العلاقة بين إدارتة اللبنة ونشاط المبيت
في
أبقار الفريزيان

باهي سرور، أحمد عبد الرحيم، فاروق حلم

اشتملت هذه الدراسة عدد 93 من أبقار الفريزيان الموجودة بمزرعة كلية الزراعة ومزرعة الفريزيان في بني مر بأسيوط، وقسمت الحيوانات إلى ثلاثة مجموعات (حيوانات حوامل)، (حيوانات تعاني من خمول الصياغ)، (حيوانات تعاني من وجود الجسم الآصفر بصفة مستمرة).

وأوضحت الدراسة أن الحيوانات التي تعاني وجود الجسم الآصفر أعطت أعلى إدارات الرأني إلى كمية اللبنة واقفاً الحيوانات التي تعاني من خمول الصياغ، وكذلك أوضح أن هذه العلاقة عكسية من كمية إدارة اللبنة وحول الحمل.
LACTATION AND REPRODUCTIVE PERFORMANCE IN CATTLE
(With 4 Tables)

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SUMMARY
This study included a total of (93) Freizian cows. Animals were classified into three groups (pregnant animals, animals suffering from ovarian inactivity and animals suffering from persistent corpus luteum). The results showed that the highest milk yield was given by animals with persistent corpus luteum, while the lowest yield was given by the group suffered from ovarian inactivity.

The results showed also that there was a negative correlation between milk yield and conception rate.

INTRODUCTION
The maintenance of a good fertility level and good milk yield are directly related to the nutritional needs of the human population and to the economy of the country. Therefore, the study of the milk production in relation to the ovarian activity needs great attention.

As the physiological mechanisms involved in reproduction and lactation are closely associated, interrelationships between the two will be expected (SALISBURY et al. 1978).

Although the interrelationship between milk yield and ovarian activity is considered of great importance, yet few literatures could be found. ROTTENSTEIN and ANDERSON (1955) and DOWSON (1963) mentioned that an increase in milk yield was accompanied with decreased fertility and conception rate EL-HARIRI et al. (1976) found the same correlations in buffaloes. This statement was not confirmed by SCHMIDT and KORIATH (1958).

ZAKI et al. (1964) stated that milk yield of cows and buffaloes was good in healthy animals with normal active ovaries.

There are many other factors controlling milk yield including hormonal changes, age, number of previous parturitions, hereditary potential for milk production, weight, breed, nutritional status and other causes (COLE and CUPPS, 1956). ROBERTIS (1971) cited that maximum milk production is usually reached between 1-2 months after parturition in cattle.

The aim of this work is to study the relation between milk yield and the ovarian status after parturition in Freisian cattle in Assiut province.

MATERIAL and METHODS
A total number of 93 Friesian cows included in this study. These animals were among those reared in the experimental farm station, Faculty of Agriculture and Bani-Morre Friesian station. The age of these animals ranged between 2.5 to 8 years. Animals were kept more or less under the same nutritional, hygienic and managmental condition.

The age, number of previous calving, average daily and monthly milk yield for each animal as well as the conception rate were obtained.

For each animal, gynaecological examination was performed two times within 10 days interval to determine its reproductive status. The included animals were classified into:

1- Group I: With normal active ovaries. These animals showed normal postpartum heat within three months after calving and were mated normally and became pregnant.
2- Group II: With completely inactive ovaries and not show heat for a period more than three months after calving.
3- Group III: With persistent corpus luteum (corpus luteum considered persistent if elapsed for a period more than 3 months after calving in cattle after DESSOUKY and RAKHA, 1961).

The udder was moderately or good developed in healthy animals with normal active ovaries and those with persistent C.L. while it was less developed in animals with completely inactive ovaries specially in primiparous animals.

Statistical analysis of the data were done according to SNEDECOR and COCHRAN (1967).

RESULTS

From table 1,2 and 3, it is seen that the lowest average milk yield was observed in the first group primiparous, while the highest level was found in the second group gave 2 to 4 calvings. After the 4th calvings, a slight decrease in the milk yield was observed.

The average milk yield produced by animals with persistent corpus luteum (Group III) was higher than the average milk yield in animals with complete inactive ovaries (Group II) and those pregnant animals (Group I), (Table 3).

In all studied material, a highly (P/0.01) significant difference in the average milk yield between the three groups was obtained.

In primiparous animals, the difference in the average milk yield between the three groups was significant at P/0.05 level. However, in pluriparous animals groups (II & III), the difference was found to be non significant.

From table (4) it can be noticed that higher conception rate was associated with low milk yield.

DISCUSSION

The average daily milk yield in primiparous animals (8.54 ± 2.67 kg) was lower than in animals that gave 2-4 births (12.36 ± 2.71 kg) and those gave more than 4 births (10.04 ± 3.26 kg). This agrees to a large extent with that reported by TURNER (1932) and CLARK and TOUCHBERRY (1962) in cattle and EL-SAWAF et al. (1964) in buffaloes. They attributed this progressive increase in milk yield to the stimulus of recurring pregnancy and to the increase in the body weight as well as the resultant growth and development of the udder.

High milk yield is accompanied with the high prolactin level in the blood, ROBERTS, (1971) and HAFEZ, (1980) cited that prolactin is essential for maintaining milk secretion. This may explain the correlation between the high milk production and persistent corpus luteum as prolactin is responsible for maintenance of the corpus luteum (ROBERTS, 1971).
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BLAXTER, (1945) stated that high level of thyroxin hormone is related to higher milk production, while high level of thyroxin causes higher and earlier activity of the ovaries after parturition and vis versa. This might explain the relation between low milk yield and inactive ovaries of the present study. AFFIF EY (1966) noticed that thyroxin level is markedly decreased in animals affected with inactive ovaries. DOWSON (1963) found that high milk production causes stress on the metabolism of the animals specially that of the pitutary and ovaries. On the contrary, to these findings ECKLES, (1929) reported that milk yield has no effect on reproduction in cattle.

In primiparous animals, the results showed a significant (P/ 0.05) difference in the milk yield between the three groups. This may be attributed to age and size variations. SALISBURY (1978) mentioned that early calving heifers would not be expected to produce as much in their first lactation as heifers calve at a later age and thus at a larger size.

Statistical analysis showed a negative correlation between milk production and conception rate. This may due to the extra stress caused by heavy lactation on the metabolism of the animal and both lactation and reproductive activity. SPALDING et al. (1975) reported that the interval from calving to the first postpartum estrus was longer in high milk producing animal. Therefore, there is a possibility of competition for limited hormone supplies between the udder and genital organs.

REFERENCES


B.H. SERUR, et al.


Table (1)
Milk yield (kg) in Friesian cows during pregnancy (Group I)

<table>
<thead>
<tr>
<th>No. of Prev. Calvings</th>
<th>No. of Animals</th>
<th>Daily Milk Yield</th>
<th>Milk Yield during the 1st 4 months after Calving</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>±</td>
<td>Range</td>
</tr>
<tr>
<td>1</td>
<td>12</td>
<td>8.54</td>
<td>2.67</td>
</tr>
<tr>
<td>2-4</td>
<td>14</td>
<td>12.36</td>
<td>2.71</td>
</tr>
<tr>
<td>4</td>
<td>12</td>
<td>10.04</td>
<td>3.26</td>
</tr>
</tbody>
</table>

Total = 38

X = Mean

± = Standard deviation

Table (2)
Milk yield (kg) in Friesian cows affected with inactive ovaries (Group II)

<table>
<thead>
<tr>
<th>No. of Prev.</th>
<th>No. of Animals</th>
<th>Daily Milk Yield</th>
<th>Monthly Milk Yield during the 1st 4 month after Calving</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>±</td>
<td>Range</td>
</tr>
<tr>
<td>1</td>
<td>11</td>
<td>6.34</td>
<td>2.55</td>
</tr>
<tr>
<td>2-4</td>
<td>7</td>
<td>10.86</td>
<td>4.03</td>
</tr>
<tr>
<td>4</td>
<td>9</td>
<td>8.67</td>
<td>1.43</td>
</tr>
</tbody>
</table>

Total = 27

X = Mean

± = Standard deviation

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Table (3)
Milk yield (kg) in Friesian cows affected with persistent CL (Group III)

<table>
<thead>
<tr>
<th>No. of prev. calvings</th>
<th>No. of animals</th>
<th>Daily milk yield</th>
<th>Monthly milk yield in the first 4 months after calving</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>X</td>
<td>+</td>
</tr>
<tr>
<td>1</td>
<td>8</td>
<td>11.42</td>
<td>2.69</td>
</tr>
<tr>
<td>2-4</td>
<td>12</td>
<td>13.19</td>
<td>2.98</td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td>12.01</td>
<td>3.97</td>
</tr>
</tbody>
</table>

Total = 28
X = Mean
± = Standard deviation

Table (4)
The relation between milk yield and conception rate

<table>
<thead>
<tr>
<th>Daily milk yield (kg)</th>
<th>No. of inseminated animals</th>
<th>No. of non return animals</th>
<th>Conception rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up 7 kg (low milk yield)</td>
<td>8</td>
<td>5</td>
<td>62.5</td>
</tr>
<tr>
<td>7 - 10 kg (Moderate yield)</td>
<td>10</td>
<td>5</td>
<td>50.0</td>
</tr>
<tr>
<td>More than 10 k. (high yield)</td>
<td>22</td>
<td>8</td>
<td>36.36</td>
</tr>
</tbody>
</table>