

**PROJECT TITLE:** 2004 Evaluation of winter wheat variety performance on fallow at Geraldine and Winifred.

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**PROJECT PERSONNEL:** P. L. Bruckner, Winter Wheat Breeder, Bozeman, MT  
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**OBJECTIVES:**

Evaluate agronomic performance of winter wheat varieties in no-till recrop (continuous) crop environments near Geraldine and Winifred, Montana.

**RESULTS:**

The Geraldine site was abandoned due to variable stand establishment. The site was a no-till fallow site where the surface soil was strongly crusted. The double disk opener only penetrated the dry crust to a depth of about 0.5 to 0.75 inch. It was very difficult to get the Brown moisture probe through the two inch dry crust. However, once through the crust the moist soil went to a depth greater than 48". Sufficient moisture was received to sprout the seed, but insufficient to sustain some seed till the roots could penetrate the crusted surface and the seeding died. The farmer used an air seeder with hoe openers and had excellent stand establishment.

The soil at the Winifred site was less crusted, but stand establishment and seedling growth was not as good as the farmer had around the plots. The farmer used a hoe drill and placed the seed at a deeper depth. An interesting observation, the soil temperature at a two-inch depth was 8 degrees C colder at the Winifred site as at the Geraldine site. Early May spring moisture was good. However, the winter wheat crop ran out of moisture during grain fill causing the test weights to be light and erratic. The information generated is weak due to variation across the nursery.

**SUMMARY:**

The early maturing variety Jagalene had the highest yield (61.8 bu/a) and the highest test weight (61.4 lbs/bu) in the Winifred trial (See Table 1). Tiber had the lowest grain yield (45.6 bu/a) and Morgan had the lowest test weight (56.2 lbs/bu). Promontory had the high two year average yield of the entries grown in both 2003 and 2004.

**FUTURE PLANS:**

CARC will continue to evaluate winter wheat varieties under fallow environments in dryer central Montana sites with deeper soil.

Table 1 2004 Winter wheat variety performance near Winifred and 2 y average yield.  
Exp 3873 Central Agricultural Research Center. Moccasin, Montana.

Variety	Plant Height	Test Weight	Protein Content	2004 Yield	2003 Yield	2Y Ave. Yield
	inches	lbs/bu	%	bu/a	bu/a	bu/a
Big Sky	39.6	59.3	14.7	48.3	41.1	44.7
CDC Falcon	<b>31.2</b>	59.2	13.0	57.3	42.1	49.7
Genou	37.2	56.3	15.2	52.1	42.5	47.3
Jerry	38.4	58.5	14.0	57.0	44.4	50.7
Morgan	38.4	55.2	14.7	48.6	38.2	43.4
MT00159	38.4	57.0	16.1	52.5	50.5	51.5
MT0097	38.4	56.4	16.0	47.1	42.5	44.8
Neeley	36.0	57.6	16.3	52.4	41.5	47.0
NuSky	34.8	56.9	15.0	55.5	49.1	52.3
NuWest	<b>40.8</b>	58.0	14.9	51.1	42.8	47.0
Paul	32.4	55.5	14.6	52.6	41.1	46.9
Promontory	37.2	57.9	14.2	57.6	<b>52.3</b>	<b>54.9</b>
Pryor	32.4	57.8	15.3	57.9	48.5	53.2
Rampart	37.2	57.5	15.6	48.7	40.9	44.8
Rocky	39.6	59.1	14.3	56.5	45.0	50.8
Tiber	39.6	58.3	16.0	45.6	40.6	43.1
Vanguard	34.8	59.0	14.9	53.4	41.7	47.6
Wahoo	33.6	56.4	14.2	57.2		
Jagalene	32.4	<b>61.4</b>	14.6	<b>61.8</b>		
Millineum	34.8	60.2	13.9	60.5		
MTCL0115	33.6	56.2	13.5	56.7		
MT01148	36.0	58.8	14.5	59.5		
MT0177	<b>31.2</b>	59.4	13.6	59.8		
Mean	36.0	57.9	14.7	54.3		
				ns		

Seeded: 1-Oct-03 No-till plant following 2002 hay barley crop.  
Fertilizer: NPKS 10-10-10-05 w/seed. 60 N topdress as urea.  
Soil: Moist Soil depth: 28" Temp 2 inch depth: 9C

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Judee Wargo, Chouteau County Ext. Agent, Fort Benton, MT

**OBJECTIVES:**

Evaluate agronomic performance of spring wheat varieties in fallow crop environments near Geraldine and Winifred, Montana.

**RESULTS:**

The Geraldine site was abandoned due variable wild oat infestation. This site was actually established recrop after winter wheat as the intended site was seeded prior to plot establishment. The Winifred site was seed in to dry powdery surface soil which did not receive a rain for sometime after seeding. When rain was received it was in sufficient quantity to cause puddling in furrow. Stand establishment was erratic. The plants appeared yellow in mid-May from apparent water logged surface soil. By August the plants look good so the nursery was harvested. However, the data is considered weak so not extensive conclusions or inferences will be drawn from it (See Table 1). Multiple yield results are presented in table 2 where variety mean yields are compared to McNeal mean yields for the same years (see Table 2)

**SUMMARY:**

New spring wheat varieties, such as Outlook and Reeder, are displacing McNeal as the top yielding spring wheat variety in central Montana trials and elsewhere in Montana.

**FUTURE PLANS:**

CARC will continue to evaluate spring wheat varieties under fallow environments in dryer central Montana sites with deeper soil such as Winifred and /or Geraldine.

**PROJECT TITLE:** 2004 Evaluation of durum variety performance on fallow at Geraldine and Winifred.

**PROJECT LEADER:** D. M. Wichman, Agronomist, Moccasin, MT

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This report was included with section II report as the Geraldine site was abandoned and there were only six durum entries in the trial. Therefore it was thought best to put the information with the recrop durum.

Table 1 2004 Winifred fallow spring wheat variety performance trial.  
 Exp 997004 Central Agricultural Research Center. Moccasin, Montana.

ID	Variety	Trt #	Grain Yield bu/a	Test Weight lbs/bu	Protein Content %
PI615543	Alsen	20	38.4	55.6	18.6
PI527682	Amidon	4	35.4	56.0	18.2
MT 9929	Choteau	12	36.1	56.1	17.9
BZ992588	Conan	8	41.3	57.3	17.6
PI592761	Ernest	6	35.2	57.0	18.9
PI619086	Explorer	15	40.3	56.4	17.2
CI 13596	Fortuna	1	37.7	56.6	16.4
BZ992322	Hank	13	35.5	52.2	18.8
PI549275	Hi-Line	2	42.4	54.5	17.9
MTHW0202	ID377S/MTHW9701	16	36.8	58.4	17.0
PI574642	McNeal	3	39.1	55.2	18.2
MTHW9420	MT8182/MT8289	14	35.7	54.5	17.1
MT 0245	MT9433/ND695	17	38.7	55.7	17.6
MT 0249	ND695/MT9433	18	37.0	56.7	18.3
MT 0266	ND695/MT9755	19	37.3	52.8	17.2
CI 17430	Newana	21	33.1	57.0	15.8
PI632252	Outlook	11	38.8	55.9	16.7
C982-324	Rambo	5	40.1	55.7	17.6
ND 695	Reeder	10	38.5	55.4	18.5
PI607557	Scholar	9	33.6	57.9	18.8
WB 926	Westbred 926	7	40.3	54.9	18.6
WB 936	Westbred 936	22	37.4	54.3	18.7
Mean			37.7	55.7	17.8
CV 1			9.292	1.543	
LSD			5.779	1.424	

Table 2 Winifred multi-year yields of selected spring wheat varieties, 1998-2004  
 Exp. 9973 Central Agricultural Research Center, Moccasin, MT

Variety	Test ID	1998	1999	2000	2001	2002	2003	2004 <sup>1</sup>	Ave.	McNeal Same Yrs
					----- bu/a -----					
McNeal		47	37	31	24	42	19	39	34	
Fortuna		39	36	29	24	38	20	38	32	34
Rambo		43	35	23	25	36	18	40	31	34
Lew		34	31	28	27	36	17		29	33
Hi-Line		46	35	27	26	42	17	42	34	34
Ernest		41	32	28	24	34	19	35	30	34
WB Express		48	43	30	29	42	19		<b>35</b>	33
WestBred 936		53	38	27	26	41	19	37	34	34
Scholar		38	37	27	29	41	19	34	32	34
MTHW 9420		44	37	28	25	42	18		33	34
Conan (BZ 992588)		--	37	22	29	40	19	41	31	31
Reeder (ND 695)		--	40	30	30	44	19	39	<b>34</b>	31
Explorer (MTHW9710)				27	25	39	20	40	<b>30</b>	29
Outlook (MT 9874)		--	--	--	28	40	20	39	<b>32</b>	28
Choteau MT 9929					24	38	16	36	<b>29</b>	28
Nursery Mean		43	36	28	26	40	18	38		

<sup>1</sup> The 2004 Winifred spring wheat crop had water puddle in the furrow early on which caused erratic emergence. Therefore, this data is weak.