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Abstract
Cow productivity on four supplemental winter feeding levels were compared over 2 years. Cattle were grazed on native bluestem year round. Cows calved between February 15 and May 5. Only records (104) of cows that raised a calf in the year considered were used in this report. Cows averaged 3.3 years old at birth of calves. Rations fed are given in Table 25 referred to as group 1, 2, 3 and 4. Cows received the same ration each year. Cows were allotted to 4 groups and rotated among four approximately equal pastures so each group remained in each pasture an equal t:ime. Calves were weighed at birth and cows and calves were weighed each month. During the first year, cows were rectally palpated each week after calving until the first heat to determine time of ovulation and uterine size.

Keywords
Cattlemen's Day, 1971; Report of progress (Kansas State University. Agricultural Experiment Station); 546; Beef; Winter; Bluestem pasture; Nutrition

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Winter Nutrition For Cows

R. R. Schalles, C. L. Drake and Guy Kiracofe

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Results

Performance of cows 4 years old and over differed little on the 4 rations (Table 26). Older cows on ration 3 had the highest conception rate and produced the lightest calves at weaning; whereas, cows in group 2 had the lowest conception rate and produced the heaviest calves. Weight change of cows was similar, ranging from 3 to 8% increase between the start of feeding and January and an 11 to 12% decrease between January and May.

Three-year-old cows (Table 27) on ration 2 performed best with 100% conception rate and weaned calves as heavy as any. Calves from cows in group 1 weighed as much but those cows had the lowest conception rate. Calves weaned by group 3 were the lightest. Cows on ration 2 gained 3% of their body weight between November and January and lost 8% between January and May.

The performance of 2-year-old cows on ration 1 was superior to the performance of 2-year-olds on other rations. Days from calving to rebreeding and conception rate of 2-year-olds on rations 3 and 4 would not be considered satisfactroy, while the performance of cows on ration 2 was only slightly better. Cows 2-years-old on ration 1 gained 8% between November and January and essentially maintained constant weight the remainder of the winter.

When cows of all ages were considered the first year, cows

in groups 1 and 4 ovulated approximately 18 days after calving while cows in groups 2 and 3 averaged 23 and 30 days between calving and the first ovulation.

In all treatments, first heat was approximately 10 days after first ovulation. The uterus was back to approximately normal size at first heat. Conception rates in groups 1, 2 and 3 varied little during the first year; all were above 90%. Group four's conception rate was 73% and required approximately 10 days longer to conceive (Bulletin 529 gave details of the first year's work).

Data for the 2 years indicate that 3 pounds of good quality alfalfa hay per day provides enough protein for cows 3 years old and over. Energy appeared to be more critical in this study. Ration 2 was the most economical of the 4 rations when all performance factors are considered.

Table 25 Supplemental Winter Rations Provided Cows on Native Bluestem Pastures 1967-69

	Group			
Ration	1	2	3	4
Alfalfa hay, lbs.	3	3	3	3
Cracked sorghum grain, lbs.	3	3		
Soybean meal, lbs.	1½		1½	

Table 26 Performance of Cows 4 Years Old and Over

Item	Group 1	2	3	4
Number	12	11	16	8
Conception %	83	73	94	75
Date Bred	6/5	6/15	6/9	6/22
Calving to Breeding, days	72	72	81	86
Average weaning wt, lbs	368	389	359	367
Weight change, %				
November to January	+7	+8	+5	+3
January to May	-11	-12	-12	-11

Table 27 Performance of 3 Year Old Cows

Item	Group 1	2	3	4
Number	11	11	7	8
Conception %	82	100	100	88
Date bred	6/14	6/16	6/21	6/30
Calving to Breeding, days	75	72	80	76
Average weaning wt., lbs.	411	410	376	398
Weight change, %				
November to January	+11	+3	+4	+5
January to May	-11	-8	-8	-10

Table 28 Performance of 2 Year Old Cows

Item	Group 1	2	3	4
Number	7	3	2	8
Conception %	86	67	50	50
Date Bred	6/29	6/20	6/30	7/19
Calving to Breeding, days	71	66	93	113
Average weaning wt, lbs.	464	339	312	433
Weight change, %				
November to January	+8	+8	+9	+3
January to May	-1	-10	-12	-10