

ABSTRAK

PENDUGAAN BOBOT BADAN KAMBING SABURAI MENGGUNAKAN UKURAN-UKURAN TUBUH DENGAN METODE REGRESI LINEAR DAN POLINOMIAL

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Penelitian ini bertujuan untuk memprediksi bobot badan (BB) kambing Saburai berdasarkan ukuran-ukuran tubuh seperti lingkaran dada (LD), panjang badan (PB), tinggi badan (TB), dalam dada (DD), lebar pinggul (LebP), lebar dada (LebD), dan tinggi pinggul (TP) menggunakan analisis regresi linear dan polinomial, menyeleksi model regresi yang terbaik, yang dilaksanakan di Kecamatan Gisting, Kabupaten Tanggamus, Provinsi Lampung. Penelitian ini dilaksanakan pada Februari-Maret 2025. Ternak yang digunakan dalam penelitian ini adalah kambing Saburai berumur 1-3 tahun sebanyak 100 ekor. Data yang diperoleh ditabulasi menggunakan microsoft Excel, kemudian dianalisis korelasi dan regresi linier dan polinomial menggunakan program R. Hasil penelitian ini menunjukkan bahwa lingkaran dada (LD) menjadi variabel terkuat dengan koefisien korelasi (r) tertinggi menggunakan regresi linear ataupun polinomial (kuadrat, kubik, dan kuartik) berturut-turut sebesar 0,92 (linear), 0,92 (polynomial kuadrat), 0,91 (polynomial kubik), 0,91 (polynomial kuartik). Persamaan regresi antara ukuran-ukuran tubuh dan bobot badan menggunakan LD berturut-turut $BB = -45,02690 + 1,07704 LD$ (linear), $BB = -22,581345 + 0,464609 LD + 0,004129 LD^2$ (polynomial kuadrat), $BB = 34,6941 + 90,2147 LD + 2,9348 LD^2 - 1,4701 LD^3$ (polynomial kubik), dan $BB = 3,725 + (-2,0001 LD) + 3,996 LD^2 + (-3,504 LD^3) - 1,145 LD^4$ (polynomial kuartik), dengan koefisien determinasi (R^2) berturut-turut sebesar 0,84 (linear), 0,84 (polynomial kuadrat), 0,84 (polynomial kubik), 0,85 (polynomial kuartik). Sehingga, bobot badan kambing Saburai dapat diduga dengan metode regresi linear dan polynomial Menggunakan LD.

Kata kunci: Analisis Regresi Linear dan Polinomial, Bobot Badan, Kambing Saburai, Ukuran Tubuh.

ABSTRACT

ESTIMATION OF SABURAI GOAT BODY WEIGHT USING BODY MEASUREMENTS WITH LINEAR AND POLYNOMIAL REGRESSION METHODS

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This study aims to predict the body weight (BW) of Saburai goats based on body measurements such as chest girth (CG), body length (BL), body height (BH), chest depth (CD), hip width (HW), chest width (CW), and hip height (HH) using linear and polynomial regression analysis, selecting the best regression model implemented in Gisting District, Tanggamus Regency, Lampung Province. This study was conducted in February-March 2025. The livestock used in this study were 100 Saburai goats aged 1-3 years. The data obtained were tabulated using Microsoft Excel, then analyzed for correlation and linear and polynomial regression using the R program. The results of this study indicated that chest girth (CG) is the strongest variable with the highest correlation coefficient (r) using linear or polynomial regression (quadratic, cubic, and quartic) of 0,92 (linear), 0,92 (quadratic polynomial), 0,91 (cubic polynomial), 0,91 (quartic polynomial) respectively. The regression equations between body measurements and body weight using CG were $BW = -45,02690 + 1,07704 CG$ (linear), $BW = -22,581345 + 0,464609 CG + 0,004129 CG^2$ (quadratic polynomial), $BW = 34,6941 + 90,2147 CG + 2,9348 CG^2 - 1,4701 CG^3$ (cubic polynomial), and $BW = 3,725 + (-2,0001 CG) + 3,996 CG^2 + (-3,504 CG^3) - 1,145 CG^4$ (quartic polynomial) respectively, with determination coefficients (R^2) of 0.84 (linear), 0,84 (quadratic polynomial), 0,84 (cubic polynomial), 0,85 (quartic polynomial) respectively. Thus, the body weight of Saburai goats can be estimated by the linear and polynomial regression method using CG.

Keywords: Linear and Polynomial Regression Analysis, Body Weight, Saburai Goats, Body Size.