ABSTRACT

YOHANNIS LODEWYK REVLY TULUNG. Energy and Nutrient Requirements of Indonesia Race-Horses and Its Application in Feed Rations Formulation based on Local Feed. Under direction of SURYAHADI, WASMEN MANALU and BERNAT TULUNG.

This study was conducted to obtain standardization of energy and nutrient needs racehorses in Indonesia. The objective of this study was to assess the needs of feed, energy and nutrient feed through the relationship between feed intake based on metabolic weight trainer methods, methods of estimating need through the cafeteria and the digestibility of feed by weight metabolic workload and to base the rations formulation of racehorses of Indonesia racehorses. The main activity of the study include: 1). Analysis of feed requirements according to the method of trainers, conducted observation location during training with the model equation: \( Y = a + bx \). 2). Method of determination of the need based on the cafeteria. 3). Determination of energy (DE) and nutrient requirements of racehorse Indonesia based on consumption, weight and metabolic workload, model equation: Consumption (K) = \( a + bP W^{0.75} \). 4). The trial of local feed formulation compared with imported feed, the experiment was conducted on 14 horses racing with the distance of 800 to 1600 m. Consumption of dry matter, energy and nutrient feed were influenced by metabolic weight during exercise programs for racing preparation, by the equation \( Y = 2.927 + 0.105x \) for the consumption of dry matter, \( Y = 11.34 + 0.41x \) for energy consumption, \( Y = 0.618 + 0.022x \) for crude protein, \( Y = 0.272 + 0.009x \) for crude fiber, \( Y = 0.111 + 0.004x \) for fat; \( Y = 0.030 + 0.001x \) for calcium; \( Y = 0.002 + 0.0006x \) for phosphorus and \( Y = 1.876 + 0.067x \) for BETN. The results obtained by the method cafeteria average consumption is 12.23 kg dry matter, energy consumption of 3.747 Mcal/kg; 1.317 kg of (CP); fat 0.501 kg; 2.241 kg of crude fiber; Ca 0.03 kg; P 0.06 kg. The test results level by level preferences (palatability) of the seven types of feed were corn, grass, grain, bran, soybean and cafeterias was given of green beans. The results based on the needs of digested energy the average of consumption of dry matter (kg.day \(^{-1}\)) obtained was \( Y = 7.989 + 4.95x \); needs of DE (MCal day \(^{-1}\)) =17.91+ 10.88x; needs of digested protein \( Y = 1.581+0.971x \); crude fiber \( Y = 0.951+0.607x \); needs fats (kg.hari \(^{-1}\)) = 0.287+0.176x; needs calcium (kg.hari \(^{-1}\)) = 0.080+0.049x; needs phosphorus (kg. day \(^{-1}\)) = 0.043+0.027x; needs BETN (kg.hari \(^{-1}\)) = 5.040+3.118x. The results of research to see the potential of local feed compared with feed imports made through a test match between racehorse fed and feed local. From these results it can be concluded that: 1). The results of this trainer method of analysis can be concluded that the consumption of dry matter, energy and nutrient feed is influenced by metabolic weight during an exercise program for the preparation raced racehorse. 2). These observations cafeteria method, it can be concluded that the highest feed consumption is corn 38.01% of the total consumption of dry feed (12.23 kg), with 30.64 mkal ME consumption / kg, 10.77% crude protein; crude fiber 18.33%; fat 4.10%; 0.3% Ca, and P 0.48%. 3). From the results of this study can be concluded that, the need for dry ingredients, ingested energy (DE), as well as the nutrient feed racehorses can be expected from the intake, digestibility, workload and metabolic weight. 5). The test results duel between racehorse fed local and feed import, the horse was fed with locally have achievements that are not inferior to that consume feed imports, so the formula can be used as a standard ration of feed requirements for racehorses Indonesia.

Keywords : Indonesia racehorses, trainers method, nutrient requirements, cafeteria method, metabolic weight.