

TITLE: Spring Wheat
PROJECT: Small Grains Investigation MS 756
YEAR: 1975
PERSONNEL: Leader - Vern R. Stewart
 Research Technician - Nancy Campbell
 Cooperators - F. H. McNeal and M. A. Berg
 Cooperating Agencies - Montana Agricultural Experiment Station
 Field Crops Branch, ARS, USDA
 Montana Wheat Research & Marketing Committee

OBJECTIVES:

1. To determine the adaptability of new introduced spring wheat varieties and selections by comparisons with recommended varieties.
2. Study the semi-dwarf strains of spring wheat for use under irrigated conditions.
3. To aid in basic genetic research in spring wheat and the overall breeding program.

1975 EXPERIMENTS:

1. Advanced Yield Nursery (dryland)
2. Western Regional Spring Wheat Nursery (dryland)
3. Private Variety Nursery (dryland)
4. Flag Leaf Nursery (dryland)

1975 RESULTS BY NURSERY:

Advanced Yield Nursery - The mean yield for the nursery was 78.45 bu/a, which is less than the 1974 mean of 89.44 bu/a. Six entries had yields significantly greater than the check, Norana. No entries had yields significantly less than Norana. Test weights were low this year, some germination had occurred prior to harvesting. MT 749, the highest yielder, and MT 7340 had the highest test weights of 60.0 lbs/bu. Many entries had heading dates significantly earlier than Norana. Lodging was fairly severe this year with a mean lodging severity of 6.02 compared with 3.07 last year. Rainy weather prior to harvest accentuated these conditions. No entries were significantly greater than Norana, but four had lodging severity's significantly less than Norana. Leaf and stripe rust readings tend to be lower this year than last. Table 1.

In the ten year summary only one variety, MT 741, has yielded less than the check, Thatcher. All the other varieties have outyielded Thatcher. Table 2.

Western Regional Spring Wheat Nursery - Yields tend to be lower this year than last year. Twenty varieties had yields significantly less than the check, Fielder. No varieties were significantly greater than Fielder. There were 16 soft white, 1 hard white and 11 hard red varieties. In comparing the red and white varieties, it was found that the reds average yield was higher than the white; 81.75 bu/a and 73.45 bu/a respectively. Test weights for all varieties were low, some germination had occurred prior to harvest. The mean test weight was 53.62. Lodging severity readings were more critical this year. The lodging severity mean last year was 4.33 compared to 6.91 this year. The rainy conditions before harvest helped increase the amount of lodging. Five entries had lodging severities significantly less than Fielder. Table 3.

In the summary of yields over several years Fielder was used as a check. No variety had a higher yield average than Fielder. Table 4.

Spring Wheat (con't)

Private Variety Nursery - This nursery contains lines and varieties developed by commercial companies which were compared to several established varieties used as checks. Norana was used as a check for statistical purposes. Only one variety, MT 41 a private entry, was significantly greater in yield than Norana. Test weights were low in all entries with Profit 75 having the highest at 58.80 lbs/bu. There was some germination prior to harvest. Table 5.

Flag Leaf Nursery - This nursery will be included in the Wheat Report as pertains to its significance. Dr. F. H. McNeal will write this report. Table 6 shows agronomic data collected for this study.

Table 5. Agronomic data from the private variety nursery grown at Kalispell, Montana, 1975. Random block design, four replications, Field Y-5.

Date seeded: May 9, 1975 Date harvested: September 15, 1975 Size of plot: 16 sq. ft.

C.I. or State No	Variety	Yield Bu/A	Test Wt Lbs/Bu	Heading Date	Plant Height	Lodging		Leaf Rust	Stripe Rust	
						Prev.%	Sev.		Prev.%	Sev.
MT 41	RPB 10-70 SF4(N.A.M.)	97.61a	56.50	191.25b	32.75b	52.25	4.00b	1.25	.00b	.00b
MT 45	Profit 75 (W.S.)	94.71	58.80	190.50b	33.50	57.50	4.75b	.00	.00b	.00b
CI 17268	Fielder	94.43	56.40	193.25a	34.50	68.75	7.00	5.00	.00b	.00b
MT 40	74V2322(N.K.)	90.70	54.80	189.50b	31.00b	42.50	4.75b	.00	2.50	2.00
MT 43	NA-707 (N.A.M.)	87.70	54.50	190.25b	31.25b	52.50	7.50	5.00	5.00	2.25
MT 34	Prodax	86.35	53.30	191.00b	31.75b	72.50	6.50	21.25	.00b	.00b
CI 15927	Norana (MT 7042) ^{1/}	86.18	56.00	192.50	34.75	48.75	6.50	3.75	5.00	2.00
CI 13986	Era	85.80	57.70	193.00	34.00	62.50	7.50	1.25	1.25b	.50
MT 44	Bounty 309 (Cargill)	84.60	55.00	189.50b	33.25	52.50	6.25	6.25	3.75	2.25
MT 42	RPB 6-70 (N.A.M.)	81.50	56.40	189.75b	24.00b	32.25	1.75b	7.50	1.25b	.25b
MT 28	Sicco	81.03	56.80	196.25a	40.25a	72.50	7.25	60.00a	.00b	.00b
CI 13596	Fortuna	75.50b	57.50	191.25b	43.25a	85.00	6.00	.00	3.75	1.50
MT 35	N1-67	73.27b	56.00	195.75a	37.50a	85.00	7.25	80.00a	.00b	.00b
CI 10003	Thatcher	68.75b	57.20	190.00b	42.25a	62.50	5.50	62.50a	1.25b	.50
	\bar{x}	84.87	56.21	191.70	34.57	60.50	5.89	18.13	1.70	.80
	$F_{3/}$	5.65**	.00	93.35**	55.29**	1.60NS	8.51**	14.96**	2.31*	2.51*
	S.E. \bar{x}	3.51	.00	.23	.67	12.07	.56	7.14	1.27	.60
	L.S.D.(.05)	10.04	.00	.65	1.92	34.50	1.60	20.42	3.64	1.73
	C.V.%	4.14	.00	.12	1.95	19.95	9.47	39.41	75.09	75.16

^{1/} Check variety

^{2/} Value for variety comparison

* Indicates statistical significance at .05 level

** Indicates statistical significance at .01 level

a/ Values significantly greater than the check .05

b/ Values significantly less than the check .05