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Work Area: Ruminant Nutrition

Composition of milk from cows fed with forage cactus (*Opuntia ficus-indica. Mill*) and concentrate with different protein contents

Samara Kerle de Lima*[1], Guilherme Lyra Amorim.[2], Marcelo de Andrade Ferreira. [3], Débora Gabrielly Pereira de Lima. [1], Fernanda do Nascimento Barbosa. [1], Ednéia Vieira de Lucena[1].
[1]Universidade Federal Rural de Pernambuco, Serra Talhada/Pernambuco, Brasil; [2]Instituto Federal de Vitória de Santo Antão, Vitória de Santo Antão/Pernambuco, Brasil; [2]Universidade Federal Rural de Pernambuco, Recife/Pernambuco, Brasil; *samarakerly2013@gmail.com

Forage cactus has been used as a basis for feeding herds in important dairy basins of the Northeast, due to its adaptation to local soil and climatic conditions and its high energy value. The objective was to evaluate the use of commercial concentrates with different protein contents in the diet of lactating cows, and their effects on milk composition and feed efficiency. Eight Girolando cows with an average live weight of 545 ± 50 kg, 110 ± 14 days of lactation, average production of 20 ± 3.2 kg/day were used and distributed in two 4x4 Latin squares. The diets consisted of giant cactus, native pasture silage, and commercial concentrates with different protein levels (T1 = 32%, T2 = 39%, T3 = 45%, and T4 = 49% CP). The cows were milked twice a day, at 4am and 2pm, and their productions were recorded and sampled individually in containers with Bronopol preservative. Feed efficiency (FE) was obtained by the ratio between milk production (MP) corrected for 3.5% fat and dry matter intake verified during the collection period: FE (kg) = MP (kg)/DMI. The diet with T1 provided higher milk production compared to diets T2 and T3, however when compared to diet T4, the production was similar. This superiority for treatment T1 compared to treatments T2 and T3 is justified by the higher total digestible nutrient intake for T1, providing more nutrients for the mammary gland, and thus greater milk synthesis. Solid production followed the production of milk constituents; as diet T1 provided the highest fat, protein, and lactose productions, consequently, higher solid production was observed for animals receiving the mentioned diet; while for diet T2, lower solid production was observed due to lower production of constituents. The milk protein percentage was not influenced by the percentage of CP in the concentrate. Modest changes are obtained in the true protein content in milk from modifications in animal nutrition. For the lactose percentage, there was no difference, as the greater or lesser availability of lactose precursors is more related to the volume of milk produced than to the percentage of this carbohydrate in milk; therefore, with lower amounts of precursors, the response is lower milk production. Feed efficiency was not affected by the increase in protein content of the concentrate. The use of concentrates with a higher protein level is an alternative to reduce the amount of supplements offered to the animal, but this practice depends on the availability of roughage feeds with better nutritional value, as well as a careful choice of foods to compose protein concentrates to obtain better results. Concentrates with a higher percentage of CP in the diet of lactating Girolando cows alter milk production and composition.

Keywords: Feed, performance, milk constituents

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