



(RESEARCH ARTICLE)



FARMERS' MOTIVATION AND COMMUNICATION MODELS APPLIED FOR THE DEVELOPMENT OF BALI CATTLE

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World Journal of Biology Pharmacy and Health Sciences, 2026, 27(03), 147–159

Publication history: Received on 12 August 2026; revised on 20 September 2026; accepted on 22 September 2026

Article DOI: <https://doi.org/10.30574/wjbphs.2026.27.3.0479>

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ABSTRACT

The purpose of this study was to analyze farmers' motivation toward the development of Bali cattle and the factors influencing their motivation, as well as to design a communication model to be applied during the farming of Bali cattle in Bali Province. The research location was selected using a purposive method. The population in this study was all Bali cattle farmers in Bali Province, while the sampling technique used stratified random sampling, taking a sample of 15 farmers from each district/city, resulting in a total sample size of 135 farmers. Data analysis in this study used qualitative and quantitative descriptive data analysis and was analyzed using SPSS. According to the study's findings, farmers' motivation for the growth of Bali cattle fell into the high group, with an average score of 3.76. The factors that influence farmers' motivation are age, formal education level, non-formal education level, number of family dependents, size of agricultural land ownership, farming experience, attitude, knowledge, skills, communication intensity, relationship with extension workers, relationship with other farmers, and price. The communication model applied while farmers raise Bali cattle in Bali Province is interactive, participatory, and collaborative.

Keywords: Farmers' motivation, Bali cattle development, Communication model, Participatory communication, Livestock extension.

1 INTRODUCTION

The livestock sector is one of the agricultural sectors that drives development in rural areas, especially in the province of Bali. The livestock sector contributes significantly to the local economy and food security, with beef cattle farming

being a strategic sub-sector that plays an important role. The Central Statistics Agency (2025) shows that Bali remains an important contributor to beef production, producing 4,882.25 tons in 2024. In this context, Bali cattle are widely known for their high fertility and productivity as potential breeding stock, with a fertility rate of 83-86%, far exceeding the average for European beef cattle, which is only around 60% (Mastar et al., 2023). This makes Bali cattle an excellent choice for the development of beef cattle fattening agribusiness, especially for small-scale farmers in rural areas. The adaptability of Bali cattle to the tropical environment, as well as the exceptional quality of their meat, positions them as a strategic commodity in efforts to improve food security and the local economy (Dairoh et al., 2024).

The number of Bali cattle has increased year by year. This population increase is supported by the genetic characteristics of Bali cattle, which are adaptive to the tropical environment, have efficient reproductive capabilities, and have good natural growth potential (Inal et al., 2021). Along with the increase in demand for beef, farmers are motivated to raise more Bali cattle. This strategy is in line with efforts to increase national meat production and meet domestic market demand, while strengthening sustainable food security (Saili, 2020). Motivation is a factor that drives individuals to take action. In the context of the beef cattle agribusiness, farmers' motivation to increase the Bali cattle population is influenced by various intrinsic and extrinsic factors, including promising economic prospects, government policy support, and access to breeding technology (Riwukore et al., 2021). The needs of each individual are certainly different, as are the motivations of each individual. Nugraha (2016) states that one indicator of increased motivation in Bali cattle farming is an increase in Bali cattle ownership. Therefore, understanding the factors that motivate farmers to increase the Bali cattle population is crucial for designing effective interventions and policies to support the development of the livestock sector (Patuna et al., 2021).

Extension workers are expected to help motivate farmers to develop Bali cattle. Effective extension can increase the adoption of optimal husbandry practices, including reproduction management and feed provision, which are crucial for increasing the Bali cattle population (Rusdiana & Praharani, 2019). In addition, empowering farmers through training and access to the latest information on livestock technology can significantly contribute to increasing the productivity and economic viability of the Bali cattle business (Patuna et al., 2021). Therefore, the presence of extension workers in the community is very much needed because they can communicate their ideas to farmers so that farmers become more enthusiastic about developing their cattle businesses. Increasing the frequency and quality of extension services will encourage farmers to implement more focused business strategies, as recommended in the development of beef cattle agribusiness, including training in feed processing technology and increasing entrepreneurial spirit (Putri et al., 1970). This is in line with the government's efforts to achieve meat self-sufficiency through increased investment and empowerment of farmers, which makes beef cattle farming more economically viable and increases farmers' income (Rusdiana & Praharani, 2019).

Improved access to business capital and partnership programs are also needed to support the expansion of the Bali cattle business, given the high economic potential and fertility of Bali cattle compared to European beef cattle breeds (Mastar et al., 2023). This integrated approach must also consider factors that hinder and support the Bali cattle population, such as government policies, land availability, and technical and non-technical aspects of maintenance (Patuna et al., 2021). The purpose of this study is to analyze farmers' motivation for developing Bali cattle, the factors that influence Bali cattle farmers' motivation, and to design a communication model applied by farmers during the rearing of Bali cattle in Bali Province.

2 MATERIALS AND METHODS

The location of this research is in all districts and cities in Bali Province with a focus on analyzing motivation, factors that influence motivation, and communication models applied by Bali cattle farmers. Data collection was carried out over five months, from April to September 2025. The location was selected purposively. The population in this study was all Bali cattle farmers in Bali Province. Research sampling used stratified random sampling. This was based on the fact that the population (all farmers in Bali Province) had a natural division based on regencies, each of which was considered a stratum. Samples were taken from each district/city, consisting of 15 farmers, resulting in a total of 135 farmers as research samples.

The types of data in this study were primary and secondary data. Primary data were obtained through observation and interviews with respondents. Questionnaires were used to help conduct interviews in an organized way. Both qualitative and quantitative analyses were performed on the collected data. To examine the circumstances of Bali cattle producers, a qualitative analysis was carried out. The motivation of farmers and the elements influencing their motivation for the growth of Bali cattle were examined using quantitative analysis. The data analysis methods used in this study were qualitative and quantitative descriptive analysis and were analyzed using SPSS. The findings of the questionnaire were graded in order to assess farmers' motivation for the growth of Bali cattle.

3 RESULTS

3.1 Respondent Characteristics

The respondents in this study consisted of 135 Bali cattle farmers. The characteristics of the respondents in this study consisted of age, land area, number of family dependents, formal and non-formal levels of education, and farming experience. The characteristics of the respondents in this study in terms of age are shown in Table 1.

Table 1: Frequency Distribution of Respondents' Age

No.	Age (years)	Frequency	Percentage (%)
1	< 18	0	0.00
2	18-64	119	88.15
3	> 64	16	11.85
Total		135	100

Source: Information analyzed from survey findings

According to the study findings in Table 1, it indicates that the majority of Bali cattle farmers in Bali Province are of productive age, where physically and mentally they are still strong, active, and have the potential to carry out farming activities optimally. Productive age is closely related to work ability, receptiveness to new information, and readiness to accept agricultural technology innovations such as fattening techniques, reproduction management, or the utilization of livestock waste.

Based on the results of data tabulation conducted in accordance with the respondents' formal educational background, the following picture emerges.

Table 2: Frequency Distribution of Formal Education Levels

No.	Education	Frequency	Percentage (%)
1	No schooling	6	4.44
2	Elementary	17	12.59
3	Junior High School	25	18.52
4	High/Vocational School	74	54.81
5	Bachelor	13	9.63
Total		135	100

Source: Information analyzed from survey findings

Based on the background research's findings, the highest level of formal education among respondents was high school/vocational school, so they have innovations in managing and developing Bali cattle. This provides a great opportunity for farmer empowerment programs to be more successful through an approach based on education, appropriate technology, and livestock institutions.

The attributes of the participants in this research, when viewed from the perspective of non-formal education, are distributed as shown in Table 3 below.

Based on the research results in Table 3, it can be seen that the most common non-formal education among respondents was production management extension. This shows that most respondents actively participate in non-formal education, especially in the form of counseling and technical training directly related to increasing livestock business productivity.

Table 3: Distribution of Non-Formal Education Levels

No.	Non-Formal Education	Frequency	Percentage (%)
1	Feed processing training	35	25.93
2	Reproduction management Extension	52	38.52
3	Waste management training	21	15.56
4	Cattle fattening training	19	14.07
5	Field school for livestock farming	8	5,93
Total		135	100

Source: Information analyzed from survey findings

The characteristics of the respondents in this study, when viewed from the number of family dependents, can be seen in the distribution shown in Table 4 below.

Table 4: Frequency Distribution of Number of Family Dependents

No.	Number of Dependents (People)	Frequency	Percentage (%)
1	1-2	25	18.52
2	3-4	38	28.15
3	5-6	63	46.67
4	>6	9	6.67
Total		135	100

Source: Information analyzed from survey findings

According to the study's findings, the largest number of dependents of Bali cattle farmers was 5-6 people. This condition shows that Bali cattle farmers in Bali Province have a relatively large number of dependents.

The study's respondents' features as perceived from the perspective of Bali cattle farmers' land area, can be seen in Table 5 below.

Table 5: Frequency Distribution of Land Area

No.	Land Area (are)	Frequency	Percentage (%)
1	<20	22	16.30
2	20-25	79	58.52
3	>25	34	25.19
Total		135	100

Source: Information analyzed from survey findings

This condition shows that most Bali cattle farmers in Bali Province still rely on limited land area. This reflects the general characteristics of smallholder farming in the region, namely small to medium-scale businesses with traditional or semi-intensive husbandry systems. To improve productivity and efficiency, support in the form of access to land, technology, and better business management is needed.

The characteristics of respondents in this study, as seen from their experience in raising Bali cattle, are distributed as shown in Table 6 below.

Table 6: Frequency Distribution of Bali Cattle Farming Experience

No.	Experience in Raising Bali Cattle (years)	Frequency	Percentage (%)
1	<5	17	12.59
2	5-15	83	61.48
3	>15	35	25.93
Total		135	100

Source: Information analyzed from survey findings

According to the analysis's findings, the experience of raising Bali cattle is 5-15 years for 83 people (61.48%). This condition shows that most Bali cattle farmers in Bali Province have a fairly high level of experience, which can be an important asset in the development of the livestock business.

3.2 Farmers' Motivation for the Development of Bali Cattle in Bali Province

There are five markers that were employed in this study to evaluate farmer motivation, namely (1) length of time raising Bali cattle, (2) income of Bali cattle farmers, (3) frequency of farmers attending extension programs, (4) ease of raising Bali cattle, and (5) ease of marketing Bali cattle. Based on the research results, farmers' motivation towards the development of Bali cattle in Bali Province can be seen in Table 7.

Table 7: Farmers' Motivation for the Development of Bali Cattle in Bali Province

No.	Variable Indicator	Score	Category
1	Duration of Bali cattle farming	3.55	High
2	Income of Bali cattle farmers	4.10	High
3	Frequency of Farmers Attending Extension Programs	3.7	High
4	Ease of Raising Bali Cattle	3.96	High
5	Ease of Marketing Bali Cattle	3.46	High
	Farmer Motivation	3.7	High

Source: Primary Data Processing

According to the study's findings, farmers in Bali Province are highly motivated to support the growth of Bali cattle. This shows the enthusiasm and sincerity of farmers in developing Bali cattle, which is the identity of Bali Province.

Based on five variable indicators, the study's findings assess the degree of farmer motivation for the growth of Bali cattle in the province of Bali, show that the income of Bali cattle farmers received the highest score of 4.10, which is in the high category. This indicates that income is the main factor driving farmers' motivation to develop Bali cattle farming.

3.3 Factors Affecting the Motivation of Bali Cattle Farmers in Bali Province

Considering the findings of the analysis, the factors that influence the motivation of Bali cattle farmers in Bali Province consist of 13 variables, namely age (X_1), formal education level (X_2), non-formal education level (X_3), number of family dependents (X_4), agricultural land area (X_5), farming experience (X_6), attitude (X_7), knowledge (X_8), skills (X_9), communication intensity (X_{10}), relationship with extension workers (X_{11}), relationship with other farmers (X_{12}), and price (X_{13}).

The multiple linear regression equation for the variables influencing the motivation of Bali cattle producers in Bali Province is based on the analysis's findings in Table 8:

$$Y = 1.958 + 0.470X_1 + 0.660X_2 + 0.243X_3 + 0.123X_4 + 0.111X_5 + 0.133X_6 + 0.102X_7 + 0.690X_8 + 0.810X_9 + 0.800X_{10} + 0.250X_{11} + 0.220X_{12} + 0.766X_{13}$$

Table 8: Results of Multiple Linear Regression Analysis Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	1.958	.406		2,359	.020
	Age (X1)	.470	.148	.046	2,315	.023
	Level of Formal Education (X2)	.660	.148	.068	5,443	.000
	Non-formal Education Level (X3)	.243	.116	.253	3,105	.037
	Number of Dependents (X4)	.123	.113	.128	4,682	.000
	Agricultural Land Area (X5)	.111	.175	.119	2,638	.014
	Farming Experience (X6)	.133	.191	.137	2,197	.007
	Attitude (X7)	.102	.113	.098	4,901	.000
	Knowledge (X8)	.690	.120	.067	3,576	.000
	Skills (X9)	.810	.107	.083	5,216	.000
	Communication Intensity (X10)	.800	.112	.081	3,713	.000
	Relationship with Extension Workers (X11)	.250	.108	.026	4,234	.000
	Relationship with Other Farmers (X12)	.220	.125	.023	2,978	.009
	Price (X13)	.766	.119	.710	6,419	.000

a. Dependent Variable: Y

4 DISCUSSION

4.1 The effect of age on motivation

The results of the study show that the age of farmers has a positive and significant effect on motivation. This indicates that farmers' motivation to grow the Bali cattle industry is significantly impacted by their age. In general, younger farmers tend to have higher enthusiasm and strong motivation to develop their livestock businesses. This is driven by a great sense of curiosity, openness to innovation and new technologies, and a focus on long-term profits. As stated by Sulistyani et al. (2021), young farmers are more adaptive to change and have the physical abilities to support intensive livestock management. Young farmers also tend to have better physical energy, enabling them to work harder in livestock maintenance and development. In contrast, older farmers tend to be more cautious, rely on traditional methods, and are less interested in innovation, as they are more focused on meeting short-term needs or daily routines (Yusdja, 2018). In addition, physical limitations in old age can also be an obstacle to scaling up the business. However, the experience and knowledge of older farmers remain important assets in the development of Bali cattle, especially in terms of local wisdom and traditional knowledge (Astuti et al., 2020). Collaboration between young and old farmers is essential to create a balance between innovation and experience in developing a sustainable Bali cattle business.

4.2 The influence of formal education level on motivation

The results of the study show that formal education has a positive and significant effect on motivation. This indicates that higher formal education tends to provide farmers with better analytical thinking, problem-solving, and understanding of business management concepts. Farmers with a better formal education background tend to be more open to innovation, have a higher ability to adapt to technological changes, and better understand the importance of applying scientific principles in livestock farming. According to research by Susanti and Arifin (2019), farmers with higher levels of formal education show stronger motivation in developing the Bali cattle business, especially in terms of improving livestock quality and productivity. This is because formal education can help farmers understand the importance of business efficiency, livestock health, and proper maintenance techniques. However, farmers' motivation is also influenced by other factors such as experience, market access, and business capital, so formal education is one of the important supporting factors that needs to be considered in efforts to develop Bali cattle sustainably (Putra & Dewi, 2020).

4.3 The influence of non-formal education level on motivation

The results of the study show that non-formal education has a positive and significant effect on motivation. This means that non-formal education plays an important role in increasing farmer motivation in the development of Bali cattle. Non-formal education, such as training, extension, and learning programs outside formal schools, provides practical knowledge and skills that are relevant to livestock activities. Farmers who participate in non-formal education usually have a better understanding of feed management, reproduction, livestock health, and marketing, which directly affects their motivation to develop their Bali cattle farming business. According to research by Suprpto (2018), non-formal education can increase farmers' motivation to adopt new technologies and improve livestock productivity. This is because non-formal education bridges the gap between theoretical knowledge and practical application in the field. In addition, farmer motivation is also influenced by other factors such as family support, economic conditions, and market access, but non-formal education remains one of the key factors in increasing the spirit of sustainable Bali cattle development (Astuti & Wibowo, 2019). The implementation of quality non-formal education programs that are tailored to local needs is an important strategy in efforts to increase the population and quality of Bali cattle.

4.4 The influence of family dependents on motivation

The results of the study indicate that the number of dependents has a positive and significant effect on motivation. This shows that the number of dependents is one of the social factors that influence the motivation of farmers in developing their Bali cattle business. The more family members there are to support, the greater the economic needs that must be met by farmers. This can encourage farmers to be more enthusiastic and motivated in increasing the productivity of Bali cattle as one of the main sources of family income. According to research by Wardana and Suharyanto (2020), a large number of dependents is the main trigger for farmers to be more serious in managing their businesses in order to be able to meet family needs, both for children's education costs, daily needs, and family health. However, a large number of dependents can also be a burden if it is not balanced with increased livestock productivity, which can reduce motivation if the business does not generate the expected profits. Farmer capacity building programs and business assistance are very important to support farmers with large numbers of family dependents so that they remain motivated to develop their Bali cattle farming business in a sustainable manner (Astuti & Nugraha, 2021).

4.5 The influence of agricultural land area on motivation

The results of the study show that agricultural land area has a positive and significant effect on motivation. This shows that the size of agricultural land ownership is an important factor that influences farmers' motivation to develop their Bali cattle business. Farmers with larger land holdings tend to have better resources to provide forage, which is a major requirement in raising Bali cattle. The availability of adequate feed can reduce production costs and increase business efficiency, thereby increasing farmers' motivation to expand their livestock businesses. According to research by Yuliana and Purnomo (2020), sufficient land area allows farmers to utilize agricultural waste as animal feed, such as straw and leaves, which supports the sustainability of the livestock business. In addition, owning a large area of land also provides opportunities for farmers to develop integrated agriculture and livestock businesses, such as utilizing cow manure as organic fertilizer for agricultural land, which ultimately increases family income. Conversely, limited land can hinder business development due to limitations in feed supply and maintenance space, which tends to decrease farmers' motivation (Santoso & Arifin, 2019). Farmer empowerment programs through the optimization of land use, both privately owned and communal, are one strategic solution to increase motivation and the success of Bali cattle businesses.

4.6 The influence of farming experience on motivation

The results of the study show that farming experience has a positive and significant effect on motivation. This indicates that farming experience is an important factor that influences farmers' motivation in developing their Bali cattle business. Farmers with longer experience tend to have a better understanding of maintenance management, disease prevention, and livestock marketing strategies. This makes farmers more confident and motivated to continue improving their businesses. According to research by Wulandari and Hartono (2018), extensive farming experience allows farmers to learn from their mistakes and improve their husbandry practices, thereby indirectly increasing productivity and income. In addition, sufficient experience also makes farmers more open to technological innovations and new methods, such as the application of artificial insemination or fermented feed processing, which can support the development of the Bali cattle business. Farmers with limited experience usually face more obstacles in running their businesses, such as difficulties in overcoming livestock diseases or managing business finances, which can reduce their motivation in the long term (Sutrisno & Wijayanti, 2020). Therefore, supporting novice farmers through mentoring and experience-based training programs is very important to increase their motivation in developing the Bali cattle business sustainably.

4.7 The influence of attitude on motivation

The results of the study indicate that farmers' attitudes have a positive and significant effect on motivation. This shows that farmers' attitudes towards the development of Bali cattle play an important role in influencing their motivation. A positive attitude towards livestock farming, such as belief in the potential of Bali cattle as a source of income, acceptance of technological innovations, and belief in the benefits of sustainable cattle farming, tends to increase farmers' motivation to develop their businesses. According to research by Prasetyo and Handayani (2019), farmers' positive attitudes are closely related to their level of motivation in livestock farming, where farmers who are optimistic about the future of livestock farming show greater enthusiasm in increasing the population and productivity of Bali cattle. Conversely, farmers who have a negative attitude, for example, feeling pessimistic about cattle market prices or fearing the risk of business failure, tend to experience a decline in motivation in the long term. Attitudes are also influenced by personal experiences, family support, social environment, and previous business results (Arifin & Dewi, 2020). Fostering positive attitudes through counseling, group motivation, and providing examples of real success is very important to increase farmers' motivation in optimally developing Bali cattle.

4.8 The influence of knowledge on motivation

The results of the study show that farmers' knowledge has a positive and significant effect on motivation. This indicates that the higher the level of knowledge possessed by farmers, whether in terms of maintenance management, livestock health, reproduction, or marketing, the greater their ability to face challenges in the livestock business. Knowledge also helps farmers make appropriate and efficient decisions, such as choosing good feed, fattening techniques, and managing Bali cattle reproduction. According to research by Sari and Putra (2021), farmers with good knowledge tend to be more motivated to develop their Bali cattle business because they are able to see the opportunities and profits that can be obtained. Conversely, limited knowledge is often a major obstacle to adopting innovations, which can reduce motivation to develop businesses optimally (Sutanto & Arifin, 2020). Therefore, increasing knowledge through extension programs, training, and technical guidance is very important as an effort to increase farmers' motivation to develop Bali cattle sustainably.

4.9 The influence of skills on motivation

The results of the study show that farmers' skills have a positive and significant effect on motivation. This shows that farmers who have good skills will be more confident in managing their livestock, thereby increasing their enthusiasm and motivation to develop their business. Skills include the ability to feed, provide health care, manage reproduction, and maintain pens. According to research by Santosa and Pramono (2020), good practical skills can minimize the risk of failure in farming, increase productivity, and ultimately support the success of the Bali cattle business. Farmers with low skills tend to lack confidence and fear losses, which leads to low motivation to develop their business. In addition, skills are also related to experience and knowledge, where farmers who actively participate in training or extension programs tend to have better skills, so their motivation is also higher (Rahayu & Wibowo, 2021). Farmer skill strengthening programs, such as training in fermented feed production, reproduction management, and modern maintenance techniques, are very important to increase motivation and productivity in the Bali cattle development business.

4.10 The effect of communication intensity on motivation

The results of the study show that communication intensity has a positive and significant effect on motivation. This indicates that good communication between farmers and extension workers, fellow farmers, and related parties such as cooperatives or markets enables the exchange of information, experiences, and solutions to problems encountered. Farmers who actively communicate will find it easier to obtain the latest information on technology, feed management, livestock health, and market opportunities, thereby increasing their confidence and motivation in developing their businesses. According to research by Putra and Yuliani (2020), Balinese cattle farmers who have a high intensity of communication tend to be more motivated to adopt new innovations because they feel they receive better support and understanding of ways to increase livestock productivity. Conversely, a lack of communication can make farmers feel isolated, stagnant, and ultimately reduce their motivation in the farming business (Haryanto & Astuti, 2019). Increasing communication intensity through farmer groups, discussion forums, and extension programs is crucial to encourage farmers' enthusiasm and motivation in developing Bali cattle.

4.11 The influence of relationships with extension workers on motivation

The results of the study indicate that the relationship with extension workers has a positive and significant effect on motivation. This shows that extension workers act as sources of information, facilitators, and motivators who help farmers in facing various technical and non-technical challenges in their farming businesses. A good relationship between farmers and extension workers enables smooth communication, effective knowledge transfer, and an increase in farmers' understanding of new innovations in the field of animal husbandry. According to research by Prasetyo and Wulandari (2020), farmers who have harmonious relationships and intense communication with extension workers

show higher motivation in developing their Bali cattle businesses because they feel supported, receive solutions to problems, and are motivated to try new practices. Conversely, poor relationships with extension workers often make farmers reluctant to follow advice and lose enthusiasm in developing their livestock businesses (Sutrisno & Arifin, 2019). The role of extension workers is very important, not only to provide technical information but also as mentors who encourage farmers' motivation and enthusiasm in developing their Bali cattle businesses.

4.12 The influence of relationships with other farmers on motivation

The results of the study show that relationships with other farmers have a positive and significant effect on motivation. This shows that the interaction and communication between farmers allows for the exchange of information, experiences, and moral support that encourages enthusiasm to strive. Farmers who actively socialize with other farmers often gain new knowledge related to maintenance techniques, disease control, and market opportunities, thereby increasing their motivation to develop the Bali cattle business. According to research by Yuliani and Santoso (2020), good social relationships between farmers create a sense of togetherness and solidarity, thereby encouraging joint initiatives to solve problems, such as in the provision of feed or livestock health management. Conversely, farmers who lack relationships with fellow farmers tend to find it difficult to develop due to a lack of support and information, which ultimately reduces their motivation in developing their livestock business (Sutanto & Wibowo, 2019). It is important to build social networks among farmers through farmer groups or farmer communities as a forum for mutual learning and sharing experiences in developing the Bali cattle business.

4.13 The influence of price on motivation

The results of the study show that price has a positive and significant effect on motivation. This indicates that stable and profitable prices will encourage farmers to increase their livestock population, improve maintenance management, and dare to invest in their livestock businesses. Conversely, fluctuating or low prices can dampen farmers' enthusiasm because they worry about the risk of potential losses. According to research by Putra and Rahayu (2020), good selling prices for Bali cattle are one of the main factors that motivate farmers to persevere and develop their livestock businesses. Fair prices provide a sense of security in running a business, while low prices often discourage farmers from increasing the number of cattle or even cause them to sell their livestock prematurely. In addition, farmers who are aware of market price trends and have access to price information will be better prepared in planning the management of their livestock businesses (Santoso & Pramono, 2021). Government policies in maintaining price stability and creating a transparent market are very important to support farmers' motivation in developing the Bali cattle business.

4.14 Communication Models Applied by Farmers During Bali Cattle Farming in Bali Province

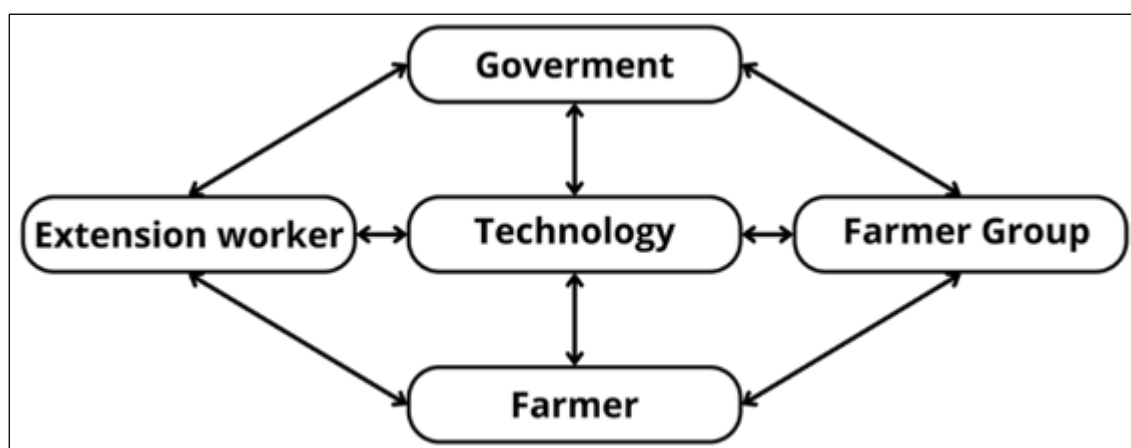


Figure 1: Communication Model Applied by Farmers During the Raising of Bali Cattle in Bali Province

The communication model applied by Bali cattle farmers in Bali Province is interactive, participatory, and collaborative. During the rearing process, farmers not only rely on personal experience, but also actively communicate with various parties. First, there is intensive two-way communication between farmers and extension workers, where farmers obtain information about rearing techniques, animal health, feed processing, and business management, and provide feedback on obstacles in the field. Intensive and two-way communication between farmers and extension workers demonstrates dynamic and mutually beneficial cooperation, which is a key factor in the success of increasing farmer capacity and developing the Bali cattle farming business. This pattern of communication needs to be maintained and improved so that innovations and solutions in the field of animal husbandry can be implemented more quickly and effectively. According to research by Irfani et al. (2019), the two-way communication process in extension allows farmers to identify problems themselves and find appropriate solutions through dialogue with extension workers. This

shows that participatory communication can increase farmers' capacity to manage their livestock businesses independently.

Second, communication between the government and farmers usually occurs through training programs, seed assistance, or the dissemination of livestock policies. Farmers receive information, but are also involved in the evaluation and preparation of programs. Communication between local governments or livestock agencies and farmers occurs through formal channels where information flows from the top (government or agencies) to the bottom (farmers). The government usually conveys information related to training programs, seed assistance, and the dissemination of livestock policies. However, what distinguishes this is that farmers do not only play the role of information recipients, but are also involved in the program evaluation and development process. By involving farmers, the government ensures that the policies and programs implemented are more relevant and appropriate to the needs on the ground. According to Gumilar (2009), effective development communication involves a two-way exchange of messages between all parties involved, including the community and the government, from the planning process to the evaluation of development. This aims to enable the community to understand, accept, and participate in implementing the ideas presented. This also increases farmers' sense of ownership of the policy and encourages them to participate more actively. This approach creates a better relationship between the government and farmers, accelerates the adoption of new technologies, and ensures that the programs implemented are more effective and beneficial for the sustainability of the livestock sector.

Third, communication between farmers in farmer groups or farmer cooperatives, which serves as a means of sharing knowledge, experience, and economic cooperation such as joint marketing. Communication occurs between farmers who are members of farmer groups or farmer cooperatives, where they interact with each other in a peer-to-peer relationship without hierarchy. This communication serves as a means of sharing knowledge and experiences among fellow farmers. This allows them to learn from each other's best practices, overcome common problems, and improve their skills in raising Bali cattle. In addition, this communication also strengthens economic cooperation, such as in joint marketing, where farmers can combine their production to obtain more competitive prices in the market. Through farmer groups or farmer cooperatives, they can optimize resources, expand market networks, and fight for common interests in facing existing challenges. Thus, this communication not only increases the capacity of individual farmers but also strengthens the sustainability of collective farming businesses. According to Supriyadi and Wibowo (2020), communication between farmers in farmer groups plays an important role in the transfer of knowledge and experience that can increase productivity and strengthen the bargaining position of farmers in the market through joint marketing cooperation.

Fourth, technology-based and mass media communication is also growing. Farmers use social media, farming apps, and video tutorials to update their knowledge and find practical solutions. Technology-based and mass media communication is now growing and having a significant impact on the farming sector, including among Bali cattle farmers. Farmers now use social media, farming apps, and video tutorials as quick and easily accessible sources of information. Through social media, farmers can join online communities that allow them to share experiences, obtain the latest information, and interact with other farmers or experts in the field of animal husbandry. Specially designed animal husbandry applications provide practical solutions, such as feed management, livestock health records, and livestock productivity monitoring. In addition, video tutorials allow farmers to learn visually about maintenance techniques, treatment, and feed processing directly from experts. By utilizing this technology, farmers can update their knowledge, overcome obstacles more efficiently, and apply practical solutions that increase the productivity and sustainability of their farming businesses. According to Nugroho and Hartono (2022), the use of social media and livestock applications has revolutionized the way farmers obtain information and interact, thereby accelerating the adoption of new technologies and improving the effectiveness of livestock management. This has led to significant progress in the livestock sector, given that information can now be accessed anytime and anywhere.

5 CONCLUSION

The following conclusions can be drawn from the results and discussion, farmers' motivation for the development of Bali cattle is in the high category. The factors that influence farmer motivation are age, land area, number of family dependents, formal and non-formal levels of education, size of agricultural land ownership, farming experience, attitude, knowledge, skills, communication intensity, relationship with extension workers, relationship with other farmers, and price. The communication model applied by farmers while raising Bali cattle in Bali Province is interactive, participatory, and collaborative.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

Acknowledgments

The authors gratefully acknowledge the financial support provided by the PNBP Fund of Udayana University for the Fiscal Year 2025, under grant number (Nomor : B/229.276/UN14.4.A/PT.01.03/2025).

Funding Source

This research was financially supported by the PNBP Fund of Udayana University for the Fiscal Year 2025 under Grant Number B/229.276/UN14.4.A/PT.01.03/2025.

Disclosure of conflict of interest

We certify that there is no conflict of interest with any financial, personal, or other relationships with other people or organization related to the material discussed in the manuscript.

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