Review

Evaluation of the dairy potential of Friesian, Wadara and their crossbreds in Bauchi State

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Accepted 29 February, 2013

A total of 244 lactation records of cows that calved from 1976 to 1989 were analyzed to evaluate the dairy potential of Friesian, Wadara and their crossbreds. The lactation records consisted of 120, 36 and 88 records of Friesian, Wadara and their crossbreds, respectively. The records were subjected to least square means to determine the mean performance across the breeds. The estimated 305 days milk yield for Friesian, Wadara and their crossbreds were 2359, 879 and 1643.5 kg, respectively. The lactation length for the crossbreds was longest (338 days) compared to 324 and 186 days obtained for Friesian and Wadara, respectively. 453, 436 and 374 days were obtained as average calving interval for the crossbreds, Friesian and Wadara. However, the differences in the calving interval were not significant.

Key words: Dairy potential, crossbreds, milk yield, calving interval.

INTRODUCTION

In the tropics, dairying involves the use of indigenous breeds of cattle which are characterized by low genetic potential for milk production. Thus, the production of milk and milk products in the tropics are grossly inadequate and this has resulted in importation from temperate countries to sustain the demand for these products, which entails a huge financial investment. Other constraints to remarkable increase in milk production in the tropics have been attributed to inadequate nutrition, prevailing diseases and hot climate. However, improvement in the productivity of the animal dairy inducing is needed to meet present and future demands for livestock production. This improvement can be achieved through breeding programmes, nutrition, disease control and provision of an environment that is conducive.

The role of European breeds of dairy cattle in improving the dairy cattle potential of indigenous breeds in the tropics is well known because of their high milk production potential adaptability to modern milking practice and early maturity ability. Therefore, they have been introduced for pure breeding and for crossing with the indigenous breed, in order to blend their high performance with adapt ability in the indigenous tropical breeds (Buvandran et al., 1950). The progeny from such cross breeding perform better than pure breed indigenous breeds in dairy production traits.

Attention is focused on increasing the milk yield of indigenous cattle (especially white Fulani) by crossing them with exotic breed (Friesian). However, the number of these reports with respect to other indigenous cattle in Nigeria is few. Thus, the present study involves the evaluation of the dairy potentials of pure bred Friesian, Wadara and their crossbreds in Bauchi.

MATERIALS AND METHODS

The data used for this study were obtained from records of milking cows kept at the Gubi Dairy Farm of the Bauchi State Integrated Development Authority (BASIDA) Bauchi, Nigeria. The data for the study consisted of a total of 244 lactation record. Out of this, 120 records of 53 cows were from Friesian cross; 36 records of 21 cows from Wadara cows and 88 records of 26 cows were from the crossbreds (Friesian × Wadara).

The Friesian cattle were maintained intensively, while Wadara and crossbreds were managed semi-intensively.

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The animals were vaccinated yearly against prevalent diseases and exo-parasites were also controlled by spraying the animals. The cows were hand-milked twice daily (morning and evening), with Wadara calves standing closely to their dams to induce milk let-down. Cows were dried-off 60 days prior to parturition.

Data collection

Milk records were compiled weekly on the basis of daily milk weight (morning and evening). From these record books, production records of each cow and for the different lactation numbers were compiled. The total lactation yield and lactation length were calculated for lactation, while the 305 days yield was estimated for each of the lactation. The calving intervals were computed from the recorded dates of calving. The days dry were also computed. All these records were used to evaluate the performance of the breed groups.

Statistical analysis

The records were subjected to least squares means to determine the mean performance across the breeds.

RESULTS AND DISCUSSION

The least square mean (Table 1) revealed that Friesian breed had the highest values of 2359 kg for estimated 305 days milk yield. The crossbred had 1643.5 kg for estimated 305 days milk yield. The lowest value was obtained for Wadara breed 879 kg, for estimated 305 days yield. The crossbred had the longest lactation length (338 days) compared to 324 and 186 days obtained for Friesian and Wadara, respectively, although, the differences were not significant. The calving interval averaged 453, 436 and 374 days for crossbred, Friesian and Wadara cattle, respectively. However, the differences in their calving interval were not significant.

The results of this study revealed that Friesian breed is better than the crossbreds and Wadara is estimated 305 days yield, which was highly significantly (p < 0.01) different. This is an indication that dairy performance is a function of both the genetic composition of the animal and the environment since Friesian breed is known for their high milk potential under good feeding and management. The crossbred performed better in milk production than the indigenous Wadara cattle which had the lowest lactation yield. This observation agrees with the findings of early researchers (Kiwuwa et al., 1983; Letenneur, 1983).

The average 305 days yield estimated for Friesian in this study is higher than that reported by Ibeawuchi (1987), but lower than that reported by Maroof and Tahir (1990). The estimated 305 days yield for Wadara was similar to that obtained for Bunaji (Knudsen and Sohael, 1990). The estimated 305 days yield for the crossbreed is higher than the indigenous Wadara but lower than that reported by Ibeawuchi (1987). The lactation length obtained from Friesian is similar to that reported in Kenya (Meyn and Wikin, 1974) and Nigeria (Sohael, 1984).

The lactation length obtained for Wadara (186 days) falls within 150 to 200 days reported by Mahadevan (1958). The lactation length obtained for crossbreed is in agreement with that reported by Wijeratue (1970), but higher than the value reported by Sohael (1984). The non-significant difference between the lactation length of Friesian and crossbreed observed in this study is in agreement with the findings of Alba and Kennedy (1985). The increase length of crossbreed over the local breed Wadara in this study is in line with the findings of Sohael (1984).

REFERENCES


Table 1. Least square mean (LSM) ± SE of dairy traits across breeds of cattle.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Lactation length (Days) No.</th>
<th>LSM ± SE</th>
<th>Estimated 305-day milk yield (kg) No.</th>
<th>LSM ± SE</th>
<th>Days dry (Days) No.</th>
<th>LSM ± SE</th>
<th>Calving interval (Day) No.</th>
<th>LSM ± SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Mean</td>
<td>244</td>
<td>318</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breed Friesian</td>
<td>120</td>
<td>324.4±24.0</td>
<td>120</td>
<td>2359.3±229.4</td>
<td>66</td>
<td>60±33.4</td>
<td>66</td>
<td></td>
</tr>
<tr>
<td>Wadara</td>
<td>36</td>
<td>186.4±27.3</td>
<td>36</td>
<td>879.9±261.4</td>
<td>15</td>
<td>117.7±39.5</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Friesian × Wadara</td>
<td>88</td>
<td>338.1±27.2</td>
<td>88</td>
<td>1643.5±250.0</td>
<td>65</td>
<td>98±31.5</td>
<td>70</td>
<td></td>
</tr>
</tbody>
</table>

The least square mean (LSM) ± SE of dairy traits across breeds of cattle.
for Africa. p. 29.