

H-1908: Techniques for Reestablishing Selected Native Species. H. Goetz

In the spring of 1979 a study was undertaken to determine the best methods of reseeding selected warm and cool season native grass species as solid stand or in mixtures. All plots in the spring of 1979 were seeded into fallowed ground. The following species were seeded alone in solid stand or in mixtures. All plots in the spring of 1979 were seeded into fallowed ground. The following species were seeded alone in solid stands: (1) Western wheatgrass (Agropyron smithii), (2) green needle-grass (Stipa Viridula), (3) blue grama (Bouteloua gracilis), and (4) sideoats grama (Bouteloua curtipendula). The mixture included the above four species as follows: (1) warm season-cool season grasses in alternate rows, (2) warm season-cool season four species mix, and (3) warm season grasses seeded first year and cool season grasses interseeded the next year.

In addition to the above plots, the seven treatments were also seeded into oat stubble and fallow ground in the late fall of 1979 and again in the spring of 1980. Early spring – summer drought destroyed these plots. Data was collected only on the plots seeded in the spring of 1979.

Data collected for 1980 and 1981 included forage production (Table 1) and species composition (Table 2). Forage production was determined by clipping five, quarter meter square frames, per plot. Species composition was determined from basal cover data from point frames placed perpendicular to the seeded row, fifty times in each plot.

Forage production for each seeding treatment for 1981 showed an increase when compared to the corresponding 1980 production (Table 1). 1981 yields ranged from 1335 pounds per acre (1495 kb/ha) for solid seeded blue grama to 2353 pounds per acre (2635 kb/ha) for western wheatgrass. Of the seven treatments, all but green needle-grass showed moderate to good stand establishment by 1981. Visual observations of the green needle-grass stands showed deterioration to the point where little or no green needle-grass was present and therefore no data was collected on these plots in 1981.

Percent composition showed an increase in the percent coverage of the seeded species (Table 2), showing definite stand improvement over that observed in 1980. Percent composition of forbs and weedy grasses fluctuated with the seeding treatment. In all treatments the percentage of litter increased over that of 1980, with a resulting decrease in the amount of bare ground. This again would indicate a trend towards improved stand establishment. Seeding of the four species mix appears to be the most promising method of reestablishing native grass species when compared to the alternate row of interseeding methods; however, more data is needed before solid recommendations of seeding methods can be made.

Work will continue in this area of native reestablishment with future plots being located at the Dickinson Experiment Station Ranch Headquarters.

Table 1. Forage Production on Native Re-establishment Trial

Treatment:	1980		Lbs/Ac	(Kg/ha)
	Lbs/A	(Kg/ha)		
Western Wheatgrass	986	(1104)	2353	(2635)
Green Needle-grass	170	(190)	N.H.*	
Blue Grama	584	(654)	1325	(1484)
Sidegoats Grama	584	(1015)	1865	(2088)
Four Species Mix	907	(1015)	2143	(2400)
Alternate Row	636	(712)	2005	(2245)
Interseeded	775	(868)	1881	(2106)

*Not harvested due to poor stand.

Table 2. Percent Composition on the Native Re-establishment Trial

					Seeding Treatment									
	Four spp. Mix		Alt. Row		Interseed.		Western Wht. Grass		Blue Grama		Side oats Grama		Green Needle-grass	
Species:	80	81	80	81	80	81	80	81	80	81	80	81	80	81
Sideoats Grama	1.2	4.2	1.2	3.1	2.5	6.6	-	-	TR	.2	2.7	13.2	.1	-
Western Wheatgrass	.3	2.3	.1	2.1	-	.3	1.5	8.1	-	-	-	TR	TR	-
Green Needle-grass	TR	.3	-	-	-	-	-	-	-	-	-	-	-	-
Blue Grama	.2	.5	.2	1.3	.4	.9	-	-	2.0	6.4	-	-	.1	-
Weedy Grasses*	3.0	2.2	-	4.4	2.4	8.3	2.1	.6	2.4	4.7	1.1	3.3	3.5	-
Forbs	.1	.2	.2	.5	.4	1.0	.1	-	.3	.3	.3	.8	.6	-
Litter	15.0	57.3	17.0	57.6	14.5	36.5	10.5	53.7	13.7	51.3	12.2	44.0	17.4	-
Bare Ground	80.0	32.8	79.0	31.0	79.6	46.4	85.7	37.6	81.2	37.1	83.4	38.7	77.4	-
Total for Seeded Species	1.7	7.3	1.5	6.5	2.9	7.8	1.5	8.1	2.0	6.6	2.7	13.2	.2	-

*Weedy grasses – pigeon grass and barnyard grass.

TR (Trace) – less than .05%.