

SMALL GRAINS RESEARCH IN SPRING WHEAT

INTRODUCTION:

All nurseries were grown in four row plots, replicated four times. Yields were secured by harvesting center rows or 16 square feet. All station nurseries were grown under dryland conditions. Two off station nurseries were grown under irrigation and one was not.

RESULTS AND DISCUSSION:

Advanced Yield Nursery - Moran was the highest yielding variety in this nursery in 1967, however when analyzed statistically none of the varieties were found to be significant. The rather high C.V. can be accounted for in part, by uneven stands due to a high infestation of wireworm during the growing season. No stripe rust readings were made in 1967 in this nursery. The average yield in the nursery was 55.9 bushels per acre, which was some ten bushels less than last year. This can be accounted for by the four inches below normal rainfall during the growing season. See Table 1.

Western Regional White Wheat Nursery - Yields were found to be significant using Idaed 59 as a check. Aberdeen selection 0006 and C.I. 13981 were both significantly better in yield than the check, with 77.7 and 71.5 bushels respectively. Test weights were below average for most varieties in the nursery. It is interesting to note that the mean yield for the nursery this year and the 1966 nursery are identical. This year there was four inches less rainfall during the growing period. Perhaps this difference can be accounted for by the low incidence of stripe rust in 1966 vs 1967. See Table 2.

Smut Dwarf Yield Nursery - No significant difference was found in this yield nursery. Considerable toll of plant population was taken by wireworm infestation. The highest yielding variety in the nursery was 87.2 bushels per acre with an overall mean of 73.4 bushels per acre. This nursery was grown primarily to test several semi-dwarf varieties being developed by F. H. McNeal, spring wheat breeder, Bozeman, Montana. Table 3.

Off Station Nurseries -

Missoula County - The Missoula County nursery was grown on the A. D. Neilson farm near Frenchtown, Montana. It was grown under irrigation and excellent growing conditions prevailed for this nursery. Mean yield of the nursery is 41.4, no significant differences were found in the yield of varieties. However, Aberdeen selection, C.I. 13977 was the highest yielding entry in this nursery. See Table 4 for complete data.

Ravalli County - The nursery grown in Ravalli County was on the Western Montana Branch Station, but was not harvested because of the severe bird damage that occurred during the heading and maturing portion of the season. Therefore, it was felt that the data that would be secured would be unreliable.

Spring Wheat (con't)

Lake County - This nursery grown in Lake County was on the James Fleming farm in a relatively good location, however during the growing season it was found that the nursery was located in a severe infestation of Canada thistle. They were controlled. The nursery was not irrigated as arranged, therefore the yields were very low. The highest yielding variety in the nursery is Idead 59, a soft white wheat. Stripe rust was no problem in the nursery. The mean for the nursery is 11.1. Table 5 gives complete data.

In Table 6 there is a summary of the dryland, hard red spring wheat nursery grown at the Northwestern Montana Branch Station. Making a comparison, 250-17 x TLT₂ x B52-91 MT 6610 is 123% of Sheridan, 106% of Thatcher, 104% of Centana, so it does have a potential in this area. However, this is only two years data. Before making a decision additional data should be obtained.

Table 7 is a ten year summary of the western regional white spring wheat nurseries. Based on the percentage of Idead 59, Aberdeen selection 0006 seems to show the most promise in the nursery this year.

SUMMARY AND CONCLUSION:

Fortuna, yield wise, seems to show promise as a yielding variety in Western Montana. After four years study, however it is severe on lodging, but not anymore severe than Sheridan. MT 6610, shows considerable promise as good stripe rust resistance and fairly good straw and maybe a potential for agronomic characteristics here in Western Montana.

C.I. 13979 yields 119% of Idead 59 and also C.I. 13979 has good stripe rust resistance and is relatively early. It is only a day later in heading than Idead 59. This should make it acceptable in Western Montana.

Table 1. Agronomic data from the spring wheat advanced yield nursery grown at the Northwestern Montana Branch Station in 1967. Experimental design - RB, four replications. Field No. Y6

Date Seeded: May 3, 1967 Harvest Date: September 5, 1967 Size of Plot: 16 sq. ft.

| Variety | C. I. Number | Yield Bu/A. | Weight Lbs/Bu | Height Inches | Heading Date | Lodging | |
|--------------------------|-----------------|----------------|------------------|------------------|-----------------|---------|--------|
| | | | | | | Prev. | Sever. |
| Moran | 13743 | 67.57 | 59.6 | 41 | 7/11 | 34 | 4 |
| B52-91 x K338-Lee | 6623 | 65.80 | 59.5 | 40 | 7/ 3 | 16 | 3 |
| B52-91 x B60-40 | 6661 | 65.32 | 59.8 | 40 | 7/ 3 | 25 | 3 |
| Wells | 13333 | 62.82 | 63.0 | 40 | 7/ 8 | 50 | 4 |
| B52-91 x KF-Cnt | 6617 | 62.25 | 58.6 | 39 | 7/ 4 | 11 | 3 |
| Thatcher | 10003 | 60.62 | 60.4 | 40 | 7/ 5 | 35 | 4 |
| 3718-6-8 x B52-91 | 6646 | 59.02 | 59.8 | 43 | 7/ 7 | 9 | 2 |
| 3718-6-8 x B52-91 | 6647 | 58.05 | 62.0 | 41 | 7/ 4 | 19 | 3 |
| Leeds | 13768 | 58.05 | 62.0 | 41 | 7/ 5 | 13 | 3 |
| B52-91 x K338-Lee | 6621 | 57.87 | 60.0 | 41 | 7/ 5 | 5 | 2 |
| II-50-17 x Plt 2x B52-91 | 6610 | 57.77 | 57.8 | 40 | 7/ 5 | 21 | 3 |
| Manitou, R. L. 4159 | 13775 | 57.47 | 58.8 | 40 | 7/ 6 | 46 | 3 |
| B52-91 x K338-Lee | 6620 | 56.77 | 58.5 | 42 | 7/ 3 | 20 | 3 |
| B52-91 x KF-Cnt | 6619 | 56.52 | 59.5 | 41 | 7/ 9 | 19 | 3 |
| B52-91 x KF-Cnt | 6618 | 56.37 | 60.0 | 40 | 7/ 5 | 9 | 3 |
| Fortuna | 13596 | 56.37 | 61.2 | 38 | 7/ 5 | 65 | 3 |
| Sheridan | 13586 | 54.50 | 59.5 | 42 | 7/ 8 | 23 | 3 |
| Centana | 12974 | 54.45 | 59.8 | 43 | 7/ 9 | 26 | 4 |
| K338 x Conley | 661 | 54.40 | 61.0 | 40 | 7/ 7 | 25 | 2 |
| KF-Cnt x B52-91 | 6634 | 54.07 | 56.4 | 39 | 7/ 4 | 5 | 2 |
| (NRN10-BVR14 x TCLx 498 | 647 | 52.70 | 57.6 | 38 | 7/ 3 | 5 | 3 |
| II-50-72 x2 M2824 | 13773 | 52.27 | 61.2 | 41 | 7/ 9 | 20 | 2 |
| Lakota | 13335 | 52.10 | 59.9 | 40 | 7/ 8 | 46 | 4 |
| Ceres | 6900 | 51.07 | 61.2 | 44 | 7/ 8 | 36 | 3 |
| B50-18 x RSC 2x B52-91 | 6678 | 50.87 | 61.6 | 40 | 7/ 5 | 13 | 3 |
| Chris, 525-1 | 13751 | 50.62 | 59.8 | 41 | 7/ 7 | 33 | 3 |
| Rescue | 12435 | 49.67 | 57.5 | 43 | 7/ 9 | 56 | 5 |
| 5244 x B59-3 | 6640 | 48.77 | 61.3 | 42 | 7/ 8 | 21 | 3 |
| Grim | 13465 | 47.90 | 59.7 | 41 | 7/ 5 | 13 | 3 |
| Sawtana | 13304 | 46.62 | 59.0 | 44 | 7/10 | 40 | 4 |

NOTE: Centana used as a check in this nursery

Table 1. (con't)

| Source | Analysis of Variance | | F. |
|--------------|----------------------|-------------|-------|
| | D.F. | Mean Square | |
| Replications | 3 | 5522.8 | 63.21 |
| Varieties | 29 | 114.1 | N.S. |
| Error | 87 | 87.3 | |
| Total | 119 | | |

| | |
|----------------------|------|
| \bar{x} | 55.9 |
| S.E. \bar{x} | 4.6 |
| L.S.D.(.05).. | N.S. |
| C.V.%..... | 8.35 |

Table 2. Agronomic data from the western regional white wheat nursery grown at the Northwestern Montana Branch Station in 1967. Experimental design - RB, four replications, Field No. Y6.

Date Seeded: May 3, 1967 Harvest Date: September 5, 1967 Size of Plot: 16 sq. ft.

| Variety | C.I. Number | Yield Bu/A. | Weight Lbs/Bu | Height Inches | Heading Date | Lodging | |
|--------------------------|----------------|----------------|------------------|------------------|-----------------|---------|--------|
| | | | | | | Prev. | Sever. |
| Aberdeen Selection | 0006 | 77.72* | 58.5 | 34 | 7/10 | 26 | 3 |
| Lemhi 62 x CI 13636 | 13981 | 71.47* | 57.4 | 38 | 7/ 9 | 19 | 3 |
| Lee x NO 58-TC A6119S-46 | 13979 | 67.40 | 59.4 | 36 | 7/ 6 | 31 | 3 |
| Idaed x Burt, 30-2 | 13742 | 66.90 | 60.3 | 34 | 7/ 6 | 11 | 2 |
| Lemhi 62 x2 Idaed | 13982 | 66.42 | 58.9 | 40 | 7/ 5 | 20 | 3 |
| Moran | 13743 | 65.37 | 59.2 | 37 | 7/10 | 58 | 3 |
| Premier x2 FR 2x5 Idaed | 13984 | 64.32 | 60.6 | 37 | 7/ 5 | 20 | 3 |
| Sv x Lee 2x N10-B 3x Ut | 256002 | 63.30 | 55.6 | 30 | 7/14 | 10 | 3 |
| Premier x2 Fr 2x5 Idaed | 13983 | 60.97 | 58.9 | 36 | 7/ 4 | 19 | 3 |
| Baart | 1697 | 60.85 | 59.7 | 43 | 7/10 | 83 | 5 |
| Ramona 50 | 5009 | 60.27 | 56.8 | 40 | 7/ 4 | 14 | 3 |
| Sv x Lee 2x N10-B 3x Ut | 256001 | 59.90 | 57.8 | 32 | 7/11 | 10 | 2 |
| Idaed 59 | 13631 | 59.57 | 60.5 | 35 | 7/ 5 | 19 | 3 |
| Thatcher | 10003 | 57.35 | 58.0 | 39 | 7/ 7 | 18 | 3 |
| Lemhi 66 | 13969 | 57.22 | 56.7 | 41 | 7/13 | 11 | 2 |
| Eureka-Lemhi x3 Idaed | 13980 | 56.62 | 56.7 | 41 | 7/ 5 | 13 | 3 |
| Idaed x Burt, Sel. 111-1 | 671 | 55.62 | 59.3 | 33 | 7/10 | 13 | 3 |