ALFALFA VARIETY PERFORMANCE TRIAL

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Alfalfa variety testing has been conducted at the Dickinson Experiment Station to assist western North Dakota producers in making discriminate selections of varieties to plant. Twenty varieties were seeded in May 1979 in a randomized block design with four replications. The data for four additional varieties seeded in a second set of plots in May 1981 are included in this report. Seventeen of the varieties are hay type with tap roots and seven are pasture type with branched or creeping roots (Table 1). This trial was designed to evaluate the performance of these varieties on the basis of oven dry weight herbage production compared to a standard variety under a one cut system taken in late June or early July. Vernal was used as the standard because of its long, high production record across northern United States.

The annual above ground dry weight herbage production for each variety is shown in Table 2. Most of the varieties in this trial were very similar in performance. All but Agate had five year mean herbage production above 3000 pounds per acre. There was very little actual significant difference between the performance of any of the varieties. One variety (Kane in 1982) has been the only variety with an annual herbage production of significant difference from the standard variety. All but three varieties (Anik, Thor and 532) have Vernal, Ladak and /or Rambler as sources of parental germplasm. This may be a major reason for similar production performance.

The comparison of each variety to the standard variety is shown as a percentage of herbage production in Table 3. Four varieties had mean production equal to the standard. Fifteen varieties had mean production greater than the standard variety. All of the pasture type varieties had greater herbage production than Vernal under a one cut system. The pasture type varieties generally have slower regrowth after cutting than the hay type varieties and may not be satisfactory for a two cut system.

Vernal and Ladak have good, long performance records in western North Dakota for hay production and are dependable varieties to seed. Selection of any other variety should be based on tested performance of greater herbage production than Vernal or Ladak.

Table 1. Alfalfa Variety, Developing Agency and Year Available For Varieties Included in this Report

Variety	Developing Agency	Year Available
Agate	USDA and Minnesota AES	1972
Anik*	Agriculture Canada	1975
Baker	Nebraska AES and USDA	1976
Drylander*	Agriculture Canada	1971
Iroquois	Cornell University	1966
Kane*	Agriculture Canada	1971
Ladak	Introduced from India	1910
Ladak 65	Montana AES	1964
Norseman	Brazen of Minneapolis	1964
Nugget	North American Plant Breeders	1974
Polar I	Northrup, King and Co.	1974
Polar II	Northrup, King and Co.	1980
Prowler*	Northrup, King and Co.	1980
Ramsey	Minnesota AES and USDA	1972
Rangelander*	Agriculture Canada	1978
Ranger	USDA and Nebraska AES	1942
Spredor II*	Northrup, King and Co.	1980
Thor	Northrup, King and Co.	1970
Travois*	South Dakota AES	1963
Trek	Agriculture Canada	1975
Vernal	Wisconsin AES and USDA	1953
520	Arnold-Thomas Seed Service	1968
524	Pioneer Hi-Bred Intl. Inc.	1977
532	Pioneer Hi-Bred Intl. Inc.	1979

*Pasture type

Table 2. Herbage Production in Pounds per Acre

	Years						1981-1985
Variety	**1980**	**1981**	**1982**	**1983**	**1984**	**1985**	**Mean**
Agate	329	1401	3832	3912	3705	1578	2886
Anik*	171	1978	4563	4459	3892	1606	3300
Baker	233	1662	4011	5865	3966	1779	3457
Drylander*			4604	5528	4267		4800
Iroquois	401	1422	4794	3744	4489	1803	3250
Kane*	402	1655	6139	6135	4428	1929	4057
Ladak	320	1351	4796	4414	4546	1740	3369
Ladak 65	337	1407	4785	5433	4884	1958	3693
Norseman	445	1556	5210	4495	4899	1628	3558
Nugget	374	1391	4558	4338	4549	1360	3239
Polar I	244	1519	4695	5277	4607	1606	3541
Polar II			4016	4036	3493		3848
Prowler*			5244	5212	3178		4545
Ramsey	307	1195	4804	5187	4094	1768	3410
Rangelander*	400	1642	4981	5010	4755	1585	3595
Ranger	403	1239	4455	5243	4540	1666	3429
Spredor II*	369	1289	5260	4575	4289	1728	3428
Thor	284	1554	4158	4662	4554	1916	3369
Travois*	372	1277	5077	4659	4097	1788	3380
Trek	335	1362	4282	5124	3561	1904	3247
520	180	1485	4274	6342	4086	2059	3649
524	339	1518	4121	5896	3820	1684	3408
532			3832	4165	3095		3697
Vernal	372	1572	4425	4838	4353	1512	3340

*Pasture type

Table 3. Percentage of Herbage Production Compared to Vernal

	Years						1981-1985
Variety	**1980**	**1981**	**1982**	**1983**	**1984**	**1985**	**Mean**
Agate	88	89	86	81	85	104	89
Nugget	101	88	103	90	105	90	95
532			102	101	86		96
Iroquois	108	90	108	77	103	119	99
Polar II			107	98	97		100
Ramsey	83	76	108	107	94	117	100
Ranger	108	79	101	108	104	110	100
Trek	90	87	97	106	82	130	100
Vernal	100	100	100	100	100	100	100
Ladak	86	86	108	91	104	115	101
Travois*	100	81	115	96	94	118	101
Spredor II*	99	82	119	95	99	114	102
524	91	97	93	122	88	111	102
Anik*	46	126	103	92	89	106	103
Thor	76	99	94	96	105	127	104
Baker	63	106	91	121	91	118	105
Polar I	66	97	106	109	106	106	105
Norseman	120	99	118	93	113	108	106
Rangelander*	108	104	112	104	109	105	107
Ladak 65	91	90	108	112	112	130	110
520	48	94	96	131	94	136	110
Prowler*			139	126	88		118
Kane*	108	105	139	126	102	121	119
Drylander*			122	134	118		125

*Pasture type