

Title: Small grain variety performance under no-till conditions.

Year: 2002.

Location: Western Triangle Research Center, Conrad, MT.

Personnel: Gregory D. Kushnak, Research Center, Conrad; Luther Talbert and Suzanne Mickelson, MSU Plant Science Dept.

Objectives: Identify small grain varieties which are adapted to no-till conditions.

Methods: Spring wheat and barley varieties were no-till planted into barley stubble at right angles to the previous crop. Crop history for the site was barley in 2001, fallow in 2000, and barley in 1999. Planting was accomplished with a double-disk no-till plot planter constructed by our Research Center Staff. Row space was 12 inches. Fertilizer included 100 pounds/acre ammonium phosphate (11-52-0) and 60 pounds/acre actual nitrogen top-dressed as urea. Roundup herbicide was used for preplant weed & volunteer control. Achieve and Bronate herbicides were used for wild oat and broadleaf control, respectively.

Results: Data for 2002, along with 5-year averages, are presented in Tables 1 and 2 for spring wheat, and Tables 3 and 4 for barley.

There was no interaction between spring wheat and cropping system over the five-year period. Variety rankings on no-till continuous-crop were similar to those on summerfallow, with Reeder the top yielder in both systems. The same was true for barley, with Baroness, Haxby, MT960228, and MT 960099 the top yielders in both systems.

Levels of disease were minimal for no-till in 2002, and similar to those in fallow-system plots.

Future Plans: Continue the no-till continuous-crop variety evaluations in efforts to include seasons of disease and environmental stress.

Table 1.

Dryland Recrop No-till Spring Wheat variety trial grown north of **Conrad**, 2002. Mont. Agr. Expt. Station. Western Triangle Ag. Research Center, Conrad, Montana.

Variety		Yield bu/ac.	Test wt. lbs/bu.	Plant hgt. inches	Head date	% protein
Reeder		45.2	61.7	29	185	14.1
MT 9806		45.0	61.5	31	186	14.4
OUTLOOK	(MT9874)	45.0	59.3	30	186	13.1
WESTBRED 926		43.8	60.7	30	183	13.7
NEWANA		43.5	60.0	26	186	12.8
FORTUNA	*	43.1	62.1	33	185	12.9
CONAN	*	42.7	60.6	26	185	14.1
MT 9929	*	41.8	61.1	28	185	13.7
MTHW 9420	**	41.8	61.0	27	185	12.5
LEW	*	41.7	61.6	34	186	13.1
EXPLORER	**	41.7	61.0	28	184	13.8
MCNEAL		41.7	60.4	29	186	13.0
RAMBO	*	41.6	61.4	28	187	13.0
WESTBRED 936		41.2	61.4	26	183	14.1
HANK		41.1	60.3	28	183	14.3
HI-LINE		40.5	61.2	28	185	14.4
ERNEST	*	40.3	60.8	35	185	13.7
SCHOLAR	*	37.3	61.1	34	186	14.2
AMIDON	*	35.5	59.8	35	186	12.7
WESTBRED EXPRESS		33.8	61.5	24	183	14.2

Cooperator: Western Triangle Ag. Research Center.

Location: Ten miles north of Conrad, MT. (Pondera County)

Applied fertilizer: 71-52-0 (N-P-K)

Previous crop: Barley.

Method of seeding: Double-disc drill into standing stubble.

Date seeded: April 29, 2002.

Date harvested: August 12, 2002.

Stored soil moisture at seeding: 3 inches.

Rainfall: From planting to harvest was 9.6 inches.

* = Sawfly resistant varieties. (Amidon, Conan, Rambo and
Scholar have partial resistance.)

** = Hard white wheat.

Yield experimental mean: 41.41

Error degrees of freedom: 38

F test for var: 1.07 ---- C.V. 2: 6.93 ---- LSD (0.05): 8.21

Table 2. **Five-year summary for No-till Recrop Spring Wheat** varieties grown near **Conrad, MT.** 1998 - 1999 - 2000 - 2001 - 2002. Mont. Agr. Expt. Station, Western Triangle Agr. Research Center, Conrad, MT.

5 - year comparable average						

Variety		Yield bu/ac	Test wt lbs/bu	Plant hgt. inches	Head date @	% Protein

REEDER		31.5	60.0	27	178	14.2
WESTBRED 926		30.9	59.2	26	178	14.5
CONAN	*	30.7	59.7	26	179	14.0
NEWANA		30.5	59.3	25	181	12.9
WESTBRED 936		30.3	59.6	24	177	14.3
ERNEST	*	30.0	60.1	30	180	14.1
HI-LINE		29.6	59.7	26	178	14.3
MCNEAL		29.3	57.9	28	180	13.6
RAMBO	*	29.3	59.0	26	181	13.6
EXPLORER	**	29.1	60.2	25	178	14.3
LEW	*	29.0	56.8	29	181	13.4
SCHOLAR	*	28.8	59.1	30	180	14.3
MTHW9420	**	28.3	58.2	26	178	13.6
AMIDON	*	28.3	57.3	31	180	13.4
FORTUNA	*	27.8	59.2	30	179	13.8
WESTBRED EXPRESS		26.9	58.9	24	179	14.1

Cooperator: Western Triangle Ag. Research Center.

Location: North of Conrad, MT. (Pondera County)

* = Sawfly resistant varieties. (Amidon, Rambo Scholar and Conan have partial resistance.)

** = Hard white wheat.

@ = Head dates based on 4 years average. (1998-99-01-02)

Table 3. **Dryland Recrop No-till Barley** variety trial grown north of **Conrad**, 2002. Mont. Agr. Expt. Station, Western Triangle Ag. Research Center, Conrad, MT.

Variety	Yield bu/ac	Test wt. lb/bu	Plant hgt. inches	% Plump	% Thin	Head Date	% Protein
MT 970116	76.6	51.4	28	85	5	185	13.9
HAXBY (MT950186)	75.7	51.9	27	72	5	183	13.6
Valier	73.6	50.3	24	70	9	187	14.3
MT 960100	73.6	48.4	26	49	21	187	14.3
MT 960228	73.2	48.0	25	60	14	185	13.8
Gallatin	72.0	48.8	26	59	14	185	16.2
MT 970229	71.3	49.5	24	81	5	185	15.1
MT 960099	69.9	47.8	23	33	27	187	14.6
Baronesse	69.9	46.9	24	59	12	187	14.6
Harrington	68.7	47.3	23	67	13	186	14.4
MT 960101	68.6	47.2	25	55	18	188	14.3
Xena	67.9	47.5	28	51	15	185	13.8
MT 960226	66.2	47.8	26	73	9	185	14.2
Conlon	64.3	45.5	24	41	20	186	14.6
H 3860224	63.6	46.0	24	64	12	187	15.2
Lewis	63.5	49.5	25	60	14	186	15.9

Cooperator: Western Triangle Ag. Research Center.
 Location: Ten miles north of Conrad, MT. (Pondera County)
 Applied fertilizer: 71-52-0 (N-P-K)
 Previous crop: Barley.
 Method of seeding: Double-disc drill into standing stubble.
 Date seeded: April 29, 2002.
 Date harvested: Aug. 12, 2002.
 Stored soil moisture at seeding: 3 inches.
 Rainfall: From planting to harvest was 9.6 inches.
 Yield experimental mean: 69.91
 Error degrees of freedom: 30
 F test for var.: 0.65
 C.V. 2: 7.30
 LSD (0.05): 14.74

Table 4. **Five-year** summary for **Recrop Dryland No-Till Barley** varieties grown north of **Conrad, MT.** 1998 - 1999 - 2000 - 2001 - 2002. Mont. Agr. Expt. Station, Western Triangle Agr. Res. Center, Conrad, MT.

5 - year comparable average							

Variety	Yield	Test	Plant	%	%	Head	%
	bu/ac	weight	hgt.	Plump	thin	date	Protein
		lbs/bu	inches			*	

BARONESSE	50.8	49.1	24	57	19	182	13.5
HAXBY	50.6	52.0	25	65	18	179	13.2
MT 960099	50.6	49.1	22	38	32	181	13.7
XENA	50.5	49.7	26	59	19	181	12.8
MT 960228	50.3	49.5	25	55	22	180	13.2
VALIER	49.0	51.2	25	58	22	182	13.9
GALLATIN	48.8	49.5	25	62	22	181	13.2
HARRINGTON	46.4	48.1	24	63	19	182	13.7
LEWIS	45.1	51.0	26	58	20	182	14.0

Cooperator: Western Triangle Ag. Research Center.

Location: Ten miles north of Conrad, MT. (Pondera County)

* = Head dates based on 4 years average. (1998-1999-2001-2002)