INTER-SEEDED ALFALFA VARIETY RESPONSE TO GRAZING TRIAL

This trial was designed to evaluate the response to grazing pressure at three different time periods of seven pasture type alfalfa varieties and one hay type alfalfa variety, which is used as a control. The purpose of this trial is to help determine which alfalfa variety or varieties are suitable for inter-seeding into rangeland for pasture use. This trial will also test if season of use causes a difference in growth and herbage production from the different varieties.

These plots were established on 13 acres located on the S½, SE¼, SW¼ Sec. 23, and SW¼, SW¼, SE¼ Sec. 23, T. 140 N., R. 97 W. at the Dickinson Experiment Station. The 48 X 390 foot plots were arranged in a randomized block design with three replications. Each plot was split equally into three grazing treatments of 30 days each for June, July and August. The soils are vebar fine sandy loam, morton silt loam and regent silty clay loam. The range sites are sandy, silty and clayey. The alfalfa varieties that were included were: Anik, Drylander, Kane, Prowler, Rangelander, Spredor II, Travois and Vernal. Each variety was seeded on 27 and 28 April 1983 at the rate of 0.50 lbs PLS/row/acre, using three foot row spacing and three inch twisted chisel plow shovels as the furrow openers.

The data that were collected from these plots were: above ground herbage production and alfalfa seedling counts. The above ground herbage production was sampled by clipping the vegetation to ground level in three ¼m^2 quadrats for each plot on 20 and 21 July 1983. The herbage was separated into nine categories: cool short, warm short, cool mid, western wheatgrass, warm mid, warm tall, sedge, forbs and shrubs. The samples were oven dried at 80˚C. The average herbage production for each category and the total production for each plot were determined. The reported data are means of the three replications for each treatment.

The alfalfa seedling counts were made by counting the number of seedlings along three randomly placed meter sticks for each row of each plot. The mean number of seedlings per meter of row was determined for each treatment. Seedling counts were conducted on 22 June 1983.

INTER-SEEDED ALFALFA VARIETY RESPONSE TO GRAZING TRIAL

Location:	Dickinson Experiment Station S½, SE¼, SW¼ Sec. 23, T. 140 N., R. 97 W. and SW¼, SW¼, SE¼ Sec. 23, T. 140 N., R. 97 W.
Replications:	Three Split Plot Design
Study Size:	392′ X 1480′ 13.32 acres
Plot Size:	48′ X 390′ 0.43 acres
Drainage:	3.16 acres
Soils:	Vebar, Morton and Regent
Range Sites:	Sandy, Silty and Clayey
Seeding Date:	27-28 Apr 1983
Seeding Rate:	0.50 lbs. PLS/row/acre
Row Spacing:	3′
Chisel Plow Shovel:	3" twisted
Alfalfa Varieties:	Anik, Drylander, Kane, Prowler, Rangelander, Spredor 2, Travois and Vernal.
Split Treatments:	Three 30 day grazing periods June, July and August

Table 31. Mean Above Ground Herbage Production by Category in Lbs/Acre for each 30 Day Grazing Treatment for each Variety in the Inter-seeded Alfalfa Variety Response to Grazing Trial at Dickinson Experiment Station – 20 and 21 July 1983

Clip Categories	Anik			Drylander			Kane			Prowler		
	Jun	Jul	Aug	Jun	Jul	Aug	Jun	Jul	Aug	Jun	Jul	Aug
Cool short	199.8	170.1	45.2	76.1	113.0	30.9	109.4	109.4	252.1	187.9	153.4	190.3
Warm short	85.6	183.2	222.4	123.7	171.3	69.0	111.8	160.6	271.2	86.8	201.0	108.2
Cool mid	473.4	1264.3	850.4	900.3	608.9	1077.5	1187.0	1288.1	622.0	681.5	770.7	167.7
Western wheatgrass	155.8	60.7	98.7	161.8	69.0	57.1	83.3	57.1	195.1	30.9	297.3	39.3
Warm mid	0.0	0.0	1.2	0.0	0.0	229.5	2.4	0.0	0.0	0.0	0.0	0.0
Warm tall	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sedge	70.2	54.7	94.0	134.4	54.7	331.8	2.4	51.1	2.4	53.5	133.2	57.1
Total Grass	984.8	1733.0	1311.9	1396.3	1016.9	1795.8	1496.3	1666.3	1342.8	1040.6	1555.6	562.6
Forbs	236.7	469.8	589.9	466.2	287.8	479.3	268.8	275.9	239.1	222.4	275.9	517.4
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1221.5	2202.8	1901.8	1862.5	1304.7	2275.1	1765.1	1942.2	1581.9	1263.0	1831.5	1080.0

Table 31 (Continued):

Clip Categories	Rangelander			Spredor II			Travois			Vernal		
	Jun	**Jul**	**Aug**	**Jun**	**Jul**	**Aug**	**Jun**	**Jul**	**Aug**	**Jun**	**Jul**	**Aug**
Cool short	59.5	224.8	94.0	193.9	86.8	173.6	158.2	82.1	256.9	191.5	145.1	97.5
Warm short	17.8	132.0	173.6	160.6	182.0	149.9	114.2	193.9	158.2	134.4	164.1	89.1
Cool mid	1720.9	500.7	685.1	570.9	1063.3	1299.9	1848.2	419.8	782.6	732.6	846.8	953.9
Western wheatgrass	66.6	134.4	153.4	214.1	85.6	61.9	61.9	141.5	23.8	26.2	78.5	109.4
Warm mid	0.0	154.6	0.0	19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Warm tall	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	63.0	0.0	0.0	108.2
Sedge	27.4	64.2	114.2	170.1	98.7	62.4	36.9	146.3	113.0	126.1	191.5	4.8
Total Grass	1892.2	1210.7	1220.3	1328.6	1516.4	1747.7	2219.4	983.6	1397.5	1210.8	1426.0	1462.9
Forbs	258.1	340.2	208.1	462.7	305.7	161.8	388.9	453.1	252.1	303.3	373.5	443.6
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	2150.3	1550.9	1428.4	1791.3	1822.1	1909.5	2608.3	1436.7	1649.6	1514.1	1799.5	1906.5

Table 32. Mean Above Ground Herbage Production by Category in Lbs/Acre for each Variety in the Inter-seeded Alfalfa Variety Response to Grazing Trial at Dickinson Experiment Station – 20 and 21 July 1983

Clip Categories	Anik	Drylander	Kane	Prowler	Rangelander	Spredor II	Travois	Vernal
Cool short	138.4	73.3	157.0	177.2	126.1	151.4	165.7	144.7
Warm short	163.7	121.3	181.2	132.0	107.8	164.2	155.4	162.5
Cool mid	862.7	862.3	1032.4	540.0	968.9	978.0	1016.9	844.4
Western wheatgrass	105.1	95.9	111.8	122.5	118.1	120.5	75.7	71.4
Warm mid	0.4	76.5	0.8	0.0	51.5	6.3	0.0	0.0
Warm tall	0.0	0.0	0.0	0.0	0.0	0.0	21.0	36.1
Sedge	73.0	173.6	18.6	81.3	68.6	110.4	98.7	107.5
Total Grass	1343.2	1403.0	1501.8	1053.0	1441.1	1530.8	1533.5	1366.6
Forbs	432.1	411.1	261.3	338.6	268.8	310.1	364.7	373.5
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1775.3	1814.1	1763.1	1391.6	1709.9	1840.9	1898.2	1740.1

Table 33. Alfalfa Variety Seedling Counts per Meter of Row for the Alfalfa Variety Response to Grazing Trial, Dickinson Experiment Station – 22 June 1983

	Grazing Treatment June	Grazing Treatment July	Grazing Treatment August	Mean
Anik	71.14	60.17	82.71	71.34
Drylander	49.79	49.23	71.09	56.70
Kane	45.13	43.99	51.98	47.03
Prowler	32.63	30.86	32.10	31.86
Rangelander	37.56	29.82	44.29	37.23
Spredor II	38.75	35.77	41.86	38.79
Travois	58.86	59.60	53.71	57.39
Vernal	29.14	23.65	35.06	29.28