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Program and Extended Abstracts

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Effect of management system on Sudanese camels calving interval

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Introduction

The camel is a very important animal in the dry regions because of its ability to provide milk, meat and transport for people under these climatic conditions. In Sudan, camels are traditionally reared in extensive area with low feed quality and availability. The reproductive efficiency of Sudanese camels under Pastoral management (traditional) is low. The Calving interval is varying between 28 to 36 months. Low reproductive performance in camels is mainly due to a delayed puberty, long Calving interval, limited breeding season, herd dynamics and lack of sufficient feed.

The aim of the present study was to investigate the impact of improved management system on camel calving interval.

Material and Methods

Eighteen (18) she-camels in late pregnancy and two mature males for mating were used to determine the effect of Management System on calving interval, in North Kordofan State (Western Sudan). The camels were selected randomly from Nomadic herd and maintained under two management systems after calving. Group one (N = 9) reared under semi-intensive management: herded during night in closed pens, in addition of natural pasture they allowanced supplementary diet (2 kg concentrates + 5 kg roughage /head/day), watering *ad-lib*, health care, internal and external parasites control were applied. Group two (N = 9) reared under Traditional system, depending on natural rangeland and unsupplemented with exception of salt, water regime (6-7 days) was practiced.

In both systems the calves were fellow their dams and suckling was available for the half of the udder during the day. Weaning was depending on pregnancy advance and normally was done by traditional methods. The experimental females in each group kept

together with the bull during 18 months the mating were applied naturally without any assistance. Blood samples (N = 252) were collected from jugular vein since 4-months post partum and continued 14 successive months at monthly interval. The serum samples were separated and stored at -20°C until hormone assay were performed, progesterone concentration was determined by specific radio immuno assay (RIA) kits. (Diagnostic Products Corporation, INRA laboratory, France). The progesterone level was compared with behaviour signs of she camel (erect and curving her tail when owner or male coming near her, refusing the male, raising head). The calving interval was calculated by adding the gestation period (12 month) to the period from calving till she camel became pregnant.

Results

Under semi-intensive management during post-partum and early lactation period camel's reproductive traits were improved.

The ratios of pregnant vs non-pregnant during total experimental period (18 months) in semi-intensive and traditional management were 8:1 and 4:5 respectively.

The calving interval was shortened under semi-intensive system. In group 1 seven females became pregnant in the period between 5 and 8 month post-partum and the calving interval varying between 17 to 20 months. An additional one became pregnant on 13th month and calving interval was 25 month. In group 2 (traditional system) three she camels became pregnant during the 11 and 16 month post-partum and the calving interval varying between 23 to 26 months, one she camel became pregnant after 17 month post-partum and the calving interval was 29 month.

In pregnant females Progesterone concentration increased significantly (P<0.05) during early months of pregnancy to a value above 2 ng/ml blood. During pregnancy the value is increased to an average value of 5.8 ±1.45 ng/ml blood over a period of 8 months followed by a strong decrease during the last two months before calving (see figure 1 and 2).

Conclusions

The findings of the present study assume that the low rate of fertility in the camel under traditional system in Sudan is considered mainly as being due to the general lack of fodder and the poor nutritive value of the natural pastures and water scarcity. This

might indicate that in equatorial regions forage and water availability is the major factor governing seasonality of mating and births in camels.

Additional feeding of 2 kg concentrates and 5 kg of roughages per day during the lactating period shortened dramatically the calving interval and increased rate of pregnancy. We calculated that it would be possible to expect above 3 times more young calves per year. Blood progesterone can be a valuable tool for assessing early pregnancy in camels coupled with the sensory observations.
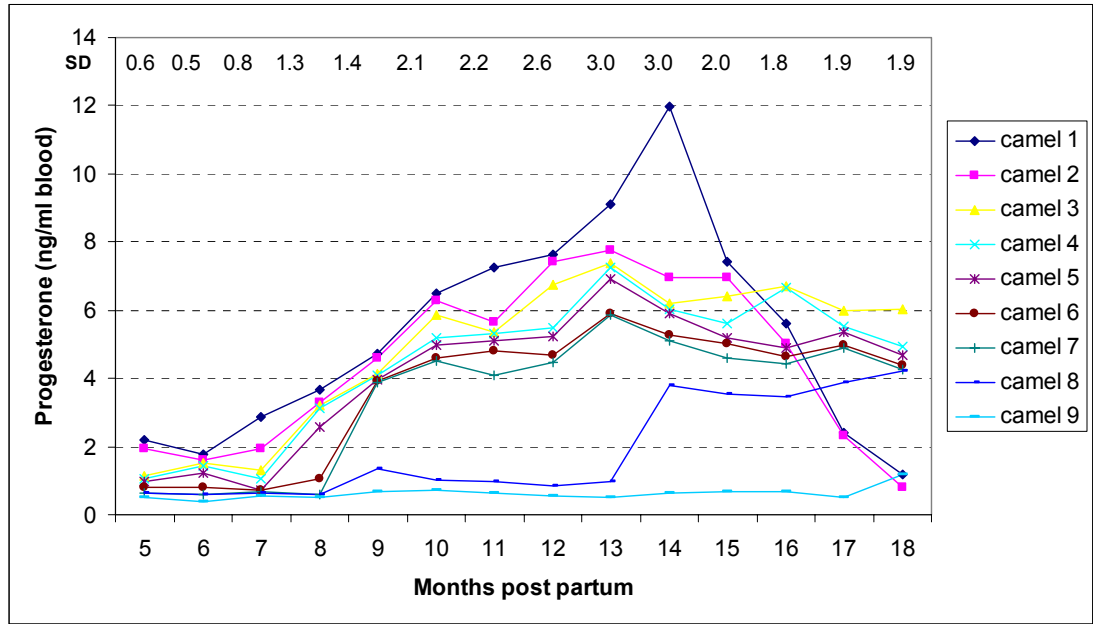

Figure 1: Progesterone concentration (ng/ml blood) on camel under semi-intensive management during the experimental period
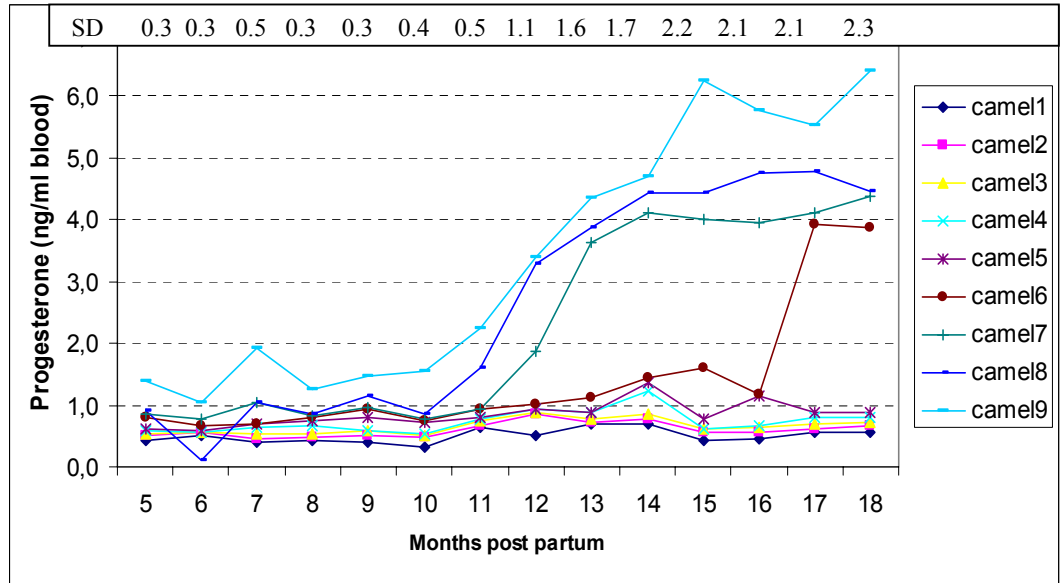

Figure 2: Progesterone concentration (ng/ml blood) on camel under traditional management during the experimental period

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