

Alfalfa Varietal Experiment

Wendell Gross Farm, Powell Butte

This nursery was seeded in June 1959, and has been harvested continually since that time. By July 1967 the stand of Moapa had long since gone and it was obvious Socheville, Du Puits, Talent, Zia, Kansas Synthetic and Rambler had deteriorated to the point where weeds and bluegrass were making a sizeable percentage of the total production. The yields (Table No. 9) reflect the condition of the stand and also reflect the shortage of water endured by the seeding.

The field was irrigated by water pumped from a nearby lake and in 1963, 1964 and to a lesser extent 1965, pumping difficulties resulted in insufficient water for a full crop. The seeding was too old to recover from this lack of water and has now regressed to the point where there will be little value in continuing the experiment.

The long term evaluation of the experiment leaves little doubt as to the value of the hardy types of alfalfa over the common, flemish and African types in the Central Oregon area. The Narragansett and Atlantic varieties have consistently outproduced the other varieties in the nursery. Some very hardy varieties such as Rhizoma, Nomad and Rambler have produced relatively better on cold years and the flemish and common types have produced better on the warm years. This fact may have caused Sevelra and Rhizoma to look somewhat better than they actually are in comparison to the flemish types. It was the second cutting that was always affected by the short water, and the common and flemish types were cut short at a time when they were capable of their best production.

Table No. 10 shows the 1967 production by first and second cutting and total yield. Lahontan is an interesting variety in that it ranked 13th out of 18 in the varieties in 1960 and 4th in 1967. During the first short water year, the yield of Lahontan dropped sharply in relation to the other varieties. From this it appears that while Lahontan is a persistent variety, it is rather slow to establish and reacts to marked changes in its environment. Perhaps this sharp reaction to environmental change is its key to persistence.

The yields of this nursery are presented by replicate for both cuttings in Appendix Tables No. 26 and 27.

Table No. 9

Yield Summary of Eighteen Varieties of Alfalfa Grown on the Mendell A. Gross Farm,
Powell Butte, Oregon, during the Years 1960-1967, inclusive,
By the Central Oregon Experiment Station

| Variety | 1960 | Tons 1961 | Per 1962 | Acres 1963 | Air 1964 | Dry 1965 | Forage 1966 | 1967 | 8 Year Total | % Vernal |
|------------------|------|--------------|-------------|---------------|-------------|-------------|----------------|------|-----------------|-------------|
| Narragansett | 7.11 | 6.95 | 5.81 | 3.36 | 3.94 | 3.46 | 4.02 | 3.22 | 37.87 | 109.4 |
| Atlantic | 6.77 | 6.92 | 5.80 | 3.45 | 3.68 | 3.03 | 3.75 | 3.04 | 36.44 | 105.2 |
| Ranger | 6.61 | 6.22 | 5.45 | 3.31 | 3.94 | 3.32 | 3.75 | 2.90 | 35.50 | 102.5 |
| Vernal | 6.42 | 6.34 | 5.64 | 3.11 | 3.50 | 3.23 | 3.66 | 2.73 | 34.63 | 100.0 |
| Sevelra | 6.64 | 6.12 | 5.58 | 3.19 | 3.43 | 3.21 | 3.47 | 2.73 | 34.37 | 99.2 |
| Orestan | 6.07 | 6.56 | 5.28 | 3.11 | 3.46 | 3.01 | 3.26 | 2.20 | 33.55 | 96.9 |
| Rhizoma | 6.66 | 5.94 | 5.41 | 3.65 | 3.21 | 2.95 | 3.06 | 2.52 | 33.40 | 96.4 |
| Ladak | 6.23 | 6.28 | 5.44 | 3.22 | 3.57 | 2.70 | 3.12 | 2.40 | 32.96 | 95.2 |
| Kansas Synthetic | 5.96 | 6.18 | 5.23 | 3.12 | 3.28 | 2.84 | 3.30 | 2.72 | 32.63 | 94.2 |
| Grimm | 5.98 | 6.01 | 4.83 | 3.31 | 3.17 | 2.60 | 3.28 | 2.76 | 31.94 | 92.2 |
| Lahontan | 5.42 | 6.42 | 4.72 | 2.78 | 3.17 | 2.84 | 3.33 | 2.86 | 31.54 | 91.1 |
| Du Puits | 5.49 | 6.34 | 4.83 | 3.04 | 3.55 | 2.57 | 2.92 | 2.09 | 30.83 | 89.0 |
| Rambler | 6.74 | 5.22 | 5.29 | 3.29 | 2.73 | 2.29 | 2.77 | 2.28 | 30.61 | 88.4 |
| Nomad | 6.33 | 5.32 | 5.12 | 3.28 | 2.82 | 2.43 | 2.92 | 2.25 | 30.47 | 88.0 |
| Talent | 4.99 | 5.88 | 4.69 | 2.87 | 3.13 | 2.28 | 2.88 | 2.55 | 29.27 | 84.5 |
| Socheville | 5.47 | 6.40 | 4.63 | 3.23 | 2.97 | 2.02 | 2.16 | 1.88 | 28.76 | 83.0 |
| Zia | 5.08 | 5.87 | 4.63 | 2.81 | 2.91 | 1.95 | 2.38 | 2.20 | 27.83 | 80.4 |
| Moapa | 4.82 | 5.30 | 2.83 | 1.70 | -- | -- | -- | -- | 14.65 | No stand |
| L.S.D. @ 5% | 1.04 | .79 | .72 | .67 | .72 | .67 | .78 | .71 | | |
| C. V. % | 12.0 | 8.9 | 10.0 | 15.4 | 15.6 | 17.2 | 17.4 | 19.7 | | |

Table No. 10

Yield by Cutting and Total Yield for Seventeen Varieties of Alfalfa
Grown on the Wendell Gross Farm, Powell Butte, Oregon
by the Central Oregon Experiment Station - 1967

Seedings made in 1959

| Variety | Air Dry Forage Tons Per Acre by Cutting | | |
|------------------|--|---------|-------|
| | First | Second | Total |
| Narragansett | 1.94 | 1.28 | 3.22 |
| Atlantic | 1.78 | 1.26 | 3.04 |
| Ranger | 1.77 | 1.13 | 2.90 |
| Lahontan | 1.54 | 1.32 | 2.86 |
| Orestan | 1.52 | 1.28 | 2.80 |
| Grimm | 1.58 | 1.18 | 2.76 |
| Vernal | 1.61 | 1.12 | 2.73 |
| Sevelra | 1.76 | .97 | 2.73 |
| Kansas Synthetic | 1.52 | 1.20 | 2.72 |
| Talent | 1.46 | 1.09 | 2.55 |
| Rhizoma | 1.49 | 1.03 | 2.52 |
| Ladak | 1.46 | .94 | 2.40 |
| Rambler | 1.41 | .87 | 2.28 |
| Nomad | 1.41 | .84 | 2.25 |
| Zia | .99 | 1.21 | 2.20 |
| Du Puits | 1.33 | .76 | 2.09 |
| Socheville | 1.00 | .88 | 1.88 |
| L.S.D. @ 5% | .41 | ns | .71 |
| C. V. % | 18.7 | 26.4 | 19.7 |
| Harvest Date | 7/6/67 | 8/29/67 | |

Alfalfa Varietal Nursery at Alfalfa

The yields obtained from this nursery in 1967 are presented by cutting and total in Table No. 11 and are interesting from several aspects.

The hay yields in the Alfalfa district on an average year are approximately three--three and one half tons per acre. During the long warm season of 1967, they were higher, probably $4\frac{1}{2}$ to 5 tons. The highest yielding varieties in the nursery approached two times the average yield for the area. Since no management variables were imposed on the experiment, it is impossible to authoritatively state why the yields are as high as they are in relation to the average for the area. However, certain differences in management existed.

1. Most fields in the district are surface irrigated, while this field was sprinkler irrigated.
2. Soil tests indicated that the area was low in phosphate and possibly low in potassium. The nursery area received annually 400# K/Acre, while other fields received none. However, a potash check treatment in the field would indicate that potassium was probably not a major factor in the increase.

The field was intended to receive 80# of P_2O_5 annually, however, an error in application was made in 1965 and approximately 240# of P_2O_5 per acre was applied.

3. The area in which the nursery was seeded has not been as intensively cultivated as the surrounding area and possibly other nutrients are imposing limitations in the surrounding area.

It would be highly desirable to increase the hay yields in the Alfalfa district because the area is apparently restricted by climate to a hay and pasture cropping program.

There was no significant difference in the total yield of the seventeen varieties grown. (See Table No. 11). There were significant differences in the first and third cuttings, but not in the second cutting. In the second cutting the greatest difference in yields was only .5 of a ton. There was a significant cutting X variety interaction, which probably was the major contributor to the lack of significant differences in the total yield of the varieties. Consider the yields of Teton and Du Puits. In the first cutting Teton was significantly higher yielding than Du Puits. Teton is a hardy type that produces relatively better during cool weather. However, during the warm summer and fall Du Puits, a Flemish type, came into its own and by the second cutting was significantly higher yielding than Teton. Consequently, the total yields were much closer together than the first cutting yields would indicate.

Table No. 11

First, Second, and Third Cutting Yields and Total Yield
of Seventeen Alfalfa Varieties Grown at the Alfalfa Location
of the Central Oregon Experiment Station - 1967

| Variety | Tons | Per | Acres | Air | Dry | Forage |
|--------------|---------|-----|---------|---------|---------|--------|
| | First | By | Second | Cutting | Third | Total |
| NK919 | 4.08 | | 3.03 | | 1.73 | 8.84 |
| Narragansett | 4.31 | | 2.76 | | 1.60 | 8.68 |
| Alfa | 3.78 | | 3.03 | | 1.76 | 8.58 |
| Cayuga | 3.79 | | 2.94 | | 1.80 | 8.54 |
| Sevelra | 3.70 | | 3.05 | | 1.66 | 8.41 |
| Atlantic | 3.88 | | 2.91 | | 1.56 | 8.35 |
| Nomad | 3.97 | | 2.71 | | 1.60 | 8.28 |
| Rhizoma | 4.28 | | 2.67 | | 1.31 | 8.26 |
| Vernal | 3.75 | | 2.85 | | 1.59 | 8.20 |
| Teton | 4.29 | | 2.55 | | 1.29 | 8.13 |
| Uinta | 3.52 | | 2.79 | | 1.73 | 8.05 |
| Ranger | 3.64 | | 2.68 | | 1.55 | 7.87 |
| Du Puits | 3.17 | | 2.98 | | 1.71 | 7.86 |
| Cody | 3.22 | | 2.88 | | 1.61 | 7.72 |
| Ladak | 3.85 | | 2.72 | | .98 | 7.55 |
| Rambler | 3.88 | | 2.65 | | .97 | 7.51 |
| Lahontan | 3.15 | | 2.67 | | 1.56 | 7.39 |
| L.S.D. @ 5% | .58 | | ns | | .24 | ns * |
| C. V. % | 10.77 | | 14.06 | | 10.92 | 13.76 |
| Harvest Date | 6/24/67 | | 8/15/67 | | 10/6/67 | |

* There was a significant Cutting X Variety interaction which probably contributed to the lack of significance of the Total Yield.

The plant heights and stage of bloom of the several varieties for the first and second cutting is shown in Tables No. 12 and 13. The first cutting was taken a little early for some of the late varieties, but lodging was severe in the entire nursery and it was considered desirable to remove the hay. The second cutting was taken at a more desirable stage of growth for most varieties, but too late for the early varieties Alfa and Du Puits. The coarse stemmy nature of the flemish types is reflected in the plant height measurements taken at the time of the second cutting.

Yields by replicate for the three cuttings are shown in Appendix Tables No. 28, 29, and 30.

Alfalfa Varietal Nursery - Redmond Station

The yield by cutting and total yield is presented in Table No. 14. The yield for the top variety at the Redmond location is approximately one ton less than the Alfalfa location. During a normal year, one would expect, on the basis of climate that Redmond should outyield the Alfalfa area. Redmond's summer temperatures are usually 5 degrees higher than the Bend-Alfalfa area. However, the extra five degrees at Redmond during 1967 provided irrigation problems that did not exist at Alfalfa, because of the lower temperatures and smaller area to irrigate. As a result, the Redmond nursery suffered enough during the extremely warm days that maximum yields were not obtained.

One of the perplexing anomalies that make evaluations of varieties difficult can be observed by comparing the performance of certain varieties grown at the Alfalfa and Redmond locations. Ladak, a very hardy variety, would be expected to perform equally well at both locations, perhaps relatively better at the Alfalfa location. Yet it is number one in rank at Redmond and 15th out of seventeen varieties at Alfalfa. NK919 with its blend of hardy and flemish types would be expected to do relatively better at Redmond than at Alfalfa, yet it is number one at Alfalfa and 14th out of 20 varieties at Redmond.

These facts prompts one to consider the importance of stand on yield in the range of stand that is difficult to evaluate visually. At the Redmond location certain stand difficulties were encountered with Socheville and Lahontan. Also the stand of several individual plots of other varieties were influenced by harvester ants, but these differences were apparent and can be accounted for. The agronomic notes taken at the two locations would indicate very little difference in the average stand of either Ladak or NK919 at either location.

Tables No. 15 and 16 show the average yield and plant height and stage of development at harvest for the first and second cutting.

Appendix Tables No. 31, 32 and 33 present the yield by replicate.

The results in general indicate the general superiority of the hardy varieties on the common and flemish types of alfalfa in the Central Oregon area. Considering the undesirability of chancing the bacterial wilt susceptible varieties of Narragansett and Atlantic, then Vernal, Ranger and Ladak alfalfas are still acceptable to the Central Oregon area.

Table No. 12

Yield and Agronomic Data for Seventeen Alfalfa Varieties
Grown at the Alfalfa Location
of the Central Oregon Experiment Station - 1967

First Cutting

| Variety | Average Yield Tons/Acre | Plant Height Inches | Stage of Bloom |
|-----------------|-------------------------------|---------------------------|----------------------|
| Ladak | 3.85 | 28.50 | L. Bud |
| Narragansett | 4.31 | 30.50 | L. Bud |
| Ranger | 3.64 | 31.25 | L. Bud |
| Teton | 4.29 | 29.50 | L. Bud |
| Rambler | 3.88 | 27.50 | L. Bud |
| Cayuga | 3.79 | 30.75 | L. Bud |
| Alfa | 3.78 | 31.25 | E. Bloom |
| Atlantic | 3.88 | 29.50 | L. Bud |
| Lahontan | 3.15 | 28.25 | L. Bud |
| Vernal | 3.75 | 29.25 | L. Bud |
| Cody | 3.22 | 26.00 | L. Bud |
| Sevelra | 3.70 | 28.75 | L. Bud |
| Du Puits | 3.17 | 26.75 | E. Bloom |
| Nomad | 3.97 | 26.25 | L. Bud |
| Rhizoma | 4.28 | 30.00 | L. Bud |
| NK919 | 4.08 | 31.50 | L. Bud |
| Uinta | 3.52 | 28.00 | L. Bud |
| L.S.D. @ 5% | .58 | | |
| C. V. % | 10.77 | | |
| Date of Harvest | 6/24/67 | | |

Table No. 13

Yield and Agronomic Data for Seventeen Alfalfa Varieties
Grown at the Alfalfa Location
of the Central Oregon Experiment Station - 1967

Second Cutting

| Variety | Average Yield Tons/Acre | Plant Height Inches | Stage of Bloom |
|-----------------|----------------------------|------------------------|----------------------|
| Ladak | 2.72 | 27.50 | L. Bud |
| Narragansett | 2.76 | 32.00 | L. Bud |
| Ranger | 2.68 | 35.00 | E. Bloom |
| Teton | 2.55 | 28.50 | E. Bloom |
| Rambler | 2.65 | 31.50 | L. Bud |
| Cayuga | 2.94 | 30.00 | E. Bloom |
| Alfa | 3.03 | 40.00 | L. Bloom |
| Atlantic | 2.91 | 34.50 | E. Bloom |
| Lahontan | 2.67 | 37.50 | E. Bloom |
| Vernal | 2.85 | 31.00 | E. Bloom |
| Cody | 2.88 | 34.50 | E. Bloom |
| Sevelra | 3.05 | 33.00 | E. Bloom |
| Du Puits | 2.98 | 39.50 | Full Bloom |
| Nomad | 2.71 | 33.50 | L. Bud |
| Rhizoma | 2.67 | 28.00 | L. Bud |
| NK919 | 3.03 | 39.00 | E. Bloom |
| Uinta | 2.79 | 31.50 | E. Bloom |
| L.S.D. @ 5% | ns | | |
| C. V. % | 14.06 | | |
| Date of Harvest | 8/15/67 | | |

Table No. 14

First, Second, and Third Cutting Yield and Total Yield of
Twenty Alfalfa Varieties Grown at the Redmond Location
of the Central Oregon Experiment Station - 1967

| Variety | Tons | Per | Acres | Air | Dry | Forage |
|-----------------|---------|-----|---------|---------|----------|--------|
| | First | By | Second | Cutting | Third | Total |
| Ladak | 3.91 | | 2.54 | | 1.35 | 7.80 |
| Ranger | 3.89 | | 2.37 | | 1.43 | 7.69 |
| Cayuga | 3.44 | | 2.75 | | 1.44 | 7.63 |
| Vernal | 3.89 | | 2.33 | | 1.35 | 7.56 |
| Nomad | 4.25 | | 2.18 | | 1.12 | 7.55 |
| Du Puits | 3.50 | | 2.63 | | 1.41 | 7.54 |
| Narragansett | 3.42 | | 2.52 | | 1.29 | 7.22 |
| Alfa | 3.54 | | 2.37 | | 1.31 | 7.22 |
| Uinta | 3.60 | | 2.34 | | 1.25 | 7.19 |
| Atlantic | 3.27 | | 2.33 | | 1.48 | 7.08 |
| Teton | 3.86 | | 2.29 | | .92 | 7.07 |
| Sevelra | 3.50 | | 2.26 | | 1.25 | 7.01 |
| Rhizoma | 3.48 | | 2.37 | | 1.02 | 6.87 |
| NK919 | 3.23 | | 2.10 | | 1.53 | 6.86 |
| Orestan | 3.22 | | 2.45 | | 1.15 | 6.82 |
| Cody | 3.37 | | 2.17 | | 1.23 | 6.76 |
| Rambler | 3.63 | | 2.05 | | 1.04 | 6.72 |
| Talent | 2.66 | | 2.03 | | 1.33 | 6.02 |
| Socheville | 2.39 | | 1.99 | | 1.09 | 5.46 |
| Lahontan | 2.43 | | 1.61 | | 1.12 | 5.16 |
| L.S.D. @ 5% | .67 | | .55 | | .36 | .51 |
| C. V. % | 13.8 | | 17.3 | | 20.1 | 5.2 |
| Date of Cutting | 6/28/67 | | 8/12/67 | | 10/17/67 | |

Table No. 15

Yield and Agronomic Data for Twenty Varieties of Alfalfa
Grown at the Redmond Location
of the Central Oregon Experiment Station - 1967

First Cutting

| Variety | Average Yield Tons/A | Plant Height Inch | Stage of (1) Bloom | Crown Buds (2) | Remarks |
|-----------------|-------------------------|----------------------|-----------------------|-------------------|--|
| Uinta | 3.60 | 32.5 | E. Bloom | - | All varieties had lodged at this time |
| Teton | 3.86 | 33.0 | E. Bloom | + | |
| Cayuga | 3.44 | 33.0 | E. Bloom | + | |
| Vernal | 3.89 | 33.5 | E. Bloom | + | |
| Du Puits | 3.50 | 35.0 | 7% | ++ | |
| Alfa | 3.54 | 31.5 | E. Bloom | + | Poor stand 1 or more reps |
| Rambler | 3.63 | 34.5 | E. Bloom | - | |
| Ladak | 3.91 | 29.5 | E. Bloom | - | |
| Narragansett | 3.42 | 32.0 | 10% | ++ | |
| Atlantic | 3.27 | 31.5 | E. Bloom | + | |
| Sevelra | 3.50 | 30.0 | E. Bloom | + | |
| Lahontan | 2.43 | 28.5 | L. Bud | + | |
| Ranger | 3.89 | 33.5 | L. Bud | ++ | |
| NK919 | 3.23 | 33.5 | L. Bud | ++ | |
| Rhizoma | 3.48 | 35.0 | 5% | + | |
| Nomad | 4.25 | 33.5 | L. Bud | - | Poor stand 1 or more reps |
| Orestan | 3.22 | 34.0 | L. Bud | + | |
| Cody | 3.37 | 34.5 | L. Bud | + | |
| Socheville | 2.39 | 29.0 | 10% | + | |
| Talent | 2.66 | 28.0 | E. Bloom | ++ | |
| L.S.D. @ 5% | .67 | | | | |
| C. V. % | 13.8 | | | | |
| Date of Cutting | | 6/28/67 | | | |

(1) E. Bloom = Early Bloom

L. Bud = Late Bud

% = % of stems with first bloom

(2) - No crown buds

+ Right for harvest

++ Some damage to crown buds by harvest likely

Table No. 16

Yield and Agronomic Data for Twenty Alfalfa Varieties
Grown at the Redmond Location
of the Central Oregon Experiment Station - 1967

Second and Third Cuttings

| Variety | 2nd Cutting | | | 3rd Cut. (1) |
|-----------------|----------------------------|------------------------|----------------|----------------------------|
| | Average Yield Tons/Acre | Plant Height Inches | Stage of Bloom | Average Yield Tons/Acre |
| Uinta | 2.34 | 24.5 | E. Bloom | 1.25 |
| Teton | 2.29 | 27.0 | L. Bud | .92 |
| Cayuga | 2.75 | 30.5 | E. Bloom | 1.44 |
| Vernal | 2.33 | 31.0 | L. Bud | 1.35 |
| Du Puits | 2.63 | 32.5 | 15% | 1.41 |
| Alfa | 2.37 | 31.0 | E. Bloom | 1.31 |
| Rambler | 2.05 | 24.0 | L. Bud | 1.04 |
| Ladak | 2.54 | 31.5 | L. Bud | 1.35 |
| Narragansett | 2.52 | 26.5 | L. Bud | 1.29 |
| Atlantic | 2.33 | 29.0 | L. Bud | 1.48 |
| Sevelra | 2.26 | 29.0 | L. Bud | 1.25 |
| Lahontan | 1.61 | 28.5 | E. Bloom | 1.12 |
| Ranger | 2.37 | 30.5 | 10% | 1.43 |
| NK919 | 2.10 | 32.0 | Bud | 1.53 |
| Rhizoma | 2.37 | 27.0 | L. Bud | 1.02 |
| Nomad | 2.18 | 29.0 | E. Bloom | 1.12 |
| Orestan | 2.45 | 32.0 | 10% | 1.15 |
| Cody | 2.17 | 30.0 | 10% | 1.23 |
| Socheville | 1.99 | 35.5 | 15% | 1.09 |
| Talent | 2.03 | 27.0 | E. Bloom | 1.33 |
| L.S.D. @ 5% | .55 | | | .36 |
| C. V. % | 17.3 | | | 20.1 |
| Date of Cutting | 8/12/67 | | | 10/7/67 |

(1) No floral development in any variety at the time of cutting

Appendix Table No. 26

Yield of Seventeen Varieties of Alfalfa Grown on the
Wendell Gross Farm, Powell Butte, Oregon - 1967

First Cutting

| Variety | Tons | Per | Acre | Air | Dry | Forage |
|---------------------|-------|-------|-----------|-------|-------|---------|
| | I | By | Replicate | III | IV | Average |
| Sevelra | 1.892 | 2.232 | 1.348 | 1.568 | 1.760 | |
| Narragansett | 2.041 | 2.241 | 1.556 | 1.905 | 1.936 | |
| Lahontan | 1.408 | 2.235 | 1.159 | 1.362 | 1.541 | |
| Ranger | 1.455 | 2.356 | 1.811 | 1.471 | 1.773 | |
| Socheville | .573 | 1.346 | .954 | 1.119 | .998 | |
| Grimm | 1.113 | 2.077 | 1.667 | 1.445 | 1.570 | |
| Kansas Synthetic | 1.362 | 1.681 | 1.503 | 1.528 | 1.519 | |
| Atlantic | 1.551 | 2.070 | 1.635 | 1.874 | 1.783 | |
| Orestan | 1.313 | 1.809 | 1.498 | 1.454 | 1.519 | |
| Zia | 1.266 | 1.216 | .431 | 1.023 | .984 | |
| Ladak | 1.480 | 2.165 | .689 | 1.515 | 1.462 | |
| Talent | 1.366 | 2.274 | .604 | 1.599 | 1.461 | |
| Du Puits | 1.646 | 1.711 | 1.007 | .959 | 1.331 | |
| Homad | 1.653 | 1.646 | 1.079 | 1.266 | 1.411 | |
| Vernal | 1.977 | 2.142 | .909 | 1.407 | 1.609 | |
| Rambler | 1.753 | 1.631 | .791 | 1.469 | 1.411 | |
| Rhizoma | 1.872 | 1.547 | 1.299 | 1.220 | 1.435 | |
| L.S.D. @ 5% | | | | | | .41 |
| C. V. % | | | | | | 18.7 |
| Harvest Date 7/6/67 | | | | | | |

Appendix Table No. 27

Yield of Seventeen Varieties of Alfalfa Grown on the
Wendell Gross Farm, Powell Butte, Oregon - 1967

Second Cutting

| Variety | Tons Per Acre Air Dry Forage | | | | Average |
|----------------------|------------------------------|----------|------------------|-------|---------|
| | I | By II | Replicate III | IV | |
| Sevelra | .622 | 1.307 | 1.059 | .894 | .971 |
| Harragansett | 1.185 | 1.548 | 1.206 | 1.168 | 1.277 |
| Lahontan | .963 | 2.396 | .856 | 1.066 | 1.320 |
| Ranger | .968 | 1.470 | 1.189 | .891 | 1.130 |
| Socheville | .685* | 1.446 | .755 | .633 | .880 |
| Grimm | .578 | 2.011 | 1.186 | .958 | 1.183 |
| Kansas Synthetic | .710 | 1.459 | 1.370 | 1.249 | 1.197 |
| Atlantic | .784 | 1.408 | 1.347 | 1.513 | 1.263 |
| Orestan | .805 | 1.595 | .299 | 1.402 | 1.275 |
| Zia | 1.018 | 1.635 | 1.009* | 1.181 | 1.211 |
| Ladak | .763 | 1.478 | .363 | 1.147 | .938 |
| Talent | .709 | 1.679 | .581 | 1.379 | 1.087 |
| Du Puits | .515 | 1.032 | .481 | .999 | .757 |
| Nomad | .895 | 1.234 | .586 | .638 | .838 |
| Vernal | 1.455 | 1.932 | .514 | .600 | 1.123 |
| Rambler | .673* | 1.305 | .532 | .950 | .865 |
| Rhizoma | 1.035 | 1.055 | .783 | 1.237 | 1.028 |
| L.S.D. @ 5% | | | | | ns |
| C. V. % | | | | | 26.4 |
| Harvest Date 8/29/67 | | | | | |

Appendix Table No. 28

Yield of Air Dry Forage in Tons Per Acre for Seventeen
Alfalfa Varieties Grown at the Alfalfa Location of
the Central Oregon Experiment Station - 1967

First Cutting by Replicate

| Variety | Tons Per Acre Air Dry Forage | | | | Average |
|--------------|------------------------------|----------|------------------|-------|---------|
| | I | By II | Replicate III | IV | |
| Ladak | 3.891 | 4.548 | 3.895 | 3.075 | 3.852 |
| Narragansett | 3.930 | 5.061 | 4.297 | 3.969 | 4.314 |
| Ranger | 3.112 | 3.438 | 3.461 | 4.545 | 3.639 |
| Teton | 3.713 | 4.618 | 4.291 | 4.539 | 4.290 |
| Rambler | 3.782 | 4.360 | 3.687 | 3.694 | 3.881 |
| Cayuga | 3.623 | 4.620 | 3.331 | 3.575 | 3.787 |
| Alfa | 3.970 | 3.785 | 3.886 | 3.495 | 3.784 |
| Atlantic | 4.448 | 3.221 | 4.024 | 3.827 | 3.880 |
| Lahontan | 2.805 | 3.399 | 3.503 | 2.910 | 3.154 |
| Vernal | 3.881 | 3.674 | 3.420 | 4.035 | 3.753 |
| Cody | 3.296 | 3.556 | 3.304 | 2.732 | 3.222 |
| Sevelra | 3.548 | 3.978 | 3.670 | 3.615 | 3.703 |
| Du Puits | 3.303 | 3.207 | 3.162 | 2.997 | 3.167 |
| Nomad | 4.433 | 4.284 | 3.596 | 3.569 | 3.971 |
| Rhizoma | 3.569 | 4.528 | 3.990 | 5.038 | 4.281 |
| NK919 | 4.112 | 4.128 | 3.771 | 4.311 | 4.081 |
| Uinta | 3.187 | 3.847 | 3.228 | 3.835 | 3.524 |

Appendix Table No. 29

Yield of Air Dry Forage in Tons Per Acre for Seventeen
Alfalfa Varieties Grown at the Alfalfa Location of
the Central Oregon Experiment Station - 1967

Second Cutting by Replicate

| Variety | Tons Per Acre Air Dry Forage | | | | Average |
|--------------|------------------------------|----------|------------------|-------|---------|
| | I | By II | Replicate III | IV | |
| Ladak | 3.182 | 2.109 | 2.705 | 2.897 | 2.723 |
| Narragansett | 3.391 | 2.586 | 2.685 | 2.376 | 2.760 |
| Ranger | 2.036 | 3.070 | 2.484 | 3.133 | 2.681 |
| Teton | 2.494 | 2.416 | 2.937 | 2.366 | 2.553 |
| Rambler | 2.544 | 2.617 | 2.798 | 2.646 | 2.651 |
| Cayuga | 2.939 | 2.637 | 3.062 | 3.137 | 2.944 |
| Alfa | 2.568 | 2.551 | 3.762 | 3.249 | 3.033 |
| Atlantic | 2.780 | 3.116 | 2.832 | 2.917 | 2.911 |
| Lahontan | 1.720 | 2.413 | 2.885 | 3.663 | 2.670 |
| Vernal | 2.849 | 2.212 | 3.140 | 3.193 | 2.849 |
| Cody | 3.017 | 2.502 | 3.319 | 2.690 | 2.882 |
| Sevelra | 3.008 | 2.879 | 3.268 | 3.041 | 3.049 |
| Du Puits | 3.009 | 2.907 | 3.538 | 2.465 | 2.980 |
| Nomad | 2.735 | 2.779 | 2.185 | 3.158 | 2.714 |
| Rhizoma | 2.427 | 3.075 | 2.799 | 2.357 | 2.665 |
| NK919 | 3.378 | 2.675 | 3.254 | 2.815 | 3.031 |
| Uinta | 2.678 | 2.598 | 2.790 | 3.101 | 2.792 |

Appendix Table No. 30

Yield of Air Dry Forage in Tons Per Acre for Seventeen
Alfalfa Varieties Grown at the Alfalfa Location of
the Central Oregon Experiment Station - 1967

Third Cutting by Replicate

| Variety | Tons Per Acre | | | Air Dry Forage IV | Average |
|--------------|---------------|----------|------------------|----------------------|---------|
| | I | By II | Replicate III | | |
| Ladak | 1.134 | .878 | .822 | 1.071 | .98 |
| Narragansett | 1.878 | 1.535 | 1.404 | 1.585 | 1.60 |
| Ranger | 1.706 | 1.436 | 1.333 | 1.717 | 1.55 |
| Teton | 1.299 | 1.114 | 1.228 | 1.495 | 1.28 |
| Rambler | .826 | 1.091 | 1.128 | .847 | .97 |
| Cayuga | 1.731 | 2.043 | 1.692 | 1.749 | 1.80 |
| Alfa | 1.724 | 1.399 | 2.064 | 1.862 | 1.76 |
| Atlantic | 1.557 | 1.603 | 1.348 | 1.723 | 1.56 |
| Lahontan | 1.664 | 1.509 | 1.576 | 1.495 | 1.56 |
| Vernal | 1.509 | 1.694 | 1.484 | 1.684 | 1.59 |
| Cody | 1.474 | 1.699 | 1.763 | 1.520 | 1.61 |
| Sevelra | 1.579 | 1.537 | 1.857 | 1.655 | 1.66 |
| Du Puits | 1.970 | 1.768 | 1.721 | 1.391 | 1.71 |
| Nomad | 1.581 | 1.525 | 1.460 | 1.826 | 1.60 |
| Rhizoma | 1.365 | 1.238 | 1.232 | 1.400 | 1.31 |
| NK919 | 1.869 | 1.675 | 1.703 | 1.680 | 1.73 |
| Uinta | 1.636 | 1.943 | 1.555 | 1.798 | 1.73 |

Appendix Table No. 31

Yield of Air Dry Forage in Tons Per Acre for Twenty
Alfalfa Varieties Grown at the Redmond Location
Central Oregon Experiment Station - 1967

First Cutting by Replicate

| Variety | Tons Per Acre / Air Dry Forage | | | | Average |
|--------------|--------------------------------|-----------------------|------------------------|-----------------------|---------|
| | Yield by Replicate I | Yield by Replicate II | Yield by Replicate III | Yield by Replicate IV | |
| Uinta | 3.189 | 3.154 | 3.774 | 4.285 | 3.601 |
| Teton | 3.469 | 3.221 | 4.765 | 3.971 | 3.857 |
| Cayuga | 3.311 | 2.893 | 3.170 | 4.399 | 3.443 |
| Vernal | 3.985 | 3.372 | 4.172 | 4.024 | 3.888 |
| Du Puits | 3.419 | 2.702 | 4.225 | 3.661 | 3.502 |
| Alfa | 3.566 | 2.793 | 4.009 | 3.778 | 3.537 |
| Rambler | 3.163 | 3.704 | 3.796 | 3.846 | 3.627 |
| Ladak | 3.063 | 3.880 | 4.468 | 4.217 | 3.907 |
| Narragansett | 2.828 | 3.315 | 3.814 | 3.735 | 3.423 |
| Atlantic | 2.384 | 2.381 | 4.163 | 4.135 | 3.266 |
| Sevelra | 2.945 | 2.123 | 4.512 | 4.414 | 3.499 |
| Lahontan | 2.051 | 1.529 | 2.915 | 3.210 | 2.426 |
| Ranger | 2.795 | 2.875 | 4.315 | 5.586 | 3.893 |
| NK919 | 3.325 | 2.352 | 3.837 | 3.421 | 3.234 |
| Rhizoma | 2.838 | 3.240 | 4.137 | 3.687 | 3.476 |
| Nomad | 3.877 | 4.365 | 4.955 | 3.794 | 4.248 |
| Orestan | 3.141 | 2.348 | 3.923 | 3.471 | 3.221 |
| Cody | 3.141 | 2.668 | 4.184 | 3.481 | 3.369 |
| Socheville | 2.200 | 2.397 | 2.266 | 2.701 | 2.391 |
| Talent | 2.397 | 3.044 | 2.800 | 2.391 | 2.658 |

Appendix Table No. 32

Yield of Air Dry Forage in Tons Per Acre for Twenty
Alfalfa Varieties Grown at the Redmond Location
Central Oregon Experiment Station - 1967

Second Cutting by Replicate

| Variety | Tons Per Acre Air Dry Forage | | | | Average |
|--------------|------------------------------|----------|------------------|-------|---------|
| | I | By II | Replicate III | IV | |
| Uinta | 2.503 | 3.049 | 1.835 | 1.990 | 2.344 |
| Teton | 2.786 | 1.916 | 2.265 | 2.198 | 2.291 |
| Cayuga | 2.951 | 2.512 | 3.485 | 2.057 | 2.751 |
| Vernal | 2.245 | 1.960 | 2.927 | 2.173 | 2.326 |
| Du Puits | 3.352 | 2.346 | 2.119 | 2.710 | 2.632 |
| Alfa | 2.797 | 2.155 | 2.295 | 2.235 | 2.371 |
| Rambler | 2.501 | 1.261 | 2.049 | 2.393 | 2.051 |
| Ladak | 2.835 | 2.647 | 2.198 | 2.473 | 2.538 |
| Narragansett | 2.987 | 2.243 | 2.083 | 2.747 | 2.515 |
| Atlantic | 2.237 | 2.678 | 2.279 | 2.140 | 2.334 |
| Sevelra | 2.625 | 2.276 | 1.959 | 2.194 | 2.264 |
| Lahontan | 1.750 | 1.569 | 2.062 | 1.076 | 1.614 |
| Ranger | 2.855 | 2.243 | 2.242 | 2.114 | 2.365 |
| NK919 | 2.121 | 1.915 | 1.760 | 2.584 | 2.095 |
| Rhizoma | 2.085 | 2.410 | 2.070 | 2.922 | 2.372 |
| Nomad | 2.503 | 1.947 | 2.010 | 2.277 | 2.184 |
| Orestan | 2.318 | 2.051 | 2.994 | 2.445 | 2.452 |
| Cody | 2.177 | 1.409 | 2.532 | 2.544 | 2.166 |
| Socheville | 1.699 | 1.859 | 2.107 | 2.261 | 1.991 |
| Talent | 1.732 | 2.460 | 2.000 | 1.938 | 2.033 |

Appendix Table No. 33

Yield of Air Dry Forage in Tons Per Acre for Twenty
Alfalfa Varieties Grown at the Redmond Location
Central Oregon Experiment Station - 1967

Third Cutting by Replicate

| Variety | Tons Per Acre | | Air Dry Forage | | Average |
|--------------|---------------|----------|-----------------------|----------|---------|
| | I | By II | By Replicate II | By IV | |
| Uinta | 1.132 | 1.777 | 1.293 | .790 | 1.248 |
| Teton | 1.006 | .923 | .985 | .773 | .922 |
| Cayuga | .951 | 2.058 | 1.465 | 1.277 | 1.438 |
| Vernal | 1.363 | 1.109 | 1.340 | 1.068 | 1.345 |
| Du Puits | 1.931 | 1.467 | 1.314 | .925 | 1.409 |
| Alfa | 1.888 | 1.501 | .914 | .948 | 1.313 |
| Rambler | 1.394 | .900 | .924 | .931 | 1.037 |
| Ladak | 1.902 | 1.292 | .960 | 1.254 | 1.352 |
| Narragansett | 1.743 | 1.189 | .975 | 1.235 | 1.286 |
| Atlantic | 1.717 | 1.657 | 1.325 | 1.207 | 1.477 |
| Sevelra | 1.527 | 1.292 | 1.010 | 1.165 | 1.249 |
| Lahontan | 1.355 | .853 | .750 | 1.014 | 1.118 |
| Ranger | 1.636 | 1.628 | 1.199 | 1.267 | 1.433 |
| NK919 | 1.890 | 1.772 | 1.129 | 1.335 | 1.532 |
| Rhizoma | 1.393 | .681 | .993 | 1.010 | 1.019 |
| Nomad | 1.502 | .846 | 1.143 | .972 | 1.116 |
| Orestan | 1.259 | 1.247 | 1.149 | .950 | 1.151 |
| Cody | 1.227 | 1.087 | 1.336 | 1.251 | 1.225 |
| Socheville | 1.281 | 1.186 | 1.057 | .822 | 1.087 |
| Talet | 1.439 | 1.385 | 1.392 | 1.119 | 1.334 |