

Characteristics of Beef Cattle Breeders in Timor Tengah Utara and Belu Regencies, East Nusa Tenggara Indonesia

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Abstract - This study aims to analyze the characteristics of farmers in North Central Timor and Belu Regencies. This research is explanatory. The research method is a survey method. The research location is in the regencies of Timor Tengah Utara and Belu. Field research data collection took place from August 2019 to March 2020. The number of research samples was 462 beef cattle farmers who were members of the group. The results showed that in general the characteristics of beef cattle breeders in the two districts were relatively low. The level of characteristics of the length of beef cattle business, the level of motivation of the beef cattle business and the level of cosmopolitan of beef cattle breeders have significant differences in the two regencies. The intensity of training for beef cattle farmers needs to be increased to optimize the characteristics of beef cattle farmers.

Keywords - beef cattle, business motivation, farmer, characteristics, training, business motivation.

I. INTRODUCTION

People's livestock is a form of livestock business which is the main basis for beef cattle farming in Indonesia (Rouf and Munawaroh 2016). This condition is proven by as many as 98 percent of beef cattle farms in Indonesia are still in the form of smallholder farms (Widiati 2014). Based on data from Direktorat Jenderal dan Kesehatan Hewan, Indonesia (2018), the population of beef cattle in Indonesia is 17 050 006 heads with beef production reaching 3 593 000 tons. The beef cattle population increased by 2.7 percent compared to the previous year, but beef production actually decreased by 6.2 percent compared to the previous year. The increase in beef cattle population that has not been in line with the increase in beef production is caused by various things, including limited superior males, unstable feed availability, poor maintenance management, and the high slaughter of productive female cattle on smallholder farms (Fatmawati et al. 2016).

The condition of beef cattle farming is certainly influenced by the characteristics of the breeder (Dung et al. 2019). Some of the characteristics that influence farmers in managing their business include age, education, length of business for livestock, business scale, motivation to do business in the field of animal husbandry and cosmopolitan level. Beef cattle business in Indonesia is generally still traditional and small-scale business. the scale of beef cattle maintenance in Indonesia also ranges from 1 to 4 heads per farmer household (Lestari et al. 2017). The scale of the beef cattle rearing business has not led to business efficiency (Mayulu et al. 2010). Characteristics of breeders is one of the important aspects that must be considered in the development of beef cattle business. The high and low level of breeder characteristics will affect efforts to develop beef cattle in East Nusa Tenggara Province, especially Timor Tengah Utara and Belu Regencies.

Thus, the characteristics of breeders is factors that need to be analyzed in order to obtain the differences in the characteristics of farmers in Timor Tengah Utara and Belu Regencies. The results of the analysis become part of the consideration in making

government policies related to the development of beef cattle business.

II. MATERIAL AND METHODS

The research method used is the quantitative paradigm. This research is to explain or explain the results obtained from an analysis. The method used is a survey method. Sampling was carried out in two districts in East Nusa Tenggara Province, Indonesia, namely Timor Tengah Utara and Belu Regencies. The two regencies are the base areas for beef cattle breeders. The population of this research is all beef cattle farmers who are members of the farmer group. Field research data collection took place from August 2019 to March 2020. The number of samples taken as many as 462 people. The data that has been collected is then processed and categorized according to the Likert scale score. For a comparative analysis of extension support in Timor Tengah Utara and Belu Regencies, the Mann Whitney test was performed.

III. RESULTS AND DISCUSSION

Characteristics of breeders are all aspects inherent in beef cattle breeders. The characteristics of breeders are formed based on demographic, geographic and psychographic elements. Characteristics of beef cattle breeders in Timor Tengah Utara and Belu Regencies include age, education level, training intensity, length of raising beef cattle, business scale, business motivation and cosmopolitan level.

3.1 Age

The age characteristics of beef cattle breeders from the two districts are mostly in the adult category with an average age of 52.64 years. This age condition illustrates that beef cattle breeders have a productive age to manage their business. The age affects a person's way of thinking in managing his business. The productive age allows beef cattle farmers to have a high enthusiasm and work ethic to develop their business. The majority of beef cattle breeders in Belu Regencies are older than the age of breeders in Timor Tengah Utara Regencies. This condition indicates that there is a greater opportunity to increase the potential of beef cattle breeders in Timor Tengah Utara. Older beef cattle breeders certainly have physical limitations in managing their business, even though they already have a lot of knowledge and experience during farming. Even though younger breeders don't have much knowledge and skills, they will be motivated and motivated to look for sources of information to improve their livestock knowledge and skills.

There are more breeders in the adult age category in Belu than in Timor Tengah Utara Regencies. However, the overall age of beef cattle farmers in the two districts is in the adult category. Makatita (2014) states that a person's age level has an influence on work productivity that prioritizes physical energy. The age of breeders who are still productive also encourages them to increase the quantity and quality of their livestock business (Kurnia et al. 2019). For the category of young beef cattle breeders in Timor Tengah Utara and Belu Regencies, the number is the least compared to other age categories. This situation shows the low interest of the younger generation to pursue a business in the livestock sector. The level of age characteristics of beef cattle breeders in Timor Tengah Utara and Belu regencies are presented in Table 1.

Table 1. The level of age characteristics of beef cattle breeders in Timor Tengah Utara (TTU) and Belu Regencies

Characteristics of Beef Cattle Breeders	TTU		Belu		Total		Uji Mann Whitney
	n	%	n	%	n	%	
Age							
Young (19-34 Years)	24	7.10	7	5.60	31	6.71	
Early Adult (35-50 Years)	115	34.10	42	33.60	157	33.98	0.971
Adult (51-66 Years)	149	44.20	63	50.40	212	45.89	
Old (66-80 Years)	49	14.50	13	10.40	62	13.42	
Average = 48.91 Years							

Description: **there is a very significant difference, *there is a significant difference

3.2 Education Level

Beef cattle farmer education determines the success of the business. The level of formal education possessed by farmers will affect the ability to think and attitude in making a decision. The education level of beef cattle breeders in Timor Tengah Utara and Belu Regencies is mostly at the elementary level or very low category. The level of education of beef cattle breeders in Timor Tengah Utara and Belu regencies are presented in Table 2.

Table 2. The level of education of beef cattle breeders of beef cattle breeders in Timor Tengah Utara (TTU) and Belu Regencies

Characteristics of Beef Cattle Breeders	TTU		Belu		Total		Uji Mann Whitney
	n	%	n	%	n	%	
Education Level							
Elementary School (6 Years)	256	76.00	101	80.80	357	77.27	
Middle School (9 Years)	75	22.30	23	18.40	98	21.21	0.257
High School (12 Years)	5	1.50	1	0.80	6	1.30	
Polytecnic/ University (> 12 Years)	1	0.30	0	0.00	1	0.22	
Average = 6.30 Years							

Description: **there is a very significant difference, *there is a significant difference

Overall, the education level of farmers in the two districts is at the elementary level as much as 77.27 percent. The majority of farmer education at this level is certainly correlated with the mindset of farmers in managing, solving problems and finding solutions and making decisions on their beef cattle farming business. Farmers who are in the low category of education have limited ability to overcome the problems of their livestock business. Breeders with low education are less willing to take risks, so that when they encounter problems, their attitude tends to be resigned and follow habits that have been passed down from generation to generation. Beef cattle breeders who have high education will be active in seeking information to support their business. Education will encourage beef cattle farmers to change their mindset and work system (Jumpanyarach and Waripas. (2018). Education also affects behavior in the cultivation and management of beef cattle business. Kurnia et.al (2019) stated that the level of education of farmers will affect behavior in providing seeds and animal feed. The higher the education of farmers, the higher their knowledge and skills.

3.3 Training Intensity

Beef cattle farmer training is one aspect that supports the success of beef cattle business. Training support is measured by the intensity of training and active participation of farmers in each training activity. Beef cattle training is useful to increase the knowledge of farmers in beef cattle business management. Quality training with high intensity will have an impact on improving the skills of beef cattle farmers. Ceballos et al. (2018) concluded that proper training will result in good knowledge and attitudes in beef cattle management. The intensity of this training is measured based on the training method, frequency and length of training that is attended by beef cattle farmers. The intensity of cattle farmer training in Timor Tengah Utara and Belu regencies did not have a significant difference and was classified as very low. The overall training intensity in the two districts, which is classified as very low, at 84.42 percent indicates that the training programs that have been prepared by the relevant stakeholders have not been able to encourage an active role and have a significant impact that can be felt by farmers in the area. This condition can be seen from the actions of farmers who are rarely involved in various training activities with a sufficient number of training hours. This is because some farmers feel that the impact of the training they have received so far has not been felt for increasing the productivity of their beef cattle business.

It is necessary to increase the creativity of the extension workers to improve training activities in the two districts. The frequency of participating in the training was influenced by the creativity of the instructor in presenting the material in an interesting way. Improvements in training methods and training frequency need to be carried out so that farmers are able to feel the impact of the training they are participating in. Training should be conducted based on the needs analysis of the farmer. The training will be successful if the motivation and involvement of beef cattle farmers is high in participating in each training

activity. Suardika et al. (2015) stated that improving the skills of beef cattle farmers needs to be done by increasing the frequency of training and technical practice in the field. The high intensity of training will improve the performance of beef cattle breeders. Prapatigul and Sreshthaputra (2021) stated that beef cattle training attended by farmers with sufficient training hours will increase the performance of these farmers. The output of the training must be able to create a work system for cattle management that is more effective and efficient. Thus, improving the quality of training activities in Timor Tengah Utara and Belu regencies is one of the keys to supporting the performance of beef cattle farmers. Training is a performance improvement strategy for farmers with low formal education (Bounds and Zinyemba 2018). The training intensity level of beef cattle breeders in Timor Tengah Utara and Belu regencies are presented in Table 3.

Table 3. The training intensity level of beef cattle breeders in Timor Tengah Utara (TTU) and Belu Regencies

Characteristics of Beef Cattle Breeders	TTU		Belu		Total		Uji Mann Whitney
	n	%	n	%	n	%	
Training Intensity							
Very Low (1-11 Hours)	285	84.60	105	84.00	390	84.42	0.838
Low (12-23 Hours)	43	12.80	15	12.00	58	12.55	
High (24-35 Hours)	7	2.10	3	2.40	10	2.16	
Very High (36-47 Hours)	2	0.60	2	1.60	4	0.87	
Average = 5.79 Hours							

Description: **there is a very significant difference, *there is a significant difference

3.4 Length of raising beef cattle

The length of raising affects the smooth running of a livestock business. The length of livestock farming affects the readiness and ability of a person in running his livestock business. The experience of beef cattle farmers in Belu Regency is longer than that of beef cattle farmers in Timor Tengah Utara Regency. Breeders who have a very high length of rearing are generally older breeders and have been working on beef cattle for a long time even before joining a group of beef cattle breeders in their area. Rogers (2003) states that experience will influence a person in making decisions. The training intensity level of beef cattle breeders in Timor Tengah Utara and Belu regencies are presented in Table 4.

Table 4. The length of raising beef cattle in Timor Tengah Utara (TTU) and Belu Regencies

Characteristics of Beef Cattle Breeders	TTU		Belu		Total		Uji Mann Whitney
	n	%	n	%	n	%	
Length of raising beef cattle							
Very Low (1-12 Years)	280	83.08	85	68.00	365	79.01	0.040*
Low (13-24 Years)	48	14.24	8	7.20	56	12.12	
Height (25-36 Years)	7	2.10	23	18.40	30	6.49	
Very High (37-48 Years)	2	0.60	9	6.40	11	2.38	
Average = 8.54 Years							

Description: **there is a very significant difference, *there is a significant difference

The difference in the length of raising the breeder causes the ability of farmers to overcome the problems they face. Beef cattle breeders who spend more time raising beef cattle will learn from their experiences in finding solutions to problems that arise in their livestock business activities. Farmers who have experience raising beef cattle in the very low category dominate the two districts. Overall, breeders with a very low length of rearing were 84.42 percent. Most of the breeders include farmers who

have just joined the beef cattle farmer group. Suroto and Nurhasan (2014) stated that 62.5 percent of beef cattle breeders had less than 5 years of breeding time. The traditional beef cattle rearing system is also influenced by the long-standing experience of beef cattle breeders and the experience of parents who are passed on to children who are just starting a beef cattle business. Kurnia et al. (2019) states that breeders who have longer livestock experience tend to be more responsive and open to information submitted by extension workers to improve the management of their livestock business which is still traditional.

3.5 Beef cattle business scale

Business scale is the number of beef cattle kept by farmers. Most of the ownership status of beef cattle in Timor Tengah Utara and Belu Regencies is government assistance. Sol'uf et al. (2021) stated that the East Nusa Tenggara provincial government has made various efforts to overcome the problem of low livestock productivity, one of which is the provision of feeder beef cattle. In addition to livestock ownership that comes from government assistance, beef cattle ownership status also comes from parental inheritance and profit sharing with other parties. Suardika et al. (2015) stated that the majority of beef cattle farming businesses in Timor Tengah Utara are small-scale businesses that are conventionally managed, small-scale and depend on the availability of natural grass. The beef cattle business scale in Timor Tengah Utara and Belu regencies are presented in Table 5.

Table 5. The beef cattle business scale in Timor Tengah Utara (TTU) and Belu Regencies

Characteristics of Beef Cattle Breeders	TTU		Belu		Total		Uji Mann Whitney
	n	%	n	%	n	%	
Beef cattle business scale							
Very small (1-5 beef cattle)	278	82.50	95	76.00	373	80.74	0.108
Small (6-10 beef cattle)	47	13.90	23	18.40	70	15.15	
Big (11-15 beef cattle)	8	2.40	3	2.40	11	2.38	
Very Large (16-20 beef cattle)	4	1.20	4	3.20	8	1.73	
Average = 3.27 beef cattle							

Description: **there is a very significant difference, *there is a significant difference

The scale of beef cattle business is correlated with business productivity. Cattle that are kept by breeders in Timor Tengah Utara and Belu Regencies are dominated by female mothers. The business scale is categorized as very low in the two regions, reaching 80.74 percent. This situation proves that the scale of beef cattle business needs to be increased to make it more economical. Long et al. (2020) stated that the scale of the beef cattle business is a determinant of increasing family income.

3.6. Beef cattle business motivation

Business motivation is the encouragement of farmers to work better in managing the beef cattle business. Motivation to try is very influential on the success of beef cattle business. The motivation of farmers to try beef cattle in Belu Regency is higher than that of farmers in Timor Tengah Utara Regency. Beef cattle breeders who have high and very high motivation take action to increase the number of cattle that are kept. This action is carried out by farmers who feel the impact of increasing family income from the beef cattle business. Farmers with high motivation dare to increase the number of cows kept by 50 percent or even 100 percent from the previous number. Farmers have very low motivation and do not even have the desire to develop their business, most of them are in Timor Tengah Utara Regency. The farmer who has no desire to develop his beef cattle business considers that the beef cattle business can only be used as a side business and cannot be the main source of family income. Beef cattle farming business is perceived as a source of side income for the family which is only for savings to meet urgent family needs. Thus, farmers prioritize agricultural business over beef cattle business development. Overall, farmers who have very low motivation to do business are 39.61 percent, while farmers who have very high motivation to do business are 30.52 percent.

Nugraha et al. (2021) stated that the level of motivation of beef cattle farmers is strongly influenced by the maintenance system, the number of livestock ownership, non-livestock income and the area of agricultural land ownership. Variations in the motivation of beef cattle farmers in Timor Tengah Utara and Belu Regencies are caused by economic and non-economic motives.

This is in accordance with the research results of Alam et al. (2014) show that the level of motivation to raise beef cattle varies, among others, due to the encouragement of economic improvement, social motivation and encouragement for hobbies. The beef cattle business motivation in Timor Tengah Utara and Belu regencies are presented in Table 6.

Table 6. The beef cattle business motivation in Timor Tengah Utara (TTU) and Belu Regencies

Characteristics of Beef Cattle Breeders	TTU		Belu		Total		Uji Mann Whitney
	n	%	n	%	n	%	
Beef cattle business motivation							
Very Low (1-1.99)	166	49.20	35	28.00	201	43.51	0.003**
Low (2-2.99)	40	11.90	28	22.40	68	14.72	
Height (3-3.99)	29	8.60	23	18.40	52	11.26	
Very High (4)	102	30.30	39	31.20	141	30.52	
Average = 2.24							

Description: **there is a very significant difference, *there is a significant difference

3.7 Cosmopolitan Level

The cosmopolitan of beef cattle breeders in Timor Tengah Utara Regency is very significantly different from that of beef cattle breeders in Belu Regency. Breeders with a very high level of cosmopolitan in the Timor Tengah Utara area try to find information from farmers who are more advanced in developing their business. In general, breeders who have high cosmopolitan are young breeders and have high motivation to develop their business. These breeders are more adaptive and open to an innovation that is known after interacting with other parties. Baba et al. (2019) stated that breeders with a high level of cosmopolitan have a higher level of knowledge and experience. Some of the ways that breeders with high cosmopolitan access to information are by visiting other parties such as extension workers, veterinarians and traders in the livestock market, which are beneficial for the development of beef cattle business.

Most of the breeders with the lowest level of cosmopolitan are in Belu Regency. Breeders in the Belu area rarely travel outside their territory to seek information related to beef cattle business development. This shows a picture of farmers who are less active and responsive in interacting with other parties to exchange information in the beef cattle sector. Fauziyah et al. (2015) stated that breeders with high cosmopolitan levels were better able to access information and business capital compared to breeders with low cosmopolitan levels. Farmers who are more adaptive to openness will have an effect on change actions to improve their farming business. Overall, the level of cosmopolitan in these two areas is still very low, as much as 87.66 percent of the total farmer respondents. The Cosmopolitan level of beef cattle breeders in Timor Tengah Utara and Belu regencies are presented in Table 7.

Table 7. The cosmopolitan level of beef cattle breeders in Timor Tengah Utara (TTU) and Belu Regencies

Characteristics of Beef Cattle Breeders	TTU		Belu		Total		Uji Mann Whitney
	n	%	n	%	n	%	
Cosmopolitan Level							
Very Low (1-19 times)	287	85.20	118	94.40	405	87.66	0.008**
Low (20-38 times)	38	11.30	4	3.20	42	9.09	
Height (39-57 times)	10	3.00	3	2.40	13	2.81	
Very High (58-76 times)	2	0.60	0	0.00	2	0.43	
Average = 9.86 times							

Description: **there is a very significant difference, *there is a significant difference

IV. CONCLUSION

In general, the characteristics of beef cattle breeders in the districts of Timor Tengah Utara and Belu are in a relatively low category. The characteristics of beef cattle breeders based on age, education level, intensity of counseling, beef cattle business scale did not have significant differences in the two districts. The characteristics of beef cattle breeders based on length of time raising beef cattle, beef cattle business motivation and cosmopolitan level have significant differences in the two regencies.

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