

# AGRONOMY NEWS

Grasslands For Tomorrow



Volume 3, Issue 4

2003

## Millennium Seed Availability

There are three seed increase growers of a new Nebraska winter wheat variety Millennium in North and South Dakota. They have increased approximately 40 acres of Registered Millennium from Foundation seed. The variety has performed very well in SDSU and NDSU variety trials in 2002 and 2003. It is a medium height variety with very good straw strength and yield potential. Its winter survival appears to be similar to Wesley and Arapahoe.

Millennium seed sales have been restricted to Foundation or Certified classes of seed. Growers seeding the Foundation seed class can again increase the Registered seed produced the next year for Certified seed or bypass the Registered class and sell it as Certified. Another option is to work with other growers to increase the Registered class for sale as Certified the following year under the original grower's name.

The two ND Registered growers are willing to explore the above options. The two growers are David Kinzler from Monango or Ellendale and Doug Rotenberger from Lisbon. Please contact them if you are interested in Millennium. David Kinzler can be reached at 701-349-4101 (home). Doug Rotenberger can be reached at 701-683-5762 (home) or 701-680-0374 (cell).

Walter Farms at Carpenter, South Dakota has also increased Millennium. Their telephone number is 605-352-0303.

### Winter Cereal Sponsors

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*North Dakota Dept. of Health 319 Program*

*NDSU and SDSU Cooperative Extension Service*



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## Winter Wheat Seed Growers

The SD Crop Improvement Association and ND State Seed Department have their winter wheat seed increase growers and varieties listed on their web pages.

Web addresses:

SD:

<http://plantsci.sdstate.edu/seedcert/pdf%20files/Winter%20Wheat%20Directory03.pdf>

ND:

<http://www.state.nd.us/seed/reports/cwht.asp>.

The ND site also lists the durum and spring wheat growers and varieties.

CDC Falcon distribution rights in ND are held by UAP. Ron Gienger can be reached at their facility in Valley City at 1-800-728-6958 or 701-845-5523. See another article in this newsletter for those interested in Millennium. Please feel free to call Blake Vander Vorst or Roger Knapp if you need assistance to locate winter wheat seed.

## Wheat Streak Mosaic

(reprint from Volume 1, Issue 2, Summer 2001)

### MITES

Wheat Streak Mosaic Virus (WSMV) is primarily spread by the wheat curl mite, a very tiny mite (less than 1/100 inch long) not visible to the eye. The mite has no wings but is carried by the wind from plant to plant and field to field, generally up to several miles. When large populations of the mite build up on wheat, the leaves curl so that the upper surface is rolled inward.

The life cycle of the mite, from egg to adult, is completed in seven to ten days. The mite requires green plants for feeding and reproduction. If no green food hosts are available after hatching, the mite does not survive. The mites reproduce most rapidly from 75 to 80 degrees Fahrenheit. The mites overwinter as eggs, nymphs or adults in the living winter wheat crown or crown of other perennial grass hosts.

(continued on page 4)

# SDSU Winter Wheat—2003 Crop Performance Testing—Variety Trial

Grain Yield (bushels/acre)

Entry <sup>1</sup>	Average	Bison	Oelrichs	Martin	Hays	Sturgis	DLPea <sup>2</sup>	Brookings	Wall	Winner	Platte	Highmore	Kennebec	TW	Head	LOD <sup>3</sup>	HT	Sur
														(lb/bu)	(day)	(1-5)	(inch)	(%)
SD97W604	60.8	57.2	66.1	68.0	63.8	45.4	35.8	89.6	40.4	49.9	72.6	51.2	89.8	60.9	151	0	30	93
SD97W609	60.2	51.8	68.7	64.3	57.1	44.3	38.5	82.9	43.0	53.5	73.0	60.8	84.8	60.3	152	0	31	88
JAGALENE	60.1	55.2	76.6	67.7	61.5	43.9	33.1	90.2	35.0	45.8	65.3	57.4	89.2	60.9	152	0	30	83
MILLENNIUM	59.7	55.6	62.6	68.6	62.5	43.6	37.8	91.3	41.6	50.2	68.9	56.8	77.0	60.7	155	2	35	94
WAHOO	59.3	53.5	70.7	75.2	53.8	44.9	36.6	85.7	40.1	48.7	65.4	56.8	80.6	58.2	154	2	33	93
SD97538	58.3	49.4	68.9	72.0	55.5	47.4	36.0	86.5	40.9	44.4	64.7	50.9	83.6	59.3	154	2	33	90
WESLEY	58.2	51.9	64.9	70.8	61.5	40.7	36.4	83.1	44.3	43.1	66.1	55.4	79.9	59.2	152	0	30	90
SD98102	58.1	49.3	67.9	67.8	47.1	46.5	36.3	84.0	44.3	50.0	71.3	54.1	79.2	59.6	155	2	35	92
EXPEDITION	58.0	54.5	72.3	68.0	58.4	43.8	37.5	78.6	39.5	46.9	63.5	51.2	82.0	59.8	151	1	32	93
SD97059-2	58.0	52.7	61.4	65.8	44.3	44.1	36.3	98.9	43.0	46.9	62.7	53.6	86.4	58.9	155	1	30	89
SD97380-2	57.9	49.9	68.5	67.1	57.3	46.1	39.4	89.4	37.0	46.6	59.9	56.0	78.0	58.9	154	2	34	90
SD99W015	57.4	51.8	66.5	65.3	54.1	46.0	36.5	76.9	41.3	49.3	70.8	54.4	76.1	59.5	153	1	32	92
FALCON	57.3	56.5	66.8	61.5	50.7	43.5	35.9	83.3	41.1	47.3	60.3	55.7	85.1	59.4	156	1	32	88
ARAPAHOE	57.2	52.8	64.5	67.8	57.2	45.8	38.0	85.3	35.9	45.1	59.6	57.0	77.9	59.3	154	2	34	89
SD97049	56.6	51.3	66.6	65.9	50.4	42.7	31.4	87.4	43.4	43.5	69.4	56.4	70.7	58.8	152	1	31	93
SD97W671-1	56.2	52.8	71.0	63.6	43.9	43.7	35.6	77.9	43.0	52.8	62.9	54.6	73.0	60.2	155	2	31	89
SD97088	56.2	48.1	65.0	66.6	48.2	44.4	33.8	88.5	45.4	43.8	65.1	53.6	72.2	59.8	155	2	35	83
TREGO	56.0	56.9	69.8	69.6	55.0	43.2	33.5	75.6	38.3	42.9	61.3	51.9	73.5	60.2	153	3	31	92
ALLIANCE	55.4	52.6	70.7	69.3	54.0	43.6	37.4	70.9	43.6	41.3	55.5	53.4	72.8	58.5	152	2	33	88
SD92107-5	55.3	49.7	66.3	66.8	47.3	42.2	31.4	83.3	44.4	43.5	59.4	54.8	74.3	60.3	157	2	36	90
HARDING	54.8	52.8	68.0	64.6	45.9	39.5	37.6	88.4	39.2	41.6	55.3	54.5	70.3	59.9	157	2	36	94
NEKOTA	54.7	50.5	69.6	60.0	51.6	41.8	34.4	79.0	41.7	48.5	61.7	49.3	68.5	59.9	152	2	32	90
SD97250	54.4	50.6	66.8	61.4	51.3	44.3	34.5	79.3	36.9	45.9	62.5	53.0	66.6	59.2	155	2	35	90
JERRY	54.3	50.4	56.6	59.0	47.3	40.0	36.2	86.5	41.4	46.2	57.0	56.9	74.8	59.7	158	2	36	94
CRIMSON	53.8	53.0	68.7	60.0	38.2	40.2	42.5	84.8	42.4	45.8	55.2	48.4	66.3	61.2	157	2	36	89
TANDEM	53.5	52.4	65.6	67.5	48.9	41.5	35.4	74.7	42.9	45.4	51.0	52.2	65.1	61.2	155	3	35	88
SD92107-3	53.4	48.0	60.7	65.0	43.8	43.4	35.6	86.7	37.6	41.8	56.0	53.2	69.4	59.5	156	2	35	88
NUPLAINS	53.2	48.6	65.0	58.5	49.7	41.3	37.9	86.6	43.9	44.9	51.2	50.4	60.1	61.2	156	1	30	87
AP502CL	53.0	50.7	72.8	60.6	60.3	37.6	36.3	63.3	39.5	42.6	61.1	40.2	71.2	57.5	151	1	31	82
RANSOM	49.6	47.0	54.5	55.5	44.9	39.2	33.5	77.6	36.8	45.0	49.0	48.4	63.8	58.7	157	3	35	93
MEAN	56.4	51.9	66.8	65.4	52.2	43.1	36.0	83.2	40.9	46.0	61.9	53.4	75.4	59.7	154	2	33	90
CV%		8	6.5	4.3	10.9	5.9	11.6	8.8	12.1	8.5	10.7	8.1	9.8					
LSD (0.05)		5.8	6.1	3.9	8	3.6	6	10.3	6.9	5.9	9.4	6.2	2					

<sup>1</sup> Entries are ranked in descending order by statewide yield average. <sup>2</sup> Dakota Lakes dry pea stubble environment. <sup>3</sup> Lodging is based on a scale of 1-5, where 1 is best.

The SDSU and NDSU Winter Wheat variety trial data are preliminary. Information on test weights, protein and 3 year average are being compiled and will be available on their web sites.

You can find the summary of the NDSU Winter Wheat trials (for yield only) at <http://www.ag.ndsu.nodak.edu/aginfo/smgrains/ww03.htm> and yield trial data for each site, when they become available will be posted at <http://www.ag.ndsu.nodak.edu/aginfo/variety/hrww.htm>.

SDSU web site is <http://sdces.sdstate.edu/> and click on 2003 Winter Wheat Crop Performance Results ExEx8136.

### Stay Tuned

The next issue of Agronomy News will report the results from the NDSU and DU Winter Wheat fungicide trial at Lisbon, ND, the winter wheat micro-nutrient trial at Kevin Anderson's, Andover, SD, and the modified winter wheat intensive management trial at Larry Anderson's, Ellendale, ND.

**!!! Warning !!! The Yields may scare you.**

## NDSU Winter Wheat—2003 Crop Performance Testing—Variety Trial

Variety	Williston		Dickinson		Hettinger		Minot		Carrington		Langdon		Casselton		Lisbon		State Avg.		
	2003	3 Yr. Avg.	2003	3 Yr. Avg.	2003	3 Yr. Avg.	2003	3 Yr. Avg.	2003	3 Yr. Avg.	2003	3 Yr.	2003	3 Yr.	2003	3 Yr.	2003	3 Yr.	
Agassiz	55.98	74.1	55.5	49.4	47.9	67.2	57.7	49.6	--	55.3	36.1	--	55.3	36.1	--	55.3	36.1	--	
Alliance	56.32	65.7	48.4	38.6	54	54.5	43.4	60.6	105.3	60.8	34.3	75.7	60.8	34.3	75.7	60.8	34.3	75.7	59.5
Arapahoe	53.96	69.1	54.9	44.4	56.9	74.2	52.9	65	96.4	63.7	56.1	80.3	63.7	56.1	80.3	63.7	56.1	80.3	65.4
CDC Falcon	58.19	83.4	--	52.5	64.1	79	56.6	61.3	97.6	64.7	46.4	82.1	64.7	46.4	82.1	64.7	46.4	82.1	67.9
CDC Kestrel	54.63	80.2	56.1	45.2	54.1	59	55.2	63	93.3	62.8	53.3	75.2	62.8	53.3	75.2	62.8	53.3	75.2	63.9
CDC Raptor	54.29	76.5	--	42.3	--	68.1	58.2	66.6	92.2	66.2	49.3	75	66.2	49.3	75	66.2	49.3	75	64.4
Crimson	56.75	73.8	51.6	44.4	52.8	69.5	56.4	56.7	93.9	62.4	42.2	70.6	62.4	42.2	70.6	62.4	42.2	70.6	62.5
Elkhorn	56.21	73.9	53.8	43.6	47.5	62.7	53.9	56.2	89.1	57	48.9	73.7	57	48.9	73.7	57	48.9	73.7	61
Expedition	41.54	70.8	--	54.2	--	54	--	59.9	100.6	58.1	43.1	--	58.1	43.1	--	58.1	43.1	--	60.3
Good Streak	52.16	73.4	--	52.7	--	66.4	--	69	105.1	62	56.5	--	62	56.5	--	62	56.5	--	67.2
Harding	53.35	70.3	55	54.2	57.6	76.3	58.9	53.7	92.9	52.5	55.7	78.2	52.5	55.7	78.2	52.5	55.7	78.2	63.6
Jagalene	46.16	76.2	--	--	--	86.7	--	63.3	99.2	64	66.8	--	64	66.8	--	64	66.8	--	--
Jerry	60.73	76.7	54.5	51.7	58.3	72.6	59.1	66.1	95.9	61.7	63.7	78.6	61.7	63.7	78.6	61.7	63.7	78.6	68.6
McClintock	49.08	83.8	--	46.9	--	75.5	--	66.1	98	46.6	49.8	--	46.6	49.8	--	46.6	49.8	--	64.5
Millennium	49.24	79.4	--	47.5	--	79	--	66.7	100.6	59.2	74.9	83	59.2	74.9	83	59.2	74.9	83	69.6
Morgan	60.43	80	--	40.3	53.6	70.6	--	72.6	96.7	57.1	44.5	72.5	57.1	44.5	72.5	57.1	44.5	72.5	65.3
Nekota	43.93	59.3	47.3	41.7	56.8	62.7	47.7	51.7	95.2	62.5	41.1	72.5	62.5	41.1	72.5	62.5	41.1	72.5	57.3
Norstar	61.45	81.4	55.3	48.6	50.7	60.6	57	56.6	88.7	49	41.9	62.1	49	41.9	62.1	49	41.9	62.1	61
Paul	48.54	84.6	--	51.1	--	65.6	--	50.3	91.3	55.3	33.1	--	55.3	33.1	--	55.3	33.1	--	60
Ransom	57.68	80.3	56.8	43.8	56.4	64.9	63.6	59.3	93.3	55.7	47.3	75	55.7	47.3	75	55.7	47.3	75	62.8
Roughrider	53.23	66.6	45.2	38	46.7	65.5	57.5	49.8	90.3	48.4	38.2	66.7	48.4	38.2	66.7	48.4	38.2	66.7	56.3
Seward	62.57	82.5	52.9	39.2	46.1	64.5	56.2	50	87	58.4	36.2	66	58.4	36.2	66	58.4	36.2	66	60
Tandem	48.62	63.3	44.9	47.3	52.7	70.9	58.8	65.3	93.9	47.8	51.3	71.9	47.8	51.3	71.9	47.8	51.3	71.9	61.1
Wahoo	56.44	83.3	--	47.7	--	80.1	--	62.7	99.8	52.8	52.4	--	52.8	52.4	--	52.8	52.4	--	67
Wesley	38.57	65.9	--	37.2	--	70.2	50.8	61.4	101.2	57.8	60.1	76.9	57.8	60.1	76.9	57.8	60.1	76.9	61.5
Windstar	51.55	69.1	51.4	47.9	52.3	70.8	56.2	56.3	88.5	41.2	42	75.2	41.2	42	75.2	41.2	42	75.2	58.4

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*Wheat Streak Mosaic continued from page 1*

## HOSTS FOR VIRUS AND MITES

Wheat is the preferred food for the mite and an excellent host for virus reproduction. However, the mite also feeds and reproduces on various other grasses, such as corn, barley, oat, foxtail millet, cheat grass, green foxtail, barnyard grass, prairie cupgrass, and Canada wildrye.

Grass hosts other than wheat primarily are reservoirs for long term survival of mites and virus.

## DISEASE CYCLE

Infection of winter wheat may occur in the fall if volunteer wheat, spring wheat, grassy weed hosts or corn plants infected with the virus and infested with mites are still green at seedling emergence of winter wheat. Volunteer plants may be in the same field or in nearby fields.

**Early seeding** of winter wheat favors WSMV epidemics. At early seeding, air temperatures are generally warm and the mites reproduce rapidly and have a longer time to build up on the emerged wheat seedlings prior to cold or freezing temperatures.

Infection of spring wheat depends on winter survival of the mite on winter wheat, volunteer winter wheat, or perennial grasses and on build-up of the mite population in the spring. Severe losses in spring wheat may occur if it is planted late near an infected winter wheat crop.

**Volunteer wheat**, if not destroyed, can be a source of infection to winter wheat in the fall as well as to spring wheat the following spring.

Factors that favor epidemics of the disease and severe losses include: 1) a wet August which favors continued germination and growth of volunteers; 2) a warm, dry fall and a warm, early spring, both of which increase mite survival, reproduction and movement.

## MANAGEMENT

Control of wheat streak mosaic depends on breaking the life cycle of the wheat curl mite. This is primarily accomplished by managing volunteers and observing recommended planting dates.

**Destroy all volunteer wheat plants and grassy weed hosts at least two weeks before planting winter wheat.** Since the mites have to feed on green plants to survive, they will die during this two-week period. This is called breaking the “**Green Bridge**”.

**Control of volunteer winter wheat plants after harvest is also critical.** Any volunteer winter wheat that escaped destruction in the fall should be destroyed at least two weeks before planting spring wheat.

Plant at the recommended seeding dates. Recommended seeding dates for winter wheat in North Dakota and northern South Dakota are September 1-15. A slightly later planting time is possible in the southern part of North Dakota and in South Dakota if winter wheat is seeded no-till.

Seeding prior to September 1 greatly increases the risks of severe losses due to wheat streak mosaic. Early seeding also favors increased chances of root rot and winter kill in winter wheat.

If it is necessary to seed next to corn fields, delay seeding until as late as possible and destroy all volunteer wheat. Some winter wheats have shown some tolerance to WSMV. They have tended to have slightly less winter hardiness.

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