

The Influence Of Extender Performance And Production Technology On Cattle Farming Businesses In North Luwu District

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Abstrak

This research aims to determine the influence of instructor performance and production technology on cattle farming businesses in North Luwu Regency. This type of research uses quantitative research by distributing questionnaires and via Google Form. Respondents in this research were taken from 160 people. By using saturated sampling techniques. The data source used in this research is primary data obtained directly from respondents through questionnaires and analysis was carried out using the multiple linear regression method with data analysis using the SPSS version 26 program. The research results based on the results of the t analysis show that the performance of extension workers and production technology have a positive and significant effect on the Cattle Farming Business in North Luwu Regency. Judging from the R Square coefficient of determination of 0.552, which means 55.2% can be explained by other variables not included in this research, it indicates that factors such as environmental conditions, market access and government policies play a significant role in the effectiveness of Cattle Farming Businesses in North Luwu Regency area.

Keywords: Extender Performance, Technology, Cattle Farming

1. Introduction

The livestock industry is very important to meet food needs in the world today. Demand for food products such as meat and dairy is increasing as a result of population growth and urbanization. In the era of globalization, livestock development aims to create a healthy, productive and creative society through strong livestock based on local resources. To meet the increasing demand for meat, the government is trying to increase the beef cattle population by increasing reproductive efficiency and reducing reproductive disorders. (Farida Rahmah et al., 2020)

One of the agricultural subsectors that has many opportunities to develop is the livestock sector, efforts to develop livestock to date have not been able to meet domestic meat needs. This may be due to a number of weaknesses in the livestock development system, even though various efforts have been made technically to develop livestock businesses. (A. Rahim, G. D et al. 2021). Human resource management, which involves the development of agricultural extension and extension institutions, has been considered a major contributor to agricultural progress in Indonesia. A number of studies also state that investment in agricultural extension will provide quite high income opportunities, so that agricultural extension becomes an important aspect in agricultural development in an area. (Basir et al., 2023).

According to Mukhtar and UA (2020) performance is the real behavior displayed by each person as a work achievement produced by the company which is displayed by each

person as an achievement produced by employees in accordance with their role in the company. (fair, Sapar & Jasman, 2023). Meanwhile, according to (Hardiyono 2022) performance is a result achieved by employees when carrying out the work given to them which is based on experience, skills and perseverance in working (L. Adil & Suardi, 2023). One of the efforts to improve employee work abilities is by holding training. Work. Job training is carried out for employees, it is hoped that employees will become skilled, productive and able to carry out their duties and responsibilities well. (A. Adil & Helpi, Suardi, 2023) An employee's performance will be better if the employee has high abilities and supportive work environment, distribution of task characteristics of appropriate work in various fields, and support from an organization or company (A. Adil et al., 2024).

The performance of livestock instructors plays an important role in the development of livestock businesses. Several studies show that the performance of extension workers influences the success of breeders in terms of productivity, responsiveness and responsibility. (Sondakh et al., 2019). The performance of instructors is measured based on their work activities and achievements in extension activities in their work area, as well as through the level of knowledge, attitudes and skills of breeders produced by the instructor's performance (Jacob et al. 2021). In addition, factors such as distance from where the instructor lives, intensity extension, and the relationship between extension agents and breeders can also influence the performance of extension agents and the success of breeders (Sasmi et al., 2018)

Ujang Rahman et al. (2017) in their research on the performance of livestock instructors in developing beef cattle farming businesses in Benai District, Kuantan Singing Regency, stated that the performance of livestock instructors includes personality traits (2.62) in the very good category, work results (2.50) in the very good category, knowledge of the instructors (2.69).) very high category, instructor skills (2.83) very skilled category, instructor motivation (2.81) very strong category, instructor attitude (3.00) very good, distance to residence (2.50) very close category and instructor facilities (1.00) incomplete category. The success of farmers in the beef cattle farming business with a score of (2.05) is in the medium or quite successful category. The conclusion of this research is that the performance of livestock instructors is in the good category and the success of breeders is in the quite successful category.

According to FAO (2009) in Prasetyo & Suryadi (2017) to increase world food productivity and production, technological innovation plays a very large role, namely around 80%, much greater than the role of land expansion which is only 20% because land resources are already very large. limited (Sri Nofianti1 et. al 2022)

Artificial Insemination (AI) is a technology that can increase livestock productivity and quality. This improves genetic quality, increases the efficiency of using bulls, prevents disease transmission, reduces physical disturbances to female cattle at mating time, and reduces costs .. (karin Oktavia Lani, 2021). One of the challenges facing field livestock is the limited number of professional breeders who utilize available technology. especially in the field of biotechnology. Most livestock activities in Indonesia are small-scale livestock operations, or community livestock operations. The key to achieving livestock construction goals is understanding how to refine and refine the design to provide a higher quality livestock breeder. (Dina et al., 2019). Meanwhile, through the IB program, closer

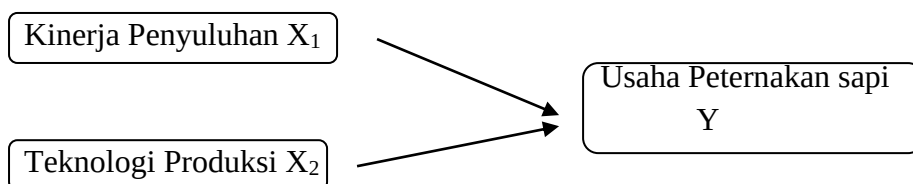
relationships will be established between the livestock service or Extension services and breeders (Kastalani, 2019).

North Luwu Regency is one of the regencies that develops beef cattle by applying Artificial Insemination (AI) technology. The lives of people in North Luwu depend partly on the livestock sector, and beef cattle farming is a source of income for the population. The development and application of appropriate technology in the livestock sector can have a significant impact on increasing productivity and sustainability of livestock businesses. The birth rate of beef cattle in North Luwu district has increased quite well from year to year, this can be seen in 2018, amounting to 16,389 head, then increasing in 2019 to 16,912 head, and in 2020 there was an increase of 17,250 head, divided into in 11 sub-districts in North Luwu Regency. (BPS. North Luwu, 2021) . Based on the explanation above, the author conducted research with the title "The Influence of Instructor Performance and Production Technology on Cattle Farming Businesses in North Luwu Regency".

In this research, the authors attempted to describe the influence of instructor performance and production technology on livestock businesses in North Luwu district, in the form of the following diagram

2. Methodology

The research method used is quantitative, this research design uses the causal associative research method according to Sugiono (Meike et al., 2019) . Which explains that the independent variable (X) influences the dependent variable (Y). This research was conducted at the North Luwu Regency Agriculture Service from November 17 to December 15 2023, using quantitative data obtained from respondents through questionnaires. The respondents in this research were 160 people involved from the agriculture service, as well as cattle breeders in North Luwu Regency. By using a saturated sampling technique where the entire population is sampled. The type of data used is primary data. Data collection uses the Google Form nstrument. The analytical method used is multiple linear regression analysis where data processing is carried out using the SPSS version 26 program , proposed by (Sugiyono, 2018) with the formula $Y = a + \beta_1 X_1 + \beta_2 X_2 + e$. Data analysis techniques use instrument tests (validity tests and reliability tests), multiple linear regression tests, coefficient of determination tests, and t hypothesis tests .



1. Performance of Extension Officers

The performance of Extension is the empowerment of farmers/breeders and their families as well as the agribusiness community through non-formal education activities in the fields of agriculture and animal husbandry so that they are able to help themselves in the economic, social and political fields, so that an increase in their income and welfare can be achieved (Irmawati et al ., 2022) . Agricultural extension officers are officers who have

competence in the agricultural sector and are able to communicate well with farmers. Excellent communication skills by agricultural extension officers needed, so that the material presented can be accepted by all farmers. The existence of field agricultural instructors is to increase farmers' knowledge about environmentally friendly agriculture so that it increases, so that in the future it is hoped that it will have an impact on agricultural productivity and increase farmers' income, which in the future will also increase their welfare (Aiping & Tribune, 2020). The indicators of instructor performance are as follows:

a). Motivation

Motivation is an argument or combination of interests, feelings, appetite and desire to increase action that has purpose and is aware of its existence.

b). Education

Education indicators are measures used to convey the level of education of a person or community group. Education indicators can include the level of formal education, such as the level of education achieved, the number of years of school completed, and academic achievement. In addition, education indicators can also include literacy levels, technical skills and language abilities.

c). Knowledge

Knowledge is the ability to understand and apply information and concepts in different situations. Knowledge indicators may include the level of understanding of a particular topic, the ability to solve problems, and the ability to make informed decisions.

d). Distance to Residence

Residential distance is the distance between a person's residence and a certain location, such as a school or training center. Residential distance indicators can be used to determine the accessibility of education or training for certain individuals or community groups.

e). Characteristics

Characteristics are traits or traits that differentiate individuals or groups from others. Characteristics may include factors such as age, gender, religion, ethnicity, and socio-economic status.

2. Production Technology

Production technology is a way to increase production and productivity that can be widely applied in industry, in this case the field of animal husbandry. Artificial insemination production technology is a technology used in animal husbandry to insert sperm from superior male animals into the reproductive tract of healthy female animals to fertilize cells. eggs with the aim of increasing the population, production and productivity of livestock. This technology can help farmers to obtain quality livestock offspring that have high economic value.

Artificial insemination production technology is an example of production technology used in the livestock sector. Motivation is an argument or combination of interests, feelings, tastes and desires to increase action that has a purpose and is aware of its existence.

a). Inseminator Skills

Inseminators are officers who carry out artificial insemination on livestock, such as cows. they include frozen semen or livestock sperm into the female reproductive organs

for the purpose of improving livestock genetics, increasing birth rates, and preventing the transmission of venereal diseases. Inseminator skills are very important in determining the success of AI. they are hungry to master standard procedures such as semen handling, thawing time, rectal palpation, and insemination according to procedures.

b). Animal Physiological Conditions

The physiological condition of livestock refers to the normal and optimum condition of the livestock's body in terms of the biological processes that occur in the body, such as the digestive system, respiratory system, endocrine system, and other metabolic processes. This physiological balance is important to ensure trade and the effectiveness of livestock production. , as well as providing information about the health condition of livestock.

c). Breeder Skills

Farmer skills refer to the ability and expertise possessed by breeders in carrying out various aspects of livestock rearing, such as breeding, feed, and population structure in livestock rearing. Farmer skills are very important in determining the success of various livestock practices, such as artificial insemination, lust detection, and discipline in report Apart from that, breeder skills also include the ability to apply technical aspects of beef livestock maintenance.

d). Inseminator Characteristics

Inseminator characteristics refer to the qualifications and abilities of individuals who work as inseminators in carrying out artificial insemination (AI). Some known characteristics of inseminators include length of service, training intensity, thoroughness, technical ability in straw management, and responsibility

e). Cement Quality

Spermatozoa quality refers to the attributes that determine the superiority and performance of sperm in the context of reproductive applications. Sperm quality is very important in the artificial insemination (AI) process because the sperm used must have sufficient quantity and adequate fertility.

3). Cattle Farming Business

Cattle farming is a promising business, especially in producing animal meat for community needs. Cattle farming businesses can be divided into three main types, namely large, small and poultry farming businesses. Large livestock businesses are farms that develop and maintain large animals, such as beef cattle. Cows have the opportunity to earn income for farmers and need attention in terms of improving genetic quality and increasing population through Artificial Insemination (AI) technology. (Suprianto, 2016)

a). Breeder Welfare

Farmer welfare refers to prosperous and decent living conditions for breeders in running livestock businesses. This includes economic, social and overall welfare aspects. Efforts to improve the welfare of breeders can be done in various ways , such as increasing breeders' knowledge and skills in livestock cultivation, product marketing, and capital budget planning.

b). Maintenance System

The livestock rearing system refers to the methods or methods used to manage and care for livestock so that farmers can run their farms more efficiently and provide welfare for themselves and their families.

c). Scale enterprises

The scale of a livestock business refers to the amount of capital, cage capacity, and market demand pursued by the farmer.

d). Profit

Profits in livestock businesses can be in the form of money, products from livestock, and livestock waste which can be used as organic fertilizer. The benefits obtained from livestock businesses depend on the type of livestock raised, such as meat, milk and eggs.

e). Market Guarantee

Market guarantees in animal husbandry are guarantees given by breeders to buyers that the livestock sold meet the desired quality standards. This can include the comfort, health and quality of the livestock being sold

3. Result and Discussion

3.1. Research result

Instrument Validity Test, The validity test is used to measure whether a questionnaire is valid or not. A questionnaire is said to be valid if the statements in the questionnaire are able to reveal something that the questionnaire will measure. The guideline for a model is said to be valid if the calculated r is greater than the table r and the r value is positive. In this research, the correlation coefficient calculation was carried out using SPSS version 26 software.

Table 1. Validity Test Results for Extension Worker Performance Variables (X₁)

NO	Statement	r count	r table	ion	Informat
1	X1.1	0,92 9	0,1 55		Valid
2	X1.2	0,45 2	0,1 55		Valid
3	X1.3	0,92 7	0,1 55		Valid
4	X1.4	0,93 8	0,1 55		Valid
5	X1.5	0,45 4	0,1 55		Valid
6	X1.6	0,91 8	0,1 55		Valid
7	X1.7	0,92 1	0,1 55		Valid
8	X1.8	0,35 8	0,1 55		Valid

Source: SPSS 26 Data Processing Results, 2024

Table 2. Validity Test Results for Production Technology Variables (X₂)

NO	Statement	r count	r table	Informa tion
1	X2.1	0,37 4	0,15 5	Valid
2	X2.2	0,61 8	0,15 5	Valid
3	X2.3	0,83 1	0,15 5	Valid
4	X2.4	0,79 2	0,15 5	Valid
5	X2.5	0,41 3	0,15 5	Valid
6	X2.6	0,63 9	0,15 5	Valid
7	X2.7	0,81 9	0,15 5	Valid
8	X2.8	0,40 6	0,15 5	Valid

Sumber : Hasil Pengolahan Data SPSS 26, 2024

Table 3. Validity Test Results for Cattle Farming Business (Y)

NO	Statement	r count	r table	Informa tion
1	Y.1	0,44 3	0,15 5	Valid
2	Y.2	0,66 8	0,15 5	Valid
3	Y.3	0,44 6	0,15 5	Valid
4	Y.4	0,67 0	0,15 5	Valid
5	Y.5	0,49 2	0,15 5	Valid
6	Y.6	0,48 6	0,15 5	Valid
7	Y.7	0,56 9	0,15 5	Valid
8	Y.8	0,42 1	0,15 5	Valid

Source: SPSS 26 Data Processing Results, 2024

Based on the results above, it can be seen that all statements from the independent and dependent variables are declared valid because they have a calculated r value (Corrected Item Total Correlation) which is greater than the r-table value (0.155) obtained from looking at the r-table using the value $df = N-2$ and the level of significance used, so it can be concluded that the questionnaire indicators in this research can be said to be valid and used as a variable measuring tool.

Instrument Reliability Test Results

Table 4. Reliability Test Results

Variable	Cronbach's Alpha Value	Status
Extension Performance (X ₁)	0.882	Reliable
Production Technology (X ₂)	0.771	Reliable
Cattle Farming Business (Y)	0.619	Reliable

Source: SPSS 26 Data Processing Results, 2024

From table 4 above, it shows that all research is considered reliable and the Cronbach's alpha value for variable

Multiple Linear Regression Test Results

To determine the influence between variables, this research was carried out using multiple linear regression analysis as follows:

Table 5. Multiple Linear Regression Test Results

Model	Unstand ardized Coefficie nts B	Stand ardized Coefficie nts Beta	t	ig.
(Constant)			,557	900
Extension Performance	13,587	1,422	,463	001
Production Technology	,223	,065	,333	400
	,362	,078	,446	,642

a. Dependent Variable: Cattle Farming Business (Y)

From the results of table 5, seen from the unstandardized coefficients, the regression equation is:

$$Y = a + \beta_1 X_1 + \beta_2 X_2 + e$$

$$Y = 13.587 + 0.223 (X_1) + 0.362 (X_2) + 1.422$$

- The constant value of 13.587 is positive, meaning that if the instructor performance and production technology variables are considered non-existent or equal to 0, then the value of the cattle farming business will increase.
- The regression coefficient value of the instructor's performance shows a value of $b_1 = 0.223$, which means that if each value of the instructor's performance variable is increased by 1%, the cattle farming business will increase by 0.223.
- The production technology regression coefficient value shows a value of $b_2 = 0.362$, which means that if each value of the production technology variable adds 1%, the cattle farming business will increase by 0.362.

Table 6. Coefficient of Determination Test Results

Model	F	R Square	Adjusted R Square	Std. Error of the Estimate
1	746 ^a	,556	,551	1,469

Source: SPSS 26 Data Processing Results, 2024

The coefficient of determination (R^2) seen from table 6 shows that the value in the *adjusted R Square column* is 0.551 or 55.1%, so the influence of the extension variable performance and production technology on cattle farming is 55.1% while the remaining 44.9% can be explained. by other variables not included in this study.

Hypothesis Testing Results

Partial Hypothesis Testing Results

Table 7. T Test Results (Partial)

Coeffisients^a

Model	Unstandardized Coefficients B	Std. error	Standardized Coefficients Beta	t	sig.
(Constant)	13,587	1		9	
Extension	,223	,422	,333	,557	000
Performance	,362	,065	,446	3	001
Production					
Technology		,078		4	000

a. Dependent Variable: Cattle Farming Business (Y)

Source: SPSS 26 data (Data processed in 2023)

Table 7 above explains that each influence of the regression model used in this research is as follows:

- 1) The results of the t test for the Extension Worker Performance variable obtained a value of $0.223 > 1.654$ with a sign number of $0.001 < 0.05$, which means that the variable value (X_1) has a significant effect on the cattle farming business (Y).

The results of the t test for the Production Technology variable obtained a value of $0.362 > 1.654$ with a sign number of $0.000 < 0.05$, which means that the variable value (X_2) has a significant effect on the cattle farming business (Y)

3.2 Discussion

The influence of extension workers' performance on cattle farming businesses in North Luwu district.

Based on the results of the significant test, it is stated that the performance of instructors has an influence on cattle farming businesses, namely $0.001 < 0.05$ and the calculated t value (0.223) $>$ t table (1.654), it is proven that the performance of instructors has a positive and

significant influence on cattle breeding businesses in North Luwu district. The conclusion is that the variable

With the good performance of livestock instructors, the performance of instructors has a significant impact on cattle breeding businesses. extension workers, by providing appropriate information and guidance, can increase efficiency, productivity, livestock extension workers play an important role in increasing the knowledge and skills of farmers, by providing up-to-date information and practical guidance, extension workers help farmers understand the best practices in cattle management, including aspects of health, feed and reproduction, with the help of extension workers, breeders can increase the productivity of their livestock, this includes increasing the birth rate, this increase in productivity directly contributes to the breeder's income. Good livestock instructors act as catalysts in raising cattle farming businesses to a higher level providing economic, social and environmental benefits.

The results of this research are in line with research conducted by (Ujang Rahman, 2017) showing that the performance of livestock instructors has a positive and significant impact on beef cattle farming businesses in Benai sub-district, Kuantan singing district. Subsequent research showed that the results of hypothesis testing showed that the performance of livestock instructors had a positive and significant effect. This shows that the good performance of livestock instructors will influence the beef cattle farming business (Sondakh et al., 2019)

The influence of artificial insemination farming technology on beef cattle farming businesses in North Luwu district

Based on the results of significant tests, it was found that artificial insemination livestock technology had an effect on beef cattle farming businesses, namely $0.000 < 0.05$ and the calculated t value ($0.362 > t$ table (1.654), which means that artificial insemination farming technology partially had a significant positive effect on livestock businesses. cow. This shows that if livestock technology (artificial insemination) can increase the population of cattle without bulls and produce good cattle, it will increase the beef cattle farming business.

The positive influence shows that production technology (artificial insemination), improving the genetics of AI livestock allows the selection of genetically superior seeds without relying on natural breeding. This opens up opportunities to improve livestock quality and productivity through selecting desired traits, such as increased body weight, feed efficiency and disease resistance. By using AI, farmers can accelerate the increase in livestock production. Superior female cows can be mated with high quality bulls through AI technology, speeding up reproduction and producing genetically better offspring. Reduction of Disease Risk: With AI, the spread of disease through natural breeding can be reduced. This helps maintain livestock health and prevents the spread of diseases that can harm livestock businesses.

Optimizing Meat Production: Implementing AI can help farmers produce livestock that grow faster and have optimal body weight to be marketed as meat. This contributes to increasing production efficiency and increasing farmer income. Therefore, the application of

AI technology not only has a positive impact in increasing livestock productivity and quality, but also supports the welfare of farmers and the profitability of beef cattle farming businesses. The results of this research are in line with research conducted by (Defelly Tri Nurcahyani 2021) showing that production technology (IB) has a significant positive effect on beef cattle farming businesses in Patrang District, Jember Regency. Production technology (artificial insemination) is very important to apply to beef cattle farming businesses. By implementing artificial insemination production technology, breeders can improve the genetic quality of livestock without requiring superior males to be placed under the required location, thereby reducing costs and risks, increasing birth rates quickly and regularly and preventing the transmission of venereal diseases. This shows that production technology has a positive and significant effect. This shows that artificial insemination has an effect on the success or improvement of beef cattle farming businesses (Kastalani, 2019)

4. Conclusion

Based on the findings regarding the influence of instructor performance and production technology on cattle farming businesses in North Luwu Regency, it will be concluded that instructor performance has a positive and significant effect on cattle breeding businesses in North Luwu district. Production technology (artificial insemination) has a positive and significant effect on livestock businesses. cattle in North Luwu district.

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