6 – 10	18	60	20	66,7	38	63,3
> 10	9	30	7	23,3	16	26,7
Person	30	100	30	100	60	100
Average (year)	9		10		9,5	

**Source:** Primary Data Processed, 2021

Table 2 shows that 70% of transmigrant farmers have experienced between 0-10 years and another 30% have experience of >10 years in raising cattle. When compared to local breeders, 76.7% have 0-10 years of experience and only 23.3% have more than 10 years of experience. The average experience of farming as a whole shows that transmigrant farmers are 10 years longer and local farmers are 9 years on average. This indicates that transmigrant farmers are more experienced than local farmers. Experienced breeders will find it easier to manage their livestock business activities and are more skilled in raising livestock even with relatively low levels of education. The level of experience in raising cattle also has a positive effect on the development of their livestock because the experience of a farmer in raising cattle affects the level of business success.

The family members involved are the accumulation of all available labor in the family, both male and female, ranging in age from 15 years to more than 55 years (productive age to less productive again). With the more number of family members involved, it is hoped that the livestock business will have more potential for development and scale-up of its business. The number of family members involved in raising cattle can be seen in Table 3.

**Table 3.** Family Members of Transmigrant and Local Farmers who Involved in Bali Cattle Breeding

Labor Involved	Transmigrant Farmers		Local Breeders		Total	
	Person	%	Person	%	Person	%
Male	17	56,7	23	76,7	40	66,7
Female	13	43,3	7	23,3	20	33,4
Total	30	100	30	100	60	100

**Source:** Primary Data Processed, 2021

Table 3 shows that the number of family members involved in raising cattle by male transmigrant farmers is 56.7% and female is 43.3%. Meanwhile, male local breeders were 76.7% and female farmers were 23.3%. The results of observations and interviews with transmigrant farmer respondents in raising cattle 43.3% involve women as workers, while the workforce of local breeders is dominated by men, the involvement of women is only 23.3%. This shows that transmigrant farmer families have at least applied their concept in household work to earn additional income and improve family welfare with equal roles between men and women. This situation is different from local farmer families in that the involvement of women in the cattle business involved is still low.

When examined in terms of workforce, local breeders are physically stronger with a productive age of 93.3% and male workers 76.7% than transmigrant farmers, but they are less motivated to develop their businesses and increase the scale of their livestock and women's businesses. wife) prefers to stay at home rather than help her husband take care of the cattle. However, in terms of the role of transmigrant farmers, they are better than local breeders because the togetherness between men and women in raising livestock is quite high, they always take turns in taking care of their livestock. Transmigrant farmers also have high enthusiasm for developing their livestock because they have a long experience of raising livestock so that it is expected to accelerate business development and increase the scale of their livestock business.

The level of cattle ownership by farmers is a very important capital in the development of cattle farming and increasing the income of farmers. Table 4 shows that 80% of transmigrant farmers have a scale of ownership of > 4 heads and 20% have cattle between 1-4 heads. When compared to local breeders, 90% have a scale of ownership of > 4 heads and only 10% have cattle between 1-4 heads. The average scale of ownership as a whole shows that local breeders are higher at 7 and transmigrant farmers are 6 heads. Beef cattle breeders are mostly smallholder businesses with an ownership scale of < 10 heads. This is also in line with the opinion of several experts that the characteristic of smallholder farms in rural areas is that the business scale is still relatively small, between 2-5 individuals. In addition, the scale of smallholder livestock business in rural areas is characterized by livestock ownership ranging from 1-3 heads for each household. The scale of cattle ownership at the study site can be seen in Table 4.

**Table 4.** Bali Cattle Ownership Scale for Transmigrant and Local Breeders

Ownership Scale (Tail)	Transmigrant Farmers		Local Breeders		Total	
	Person	%	Person	%	Person	%
1 - 4	6	20	3	10	9	15
> 4	24	80	27	90	51	85
Total	30	100	30	100	60	100
Average (Tail)	6		7			

**Source:** Primary Data Processed, 2021

Based on the scale of respondent's cattle ownership at the research location when measured in livestock units (ST), local farmers have more cattle than transmigrant farmers. Ownership scale is not only measured in head units but can also be measured in livestock units (ST), provided that adult cattle (> 2 years) = 1 ST, young cattle (1-2 years) = 0.50 ST, and calves (< 1 year) = 0.25 ST. Table 5 shows the scale of cattle ownership when measured in livestock units (LU), 90% of transmigrant farmers have an ownership scale of >3 ST, and 10% have cattle between 1-3 LU. When compared to local breeders, 76.7% have an ownership scale >3 ST and only 23.3% have cattle between 1-3 LU. This shows that in terms of financial investment, transmigrant farmers are superior to local farmers with an average

ownership scale of 5.07 ST each and local farmers an average of 4.79 LU. The scale of ownership of Bali cattle in livestock units at the study site can be seen in Table 5.

**Table 5.** Bali Cattle Ownership Scale Livestock Unit (LU)

Livestock Unit (LU)	Transmigrant Farmers		Local Breeders		Total	
	Person	%	Person	%	Person	%
1 - 3	3	10	7	23,3	10	16,7
> 3	27	90	23	76,7	50	83,3
Jumlah	30	100	30	100	60	100
Rerata (ST)	5,07		4,79			

**Source:** Primary Data Processed, 2021

The area of land owned by the farmer will influence in determining the type of business to be developed. Farmers who have relatively large lands are an important capital in the cattle business, especially in the development of livestock as shepherds' land and increasing the income of farmers. The results of interviews at the research location, transmigrant farmers stated that the land owned by each farmer was not enough to develop a cattle business. 100% transmigrant farmers only own about 0.5-1.5 ha of land. When compared to local farmers, 60% have land of about 0.5-1.5 ha and 40% have agricultural land >1.5 ha. The area of land owned by farmers can be seen in Table 6.

**Table 6.** Land Area of Transmigrant and Local Farmers

Large Land (Ha)	Transmigrant Farmers		Local Breeders		Total	
	Person	%	Person	%	Person	%
0,5 – 1,5	30	100	18	60	48	80
> 1,5	0	0	12	40	12	20
Jumlah	30	100	30	100	60	100
Average (Ha)	1,02		1,43			

**Source:** Primary Data Processed, 2021

Transmigrant farmers have a limited land area compared to the land area owned by local farmers with the average land area being 1.02 ha for transmigrant farmers and 1.43 ha for local farmers, respectively. The lack of land area owned by transmigrant farmers and some local farmers is caused by population density which is increasing every year so that livestock development efforts in the research location do not develop.

#### 4.2 Transmigration and Local Cattle Cultivation Pattern

An intensive rearing system is the maintenance of cattle using continuous cages until the cattle are marketed. The semi-intensive rearing system is a pattern of raising cattle at night and grazing/releasing during the day. An extensive rearing system is a pattern of maintenance by being grazed or released continuously throughout the day. The growth rate of young beef cattle depends on the way of maintenance and feeding. Table 7 shows that the cattle rearing system in the transmigrant area is a semi-intensive system of as much as 96.7%, extensive as much as 3.3%. Cattle reared by transmigrant farmers are generally combined (semi-intensively) ie in the morning the cattle are grazed in the rice fields or released in pastures surrounded by wire fences and at night in cages because the population is increasing every year and the government has banned it. farmers who graze their livestock around residential areas. Areas with a dense population of cows are kept semi-intensively where during the day the cows are tied and tethered in fields, gardens, or yards where the grass

thrives, then in the afternoon, the cattle are put in simple cages made of the bamboo, wood, thatch roof. The cattle rearing system at the research site can be seen in Table 7.

**Table 7.** Bali Cattle Raising System for Transmigrant and Local Breeders

System Maintenance	Transmigrant Farmers		Local Breeders		Total	
	Person	%	Person	%	Person	%
Extensive	0	0	25	83,3	25	41,7
Intensive	1	3,3	0	0	1	1,7
Semi Intensive`	29	96,7	5	16,7	34	56,6
Total	30	100	30	100	60	100

**Source:** Primary Data Processed, 2021

The results of the study, 16.7% of respondents in the local area maintain cattle using a semi-intensive system and 83.3% with an extensive system (grazing). The grazing system (extensive) in rural areas is still widely practiced because maintenance costs are cheaper (no cost). However, this maintenance system often poses a risk of poisoning due to the use of pesticides in paddy fields (grazing areas) and livestock is not well controlled.

The breeds of cattle that are kept by farmers at the research site are Bali cattle. The seeds are obtained by buying from breeders in Konawe Regency. In general, the farmers buy in the form of adult cows. For novice breeders who have sufficient capital, it is better to start raising cattle with ready-to-breed cows. This is due to the risk of death of cows ready for mating being smaller than the risk of raising calves. The success of a cattle business is only possible if the supporting factors get full attention. One of the main factors is food in addition to genetics and management. Sources of cattle breeds kept by farmers at the research site can be seen in Table 8.

**Table 8.** Sources of Bali Cattle Breeding by Transmigrant and Local Breeders

Source Seeds	Transmigrant Farmers		Local Breeders		Total	
	Person	%	Person	%	Person	%
Buy	21	70	24	80	45	75
Rowdy	9	30	1	3,3	10	16,7
Heritage	0	0	5	16,7	5	8,3
Total	30	100	30	100	60	100

**Source:** Primary Data Processed, 2021

The data in Table 8 shows that farmers generally obtain cattle seeds by buying them. Transmigrant farmers as much as 70% of cattle breeds obtained by buying, 30% obtained by way of noise. While local farmers, 80% of cattle breeds are obtained by buying, 3.3% of cattle breeds are obtained using noise, and 16.7% are obtained by inheritance. This shows the public's interest in raising livestock which is used as savings to meet the needs of the farmer's family. The results of observations at the research location showed that the sources of seeds kept by farmers were generally purchased from farmers and traders in Konawe Regency. Thus, it can be said that generally, the farmers at the research location in the cattle business are buying cattle.

Forage materials for ruminants, especially cattle, are forage in the form of natural grasses and legumes. Table 9 shows farmers in transmigration areas who provide natural grass, rice straw, and bran as much as 90%, natural grass as much as 10%. Meanwhile, farmers in local areas fully rely on forage for cattle that are kept or grass that grows wild, as evidenced by 100% of local farmers still providing forage from natural grass. The provision

of the bran by transmigrant farmers is only given in the afternoon before the cattle are put in the pens because of the high price of bran so that farmers can only provide modest bran. The type of animal feed given to cattle at the study site can be seen in Table 9.

**Table 9.** Types of Animal Feed Provided by Transmigrant and Local Farmers

Type feed	Transmigrant Farmers		Local Breeders		Total	
	Person	%	Person	%	Person	%
Natural Grass	3	10	30	100	33	55
Natural Grass+Rice	27	90	0	0	27	45
Straw+Bran						
Total	30	100	30	100	60	100

**Source:** Primary Data Processed, 2021

The results of interviews with farmers in transmigrant areas said that the availability of food for animal feed during the dry season and planting season was very difficult to obtain. In that season, farmers look for feed for their livestock far from residential areas, and take feed is carried out in the morning and only to meet daily feed needs. This process takes place continuously where the farmer does not provide animal feed for a long period.

The success of cattle breeding lies not only in the effort to develop the number of cattle that are kept, but also in the supervision and prevention of disease so that the health of cattle is maintained. Disease prevention efforts can be carried out to maintain the health of livestock by separating sick cattle from healthy livestock and immediately receiving treatment and checking the health of livestock regularly and vaccinating according to the instructions. How to handle cattle disease at the research site can be seen in Table 10.

**Table 10.** Management of Livestock Diseases by Transmigrant and Local Farmers

Handling Disease	Transmigrant Farmers		Local Breeders		Total	
	Person	%	Person	%	Person	%
Treated	17	56,7	5	16,7	22	36,7
Untreated	13	43,3	25	83,3	38	63,3
Total	30	100	30	100	60	100

**Source:** Primary Data Processed, 2021

Table 10 shows that 56.7% of transmigrant farmers who treat cattle disease with treatment are 56.7% and 43.3% who do not do the treatment. While in local breeders who do the handling of cattle by way of treatment as much as 16.7% and who do not do the treatment as much as 83.3%. This is due to the lack of understanding of farmers about the drugs that will be given to livestock and the lack of intensity of extension workers from related parties.

The results of interviews at the research location, that the diseases that attack cattle are diarrhea, eye pain, bloody stools, poisoning, and intestinal worms. The existence of diseases that attack cattle, generally farmers in transmigration areas use tetracycline for the healing process of diarrhea by putting the drug into a banana and then giving it to sick cattle, while for intestinal worms, defecation, and eye pain, some farmers call for extension workers or veterinarians treatment and limping and poisoning were not treated. Treatment is also carried out on livestock that lacks appetite, using traditional medicine, namely kencur rice by inserting it into the mouth. Meanwhile, in the local area, most of the sick cattle are not treated. This is due to the lack of knowledge of farmers about good farming practices and the



lack of government attention to farmers, causing the cattle population to tend to decline every year.

Livestock marketing is the ultimate goal of the livestock business and also determines the profit and loss of a business. The results of observations at the research location obtained information that marketing cattle is not difficult at the farmer level, this is because almost all collector traders come directly to buy cattle so that farmers are not difficult to sell their livestock and the price is relatively high. The selling price of cattle for adult bulls ranges from IDR 8,000,000 – IDR 12,500,000 per head and for adult female cows it is around IDR 7,500,000 – IDR. 9,000,000 per head. Meanwhile, the selling price for mother cows ranges from IDR 8. 000000 – IDR 9,000,000 per head.

High prices usually occur at the time of Eid al-Adha of IDR 12,000,000, but on the other hand, when the need is very urgent and they have to sell their livestock such as school fees, celebrations, and others, the farmer does not have a strong bargain, which is IDR 7,000 .000. The bargaining position of farmers is weak so that it becomes an opportunity for buyers to take big profits. Marketing sales of ruminants take place dynamically because prices are always fluctuating. This condition is directly related to supply and demand. High prices usually occur at the time of Eid al-Adha, but on the contrary when the need is very urgent and must sell livestock such as the need for school fees, celebrations, and others.

## V. Conclusion

The results of the study concluded that the Bali cattle business in Konawe Regency, in general, has good prospects and potential for the development of Bali cattle which is supported by the availability of feed, seeds, productive age of breeders 83.3%, workforce involved with gender perspective 66.7% male and 33.3% female, farming experience 6 years reaches 90% and livestock marketing is relatively easy. However, the identified inhibiting factors are limited working capital, relatively small farmer's land (60%) only has 1 ha, relatively low formal education of breeders 63.3% SD-junior high school, use of natural grass feed is still dominant (55%), disease livestock is still dominantly untreated (63.3%), and limited field extension workers.

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