

PENDUGAAN BOBOT BADAN BERDASARKAN UKURAN TUBUH SAPI BALI BETINA DEWASA DI KABUPATEN LOMBOK TENGAH NUSA TENGGARA BARAT

Putu Andika Putra

21/474431/PT/08844

INTISARI

Penelitian ini bertujuan untuk menentukan persamaan pendugaan bobot badan berdasarkan ukuran tubuh pada sapi Bali betina dewasa di Kabupaten Lombok Tengah, Nusa Tenggara Barat. Materi yang digunakan pada penelitian ini adalah 107 ekor sapi Bali betina yang dipelihara oleh peternak rakyat dengan umur satu sampai lima tahun, skor kondisi tubuh tiga sampai lima, sehat secara fisik, serta tidak dalam keadaan bunting. Data yang diambil meliputi tinggi gumba, panjang badan, dalam dada, lingkaran dada, dan bobot badan. Hubungan antara ukuran tubuh dengan bobot badan dianalisis menggunakan analisis korelasi *Pearson 2-tailed*. Pendugaan bobot badan berdasarkan empat variabel ukuran tubuh dilakukan dengan menggunakan analisis regresi linier metode *backward*. Pendugaan bobot badan berdasarkan satu variabel ukuran tubuh yang mempunyai nilai koefisien korelasi tertinggi dilakukan dengan analisis kurva estimasi dengan berbagai model persamaan. Hasil perhitungan estimasi bobot badan dibandingkan dengan bobot badan aktual untuk mengetahui persentase perbedaan. Hasil analisis korelasi diperoleh koefisien korelasi antara variabel tinggi gumba, dalam dada, panjang badan, dan lingkaran dada dengan bobot badan masing-masing sebesar 0,45, 0,54, 0,58, dan 0,84. Hasil analisis regresi linier berganda diperoleh persamaan, yaitu $BB = -400,18 + 0,67TG + 0,77PB + 1,29DD + 2,53LD$ dengan koefisien determinasi sebesar 0,76 dan perbedaan 1,41%. Hasil analisis kurva estimasi diperoleh persamaan model Quadratic, yaitu $BB = -309,41 + 3,74LD - 0,002LD^2$ dengan koefisien determinasi 0,70 dan perbedaan 2,56%. Disimpulkan bahwa pendugaan bobot badan paling baik dilakukan dengan empat variabel menggunakan persamaan regresi linier berganda atau satu variabel menggunakan persamaan kurva estimasi model Quadratic.

Kata kunci: estimasi bobot badan, korelasi, regresi, kurva estimasi, sapi Bali

ESTIMATION OF BODY WEIGHT BASED ON BODY MEASUREMENTS OF ADULT FEMALE BALI CATTLE IN CENTRAL LOMBOK REGENCY, WEST NUSA TENGGARA

Putu Andika Putra

21/474431/PT/08844

ABSTRACT

This study aimed to determine the equation for estimating body weight based on body measurements in adult female Bali cattle in Central Lombok, West Nusa Tenggara. The materials used in this study included 107 female Bali cattle that were raised by local farmers, aged between one until five years, with body condition scores ranging from three to five, physically healthy, and not pregnant. The data collected included withers height, body length, chest depth, heart girth, and body weight. The relationship between body measurements and body weight was analyzed using Pearson's two-tailed correlation analysis. The estimation of body weight based on four body measurement variables was conducted using backward linear regression analysis. The estimation of body weight based on a single body measurement variable with the highest correlation coefficient was conducted using curve estimation analysis with various equation models. The results of the weight estimation calculations were compared with the actual body weight to determine the percentage difference. The coefficients correlation between the variables of withers height, chest depth, body length, and heart girth with body weight were 0.45, 0.54, 0.58, and 0.84 respectively. The multiple linear regression equation between body size and body weight was $BW = -400.18 + 0.67WH + 0.77BL + 1.29CD + 2.53CC$, with a coefficient of determination of 0.76 and a difference of 1.41%. The estimation curve of body weight based on heart girth followed the Quadratic model with the equation: $BW = -309.41 + 3.74CC - 0.002CC^2$, with a coefficient of determination of 0.70 and a difference of 2.56%. It is concluded that the estimation of body weight is best performed using four variables with multiple linear regression equation or one variable with a quadratic model curve estimation equation.

Keywords: body weight estimation, correlation, regression, estimation curve, Bali cattle