

KARAKTERISTIK PERTUMBUHAN UKURAN TUBUH DAN BOBOT BADAN SAPI GAMA

Elisabet Yunisa Maharani
22/498660/PT/09377

INTISARI

Penelitian ini dilakukan untuk mengukur karakteristik pertumbuhan ukuran tubuh dan bobot badan Sapi Gama melalui pendekatan analisis kurva estimasi. Materi yang digunakan dalam penelitian ini yaitu data recording 73 ekor Sapi Gama yang terdiri atas 28 ekor jantan dan 45 ekor betina mulai dari umur 3 hingga 66 bulan berupa data ukuran tubuh, sedangkan bobot badan diestimasi menggunakan rumus *Lambourne*. Metode analisis data dilakukan dengan mengestimasi pola pertumbuhan menggunakan beberapa model kurva matematika, yaitu model *Quadratic*, *Cubic*, *Compound*, *Growth*, *Logarithmic*, *Exponential*, *Inverse*, *Power*, dan *Sigmoid*. Pemilihan model kurva pertumbuhan yang terbaik didasarkan pada nilai koefisien determinasi (R^2) tertinggi, sedangkan analisis korelasi *Pearson 2-tailed* dilakukan untuk mengetahui kekuatan hubungan antara umur dengan masing-masing variabel ukuran tubuh. Hasil penelitian menunjukkan bahwa pada ternak jantan, pertumbuhan panjang badan, lingkaran dada, dalam dada, tinggi gumba dan bobot badan mengikuti model *power* dengan koefisien determinasi berturut-turut sebesar 0,89; 0,82; 0,85; 0,88 dan 0,87, pertumbuhan tinggi pinggul mengikuti model *sigmoid* dengan koefisien determinasi sebesar 0,88, serta pertumbuhan panjang kepala mengikuti model *cubic* dengan R^2 sebesar 0,88. Pada ternak betina, pertumbuhan panjang badan, lingkaran dada, dalam dada, tinggi gumba, tinggi pinggul, panjang kepala dan bobot badan juga mengikuti model *power* dengan koefisien determinasi berturut-turut sebesar 0,72; 0,68; 0,70; 0,73; 0,74; 0,67; 0,63, pertumbuhan lebar dada mengikuti model *cubic* dengan koefisien determinasi sebesar 0,62, dan pertumbuhan lebar kepala mengikuti model *quadratic* dengan koefisien determinasi sebesar 0,58. Disimpulkan bahwa pertumbuhan sebagian besar variabel ukuran tubuh dan bobot badan pada sapi Gama mengikuti model *power*, dengan laju pertumbuhan yang relatif cepat pada fase awal dan cenderung mulai melambat setelah mencapai usia sekitar 10 bulan.

Kata kunci: Sapi Gama, pertumbuhan ukuran tubuh, model *power*

GROWTH CHARACTERISTICS OF BODY SIZE AND BODY WEIGHT OF GAMA CATTLE

Elisabet Yunisa Maharani
22/498660/PT/09377

ABSTRACT

This study aims to determine the growth characteristics of body size and body weight in Gama cattle using a curve estimation analysis approach. The materials utilized in this study comprised the recording data of 73 heads of Gama cattle, consisting of 28 males and 45 females aged 3 to 66 months, in the form of body size data, while body weight was estimated using the Lambourne formula. Data was analyzed by estimating growth patterns using several mathematical curve models, namely Quadratic, Cubic, Compound, Growth, Logarithmic, Exponential, Inverse, Power, and Sigmoid models. The selection of the best growth curve model was based on the highest coefficient of determination (R^2), while a 2-tailed Pearson correlation analysis was performed to determine the strength of the relationship between age and each body measurement variable. The results showed that for male cattle, growth of body weight, body length, heart girth, heart depth, and wither height followed a power model, with coefficients of determination as much as 0.87, 0.89, 0.82, 0.85, and 0.88, respectively. Hip height growth followed a sigmoid model with coefficients of determination as much as 0.88, while head length growth followed a cubic model with coefficients of determination as much as 0.88. While for female cattle, the growth of body weight, body length, heart girth, heart depth, wither height, hip height, and head length also followed a power model, with coefficients of determination as much as 0.72, 0.68, 0.70, 0.73, 0.74, 0.67, and 0.63, respectively. Heart width growth followed a cubic model with coefficients of determination as much as 0.62 and head width growth followed a quadratic model with coefficients of determination as much as 0.58. It is concluded that most of body size variables and body weight of Gama cattle followed the power curve model, exhibiting a relatively rapid growth rate during the early phase that tends to slow down after reaching approximately 10 months of age.

Keywords: Gama cattle, body size growth, power model