

Introduction

Sudan ranks the second country in the world camel population (3.908 million heads). Most camels are raised within pastoral systems in the western Kordofan and Darfur and eastern regions of the country, also some camels raised in the rain fed-cultivation areas in central Sudan. The camel production systems in central Sudan were maintained under intensive, semi-intensive and traditional system.

Under traditional management the camel productive and reproductive traits are low. Traditional camel husbandry in Sudan has no future. The main constraints facing camel pastoral system; camels loose their base environments and desire of the herders to settlement in towns.

The Objective of this study was to evaluate the impact of farming system on she-camel milk yield and also to assess the effect of seasonal variation on milk components and to calculate calving intervals.

Material and Methods

Study area

This study was carried out in the rain fed-cultivation areas in central Sudan (Sennar state).

Experimental work :

Thirty six lactating she-camels and their calves were selected, they were divided into three groups (12 for each group). The first group was managed under semi intensive system in which the animals were herded during night in closed pen and set free during mid-day and supplemented in the evening (Plate 1). The second group was intensive system; animals were kept in the experimental farm during the day and offered 15 kg/head/day roughages and supplemented with concentrate 3 kg/head/day .The third group was serve as a control (traditional system), the animals were brought to graze and browse the available plants, agricultural-residues and allowing nothing as supplemented feeding (Plate 2).

Data collections:

Data of milk yield and milk chemical composition was collected. Blood samples were collected for determination of Progesterone concentration hormone by using radio immune-assay (RIA) kits.

Results and Discussion:

The study concluded that she-camels under intensive and semi-intensive systems produce significantly ($P<0.05$) more milk than under traditional system (Figure 1). Improving management increased milk yield three times from that produced under traditional management, also milk composition was significant different among the three production systems and during the production seasons (Table1). Protein contents attained a higher value in intensive and semi-intensive system as compared with the traditional system. The fat contents, ash and total solids contents were obtained the similar trend of protein, which they significantly ($P<0.05$) higher than values that recorded in traditional system.

The level of progesterone hormone in camels reared under intensive and semi-intensive system increased in the 9th month post-partum till reach the peak in 13th and 14th months postpartum before start to decreasing gradually, the progesterone profile recorded lower level in the traditional system.(Figure 2). The study indicated that more than 80.8% of the camels reared under intensive and semi-intensive systems had be pregnant early, in contrast of traditional system where only 45.3% of the total experimental animals were pregnant late. The supplemented camels start to be pregnant at the 8th month postpartum that means the supplementation stimulated the ovarian activities. The farming system has a clear effect on the progesterone hormone concentration in camel. This may be attributed to pregnancy which happened in high percentage in camels reared in intensive and in semi-intensive systems .



Plate (1) Animals in semi-intensive system

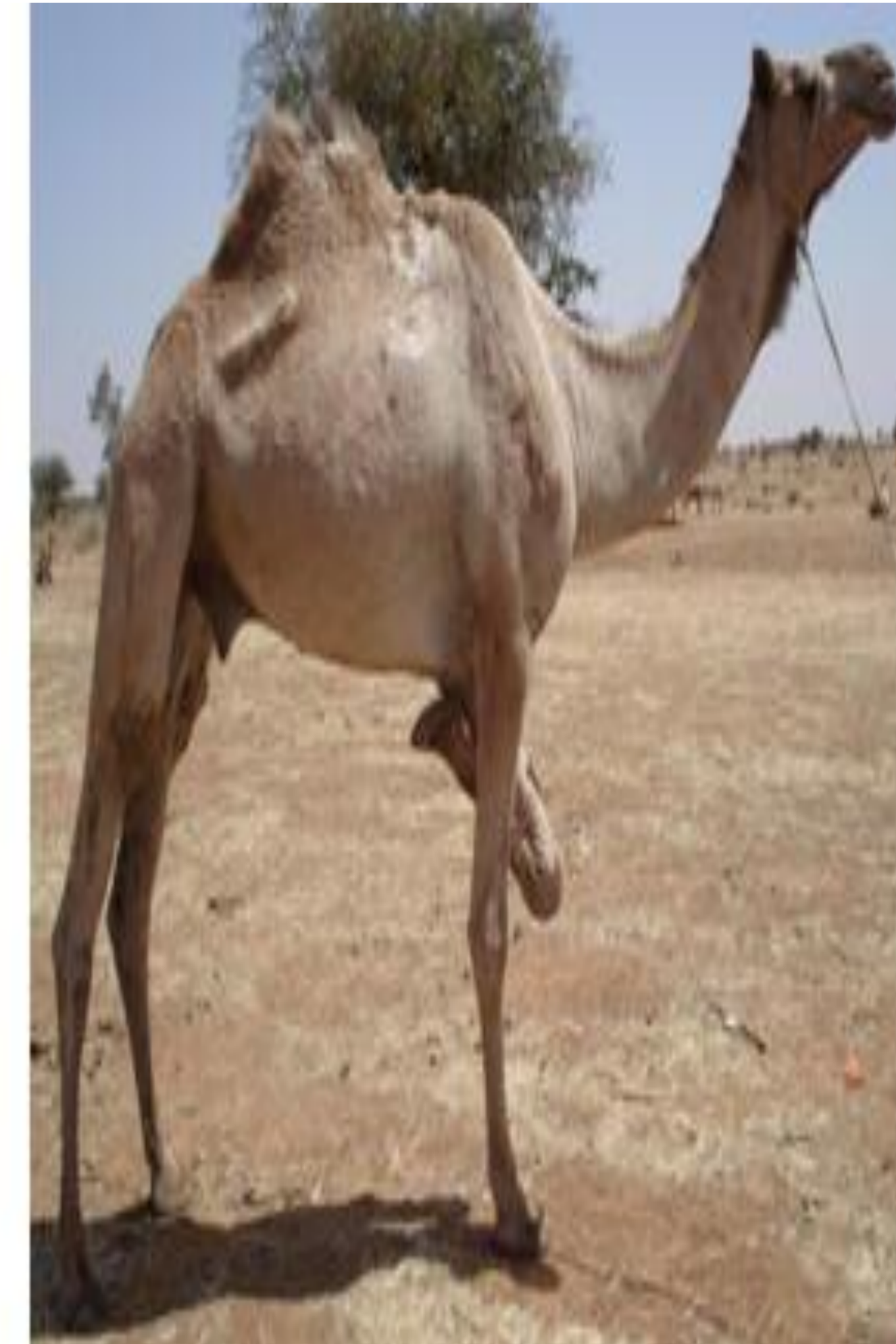


Plate (2) camel herd under traditional system.

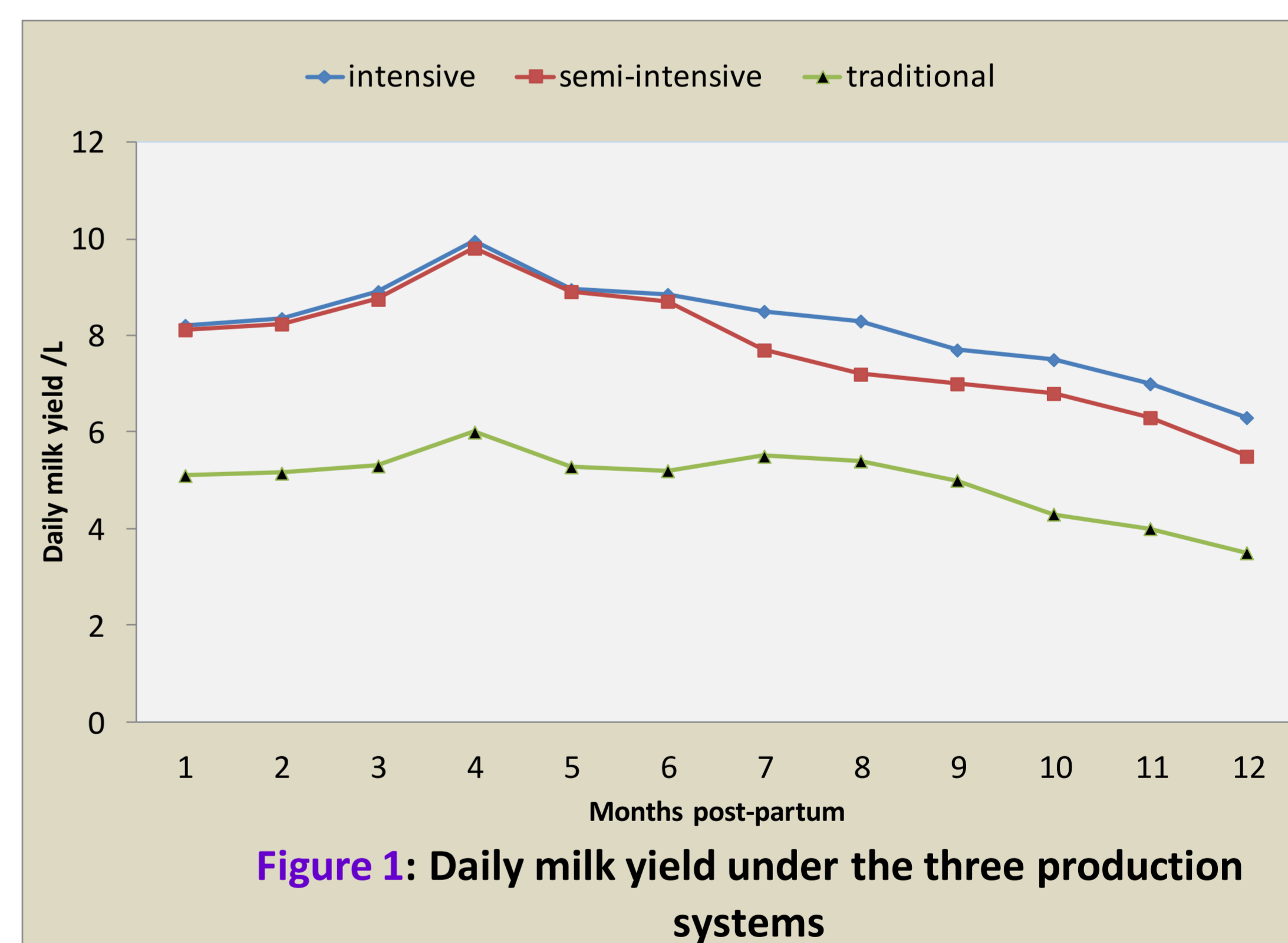


Figure 1: Daily milk yield under the three production systems

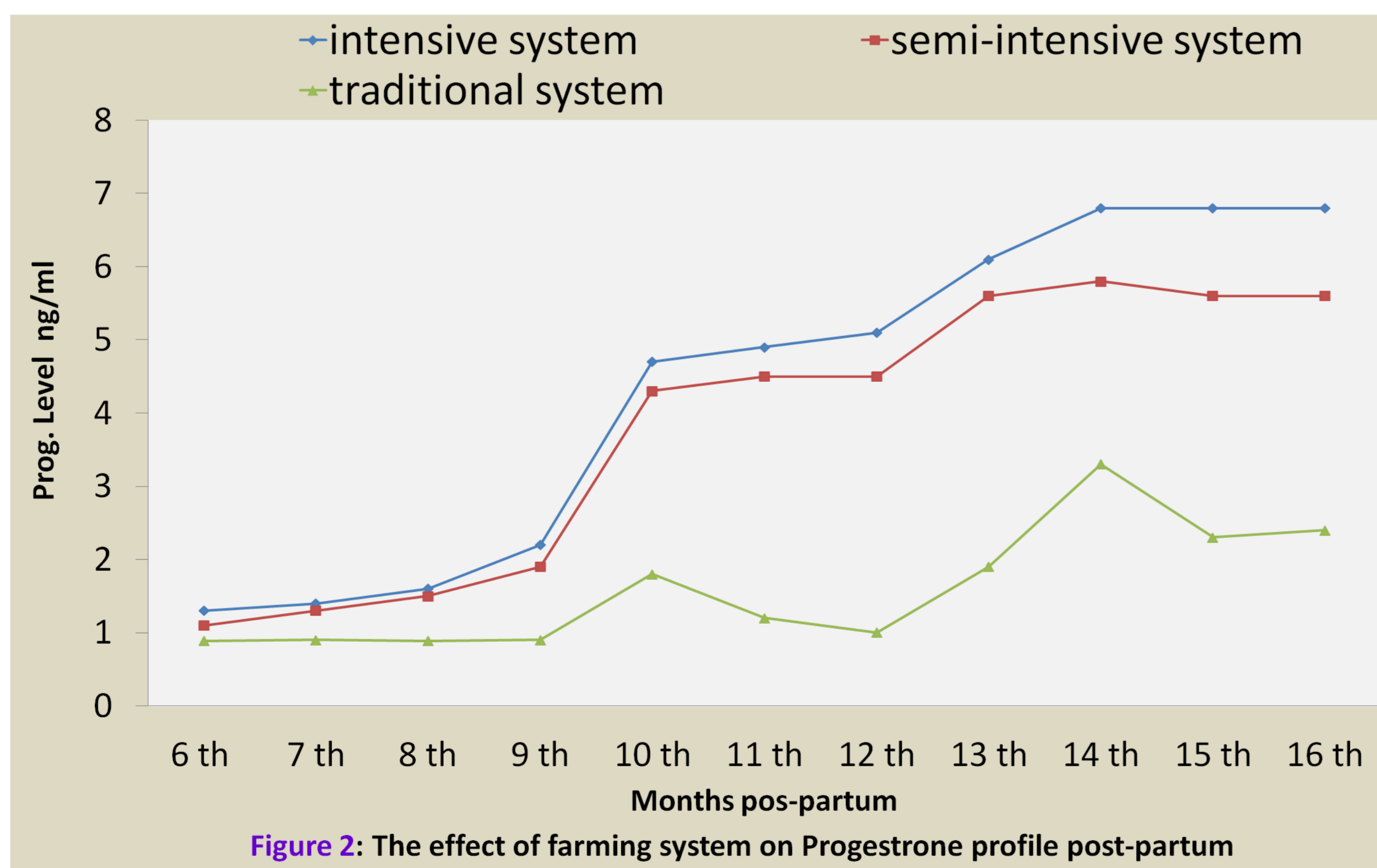


Figure 2: The effect of farming system on Progesterone profile post-partum

Table 1: Camel milk composition in the three farming systems (% DM-bases)

System	Crude protein %	Fat (%)	Ash (%)	Total solid
Intensive	3.9 ± 0.23	3.9 ± 0.16	0.9 ± 0.05	13.50 ± 0.5
Semi-intensive	3.7 ± 0.19	3.8 ± 0.19	0.8 ± 0.09	13.04 ± 0.7
Traditional	3.3 ± 0.15	3.5 ± 0.23	0.78 ± 0.04	12.80 ± 0.4

- **Conclusion:** The findings of this study showed that under intensive and semi-intensive management the productive and reproductive traits were improved.
- The study indicated the importance of the nutritional status of she camels on milk yield and milk composition and to improve reproduction performance of the animals. .

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