

Effect of Nutritional Supplementation on Ovarian Follicular Activity in the Dromedary

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The low (reproductive performance) of the dromedary is essentially a consequence of inappropriate management, characterized by inadequate feeding due to climatic conditions and the lack of strategies to optimize breeding seasons. Experimental observations in station or in semi-intensive systems show that reproductive rates in dromedary herds may be improved with adequate nutrition.

Our research group has been conducting experiments over the last 2 decades on the effect of nutrition on ovarian activity. The breeding season in Morocco extends over a 7 month period (October – May). The period of sexual rest coincides with the time of the year where the Body condition of animals is at its lowest (Sghiri A. *et al.*, 1999).

The main objective of our experiment was to study the relationship between BCS, energy metabolism parameters and resumption of ovarian follicular activity in dromedary females reared in traditional nomadic systems in Southern Morocco. A sample of 125 mature dromedary females were selected from herds and monitored during the period of November and December. Females belonged to two types of herds, those practicing feeding supplementation before the breeding season and those without supplementation. All females were subjected to body measurements (body girth and hump circumference) to estimate body weight and gynaecological examination to determine ovarian follicular activity. In addition blood samples were collected from each female for determination of metabolic activity indicator: cholesterol, glucose, blood urea nitrogen (BUN) and Non-esterified fatty acids (NEFA).

Results of these investigations indicate the presence of a strong relationship between BCS and the size of the hump. As expected BCS depends mainly on energy supplementation. Supplemented herds had better BCS as compared to those without supplementation. In general, each supplementation of one UF (Unité fourragère) improved the BCS by an average 0.1 point.

The percentage of females with inactive ovaries (no follicular wave pattern) was 78% in the non-supplemented herd. Increased BCS was accompanied by a decrease in NEFA. Underfed animals had higher BUN most likely due to increased protein use of maintenance of glycogenesis from amino-acids. Blood glucose concentration was higher in females receiving more than 3 UF supplementation. Females receiving more than 5UF supplementation has a blood glucose of 0.9 g/ml.

There was a positive correlation between ovarian follicular activity and cholesterol concentration in the blood.

In conclusion, we found that under Moroccan conditions, a BCS of 3 (scale 1–9) more is needed to ensure resumption of ovarian activity at the beginning of the breeding season.

Keys words: female dromedary, ovaries, energy metabolites, BCS, nutrition

Sghiri A., Driancourt M-A. (1999). Seasonal effects on fertility and ovarian follicular growth and maturation in camels (*Camelus dromedarius*). In *Animal Reproduction Science* 55, 223-237.