

TITLE: Spring Wheat
PROJECT: Small Grains Investigation MS 756
YEAR: 1976
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 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.

1976 EXPERIMENTS:

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

1976 RESULTS BY NURSERY:

Advanced Yield Nursery - The mean yield is down this year, 65.21 bu/a as compared to last year's 78.45 bu/a. It was discovered that this field was quite low in N, therefore the usual level of N added to this nursery was inadequate for optimum yield growth. No entries had yields significantly higher than the check Norana, but eight yielded significantly lower. Many entries had heading dates significantly earlier than Norana; Lew and Wared were significantly later. As last year rainy weather conditions hindered harvest and contributed to the low test weights. Lodging severity wasn't quite as severe this year with a mean of 5.31 compared to last years 6.02. Many entries had a lodging severity significantly greater than Norana, no entries were significantly less. MT737, Rolette, and Tioga had stripe rust severity readings significantly greater than Norana, nine were significantly less. Table 1.

In the ten year summary all varieties yielded higher than Thatcher.

Table 2.

Western Regional Spring Wheat Nursery - Yields were low this year due to a low N fertility. WA6105 had a yield significantly greater than the check, Fielder; thirteen had yields significantly less. There were 15 hard red varieties and 12 soft white varieties. In comparing the red and white varieties, it was found that the "reds" mean yield was higher than the white; 65.35 bu/a and 53.22 bu/a respectively. Test weights were low due to the rainy harvest season. Table 3.

In a summary of yields over several years Fielder was used as a check. Three varieties, ID112, UT670, and UT497 with one station year of data had yields higher than Fielder. Table 4.

Private Variety Nursery - This nursery contains lines and varieties developed by commercial companies which were compared to several established varieties used as checks. Two entries, NA13374 and Profit 75, yielded significantly higher than the check, Newana; Thatcher and WS701 yielded significantly lower. Test weights were low with NK5511 having the highest at 58.60 lbs/bu. Table 5.

Table 3. Agronomic data from the Western Regional Spring Wheat Nursery grown on the Northwestern Agricultural Research Center, Kalispell MT in 1976. Field No. Y-6 (dryland). Random block design, four replications.

Date seeded: April 28, 1976 Date harvested: September 13, 1976 Size of plot: 16 sq. ft.

C.I. or State No.	Variety	Yield Bu/A	Test Wt Lbs/Bu	Heading Date	Plant Height	Lodging		Stripe Rust	
						%	Sev.	Prev %	Sev.
WA 6105	HRV/KRN//AO/HRPC/3/13730	77.63a	55.40	188.25	33.50a	82.50	5.75	2.50	.75b
WA 6158	HRV/KRN//AO/HRPC/3/13730	73.65	54.70	189.50a	35.00a	45.00	5.00b	17.50a	3.25
ID 112	TZPP/SN64//B61-136	72.92	55.10	187.25	30.75a	70.00	6.25	1.25	.50b
CI 17267	Borah	72.77	56.20	184.25b	27.75	75.00	6.75	3.75	1.75
CI 17425	Fieldwin, ID 87	71.90	55.60	190.50a	30.75a	67.50	6.00	3.75	2.00b
UT 670	UT S15 and UT S16	69.10	54.90	185.75b	30.50a	67.50	6.50	.00	.00b
UT 497	UT S15 and UT S16	68.75	56.40	185.75b	28.00	65.00	7.00	2.50	1.00b
CI 17268	Fielder	68.60	55.00	187.75	27.75	65.00	6.50	5.00	3.75
CA 70293	Inia 66/Anza	68.22	57.30	182.75b	27.25	67.50	6.00	5.00	1.75b
ID 106	Twin/Triple Dirk	66.95	50.10	189.50a	30.25a	62.50	6.50	.00	.00b
ID 107	TZPP/3*AN//B61-136	66.95	58.90	189.25	31.50a	32.50b	4.75b	1.25	.75b
WA 6108	WA5243/3/C3845/H7-536	63.95	52.10	190.75a	28.75	30.00b	5.25	.00	.00b
WA 6109	WA5243/3/C3845/H7-536	62.40	51.20	191.25a	26.75	25.00b	5.75	.00	.00b
CA 70285	Azteca 67/Anza	61.37	56.40	185.25b	25.50	50.00	5.00b	1.25	.75b
WA 6101	NRN 10/BVR11//P14/3/101	59.97b	56.00	194.25a	31.25a	12.50b	2.75b	.00	.00b
UT 4303	Utah 256-3-15-16/Delmar	59.44b	51.40	186.75b	26.25	60.00	5.25	3.75	1.75b
WA 6277	Spring Luke	59.22b	53.10	197.00a	30.50a	17.50b	3.25b	.00	.00b
CI 17424	Sawtell, ID 47	57.19b	53.40	187.25	29.00	52.50	6.25	8.75	3.50
UT 437	UT S15 & UT S16	54.52b	48.20	188.25	29.50	65.00	6.75	2.50	1.50b
WA 6276	Spring Luke	51.72b	50.70	196.25a	31.25a	35.00b	4.25b	.00	.00b
UT 517	UT S15 and UT S16	51.34b	48.10	190.75a	29.50	75.00	7.00	3.75	2.00b
ID 105	Twin*3//227196/A63166S	48.64b	47.50	190.00a	31.00a	82.50	7.75	.00	.00b
WA 6163	Norco Sel.	46.44b	53.20	195.50a	28.00	10.00b	3.00b	.00	.00b
ID 725078	Idaed 59/4*Lemhi 62	46.32b	52.40	190.25a	37.50a	87.50a	6.50	2.50	.50b
ID 104	SPF*3/3/ULKA/FR//LMH 66	40.49b	46.90	187.75	29.00	72.50	7.25	3.75	1.25b
WA 6157	N6600313/Twin	39.76b	47.20	190.00a	31.75a	75.00	7.00	.00	.00b
CI 4734	Federation	38.66b	49.80	189.25	36.75a	70.00	5.50	42.50a	6.00a
	\bar{x}	59.96	52.86	189.30	30.19	56.30	5.76	4.12	1.21
	F ² /	15.98**	.00	34.72**	11.29**	11.54**	7.78**	4.58**	8.13**
	S.E. \bar{x}	2.83	.00	.59	.87	6.61	.46	3.97	.52
	L.S.D. (.05)	7.95	.00	1.66	2.46	18.61	1.31	11.13	1.47
	C.V. %	4.71	.00	.31	2.89	11.75	8.06	96.45	42.94

1/ Check variety

2/ 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

b/ Value significantly less than the check

Table 4. Summary of the Western Regional Spring Wheat nursery grown at the Northwestern Agricultural Research Center, Kalispell, MT. 1971-76.

C.I. or State No.	Variety	1971	1972	1973	1974	1975	1976	Ave.	Sta. Yrs.	% Fielder
CI 4734	Federation	51.3	65.3	69.4	69.4	40.7	38.7	55.8	6	59
CI 17268	Fielder	106.0	93.4	94.8	108.8	95.5	68.6	94.5	6	100
CI 17267	Borah	89.2	88.3	93.1	89.5	94.4	72.8	87.9	6	93
CI 17424	Sawtell (ID 47)			94.1	107.0	89.2	57.2	86.9	4	95
ID 725078	Idaed 59/4* Lemhi 62			80.9	76.4	76.8	46.3	70.1	4	76
CI 17425	Fieldwin, ID 87				107.2	78.6	71.9	85.9	3	95
WA 6101	NRN10/BV RL1//P14/3/101					86.3	70.0	73.2	2	89
WA 6105	HRY/KRN//AO/HRPC/3/13730					83.6	77.6	80.6	2	98
ID 106	Twin/Triple Dirk					81.2	67.0	74.1	2	90
ID 107	TZPP/3*AN//B61-136					78.2	67.0	72.6	2	88
WA 6158	HRY/KRN//AO/HRPC/3/13730					75.6	73.7	74.7	2	91
ID 105	Twin*3//227196/A63166S					64.5	48.6	56.6	2	69
ID 104	SPF*3/3/ULKA/FR//LMK66					64.3	40.5	52.4	2	64
WA 6157	N6600313/Twin					54.3	39.8	47.1	2	57
ID 112	TZPP/SNG4//B61-136						72.9	72.9	1	106
UT 670	UT S15 and UT S16						69.1	69.1	1	101
UT 497	UT S15 and UT S16						68.3	68.8	1	100
CA 70293	INIA 66/ANZA						68.2	68.2	1	99
WA 6108	WA 5243/3/C3845/H7-536						64.0	64.0	1	93
WA 6109	WA 5243/3/C3845/H7-536						62.4	62.4	1	91
CA 70285	Azteca 67/ANZA						61.4	61.4	1	90
UT 4303	Utah 256-3-15-16/Delmar						59.4	59.4	1	87
WA 6277	Spring Luke						59.2	59.2	1	86
UT 437	UT S15 & UT S16						54.5	54.5	1	79
WA 6276	Spring Luke						51.7	51.7	1	75
UT 517	UT S15 and UT S16						51.3	51.3	1	75
WA 6163	Norco Sel.						46.4	46.4	1	66