

TITLE: Spring Wheat
PROJECT: Small Grains Investigations 756
YEAR: 1974
PERSONNEL: Leader - Vern R. Stewart
 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.

1974 EXPERIMENTS:

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

1974 RESULTS BY NURSERY:

Advanced Yield - The mean for this nursery was 89.44 bu/acre, which is 25.44 bu/acre more than in 1973. This is due in part to the early seeding and favorable moisture early in the growing season. Using Norana as a check, Cajeme 71 was found to be significantly higher in yield. Era and Borah were about 4 bu/acre more in yield than Norana. Era had the highest test weight of all entries, however the mean for the nursery was quite high with 60.83 lbs/bu. The semi-dwarf lines out-yielded all of the tall type varieties and lines in the test. Borah was the earliest heading variety in the test. Table 1.

Table 2 is a 10 year summary of varieties grown at the Northwestern Agricultural Research Center. Thatcher is used as the check for this summary. Only two varieties yield less than Thatcher. All other varieties exceed the variety Thatcher. Other comparisons can be made from this table.

Western Regional Spring Wheat - Twenty-seven entries were grown in this nursery. There were 12 soft white, 2 hard white, 10 hard red and 3 which were unclassified. Twin, the variety recommended for Montana, was very severely damaged by a high level of leaf rust which resulted in a severe reduction in yield and test weight. Using Twin as a check we see many lines and varieties that are far superior in yield. The highest yielding hard red variety is ID 47, the highest yielding white variety is ID 94. Comparing the white and red types we find for the first year the mean for the hard red is higher than the white types - 97.34 bu/acre and 85.70 bu/acre respectively. Table 3.

Table 4 gives a summary of varieties grown in the Western Regional Nursery. All varieties are compared to Twin in this summary. Based on four years data Fielder is 17% higher in yield than Twin.

Private Varieties - This nursery contains lines and varieties developed by commercial companies which are compared to several varieties used as checks. Norana is used as a check for statistical purposes. The low C.V. would indicate that this is a good test. Fielder, a white variety, was significantly higher in yield than Norana. None of the private varieties were found to be significantly higher or lower in yield than Norana. Table 5.

Table 5. Agronomic data from the private variety spring wheat nursery grown at the Northwestern Agricultural Research Center, Kalispell, Field No. Y-4, 1974. Random block design, 4 replications.

Date seeded: April 23, 1974 Date harvested: September 5, 1974
 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	
						% Prev	Sev.	%	Sev.
CI 17268	Fielder	110.11a	62.70	181.50	37.25	34.75	.75	23.75	9.00
MT 34	Prodax	107.49	60.90	181.50	35.75	30.00	4.50	2.50	2.25b
MT 25	Prospur	100.98	63.30	177.00b	37.75a	99.00a	1.00	.00b	.00b
CI 15927	Norana(MT7042) ^{1/}	97.83	62.00	181.75	35.25	24.75	.25	19.00	9.00
CI 13986	Era	95.38	63.00	182.00	34.75	79.50a	3.50	.00b	.00b
CI 14588	Twin - ID0015	93.81	59.30	182.00	35.25	36.25	7.00	97.00a	9.00
MT 35	N1-67	93.51	61.00	186.75a	42.50a	62.25	3.25	57.50a	9.00
MT 24	Protor	90.60	62.40	177.25b	31.25b	24.75	.25	.00b	.00b
MT 36	RPB 9-68	90.23	58.40	187.25a	41.50a	.00	.00	43.75a	9.00
MT 29	MP-6B	87.35	62.50	180.25b	31.25b	.00	.00	.00b	.00b
MT 28	Sicco	87.23	61.00	186.25a	40.75a	83.00a	1.25	80.00a	9.00
CI 13596	Fortuna	73.55b	62.80	179.00b	43.25a	84.50a	3.50	12.50	2.25b
CI 10003	Thatcher	67.65b	61.80	177.75b	44.50a	42.50	3.00	92.25a	9.00
\bar{x}		91.98	61.62	181.56	37.77	46.25	2.17	32.94	5.19
$F_{2/}$		8.28**	.00	191.04**	37.63**	4.69**	8.76**	49.71**	23.59**
S.E. \bar{x}		4.11	.00	.25	.72	15.00	.72	5.26	.89
L.S.D. (.05)		11.81	.00	.72	2.06	43.05	2.08	15.11	2.57
C.V. %		4.47	.00	.14	1.90	32.43	33.35	15.97	17.23

1/ Check variety
 2/ Value used for variety comparison
 * Indicates statistical significance .05 level
 ** Indicates statistical significance .01 level
 a/ Values significantly greater than the check .05
 b/ Values significantly less than the check .05