

Title: Off-Station winter wheat variety evaluations in the Western Triangle Area.

Year: 1998

Location: Western Triangle Research Center, Conrad, MT.

Personnel: Gregory D. Kushnak and Ron Thaut, Research Center, Conrad; and Dr. Phil Bruckner, MSU Dept Plant, Soil & Environ Sci.

Establishment of off-station winter wheat variety trials was unsuccessful due to dry fall conditions except at the Knees east of Brady, where moisture was barely enough to produce a stand. Crop growth in the spring was under moisture stress for a considerable time, causing plant heights to be much shorter than average for that location. Above average rainfall occurred in late June and July allowed crop recovery for very good yields and test weights.

Results: Sawfly wasps and larval infestation were abundant, but stem cutting was minimal, as was the case for the on-station nurseries at Conrad. Stem examination at Conrad indicated that most of the sawfly larvae were parasitized. However, the early-season moisture stress at the Knees may also have contributed to sawfly-larva mortality.

The sawfly resistant varieties Vanguard and Rampart yielded about 8% less than Rocky (Table 1). If sawfly larvae had survived, the yield differences between Rocky, Vanguard and Rampart would probably have been less. In previous years of severe stem cutting due to sawfly, Vanguard and Rampart yields were equal to Rocky at this location.

MT 9432 had higher yield, test weight and protein than Tiber (Table 1). MT 9432 is a white-chaffed, hard-red line from a Tiber/Nuwest cross, and will be considered for release as a replacement for Tiber. The line may also have potential for less dormancy problems than Tiber.

Future Plans: Continue winter wheat variety tests at the Knees area in efforts to identify sawfly resistant varieties that are superior to Vanguard and Rampart, including evaluation of hollow-stemmed sawfly resistant lines (MTS9719 and MTS9720).

Table 1. **Dryland Winter Wheat variety trial grown near the Knees, 1998. Mont. Agr. Expt. Station, Western Triangle Ag. Res. Center, Conrad, MT.**

Variety	Yield bu/ac	Test wt. lbs/bu.	Plant hgt. inches	Spring survival class 1/	% protein
QUANTUM 542	59.1	62.7	25	3	14.0
MT 9432	51.3	62.5	25		15.0
JUDITH	50.1	61.6	27	3	14.7
MT9514	50.1	61.9	27		13.1
MANNING	49.7	62.2	26	2	13.3
NEELEY	49.7	60.9	25	3	13.5
ROCKY	49.1	63.0	23	2	14.0
TIBER	48.8	62.6	24	3	14.1
NUWEST *	48.6	61.8	24	3	14.9
PROMONTORY	48.4	63.1	24	2	13.5
ALLIANCE	48.0	62.1	21	3	14.0
MTW9441	47.4	61.8	25		14.9
KESTREL	47.4	61.0	27	5	13.5
PRONGHORN	47.0	61.9	24		15.1
VANGUARD **	46.1	61.8	23	1.5	14.6
MT9524	45.7	62.6	24		14.6
RAMPART **	45.5	61.5	24	1.5	14.4
NORSTAR	44.2	62.2	29	5	14.3
ELKHORN	43.1	61.4	25	4	14.7
REDWIN	42.1	61.6	25	3	14.8
BIGHORN	41.7	62.0	22	3	14.7
HALT	41.4	62.6	20	2	15.1
ERHARDT	40.9	62.2	24	4	15.6
MCGUIRE	39.3	61.8	22	3	16.0

Cooperator: Dan Picard.

Location: Thirty miles east of Brady, Chouteau County.

Fertilizer: 100# 11-51-0 with the seed, + 60# N AA-N.

Rainfall: April 28 to harvest = 5.15 inches.

Previous crop: Fallow.

Date seeded: Sept. 22, 1997.

Date harvested: Aug. 5, 1998.

1/ = Spring survival class: 5=best; 1=very low; based on several location-years of observation.

Yield exp. mean: 46.86 Error degrees of freedom: 46.

F test for var. = 2.86, C.V. 2 = 5.4, LSD (0.05) = 7.2

* = Hard white wheat.

** = Sawfly resistant variety.

Table 2. Five-year summary on dryland Winter Wheat varieties grown near the Knees. 1991 - 1993 - 1996 - 1997 - 1998. Mont. Agr. Expt. Sta., Western Triangle Ag. Research Center, Conrad, MT.

Variety	5 - year comparable average			
	Yield bu/ac	Test wt. lbs/bu.	Plant hgt. inches	% Protein
ROCKY	50.6	60.5	32	13.3
VANGUARD	** 47.7	59.4	30	14.1
TIBER	46.9	60.0	31	13.6
QUANTUM 542	46.9	59.7	33	13.4
RAMPART	** 46.5	59.5	31	14.1
NUWEST	* 43.9	58.8	31	14.0
KESTREL	42.4	58.0	35	13.1
NEELEY	41.8	58.6	31	13.2
BIGHORN	41.0	59.9	27	13.7
JUDITH	39.9	58.1	32	14.2
REDWIN	39.6	58.8	31	14.4
MCGUIRE	38.8	59.3	29	14.9
ERHARDT	37.8	59.0	29	15.0
PROMONTORY	36.7	60.4	31	13.1
MANNING	36.4	57.9	31	13.2
NORSTAR	36.3	59.2	37	14.3

Cooperator: Dan Picard.

Location: Thirty miles east of Brady. (Chouteau County)

** = Sawfly resistant varieties.

* = Hard white wheat, (MT 7811).

Several years of data were under heavy infestation of saw flies.