8-1-2003

2003 Winter Wheat Crop Performance Results

J. Rickertsen
South Dakota State University

Bob Hall
South Dakota State University

A. Ibrahim
South Dakota State University

COOPERATIVE EXTENSION SERVICE
SDSU

Extension Extra

ExEx 8136 rev
August 2003
Plant Science

COLLEGE OF AGRICULTURE & BIOLOGICAL SCIENCES / SOUTH DAKOTA STATE UNIVERSITY / USDA

2003 Winter Wheat Crop Performance Results

J. Rickertsen, research associate, West River Ag Center
Bob Hall, Extension Crop Performance Testing Program
A. Ibrahim, assistant professor, Plant Science Department

Yields in 2003 were very good across most of South Dakota and an improvement over 2002. Moisture levels at most locations were at least adequate in the spring and early summer with favorable cool temperatures in June for crop growth. Central South Dakota suffered moisture stress as shown by low yields and test weights at Pierre, Tripp County, and Hayes (Table 1 and 2). Statewide, the average winter wheat yield (Crop Performance Testing Program) was 56 bu/A in 2003, or 17 bu/A better than in 2002. The better performing varieties in 2003 were Jagalene, Millennium, Wahoo, Expedition, and Wesley.

Stripe rust, a major problem in 2003, was favored by cool conditions in June. Stripe rust normally is not a major problem in South Dakota since it does not overwinter and is not favored by warmer temperatures in June. The Southern Great Plains produced large amounts of spores that blew north to infect South Dakota. Temperatures of 50 to about 62° F favored stripe rust development while daytime temperatures in the 80s with nighttime temperatures above 65° inhibited growth. Long stripes of small yellowish orange pustules of rust on the leaves are a common symptom. Stripe rust can spread rapidly in under

Table 1. Origin, disease reaction, and traits for winter wheat entries tested.

		Traits#				*Disease Reaction+*					
Variety	*Origin*	*Lodging Res*	*End-Use Qlty*	*Winter Hardiness*	*Coleoptile Score##*	*Wht Strk Msc*	*Tan Spot*	*Rust$ Str*	*Rust$ Lf*	*Rust$ Stm*	*PVP**
AP502 CL	AP-03	E	-	F-G	89	MS	S	-	S	MR	**
Alliance	NE-93	G	A@	G	76	MS	VS	MR	S	MS	Yes
Arapahoe	NE-88	F	G	G-E	83	S	S	MS	MR	MR	Yes
CDC Falcon	SK-98	G	-	G-E	85	-	-	MR	-	R	Can
Crimson	SD-97	G	G	G-E	110	MR	R	MR	S	MS	Yes
Expedition	SD-02	F	E	G-E	88	-	MS	MS	MS	R	**
Harding	SD-99	F-G	A	E	100	MR	MR	MS	MR	MR	**
Jagalene	AP-02	E	-	G	92	MR	MR	MR	MR	MR	Yes
Jerry	ND-01	F	G	E	92	-	-	MR	S	R	No
Millennium	NE-99	G	A	F-G	78	S	MS	MR	MS	MR	Yes
Nekota	NE/SD-94	G	G	G	87	MS	MR	S	S	MR	No
NuPlains~W	NE-99	G	A	G	72	S	S	MS	MS	MS	Yes
Ransom	ND-98	F	P	E	107	S	-	-	MR	MR	Yes
Tandem	SD-97	F-G	E	G	112	S	S	MR	S	MR	Yes
Trego~W	KS-99	F-G	E	F-G	80	S	MS	S	MR	R	Yes
Wahoo	NE/WY-01	G	-	G	91	S	-	MR	S	R	Yes
Wesley	NE-98	E	A	G-E	79	S	MR	MR	MS	R	No
SD97W604~W	SD-	E	E	G-E	66		-	-	-	MS	R

~ Hard white wheat variety. @ End-use: HR wheat= baking and HW wheat= noodles.
# E= excellent, A= acceptable, F= fair, G-good, P=poor. ## Percent of Harding(3.2").
+ R= resist., MR= mod.resist., M= inter., MS= mod.susc., S= susc., VS= very susc..
$ Rusts- stripe= str, leaf= lf, and stem= stm.
* Plant variety protection (PVP), title V, certification option - to be sold by variety name only as a class of certified seed.
** PVP application pending or anticipated.

favorable conditions with the flag leaf going from just a few spores to totally gone in about a week. Significant flag leaf damage during grain fill can easily lower test weight and yield. The varieties Nekota and Trego are susceptible. Alliance, Crimson, Jagalene, Millennium, Tandem, Wahoo and Wesley (Table 1) have some resistance.

Table 2. Hard red winter wheat variety performance testing averages 2003.

	Wall		*Bison*		*Hayes*		*Martin*		*Sturgis*		*Oelrichs*		*Kennebec*	
VARIETY	*b/a*	*twt*	*b/a*	*twt*	*b/a*	*twt*	*b/a*	*twt*	*b/a*	*twt*	*b/a*	*twt*	*b/a*	*twt*
AP502 CL	40	63	51	57	60	57	61	59	38	61	73	60	71	57
Alliance	44	62	53	59	54	55	69	60	44	60	71	62	73	59
Arapahoe	36	63	53	60	57	57	68	61	46	61	65	62	78	60
CDC Falcon	41	63	56	60	51	57	61	62	44	62	67	62	85	61
Crimson	42	63	53	62	38	57	60	63	40	60	69	64	66	62
Expedition	39	63	55	61	58	58	68	62	44	61	72	63	82	61
Harding	39	62	53	61	46	57	65	61	40	60	68	62	70	60
Jagalene	35	63	55	62	62	60	68	64	44	63	77	63	89	62
Jerry	41	62	50	61	47	58	59	61	40	60	57	61	75	61
Millennium	42	63	56	62	63	59	69	63	44	62	63	62	77	62
Nekota	42	64	51	60	52	59	60	61	42	61	70	63	68	58
NuPlains~W	44	63	49	63	50	61	58	63	41	63	64	65	60	61
Ransom	37	62	47	60	45	54	56	60	39	59	55	61	64	60
Tandem	43	62	52	61	49	61	68	62	42	63	66	62	65	62
Trego~W	38	63	57	63	55	58	70	62	43	62	70	63	74	60
Wahoo	40	61	54	60	54	55	75	60	45	59	71	60	81	59
Wesley	44	62	52	61	62	56	71	62	41	61	65	61	80	61
SD97W604~W	40	64	57	62	64	61	68	63	45	62	69	63	85	61
Test avg.*:	41	63	52	61	52	58	65	62	43	61	67	62	75	60

Table 3. Hard red winter wheat variety performance testing averages (continued).

	Brookings		*Highmore*		*Platte*		*Pierre*		*Tripp Co.*		*State-wide average*			
											Yield	*Test Wt.*	*Prot.*	
VARIETY	*b/a*	*twt*	*b/a*	*twt*	*b/a*	*twt*	*b/a*	*twt*	*b/a*	*twt*	*b/a*	*twt*	*pct*	
AP502 CL	63	58	40	57	61	54	36	53	43	53	53	57	13.4	#
Alliance	71	60	50	60	55	56	37	55	41	54	55	58	13.2	
Arapahoe	85	60	57	60	60	57	38	53	45	56	57	59	13.7	
CDC Falcon	83	60	53	61	60	56	36	52	47	56	57	59	13.5	
Crimson	85	62	48	63	55	62	42	56	47	61	54	61	14.4	
Expedition	79	62	51	59	64	57	37	56	46	55	58	60	13.5	
Harding	88	61	54	62	55	60	38	55	42	59	55	60	14.1	
Jagalene	90	61	58	62	65	59	33	54	46	57	60	61	13.3	
Jerry	87	60	57	61	57	59	36	55	46	58	54	60	13.8	
Millennium	91	61	57	62	69	59	38	55	50	59	60	61	13.3	
Nekota	79	62	49	61	62	58	34	55	49	57	55	60	12.9	
NuPlains~W	87	60	50	63	51	59	38	53	45	60	53	61	13.8	
Ransom	78	60	48	60	49	58	33	53	45	57	50	59	14.1	
Tandem	75	61	52	64	51	60	35	57	45	60	54	61	13.9	
Trego~W	76	62	52	61	61	58	33	54	43	57	56	60	13.1	
Wahoo	86	59	57	60	65	57	37	53	49	56	59	58	13.4	
Wesley	83	61	55	60	66	56	36	55	43	54	58	59	14.0	
SD97W604~W	90	61	51	62	73	59	36	54	50	57	61	61	13.5	
Test avg.*:	83	60	53	61	62	58	36	54	46	57	56	60	13.5	

~ A hard white (w) winter wheat. * Average of all entries including experimental lines.
# Average of Brookings, Highmore, Wall, Platte, Pierre, Kennebec, and Tripp County locations.

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the USDA. Larry Tidemann, Director of Extension, Associate Dean, College of Agriculture & Biological Sciences, South Dakota State University, Brookings.

ExEx 8136rev, August 2003. Access at http://agbiopubs.sdstate.edu/articles/ExEx8136.pdf