POLLED HEREFORD AND SIMMENTAL MILK PRODUCTION

R.R. Schalles, S. Kimbrough,
K.O. Zoellner, and D.D. Simms

Summary

The weigh-suckle-weigh method was used to measure milk consumption by 265 calves from 159 Polled Hereford and Simmental cows over 3 years. Calves nursing Polled Hereford cows consumed an average of 11.2 lbs of milk per day, with a peak of 15 lbs at 50 days post-calving. Calves nursing Simmental cows consumed an average of 16.8 lbs of milk per day, with a peak of 20 lbs at 58 days after calving. An increase of 1 lb in daily milk consumption produced approximately 20 lbs increase in weaning weight.

Introduction

Milk production of beef cows has been discussed for years, with little knowledge of the amount of milk actually produced. Some producers feel that high levels of milk are desirable, although high milking cows are culled because they do not fit the feeding levels. The purposes of this study were to measure milk production levels and determine the relationship between dam milk production and calf weaning weight.

Experimental Procedures

Seventy-six Simmental and 83 Polled Hereford cows were test-milked over a 3 year period, with an average of 1.7 lactations per cow. Cows were grazed on native bluestem pastures all year with supplemental feeding of alfalfa hay and milo from January through April. Cows calved in March and April, and calves were weaned in the first week of October. Cows were milked monthly from late April through late August, using the weigh-suckle-weigh method. In April, calves were separated from the cows in the afternoon and placed back with the cows 2 to 3 hours later, so the cows would be nursed dry. Calves were then separated from the cows for 8 hours. The following morning, the calves were weighed, allowed to nurse, and weighed again. The increase in weight was assumed to be due to milk consumed. The same procedure was repeated 2 days later. Groups of 10 to 15 calves were worked at a time to minimize the time between completion of nursing and re-weighing. The same procedure was used in the later months, except calves were removed from their dams for 12 hours, and the procedure was repeated three times on alternate days. This provided 14 measures of milk production for each cow each year. Data for each cow were fit to a lactation curve, as described by Jenkins and Ferrell (Anim. Prod. 39:479, 1984); $Y(n) = n / Ae^{kn}$, where n = week of lactation, Y = milk production in Kg., e = base of natural logarithms, and A and k define the shape of the lactation curve.

Results and Discussion

The average milk consumption (Figure 1.1) of calves nursing Polled Hereford cows over 205 days was 11.2 lbs per day, whereas the calves nursing Simmental cows consumed an average of 16.8 lbs per day. Peak milk production in the Polled Herefords occurred 50 days after calving, at 15 lbs per day. Peak lactation in the Simmental cows occurred 58 days post-calving, at 20 lbs per day. There was a 1161 lb difference between breeds in total milk production over the 205 days. The repeatability of milk production between lactations was 0.33, which is similar to the repeatability of calf weaning weight by a cow and is slightly lower than the 0.45 repeatability of lactation in dairy cows. The average daily milk consumption was significantly different among years, with 16 lbs the first year, 14 lbs the second, and 12 lbs the third.

Calf weaning weights reflected the differences in milk consumption. Polled Hereford calves had an average 205-day weight of 450 lbs, and the Simmental calves averaged 569 lbs. For each pound increase in daily milk consumption, Polled Hereford calves increased their 205-day weight by 23 lbs, and Simmental calves increased their 205-day weight by 19 lbs. About 0.35 lbs of TDN is required to produce a lb of milk. Therefore, it took about 72 lbs of additional TDN to produce a 20 lb increase in weaning weight. There was a significant difference in weaning weights among years.

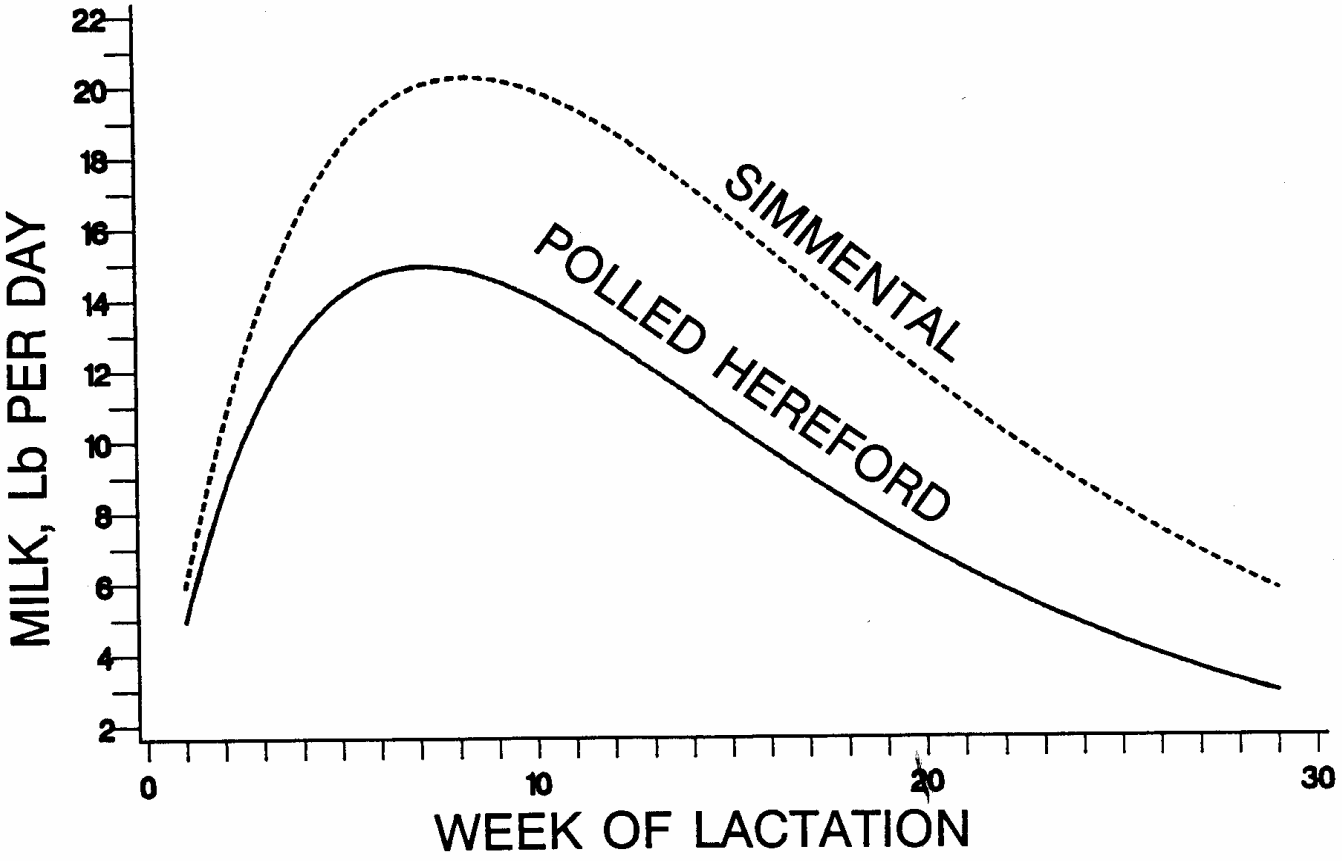

Figure 1.1. Daily Milk Production (lbs) vs. Week of Lactation for Polled Hereford and Simmental Cows.