EFFECT OF NUMBER AND LENGTH OF LACTATION ON MILK YIELD IN SAHIWAL COWS UNDER SUB-TROPICAL CONDITIONS OF NWFP, PAKISTAN

BY
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ABSTRACT
A study was carried out to know the effect of number and length of lactation on yield in Sahiwal cows maintained under sub-tropical conditions of Livestock Research and Development Farm Surezai, Peshawar. Data on 61 Sahiwal cows were analyzed. Results revealed that an ascending pattern of lactation yield from 2nd to 5th lactation and maximum lactation yield of 1154.67 and 1519.5 litres at 4th and 5th lactation was found, respectively. Longest lactation length (314 days) at 5th lactation and shortest lactation length (134.97 days) at 2nd lactation was found. It was therefore concluded from the present study that special concentration should be focused on feeding and management of the animals from 2nd lactation onward in order to have desirable feed back of economics.

KEYWORDS: Sahiwal cow, lactation, milk yield, NWFP, subtropical, livestock

INTRODUCTION
Livestock is a natural resource and plays a pivotal role in the economy of Pakistan. Next to agriculture, animal husbandry is the most important economic activity in rural areas. These two together provide employment and income to the vast majority of the rural population. The role of livestock in the economy is realized from the fact that it contributes 49.6 percent to agriculture value added products and about 10.8 percent to the GDP; whereas, 30-35 million rural population is engaged in livestock raising, which contribute 30—40 percent to their income. It is estimated that country produces 38 billion litres of milk a year, whose value is more than the combined value of wheat and cotton (GOP, 2005 and 2007).

Livestock produce a number of vital products and services e.g. energy, food and raw materials. Rapid economic development is resulting in considerable pressure on the livestock sector to increase its output, as demand for meat and milk is increasing rapidly. Therefore the production by the livestock sector needs to be increased substantially and the share of it may be increased also, because a faster pace of development in the livestock sector would serve the important equity objective of improved income for small farmers and landless rural workers (GOP, 2005).

In 1950s, it was found that only 10% of economic growth in the USA could be explained by growing investments, the rest had to be explained by either technological change or improvements in productivity (Sande et al, 1992). The majority of projects did not improve the living conditions of small scale farmers even when they were specifically directed towards them. This was mainly due to inappropriate technologies, methods and exotic breeds in combination with a misunderstanding of the socio-economic aspects of livestock production in developing countries (Bunders, 1988).
The milk production performance of milch animals can be increased by increasing the production potential of milch animals and improving the nutrition, management and health control practices (Chaudhry and Shah, 1989). The present study was conducted for the purpose to know the effect of number of lactation on milk yield and lactation length in Sahiwal cows kept under sub-tropical conditions of Peshawar, NWFP, Pakistan.

MATERIALS AND METHODS
Milk production data of 61 cows maintained during the period from 1999—2006 in Livestock Research and Development Farm Surezai were obtained. The farm is situated at a distance of 25 km to Peshawar’s south, geographically sub-tropical area and the rainy season varying from June—August and November—January. The data were analyzed on the basis of number of lactation of cows and their milk yield and lactation length in five successive lactations and the mean was determined by using a formula Σx/n; where Σx is total of all observations on yield/days of lactation and n is total number of observations in lactation.

RESULTS AND DISCUSSION
Graph-I, shows an ascending pattern of milk yield from 2nd lactation onward till lactation 5th. Maximum milk yield (1519.5 litres) was found in lactation 5th which means that production capacity of animal increases with the number of lactations. The findings of the present study are in agreement with the findings reported by Afridi et al. (2004), who conducted study on Holstein Friesian cattle under climatic condition of Peshawar and reported an increasing trend of milk yield from first to fourth lactation. The finding is also in conformity with the report, that best estimate of life time production for cows is usually considered to be upto 10 years of age or the period between 1st and 6th lactation (Jadhave et al. 1991).

Graph-II, shows maximum lactation length (314 days) at lactation 5th and shorter lactation length (134.97 days) at lactation 2nd. The graph shows an ascending pattern from lactation 3rd onward till lactation 5th. These findings reveal direct relationship between the number of lactation and lactation length, which is also in agreement with the finding reported by Afridi et al. (2004), who stated that longest lactation length was found in fourth lactation. But the finding is in contradiction with the report by Syed et al., (1996), who stated that mean lactation length of Sahiwal cows was 293 days and also to Afridi et al. (2004), who reported mean lactation length, 315.09±17.75 days in Holstein Friesen cattle, while in the present study, the mean lactation length on cumulative five lactation basis comes to 199.7 days. The difference could be due to different management aspects and health status of individual animals and in the later case may be due to breed difference.

The finding of shorter lactation length at 2nd lactation in the present study is also not in agreement with the finding of Afridi et al (2004), who reported shortest lactation length at 6th lactation. Again the difference might be due to breed, various management and health condition of the individual animals.

Keeping in view the findings of the present study, it is clear that both 4 and 5th lactation are most important on the basis of lactation yield and length, while the ascending tendency of the values was noted from 2nd and 3rd lactation onward respectively. Therefore utmost care is needed in terms of feeding and management from 2nd lactation onward in order to get more economical benefits.
Table I: Effect of number of lactation on milk yield in Sahiwal cows

<table>
<thead>
<tr>
<th>No. of lactation</th>
<th>No. of observation</th>
<th>Milk yield/cow (mean liters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>61</td>
<td>558.04</td>
</tr>
<tr>
<td>2nd</td>
<td>37</td>
<td>473.95</td>
</tr>
<tr>
<td>3rd</td>
<td>13</td>
<td>681.26</td>
</tr>
<tr>
<td>4th</td>
<td>7</td>
<td>1154.67</td>
</tr>
<tr>
<td>5th</td>
<td>1</td>
<td>1519.5</td>
</tr>
</tbody>
</table>

Graph I of Table I

Table II: Mean lactation yield and Length in Sahiwal cows

<table>
<thead>
<tr>
<th>No. of lactation</th>
<th>Lactation yield (litres/cow)</th>
<th>Lactation Length (days/cow)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>558.04</td>
<td>178.32</td>
</tr>
<tr>
<td>2nd</td>
<td>473.95</td>
<td>134.97</td>
</tr>
<tr>
<td>3rd</td>
<td>681.26</td>
<td>172.15</td>
</tr>
<tr>
<td>4th</td>
<td>1154.67</td>
<td>199.14</td>
</tr>
<tr>
<td>5th</td>
<td>1519.5</td>
<td>314</td>
</tr>
</tbody>
</table>

Graph II of Table II

REFERENCES


