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Growth rate of male Bali cattle (*Bos javanicus*) fed leucaena based diets with increasing levels of cassava

DAHLANUDDIN DAHLANUDDIN¹, LUH ADE KARIYANI¹, TANDA SAHAT PANJAITAN², RYAN ARYADIN PUTRA¹, SOFYAN SOFYAN¹, KAREN HARPER³, DENNIS P POPPI³

¹University of Mataram, Fac. of Animal Science; Dept. of Animal Nutrition, Indonesia

²The West Nusa Tenggara Assessment Institute for Agriculture Technology, Livestock Production, Indonesia

³University of Queensland, Animal Science, Australia

Abstract

To improve protein content of cattle feeds, several initiatives on the planting and use of leucaena (*Leucaena leucocephala*) for cattle fattening have been conducted in eastern Indonesia, resulting in extensive leucaena planting and use for cattle fattening in the region. Most farmers feed leucaena (19–28 % CP) as a single diet, that results in excessive protein supply. If balanced with an external energy source such as cassava (*Manihot esculenta*; 12–15 MJME kg DM⁻¹) it would benefit both the use of protein and extend limited supplies of leucaena for feeding fattening bulls. An experiment using 30 growing male Bali cattle (*Bos javanicus*) with initial live weight of 164±1.8 kg was conducted to determine the optimum ratio of leucaena and cassava for live weight gain (LWG) and feed for gain ratio. Five animals were allocated to one of six experimental treatments i.e. 20 % rice straw + 80 % leucaena hay + mineral mix (A), 20 % rice straw + 65 % leucaena hay + 15 % cassava chip + mineral mix (B), 20 % rice straw + 50 % leucaena hay + 30 % cassava chip + mineral mix (C), 20 % rice straw + 35 % leucaena hay + 45 % cassava chip + mineral mix (D), 20 % rice straw + 20 % leucaena hay + 60 % cassava chip + mineral mix (E) and 20 % rice straw + 5 % leucaena hay + 75 % cassava chip + mineral mix (F). Feed intake declined when the cassava was fed at the level of more than 45 % of the diet. Rumen pH values in all treatments were within the normal range (6.2–6.5). The LWGs for each treatment were 0.49±0.06, 0.54±0.06, 0.58±0.12, 0.68±0.06, 0.38±0.06 and -0.11±0.06 k/g ha⁻¹ for the animals fed diets A, B, C, D, E and F respectively and treatment D (45 % cassava) reached the highest values. The respective feed for gain ratios for diets A, B, C, D and E were 9.68±1.93, 8.37±0.88, 9.93±5.45, 7.68±0.76 and 12.13±3.34 kg feed DM/kg LWG, with corresponding income over feed cost (thousand IDR/day) of 14.77±0.71, 17.95±0.51, 20.10±1.35, 24.48±0.635 and 10.41±6,466. In conclusion, the best LWG and income were reached when leucaena was 35 % and cassava chip 45 % of the diet.

Keywords: Bali cattle, cassava, growth rate, leucaena