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"Competing pathways for equitable food systems transformation: Trade-offs and synergies"

Yellow mealworm as a protein alternative for lactating rabbit does

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Abstract

Insects as a sustainable alternative protein source for human food and animal feed has received much attention of late, with benefits cited including their prolificacy, high feed conversion of typically waste materials, low land requirements etc. During period of high nutritional demand, such as lactation, good quality feedstuffs are necessary for livestock. Hence, this study determined the effect of the substitution of soybean meal with yellow mealworm (Tenebrio molitor) meal on the milk yield of lactating rabbits. A total of 24 individually housed Hyplus rabbit does were divided into two treatment groups fed pelleted diets of either typical soybean-based diet (SBM; n = 13) or a 10 % inclusion rate of insect yellow mealworm meal (IM; n = 11) during a lactation period of 32 days. Diets were formulated for the same nutritional composition. Does were balanced through the initial experimental design for parturition number and litter sizes at birth were corrected to 10 kits per doe utilising cross-fostering. Data were analysed using the VEPAC procedure in Statistica. Diet (SBM vs. IM) and day of lactation were included as fixed effects and animal nested in treatment was included as a random effect. Weight on the day of parturition (after parturition) was included as a covariate. Data was tested, and confirmed, for normality. The level of significance used was $p < 0.05$ throughout. No significant differences were found for the interaction for diet and days of lactation for milk yield ($p = 0.990$). The main effect of diet did not influence the milk yield ($p = 0.775$). The main effect of day of lactation was significant ($p < 0.0001$), showing a rapid increase in milk production until day 13 of the experiment, where after it plateaued, and started to decrease from day 19 of the experiment. In conclusion, the IM diet was equally as effective as the SBM in supporting milk production in rabbit does.

Keywords: Hyplus, insect yellow mealworm meal, lactating rabbits, milk yield

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