

قسم: التوليد والتلقيح الصناعي .
كلية: الطب البيطري - جامعة أسيوط .
رئيس القسم: أ. د / محمود عبد المحسن النجار .

الأداء التناسلي للماشية المستوردة

في مصر العليا

أحمد عبد الرحيم ، باهي حسين ، أحمد جمعة

استخدم في هذا البحث عدد ٢٣٨ من بكارى الفريزيان التابعة لمزرعة
ابنوب الحمام بأسيوط . وقد أوضحت الدراسة الآتي :

- ١- متوسط طول الفترة بين الولادة والشياع الأول كانت 111.17 ± 0.99 يوما . وكانت الفرق في طول الفترة بين الفصول المختلفة معنويا (٥ %) وكانت الفترة أطول ما يكون في الشتاء (٥٠ ر ١٣٠ يوما) وأقصر ما يكون في الصيف (٦٧ ر ٨٣ %) .
كذلك أوضحت الدراسة أن هذه الفترة كانت أقصر ما يكون (٢٢ ر ٩٧ يوما) في الحيوانات التي ولدت عند عمر ٢٣ شهر فأقل - وكان متوسط العام للعمر عند أول ولادة ٢٥٥٥ + ١٧٩ شهرا .
- ٢- أوضحت الدراسة أن نسبة الخصوبة بعد التلقيح عند أول شياع أعلى ما يكون أثناء فصل الربيع (٣٦ ر ٥٥ %) وأقل ما يكون في الصيف .
- ٣- وقد كان المولود الذكر أكبر وزنا (٢٩٦٣ كجم من وزن الأنثى)
٢٨٩٧ كجم) .

في سنة ١٩١٥م
في سنة ١٩١٦م
في سنة ١٩١٧م

في سنة ١٩١٨م

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في سنة ١٩٣٥م

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**REPRODUCTIVE PERFORMANCE OF IMPORTED
FRIESIAN CATTLE IN UPPER EGYPT**
(With 4 Tables)

By
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SUMMARY

The breeding records of 238 primiparous Friesian cows bred at Abnoob El-Hammam dairy farm (Assiut) were studied. The obtained results showed that the average postpartum breeding interval was 111.17 ± 50.99 days. The longest period (113.05 days) was observed during Winter and the shortest was observed during Summer. There was a statistically significant ($P < 0.05$) difference between the different seasons studied. Conception rate to service during the first postpartum heat was highest (55.36%) during Winter and Lowest during summer (44.0%). The average postpartum breeding interval was shortest (97.22 days) in animals which gave their first calf at an age less than 24 month. Male calves were heavier (29.63 kg) than female calves (28.97 kg).

INTRODUCTION

Importation of cattle into the subtropics is usually associated with drastic changes in nutrition, housing and management. In Egypt, European breeds of cattle were imported for their high productivity. However, the reproductive performance of these animals can be affected under the local conditions of Egypt. AMAKIRI (1975) observed that fertility in cows and heifers declines rapidly in the subsequent generations under different climatic conditions.

The aim of this work was to study, the postpartum breeding interval, conception rate and weight of the newborn calves in primiparous Friesian cows.

MATERIAL and METHODS

Data used in this study were collected from the breeding records of 238 primiparous cows bred at Abnoob El-Hammam Friesian dairy farm (Assiut Province), the length of the postpartum interval and the influences of season of the year and age at first calving were studied. Also conception rate and weight of the newborn calves were calculated. Animals with clinical puerperal disturbances were excluded.

Animals were milked twice daily and fed during the dry season (June-December) on a ration which consisted of concentrate mixture and rice straw. The concentrates contained 40 1/2% cotton seed cake, 20% wheat bran, 20% yellow corn 10% linseed cake, 4% rice polish, 3% molasses, 2% lime stone and 1% common salt. Green fodder (Darawa) was offered to animals

when available. During the green season (January-May) Barseem was offered in sufficient amounts while concentrates were offered only during milking according to the body weight and milk production of each animal.

The data were analysed statistically according to SNEDECOR and COCHRAN (1967).

RESULTS and DISCUSSION

I- The postpartum breeding interval:

The obtained results showed that the overall average of the postpartum breeding interval was 111.17 ± 50.99 days (Table 1). Relatively lower values of 77.60 and 83.3 days were reported by SAND HARTMAN (1951) and LEIBFRIED (1952) respectively. The differences may be due to environmental, management or age variations. McDONALD (1980) mentioned that stress (climatic, poor nutrition or even lactation) encourages the reproductive process to be disturbed. Moreover, ASHFAQ and MASON (1954) recorded that, they were able to reduce the calving interval from 615 to 385 days by improving management in buffaloes.

a) Influence of Season:

The results of this study showed that average postpartum breeding interval was 131.05, 106.25 and 83.67 days in winter, spring and summer respectively. The differences were highly significant ($P/0.01$). In Egypt AFIEFY, *et al.* (1971) reported seasonal variations in the activity of the ovaries in cattle.

b) Influence of age at first calving:

Means of 97.22, 113.23 and 102.26 days were obtained for the postpartum interval in animals up to 24 month, between 24 and 26 month and those more than 27 month of age at first calving (Table 2). The differences were statically significant ($P/0.01$). Heifers which gave their first calf at a younger age might be of good general health and suitable body growth to reach puberty at an earlier age. BEARDEN and FUQUAY (1980) reported that dairy breeds are bred at an age of about 15 month so that they can calve at approximately 24 month of age. Moreover, the same authors stated that, heifers bred for the first time at a later age experience a significant increase in the reproductive problems. The overall average obtained for the age at first calving was 25.55 ± 1.79 month agreed with the statement of BEARDEN and FUQUAY (1980) and VANDEPLASSCHE (1982) that in many countries heifers of dairy breeds are inseminated to give the first calf at an age of 24 to 27 month.

c) Influence of the sex of the calf:

The average postpartum interval obtained for animals which gave male calves was 114.96 days compared to 108.01 for those which gave female calves. The difference was statistically significant ($P/0.01$). Probably the heavier weight of the male calves than females is accompanied to some extent with delay in the uterine involution.

II- Conception to the first service:

The conception rate after service during the first postpartum heat was 45.16%, 53.13%, 57.14% and 39.74% in animals bred before 60 days, between 61-90 day, 91-120 days and after 121 days postpartum respectively. VANDEPLASSCHE (1982) stated that the conception rate from breeding less than two months after calving is less than the optimum rate, achieved at about 70-80 days. The same author cited that following early service embryonic death is higher. Moreover, SALISBURY, *et al.* (1978) recorded that about 45 to 50% of cows bred

REPRODUCTIVE PERFORMANCE IN CATTLE

between 40 and 60 days postpartum will conceive to the first service.

a) Influence of season:

The conception rates obtained during winter, spring and summer were 45.33%, 55.36% and 44% respectively. LAING (1971) cited that the reproductive efficiency is lowest during summer. The same author mentioned that the stress caused by high temperature and high humidity can be accepted as a cause of lowered reproductive efficiency. INGRAHAM, *et al.* (1974), and THATCHER (1974) have shown that when high temperature prevails from 2 days before insemination up to 4 to 6 days after insemination, the conception rate of cows was markedly reduced.

b) Influence of age at first calving:

Our results showed that there was highly significant ($P/0.01$) difference in the conception rate between the three age groups (Table 2). Unfortunately the available literature lack data concerning the effect of age of the mother at first calving on the conception rate to the first service. However, DELANGE (1950) stated that withholding heifers from the first breeding until they go beyond reasonable size and age can result in poor reproductive performance.

c) Influence of the sex of the calf:

The results showed that the sex of the calf has a non significant effect on the conception rate (Table 3).

III- Birth Weight:

a) Influence of season:

Heavier weights of the male and female calves were obtained during winter (Table 1). However, the difference in calf weight between different seasons was statistically non significant. Similar results were reported by SEIDA and EL-SAYED (1984) in Friesian cattle.

b) Influence of the age of the mother:

The present results showed that the age of the mother at first calving had no significant effect on the birth weight of the calf. REID, *et al.* (1957) found that the level of nutrition has greater effect on the birth weight than age of the mother.

c) Influence of sex of the calf:

The average weight of the male calves was 29.7 ± 3.68 kg and the average weight of the female calves was 28.81 ± 3.36 kg. The difference was statistically significant ($P/0.01$). In cattle, similar results were reported by HAMMOND (1955), TAHTAWY and AHMED (1953), BELLOWS, *et al.* (1971) and PATTULLE (1973). However, higher values for both males and females were reported by CEIDA and EL-SAYED (1984) in the same breed of cows. The difference may be attributed to age of the dams HAMMOND (1955) and ROBERTS (1971) agreed that heifers calving for the first time had calves that are 10 pounds lighter than the subsequent birth.

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REPRODUCTIVE PERFORMANCE IN CATTLE

Table (1)
Seasonal variation in the postpartum period,
conception rate and calf weight

Season	No. of Animals	conception rate	post-partum period ($\bar{X} \pm S.E$)	calf-weight kg ($\bar{X} \pm S.E$)
Winter	56	31(55.36%)	131.05 \pm 69.99 (44 - 286)	30.03 \pm 7.31 (19 - 40)
Spring	150	68(45.33%)	106.25 \pm 40.88 (14 - 221)	28.93 \pm 5.22 (17 - 39)
Summer	9	4(44%)	83.67 \pm 26.1 (58 - 140)	26.15 \pm 2.25 (24 - 31)
Total	215	103(47.9)	111.77 \pm 50.99 (41 - 286)	28.63 \pm 3.76 (17 - 40)

Table (2)
Effect of age of the mother on postpartum period
(days, $\bar{x} \pm S.E$) and conception rate

Age group (month)	period from calving to First heat	No. of animals	conception rate %
up to 24	97.22 \pm 37.63 (58 - 181)	18	44.44 (N. 8)
24 - 26	113.23 \pm 51.72 (42 - 286)	160	50.3 (N. 84)
More than 26	102.86 \pm 50.48 (41 - 231)	37	37.84 (N. 4)
	F	9.38**	

Table (3)
The relationship between sex of the calf, post-partum period
(days, $\bar{x} \pm S.E.$), conception rate and calf weight

Sex of the calf	Period from calving to heat	No. of animals	Conception rate %	Calf weight (Kg., $\bar{x} \pm S.E.$)
Male	114.96 \pm 56.12 (41 - 286)	109	52(47.71%)	29.63 \pm 3.70 (19 - 40)
Female	108.01 \pm 45.92 (45 - 238)	106	51(48.11%)	28.97 \pm 3.75 (17 - 39)
t		7.274**		

Table (4)
The relationship between the postpartum period
and conception rate to the first service

Period from calving 1st Postpartum heat	No. of animals	Anim. concieved	Conception rate
Less than 60 days	31	14	45.16%
61 - 90 days	64	34	53.13%
91 - 120	42	24	57.141%
121 - 286	78	31	39.74%
Total	215	103	47.91%