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A. Peischel

R.R. Schalles

Clenton E. Owensby

See next page for additional authors

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Intake of milk and range forage by nursing calves

Authors

A. Peischel, R.R. Schalles, Clenton E. Owensby, and E.F. Smith

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Intake of Milk and Range Forage by Nursing Calves

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A. Peischel, R. R. Schalles, C. Owensby, and E. F. Smith

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Summary

Adequate milk production by the cow to promote fast gain by her calf the first three months is important for heavy weaning weights. Calves consume considerable range forage by three months of age, and milk consumption begins to decrease. As grass begins to mature in September, milk from the dam and range forage eaten by the calf (as a percentage of body weight) decrease to below recommended protein level, so gains decrease. Weaning calves and placing them on a higher nutrition level in late August or early September may be considered when continued fast gains are desired.

Introduction

Weaning weight of calves, a major influence on net income from a cow-calf operation, is largely determined by the milking ability of the cow and range forage intake by the calf. This study measured milk and forage intakes by calves and the relationship of the intake to gain and weaning weight.

Experimental Procedure

We used 78 Polled Hereford calves from spring calving cows grazing year-round on native Flint Hills range during 1977 and 1978. Stocking rate was 8 acres per cow-calf pair on range in good condition. Eight calves were esophageally fistulated at about one month of age and used to obtain forage samples. Range forage consumption was measured with chromic oxide as an external indicator, and in vitro digestibility was measured. Milk consumption was measured by separating calves from cows for 12 hours and weighing calves before and after they nursed. Milk samples were obtained by hand milking cows with the calves nearby.

Calves were born in March and April (average March 24) with an average birth weight of 77 lbs. Calves were weaned in early October at an average age of 200 days and average weaning weight of 400 lbs.

Results and Discussion

Calves consumed from 1.5 to 4% of their body weight in dry matter (milk and grass). Milk made up the entire diet in April and May and decreased to only 13% (dry matter basis) in September. It provided about $\frac{1}{2}$ lb of digestible protein per day. The digestible energy from milk decreased from 100% in April and May to 32% in September.

Average milk consumption was 13.6 lb in April, 16.7 lb in May, 14.6 lb in June, 15.1 lb in July and 12.4 lb in August and September. Calves from cows 5 through 9 years old consumed more milk than calves from either older or younger cows. Age of dam had no effect on calf growth other than through milk production.

Cows fat when their calves were weaned had produced less milk during the summer; however, larger cows tended to produce more milk than smaller cows. For each additional lb of milk consumed per day, the calves were 9 lb heavier at weaning. For each additional lb of range forage dry matter intake per day, the calves were 7 lb heavier at weaning. Calves that received the most milk early (April, May, and June) consumed more range forage, gained faster, and were heavier at weaning.

Range forage intake was low (not measurable) during April and May (figure 1). In June, calves were eating $1\frac{1}{2}\%$ of their body weight in range forage dry matter. Forage dry matter intake increased to 2% of body weight in July and 2.9% in August. As the grass matured in September, forage dry matter intake decreased to 2.4% of the calf's body weight. During August and September, the dam's milk production had decreased, resulting in ADG being reduced from 2 lb per day in August to $1\frac{1}{2}$ lb per day in September. Digestible protein also was below the recommended level in September.

NUTRIENT INTAKE BY CALVES DURING SUMMER

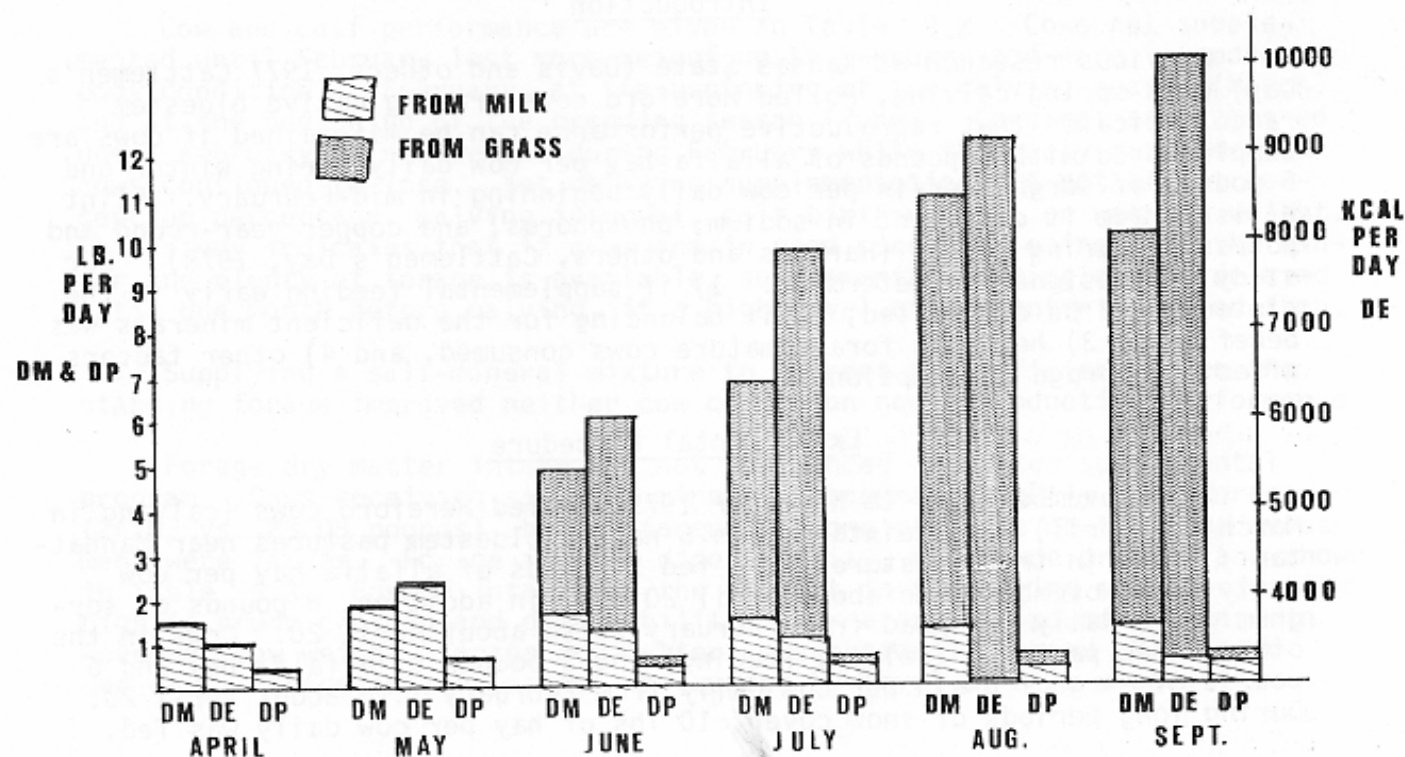


Figure 1. Dry matter (DM) and digestible protein (DP) intake increased from April through August and decreased in September. Digestible energy (DE) intake increased each month. Rate of gain decreased in September.