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Lifetime Under-Nutrition and Lactation Performance of Zebu and Zebu × Holstein Cows in the Tropics

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Abstract

Insufficient feed supply is a major limiting factor for milk production in the tropics. The aim of this study was to assess the effects of feeding level on live-weight and performance of Zebu (Boran) and crossbred (Boran × Holstein, 50–75 % Holstein) lactating cows.

Twenty-four heifers of each breed 20 to 36 months of age were allocated to three feeding levels (1.0, 1.2 and 1.4 times of maintenance energy requirements) until the end of the second lactation. The results of the two lactations are reported here. The diet consisted of grass hay and wheat bran in a ratio 2:1. A mineral block and water were given ad libitum.

In both lactations, increasing feeding level resulted in higher daily milk yields by crossbred but not by Zebu cows. Milk composition was not affected by level of nutrition. However, the milk of Zebu cows contained more fat, protein and solids than that of crossbred cows. Average live-weights during lactation increased with feeding level in both breeds but the response was higher in crossbred cows. However, the effect of feeding level on weight changes during the lactation was not significant. Lactation length significantly differed between genotypes. Zebu cows ceased producing milk at less than 250 days after calving whereas crossbred cows had more than 300 days of lactation. The calving interval did not differ between genotypes. Compared to the first lactation, live-weight and milk yield were maintained and lactation length slightly decreased in the second lactation.

These results suggest that the response to increased feeding level of crossbred cows is higher than that of Zebu cows. Therefore, crossbreds would be an appropriate option in those areas where more and better quality feed can be produced and with access to milk markets.

Keywords: Boran, calving interval, crossbred, dairy, Ethiopia, lactation lenght, lifetime, milk, performance, tropics, under-nutrition

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