

ALFALFA INTERSEEDED PASTURE GRAZING TRIAL - 1984

DICKINSON EXPERIMENT STATION

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The alfalfa interseeded pasture grazing trial was seeded in May of 1977. A pasture type alfalfa (Travois) was interseeded into 10 acres of mixed grass prairie using a mechanical sod control method. The seeding rate was 4 pounds per acre. An 18 acre pasture with no treatment was used as the control. The number of cow-calf pairs grazed in the pastures varied from year to year (10 in 1978, 1979, and 1982, 8 in 1981 and 1984, and 7 in 1980) but the number remained constant on both pastures. The alfalfa interseeded pasture was not grazed in 1982 and data was not collected on either pasture in 1983. Stocking rates varied by pasture size and length of grazing period.

The soils of the pastures were fine sandy loams. These soils were predominantly sandy range sites.

The species composition was mixed grass prairie dominated with blue grama (Bouteloua gracilis), sun sedge (Carex heliophila), prairie junegrass (Koeleria pyramidata), western wheatgrass (Agropyron smithii), and needleandthread (Stipa comata).

Herbage production was determined by clipping the vegetation to ground level inside one-third meter square quadrats both inside and outside enclosure cages. The herbage samples were then oven dried at 175°F (80°C) and weighted to give oven dried above ground herbage production.

Cow and calf performance was determined by individual weight gains or losses. Cattle were weighted on and off each pasture. These data were converted into mean weight gain in pounds per day per head and mean weight gain in pounds per day per acre for the calves and cows.

Herbage production for the alfalfa interseeded and control pastures are included in Table 1. The mean total herbage production was 1246 and 3694 pounds per acre for the untreated control and alfalfa interseeded pastures respectively. Interseeding alfalfa increased the mean total herbage production by 196.4% above the untreated control. The alfalfa comprised 71% of the total.

Animal performance for the alfalfa interseeded and control pastures are included in Table 2. Calf daily gains per head were good on both the alfalfa interseeded and control pastures with 2.27 and 2.01 pounds respectively. The calf daily gains per head were 13% greater on the alfalfa interseeded pasture. The calf daily gains per acre were 1.81 and 0.89 pounds on the alfalfa interseeded and control pastures respectively. This gain per acre was 103% greater on the alfalfa interseeded pasture.

Cow performance on the alfalfa interseeded pasture was good with a daily gain per head of 1.11 pounds and a daily gain per acre of 0.89 pounds. The mean daily gain per head was 0.16 pounds and the mean daily gain per acre was 0.07 pounds for the cows on the control pasture. Generally cows lose weight on native range pastures in western North Dakota after 15 August. Five of the 8 cows on the control pasture lost an average of 0.51 pounds per day for the 36 day grazing period. The other 3 cows gained weight at the rate of 1.27 pounds per day. All of the eight cows on the alfalfa interseeded pasture gained weight for the same grazing period.

The stocking rates for the alfalfa interseeded and control pastures were 0.94 and 0.52 AUM's per acre respectively. The stocking rate was 81% greater on the alfalfa interseeded pasture. The mean stocking rate from 1978 to 1984 has been increased by 41% on the alfalfa interseeded pasture over the control pasture.

Interseeding of alfalfa into native range pastures shows considerable promise as a management tool for western North Dakota. The alfalfa interseeded pasture has greater herbage production, greater calf and cow gains per head and per acre, and higher stocking rates than the control native range pasture.

Table 1. Mean Herbage Production and Utilization on the Alfalfa Interseeding Study, Dickinson Experiment Station, 1984

Pasture	Herbage Production (lbs/acre)			% Utilization
	12 Jul Pre grazed	24 Aug Ungrazed	24 Aug Grazed	
Native Range Control:				
Cool Short	225.28	200.43	52.69	73.71
Warm Short	89.77	118.57	77.17	34.92
Cool Mid	85.54	61.63	18.35	70.23
Western Wheatgrass	40.09	35.29	10.82	69.34
Warm Mid	0.00	0.00	0.00	0.00
Warm Tall	66.11	170.32	63.52	62.71
Introduced Grass	0.00	0.00	0.00	0.00
Sedge	320.70	576.83	251.25	56.44
Total Grass	827.49	1163.07	473.80	59.26
Forbs	156.11	83.28	108.69	-30.51
Shrubs	0.00	0.00	0.00	0.00
Alfalfa	0.00	0.00	0.00	0.00
TOTAL	983.60	1246.35	582.49	53.26
Alfalfa Interseeded:				
Cool Short	269.88	100.69	25.41	74.76
Warm Short	79.05	139.27	64.93	53.38
Cool Mid	154.13	120.92	40.94	66.14
Western Wheatgrass	201.57	143.50	59.28	58.69
Warm Mid	0.00	4.71	0.94	80.04
Warm Tall	0.00	6.59	4.71	28.53
Introduced Grass	259.72	0.00	0.00	0.00
Sedge	257.74	283.71	196.20	30.85
Total Grass	1222.09	799.39	392.41	50.91
Forbs	176.15	266.30	160.91	39.58
Shrubs	0.00	0.00	0.00	0.00
Alfalfa	2282.11	2628.22	1974.22	24.88
TOTAL	3680.35	3693.91	2527.54	31.58

Table 2. Mean Weight Gains for Calves and Cows on the Alfalfa Interseeding Study, Dickinson Experiment Station, 1984

Pasture	Mean Initial Weight	Mean Final Weight	Mean Gain Per Head	Mean Gain Per Day Per Head	Mean Gain Per Day Per Acre
Native Range Control:					
Calf	263	336	72.38	2.01	0.89
Cow	1044	1049	5.63	0.16	0.07
Alfalfa Interseeded:					
Calf	265	347	81.50	2.27	1.81
Cow	1093	1133	40.00	1.11	0.89

Table 3. The Rotation Dates and Stocking Pressure Data for the Control, and the Alfalfa Interseeded Treatments on Native Range at Dickinson Experiment Station, 1978-1984

Treatment Year	Pasture Size Acres	Dates Pasture Grazed	Days In Period	No. of Head	No. Of AUM's	Stocking Rate AUM/Acre
Native Range Control:						
1978	18	19 Jun-14 Aug	56	10 cow-calf 1 bull	20.20	1.12
1979	18	22 Jun-20 Jul	28	10 cow-calf 1 bull	10.10	0.56
1980	18	7 Jul-23 Jul	16	7 cow-calf 1 bull	4.20	0.23
1981	18	24 Jun-28 Jul	35	8 cow-calf 1 bull	10.33	0.57
1982	18	21 Jun-20 Aug 21 Jun- 4 Aug	60 44	10 cow-calf 1 bull	21.11	1.17
1983	18	12 Jul- 3 Aug	22	5 cow-4 calf 21 heifer 1 bull	15.69	0.87
1984	18	19 Jul-24 Aug	36	8 cow-calf	9.44	0.52
Alfalfa Interseeded:						
1978	10	19 Jun- 7 Aug	49	10 cow-calf 1 bull	17.67	1.77
1979	10	22 Jun-20 Jul	28	10 cow-calf 1 bull	10.10	1.01
1980	10	7 Jul-16 Jul	9	7 cow-calf 1 bull	2.36	0.24
1981	10	24 Jun-21 Jul	28	8 cow-calf 1 bull	8.26	0.83
1982	10		0	0	0.0	0.0
1983	10	12 Jul- 3 Aug	22	14 cow-11 calf 1 bull	10.82	1.08
1984	10	19 Jul-24 Aug	36	8 cow-calf	9.44	0.94