

TITLE: Spring Wheat

PROJECT: Small Grains Investigation MS 756

YEAR: 1977

PERSONNEL: Leader - Vern R. Stewart  
 Research Technician - Nancy Campbell  
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 Cooperating Agencies - Montana Agricultural Experiment Station  
 Field Crops Branch ARS USDA  
 Montana Research and Marketing Committee

OBJECTIVES:

1. To determine the adaptability of new and introduced spring wheat varieties and selections.
2. To study the semi-dwarf strains of spring wheat for use under irrigated conditions.
3. To aid in the basic genetic research program in spring wheat.

DURATION: Indefinite

1977 EXPERIMENTS:

1. Advanced Yield Nursery, dryland
2. Western Regional Spring Wheat Nursery, dryland
3. Private Varieties Nursery, dryland

1977 RESULTS BY NURSERY:

Advanced Yield Nursery

In spite of the lower than normal rainfall during the crop year 1976-77 spring wheat yields were near average. The highest yielding entry in the nursery was MT 7646 at 90.75 bu/a. The durum variety Rolette was the lowest yielding variety. Newana was used as the check variety. There were no varieties that exceeded it in yield, but several were significantly less. Test weights were considerably below normal. This could be due in part to rainfall during the harvest period. Heading dates are crucial as regards spring wheat in western Montana. Even with an early seeding date we did not get this material harvested at an early date. Borah is one of the earlier maturing varieties, whereas Newana is one of the later maturing varieties in this test. Lodging was not a significant factor in this nursery. CV's are low in this test. The nursery was harvested with the Hegi combine. Lodging CV's were about what we would anticipate. Table 1.

Table 2, is a ten year summary of varieties grown in the Advanced Yield Nursery grown at the Northwestern Agricultural Research Center. Thatcher is the check variety. We find most of the varieties currently grown do exceed Thatcher in yield. Percentages up to 40% superior in yield are shown, however some are for only one year. Newana is 33% greater in yield than Thatcher and Borah is 39%.

Western Regional White Wheat Nursery

The mean yield for this nursery was 89.7 bu/a. Borah which was used as the check variety was 89.58 bu/a which is less than the average. ID 130 was the only variety that was significantly higher in yield than Borah. Test weights were fair to poor throughout the test. One line ID 132, a soft white variety, had a test weight of 60 lbs/bu, which was the highest in the test. Heading dates are late in the soft white wheats. ID 130 has a relatively early heading date, but six days later than Borah which is the earliest in the study. Lodging was not a major factor in this nursery. Table 3.

### Spring Wheat (con't)

Table 4 gives a summary of the Regional Spring Wheat Nursery yields with Borah as the check. Those that have been under test three or more years only Fieldwin exceeds the check.

#### Private Variety Nursery

The mean for this nursery was 84.53 bu/a. The highest yielding entry Newana, 97.71 bu/a, is also the check variety. There were five varieties that were significantly lower in yield than Newana. Prodam was relatively close in yield to Newana. Test weights were below standard. This is probably due to rain. Heading dates are 174 to 179 days following January 1, which are somewhat late. Lodging was not a significant factor. Table 5.

All of the above nurseries were free of leaf diseases in 1977.

Table 5. Agronomic data from the Private Variety Nursery grown on the Northwestern Agricultural Research Center, Kalispell, MT in 1977. Field No. Y-7. Random block design, four replications.

Seeding Date: April 14, 1977 Harvest Date: September 12, 1977  
Size of Plot: 16 sq. ft.

C.I. or State No.	Variety	Yield bu/a	Test Wt. lbs/bu	Heading Date	Lodging	
					%	Sev.
CI 17430	Newana, MT 7156 <sup>1/</sup>	97.71	59.50	177.00	32.25	2.00
MT 34	Prodax	96.46	56.60	174.50b	15.00	3.00
NA 18374	NHS 183-74	96.28	57.20	171.25b	34.75	2.00
WS 25	World Seeds 25	95.73	58.30	173.75b	12.50	2.50
NA 712	6WA-712 Early	94.03	58.50	174.50b	27.50	4.50a
NK 5512	75 V 55-12	92.41	57.40	177.25	42.50	4.75a
CI 13986	Era	91.46	58.00	177.75	27.50	4.00a
CE 1024	Cebeco 1024	90.85	58.60	179.50a	17.50	4.50a
WS 54	MP-54B	82.18b	58.40	174.75b	45.00	4.75a
NK 5511	75S55-11	79.60b	58.50	174.75b	32.25	2.25
CI 13596	Fortuna	76.35b	57.40	174.50b	65.00	5.25a
CI 10003	Thatcher	71.87b	56.20	173.75b	55.00	5.50a
WS 3	WS-3	33.99b	54.00	173.25b	79.25a	1.50
	$\bar{x}_2$	84.53	57.58	175.12	37.38	3.58
	F <sub>2</sub>	20.08**	-	22.38**	1.69	5.01**
	S.E. $\bar{x}$	3.88	-	.46	15.19	.63
	L.S.D. (.05)	11.15	-	1.33	43.60	1.80
	C.V. %	4.59	-	.26	40.63	17.54

<sup>1/</sup> Check variety

<sup>2/</sup> Value for variety comparison

\* Indicates statistical significance at the .05 level

\*\* Indicates statistical significance at the .01 level

a/ Value significantly greater than the check .05

b/ Value significantly less than the check .05