

Quantitative Performance of Krui Cattle in Traditional Farming in Krui Selatan and Pesisir Selatan District, Pesisir Barat Regency, Lampung

Dian Kurniawati*, Akhmad Dakhlan, Kusuma Adhianto, and Teguh Rafian

Department of Animal Husbandry, Faculty of Agriculture, University of Lampung, Indonesia

Corresponding Author: dian.kurniawati@fp.unila.ac.id

Article info: Submitted: 2025-03-21, Accepted: 2025-06-10, Publish: 2025-06-29

ABSTRACT: The objective of this study was to evaluate the quantitative performance of thirty-six Krui cattle aged 18 to 36 months, raised on a traditional farm located in the Krui Selatan and Pesisir Selatan district, Pesisir Barat Regency, Lampung. A survey method using purposive sampling was employed to collect the samples. Body measurements, including body weight (BW), body length (BL), chest width (CW), chest circumference (CC), chest depth (CD), and hip circumference (HC), were recorded. The collected data were analysed descriptively. The findings revealed that BW, BL, CW, CC, CD, and HC of the Krui cattle in Krui Selatan District were: 175.40 ± 41.77 kg, 111.18 ± 5.74 cm, 28.18 ± 2.56 cm, 138.55 ± 16.88 cm, 52.73 ± 8.19 cm, and 18.00 ± 1.41 cm, respectively. At the same time, the Krui cattle's BW, BL, CW, CC, CD, and HC in Pesisir Selatan District were 154.23 ± 65.70 kg, 110.64 ± 9.36 cm, 24.86 ± 5.15 cm, 120.80 ± 11.2 cm, 47.67 ± 5.33 cm, and 17.64 ± 1.36 cm, respectively. This study concludes that the quantitative performance of Krui cattle in Traditional Farming in Krui Selatan District is greater than that of Krui cattle in Pesisir Selatan District. Still, more miniature compared to other local cattle breeds (Madura cattle, Bali cattle, Aceh cattle, Ongole grade cattle, and Jabres cattle) in Indonesia.

Keywords: Krui cattle, Pesisir Barat Regency, quantitative performance, traditional farmers

Reference to this paper should be made as follows:

Kurniawati, D., A. Dakhlan, K. Adhianto, and T. Rafian. 2025. Quantitative Performance of Krui Cattle in Traditional Farming in Krui Selatan and Pesisir Selatan District, Pesisir Barat Regency, Lampung Agritropica. J. Agr. Sci. 8 (1):1-6.
<https://doi.org/10.31186/J.agritropica.8.1.1-6>.

INTRODUCTION

The indigenous Lampung cattle reared in Pesisir Barat are Krui cattle. Currently, the Krui cattle population still dominates the cattle reared in Pesisir Barat, although most Krui cattle farming systems still employ traditional methods. The traditional cattle farming system in Krui, West Pesisir, significantly impacts quantitative performance due to insufficient attention to the nutritional adequacy of the livestock. Deficiencies in nutrients, vitamins, and minerals in cattle can affect metabolic processes within the body, thereby disturbing productivity and growth (Roviki et al., 2014).

Krui cattle are raised primarily as beef cattle to meet the consumption needs of Lampung

people, particularly in the West Coast region. Krui cattle continue to be maintained by local communities in West Pesisir not only for economic purposes, but also for social and cultural reasons. Their role in local traditions and livelihoods makes them an integral part of the region's livestock sector.

Currently, national food production is unable to meet domestic demand for meat. Increasing beef imports can be an indicator that domestic beef demand is insufficient to satisfy the growing demand. Every observable trait in an animal is influenced by genetic makeup. Therefore, genetic information can be utilised as a marker to identify and select desirable traits in livestock (Sarbaini, 2004). Body weight and vital

statistics are indicators of livestock productivity. As livestock age, their body weight typically increases, reflecting growth and development. Increases in body size measurements such as heart girth, body length, and height often accompany this weight gain. These physical traits are positively correlated with body weight and can serve as reliable indicators for assessing growth performance. Consequently, monitoring these parameters is crucial in livestock breeding programs, as they influence decisions related to breed selection and overall animal productivity (Kurniawan et al., 2022). Quantitative performance parameters, including body weight, body length, chest width, chest circumference, chest depth, and hip circumference, are of significant importance in this study, as they serve as indicators of livestock productivity. With increasing age, livestock exhibit an augmentation in their body weight, body length, chest width, chest circumference, chest depth, and hip circumference. Consequently, an increase in these quantitative measurements correlates with an improvement in the demographic statistics of the livestock. Furthermore, a crucial statistical measure for livestock is their body dimensions (body weight, body length, chest width, chest circumference, chest depth, and hip circumference), the increases of which are linearly interconnected. Significant statistics, including growth, weight, and size (body weight, body length, chest width, chest circumference, chest depth, and hip circumference), can directly influence the selection of livestock breeds.

Krui cattle, when bred properly, have the potential to thrive and offer significant benefits to local communities. Their notable advantages include strong adaptation to local environments and resistance to diseases. These traits position Krui cattle as one of Indonesia's most promising native breeds. According to Rafian et al. (2023), Indonesia possesses substantial potential for developing its livestock sector. A crucial initial step in advancing Krui cattle breeding is the implementation of comprehensive record-keeping systems. Such records are essential for collecting pedigree information from both male and female cattle, thereby clarifying their genetic origins and history. Through systematic breeding and accurate documentation, male Krui cattle have the potential to emerge as top native

producers of semen in Indonesia, significantly contributing to the nation's livestock improvement programs.

The objective of this study was to determine the quantitative distribution of Krui cattle in the Krui Selatan and Pesisir Selatan subdistricts of Pesisir Barat District, Lampung. The results of this study are expected to serve as a reference in the conservation of Krui cattle in Lampung.

MATERIALS AND METHODS

Materials

Thirty-six female Krui cows, aged 18-36 months, owned by farmers in the Krui Selatan and Pesisir Selatan subdistricts of Pesisir Barat, Lampung, were used in this study. The study was conducted over three months.

Methods

This study used a survey method. Samples were collected using a purposive sampling method, which selected Krui cattle that met the research standard based on the average age of 18 to 36 months.

The tools used were a 400 kg cattle body weight scale, a GHIL Products (UK) brand with 2 kg accuracy, and a measuring tape (108 inches) with a half-inch scale produced by The Coburn Co., Whitewater, Wisconsin, Inc., featuring a cm scale bar and 0.1 cm text scale. The parameters measured were Body Weight (BW), Body Length (BL), Chest Width (CW), Chest Circumference (CC), Chest Depth (CD), and Hip Circumference (HC).

Body Weight (BW) was measured by weighing the cattle using a 400 kg GHIL Products (UK) cattle scale with an accuracy of 2 kg.

Body Length (BL) was defined as the distance between the edge of the shoulder joint and the posterior edge of the tuber ischiadicum (pin bone). Measurement was performed by drawing a horizontal line from the outer edge of the hip joint to the posterior edge of the tuber ischiadicum, or measured from the shoulder to the base of the tail.

Chest Width (CW) represents the distance between the right and left shoulder joints. Measurement of chest width involved drawing a horizontal line from the outer edge of the left and right hip joints or the tuber ischiadicum. Alternatively, it was measured by drawing a

horizontal line from the outer edge of the hip joint to the posterior edge of the femur, between the left and right ribs, or by measuring from behind the scapula.

Chest Circumference (CC) is an indicator of the cattle's size. Chest girth was measured by encircling a tape measure around the cattle's chest, specifically behind the shoulder protrusion at the top and behind the forelegs, ensuring the animal was calm and standing upright.

Chest Depth (CD) was measured after ensuring the cattle were calm and standing upright. A measuring tape was then encircled around the cattle's chest, directly behind the forelegs, at the most anterior rib, just behind the forelegs.

Hip Circumference (HC) measurement involved ensuring the cattle were calm and standing upright. Hip height was first determined by measuring the perpendicular distance from the ground to the highest point of the rump (or behind the hump). Subsequently, hip girth was measured by encircling a tape measure around the cattle's hip.

All anthropometric data were analysed using descriptive statistics.

RESULTS AND DISCUSSION

The mean quantitative appearance of Krui cattle in the Krui Selatan and Pesisir Selatan subdistricts of Pesisir Barat district, Lampung, is presented in Table 1, and a picture of the Krui cattle used is shown in Figure 1.

Table 1. Mean body weight and morphological measures of Krui cattle

Variable Quantitative	Krui Selatan Subdistrict	Pesisir Selatan Subdistrict
Body Weight (BW)	175.40± 41.77 kg	154.23 ± 31.91 kg
Body Length (BL)	111.18± 5.74 cm	110.64 ± 7.65 cm
Chest Width (CW)	28.18± 2.56 cm	24.86 ± 3.79 cm
Chest Circumference (CC)	138.55±16.88 cm	130.80 ± 6.64 cm
Chest Depth (CD)	52.73± 8.19 cm	47.67 ± 3.56 cm
Hip Circumference (HC)	18.00± 1.41 cm	17.64 ± 0.76 cm

Values presented are mean ± standard deviation.



Figure 1. Krui cattle population in West Pesisir Selatan District, Lampung

Body Weight

The results showed that the average body weight of Krui cattle in Krui Selatan Subdistrict was higher than that of Krui cattle in Pesisir Selatan. This is thought to be because the supply of feed in the form of grass or feed plants in the South Krui area is relatively more abundant than in the South Pesisir area, where the grass is shorter.

Krui Selatan District is characterised by lowland areas where cattle coexist with the local population along the coast. Other regions primarily consist of plantations and community forests. The climate in Krui Selatan District is influenced by the surrounding sea, resulting in generally cool and humid weather, although it experiences intense heat during the day.

In contrast, Pesisir Selatan Regency has a hilly topography with elevations ranging from 0 to 1000 meters above sea level. It encompasses 57 islands and is drained by 18 rivers, including 11 major and 7 smaller rivers. Currently, the land cover in Pesisir Selatan Regency is predominantly forest, with 70.54% dense forest and 13.37% bush forest. Rice fields account for 6.07%, plantations for 2.30%, and the remaining areas are villages, mixed gardens, and other community-managed lands.

According to A study by Antula et al. (2014), the average weight of Balinese cattle was 178.1 kg. Kurniawan et al. (2022) stated that the body weight of Madura cattle aged 24 to 36 months in Pamekasan was 227.37 kg. The average weight of Jabres (Java Brebes) male and female cattle aged about 24 months is 244.38 ± 6.02 and 243.8 ± 8.62 kg (Yusdini et al, 2017). One of the most crucial aspects of animal husbandry is the quality of feed. Nutritional deficiencies in animals affect the process of food digestion, inhibit performance and increase body size (Roviki et al., 2014). According to Wisnunugroho (2002), feed refers to any material that animals can safely consume without harm to their health. The amount of food an animal needs per day varies according to its species, age, and stage of growth (infancy, growth, adulthood, pregnancy, and lactation). Feed must be sustainable and meet the individual nutrition needs of livestock. Feeding animals food that does not meet their body's nutritional needs can lead to malnutrition and increased susceptibility to disease.

The age of cattle can significantly influence their body weight. The age of cattle can be determined by examining their dental characteristics. The average age of Krui cattle used in this study was 24-36 months. In this study, the environmental conditions in the research samples were not exactly the same, due to differences in the diet of the maintenance feed, which affected body weight. This also affected the height of the cattle. This is because most Krui cattle in the South Krui area, both males and females, are worked and kept in pens in the afternoon before sunset. This statement aligns with Basuki's (2002) assertion that both internal and external factors influence animal growth. Internal factors include genetics, age, race, hormones, and sex, while

external factors encompass disease, temperature, and feed.

Body Length

The results showed that the body length of Krui cattle in Krui Selatan Subdistrict was higher than that of Krui cattle in Pesisir Selatan Subdistrict. This is likely because forage availability was higher in Krui Selatan during the study period compared to Pesisir Selatan. Consequently, cattle in Krui Selatan likely experienced higher nutritional fulfilment than those in Pesisir Selatan.

A study by Rahmatullah et al. (2023) found that the body length of Balinese cattle raised in Samarinda City, aged 24 to 36 months, was 144.66 ± 3.87 cm. Horik and Prasetya (2023) measured the body length of female Balinese cows to be 121 ± 14.3 cm. Kurniawan et al. (2022) reported that the body length of Madura cattle aged 24 to 36 months in the livestock development area in Pamekasan is 126.84 cm. The research by Hamdani et al. (2018) reported that the average quantitative body length of PO cattle aged 24 to 35 months in SPR Maju Sejahtera, Tanjungsari, Lampung, is 139.73 ± 4.33 cm. The average body length of male and female Jabres cattle, aged around 24 months, is 115.33 ± 1.87 cm and 115.18 ± 3.90 cm (Yusdini et al., 2017).

Differences in body length are thought to be caused by differences in feeding and reproductive management in these cattle. If animals are not fed adequately during growth, then their growth will not occur properly. Body length is closely related to body weight. Niam et al. (2012) found that cattle body length reflects the development of the spine, including the hip bone. The direction of growth in cattle starts with height growth and continues with length growth, rotating circularly from the chest area.

Chest Width

The results showed that the average chest width of Krui cattle in Krui Selatan Subdistrict was higher than that of Krui cattle in Pesisir Selatan. The study of Maimunah et al. (2021) showed that the chest width of Balinese cows aged 1-2 years was 31.10 ± 1.94 cm. The chest width of 1-2-year-old Balinese cows was greater than that of 24-36-month-old Krui cows, even though the Balinese cows were younger than the Krui cows used in this study. This indicates that

the chest width of Krui cattle is smaller than that of Balinese cattle. Adinata et al. (2016) stated that the chest width of adult female Jabres cattle is 30.62 ± 3.35 cm. Research by Abdullah et al. (2006) indicates that Aceh cattle have a height of 28.25 cm. Surjoatmodjo's study (1993) suggests that the chest width for Bali cattle is 44.27 cm, for Madura cattle is 41.61 cm, and for PO cattle is 44.28 cm.

Chest Circumference

The results showed that the chest circumference of Krui cattle in Krui Selatan Subdistrict was higher than that of cattle in Pesisir Selatan. A study by Rahmatullah et al. (2023) found that the chest circumference of Balinese cattle raised in Samarinda City, aged 24 to 36 months, was 159.27 ± 7.22 cm. Horik and Prasetya (2023) stated that the body size of female Bali cows has a chest circumference of 155 ± 20.63 cm. Kurniawan et al. (2022) reported that the average chest circumference of Madura cattle aged 24-36 months in Pamekasan is 128.73 cm, as noted in research by Hamdani et al. (2018). The average quantitative performance of the chest circumference of PO cattle aged 24 to 35 months at SPR Maju Sejahtera, Tanjungsari, Lampung is 154.21 ± 10.43 cm. Based on the research results by Masduqi et al. (2021), the quantitative trait value of male Aceh cattle aged 24-36 months has a chest circumference of 141.02 ± 7.34 cm. The average chest circumference of male and female Jabres cattle aged around 24 months is 151.50 ± 1.78 and 151.27 ± 3.65 cm (Yusdini et al., 2017). Furthermore, Yusdini et al. (2017) stated that the chest circumference of female Jabres cattle was 151.27 ± 3.65 cm. Chest circumference is one of the indicators to measure livestock. Additionally, chest circumference is a practical anthropometric measurement for estimating body weight (Masduqi et al., 2021).

Chest Depth

The results showed that the average chest depth of Krui cattle in Krui Selatan Subdistrict was higher than that of Krui cattle in Pesisir Selatan. Research conducted by Ondho et al. (2012) stated that the chest height of Javanese cattle in Brebes is 53.00 cm. Research by Lestiyanto et al. (2024) in the chest of Balinese cattle is 63.77 ± 4.73 cm. Research by Adinata et al. (2016) in the chest of adult female Jabres cattle is 54.35 ± 4.05 cm. In Aceh, the cattle chest measures

49.50 cm (Abdullah et al., 2006). The chest of Madura cattle is 56.71 cm, and the chest of PO cattle is 59.15 cm (Surjoatmodjo, 1993).

Hip Circumference

The results showed that the average hip circumference of Krui cattle in Krui Selatan Subdistrict was higher than the head width of Krui cattle in Pesisir Selatan. Research by Lestiyanto et al. (2024) reported that the head width of Balinese cattle is 18.90 ± 2.59 cm. Aceh cattle head width is 19.75 cm (Abdullah et al., 2006). According to Basuki (2002), two factors influence growth in beef cattle: internal factors (breed, age, genetics, sex, and hormones) and external factors (feed, environmental temperature, disease, environmental stress, and exercise/work).

CONCLUSION

The quantitative traits of Krui cattle in Krui Selatan Subdistrict, Pesisir Barat, Lampung, Indonesia, exhibited greater body weight, body length, chest width, chest circumference, chest depth, and Hip Circumference compared to those of Krui cattle in Pesisir Subdistrict. However, the body size of Krui cattle in this study was smaller when compared to other local cattle (Bali cattle, Madura cattle, Ongole peranakan cattle, Jabres cattle, and Aceh cattle) in Indonesia.

ACKNOWLEDGMENTS

The authors would like to thank the Faculty of Agriculture, University of Lampung, for providing the Faculty Grants for the year 2023. Appreciation is also extended to the Regional Government of Pesisir Barat for the facilities and support of this research.

REFERENCES

- Adinata, Y., Affandhy, L. N., & Pamungkas, D. (2016). Intervensi model perbibitan sapi Jabres untuk peningkatan sosial ekonomi pedesaan. *Prosiding Seminar Nasional Sumber Daya Genetik*, 204-227.
- Abdullah, M. A. N., Noor, R. R., Martojo, H., Solihin, D. D., & Handiwirawan, E. (2006). Keragaman fenotipik sapi Aceh di Nanggroe Aceh Darussalam. *Jurnal Indonesian Tropical Animal Agriculture*, 32(1), 11-21.
- Antula, M. Y., Laya, N. K., & Ilham, F. (2014).

- Korelasi ukuran-ukuran tubuh dengan bobot badan sapi Bali betina yang dipelihara secara semi intensif. Program Studi Peternakan, Jurusan Peternakan, Fakultas Ilmu-Ilmu Pertanian, Universitas Negeri Gorontalo.
- Basuki, P. (2002). Dasar ilmu ternak potong dan kerja. Laboratorium Ternak Potong dan Kerja, Fakultas Peternakan, Universitas Gadjah Mada.
- Hamdani, M. D. I. (2018). Performa kuantitatif sapi peranakan Ongole pasca sapih di Sentra Peternakan Rakyat Maju Sejahtera Kabupaten Lampung Selatan. *Jurnal Peternakan*, 15(2), 68–72.
- Horik, D. M., & Prasetya, M. A. (2023). Identifikasi ukuran tubuh sapi Bali di Kabupaten Sorong. *Jurnal Tropical Animal Research*, 4(1), 93–99.
- Kurniawan, D., Sujono, & Rahayu, I. D. (2022). Performa sapi Madura bibit betina pada berbagai umur (studi kasus) di wilayah sumber bibit sapi Madura kawasan Papabaru, Kabupaten Pamekasan, Madura. *Jurnal Animal Research and Applied Science*, 3(1).
- Lestiyanto, D., Suhardi, Indana, K., Ismanto, A., & Fanani, A. F. (2024). Identifikasi morfometrik dan sifat kualitatif sapi Bali jantan di Kota Samarinda. *Jurnal Sains dan Teknologi Peternakan*, 5(2), 66–73.
- Maimunah, Depison, & Wiyanto, E. (2021). Fitur morfologi secara kuantitatif sapi Bali Kecamatan Pamenang dan Bangko Kabupaten Merangin. *Jurnal Peternakan Nusantara*, 7(1), 51–58.
- Masduqi, E. M., Sari, & Abdullah, M. A. N. (2021). Identifikasi sifat kuantitatif dan sifat kualitatif pada sapi Aceh dalam rangka pelestarian sumber daya genetik ternak lokal. *Jurnal Agripet*, 21(2), 141–148.
- Niam, H. U. M., Purnomoadi, A., & Dartosukano, S. (2012). Hubungan antara ukuran-ukuran tubuh dengan bobot badan sapi Bali betina pada berbagai kelompok umur. *Animal Agriculture Journal*, 1(1), 541–556.
- Ondho, Y. S., Sutopo, Tantini, E., & Lestari, C. M. S. (2012). Potensi reproduksi sapi Jawa dalam upaya pelestarian bangsa sapi lokal Indonesia. *Prosiding Seminar Nasional Peternakan Berkelanjutan 4*, Fakultas Peternakan, Universitas Padjadjaran, Jatinangor-Bandung.
- Rafian, T., Yurnalis, Y., Husmaini, H., & Arlina, F. (2023). Polymorphism of Sikumbang Jonti ducks' growth hormone (GH) gene using PCR-RFLP methods. *Agrotropica: Journal of Agricultural Science*, 6(1), 8–13. <https://doi.org/10.31186/J.agrotropica.6.1.8-13>
- Rahmatullah, S. N., Fauzin, M., Mayulu, H., Ardhani, F., & Sulaiman, A. (2023). Keragaman dan hubungan ukuran tubuh terhadap produktivitas sapi Bali (*Bos sondaicus*) di Kota Samarinda. *Jurnal Ilmu dan Industri Peternakan*, 9(2), 116–129.
- Roviki, R., Kuswati, Nugroho, H., & Susilowati, T. (2014). Produksi karkas sapi Brahman cross steer pada frame size yang berbeda. *Jurnal Ternak Tropika*, 13(1), 1–8.
- Sarbaini. (2004). Kajian keragaman karakter eksternal dan DNA mikrosatelit sapi pesisir di Sumatera Barat (Disertasi). Sekolah Pascasarjana, Institut Pertanian Bogor.
- Surjoatmodjo, M. (1993). Asal-usul sapi Madura ditinjau dari hasil pengukuran bagian-bagian tubuhnya. *Proceedings Pertemuan Ilmiah Hasil Penelitian dan Pengembangan Sapi Madura*, 86–91. Grati: Sub Balai Penelitian Ternak Grati, Balai Penelitian Ternak, Pusat Penelitian dan Pengembangan Peternakan, Balai Penelitian dan Pengembangan Peternakan, Departemen Pertanian.
- Yusdini, D. H., Panjono, & Maharani, D. (2017). Karakteristik eksterior sapi Jabres di Kecamatan Ketanggungan, Brebes, Jawa Tengah (Skripsi). Fakultas Peternakan, Universitas Gadjah Mada.
- Winugroho, M. (2002). Strategi pemberian pakan tambahan untuk memperbaiki efisiensi reproduksi induk sapi. *Jurnal Penelitian dan Pengembangan Pertanian*, 21(1), 19–23.