Farmer performance in beef cattle production Intibona Village, Indonesia

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Abstract. This study aims to understand the performance of breeders in beef cattle farming in the Tibona Village, Bulukumpa District, Bulukumba Regency. This research was conducted between May and July 2019. The samples for this study was drawn based on purposive sampling method. This research located in the most populated beef cattle in Bulukumba Regency which has the largest number of beef cattle populations, 2252. The population in this study were beef cattle breeders in Tibona Village, Bulukumpa district, Bulukumba Regency as many as 350 populations. There are seven hamlets in Tibona Village, each of which has two farmers/staff groups while each group consist of 25 farmers. The research used descriptive analysis. The results of this study regarding the Performance of Farmers in Beef Cattle business in Tibona Village, Bulukumpa sub-district, District of Bulukumba, showed that overall, the performance of breeders in Tibona Village included in the category of good performance.

1. Introduction

Beef cattle farming are dominated by small-scale businesses. Animal husbandries are not something rarely carried out but unfortunately, many of them are still side-businesses with small capital and poor management. The development of beef cattle production has many obstacles because it is still occupy the traditional management and is very unfeasible due to not producing maximally. It is probably caused by a variety of socioeconomic factors particularly relating to the revenue received and expenses incurred by breeders. Various other factors like business scale, the status of livestock ownership, farmer’s education and experience will affect the revenue and benefit to be obtained by farmers. Various problems can indeed be an impediment to increase beef cattle production [1,2].

The low performance in developing beef cattle production causes the demand of meat can not be fulfilled. This low performance occurs because of some issues that become bottleneck in developing the beef cattle production. The government in the last two decades has introduced beef self-sufficiency
program, but it is not yet succeed. Several problems, both technical and nontechnical (policy, management, coordination) have stunted and slowed down the development of cattle farm.[3,4].

Tibona village in Bulukumpa District, South Sulawesi Province of Indonesia, have the community whose livelihoods are farmers or breeders that still use traditional method in raising cattle beef. However, Tibona Vilage has the largest population of beef cattle in Bulukumpa District. Based on the data from the Livestock Office of Bulukumba Regency, almost every resident has livestock mainly beef cattle and there are 2252 beef cattles in the village (14.51 % of the total beef cattle population in Bulukumpa District.[5].

The objective this study was to reveal the performance of the beef cattle producers in Tibona Village, District of Bulukumpa, Bulukumba Regency, South Sulawesi province, Indonesia.

2. Methods

2.1. Place and time
The research was conducted in May-July 2019 in Tibona Village, Bulukumpa District, South Sulawesi Province, Indonesia. The location is determined by deliberately (purposive) because the area has the largest population of beef cattle in the Region.

2.2. Research method
The method of this research was survey which conducted by collecting primary and secondary data. Primary data was collected by interviews with the cattle producers using questionnaires. Secondary data such as village monograph, population of livestock, and the number of household which produce beef cattle was obtained from related office namely Agricultural Extension Station located in Tibona Village.

2.3. Data analysis
The data was analyzed descriptively. The performance of farmers was set into three classifications namely excellent performance (score = 3), good performance (score = 2) and poor performance (score = 1). The performance of farmers which was observed namely: 1) the performance in the election and reproduction of seeds 2) performance in feeding and, 3) performance in the shed management.

Before classifying the performance of farmers, the interval scale was need to be determined. First, the interval value must be counted using the formula:

\[
\text{Criterium score} = \text{value score} \times \text{number of respondent}
\]

The highest score was 3, and the number of respondent was 40, so it can be counted as follows:

- 3 x 40 = 120
- 2 x 40 = 80
- 1 x 40 = 40

So that we obtained the category of performance as follows:

- excellent performance was given the score 3 with the value 81-120
- good performance was given the score 2 with the value 41-80
- poor performance was given the score 1 with the value ≤40

3. Results and Discussions

3.1. The overview of farming system in Tibona Village
Beef cattle production in Tibona village still implements traditional system. This can be seen in the construction of the cow shed that still closes to the house or even still merges with the house. Almost all
of the farmers applied semi-intensive raising in which the farmers pastored their cattle in the morning until high noon and then drove them to the shed in the afternoon and the evening.

Generally the maintenance of cattle in Tibona Village was conducted with limited capital and technology, and only regarded as a side business to meet the needs of households. Farmers make beef cattle as a breeding and fattening business in which the farmers raise young cattle in a certain period and then sell it as beef cattle or raise it to produce calves for fattening.

Most of the farmers in Tibona Village have only small scale business, with 1-5 cattle for every farmer. This occurred because farmers still had several weaknesses in raising livestock, for example the production process have not been maximum yet, the farmers still do not apply the good selection of feeder cattle, the type of feed given is limited, an attempt to provide feed is still limited and shed management is still very traditional.

3.2. Farmers Performance in seed selection and reproduction

Raising system of beef cattle in Tibona village in the aspect of feeder cattle selection and reproduction system can be seen in table 1 as follows:

| Table 1. Farmers Performance in Selection of seed and Reproduction |
|---------------------------------------------------------------|
| **Farmer performance** | Description | Category | Number of respondent | Percentage | Score | Performance value |
| Feeder cattle selection | Breed, Genetik, healthy, Physic | Excellent Performance | 34 | 85 | 3 | 102 |
| | Breed, Genetic | Good Performance | 4 | 10 | 2 | 8 |
| | Phisyc | Poor Performance | 2 | 5 | 1 | 2 |
| Total | | | 40 | 100 | | 112 |
| Mating system | Artificial Insemination and Natural mating | Excellent Performance | 9 | 22,5 | 3 | 27 |
| | Natural mating | Good Performance | 26 | 65,0 | 2 | 52 |
| | Without mating | Poor Performance | 5 | 12,5 | 1 | 5 |
| Total | | | 40 | 100 | | 84 |

Table 1 reveal that the majority of farmers in feeder cattle selection included in excellent performance category in which 34 farmers ( 85 % ) conducted feeder cattle selection by observing carefully the breed, genetic, health and physic with a total value performance of 112. Seen from the way farmers to choose feeder, it can be said that farmers having excellent knowledge and experience in determining the quality of feeders that they will raise. This is in accordance with opinion [6], that in the selection of candidate feeders, farmers need to know criteria for feeder cattle selection and measurement of cattle.
Most farmers have good performance in mating system of beef cattle namely 26 respondents (65.0%) mated their livestock naturally with the total value of performance 84. This high value of performance due to the low rate of artificial insemination succeed; sometimes farmers have to do it two or three times and it requires a fee. In addition, farmers can easily find stud if cattle in estrous cycle. This is in accordance with opinion of [7], that limited inseminator and the low rate of succeeding artificial insemination make farmers prefer natural mating system.

3.3. Farmer’s performance in feeding

Beef cattle maintenance system in the Tibona village in feeding aspect consist of kind of feed, forage sources and feeding frequency which can be seen in table 2 as follows:

Table 2. Farmer’s performance of feeding

| Farmers performance | Description                                                                 | Category        | Number of respondent | Percentage | Score | Performance value |
|---------------------|-----------------------------------------------------------------------------|-----------------|----------------------|------------|-------|-------------------|
| Type of Feeding     | Forage (grass and legumes), feed additives (concentrate), agricultural waste| Excellent Performance | 0                    | 0          | 3     | 0                 |
|                     | Forage (grass and legumes), feed additives (concentrate)                   | Good Performance | 0                    | 0          | 2     | 0                 |
|                     | Forage (elephant grass and grass), feed additives (salt and rice bran)      | Poor Performance | 40                   | 100        | 1     | 40                |
| Total               |                                                                            |                 | 40                   | 100        |       | 112               |
| Source of Feed      | Forage preservation                                                        | Excellent Performance | 26                  | 65         | 3     | 78                |
|                     | Planting grass and legumes                                                 | Good Performance | 10                   | 25         | 2     | 20                |
|                     | Planting elephant grass and using natural grass                             | Poor Performance | 4                    | 10         | 1     | 4                 |
| Total               |                                                                            |                 | 40                   | 100        |       | 102               |
| Average value performance |                                                                         |                 |                      |            |       | 107               |

Table 2 suggesting that all farmers as much as 40 respondents (100%), just give fodder of forage (elephant grass and natural forage grass) as well as supplementary feed i.e. salt and rice bran with a total value performance of 40. This result shows that farmers included in the category of poor performance because basic living needs of cattle have not yet fully be met. The reason is that natural grass, salt and rice bran rice are more easily to be obtained than the other type of feed like concentrate because the cost was quite expensive.
An efficient and economically beef cattle production will succeed only if the feed needed is fulfill. The good feeding result in healthy and endurance of beef cattle. Feeding for beef cattle aims to fulfill their basic needs, maintenance the body and optimizing reproduction process.

3.4. Beef cattle housing system

Beef cattle housing system in the Tibona village, included selection of location for the shed, the position of the shed, shed construction and shed area which can be seen in the table below:

| **Table 3. Farmer’s Performance of Housing System** |
|---------------------------------------------------|
| **Farmer’s performance** | **Description** | **Category** | **Frequency** | **Percentage** | **Score** | **Performance value** |
| Choosing shed Location | Close to water sources, feed, easy transportation and wide area | Excellent Performance | 4 | 12.5 | 3 | 12 |
| | Close to water sources, feed, transportation easy and wide area | Good Performance | 11 | 34.3 | 2 | 22 |
| | Far from water and feed resources, narrow area | Poor Performance | 17 | 53.1 | 1 | 17 |
| Total | | | 32 | 100 | | 51 |

The location of the cow shed building

| **Farmer’s performance** | **Description** | **Category** | **Frequency** | **Percentage** | **Score** | **Performance value** |
| The location of the cow shed building | High surface, not close from housing, do not disrupt the environmental health, far from road, and the waste water is drained efficiently | Excellent Performance | 1 | 3.1 | 3 | 3 |
| | Not close to housing at least 10 m, do not disrupt the environmental health and far from road | Good Performance | 7 | 22.4 | 2 | 14 |
| | Be near the house or under the house | Poor Performance | 24 | 75.0 | 1 | 24 |
| Total | | | 32 | 100 | | 41 |

Shed construction

| **Farmer’s performance** | **Description** | **Category** | **Frequency** | **Percentage** | **Score** | **Performance value** |
| Shed construction | Strong, easy to clean, has an air circulation, not moist, has a wheelwright dirt and drainage | Excellent performance | 2 | 15.6 | 3 | 6 |
Easy to clean, has an air circulation, a wheelwright dirt and drainage | Good Performance | 12 | 37.5 | 2 | 24

Strong, have an air circulation system, but does not have a wheelwright dirt | Poor Performance | 18 | 56.2 | 1 | 18

| Total | 32 | 100 | 48 |

Table 3 shows that beef cattle farmers in Tibona village have poor performance in choosing location for shed where most of the farmers (53.1%) choose the shed location which far away from fodder or water sources and narrow area, but the transportation is easy to be accessed. However, overall, the performance of farmers included in a category good performance with a total value performance by 5. This is because farmers do not apply a good selection for shedding which is required for good productivity. This was also suggested [7], that housing management is one of the production factors which has not yet received attention in beef cattle husbandry especially public beef cattle husbandry.

The performance of farmers in choosing shed layout is not good enough in Tibona village where most of the farmers (75.0%) choose shed layout which are near a house or are under their house, although overall farmers performance included in a category of good performance with a total performance value of 41. This is because farmers in the Tibona village quite easy to control and manage their livestock, but they are less concern about the environment. Rasyid and Hartati [8] suggested that some requirements that need attention in assembling the shed for beef cattle are technical aspect, economical aspect, healthy shed (ventilation, cow dung disposal), efficient management and health environment.

The performance of farmers in the Tibona Village performing poor performance on shed construction where most of farmers (56.2%) have a strong shed construction and good air circulation but have no wheelwright dirt which is making it difficult to be cleaned. But as a whole the performance of farmers included in category good performance well with the total total value performance 48. This is not in accordance with the opinions [8], who suggested that housing construction must be strong, easy to clean, has good air circulation, no moist, has a wheelwright dirt and drainage channel.

The total value of the performance of the cattle producers in shed management is 46.67 which are included in good performance. Livestock owners know that in the management of shed there are several things that should be noticed to increase productivity of beef cattle. This is in accordance with statements from [7] that the requirements for shed is important issues that need to be given attention in develop beef cattle shed. For assembling a good housing, farmers need to pay attention to choose housing location, layout, the construction, the materials and equipment for housing so that it can increase the productivity of beef cattle.

4. Conclusions and recommendations

4.1. Conclusion

The results of the research can be concluded as follows:
- farmers performance in feeder cattle selection and reproduction for overall is included in excellent category.
- farmers performance in feeding is in the category of good performance as a whole.
- farmers performance in shed management is in the category of excellent performance as a whole.

4.2. Recommendation

Farmers are expected to be able to improve their performance so that the beef cattle business can develop well so that it can meet the demand for meat.

References

[1] Directorate general of Animal Husbandry 2013 Animal health and animal husbandry statistics Report (Jakarta: Ministry of Agriculture)

[2] Lestari T D, Ismudiono I, Sardjito T, Yamato O, Takagi M, Yabuki A and Srianto P 2019 Breeding performance of Indonesian beef cattle as recipients for embryo transfer J. Vet. Med. Sci. 81 1688–91

[3] Directorate general of Animal Husbandry 2018 Animal health and animal husbandry statistics Report (Jakarta: Ministry of Agriculture)

[4] Rustinsyah R 2019 The significance of social relations in rural development: A case study of a beef-cattle farmer group in Indonesia J. Co-op. Organ. Manag. 1–7

[5] Hartati and Efendy J 2011 Beef cattle breeding “Grati Model” Report (East Java: Agency of Agricultural Research and Development)

[6] Indrayani, I and Andri 2018 Factors affecting revenue of beef cattle production in Sitiung sub-district, Dharmasraya District Journal of animal husbandry Indonesia. 20 151-159

[7] Sugiyono 2012 Qualitative, Quantitative and R&D research method (Bandung: Alfabeta)

[8] Nuhung I A 2015 Performance, obstacles and strategy achievement of beef cattle self-sufficiency. Agroeconomy Research Forum 33 63-80

[9] Rasyid A and Hartati 2007 Technical instruction shedding of beef cattle Report (East Java: Agency of Agricultural Research and Development)