AGRONOMY NEWS

Grasslands For Tomorrow

Volume 3, Issue 1 **Winter 2003**

Winter Wheat Condition

Establishment of winter cereals was a real challenge in many areas of the Dakotas and Montana this fall. Warm temperatures in early September caused dry surface soil conditions by mid-September. October was one of the coldest on record which has led to less than desirable plant growth.

Winter cereal growth stages range from non-germinated seeds to plants with 4.5 leaves and 3 to 4 tillers. Fields with the greater growth stages were generally seeded in the first two weeks of September at a 1 to 1.5 inch depth and with adequate soil moisture to initiate germination. There are geographic areas that did not receive moisture until mid-October and plant growth is from having the coleoptiles just under the soil surface to one leaf.

The fall of 2002, in hindsight, told us to plant in the first two weeks of September to insure adequate growth of 3 to 4 leaves. Had October temperatures been near normal, mid to late September seeding dates are generally acceptable in a no-till seedbed.

Survival is now in Mother Nature's hands. Survival will be great if the weather is similar to the winter of 2001-2002. Survival will be less than desirable if the conditions of 2000-2001 returns. Snow cover for insulation will be needed if temperatures decide to turn cold and stay for an extended period.

CORRECTION

The yield results from the NDSU and SDSU winter wheat variety trials were included in the last issue of "Agronomy News", Volume 2, Issue 4, Fall 2002.

It has been brought to our attention that the yield data from the Casselton location for NDSU was to variable due to areas of excess standing water on the trial. Please disregard the Casselton location data.

Agronomy News
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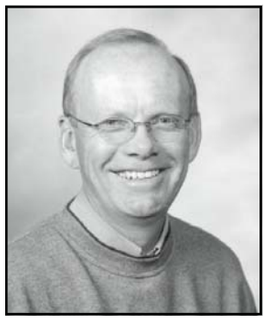

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CCSP Needs Your Help

The Conservation Cropping Systems Project demonstration-research farm at Forman, North Dakota needs a donation or help in purchasing of the following equipment:

- Single disk no-till drill in a 10, 15 or 20 foot width.
- Gravity wagon or trailer for hauling grain (minimum of 250 bushel).
- 4x4 ATV or 6x6 Utility vehicle.

The CCSP farm is studying crop rotations and crop management using a no-till cropping system. It is also comparing no-till and strip-till with shank and single disk drills. Ten farmers from Day and Marshall Counties in South Dakota and Ransom and Sargent Counties in North Dakota direct the farm.

Please contact the following individuals if you would be able to donate or provide one of these items at a substantially reduced cost.

- Larry Lindberg or Walt Albus — 701-724-3247 Ext. 3
- Joe Breker, Chair — 701-724-6343
- Blake Vander Vorst — 701-355-3533

Winter Cereal Sponsors

Ducks Unlimited

North Dakota Natural Resources Trust

South Dakota Game, Fish and Parks

North Dakota Game & Fish Department

Syngenta Crop Protection

Natural Resources Conservation Service (NRCS)

Day, Marshall, James River, Ransom and Wild Rice Conservation Districts

North Dakota Dept. of Health 319 Program

NDSU and SDSU Cooperative Extension Service

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Marketing Column Added

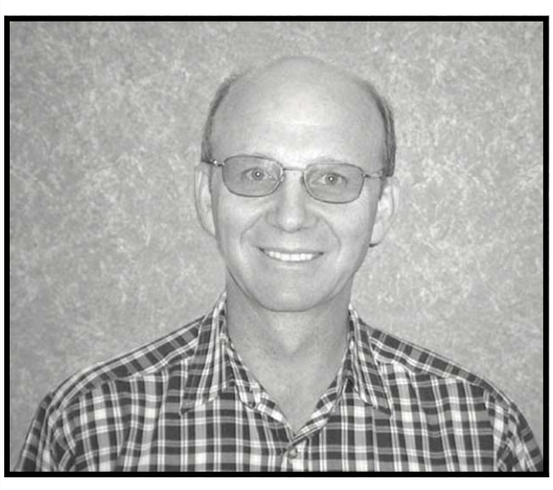
Welcome and thank you to **Mike Krueger** of the "The Money Farm" who has agreed to provide wheat market information for each issue of the newsletter. The email address to reach The Money Farm is included in the article below and his telephone number at the Prosper Farmers Elevator is 1-800-489-5055.

The Money Farm by Mike Krueger

mike@themoneyfarm.com

2002 was an extraordinary year for the wheat market. There were significant production problems in three of the five major wheat exporting countries. Australia suffered the worst drought in nearly a century and their wheat crop was less than half of normal. Western Canada was also entrenched in a major drought that cut their wheat crop by 40%. US wheat production slipped to the smallest level since the early 1970's on small wheat plantings and dry conditions in the hard red winter wheat states of Kansas, Colorado and Nebraska. US and world wheat ending supplies will be the smallest since back in the mid 90's. Wheat prices soared to the $5.00 level in September because of the smaller production. Since then, however, wheat prices have plummeted over $1.00 a bushel. Huge wheat crops in Russia and the Ukraine have allowed these countries to mount an aggressive wheat export program. That has reduced the impact of smaller wheat crops in other parts of the world. US wheat export sales have been below expectations. US producers have planted between two and three million more acres of winter wheat than the previous year. Crop prospects are somewhat better than a year ago, but about 40% of the hard red winter wheat production area is still dry.

NEW EXTENSION AGRONOMIST



Dr. Joel Ransom is the new NDSU Extension Agronomist responsible for cereal grains, which includes all small grains and corn. Dr. Ransom will also have responsibility for the NDSU winter wheat crop performance testing variety trials.

Dr. Ransom has most recently worked in the country of Nepal as a maize (corn) specialist. He has also worked with maize programs in Kenya and wheat in Mexico.

Dr. Ransom obtained his first agronomy major at Brigham Young University. He obtained his M.S. and Ph.D. agronomy degrees from the University of Minnesota.

DU looks forward to working with Dr. Ransom with the winter wheat variety trial at Lisbon, ND. He will also be conducting a hard red spring wheat and barley variety strip trial at this site in addition to working with Dr. Marcia McMullen on the winter wheat fungicide trial.

Incentives & Agronomy Assistance For Farmers

DU will provide agronomy assistance and financial incentives to plant winter cereals to farmers in Dickey, Ransom and Sargent Counties in ND and Day and Marshall Counties in SD.

For more information, call Roger Knapp, DU Field Agronomist, 701-724-3247 Ext. 115 or cell: 701-678-4311 or your local Conservation District office.

James River SCD	701-349-3534	Ransom Co. SCD	701-683-4101
Wild Rice SCD	701-724-3248	Day Co. CD	605-345-4661
Marshall Co. CD	605-448-2442		

Beyond these five counties, winter cereal agronomy assistance is available through Blake Vander Vorst, DU Regional Agronomist. Interested growers can reach Blake at 701-355-3531 or his cell 701-391-2251.

2002 Winter Wheat Fungicide Trials - Lisbon, ND

Marcia McMullen and Scott Meyer
Extension Plant Pathologist and Research Specialist, NDSU, Fargo

Introduction:
A cooperative project to evaluate fungicide treatments on winter wheat varieties was done on the Randy Mairs farm near Lisbon, ND in 2002. Cooperators in the project included: Blake Vander Vorst of Ducks Unlimited; Randy Mairs, grower; and Marcia McMullen and Scott Meyer, NDSU Extension Service, Fargo.

The objective of the project was to evaluate fungicide treatments on several varieties of winter wheat for leaf disease and head scab control. The project was supported by: Ducks Unlimited; Emmett Lampert, Syngenta Crop Protection; Jeremy Frie, BASF Corp., and Brent Peterson, Bayer CropScience.

Materials and Methods:
Five winter wheat varieties were planted on September 25, 2001 at the Randy Mairs farm near Lisbon, ND (Table 1A). The site had been planted to spring wheat in 2001, to barley in 2000 and to sunflower in 1999. Fertilizer at the rate of 133 lbs of actual N was applied in the early spring of 2002. Herbicides at 1 pint/acre of Bronate and 2/3 pint/acre of Puma were applied at late tillering, on June 7, 2002. Winter survival was good on all varieties due to the mild winter. Winter survival ratings were taken on May 14, 2002 and varieties ranged from a score of 6-10 across replications, with 10 indicating maximum survival.

Fungicide treatments were applied by Scott Meyer of NDSU across the varieties at several growth stages (Table 1B). Early season treatments at the five leaf stage were applied with a bicycle sprayer equipped with XR8002 flat fan nozzles oriented vertical to the crop canopy. Heading applications were applied with a hand-boom sprayer equipped with XR8001 nozzles oriented forward and backward toward the grain head at 60^0 from the vertical. Water volume was 18-20 gpa applied at 40 psi. Treatments were replicated four times, with plots arranged in a split plot design with treatments as the main plots and varieties as sub-plots. The summer was very dry and warm; this location received only approximately 1.6 inches of precipitation in June with very high temperatures, 99^0F on June 29. Total precipitation in July was 3.9 inches, but most of that came after the crop was close to maturity. Fusarium head blight (scab) and leaf disease ratings were taken, at the soft to mid-dough stage of kernel development by Marcia McMullen on July 9. Plots were harvested by Scott Meyer on July 30, 2002. A split plot analysis of the data was done using SAS.

Table 1. Varieties and Fungicide Treatments, Winter Wheat, Lisbon, ND 2002

A.	B. Fungicide Treatments*			
Varieties	Trt. #	Early season, 5 leaf	Early flowering	Manufacturer
Jerry	1	Untreated	Untreated	
Arapahoe	2	Tilt - 1 fl oz/acre	Tilt - 3 fl oz/acre	Syngenta
Harding	3	Untreated	Tilt - 4 fl oz/acre	Syngenta
CDC Falcon	4	Headline - 3 fl oz/acre	Headline - 5 fl oz/acre	BASF
Wesley	5	Stratego - 3 fl oz/acre	Folicur - 3 fl oz/acre	Bayer

* Tilt = propiconazole; Headline = pyrachlostrobin; Stratego = Tilt + trifloxystrobin; Folicur = tebuconazole

2002 Winter Wheat Fungicide Trials continued from page 3

Results:

Table 2. Disease and test weight and yield comparisons of treatments across all varieties.

Trt #	Early season application	Flowering application	Tan spot* % of flag leaf	Leaf rust* % of flag leaf	Test wt.* lbs/bu	Yield* bu/acre
1	Untreated	Untreated	21.3a	2.8a	55.9a	44.0a
2	Tilt 1 fl oz	Tilt 3 fl oz	2.8b	0.1b	55.9a	45.7a
3	Untreated	Tilt 4 fl oz	2.8b	0.05b	55.8a	43.9a
4	Headline 3 fl oz	Headline 5 fl oz	1.0b	0.0b	55.8a	46.5a
5	Stratego 3 fl oz	Folicur 3 fl oz	2.8b	0.2b	55.4a	45.9a

* Values followed by different letters are significantly different from each other at the 95% confidence level.

Fungicide treatments significantly reduced tan spot and leaf rust levels from the untreated check, but did not differ significantly from each other (Table 2). The Headline treatments gave slightly lower disease ratings and slightly higher yields, but differences were non-significant and small.

Table 3. Disease and test weight and yield comparisons of varieties across all five treatments

Variety	Tan spot* % of flag leaf	Leaf Rust* % of flag leaf	Test wt.* lbs/bu	Yield* bu/acre
Jerry	5.6a	0.2b	55.2c	45.3b
Arapahoe	4.4a	1.0a	56.1b	45.3b
Harding	3.5a	0.3b	56.6a	47.2a
Falcon	8.5b	0.2b	54.8c	43.6b
Wesley	8.7b	1.6a	56.0b	44.5b

* Values followed by different letters are significantly different from each other at the 95% confidence level.

Falcon and Wesley winter wheat varieties had significantly higher levels of tan spot on the flag leaf than did the other three varieties (Table 3), when averaged over all five treatments. Arapahoe and Wesley had significantly higher leaf rust levels on the flag leaf than the other three varieties, although overall levels were low. Tan spot levels in untreated plots ranged from 12.5% in Harding to 27.5% and 30% in CDC Falcon and Wesley, respectively. In untreated plots, leaf rusts were highest in Wesley, at 7.5%, followed by Arapahoe at 4.3%. Fusarium head blight was not observed in this trial in 2002.

Across all fungicide treatments, Harding had a significantly higher test weight and yield than the other four varieties (Table 3). It also had the highest yield in untreated plots among the varieties, at 46 bu/acre.

Conclusions:

Significant differences among winter wheat varieties in disease tolerance exist. Harding had the lowest tan spot level across fungicide treatments and in the untreated, while Jerry, Harding and CDC Falcon had the lowest rust severities across treatments and in the untreated. Harding had a significantly higher yield across treatments than other varieties, indicating its lower disease susceptibility and perhaps its greater tolerance to the heat and dry conditions associated with the plot in 2002.

Heat and drought did not allow good separation of fungicide treatments in 2002. Although some leaf diseases did develop late in the season, Fusarium head blight (FHB) did not develop, so flowering applications to control FHB disease could not be evaluated properly. Although heat and drought prevented good evaluation of fungicide treatments in 2002 in this trial, the amount of late season leaf disease development indicates the potential for disease damage in a more favorable environment for crop and disease development.