Study of the application of technical aspects of Pesisir cattle in several regions of West Sumatera to maintain the existence of native Indonesian beef cattle

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Abstract. Pesisir cattle are native Indonesian germplasm living in the coastal areas of West Sumatera. Pesisir cattle population was to decline from year to year. This research aims to examine the technical aspects of the maintenance of pesisir cattle in several regions in West Sumatera to maintain the existence of this native Indonesian beef cattle. The research method used is a survey. The research location was determined based on the distribution of Pesisir cattle in several regions in West Sumatera, namely Pesisir Selatan Regency, Pasaman Barat Regency, Padang Pariaman Regency, Agam Regency and Padang City. Data analysis was done by tabulation and scoring in accordance with the Guidelines for Animal Husbandry Technical Aspects of the Directorate General of Animal Husbandry in 1992. The results showed that the technical maintenance of Pesisir cattle in Pesisir Selatan District, Pasaman Barat Regency, Padang Pariaman Regency, Agam Regency and Padang City were in the less category with scoring scores averaged 43.34%. This shows that Pesisir cattle breeding techniques in West Sumatera still need to be considered so that the native Indonesian cattle population can continue to grow.

Keywords – Pesisir cattle, technical aspects, West Sumatera.

1. Introduction
The population of beef cattle in West Sumatera in 2017 reached 393,481 cattle, this number decreased by 2.4% compared to beef cattle population in 2016 which reached to 403,048 cattle. The declining also occurred in the cattle slaughter which it was 120,186 cattle in 2016, the decreased by 24.5% in 2017 of 90,797 cattle [1]. The population decline will affect the amount of needs fulfillment of meat protein in West Sumatera. The beef cattle in West Sumatera consist of Simmental, Balinese, Brahman, Limmosine and Pesisir cattle. In 2011 the highest beef cattle population was in Pesisir Selatan Regency where the population reached 23% of the total beef cattle population in West Sumatera [6]. In 2017 the largest beef cattle population is still owned by Pesisir Selatan Regency of 81,786 heads or 20.8% of the total beef cattle population in West Sumatera [1].

Pesisir cattle is a native Indonesian germplasm that lives in the coastal area of West Sumatera and has been designated as a group through the Decree of Ministry of Agriculture No. 2908/Kpts/OT.140/6/2011. The Pesisir cattle population in West Sumatera can be found in the Regency of Pasaman Barat, Padang Pariaman, Agam, Padang City and Pesisir Selatan [2]. West Sumatera local cattle play an important role in the fulfillment of animal protein needs in West Sumatera. The population of beef cattle is not yet accurately known. The Pesisir cattle as the supporter of the fulfillment of animal protein needs in West Sumatera must be carefully preserved in order to maintain one of native Indonesian germplasm.
Most of the area in West Sumatera is located in hills and coastal areas. Pesisir cattle is a type of local cattle that can survive in coastal areas by utilizing the food that grows around it. Pesisir cattle is a local beef cattle that need to be considered by both regional and central government. In order to encourage the productivity and food security of animal protein especially beef, then the cultivation and productivity of local cattle should be considered as well.

The natural condition of Sumatera Barat is cool and dominated by hills, have fertile soil contours so that cattle feed grass are well-available in West Sumatera. A good raising technique can improve the productivity of the cattle being raised. Feed is an important part in the raising technique of cattle. Sufficient feed can make cattle grow healthy and productive. The cattle feed commonly used is forage and concentrate feed. Along with the increasing prices of concentrates and limited land to plant forage feed, an alternative feed is often used by farmers. One of the alternative feed used comes from agricultural waste such as straw [7]. Many regency in West Sumatera that with largest agricultural waste that can be used as beef cattle feed like Padang Pariaman, Agam and Pasaman Barat.

Pesisir cattle are usually raised extensively by the community. Cattle are released and allowed to find feed themselves around the house. Some breeders also do not have a housing for the Pesisir cattle. They believe that cattle they raised have a strong immune system and do not need a housing. Pesisir cattle are usually raised freely and receive very little attention from the breeders. In terms of other raising technique such as seed selection, raising management and disease prevention also must be considered carefully by the cattle so that their condition are healthy and can be sold at higher price. The Pesisir cattle are currently raised in several different locations in West Sumatera such as Regency of Pasaman Barat, Padang Pariaman, Agam, Padang City, and Pesisir Selatan. These different locations also have different technical aspects on the cattle raising. Based on the problems above, this research is conducted to study of the application of technical aspects of pesisir cattle in several regions of west sumatera to maintain the existence of native Indonesian beef cattle.

2. Research methods

This research was conducted in five Regency and one City in West Sumatera including regency of Pesisir Selatan, Pusuman Barat, Padang Pariaman, Agam and City of Padang who raise Pesisir cattle, with a total sample of 250 farmers. The determination of the number of samples in these five regions was carried out by accidental sampling, where the selected of breeders (farmer) was raising Pesisir cattle.

The research variable used was technique aspect in accordance with the standard by Director General of Animal Husbandry of 1992 which includes:
1. Breeding/Reproduction: Types of seeds raised, mating system, method of breeding selection, the first time mating, calving interval, mating season knowledge
2. Feed: The amount of forage given, quality of forage, frequency of forage feeding, provision of concentrate, mineral, drinking water quality, drinking water quantity, forage feeding processing
3. Raising procedures: cleaning/bathing the cattle, housing cleaning, energy utilizing, animal waste utilizing, recording
4. Housing: Housing location, housing construction, animal waste location, housing area/efficiency, housing equipment
5. Disease/Health: Disease knowledge: Anthrax, S.E. Snoring, A.E/Oral disease, Brucellosis, other diseases and vaccination/prevention.

The observed data were analyzed descriptively with the help of data tabulation and scoring in accordance with the guidelines by the Director General of Animal Husbandry 1992. Based on the scoring results, it can be concluded that:
1. The score percentage of 81% – 100% is categorized as good
2. The score percentage of 60% - 80% is categorized as medium
3. The score percentage less than 60% is categorized as poor
3. Results and discussion

People of West Sumatera called the Pesisir cattle as its local name, such as *jawi ratuih* or *bantiang ratuih*, which means cows that produce many calves. Pesisir cattle is a native Indonesian germplasm that lives in the coastal area of West Sumatera, which has been designated as a group through the Decree of Minister of Agriculture No. 2908/Kpts/OT.140/6/2011. The populations of Pesisir cattle are found in the Regency of Pasaman Barat, Padang Pariaman, Agam, Pesisir Selatan and City of Padang [2]. Pesisir cattle act as a source of animal protein in the form of meat for people of West Sumatera. Pesisir cattle are currently marketed to various regions outside West Sumatera such as Bengkulu, Riau and Jambi. The demand of Pesisir cattle increases before the celebration of Eid Adha. In addition, the community also raises cattle as their savings for the future of their children and families. Business orientation is not really reflected in the breeders in their community also raises and business to a larger direction.

Pesisir cattle have high carcasses percentage (50.5%), high fertility rate, high survival rate, able to consume coarse fiber, able to survive with poor nutrition. They can also adapt to tropical environment, resistant to tropical disease, benign temperament so that they can be easily controlled. The specific characteristics of Pesisir cattle are adult male of 4-6 years old weighted 186 kg and 99 cm height. Calves of 1.5-2.5 years old only grows 20 gr/head/day and young mother of 3-4 years old grows around 140-225 gr/head/day. The males have short head, short and big neck, wide neck backs, large humps, short and rounded rudders. The females have rather long and thin heads, tilted, short and thin rudders, small horns and pointing outwards. The first pregnancy is 30 months. The age of first birth is 40 months [2]. Pesisir cattle have a small body size, the carcasses percentage of Pesisir cattle reached 50.6%, higher than the carcasses percentage of ongole cattle (48.80%), Madurese cattle (47.20%), PO cattle (45%), and buffalo (39.30%) [3].

Table 1. Technical aspect of Pesisir cattle in several region in West Sumatera.

| No  | Technical Aspect | Score Standard of Director General of Animal Husbandry of '92 | Pesisir Selatan Regency | North Pasaman Regency | Padang Pariaman Regency | Agam Regency | Padang City |
|-----|------------------|--------------------------------------------------------------|-------------------------|-----------------------|-------------------------|--------------|-------------|
| 1.  | Seedlings/ Reproduction | 300                                           | 65.3                    | 115.81                | 192.9                   | 133.1        | 137.2       |
| 2.  | Feed             | 300                                           | 113.4                   | 149.31                | 161.5                   | 166.11       | 108.34      |
| 3.  | Housing          | 100                                           | 52.3                    | 48.72                 | 50.1                    | 45.67        | 50.8        |
| 4.  | Raising Management | 100                                         | 70.6                    | 58.61                 | 68.1                    | 68.12        | 47.36       |
| 5.  | Disease Prevention | 200                                         | 25.2                    | 48.26                 | 96.6                    | 58.67        | 65.18       |
|     | Total            | 1000                                         | 326.8                   | 420.71                | 569.2                   | 471.67       | 408.88      |

The ability to convert fibrous feed into meat makes these cattle potential as the meat producer and popular as a sacrificial animal. The body weight is one of the characteristics of Pesisir cattle. The body weight and size are affected by the genetic and environmental factor, especially feed. This is considering that their feed still relies on grass from cattle grazing and from field, without addition of concentrate or grains. Therefore, cattle only adjust the production capability with the natural resources condition. The lack of input given causes less cattle production [3].

Reproduction performance of Pesisir cattle and Balinese cattle in Bayang Regency (part or Pesisir Selatan Regency) is different. This is apparent from the lower reproduction performance of Pesisir cattle compared to Balinese cattle with the first mating & first service after calving, calving interval, pregnancy length are subsequently 68.73 days, 545.12 days, 277.39 days for Pesisir cattle; 211.36 days, 500.63 days, 278 days for Balinese cattle. Whereas the calving rate of Pesisir cattle is higher.
than Balinese cattle, which is 73.03% for Pesisir cattle and 50% for Balinese cattle [4]. Based on the table above, it can be seen that the technical maintenance of Pesisir cattle in the Pesisir Selatan District has the lowest score compared to other districts / cities in the western Sumatera region. Disease control and housing management have not been an important concern for farmers because Pesisir cattle are currently maintained with extensive or released systems. Disease control is also difficult to do because livestock roam along the road or coast in the area. [5] says low feed quality because the Pesisir cattle only consume wild grass that grows in the shrubs, roadside, or in coconut field. The forages consumed by Pesisir cattle have higher water content and lack of dry material. In addition, the breeders do not provide additional feed either in the form of forage or concentrate. As a result, the cattle lack of main nutrition supply such as protein and minerals needed for normal reproduction performance.

Table 2. Thechnical aspect of Pesisir cattle in West Sumatera.

| No | Technical Aspects     | Score Standard of Director General of Animal Husbandry of 1992 | Score of Research Results | Percentage (%) |
|----|-----------------------|---------------------------------------------------------------|---------------------------|----------------|
| 1  | Breeding/Reproduction | 300                                                           | 125.34                    | 41.78          |
| 2  | Feed                  | 300                                                           | 139.72                    | 46.57          |
| 3  | Housing               | 100                                                           | 49.49                     | 49.49          |
| 4  | Raising Management    | 100                                                           | 62.57                     | 62.57          |
| 5  | Disease Prevention    | 200                                                           | 56.30                     | 28.49          |
|    | **Total**             | **1000**                                                      | **433.42**                | **43.34**      |

According to [3] the development of Pesisir cattle face the production decline in the last few years which was reflected in the declining population and productivity due to lack of environmental support and low competitiveness to the imported cattle. Limited grazing field causes grass consumption to decrease so that the weight gain decrease by 50 g/head/day. This condition causes the breeders interest to raise Pesisir cattle decline and switch to import cattle business that have higher productivity. This is feared to affect the sustainability of local cattle in the future. Therefore, serious efforts are necessary to conserve Pesisir cattle germplasm to avoid extinction. The development of modern husbandry while still paying attention to local wisdom can be one of the efforts to maintain the sustainability of these local cattle.

4. Conclusion

The technique of Pesisir cattle raising in several region in West Sumatera have different methods both in terms of seedlings/reproduction system, feeding, raising management, housing and disease prevention. The raising technique carried out to the Pesisir cattle in West Sumatera is less categorized (43.34%) which means overall improvement on the cattle raising technique are necessary to preserve the existence of local cattle as native Indonesian germplasm.

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