COMPARATIVE RANGE FORAGE INTAKE OF SPRING AND FALL CALVING COW-CALF PAIRS

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Fall calving research was initiated at the Squaw Butte Station in 1965. One of the questions that arise is the comparative range forage requirements of fall calving and spring calving cow-calf pairs. This report is the last of three studies designed to answer that question. The first study, conducted during the summer of 1972 was a dry lot study in which spring and fall calving cow-calf pairs were fed, in dry lot, daily harvested forage selected to be comparable in quality to the range forage at that season of growth.

The second study, during the summer of 1973, was a before and after grazing clipping study in which spring and fall calving cow-calf pairs grazed respective pastures of which samples were clipped before and after grazing to determine the intake of each pair. The results of these studies were similar and showed that over the summer grazing period the fall pairs consumed about 20% more forage than the spring pair. However, when fall calves were weaned in July, as has been recommended, the fall pairs consumed 2 to 5 percent more forage than the spring pairs.

The final study reported here involves direct measurement of grazing cows and calves from each calving group.

EXPERIMENTAL PROCEDURE

Six spring and six fall cow-calf pairs were grazed continously in crested wheatgrass pasture from April 22 to September 2, 1974. Six 5-day total fecal collection trials were conducted periodically throughout the summer grazing season to determine forage intake. Following each collection period, 24-hour milk production of each cow was determined by the weigh-suckle-weigh technique.

Forage samples were collected by esophageal fistulated animals and used for determining crude protein and *in vitro* matter digestibility values (Table 1).

Table 1. Crude protein content and in vitro dry matter digestibility of grazed forages on a dry basis

Trial	Harvest date	Crude protein	Dry matter digestibility
		%	%
1	4/29 - 5/3	16.81	68.0
2	5/20 - 5/24	14.88	74.1
3	6/10 - 6/14	13.94	65.8
4	7/1 - 7/5	9.50	51.6
5	7/29 - 8/2	7.00	49.2
6	8/26 - 8/30	5.06	48.8

RESULTS AND DISCUSSION

Forage intake for cows and calves is shown in Table 2. The fall calves, with an average weight of 325 pounds going on the study, had an average daily intake of 9.35 pounds during the summer period as compared to 2.07 pounds for the spring calves with an average weight of 120 pounds going into the study. However, the spring calving cow's intake was significantly greater than the fall cow's, having an average daily intake of 26.4 pounds compared to 24.0 pounds for the fall cows.

Table 2. Daily forage dry matter intake of cows and calves on range

Trial	Date	Calf		Cow	
		Spring	Fall	Spring	Fall
		lb	lb	lb	lb
1	4/29 - 5/3	.26	5.78	27.96	26.40
2	5/20 - 5/24	1.19	10.27	39.42	35.24
3	6/10 - 6/14	1.50	8.22	25.07	20.99
4	7/1 - 7/5	1.98	8.29	23.60	23.58
5	7/29 - 8/2	3.76	12.17	21.74	18.08
6	8/26 - 8/30	3.76	11.81	20.24	19.65
Avg. 1-6	4/29 - 8/30	2.07	9.35	26.36	23.98

The combined cow-calf intake is presented in Table 3. The average fall pair intake was 4.90 pounds, or 17 percent more than the spring pair over the entire period.

Table 3. Combined daily forage dry matter intake of cows and calves on range

Trial	Date	Cow group	
		Spring	Fall
		lb	lb
1	4/29 - 5/3	28.23	32.16
2	5/20 - 5/24	40.61	45.50
3	6/10 - 6/14	26.64	29.22
4	7/1 - 7/5	25.21	31.86
5	7/29 - 8/2	25.52	30.25
6	8/26 - 8/30	23.98	31.43
Avg. 1 - 6	4/29 - 8/30	28.43	33.33

Milk production was higher in the spring calving cows (Table 4) but daily gains were higher in the fall born calves (Table 5). The rates of gain for the period May 4 to July 5 were 2.90 pounds daily for the fall calves compared to 1.88 pounds for the spring calves. During the period from July 6 to August 30 gains dropped and each group gained 1.39 pounds per head per day. Normally we recommend that the fall calves be weaned some time in July and put in the feedlot or on better pasture and the spring calves be weaned by early September. Gains on each group had dropped to less than 0.5 pound per head by the end of August.

Table 4. Average daily milk production

Trial	Date	Cow group	
		Spring	Fall
		lb	lb
1	5/4	13.62	7.35
2	5/25	13.33	6.87
3	6/17	13.92	7.41
4	7/6	12.54	3.37
5	8/5	9.59	2.70
6	9/1	6.14	0.84
Avg. 1 - 6	5/4 - 9/1	11.53	5.43

Table 5. Average daily body weight change of cows and calves

Period	Calf		Cow	
	Spring	Fall	Spring	Fall
	lb	lb	lb	lb
5/4 - 5/24	1.78	2.79	3.80	4.27
5/25 - 6/14	2.16	3.65	3.65	4.68
6/15 - 7/5	1.72	2.24	1.71	2.90
7/6 - 8/2	1.72	1.87	-0.44	0.59
8/3 - 8/30	1.10	.92	-0.77	-0.35
5/4 - 8/30	1.65	2.20	1.40	2.16

The fall cow-calf pair consumed 17% more forage from May 4 to August 30 than the spring pair with the fall calves gaining 255 pounds compared to 191 for the spring calf. Up to the recommended weaning time of the fall calf, about mid-July, this difference in forage intake would have been about 5%. At this point, May 4 to July 15, fall calves had gained 200 pounds compared to 184 pounds for the spring calf. Normally the spring pair would remain as pairs on range to September 1 or later. Under these conditions we recommend September 1 weaning but many calves are not weaned until much later due to individual range livestock operator's patterns of management.

These data indicate that the fall cow-calf pair consumes 10 to 20 percent more forage during the summer grazing period, but the total forage requirement per pound of saleable calf gain is from 10 to 20 percent less with the fall calf than the spring calf.

There are several factors that need to be taken into consideration. During the early part of the grazing season, when grazing pressure is more critical to the range than late season, the fall pairs consume only 2 to 3 percent more than the spring pairs. Also it has been observed that fall pairs tend to cover more area and give a better distribution and use pattern on the range than the spring pair with the smaller calves. This may offset the additional requirement with regard to range pressure. The winter nutrition and management of both the fall and spring calving herds, the potential for weaning fall calves before going to range and other alternatives need to be considered.