

Title: Off-Station Winter Wheat Variety Investigations.

Location: Western Triangle Research Center, Conrad, MT.

Year: 1991

Personnel: Gregory D. Kushnak, Ron Thaut, and Larry Christiaens - Research Center; and Dr. Gene Hockett, MSU, Bozeman.

Off-station winter wheat plots grown at Chester, the Knees Area, Sun River, and Eden had good winter survival, but the plot at Dutton was lost to winterkill. Data for the harvested locations in 1991 are presented in Tables 1, 3, 5, and 7; with five-year averages for the respective sites presented in Tables 2, 4, 6, and 8. (Emphasis should be placed more on the five-year averages when predicting which varieties are best suited for a given area. The 1991 tables reflect performance under the conditions of only one year, and therefore should not be relied on too heavily.)

None of the plots had Russian wheat aphids, and sawfly infestations were light. Yields, test weights, and plant heights were exceptionally high in 1991. Based on five-year averages, Rocky, Centurk, Tiber, Judith, and Neeley were among the top yielders at most locations. Quantum 542 was not tested during all of the years, and therefore not included in the five-year averages. Quantum 542 was usually the highest yielder in the years it was tested. Quantum 542 is a first-generation hybrid, requiring new seed each year. Vona yielded high in 1991, but averaged low over the 5-year period, due to low winterhardiness. Judith and Neeley had higher sawfly damage than Tiber at the Knees location in 1991. This was not consistent with previous years when Judith showed less sawfly damage than Tiber and Neeley, and would therefore be expected to escape sawfly more often. Centurk and Rocky showed very little sawfly damage in 1991, which was consistent with observations in most years previous.

These trials were conducted by the Western Triangle Research Center, Conrad in Cooperation with Dr. E.A. Hockett, Montana State University Plant and Soil Science Department. The background and detailed descriptions for many of the varieties tested are included in Extension Bulletin 1098, "Performance Summary of Winter Wheat Varieties in Montana," available at all county agent offices.

Table 1. Winter wheat variety trial grown south of Chester, 1991. Mont. Agr. Expt. Sta., Western Triangle Ag. Research Center, Conrad, MT.

Variety		Yield bu/ac	Test wt. lbs/bu.	Plant hgt. inches	Spring survival class 1/	% Protein
NEELEY		75.72	63.21	38	3	
WINRIDGE		68.44	62.44	38	2	
VONA	**	67.92	64.13	32	**	
MT 7811	2/	66.41	61.66	37		
CENTURK		66.02	63.00	36	2	
NORWIN		65.50	64.06	30	5	
SEWARD		65.32	61.10	40	3	
JUDITH		64.75	62.08	38	3	
NORSTAR		63.30	62.58	45	5	
MT 88001	*	62.45	63.14	27		
TIBER		60.33	62.37	37	3	
CREE		59.88	62.79	39	3	
CHEYENNE		59.47	62.15	43	3	
BLIZZARD		59.02	62.23	37	2-3	
ROCKY		58.96	63.00	35	2	
WINALTA		58.35	63.50	43	4	
REDWIN		57.95	62.72	36	3	
WARRIOR		56.87	62.08	39		
ROUGH RIDER		55.96	62.15	40	5	
HAWK		54.50	63.21	32		
AGASSIZ		52.58	62.51	43	4	
MT88005	*	46.07	61.10	38		

Cooperator and location : Mike Violet, 10 miles south of Chester.

Fertilizer : 100# 11-51-0 with the seed.

Previous crop : Fallow.

Date seeded : September 6, 1990.

Date harvested : August 6, 1991.

Rainfall : May 15 to harvest = over 6 inches.

\* = Sawfly resistant varieties. ( MT 88001 partial )

\*\* = Vona is probably not very winter hardy; less than Rocky.

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

2/ = Hard white wheat.

Yield experimental mean : 61.17

Error degrees of freedom : 42.00

F test for var. : 13.56

C.V. 2 : 2.81

LSD (0.05) : 4.90

Table 2. Five - year summary for winter wheat varieties grown near Chester, (Liberty County) 1986, 87, 88, 90, 91. Mont. Agr. Expt. Sta., Western Triangle Research Center, Conrad, MT.

Variety	5 - year comparable average			
	Yield bu/ac	Test wt. lbs/bu.	Plant hgt. inches	% Protein
Neeley	47	57	27	
Centurk	45	58	27	
Tiber	44	59	27	
Cheyenne	44	61	29	
Rocky	43	59	26	
Judith	43	58	27	
Redwin	43	60	26	
Hawk	43	60	24	
Cree	42	60	27	
Winridge	41	56	27	
Warrior	41	60	28	
Vona	41	61	24	
Norwin	41	60	21	
Norstar	40	60	30	
Winalta	40	61	28	

Cooperator : Mike Violet, Chester, MT.

Table 3. Winter wheat variety trial grown at the Knees east of Brady, 1991. Mont. Agr. Expt. Sta., Western Triangle Ag. Research Center, Conrad, MT.

Variety	Yield bu/ac	Test wt. lbs/bu.	Plant hgt. inches	Spring survival class 1/	% Prot.	% Sawfly damage
ROCKY	75.27	64.69	42	2		5
CENTURK	72.27	64.41	42	2		5
TIBER	70.24	63.00	42	3		10
BLIZZARD	69.02	63.42	42	2-3		10
HAWK	67.42	64.13	35			20
CREE	66.27	63.92	46	3		20
NEELEY	65.84	63.99	41	3		20
VONA	65.33	64.98	35	**		10
WARRIOR	63.41	63.50	46			10
JUDITH	62.89	62.15	42	3		40
MT 7811 2/	62.75	61.80	42			20
CHEYENNE	62.32	63.78	45	3		20
WINRIDGE	62.15	62.30	43	2		20
REDWIN	61.92	64.48	42	3		5
SEWARD	60.78	62.08	42	3		20
NORWIN	59.25	64.48	31	5		5
MT 88001 *	57.82	63.42	29			0
AGASSIZ	56.79	62.86	50	4		20
WINALTA	53.87	63.07	48	4		5
ROUGH RIDER	52.48	63.14	46	5		20
NORSTAR	50.21	63.07	53	5		50
MT 88005 *	46.53	61.31	45			0

Cooperator and location : Dan Picard, 30 miles east of Brady.

Fertilizer : 100# 11-51-0 with the seed, + 65# AA-N.

Previous crop : Fallow.

Date seeded : September 10, 1990.

Date harvested : August 5, 1991.

Rainfall : May 15 to harvest = 4.9".

\* = Sawfly resistant varieties. ( MT 88001 partial )

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

2/ = Hard white wheat.

Yield experimental mean : 62.04

Error degrees of freedom : 42.00

F test for var. : 11.56

C.V. 2 : 3.38

LSD (0.05) : 5.98

\*\* Vona is less winter hardy than Centurk.

Table 4.

Five-year summary for dryland winter wheat varieties grown near the Knees, (Chouteau County), 1986 - 1987 - 1988 - 1990 - 1991. Mont. Agr. Expt. Sta., Western Triangle Research Center, Conrad, MT.

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5 - year comparable average

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Variety	Yield bu/a	Test wt. lbs/bu.	Plant hgt. inches	% Protein
Rocky	46.6	58.6	31.0	
Centurk	45.8	58.6	30.8	
Tiber	45.6	60.6	32.0	
Judith	45.0	58.4	31.6	
Cree	43.4	61.6	32.6	
Neeley	43.2	58.8	30.2	
Cheyenne	42.8	61.6	33.0	
Winridge	42.4	59.0	31.6	
Redwin	41.8	61.0	31.2	
Norwin	38.8	59.2	24.2	
Winalta	37.0	60.0	34.6	
Norstar	36.0	59.0	35.0	

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Cooperator : Dan Picard

Location : Thirty miles east of Brady, MT.

Table 5. Winter wheat variety trial grown near Sun River, 1991. Montana Agr. Expt. Sta., Western Triangle Research Center, Conrad, MT.

Variety	Yield bu/a	Test wt. lbs/bu	Plant hgt.	% Protein
Vona <i>U</i>	56.2	64.2	32	
Neeley	53.7	62.8	35	
Rocky	53.1	63.9	35	
Judith	52.1	62.9	36	
Cree	50.8	63.5	38	
Centurk	50.6	64.1	36	
Norwin	50.5	63.4	27	
Tiber	50.0	62.8	37	
Blizzard	50.0	62.5	37	
Redwin	50.0	63.2	35	
Cheyenne	49.7	62.2	39	
Seward	49.2	61.9	36	
Winridge	48.8	62.9	41	
Hawk	47.5	63.8	33	
MT 7811	45.8	61.9	36	
MT 88001	44.7	62.2	27	
Roughrider	44.5	62.9	39	
Agassiz	42.7	62.3	46	
Winalta	40.4	62.2	39	
MT 88005	38.8	60.4	37	
Warrior	38.0	62.1	36	
Norstar	33.1	61.0	45	

Cooperator : Chuck Merja, S.E. of Sun River.

Planting date : September 11, 1990

Harvest date : August 6, 1991

Fertilizer : 100# 11-51-0 with the seed + 50# AA-N.

Rainfall : May 15 to maturity = 6.0".

*U* Vona is less winter hardy than Rocky.

Table 6. Six - year summary for winter wheat varieties grown near Sun River, 1986 - 91. Mont. Agr. Expt. Sta., Western Triangle Research Center, Conrad, MT.

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6 - year comparable average				
Variety	Yield bu/ac	Test wt. lbs/bu.	Plant hgt. inches	% Protein
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Centurk	37	61	29	
Rocky	37	61	29	
Tiber	37	61	29	
Judith	37	60	29	
Neeley	37	59	27	
Cree	37	61	31	
Cheyenne	36	61	31	
Redwin	35	61	28	
Warrior	34	60	30	
Winridge	34	59	29	
Norwin	34	61	22	
Winalta	32	61	32	
Norstar	31	60	34	
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Cooperator : Chuck Merja, Sun River, MT.

Table 7. Winter wheat variety trial grown near Eden, 1991.  
Mont. Agr. Expt. Sta., Western Triangle Research  
Center, Conrad, Mt.

Variety	Yield bu/a	Test wt.	Plant hgt. inches	Spring survival class 1/	% Protein
ROCKY	42.77	62.86	36	2	
NEELEY	42.41	62.44	33	3	
CENTURK	40.77	62.23	33	2	
REDWIN	40.28	62.79	37	3	
JUDITH	40.25	61.45	33	3	
NORSTAR	39.42	63.28	41	5	
TIBER	39.10	62.51	37	3	
MT 7811 2/	38.48	61.87	36		
VONA	37.64	62.93	33	**	
NORWIN	37.53	64.13	28	5	
HAWK	36.96	62.72	33		
BLIZZARD	36.30	62.51	35	2-3	
SEWARD	35.74	61.52	40	3	
WINRIDGE	35.73	60.25	40	2	
WARRIOR	35.60	62.93	38		
WINALTA	35.17	64.20	37	4	
CREE	34.99	62.30	37	3	
MT 88001 *	34.97	63.35	27		
CHEYENNE	34.79	62.44	38	3	
AGASSIZ	34.22	62.79	40	4	
ROUGH RIDER	29.22	62.44	38	5	
MT 88005 *	27.60	62.30	41		

Cooperator and location : Tom Lorang, Eden.

Fertilizer : 100# 11-51-0 with the seed.

Previous crop : Fallow.

Date seeded : September 11, 1990.

Date harvested : August 19, 1991.

Rainfall : May 15 to harvest = more than 6.5 inches.

\* = Sawfly resistant varieties. ( MT 88001 partial )

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

2/ = Hard white wheat.

Yield experimental mean : 36.82

Error degrees of freedom : 42.00

F test for var. : 2.37

C.V. 2 : 6.54

LSD (0.05) : 6.88

\*\* Vona is less winterhardy than Rocky.

Table 8. Five - year summary for winter wheat varieties grown near Eden (Cascade County), 1987-91. Mont. Agr. Expt. Sta., Western Triangle Research Center, Conrad, MT.

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5 - year comparable average				
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Variety	Yield bu/ac	Test wt. lbs/bu.	Plant hgt. inches	% Protein
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Neeley	53	62	34	
Winridge	51	59	38	
Judith	50	60	35	
Tiber	48	62	36	
Cree	47	63	38	
Norwin	47	63	27	
Centurk	46	62	35	
Rocky	46	62	36	
Norstar	46	62	43	
Redwin	45	62	36	
Warrior	45	63	37	
Cheyenne	44	63	38	
Winalta	42	63	39	
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Cooperator : Tom Lorang, Eden.