

## Alfalfa Varietal Experiment

Several attempts have been made to establish alfalfa varietal nurseries during the period of 1957-60. Of these attempts, only one was sufficiently successful to justify harvest of forage yields. This nursery was established on the farm of Wendell Gross in the Powell Butte district.

The nursery is located on virgin soil just being brought under irrigation. The nursery was seeded on May 22, 1959 without a companion crop. A uniform stand of all varieties was obtained.

The yields obtained during the crop season were probably lowered because of difficulties encountered in irrigation. At the time of the second cutting, patches throughout the nursery were definitely hurting because of the lack of moisture. A coefficient of variation of 11.97% would indicate that the irrigation differential was not as great as it appeared in the field. Probably the water shortage occurred late in the growth period of the second cutting. Also the second cutting comprised only 1/3 of the seasons total yield and the uniformity of the first cutting would tend to mask the discrepancy in the second cutting yield.

The varieties grown in the nursery are shown in Table No. 8. The varieties are arranged in order of yield and indicate basically that the less hardy common type alfalfas have no place in Central Oregon unless we are forced to them by their resistance to disease or attacks by insects.

Naragansett and Atlantic, while high yielding under Central Oregon conditions, are not considered bacterial wilt resistant and probably shouldn't be considered as possible new varieties for this area.

The prolonged cold spring during 1960 placed the usually considered pasture and dryland alfalfas, Rambler, Rhizoma and Sevelra higher yielding than the normally high yielding varieties, Vernal, Ranger and Ladak.

This yield difference was not significant but the trend is apparent in that all of the advantage in yield came during the first cutting.

The yields by replicate are presented in Appendix Tables No. 9 & 10. The appendix section also describes the experimental methods and plot design used in this experiment.

Table No. 8

Summary Table Showing the Tons Per Acre of Air Dry Forage Obtained from Eighteen Varieties as First and Second Cuttings and Season Total with the Multiple Range Test for Statistical Significance on the Total Yield.

Wendell Gross Farm - Powell Butte, Oregon 1960

Variety	Yield in Tons Per Acre			Multiple Range Test for Significance
	First Cut 6-24-60	Second Cut 8-29-60	Season Total	
Naragansett	4.52	2.59	7.11	
Atlantic	4.30	2.47	6.77	
Rambler	4.63	2.12	6.74	
Rhizoma	4.32	2.34	6.66	
Sevelra	4.24	2.41	6.64	
Ranger	3.99	2.62	6.61	
Vernal	4.00	2.42	6.42	
Nomad	4.33	2.00	6.33	
Ladak	4.29	1.94	6.23	
Orestan	3.94	2.13	6.07	
Grimm	3.62	2.36	5.98	
Kansas Synthetic	3.56	2.41	5.96	
Du Puits	3.29	2.20	5.49	
Sochville	3.38	2.09	5.47	
Lahotan	3.19	2.23	5.42	
Zia	3.18	1.90	5.08	
Talent	3.17	1.82	4.99	
Moapa	2.80	2.02	4.82	

Coefficient of Variation 11.97%

(1) Any two varieties covered by the same line are not significantly different

The nursery was seeded in pre irrigated soil May 22, 1959. The seedings were made in one foot rows with a V-belt band seeder. The seeding rate was approximately 10 pounds per acre. No companion crop was used in establishing the nursery.

The experiment was a randomized block design with each plot an area of 5x25 feet. The experimented site was virgin soil just being brought into production and was a sandy loam soil probably in the Deschutes series. The experimental site does not irrigate as evenly as it should, consequently there were some dry spots in the nursery area at the time of the second cutting. These areas must have been skipped toward the end of the second cutting growing period because the differential observed in the field does not show up as severely in the second cutting yields as it did in the field. It can be observed, however.

In harvesting, the replications were trimmed to 19 feet and one mower swath 38 inches wide the full length of the trimmed plot was used as the field sample. Grab samples of each plot of approximately three pounds were used for moisture determinations. The grab samples were placed in paper mesh bags and dried in the open. No artificial drying was used in making the moisture determination.

The analysis of variance was calculated for the season total only.

Appendix Table No. 9, 10 indicate the yields in tons per acre for each variety by replicate and the mean of the four replications.

## Appendix Table No. 2

Tons Per Acre Air Dry Forage Obtained from the Eighteen Alfalfa Varieties  
Grown on the Wendell Gross Farm - Powell Butte, Oregon - 1960.

First Cutting - June 24, 1960

Variety	Air Dry Forage in Tons Per Acre				
	By Replicate				Average
	I	II	III	IV	
Sevelra	4.24	4.53	3.98	4.19	4.24
Naragansett	4.60	5.24	4.10	4.14	4.52
Lahontan	2.37	3.50	3.02	3.85	3.19
Ranger	4.25	3.48	4.47	3.75	3.99
Sochville	2.80	5.18	2.77	2.76	3.38
Grimm	3.23	3.95	3.65	3.66	3.62
Kansas Synthetic	2.88	3.50	3.78	4.06	3.56
Atlantic	3.93	5.08	3.78	4.40	4.30
Crestan	3.27	4.33	3.75	4.41	3.94
Zia	2.75	3.76	2.58	3.62	3.18
Ladak	5.02	3.95	3.23	4.95	4.29
Talent	3.45	3.62	2.02	3.57	3.17
Du Puits	2.95	2.77	3.55	3.88	3.29
Nomad	4.11	4.60	3.98	4.63	4.33
Vernal	4.17	3.88	3.14	4.79	4.00
Rambler	4.91	5.03	3.67	4.90	4.63
Rhizoma	3.94	4.45	4.35	4.55	4.32
Meapa	1.96	3.32	2.87	3.05	2.80

Appendix Table No. 10

Tons per Acre Air Dry Forage Obtained from Eighteen Alfalfa Varieties Grown on the Wendell Gross Farm, Powell Butte, Oregon - 1960

Second Cutting - August 29, 1960

Variety	Air Dry Forage in Tons Per Acre				
	By Replicate				
	1	11	111	1V	Average
Sevelra	3.16	2.23	2.01	2.23	2.41
Naragansett	2.70	2.44	3.06	2.17	2.59
Lahontan	2.12	2.60	2.21	1.99	2.23
Ranger	2.55	2.87	2.82	2.24	2.62
Sochville	2.20	2.28	1.96	1.93	2.09
Grimm	1.91	2.77	2.50	2.26	2.36
Kansas Synthetic	1.98	2.62	2.88	2.14	2.41
Atlantic	1.60	3.02	2.74	2.52	2.47
Orestan	1.82	2.27	2.34	2.10	2.13
Zia	1.84	2.04	1.50	2.23	1.90
Ladak	1.93	1.92	1.46	2.44	1.94
Talent	1.70	1.98	1.48	2.12	1.82
Du Puits	2.15	2.45	1.91	2.30	2.20
Nomad	2.07	2.10	1.95	1.88	2.00
Vernal	2.64	2.92	1.67	2.45	2.42
Rambler	2.54	2.10	1.67	2.15	2.12
Rhizoma	2.86	2.16	2.23	2.11	2.34
Moapa	2.62	2.03	1.49	1.95	2.02