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Study on the effects of different harvest intervals on cassava foliage (cassava hay) and root yield and effects of sunflower oil supplementation in cassava hay based-diets for lactating dairy cows

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Abstract

Two experiments were conducted to study the production and quality of cassava foliage (cassava hay) and cassava root and to study the effects of supplementation of sunflower oil in cassava hay based-diets for lactating dairy cows. In experiment I, a Randomized complete block design (RCBD) with 4 treatments and 4 replications was used to investigate the effect of different harvest intervals of cassava foliage on cassava root and foliage yield, and the chemical composition of cassava foliage under traditional cultivation. Based on this study, it was concluded that different harvest intervals of cassava foliage had no major effect on quality, but affected the quantity of foliage and root yield. Planting cassava for making cassava hay as a protein resource for year-round feeding could be potentially more profitable under small-holder farming systems, to enhance dairy production under small scale farming. Experiment II, was carried out to investigate the effect of sunflower oil in cassava hay based-diets as a supplement for lactating dairy cows on diet utilization, milk yield and composition. Twenty four multiparous Holstein Friesian crossbred dairy cows in early-mid lactation were used in a Randomized complete block design (RCBD) with 4 treatments and 6 replications. Cows were blocked according to their day-in-milk (DIM) and lactation. Levels of 2.5 or 5% sunflower oil were mixed well with a concentrate consisting of cassava hay as a supplement and the cows were offered a concentrate, with a ratio to milk yield of 1:2. Urea-treated rice straw was given ad-libitum as a basal roughage. Based on this study, it was concluded that feeding a concentrate consisting of cassava hay resulted in improved feed utilization and higher economical returns and therefore it could lower the amount of concentrate used and feed cost. Sunflower oil can be used at 2.5% in the cassava hay based-diet with the greatest increase in income over feed, milk yield and composition, especially the conjugated linoleic acid (CLA) content in milk fat.

Keywords: Cassava foliage; Cassava hay; Cassava root; Harvest interval; Conjugated linoleic acid, CLA; Dairy cows; Ruminants; Sunflower oil; Urea-treated rice straw.