ALFALFA VARIETY TRIALS IN CENTRAL OREGON
1985 Progress Report

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ABSTRACT

Twenty two and 36 alfalfa varieties were evaluated for yield at Madras and Powell Butte, respectively. At Madras W-37, Trumpetor, Vernema, and Apollo II yielded significantly more in 1985 than Vernal. However, for the total yield (1982-85) DeKalb 120, Pacer, DeKalb 130, Armor, and Pioneer 532 can be added. Vernema was the only variety with significantly higher yield than Vernal at Powell Butte in 1985. The 6-year total yield showed that most varieties were similar to Vernal at Powell Butte, but management of the trial based on Vernal may have masked the superiority of some improved varieties.

Alfalfa variety trials are conducted on a continuing basis at two locations in Central Oregon. The Powell Butte site (elevation 3,200 feet) provides information on winter hardiness and yield under a short growing season (80 to 90 days). The Madras site (elevation 2,440 feet) has a longer growing season (120 days) and milder winters than Powell Butte.

METHODS

Information on the establishment and management of each trial through 1984 was given in Agricultural Experiment Station Special Report 747 (published July 1985). Both nurseries were irrigated as needed. All varieties were cut in each nursery when Vernal was in the bud to 1/10th bloom stage. A green alfalfa sample of about one pound was taken from each plot for each variety and oven-dried for use in dry matter yield determination at each test location. Different practices for each trial in 1985 are noted below.

Madras. On March 14, 1985 an application of Sencor (50% active) and Paraquat (2 lb + 1 pt/A) were made. A single superphosphate-gypsum formulation [0-12-0-11(S)] at 625 lbs/A was topdressed on the same date. Cutting dates were June 10, July 22, and September 16.

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Powell Butte. Kerb was applied at a three pound-per-acre application November 7, 1984. On March 12, 1985, a top dressing of 68 and 88 pounds per acre of phosphate and sulphur, respectively, was applied. Sencor (75% active) at .75 lb/A and one pint of paraquat per acre were sprayed March 18, 1985. Varieties were cut on June 14, July 29, and September 24.

RESULTS AND DISCUSSION

Madras. In 1985 W-37, Trumpetor, Vernema, and Apollo II produced significantly more dry matter than Vernal (Table 1). However, for total yield (1982-85), five additional varieties (DeKalb 120, Pacer, DeKalb 130, Armor, and Pioneer 532) were superior to Vernal. The experimental line W-37 also exhibited the fastest regrowth and was noteably taller than the varieties but it has poor quality -- thick stems, relatively few leaves, low protein (Reference 3).

Powell Butte. The yield of Vernema in 1985 was greater than Vernal (Table 2). In 1984, another variety (Vancor) yielded more than Vernal but in the previous four years (1980-83) only the experimental W-37 and DeKalb 131 were superior to Vernal, in 1981. The 6-year total yield for most varieties was similar. These data may be misleading since all varieties are cut at the same time based on the development of Vernal. Yields of DeKalb 120 and Pioneer 532 on nearby experiment station fields appear to be superior to Vernal. They are ready to cut earlier than Vernal and have faster regrowth. Consequently, the yield advantage of some improved varieties may be diluted by the management of the trial.

Those interested in variety selection will find additional information in Reference 1.

References

1. Hannaway, David B. 1984. Selecting Alfalfa Varieties for the Pacific Northwest. A Pacific Northwest Extension Publication. PNW 244.

2. James, Steven R. 1984. Central Oregon Alfalfa Variety Evaluation Study. 1983 Progress Report. In Irrigated Crops Research in Central Oregon. Oregon State University Agricultural Experiment Station Special Report 717. pp. 1-3.

3. James, Steven R. 1985. Central Oregon Alfalfa Variety Evaluation Study. 1984 Progress Report. In Irrigated Crops Research in Central Oregon. Oregon State University Agricultural Experiment Station Special Report 747. pp. 7-10.

TABLE 1. Madras Alfalfa Variety Trial

Variety	Dry Matter Yield 1982[1]	1983[2]	1984[2]	1985[2,3]	Total[3,4]	% Vernal
	----------tons/acre----------					
W-37	2.66	9.06	8.43	7.59 a	27.97 a	118
DeKalb 120	2.72	8.31	8.05	7.09 a-e	26.53 ab	112
Trumpetor	2.48	8.77	8.08	7.38 abc	26.50 ab	111
Vernema	2.71	8.43	7.62	7.43 ab	26.39 abc	111
Pacer	2.24	8.82	8.03	7.14 a-e	26.30 abc	111
DeKalb 130	2.34	8.55	7.85	6.70 b-g	25.89 bcd	109
Armor	2.58	8.26	8.08	6.87 a-g	25.84 bcd	109
Apollo II	2.61	8.45	7.45	7.24 a-d	25.80 bcd	108
Pioneer 532	2.35	8.58	7.51	6.96 a-f	25.68 b-e	108
Greenway 360	2.65	8.38	7.73	6.74 b-g	25.53 b-f	107
RS 209	2.64	8.11	7.70	6.72 b-g	25.51 b-f	107
Valor	2.27	8.45	7.77	7.02 a-e	25.47 b-f	107
Blazor	2.64	8.55	7.46	6.97 a-f	25.44 b-f	107
WL220	2.59	8.32	7.62	6.79 b-g	25.40 b-f	107
W-45	2.63	7.45	7.48	6.92 a-f	24.84 b-f	104
Pioneer 545	2.62	8.23	7.28	6.59 d-g	24.60 c-f	103
WL312	2.57	8.12	7.09	6.64 c-g	24.44 def	103
Cascade	2.59	7.83	7.44	6.40 efg	24.1/ def	102
Saranac	2.22	7.99	7.11	6.44 efg	23.96 efg	101
WL314	2.53	8.10	7.48	6.13 g	23.88 efg	100
Vernal	2.30	7.74	7.44	6.39 efg	23.79 fg	100
Pioneer 581	2.44	7.15	6.48	6.21 fg	22.34 g	94
Average	2.51	8.25	7.60	6.83	25.28	
LSD 5%	NS	0.76	0.75	.64	1.54	
CV (%)	12.00	6.47	7.01	6.64	4.32	

1 Establishment year - total of two cuttings.
2 Total of three cuttings.
3 Total of 11 cuttings.
4 Yields followed by the same letter are not significantly different at the 5% level using Duncan's multiple range test.

TABLE 2. Powell Butte Alfalfa Variety Trial

Variety	Dry Matter Yield 1980[1]	1981[2]	1982[2]	1983[2]	1984[3]	1985[2]	Total[4]		% Vernal
	tons/acre								
Pioneer 532	1.23	7.83	6.00	6.47	4.22	5.83	31.55	a	106
DeKalb 120	1.38	8.15	6.25	5.73	4.58	5.69	31.53	a	106
Vernema	1.27	7.73	5.83	5.85	3.83	6.58	31.44	a	106
Action	1.20	7.62	6.09	6.12	4.33	5.87	31.29	ab	105
Anchor	1.30	7.71	6.02	6.03	4.40	5.84	31.08	ab	105
MS 243	1.13	7.45	6.22	5.96	4.33	5.92	30.90	abc	104
W-37	1.25	8.41	6.39	5.80	3.69	4.94	30.87	abc	104
DeKalb 130	1.40	8.04	5.55	6.00	4.00	5.71	30.75	abc	104
Gladiator	1.34	7.73	5.93	5.98	3.92	5.72	30.74	abc	104
Haymaker	1.43	7.00	6.03	6.01	3.99	6.32	30.73	abc	104
Apollo	1.51	7.44	5.61	5.85	4.32	5.94	30.67	abc	103
Valor	1.16	7.77	5.76	5.66	4.42	5.77	30.61	abc	103
Armor	1.48	7.95	5.99	5.86	3.96	5.31	30.54	abc	103
Classic	1.21	7.50	5.80	6.15	4.17	5.51	30.41	abc	103
Titan	1.29	6.95	5.74	6.00	4.29	5.87	30.25	abc	102
W-35	1.09	7.90	6.11	6.13	3.61	5.11	30.24	abc	102
Saranac	1.28	7.20	5.71	5.80	3.95	6.34	30.24	abc	102
Spectrum	1.46	7.47	5.66	6.30	4.23	5.32	30.16	abc	102
Vancor	1.36	7.33	5.61	6.07	4.80	5.26	30.13	abc	102
Agate	1.23	7.71	5.57	5.73	3.98	5.23	30.00	abc	101
Iriquois	1.41	7.58	5.65	6.01	4.41	4.63	29.95	abc	101
RS 209	1.41	7.57	5.82	6.07	3.95	5.06	29.89	abc	101
Pioneer 545	1.22	7.03	6.00	6.19	4.08	4.86	29.70	abc	100
Vernal	1.24	7.25	5.86	6.05	4.11	5.41	29.66	abc	100
Hiphy	1.35	6.99	5.82	6.14	3.79	5.47	29.56	abc	100
Super 721	1.18	7.34	5.65	6.04	3.57	5.45	29.48	abc	99
WL 309	1.04	7.66	5.47	5.99	3.87	5.19	29.42	abc	99
WL 220	1.20	7.08	5.93	5.94	4.14	5.42	29.40	abc	99
Cascade	1.67	7.08	5.57	5.87	3.63	5.49	29.20	abc	98
Weevlchek	1.27	7.76	5.78	6.37	3.50	4.76	29.19	abc	98
WL 310	1.33	6.59	5.53	5.76	4.06	5.58	28.98	abc	98
Pioneer 524	1.02	7.44	5.97	5.51	3.93	4.81	28.96	abc	98
Baker	1.36	7.80	5.21	5.52	3.88	4.51	28.64	bc	97
Ranger	1.03	7.54	5.61	5.44	4.03	4.84	28.38	cd	96
DeKalb 131	1.27	8.31	5.47	5.71	3.56	3.96	28.27	cd	95
Pacer	1.12	6.16	5.42	5.41	3.59	4.32	26.13	d	88
Average	1.28	7.50	5.79	5.92	4.03	5.38	29.97		
LSD 5%	NS	0.91	0.57	0.72	0.64	1.05	2.15		
CV (%)	19.10	8.74	7.10	8.65	11.28	13.90	5.12		

1 Establishment year - one cutting.
2 Total of three cuttings.
3 Total of two cuttings.
4 Total of 15 cuttings. Yields followed by the same letter are not significantly different at the 5% level using Duncan's multiple range test.