Effects of Concentrate Supplementation on Lactating Dromedary Camels During Mating Season in Isiolo, Kenya

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ABSTRACT

Camels are resilient and have a high potential to contribute to food security and economic development in arid areas. However, this potential is being limited by diminishing feed resources due to the effects of climate change. Further, there is an upcoming peri-urban camel production system where the animals are limited in their movement. Consequently, camels do not get enough browse forages in terms of biomass and quality to meet their nutritional requirement. This has resulted in decreased production and reproductive performance. The objective of this study was to determine the effect of concentrate supplementation on lactating camels on productive and reproductive performance during mating season. A diet containing 16.80% crude protein (CP) and a digestible energy of 8.44 MJ/Kg was formulated and supplemented in the evenings with a group of ten camels. Another group of 10 camels acted as the control. Milking was done in the morning and production from each camel was recorded in liters. Percentage milk fat and protein analysis were done weekly using Gerber and Kjeldahl methods respectively. Serum biochemical levels were determined using spectrophotometry in the fourth week. Confirmation of pregnancy was done on the 5th month after mating by chemiluminescent progesterone assay. Camels were then divided into four groups. These were, supplemented pregnant(4) supplemented and not pregnant(6) un-supplemented pregnant(1), and un-supplemented and not pregnant(9). Paired mean comparisons were done to ascertain differences within the four groups. Mean daily milk production was 25.26±0.42 and 22.79±0.41 liters for supplemented and un-supplemented groups respectively ($p<0.001$). Paired mean differences were highest between pregnant supplemented and pregnant un-supplemented pair ($p=0.165$). Biochemical profiles, mean milk protein and fat percentages were significantly higher for supplemented than un-supplemented ($p<0.05$). All supplemented camels were mated within the first two weeks and had a higher conception rate (40%) than un-supplemented (10%). The study recommends concentrate supplementation during mating season to improve fertility and milk production, especially in pregnant camels.

Keywords:

Concentrate supplementation, Milk Production, Progresterone levels, Reproductive performance, Milk protein, Milk fat, Serum biochemical profiles