

## COMMUNITY PERCEPTIONS OF THE DEVELOPMENT OF CATTLE FARMS IN EAST SUMBA REGENCY, EAST NUSA TENGGARA, INDONESIA

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### ABSTRACT

This study aims to determine the public's perception of the development of cattle farms in East Sumba Regency, East Nusa Tenggara, Indonesia. The research method used is qualitative and quantitative research. The total population is 110 respondents consisting of 30 livestock service employees, 40 animal husbandry study program students and 40 cattle breeders. The data analysis method used is a structural equation model (Structural Equation Modeling-SEM) based on variance or component based SEM, known as Partial Least Square (PLS). The results of the study showed that the public's perception of the development of cattle farms in East Sumba Regency was in the positive category with a score of 3.5. Behavior has a very significant positive effect on perception with a path coefficient value of 0.190, t-statistic of 3.002 (t-statistic >2.576). Experience has a very significant positive effect on perception with a path coefficient value of 0.404 with a t-statistic of 7.124 (t-statistic >2.576). Motivation has a very significant effect on perception with a positive path coefficient of 0.491 with a t-statistic of 6.839 (t-statistic >2.576). Perception has a very significant positive effect on livestock development, where the outer loading value of each perception indicator is positive and more than 0.6 (stop criterion) and the t-statistic value is >1.960 with a p-value significance of 0.05 (5%). The study concluded that people's perceptions in the positive category were positively influenced by behavior, experience and motivation. Perception has a positive effect on the development of cattle farms in East Sumba Regency.

**KEYWORDS:** Perception, behavior, experience, motivation, cattle farming business.

### INTRODUCTION

Livestock is one of the agricultural sub-sectors that plays an important role in realizing people's welfare, especially in meeting the needs of animal protein, increasing economic growth, and providing fertilizer for the agricultural sector. Therefore, it is necessary to develop livestock farms that aim to improve the welfare of the breeders, and to be able to provide food of animal origin to the community in a sustainable manner.<sup>[1]</sup>

One area that has great potential in the livestock sector is East Sumba Regency, which is a district in East Nusa Tenggara Province. East Sumba Regency has the potential to develop livestock, especially large ruminants such as cows, horse buffalo. The type of cattle kept is Crossed Ongole cattle or known as Ongole Sumba cattle. Cattle have socio-cultural values as well as economic values, namely as a source of income for farmers and regional income through inter-island trade. However, there has been a decline in the cattle population due to inter-island trade, socio-cultural affairs, traditional

ceremonies, and a shortage of feed during the dry season due to environmental degradation. Lack of feed also causes hunger which leads to the death of cattle up to 100 in February 2020.<sup>[2]</sup>

The development of cattle farms in East Sumba Regency can be optimal if it is supported by the role of the community, which in this case is the Animal Husbandry Service as a policy holder, breeders as actors in the development and breeding of livestock, and animal husbandry students as academic elements. The Animal Husbandry Service in East Sumba Regency plays a role as a policy element holder who has the task of implementing decentralized and deconcentrated authority in the livestock sector and also as a government agency that is tasked with developing the livestock sector, as well as improving the welfare of the community, both the livestock community and the general public.

According to<sup>[3]</sup>, everyone's perception is different according to the views of each individual. These differences are influenced by many factors including

behavior (knowledge, attitudes, skills, application), experience and motivation. According to<sup>[4]</sup>, the better the farmer perceives a livestock business, the better the livestock rearing management will be so as to be able to increase the livestock population, spread production and develop livestock exports. In addition, farmers' perceptions can also influence the receipt of assistance from the Livestock Service in terms of business capital, land, seeds, feed and medicines. If breeders receive assistance from the government, the implementation of management of cattle maintenance can run optimally.

Students play a role as an academic element that functions in conducting research related to animal husbandry. In addition, students can also contribute academic ideas in solving livestock problems. Based on these matters, the researcher is interested in conducting research that aims to determine public perceptions of the development of cattle farms in East Sumba Regency, East Nusa Tenggara, Indonesia.

## MATERIAL AND METHODS

### Population and sample.

The research was conducted at the Livestock Service Office, East Sumba Regency, and cattle farms spread over four of the 22 subdistricts in East Sumba Regency, namely Kota Waingapu District, Kambera District, Kanatang District and Pandawai District. In addition, research was also carried out at the Faculty of Science and Technology, Animal Husbandry Study Program, Wira Wacana Christian University, Sumba. The selection of the research location was determined using a purposive sampling method.

Determination of the sample using two methods, namely purposive random sampling with farmers as a sample and proportional sampling with animal husbandry officials and students as samples. Based on data obtained in the field, the number of respondents in this study were 110 respondents consisting of 30 livestock service employees, 40 students and 40 cattle breeders.

### Data collection technique.

The data collection techniques used were: (i) direct observation at the research location by observing the construction of cattle farms in East Sumba Regency; (ii) semi-structured and systematic interviews, i.e. interviews conducted by first preparing written guidelines about the matters to be asked and interviews conducted freely, but directed to be on the path of the main issues; and (iii) a documentation study including profiles, annual work programs, documents on the development of livestock populations every year, at the Livestock Service Office of the East Sumba Regency, pictures of livestock farming activities on cattle farms, and information from students regarding perceptions of the development of cattle farms.

### Validity test.

Validity testing uses Partial Least Square (PLS). The validity of a research instrument can be assessed by looking at the Loading Factor (LF) value. In general, the value of the LF indicator  $\geq$  was said to be valid, but according to<sup>[5]</sup> in the development of new indicators, LF values  $\geq 0.5$  and  $0.6$  are still acceptable for their validity, even  $0.4$  can still be tolerated.

### Reliability test.

To measure the level of reliability of each statement item in the questionnaire, the Smart Partial Least Square (PLS) measurement tool was used. The consistency of the variables in measuring latent variables can be seen from the value of Cronbach alpha and composite reliability. An indicator for data is reliable if the value of Cronbach alpha is  $\geq 0.5$  and composite reliability is  $\geq 0.7$ .<sup>[5]</sup>

### Variable Measurement.

The variable measured was the dependent variable, namely people's perceptions. The independent variables were behavior (knowledge, attitudes, skills and application), experience (interest, material benefits, social benefits and length of time) and motivation (needs, encouragement and expectations). The variables Perception (Y), Behavior (X1), Experience (X2), Motivation (X3) were tabulated and all variable indicators were measured using a level scale of 5 (1,2,3,4, and 5). This variable indicator was measured using a Likert scale. Each response from the respondent was calculated based on the score, which is then summated rating.

Determination of variable categories was carried out based on the scores achieved by respondents using the Class Interval formula, namely dividing the difference between the highest and lowest values by the number of classes or categories.<sup>[6]</sup> The formula is.

Class Intervals (i) = (Highest score- Lowest value score)/Number of classes.

$$= \frac{5-1}{5} \\ = 0.8$$

The total variable score obtained was based on the number of questions in the questionnaire (not in the form of %), while the proportion or average variable score acquisition was the total score divided by the number of questions.<sup>[7]</sup>

### Qualitative data analysis methods and techniques.

Emzir<sup>[8]</sup> states that data analysis techniques in qualitative research include: (1) data collection; (2) data reduction (data reduction); (3) Data presentation (data display); (4) Conclusion Drawing/Verification.

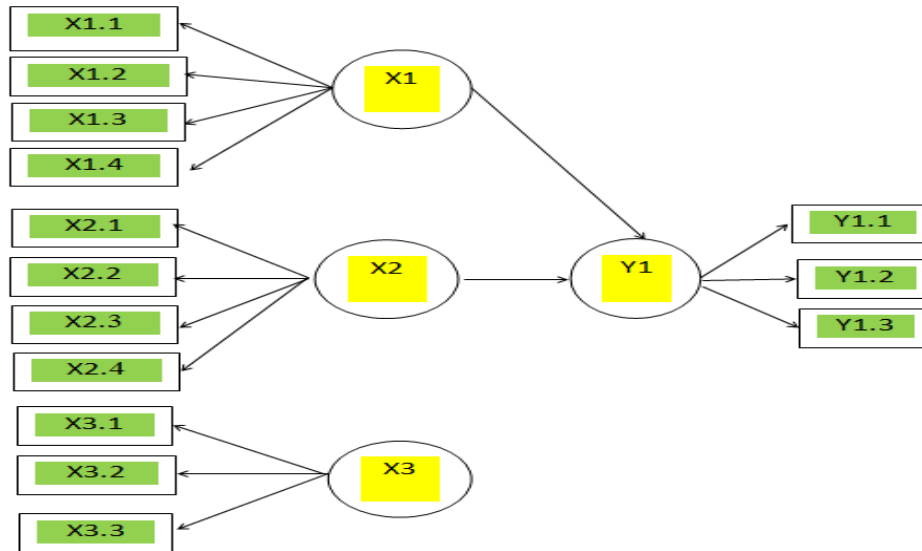
### Quantitative data analysis methods and techniques.

The data analysis technique used is structural equation modeling (Structural Equation Modeling-SEM) based on

variance or component based SEM, known as Partial Least Square (PLS).

**Structural equation models.** Based on the research model framework, an empirical research model can be formulated. The empirical model in this study was divided into two models, namely: (1) Structural model (Inner Model) which classifies the relationship between

latent variables. In this study, the structural model was Behavior (X1), Experience (X2), Motivation (X3) and Perception (Y1); and (2) The measurement model (outer model) specifies the relationship between the indicator block/question items and their latent variables. So the empirical research model can be described in Figure 1 as follows.



**Figure 1:** Empirical research images (X1= behavior; X1.1= knowledge; X1.2= attitude; X1.3= skills; X1.4= application; X2= experience; X2.1= interest; X2.2= economic benefits; X2.3= social advantage; X2.4= diration; X3= motivation; X3.1= needs; X3.2= push; X3.3= hope; Y1= perception; Y1.1= livestock potential; Y1.2= farm problem; and Y1.3= maintenance management)

**Hypothesis test.**

Hypothesis testing was done with the help of Smart-PLS software. These values can be seen from the bootstrapping results. The rules of thumb used in this study are t-statistics  $\geq 2.576$  with a significance level of p-value 0.01 (1%) or t-statistics  $\geq 1.960$  with a significance level of p-value 0.05 (5%) and path coefficients of positive.

**RESULTS AND DISCUSSION**

**Validity test.**

A research instrument indicator is said to be valid if it has a Loading Factor (LF) value  $\geq 0.7$ , but according to Harsono (2016) in the development of new indicators, LF values  $\geq 0.5$  and  $0.6$  are still acceptable for validity, even  $0.4$  also still tolerable. SmartPLS output for Loading Factor gives results as Table 1.

**Table 1:** Result for outer loading.

	Motivation	Experience	Behavior	Perception
X1.1			0.737	
X1.2			0.654	
X1.3			0.838	
X1.4			0.796	
X2.1		0.844		
X2.2		0.757		
X2.3		0.822		
X2.4		0,775		
X3.1	0.920			
X3.2	0.912			
X3.3	0.815			
Y1				0.784
Y2				0.788
Y3				0.694

Based on table 1 above, it shows that the loading factor for each indicator is  $\geq 0.5$  with the smallest value of 0.654 for indicator X1.2. This means that the indicators

used in this study are valid or have met convergent validity.

#### Reliability test.

**Table 2: Cronbach alpha and composite reliability.**

Variable	Cronbach alpha	Composite reliability
Motivation	0.860	0.914
Experience	0.814	0.877
Behavior	0.751	0.844
Perception	0.631	0.800

Table 2 shows that the Cronbach alpha value for all constructs is above 0.5 and the composite reliability is above 0.7. This shows that all the constructs in the estimated model meet the criteria of discriminant validity or in other words can be used for further research.

moderate category with a proportion or average score of 3.23. Community attitudes are in a very positive category with a score of 4.25. Community skills are in the skilled category with a score of 3.52. Community implementation is in the moderate category with a score of 3.24.

#### Behavior

Behavior (X1) consists of four indicators, namely knowledge (X1.1), attitude (X1.2), skills (X1.3), and application (X1.4). Based on the measurement results obtained, knowledge about the development of cattle farms, livestock potential, problems in livestock development, and management of cattle rearing, is in the

Based on the total score of each indicator, the proportion score for the behavior variable is 3.56. This shows that people's behavior is in the good category. The distribution of respondents based on indicators of knowledge, attitudes, skills and application can be seen in Tables 3, 4, 5 and 6.

**Table 3: Distribution of respondents based on knowledge.**

No	Score achievement	Number of people	Category
1	>4.2-5.0	18	Very High
2	>3.4-4.2	19	high
3	>2.6-3.4	48	medium
4	>1.8-2.6	21	low
5	1.0-1.8	4	Very low
	Score proportion	3.23	Medium

Achievement of scores of community knowledge about the development of cattle farms, livestock potential, problems in livestock development and management of cattle rearing are in the medium category, namely: as many as 18 people are in the very high category, 19

people are in the high category, 48 people are in the medium category, 21 people are in the low category, and 4 people in very low category. The proportion or average score of all respondents is 3.23 in the moderate category.

**Table 4: Distribution of respondents based on attitudes.**

No	Score achievement	Number of people	Category
1	>4.2-5.0	46	Very positive
2	>3.4-4.2	61	Positive
3	>2.6-3.4	3	Doubtful
4	>1.8-2.6	0	Negative
5	1.0-1.8	0	Very negative
	Score proportion	4.25	Very positive

Based on table 4, the attitude of the respondents is as many as 46 people including the very positive category, 61 people including the positive category and 3 people including the doubtful category. If seen from the proportion of scores obtained, the attitude of the respondents is in a very positive category.

**Table 5: Distribution of respondents based on skills.**

No	Score achievement	Number of people	Category
1	>4.2-5,0	15	Very scilled
2	>3.4-4,2	36	Scilled
3	>2.6-3,4	54	Medium
4	>1.8-2,6	5	Less skill
5	1.0-1,8	0	Very less
	Score proportion	3.52	Skilled

Based on Table 5, the skills of the respondents are as many as 15 people including the very skilled category, 36 people including the skilled category, 54 people including the medium category and 5 people including

the less skilled category. If seen from the proportion of scores obtained, the skills of the respondents are included in the skilled category.

**Table 6: Distribution of respondents based on application.**

No	Score achievement	Number of people	Category
1	>4.2-5.0	7	Very good
2	>3.4-4.2	37	good
3	>2.6-3.4	43	medium
4	>1.8-2.6	22	poor
5	1,0-1.8	1	Very less
	Score proportion	3.24	Medium

Based on table 6, the application of respondents is as many as 7 people including the very good category, 37 people including the good category, 43 people including the medium category, 22 people including the less

category, and 1 person including the very lacking category. If seen from the proportion of scores obtained, the application of respondents is included in the moderate category.

#### Experience.

**Table 7: Distribution of respondents based on experience.**

No	Score achievement	Number of people	Category
1	>4.2-5,0	3	Very experienced
2	>3.4-4.2	19	experienced
3	>2.6-3.4	55	Moderat experienced
4	>1.8-2.6	28	Unexperienced
5	1.0-1.8	5	inexperienced
	Score proportion	2.97	Moderat experienced

Based on Table 7, it shows that the average community has a moderate level of experience in the construction of cattle farms with a proportion or average score obtained of 2.97. The measurement results found that 3

respondents were very experienced, 19 people were experienced, 55 people were in the moderate category, 28 people were inexperienced and 5 people were inexperienced.

#### Motivation.

**Table 8: Distribution of respondents based on motivation.**

No	Score achievement	Number of people	Category
1	>4.2-5.0	15	Very strong
2	>3.4-4.2	58	strong
3	>2.6-3.4	37	Medium
4	>1.8-2.6	0	weak
5	1.0-1.8	0	Very weak
	Score proportion	3.74	Strong



Based on Table 8, the motivation of 15 respondents is in the very strong category, 58 people are in the strong category and 37 people are in the moderate category. The

average score for community motivation is 3.74 and is included in the very high category.

### Perception.

**Table 9: Distribution of respondents based on perception.**

No	Score achievement	Number of people	Category
1	>4.2-5,0	9	Very positive
2	>3.4-4.2	47	positive
3	>2.6-3,4	54	undecided
4	>1.8-2.6	0	negative
5	1.0-1.8	0	very negative
	Score proportion	3.5	Positive

Based on the research results (Table 9), the public's perception of the development of cattle farms in East Sumba Regency is in the positive category with an average score of 3.5 from the achievement score divided by the number of questions given. Of the 110 respondents, the perceptions of 9 people were in the very positive category, 47 people were in the positive category and 57 people were in the doubtful category.

## DISCUSSION

### The influence of behavior, experience and motivation on people's perceptions in the development of cattle farms in East Sumba Regency.

The results showed that behavior with indicators of knowledge, attitudes, skills and application had a very real positive influence on people's perceptions. This means that the better or increasing the behavior of the community, the better the perception will be. In addition, it can be said that the more positive the attitude, the higher the skill, the better the application and the better the behavior, the better or more positive the public perception of cattle breeding development in East Sumba Regency.

This is in accordance with the opinion of<sup>[9]</sup> which states that attitude is a determinant of behavior, because attitude is related to perception, personality and motivation. Perception is in the positive category, influenced by people's behavior. However, when viewed from the external factors that influence people's behavior, especially breeders who are hesitant to negative, it needs attention from the government, in this case livestock extension workers. According to<sup>[10]</sup>, public perceptions cannot completely change breeder behavior. On the other hand, the ease of obtaining sapronak and marketing of livestock products also cannot improve the behavior of breeders, because breeders do not get a decent profit. This is in accordance with the results obtained in the field, where breeders prefer to use sapronak which is still traditional and low-cost in raising cattle, to gain economic benefits. In addition, breeders have almost no ability to determine prices, because the market price is determined by the buyer, and the body size of the livestock, as well as the funds needed by the breeder when the cattle are sold. Therefore, extension

agents must provide innovative extension materials and master the extension materials in order to be able to change people's behavior and perceptions, as well as create a sense of trust between extension agents and breeders.

Likewise with perceptions, which indicate that the better the public's perception, the better their behavior in implementing the cattle breeding development program. A development system through counseling is capable of producing positive perceptions of the target, if the implemented system is a system capable of providing added value in the form of improving the community's economy, especially breeders, improving environmental management, improving public relations, improving the lives of breeders and their families. If people's behavior is good, it will generate positive perceptions, so that they can support the cattle breeding development program in East Sumba Regency.

People's experiences basically go through a process initiated by external stimuli through the five senses, which are then forwarded to certain centers in the brain to be interpreted. Interpretation that occurs because of a process of experience will lead to perception.<sup>[11]</sup> Based on the results of the analysis of the data obtained, experience has a very real positive effect on people's perceptions of the development of cattle farms in East Sumba Regency. This means, the better or the more experience in which there are indicators of interest, economic benefits, social benefits and years of farming for farmers, length of time working at the Animal Husbandry Service, and length of time studying in animal husbandry study programs for students, the better the perception on livestock development. Conversely, the less experience a person has, the poorer his perception will be.

Experience can cause breeders to have certain perceptions of a cattle farm which is followed by motivation to apply good and correct livestock management, as well as to contribute directly to the development of cattle farms. Individual experiences that benefit both financially and non-financially will influence their perceptions.

Based on the results of observations in the field, farmers who breed for more than 5 years have better behavior and perceptions of the development of cattle farms than breeders who breed for less than 5 years. The same thing happened to the livestock service employees, employees who worked for more than 5 years tended to be more knowledgeable about government programs and had more experience in their field. In addition, students who study for more than 2 years or have done practical work and real work lectures have better experience in applying animal husbandry in the farming community compared to students who have not carried out work practice and real work lectures. In addition, breeders with more than 5 years of farming experience are more skilled in implementing livestock management although it is still done traditionally, for example in feeding. Breeders already know the areas that have plants or grass that cattle like and the types of plants that cattle like.

Febriana and Liana<sup>[12]</sup> stated that long experience in raising livestock indicated that the knowledge and skills of breeders in livestock rearing management had better abilities. Breeding experience is very influential on perceptions. This is also in accordance with the opinion of<sup>[13]</sup> that the longer farming, the more experienced the breeder will be and they can learn from the experiences they have experienced to advance their next business.

Community motivation is more directed to encouragement and hope that influence their choice of business in their respective fields. Animal husbandry service employees work based on encouragement from within themselves and carry out their work in line with their responsibilities as government employees in the hope of being able to make ends meet from the salary they earn. Students choose the animal husbandry study program because of their own motivation accompanied by friends' invitations with the hope of obtaining a bachelor's degree. Meanwhile, breeders choose to raise cattle, because of their own motivation, to continue their parents' business in the hope of fulfilling their daily needs with their families. Almost all of the people interviewed did not fully have the motivation to increase the development of cattle farms in East Sumba Regency, Indonesia. However, they have hope that cattle breeding in East Sumba Regency can develop in accordance with the potentials seen from the area with large grazing areas, as well as the abundant availability of feed during the rainy season. In addition, the government hopes to work with students to conduct outreach to breeders in motivating breeders to want to implement good livestock management so that they can support livestock development programs. This is in accordance with the opinion of<sup>[14]</sup> which states that motivation is the provision of driving force that creates a person's work passion, so that they want to work together, work effectively with all their might and efforts to achieve goals. If all people who play an important role in livestock development have the same motivation, namely to increase the development of cattle farms, then a good

perception will be formed in seeing the potential of cattle farms and the problems faced and in implementing government programs in the process of developing cattle farms in East Sumba Regency.

#### **The influence of perceptions on the development of cattle farms in East Sumba Regency.**

Perception determines the view or assessment of the community regarding livestock development which is the inference of information received through a process of knowledge with the help of sense organs. The perceptions observed in this study, namely the public's view of the potential of the livestock owned, the problems encountered related to the development of cattle farms, the application of management of livestock rearing, as well as government programs implemented in building cattle farms in East Sumba Regency.

People's perceptions are influenced by behavior, experience and motivation. Based on the results of the path coefficient test, it is proven that behavior (X1), experience (X2), and motivation (X3), have a very significant positive effect on perception. Variables X1, X2, X3 and Y have a reciprocal relationship or are interrelated with one another which can affect livestock development. In addition, the results of data analysis showed that the community's perception of the development of cattle farms was in the positive category. So, it can be described that the positive perception (Y) is influenced by behavior, experience, and motivation with a positive path coefficient value that is very significant and has a very significant positive effect on the development of cattle farming. That is, the better the perception, the better the development of cattle farms.

Based on the results of observations in the field and the results of interviews, it was found that almost all cattle farmers in East Sumba Regency apply a grazing system in raising livestock. Some farmers understand that their livestock should be kept in pens because the pasture system poses a high risk to livestock safety. The government, through extension workers, has also carried out counseling about the housing system because there are high rates of theft and livestock deaths due to disease. However, farmers are hesitant to implement a semi-extensive to extensive housing system, because they do not have experience in raising livestock using cages. In addition, breeders prefer the grazing system, because they have experience, and do not have the land and costs for building cages. Farmers perceive that they will get more profit, because they don't need to spend on making cages.

In building cattle farms in East Sumba district, all components of society must work together. In addition, it is hoped that there will be an active role for students in every activity held by the government, because in his view students lack experience and practice. This perception is in accordance with the results of interviews with animal husbandry students who said that there was

no direct collaboration between the government and campuses in carrying out livestock development programs. In addition, the campus through students has never conducted counseling directly to livestock related to cattle farming. This causes students to be less sensitive to the problems that occur in the construction of cattle farms. If students through the campus want to discuss and be involved in every field activity carried out by the animal husbandry service, it will lead to knowledge development, experience addition, and knowledge modification in the sense that science must be accompanied by concrete actions not only about the theory contained in the learning text.

## CONCLUSION

It was concluded that: (i) the community's perception of the development of cattle farms in East Sumba Regency was in the positive category with a score of 3.5 out of 110 respondents who were asked questions; (ii) Behavior, experience and motivation have a very significant positive effect on perception and (iii) Community perceptions have a very significant positive effect on the development of cattle farms. This means that the better the public's view of livestock potential, the more sensitive they are to the problems they face, and the better they respond to development programs carried out by the government, the better livestock development will lead to the development of cattle farming in East Sumba Regency, Indonesia.

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