ALFALFA INTERSEEDING TECHNIQUES TRIAL - 1988
Dickinson Experiment Station

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The alfalfa interseeding techniques trial is separated into seven separate segments. These are: alfalfa interseeding row spacing techniques trial, alfalfa interseeding furrow width techniques trial I and II, 1986, 1987 and 1988 alfalfa interseeding techniques trial, time of seeding and fertilization techniques trial, and interseeded alfalfa variety response trial I and II.

The personnel at the Dickinson Experiment Station built an interseeding machine during the winter of 1982-83. The plans from a machine designed and tested at South Dakota State University (Chisholms et al. 1980) were used for the construction with some alterations. This interseeder was used to establish the alfalfa interseeding plots.

ALFALFA INTERSEEDING ROW SPACING TECHNIQUES TRIAL

This trial was designed to evaluate alfalfa interseeding into rangeland with different intervals between the rows. The intended purpose of the data will be primarily to assist in the determination of a recommended row spacing or row spacings for alfalfa interseeding into rangeland for pasture use in western North Dakota.

These plots were established on one acre located on the NE¼, NW¼, SW¼ Sec. 23, T. 143 N., R. 96 W. at the ranch headquarters of the Dickinson Experiment Station. The 33 x 50 foot plots were arranged in a randomized block design with three replication. The soil was vebar fine sandy loam. The range site was sandy with a few thin claypan sites. Travois alfalfa was seeded at a rate of 0.50 lbs. PLS/row/acre on 21 April 1983. A four inch twisted chisel plow shovel was used as the furrow opener. The intervals between the rows were 2, 3, 4, 5, 8 and 10 feet. A control plot of no interseeding was included in each replication.

The data that were collected from these plots were: above ground herbage production separated into nine categories, alfalfa plant counts per meter of row, alfalfa plant heights and species composition by point frame.

The above ground herbage production was sampled by clipping the vegetation to ground level in two ¼m^2 quadrats for each plot. 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 dried samples were then weighed in grams. The average weight of each category for the two ¼m^2 quadrats was determined and the average pounds per acre of herbage production was calculated for each category by multiplying the average weight in grams by 35.68. The total average production for each plot was found by the summation of the average pounds per acre for each category. The reported figures are means of the three replications for each treatment.

The alfalfa plant counts were made by counting the number of plants along two randomly placed meter sticks for each row of each plot. The mean number of plants per meter of row was determined for each treatment.

Quantitative species composition data for each plot was collected. The herbacious plants were sampled by the ten pin point frame method (Levy and Madden 1933, Tinney, Aamodt, and Ahlgren 1937, Heady and Rader 1958 and Smith 1959). Fifteen hundred points were read for each treatment (500 points per plot). A systematic sampling scheme was used for each plot. A permanent major transect was established three feet inside and parallel to the east boundary of each plot. Five minor transects were established perpendicular to the major transect at nine foot intervals starting nine feet from the south boundary of the plot. One hundred points were read on each minor transect equally spaced across the plot.

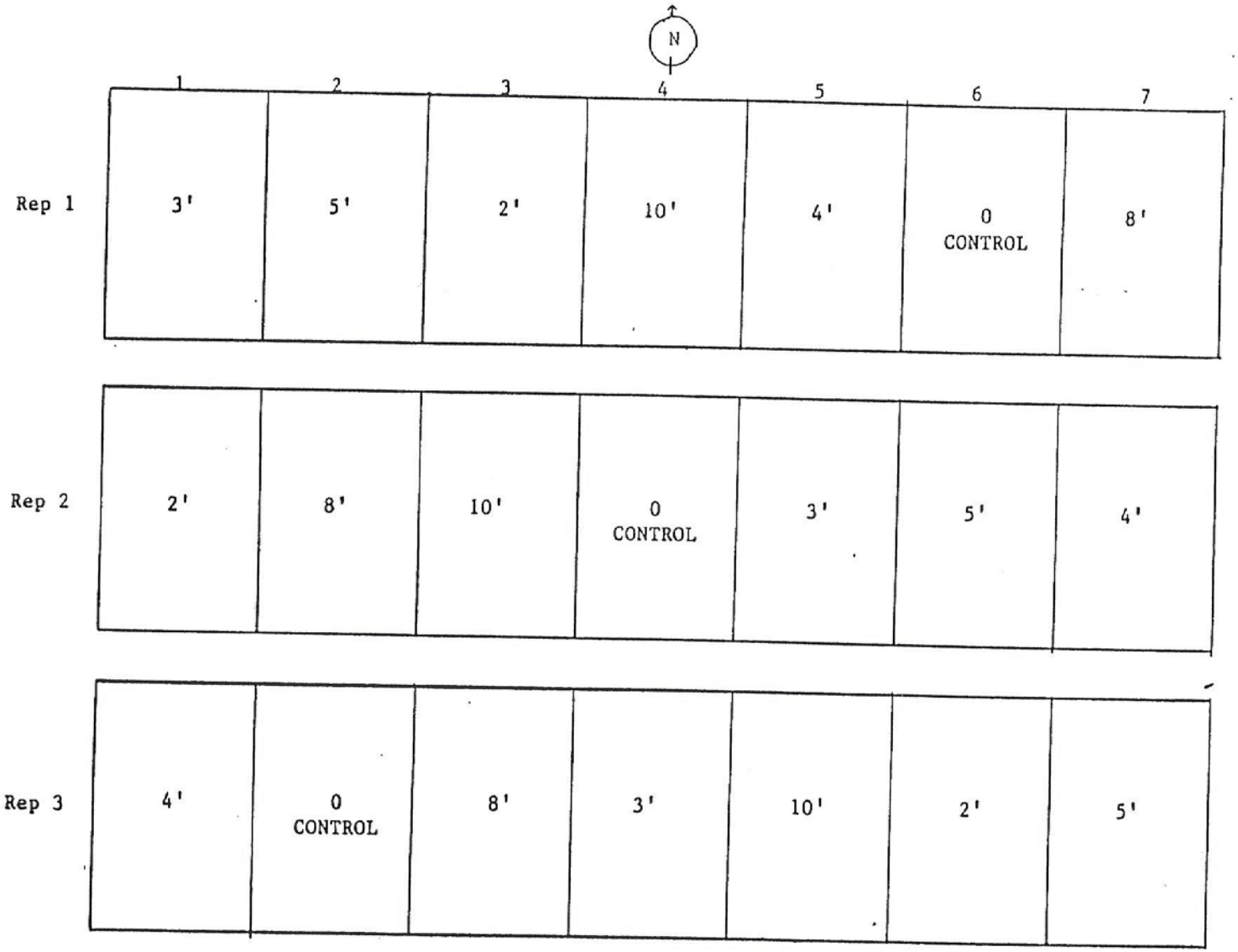

Figure 1. Alfalfa interseeding row spacing techniques trial with 0, 2, 3, 4, 5, 8 and 10 foot row spacings, seeded 21 Apr 1983.

Alfalfa Interseeding Row Spacing Techniques Trial

Location:	Dickinson Experiment Station Ranch Headquarters NE¼, NW¼, SW¼, Sec. 23, T. 143 N., R. 96 W.
Replications:	Three Randomized Block Design
Study Size:	183° x 241° 1.01 acres
Plot Size:	33° x 50° 0.04 acres
Perimeter border:	10° on west and south, 3° on north and 0° on east
Alleys:	10°
Soil:	Vebar
Range Site:	Sandy with a few thin claypan sites
Seeding Date:	21 Apr 1983
Seeding Rate:	0.50 lbs. PLS/row/acre
Alfalfa Variety:	Travois
Chisel Plow Shovel:	4" twisted
Row Spacings:	0, 2, 3, 4, 5, 8 and 10 foot

Table 1. **Mean Above Ground Herbage Production by Category in Lbs./Acre for the Alfalfa Interseeding Row Spacing Techniques Trial at the Dickinson Experiment Station, 7 Jul 1988**

	Row Spacing						
Clip Categories	**Control**	**2 Foot**	**3 Foot**	**4 Foot**	**5 Foot**	**8 Foot**	**10 Foot**
Cool Short	26.2	0.0	1.2	6.5	0.0	42.8	1.8
Warm Short	113.6	216.5	114.2	70.8	113.0	83.8	95.1
Cool Mid	65.4	108.8	149.9	91.6	220.6	76.7	102.9
Western Wheatgrass	16.1	7.7	13.1	4.2	5.9	7.7	2.4
Warm Mid	3.6	3.6	31.5	82.1	24.4	13.7	29.7
Warm Tall	39.2	0.0	0.0	11.3	0.0	56.5	35.1
Sedge	93.4	62.4	95.7	104.7	103.5	58.9	86.8
Total Grass	357.4	399.0	405.6	371.1	467.4	340.1	353.8
Forbs	107.0	99.3	59.5	35.1	73.1	73.7	108.2
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	464.4	498.3	465.0	406.2	540.6	413.9	462.1