

ABSTRAK

PENDUGAAN BOBOT BADAN SAPI SIMPO BETINA MENGGUNAKAN UKURAN TUBUH DENGAN METODE REGRESI LINIER DAN POLINOMIAL DI KECAMATAN TERBANGGI BESAR

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Penelitian ini bertujuan untuk mengetahui hubungan ukuran tubuh terhadap bobot badan serta menentukan model regresi terbaik dalam menduga bobot badan sapi SimPO betina di Kecamatan Terbanggi Besar, Kabupaten Lampung Tengah. Penelitian dilakukan pada Februari 2026 menggunakan metode survei dengan teknik *purposive sampling* terhadap 120 ekor sapi SimPO betina umur 1–3 tahun. Variabel yang diamati meliputi panjang badan (PB), lingkar dada (LD), dalam dada (DD), lebar dada (LebD), tinggi pundak (TP), dan bobot badan (BB). Data dianalisis menggunakan korelasi, regresi linier, dan regresi polinomial dengan bantuan program R. Hasil penelitian menunjukkan bahwa lingkar dada memiliki hubungan paling kuat dengan bobot badan ($r=0,828$; $R^2=0,685$), diikuti panjang badan ($r=0,805$; $R^2=0,648$), tinggi pundak ($r=0,736$; $R^2=0,541$), dalam dada ($r=0,579$; $R^2=0,335$), dan lebar dada ($r=0,525$; $R^2=0,275$). Model regresi polinomial hanya meningkatkan nilai R^2 secara kecil dibandingkan model linier. Persamaan regresi linier terbaik diperoleh pada lingkar dada yaitu $BB = -465,809 + 5,135 LD$. Model tersebut direkomendasikan karena sederhana, mudah diaplikasikan, dan memiliki tingkat akurasi tinggi dalam menduga bobot badan sapi SimPO betina.

Kata kunci: sapi SimPO, bobot badan, ukuran tubuh, regresi linier, regresi polinomial.

ABSTRACT

ESTIMATION OF FEMALE SIMPO CATTLE BODY WEIGHT USING BODY MEASUREMENTS WITH LINEAR AND POLYNOMIAL REGRESSION METHODS IN TERBANGGI BESAR DISTRICT

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This study aimed to determine the relationship between body measurements and body weight and to identify the best regression model for estimating body weight of female SimPO cattle in Terbanggi Besar District, Central Lampung Regency. The study was conducted in February 2026 using a survey method with a *purposive sampling* technique involving 120 female SimPO cattle aged 1–3 years. The observed variables included body length (BL), chest girth (CG), chest depth (CD), chest width (CW), shoulder height (SH), and body weight (BW). Data were analyzed using correlation, linear regression, and polynomial regression with the assistance of R software. The results showed that chest girth had the strongest relationship with body weight ($r = 0.828$; $R^2 = 0.685$), followed by body length ($r = 0.805$; $R^2 = 0.648$), shoulder height ($r = 0.736$; $R^2 = 0.541$), chest depth ($r = 0.579$; $R^2 = 0.335$), and chest width ($r = 0.525$; $R^2 = 0.275$). Polynomial regression models only slightly improved the R^2 value compared to the linear regression model. The best linear regression equation was obtained using chest girth: $BW = -465.809 + 5.135 LD$. This model is recommended because it is simple, practical, and provides high accuracy in estimating the body weight of female SimPO cattle.

Keywords: SimPO cattle, body weight, body measurements, linear regression, polynomial regression.