

## **Exterior Characteristics of Jabres Cattle at Brebes Regency, Central Java Province, Indonesia**

**Panjono<sup>1</sup>, M.S. Haq<sup>1</sup>, C. Hanim<sup>1</sup>, S. Andarwati<sup>1</sup>, D. Maharani<sup>1</sup>, D.T. Widayati<sup>1</sup> and I.G.S. Budisatria<sup>1</sup>**

<sup>1</sup>Faculty of Animal Science, Universitas Gadjah Mada, Jl. Fauna 3, Bulaksumur, Yogyakarta 55281, Indonesia

Corresponding email: panjono@ugm.ac.id

### **ABSTRACT**

This study was conducted to observe the exterior characteristics of Jawa Brebes (Jabres) cattle at Brebes Regency, Central Java Province. The study was conducted at Bantar Kawung and Ketanggungan Districts, Brebes Regency. One hundred and eighty eight heads of cattle, which were consisted of 76 heads of male and 112 heads of female, were used in this study. The age of animal was ranged from calf up to 60 months. The exterior characteristics of cattle were directly observed in the farm. One hundred farmers were also involved in this study to investigate their characteristics preferences. The data collected was analyzed as quantitative description. The most body color of males were whitish brown (54.83%) and that of females were brown (47.36%). The most legs color of males were white (47.61%) and that of females were brown (38.77%). The most bottom color of males and females were white (61.53% and 42.10%). The most forehead color of males and females were plain brown without any white mark (88.58% and 86.49%). The most tail tips color of males and females were black (100.00% and 93.25%). Most of cattle had black line color on the back (66.00% of males and 65.49% of females). The most face profile of males and females were flat (60.00% and 69.62 %). All of cattle were having black lips, small and erect sideways ears, small dewlap and hump, and straight back. The horn of males was usually shorter than that of females. The withers height, body length, heart girth, and body weight of males and females were 119,50±3,26 and 117,72±3,14 cm; 115,33±1,87 and 115,18±3,90 cm; 151,50±1,78 and 151,27±3,65 cm; 239,68±5,79 and 238,43±7,72 kg, respectively.

**Keywords:** Jabres cattle, Exterior characteristics, Brebes Regency

### **INTRODUCTION**

Beef is a very important food in fulfilling the nutrition needs of the community. The demand for beef in Indonesia increases every year. The Indonesian Central Bureau of Statistics (BPS) in 2015 reported that the national beef consumption was 552,947.93 tons in 2009 and increased to 593,516.62 tons in 2015. Poorly, the national beef production increment could not fulfill the consumption increment so that Indoindonesia still have to import the beef until now. The Ministry of Agriculture (2015) reported that imports

Beef in 2009 of 13,000 tons rose to 82,300 tons in 2015. The level of imports should be lowered because it lowers the country's foreign exchange reserves and affects national food security. One way to reduce beef imports is to develop local cattle. One of the local cows that have the potential to be developed is the Jawa-Brebes (Jabres) cattle. The government has established cows

Jabres as one of Indonesia local cattle through Minister of Agriculture Decree (Kementan) Number 2842 / Kpts / LB.430 / 8/2012. Jabres cattle population in 2014 reached 23,926 tail spread in District Bantarkawung, Ketanggungan, Larangan, Banjarharjo, and Salem. The population of Jabres cattle in Kecamatan Ketanggungan reaches 25% of the total population of Jabres cattle in Brebes District.

Until now there is no Indonesian National Standard (SNI) for cattle Jabres. The Indonesian National Standards Agency (2015) reported that cattle breeding standards should be established in the effort to develop the cattle. Preparation of SNI in cattle requires data of exterior characteristics both qualitative and quantitative. Characteristic data can also describe the condition of Jabres cow purity. However, so far not many studies have reported on the exterior characteristics of Jabres cattle. For this reason, this study was conducted

## MATERIALS AND METHODS

This research was conducted in Ketanggungan District, Brebes, Central Java from March 1<sup>st</sup> to August 31<sup>st</sup>, 2016. The cattle studied in this study were 188 cows Jabres male and female age 0 to 60 months. Details of the number of cows used can be seen in Table 1. The used equipments are stationery, measuring tape and ruler, ropes, and digital cameras. The measuring tape used is 150 cm long with 1 cm accuracy and measuring ruler 150 cm long with 0.2 cm accuracy. Ropes are used for livestock handling.

**Table 1.** Amount of Jabres Cattle used in this research

Sex	Age (month)						Total
	<12	12-24	24-36	36-48	48-60	>60	
Male	14	16	12	13	10	11	76
Female	15	13	19	18	17	30	112
Total	29	29	31	31	27	41	188

This research was conducted by survey method. Observed data include age and exterior characteristics, qualitative and quantitative. Age is determined through direct interviews with breeders and see the growth of incisors. Exterior qualitative properties research was done by direct observation on cattle. The variables observed are hair color, butt color, foot color, tail fan color, face profile, color around the forehead, muzzle color, ear shape, horn shape, hump, fat, body profile, and presence of back line.

Quantitative exterior properties research was done by measuring the cattle body size, birth weight and body weight. Prior to the measurement, the livestock was made in a perpendicular position on a plane (parallelogram). The body size was observed including height of gumba, hip height, chest, body length, hip width, chest width, chest circumference, and head index, as for the measurement scales of body size data can be seen in Figure 1. High gumba was measured using measuring ruler from plane to highest Gumba. Hip height was measured vertically from the plane to the highest point of the hip. In the chest was measured from the highest point of gumba to the lowest point of the chest. Body length was measured from the tip of the shoulder joint (scapula humeralis) to tube os ischii or bony sitting bulge. The width of the chest was measured between the right and left ribs, right on the sternal bone to 3-4. The width of the hip was measured on the widest part of the hip. The chest circumference was measured by wrapping the measuring tape on the 3- to 3rd sternum which located behind the front foot. Head index is the ratio between width and head length. The width of the head was measured using a measuring tape on the widest part of the head. The head length was measured from the tip of the snout to the midpoint of the horn. Birth weight was obtained by weighing newborns during the study. Calf considerations were performed

the day after birth and were also obtained from recording. Body weight interpreted by calculation based on body length and chest circumference using Jagra equation (Equation 1).

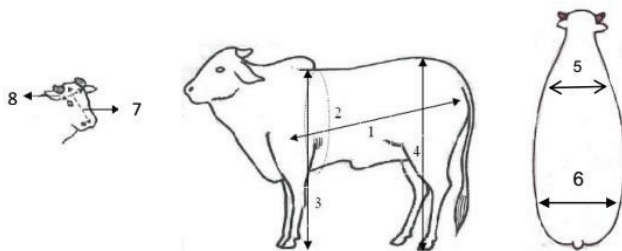


Figure 1. Measurement scheme of the cattle body size: 1) Body length, 2) Heart girth, 3) High gumba, 4) Hips height, 5) Chest width, 6) Width Hips, 7) Head length, 8) Head width

$$\text{Bulls } W = \frac{L \times G^2}{11045} \quad \text{Cows } W = \frac{L \times G^2}{11050} \quad \text{..... (Equation 1)}$$

Index : W = Body weight (kg), G = Heart girth (cm), L = Body length (cm)

The qualitative exterior properties was analyzed qualitative descriptive and the percentage was calculated. Growth of body size and body weight was analyzed by Power estimation pattern curve (R<sup>2</sup> largest). The influence of sex on body size, birth weight and body weight of adult Jabres cattle ( $\geq 24$  months) was analyzed by using Independent Sample t-test. The test was performed using SPSS 16 program.

## RESULTS AND DISCUSSION

### Hair color

Jabres cattle hair color in Bantarkawung District can be seen in table 2. Jabres cattle in Bantarkawung District has hair color that varies from brown, white chocolate and blackish brown. Bull hair color is dominated by whitish brown color while female cattle is dominated by brown color. The overall hair color of the male and female parts of the body is mostly whitish brown. According to Suroso (2004), the body color of Jabres cattle in Banjarharjo Sub-district, Brebes is brown. The condition shows that not all cows in Brebes Regency are dominated by brown color.

The color of the legs and buttocks of Jabres cattle varies from white, brownish and brown. The color of the feet and buttocks of Jabres cattle in Bantarkawung District both male and female are dominated by white color. (Literature) Jabres cow has almost same foot color with Bali cattle as explained by Sugeng (2006), who stated that Bali cattle both male and female in the fourth leg of the foot joints up to the nails and the buttocks are white. That's because Jabres cattle have a genetic proximity to Balinese cattle. Indrijani (2013) described that Jabres cattle are descended from Madurese cattle, Bali cattle and Ongole cattle since the 16th century.

Jabres cattle in Bantarkawung District is dominated by hair color of plain forehead, but there is a small part that has white spot on the forehead. Soeroso (2004) stated that the Jabres cattle forehead often obtained white spot is rhombic shaped. Ramdhan et al added that the white spot on the forehead of Jabres cattle came from PO cattle. The condition can be caused by a random cross that causes the white color on the forehead disappeared.

The color of jabres cattle tail fan in Bantarkawung District is dominated by black color. Jabres Cattle with white tail fan color is very small percentage. According Soeroso (2004)

black color on the tail fan is an inheritance from the India and Bali or Madura cattle, which have black tail fan.

**Table 2.** Jabres Cattle Hair Color in Bantarkawung District, Brebes, Central Java

Hair colour	Male (%)	Female (%)
<b>Body</b>		
Brown	16.12	47.36
Whitish brown	54.83	37.88
Blackish brown	29.04	14.73
<b>Legs</b>		
White	47.61	28.57
Brownish white	23.80	32.65
Brown	28.57	38.77
<b>Bottom</b>		
White	61.53	42.10
Brownish white	15.38	33.80
Brown	23.07	40.35
<b>Forehead</b>		
White spots	11.42	13.51
Plain	88.58	86.49
<b>Tail tips</b>		
Black	100	93.25
White	0	6.75

## Head

Characteristics of cow head Jabres in District Bantarkawung can be seen in table 3. Jabres Cow in Bantarkawung District has a flat face profile and has a black muzzle, black on muzzle obtained from bali or Madura, both of which have black muzzle. Jabres Cow in the form of small ears with the upright direction sideways the condition is the inheritance of Aceh and Coastal cattle that have a small ear shape with the upright sideways direction (Avicenna, 2014).

Jabres cow horn form varies from short, long, and dugul shape, while the horn's direction varies from upward, downward and asymmetric. The shape of the cow horn of Jabres is largely long with the direction of the horn upward. (The predecessor literature). According to Wiliamson and Payne (1993) the large male horns grew sideways and then upward and pointed. Body Characteristics of Jabres cattle body in Bantarkawung District can be seen in table 4. Table 4. Characteristics of cow body of Jabres in Bantarkawung District, Brebes, Central Java.

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**Table 3.** Characteristics of cow head Jabres in Kecamatan Bantarkawung, Brebes Jawa

Head	Male (%)	Female (%)
Face profile		
Flat	60	69.62
Concave	40	30.38
Snout		
Black	100	100
Ear shape		
Small	100	100
Ear direction		
Sideway upright	100	100
Horn shape		
Long	4.34	42.85
Short	65.21	40.25
Dugul	30.43	16.88
Horn direction		
Up	56.52	46.75
Side	8.69	20.77
Down	4.34	2.59
Asymmetric	0	14.28

**Table 4.** Characteristics of body Jabres in Kecamatan Bantarkawung, Brebes Jawa

Body	Male (%)	Female (%)
Hump		
Present	21.96	17.27
Not present	78.04	82.73
Body profile		
Square planar	100	100
Straight back		
Present	66.00	65.49
Not present	34.00	34.51
Dewlap		
Present	100	100

High gumba, hip height, deep chest, hip width results Research (Table 5) is higher when compared with outcomes Research Soeroso (2004) who reported that adult Jabres cattle in Banjarharjo District has a high size gumba, hip height, In the chest, and the width of the hips respectively is 113.63 cm; 114.95 Cm; 55.74 cm; And 33.35 cm. Body length and Heart girth of study results (Table 5) had A measure similar to that of Soeroso (2004), ie Body length 115.02 cm and chest circumference 150.2 cm. However, Body weight of the results of research is lower than the results of research Soeroso (2004), who get the body weight of Jabres cattle is 249.74 kg. Differences in research results may be due the variation in cattle age and different research sites, therefore Will affect the type of feed given and nutrients Consumed by the cow. Adult Jabres Cow has body size (high gumba, long Body, and chest circumference) are higher than cows Aceh's coastal and cattle are adults. Coastal Cow has a height of 99 cm gumba, 104 cm long body, and chest circumference 123 cm (SNI, 2015). According to Avicenna (2014) Aceh cattle has a high gumba size of 105.67 Cm in males and 100.58 cm in females, length of Aceh cattle the male is 100.83 and in the female is 97.33 cm.



This can be caused by several factors. According to Hardjosubroto (1994), properties quantitatively influenced by genetic and environmental factors.

**Table 5.** Body size, birth weight and body weight of Jabres cattle

Variable	Sex		Sig
	Male	Female	
Birth weight (kg)	19.09±2.10	18.80±0.02	NS
Withers height (cm)	119.50±3.26	117.72±3.14	*
Tinggi pinggul (cm)	122.50±3.45	119.48±3.30	*
Body length (cm)	115.33±1.87	115.18±3.90	NS
Heart girth (cm)	151.50±1.78	151.27±3.65	NS
Indeks kepala (%)	47.89±2.45	47.55±2.53	NS
Body weight (kg)	239.68±5.79	238.43±7.72	NS

\*P<0.05; \*\*P<0.01 dan NS = non-significant (P>0.05)

## CONCLUSIONS

Jabres Cow mostly has brown body hair color, white legs and buttocks, black tail fan parts. Jabres Cow has a flat face profile and sometimes there are spots white on the forehead, has a long horn with an upward direction. Body Jabres cow is rectangular, has no hump, and is present the back line is black. Jabres Cow reaches adult body at the age of about 24 months. The size of the male Jabres cattle is larger than females especially in high gumba and hip height, while the male body weight is different is not real or almost the same with a female cow.

## REFERENCES

- Anonim. 2012. Penetapan Rumpun Sapi Jabres. Keputusan Menteri Pertanian nomor 2842/Kpts/LB.430/8/2012. Ditjen. Keptan RI, Jakarta.
- Anonim. 2015. Bibit Sapi Potong-Bagian 6: Pesisir. Badan Standarisasi Nasional. SNI 7651.6:2015.
- Avicenna, M. 2014. Karakteristik Eksterior dan Ukuran Tubuh Sapi Aceh. Skripsi Sarjana Peternakan. Fakultas Peternakan, Universitas Gadjah Mada, Yogyakarta.
- Hardjosubroto, W. 1994. Aplikasi Pemuliaan Ternak di Lapangan. Gramedia Sarana Indonesia, Jakarta.
- Kadarsih, S. 2003. Peranan ukuran tubuh terhadap berat badan sapi Bali di Propinsi Bengkulu. J. Penelitian UNIB. 9(1):45-48.
- Soeroso. 2004. Performans Sapi Jawa Berdasarkan Sifat Kuantitatif dan Kualitatif. Thesis. Program Pascasarjana, Universitas Diponegoro Semarang, Semarang.
- Soeroso dan E. Kurnianto. 2006. Karakteristik fenotip warna bulu pada sapi Jawa. J. Agrisains 7(1):52-58.
- Williamson, G & W. J. A. Payne, 1986. An Introduction to Animal Husbandry in the Tropics. Longman, London.