PROJECT TITLE: Evaluation of winter wheat lines for sawfly resistance and agronomic performance near Moore, Montana.

PROJECT LEADER: D. M. Wichman - Res. Agronomist, Moccasin, MT

PROJECT PERSONNEL: P.L. Bruckner – W. Wht. Breeder, Bozeman, MT
J.E. Berg – W. Wht. Res. Assoc Breeder, Bozeman, MT
J. Vavrovsky – Res. Spec., Moccasin, MT

OBJECTIVES:
Evaluation of winter wheat lines for sawfly resistance and agronomic performance near Moore, Montana.

RESULTS:
The study was established on no-till recrop following a spring wheat crop that had experienced a high rate of stem cutting. The trial was seed on October 10, 2005. Glyphosate, at one pint per acre, was applied seven days after seeding to maximize control of the volunteer spring wheat. Post glyphosate application, shattered spring wheat seed continued to germinate and establish because of favorable weather. The winter survival of the volunteer spring wheat plants was high. The volunteer stand was sufficient to fill in the inter-row space. The trial was seeded with a Accuraplant serrated double disk opener which causes minimal disturbance. Thus the volunteer plants even emerged immediately adjacent to the seeded winter wheat plants. Had the nursery been seeded with a 3 inch hoe drill there may been sufficient space free of volunteer spring wheat to facilitate sawfly stem infestations. The trial was sprayed out prior to heading as it was not going to provide useable data.

A spring wheat variety trial was established to compensate for the loss of the winter development line evaluation study. The spring wheat yields were quite low due to low precipitation (Table 1). WestBred's Agawan had the highest yield and the heaviest test weight at 17.3 bu/a and 55.2 lbs/bu, respectively. The incidence of sawfly cutting was low and quite variable as indicated by the high CV1 value. The nursery cut stems mean was 3.2%. Glenn, McNeal, Freyr, Hank and NorPro were the entries with the highest amount of stem cutting (7.0 to 6.7%) by visual estimation (versus actual stem counts). Three entries, Choteau, MT0564 and MT0515 had zero stems cut off. Glenn, which had 7% stem cutting produced 14.4 bu/a, the same yield as Choteau which had no cut stems.

SUMMARY:
When sawfly cutting is low, there is little yield advantage with the solid stem varieties. The advantage that is provided, in such cases, is the reduce potential for volunteer wheat plants and diseases, such as wheat streak mosaic, associated with volunteer wheat.

FUTURE PLANS:
Winter wheat lines with potential resistance to sawfly were seeded in spring wheat stubble in October 2006 near Moore.

Table 1 2006 No-till continuous crop spring wheat variety perfomance evaluation on sawfly site near Moore.

Exp 997006 Central Agriculutral Research Center. Moccasin, Montana

Variety	Entry	Plant Height	Grain Yield	Test Weight	Sawfly Cut stems	Grain Protein
	#	cm	bu/a	lbs/bu	%	%
Agawan	17	68	**17.3**	**55.2**	2.3	16.1
MTHW0202	16	73	**17.1**	52.5	3.3	17.2
MT 0564	20	73	**16.4**	52.5	0.0	17.1
Outlook	8	71	**16.1**	53.7	1.5	16.4
Vida	18	64	**15.6**	52.3	0.3	**18.1**
MT 0515	19	68	**15.4**	54.5	0.0	17.1
Freyr	13	69	**15.2**	53.4	6.7	17.9
Conan	5	65	**15.2**	52.9	1.5	17.3
Fortuna	1	**79**	**14.6**	54.1	0.3	16.2
Choteau	9	67	14.4	54.1	0.0	17.1
Glenn	14	74	14.4	54.4	**7.0**	16.7
Explorer	15	72	14.1	52.7	2.5	17.5
McNeal	2	62	13.6	53.1	6.7	17.1
Knudson	12	65	13.4	54.7	5.0	17.5
Reeder	7	64	13.2	52.4	3.3	17.4
Scholar	6	77	13.0	54.6	1.5	17.3
WestBred 926	4	59	12.6	51.8	5.8	17.5
Hank	10	64	12.4	51.3	6.7	18.0
Ernest	3	78	12.1	53.4	1.2	17.1
NorPro	11	63	11.6	50.8	6.7	17.9
Mean			14.39	53.19	3.12	17.2
C.V. 1			11.47	2.01	56.96	
LSD (0.0			2.73	2.24	2.94	

Seeded: 12-Apr-06 No-till recrop after winter wheat.

Fertilizer: 10+10+10+5 w/seed Top dress urea: 90 lbs N

Herbicide: 1.5 pints (bromoxynil+ MCPA) /ac applied 23-May-05.

Harvest: 11-Aug-06

1/ : Stem cutting is a visual estimate rather than actual stem count.