

PROJECT TITLE: The effect of planting date on six hard red winter wheat varieties, yield and quality. SARC, Flycreek, Hardin. 1990.

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PROJECT LOCATION: MSU - Southern Agricultural Research Center, Huntley MT 59037

OBJECTIVES: To evaluate hard red winter wheat varieties which have been selected based on winter hardiness ratings, and for yield and quality as affected by planting date. To determine if producers need to consider variety changes if they extend the fall planting season.

RESULTS: Nineteen ninety is the 3rd and final year of the date of seeding study. The trial was planted at Flycreek in 1988, 89, and 90 and at the SARC in 1989, 1990. The results of the effects of planting date are described in Tables 1-7. While the yield and plant height showed a decrease as planting was delayed after mid-October for trials conducted in the past three years at Flycreek and the past year at Huntley, in 1990 there were no differences in yield or plant height due to planting date at Huntley (Tables 4 and 7). However, heading date was delayed at Huntley by late plantings (tables 6).

Yield and agronomic data at Flycreek in 1990 were similar to the previous two years (Tables 1, 2, 3). Delayed planting resulted in lower yields, delayed maturity and lower plant heights. In general, test weights did not appear to be affected by planting date at either site over the three year study.

SUMMARY: Data from this study will be finalized for publication in 1991. Our results to date, suggest that in general, with fall moisture limited, yields from plantings later than mid-October are significantly lower than fields planted from mid-September to mid-October. In all but one case, plant maturity and plant height were delayed by later planting. In 1990 planting date did

not affect either yield or plant height at Huntley. We feel this was due to the high level of moisture available for crop growth and production. Results of the high protein levels data from previous years also suggest that moisture was very much limiting for plant growth and production in 1988 and 1989. We do not yet have the protein data for 1990 to compare the results for the higher yields at Huntley.

FUTURE PLANS: This study has been completed and data will be analyzed for publication in 1992.

TABLE 1 . YIELD OF 7 WINTER WHEAT VARIETIES AT 7 PLANTING DATES ON DRYLAND  
AT FLYCREEK FARMS, HARDIN, MT. 1989-90 GROWING SEASON.  
SOUTHERN AG. RESEARCH CENTER, HUNTLEY, MT.

VARIETY	-----SEEDING DATE-----						
	Sept. 9	Sept.19	Sept.28	Oct.11	Oct.20	Nov. 3	Nov.20
JUDITH	30.18	27.10	33.38	26.82	27.52	27.07	22.16
NEELEY	36.44	30.16	32.05	23.91	26.85	25.64	22.64
NORSTAR	28.04	20.76	24.75	19.77	26.26	23.15	10.85
REDLAND	34.52	32.09	33.74	28.96	29.99	28.30	21.50
ROCKY	41.89	32.60	39.26	32.63	31.18	33.28	21.61
ROSE	40.83	34.82	33.83	29.66	25.03	26.73	21.29
TIBER	34.59	29.98	33.36	23.25	34.09	28.29	19.34
MEAN =	35.21	29.65	32.91	26.43	28.70	27.49	19.91

STATISTICS:

P-VALUE TRTS =	.0018	.0003	.0032	.0000	.0400	.0522	.0173
CV (S/MEAN) =	12.41	11.57	11.79	10.44	13.43	14.16	22.53
CV (SE/MEAN) =	6.205	5.785	5.893	5.222	6.716	7.078	11.27
LSD(0.05 by t)=	6.492	5.096	5.762	4.100	5.727	5.781	6.665

TABLE 2 . TEST WT OF 7 WINTER WHEAT VARIETIES AT 7 PLANTING DATES ON DRYLAND  
AT FLYCREEK FARMS, HARDIN, MT. 1989-90 GROWING SEASON.  
SOUTHERN AG. RESEARCH CENTER, HUNTLEY, MT.

VARIETY	-----SEEDING DATE-----						
	Sept. 9	Sept.19	Sept.28	Oct.11	Oct.20	Nov. 3	Nov.20
JUDITH	49.88	48.75	49.18	49.88	54.22	51.45	51.30
NEELEY	50.48	50.55	50.80	51.30	53.43	53.17	53.50
NORSTAR	56.00	55.30	56.40	55.65	53.60	56.10	55.70
REDLAND	54.40	53.30	53.60	54.38	53.38	54.58	54.25
ROCKY	55.65	54.45	54.33	54.95	55.93	56.15	55.57
ROSE	54.93	54.60	54.95	55.58	51.53	54.92	55.05
TIBER	54.70	54.10	54.20	54.38	55.47	56.83	55.13
MEAN =	53.72	53.01	53.35	53.73	53.94	54.74	54.36

STATISTICS:

P-VALUE TRTS =	.0000	.0000	.0000	.0000	.1917	.0030	.0050
CV (S/MEAN) =	1.718	1.190	1.596	1.257	4.267	3.124	2.711
CV (SE/MEAN) =	.8589	.5949	.7982	.6286	2.134	1.562	1.355
LSD(0.05 by t)=	1.371	.9370	1.265	1.003	3.419	2.540	2.189

TABLE 3. PLANT HT OF 7 WINTER WHEAT VARIETIES AT 7 PLANTING DATES ON DRYLAND  
 AT FLYCREEK FARMS, HARDIN, MT. 1989-90 GROWING SEASON.  
 SOUTHERN AG. RESEARCH CENTER, HUNTLEY, MT.

VARIETY	-----SEEDING DATE-----						
	Sept. 9	Sept.19	Sept.28	Oct.11	Oct.20	Nov. 3	Nov.20
JUDITH	38.75	35.00	39.00	33.00	34.20	30.00	30.50
NEELEY	38.00	33.75	37.25	32.00	34.75	30.00	29.00
NORSTAR	37.25	35.75	36.50	34.00	32.00	29.75	29.25
REDLAND	35.75	32.75	40.25	32.50	34.25	32.00	29.00
ROCKY	38.25	36.00	38.75	34.25	35.25	30.00	30.50
ROSE	36.75	34.75	35.25	31.25	32.75	28.75	31.00
TIBER	36.75	34.50	36.75	34.00	34.00	33.00	30.50
MEAN =	37.36	34.64	37.68	33.00	33.89	30.50	29.96

STATISTICS:

P-VALUE TRTS =	.6669	.7598	.4435	.2278	.6260	.1507	.9258
CV (S/MEAN) =	6.620	8.502	9.011	5.660	7.663	7.176	9.723
CV (SE/MEAN) =	3.310	4.251	4.506	2.830	3.831	3.588	4.862
LSD(0.05 by t)=	3.674	4.375	5.044	2.775	3.857	3.251	4.328

TABLE 4. YIELD OF 7 WINTER WHEAT VARIETIES AT 7 PLANTING DATES AT SOUTHERN AG. RESEARCH CENTER, HUNTLEY, MT. 1989-90 GROWING SEASON.

VARIETY	-----SEEDING DATE-----						
	Sept. 8	Sept.18	Sept.28	Oct.10	Oct.20	Oct.31	Nov. 9
JUDITH	46.70	42.28	42.27	47.32	47.08	47.88	48.67
NEELEY	44.95	44.28	45.15	48.30	45.93	45.90	46.72
NORSTAR	38.83	42.65	41.80	47.50	41.45	39.20	44.08
REDLAND	55.82	54.58	54.25	53.15	50.10	43.60	47.98
ROCKY	47.63	50.18	50.58	56.03	52.58	51.20	54.57
ROSE	50.85	53.50	47.08	54.83	48.50	50.67	55.60
TIBER	46.70	42.38	45.70	45.65	45.83	44.30	46.40
MEAN =	47.35	47.12	46.69	50.40	47.35	46.11	49.15

STATISTICS:

P-VALUE TRTS =	.0008	.0015	.0001	.0013	.0004	.0005	.0028
CV (S/MEAN) =	8.842	9.814	6.596	6.862	5.634	7.075	7.863
CV (SE/MEAN) =	4.421	4.907	3.298	3.431	2.817	3.537	3.931
LSD(0.05 by t)=	6.220	6.869	4.575	5.138	3.963	4.846	5.741

TABLE 5. TEST WT. OF 7 WINTER WHEAT VARIETIES AT 7 PLANTING DATES AT SOUTHERN AG. RESEARCH CENTER, HUNTLEY, MT. 1989-90 GROWING SEASON.

VARIETY	-----SEEDING DATE-----						
	Sept. 8	Sept.18	Sept.28	Oct.10	Oct.20	Oct.31	Nov. 9
JUDITH	47.78	47.15	47.55	49.23	51.30	50.28	48.85
NEELEY	51.17	50.70	50.70	52.63	52.53	52.97	50.47
NORSTAR	57.47	57.55	58.42	58.97	58.55	55.35	51.90
REDLAND	50.60	49.97	50.70	51.25	52.38	51.92	51.45
ROCKY	53.75	51.92	53.45	55.02	55.37	54.30	53.22
ROSE	55.67	55.27	55.45	57.10	55.45	55.10	55.43
TIBER	53.55	53.55	53.35	54.75	56.45	54.80	55.55
MEAN =	52.86	52.30	52.80	54.14	54.58	53.53	52.41

STATISTICS:

P-VALUE TRTS =	.0000	.0000	.0000	.0000	.0000	.0000	.0008
CV (S/MEAN) =	1.026	2.505	1.305	1.051	2.795	1.782	2.133
CV (SE/MEAN) =	.5132	1.253	.6525	.5256	1.397	.8912	1.067
LSD(0.05 by t)=	.8060	1.947	1.024	.8454	2.266	1.418	1.661

TABLE 6. HEADDATE OF 7 WINTER WHEAT VARIETIES AT 7 PLANTING DATES AT SOUTHERN AG. RESEARCH CENTER, HUNTLEY, MT. 1989-90 GROWING SEASON.

VARIETY	-----SEEDING DATE-----						
	Sept. 8	Sept.18	Sept.28	Oct.10	Oct.20	Oct.31	Nov. 9
JUDITH	155.8	156.3	158.5	159.5	160.0	162.5	164.3
NEELEY	158.0	160.5	161.3	162.3	163.8	166.0	168.0
NORSTAR	162.0	163.0	166.0	166.0	169.8	171.5	172.0
REDLAND	153.0	156.3	158.0	158.8	160.5	163.5	164.5
ROCKY	157.3	157.0	158.8	159.5	160.0	162.0	162.3
ROSE	158.3	157.3	158.8	160.5	162.3	163.8	164.5
TIBER	159.0	159.8	162.0	161.8	165.0	169.0	169.0
MEAN =	157.6	158.6	160.5	161.2	163.0	165.5	166.4

STATISTICS:

P-VALUE TRTS =	.0393	.0000	.0000	.0021	.0000	.0000	.0000
CV (S/MEAN) =	2.131	.5729	.4903	1.340	.4764	.3384	.3612
CV (SE/MEAN) =	1.065	.2865	.2452	.6701	.2382	.1692	.1806
LSD(0.05 by t)=	4.989	1.350	1.169	3.209	1.154	.8318	.8927

TABLE 7. PLANT HT. OF 7 WINTER WHEAT VARIETIES AT 7 PLANTING DATES AT SOUTHERN AG. RESEARCH CENTER, HUNTLEY, MT. 1989-90 GROWING SEASON.

VARIETY	-----SEEDING DATE-----						
	Sept. 8	Sept.18	Sept.28	Oct.10	Oct.20	Oct.31	Nov. 9
JUDITH	43.25	42.50	44.25	42.50	40.50	40.25	42.50
NEELEY	43.25	44.25	45.50	46.25	42.50	41.50	43.50
NORSTAR	45.75	48.00	50.00	50.25	48.25	46.75	47.25
REDLAND	41.75	39.75	40.50	39.75	39.50	38.25	41.00
ROCKY	43.50	44.25	45.50	46.75	42.25	43.00	45.75
ROSE	44.25	45.00	44.50	44.50	44.25	42.75	45.25
TIBER	44.50	43.50	47.00	46.00	42.75	42.50	45.75
MEAN =	43.75	43.89	45.32	45.14	42.86	42.14	44.43

STATISTICS:

P-VALUE TRTS =	.0959	.0000	.0000	.0000	.0000	.0000	.0008
CV (S/MEAN) =	3.935	3.498	3.519	2.756	3.540	3.254	3.934
CV (SE/MEAN) =	1.968	1.749	1.760	1.378	1.770	1.627	1.967
LSD(0.05 by t)=	2.558	2.281	2.369	1.848	2.254	2.037	2.597