

**Alfalfa Interseeded Pasture Grazing Trial - 1988**  
**Dickinson Experiment Station**

L.L. Manske

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, 7 in 1980 and 6 in 1985, 1986 and 1987) 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. The 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-quarter meter square quadrats both inside and outside exclosure cages. The herbage samples were then oven dried at 175°F (80°C) and weighed to give oven dried above ground herbage production.

Cow and calf performance was determined by individual weight gains or losses. Cattle were weighed 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.

Quantitative species composition data were collected by the ten pin point frame method (Levy and Madden 1933, Tinney, Aamodt, and Ahlgren 1937, Heady and Rader 1958, and Smith 1959).

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. The Rotation Dates and Stocking Pressure Data for the Control and the Alfalfa Interseeded Treatments on Native Range at Dickinson Experiment Station, 1978-1988**

<b>Treatment Year</b>	<b>Pasture Size Acres</b>	<b>Dates Pasture Grazed</b>	<b>Days In Period</b>	<b>No. of Head</b>	<b>No. Of AUM's</b>	<b>Stocking Rate AUM/Acre</b>
<b>Native Range Control:</b>						
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
1985	18	3 Jun – 18 Jun 16 Jul – 19 Aug	15 34	6 cow-calf 1 bull 6 cow-calf	10.13	0.56
1986	18	16 Jun – 30 Jun 30 Jul – 27 Aug	14 28	6 cow-calf 6 cow-calf 1 bull	9.18	0.51
1987	18	12 Jun – 29 Jun 20 Jul – 20 Aug	17 31	6 cow-calf 1 bull 6 cow-calf	10.00	0.56
1988	18	6 Jun – 21 Jun 22 Jul – 12 Aug	15 21	6 cow-calf 1 bull 6 cow-calf 1 bull	8.26	0.46

**Table 1. (Cont.) The Rotation Dates and Stocking Pressure Data for the Control and the Alfalfa Interseeded Treatments on Native Range at Dickinson Experiment Station, 1978-1988**

<b>Treatment Year</b>	<b>Pasture Size Acres</b>	<b>Dates Pasture Grazed</b>	<b>Days In Period</b>	<b>No. of Head</b>	<b>No. Of AUM's</b>	<b>Stocking Rate AUM/Acre</b>
<b>Alfalfa Interseeded:</b>						
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	0.00	0.00
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
1985	10	3 Jun – 18 Jun 16 Jul – 19 Aug	15 34	6 cow-calf 1 bull 6 cow-calf	10.13	1.01
1986	10	16 Jun – 30 Jun 30 Jul – 27 Aug	14 28	6 cow-calf 6 cow-calf 1 bull	9.18	0.92
1987	10	12 Jun – 29 Jun 20 Jul – 20 Aug	17 31	6 cow-calf 1 bull 6 cow-calf	10.00	1.00
1988	10	6 Jun – 21 Jun 22 Jul – 12 Aug	15 21	6 cow-calf 1 bull 6 cow-calf 1 bull	8.26	0.83

**Table 2. Mean Weight Gains for Calves and Cows on the Grazing Management of Alfalfa Interseeding Study at the Dickinson Experiment Station, 1988**

		Control		Alfalfa Interseeded	
		Cow	Calf	Cow	Calf
<b>PERIOD 1</b>					
Mean Weights					
6 Jun	ON	1411.7	197.5	1362.5	223.3
21 Jun	OFF	1413.3	223.3	1410.8	256.7
Mean gain/head		1.6	25.8	48.3	33.4
Mean gain/day/head		0.11	1.72	3.22	2.23
Mean gain/day/acre		0.04	0.57	1.93	1.34
Mean gain/acre		0.53	8.60	28.98	20.04
<b>PERIOD 2</b>					
Mean Weights					
22 Jul	ON	1383.3	289.2	1365.8	317.5
12 Aug	OFF	1419.2	345.8	1375.0	370.8
Mean gain/head		35.9	56.6	9.2	53.3
Mean gain/day/head		1.71	2.70	0.44	2.54
Mean gain/day/acre		0.57	0.90	0.26	1.52
Mean gain/acre		11.97	18.87	5.52	31.98
<b>COMBINED</b>					
Mean gain/head		37.5	82.4	57.5	86.7
Mean gain/day/head		1.04	2.29	1.60	2.41
Mean gain/day/acre		0.35	0.76	0.96	1.45
Mean gain/acre		12.50	27.47	34.50	52.02

**Table 3. Mean Herbage Production on the Grazing Management of Alfalfa Interseeding Study  
Dickinson Experiment Station, 1988**

Pasture	3 Jun	21 Jun		22 Jul		15 Aug		
	Ungrazed	Ungrazed	Grazed	Ungrazed	Grazed	Ungrazed	Grazed	
<b>Native Range Control:</b>								
Cool Short	40.1	8.9	9.3	34.6	25.3	2.9	0.0	
Warm Short	62.3	39.2	67.8	62.1	107.4	47.1	72.8	
Cool Mid	88.8	11.8	30.3	48.5	72.4	52.4	23.5	
Western Wheatgrass	39.1	1.4	4.6	1.8	2.9	27.8	2.9	
Warm Mid	11.4	22.1	4.6	2.9	29.6	56.0	0.7	
Warm Tall	11.1	16.4	12.1	37.5	57.4	0.0	0.0	
Sedge	364.8	127.0	116.3	183.0	122.4	159.5	48.5	
<b>Total Grass</b>	<b>617.6</b>	<b>226.9</b>	<b>245.1</b>	<b>370.4</b>	<b>417.5</b>	<b>345.7</b>	<b>148.4</b>	
Forbs	43.0	36.4	20.0	47.5	58.5	117.4	57.1	
Alfalfa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
<b>TOTAL</b>	<b>660.6</b>	<b>263.3</b>	<b>265.1</b>	<b>417.8</b>	<b>476.0</b>	<b>463.1</b>	<b>205.5</b>	
<b>Alfalfa Interseeded:</b>								
Cool Short	22.1	25.3	25.0	155.9	39.2	2.9	0.0	
Warm Short	93.3	57.8	46.7	93.5	42.8	24.3	40.7	
Cool Mid	66.2	24.6	33.5	47.5	64.6	31.8	12.8	
Western Wheatgrass	9.1	8.9	1.8	8.2	11.1	2.1	3.6	
Warm Mid	0.0	0.0	0.0	0.0	1.8	1.4	2.5	
Warm Tall	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Sedge	199.5	106.0	37.8	132.0	185.5	67.1	61.0	
<b>Total Grass</b>	<b>390.2</b>	<b>222.6</b>	<b>144.9</b>	<b>437.1</b>	<b>345.0</b>	<b>129.5</b>	<b>120.6</b>	
Forbs	51.2	17.1	27.5	25.7	60.3	31.8	24.6	
Alfalfa	577.3	311.1	299.0	367.5	395.0	834.6	162.7	
<b>TOTAL</b>	<b>1018.7</b>	<b>550.9</b>	<b>471.3</b>	<b>830.3</b>	<b>800.3</b>	<b>995.8</b>	<b>307.9</b>	