

ALFALFA VARIETY ESTABLISHMENT BY BROADCAST SEEDING INTO RANGELAND

This trial was designed to evaluate seedling establishment in rangeland by broadcast seeding of seven pasture type alfalfa varieties and two hay type alfalfa varieties. These plots were established on 0.11 acres located on the NE $\frac{1}{4}$, NW $\frac{1}{4}$, SW $\frac{1}{4}$ Sec. 23 T. 143 N., R. 96 W. at the ranch headquarters of the Dickinson Experiment Station. The 10 X 10 foot plots were arranged in a randomized block design with three replications. The soil is vebar fine sandy loam. The range site is sandy. The alfalfa varieties that were included were: Anik, Drylander, Kane, Ladak 65, Prowler, Rangeland, Spredor II, Travois and Vernal. Each variety was seeded on 29 April 1983 at a rate of 1.0 lbs. PLS/acre.

Alfalfa variety seedling counts were conducted 20 June, 18 July and 22 August 1983. Each plot was searched completely for seedlings.

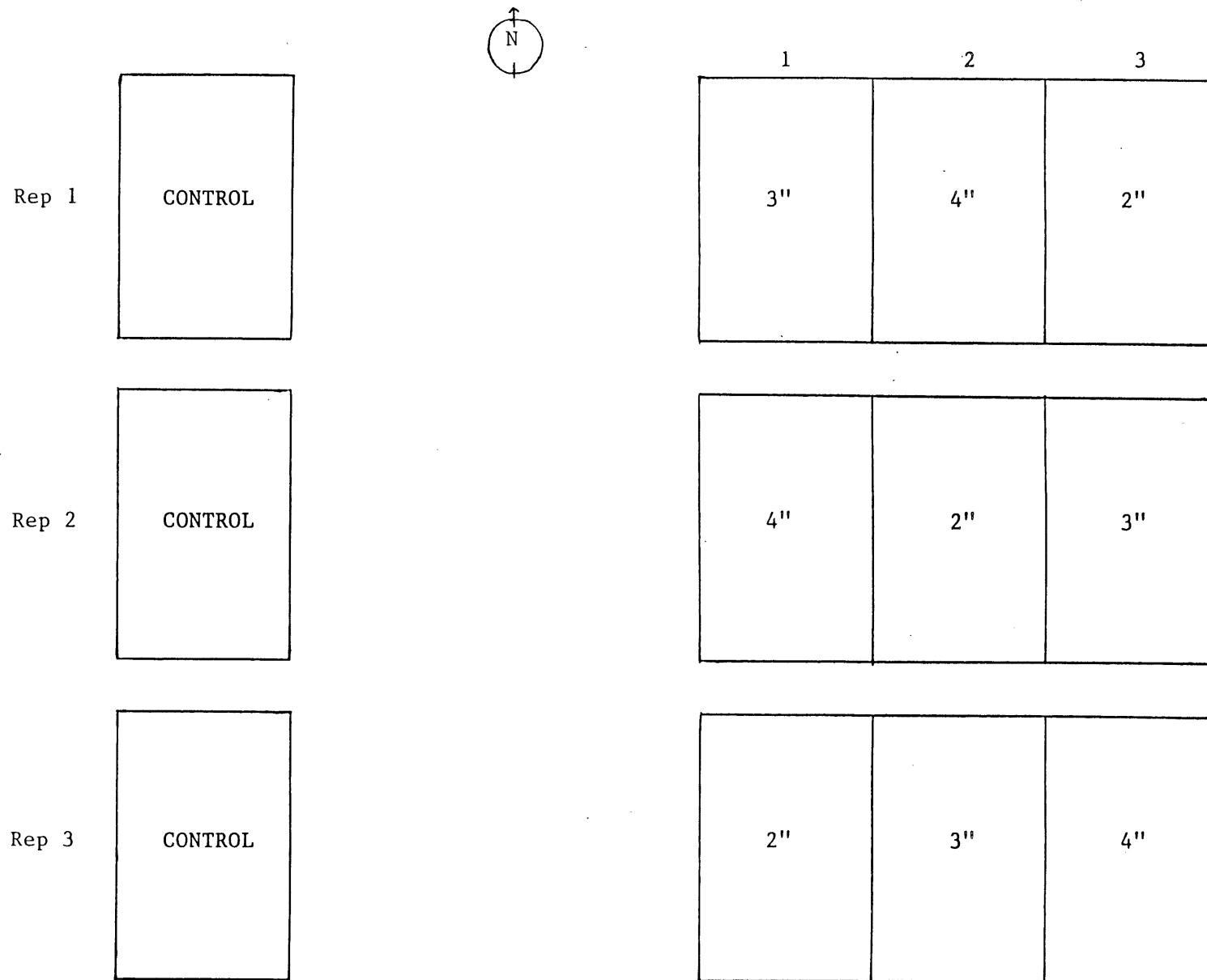


Figure 2. Alfalfa interseeding furrow width techniques trial using 2, 3 and 4 inch chisel plow shovels, seeded 21 Apr 1983.

ALFALFA VARIETY BROADCAST SEEDING TRIAL

Location:	Dickinson Experiment Station Ranch Headquarters NE $\frac{1}{4}$, NW $\frac{1}{4}$, SW $\frac{1}{4}$ Sec. 23, T. 143 N., R. 96 W.	
Replications:	Three	Randomized Block Design
Study Size:	80' X 60'	0.11 acres
Plot Size:	10' X 10'	0.002 acres
Perimeter Border:	5'	
Alleys:	5'	
Soil:	Vebar	
Range Site:	Sandy	
Seeding Date:	29 Apr 1983	
Seeding Rate:	1.00 lbs. PLS/acre	
Alfalfa Varieties:	Anik, Drylander, Kane, Ladak 65, Prowler, Rangelander, Spredor 2, Travois and Vernal.	

Table 34. Alfalfa Variety Seedling Counts for the Alfalfa Variety Establishment by Broadcast Seeding into Rangeland Trial at the Dickinson Experiment Station – 1983

	20 Jun	18 Jul	22 Aug
Anik	0	0	0
Drylander	0	0	0
Kane	0	1	0
Ladak 65	0	0	0
Prowler	0	0	0
Rangelander	0	0	0
Spredor II	0	0	0
Travois	0	0	0
Vernal	0	0	0

**Table 35. Area in Square Feet and Percentage per Acre of Seed Bed Prepared by an Inter-seeder
For Six Row Spacings and Four Furrow Widths**

Row Spacing		Area of Seed Bed Per Acre In Square Feet				Percentage of Seed Bed Per Acre			
Spacing In Feet	# Rows Per Rod	Furrow 2 Inch	Furrow 3 Inch	Furrow 4 Inch	Furrow 12 Inch	Furrow 2 Inch	Furrow 3 Inch	Furrow 4 Inch	Furrow 12 Inch
2	8.25	3703	5445	7187	21780	8.50	12.50	16.50	50.00
3	5.50	2468	3630	4792	14520	5.67	8.34	11.00	33.34
4	4.13	1854	2726	3598	10904	4.26	6.25	8.26	25.00
5	3.30	1481	2178	2875	8712	3.40	5.00	6.60	20.00
8	2.06	925	1362	1795	5446	2.12	3.13	4.12	12.50
10	1.65	741	1089	1437	4356	1.70	2.50	3.30	10.00

**PLANT SPECIES LIST OF THE ALFALFA INTER-SEEDING TRIAL AT THE
DICKINSON EXPERIMENT STATION, 1983**

Graminoids:

An sc	Andropogon scoparius	Little bluestem
Ag sm	Agropyron smithii	Western wheatgrass
Ag tr	Agropyron trachycaulum	Slender wheatgrass
Ar lo	Aristida longiseta	Red threeawn
Bo gr	Bouteloua gracilis	Blue grama
Bu da	Buchloe dactyloides	Buffalo grass
Ca mo	Calamagrostis montanensis	Plains reedgrass
Ca lo	Calamovilfa longifolia	Prairie sandreed
Ko py	Koeleria pyramidata	Prairie junegrass
Mu cu	Muhlenbergia cuspidata	Plains muhly
Mu sq	Munroa squarrosa	False buffalo grass
Pa ol	Panicum oligosanthos	Scribner panic grass
Po pr	Poa pratensis	Kentucky bluegrass
St co	Stipa comata	Needle-and-thread
St vi	Stipa viridula	Green needlegrass
Ca el	Carex eleocharis	Needleleaf sedge
Ca fi	Carex filifolia	Thread leaved sedge
Ca he	Carex heliophila	Yellow sedge

Forbs:

Ac mi	Achillea millefolium	Yarrow
Al st	Allium textile	White wild onion
Am re	Amaranthus retroflexus	Rough pigweed

Forbes (Continued):

An oc	<i>Androsace occidentalis</i>	Fairy candelabra
An ne	<i>Antennaria neglecta</i>	Pussytoes
An pa	<i>Antennaria parvifolia</i>	Pussytoes
Ar ho	<i>Arabis holboellii</i>	Slim rockcress
Ar dr	<i>Artemisia dracunculus</i>	Green sage
Ar fr	<i>Artemisia frigida</i>	Fringed sage
Ar lu	<i>Artemisia ludoviciana</i>	White sage
As er	<i>Aster ericoides</i>	White prairie aster
As la	<i>Aster laevis</i>	Smooth blue aster
As ob	<i>Aster oblongifolius</i>	Aromatic aster
As pt	<i>Aster ptarmicoides</i>	White upland aster
As ca	<i>Astragalus canadensis</i>	Little rattlepod
Ce ar	<i>Cerastium arvense</i>	Prairie chickweed
Ch al	<i>Chenopodium album</i>	Lamb's quarters
Ch vi	<i>Chrysopsis villosa</i>	Golden aster
Co um	<i>Commandra umbellata</i>	Bastard toadflax
Co ar	<i>Convolvulus arvensis</i>	Field bindweed
Co se	<i>Convolvulus sepium</i>	Large bindweed
Co ca	<i>Conyza canadensis</i>	Horseweed
Ec an	<i>Echinacea angustifolia</i>	Purple coneflower
Er os	<i>Erysimum asperum</i>	Western wallflower
Eu di	<i>Euphorbia dictyosperma</i>	Spurge
Eu ge	<i>Euphorbia geyeri</i>	Geyer's spurge
Ga bo	<i>Galium boreale</i>	Northern bedstraw
Ga co	<i>Gaura coccinea</i>	Gaura
Gl le	<i>Glycyrrhiza lepidota</i>	Wild licorice

Forbs (Continued):

Gr sq	Grindelio squarrosa	Gumweed
Gu sa	Gutierrezia sarothrae	Broomweed
Ha sp	Haplopappus spinulosus	Spiny iron plant
He hi	Hedeoma hispida	Rough pennyroyal
He an	Helianthus annuus	Common sunflower
He ri	Helianthus rigidus	Stiff sunflower
Ko sc	Kochia scoparia	Kochia
La ob	Lactuca oblongifolia	Blue wild lettuce
La se	Lactuca serriola	Prickly lettuce
Le de	Lepidium densiflorum	Pepppergrass
Li pu	Liatris punctata	Blazing star
Li ri	Linum rigidum	Stiffstem flax
Li in	Lithospermum incisum	Narrow-leaved puccoon
Lo am	Lotus americanus	Prairie bird's foot trefoil
Ly ju	Lygodesmia juncea	Skeletonweed
Me fa	Medicago falcata	Travois alfalfa
Me of	Melilotus officinalis	Yellow sweetclover
Mu di	Musineon divaricatum	Wild parsley
Ne pa	Neslia paniculata	Ball mustard
Oe bi	Oenothera biennis	Common evening primrose
Op fr	Opuntia fragilis	Brittle prickly pear
Ox la	Oxytropis lambertii	Purple loco
Pe al	Penstemon albidus	White beardtongue
Pe pu	Petalostemon purpureum	Purple prairie aster
Ph ho	Phlox hoodii	Moss phlox
Pl pu	Plantago purshii	Woolly plantain

Forbs (Continued):

Po al	<i>Polygala alba</i>	White milkwort
Po co	<i>Polygonum convolvulus</i>	Wild buckwheat
Po pe	<i>Potentilla pensylvanica</i>	Potentilla
Ps ar	<i>Psoralea argophylla</i>	Silverleaf scurfpea
Ps es	<i>Psoralea esculenta</i>	Indian breadroot
Ra co	<i>Ratibida columnifera</i>	Long headed coneflower
Sa ka	<i>Salsola kali</i>	Russian thistle
So mi	<i>Solidago missouriensis</i>	Early goldenrod
So mo	<i>Solidago mollis</i>	Soft goldenrod
So ri	<i>Solidago rigida</i>	Stiff goldenrod
Sp co	<i>Sphaeralcea coccinea</i>	Scarlet globemallow
Ta of	<i>Taraxacum officinale</i>	Dandelion
Tr du	<i>Tragopogon dubius</i>	Large goat's beard
Ve fa	<i>Vernonia fasciculata</i>	Ironweed
Vi am	<i>Vicia americana</i>	Wild vetch
Vi pe	<i>Viola pedatifida</i>	Prairie violet

Shrubs:

Ar vu	<i>Arctostaphylos uva-ursi</i>	Bearberry
Rh tr	<i>Rhus trilobata</i>	Skunk bush
Ro ar	<i>Rosa arkansana</i>	Prairie wild rose
Sy oc	<i>Symphoricarpos occidentalis</i>	Wolfberry

Lycopods:

Se de	<i>Selaginella densa</i>	Club moss
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Eumycota:

Li spp.	Species of lichens	Lichens
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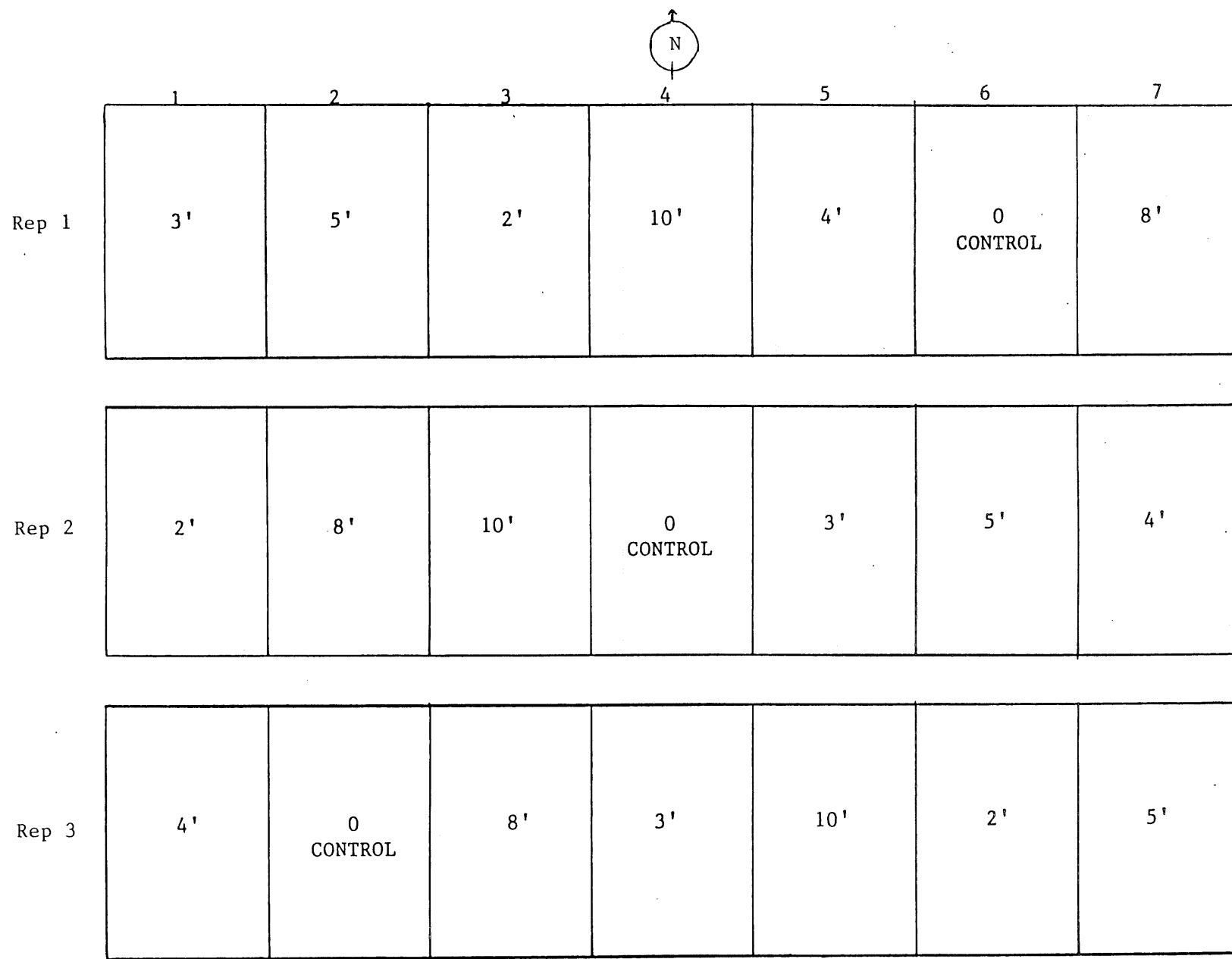


Figure 1. Alfalfa interseeding row spacing techniques trial with 0, 2, 3, 4, 5, 8 and 10 foot row spacings, seeded 21 Apr 1983.

LITERATURE CITED

- Chisholm, Tom S., F. Rudolph Vigil, Thomas M. Klosterman and Gary Orcutt. 1980. Inter-seeding and Plans for SDSU's New Machine for Better Pasture Production. Agricultural Experiment Station, South Dakota State University, Bulletin B 680. 14 pp.
- Heady, H.F. and L. Rader. 1958. Modifications of the Point Frame. *Journal of Ranch Management* Vol. II (2): 95-96.
- Levy, E.B. and E.A. Madden. 1933. The Point Method of Pasture Analysis. *New Zealand Journal of Agriculture* Vol. 46: 267-279.
- Smith, Justin G. 1959. Additional Modifications of the Point Frame. *Journal of Range Management* Vol. 12(4): 204-205.
- Tinney, F.W., O.S. Aamodt and H.L. Ahlgren. 1937. Preliminary Report of a Study on Methods Used in Botanical Analysis of Pasture Awards. *Journal of the American Society of Agronomy* Vol. 29(10): 835-840.