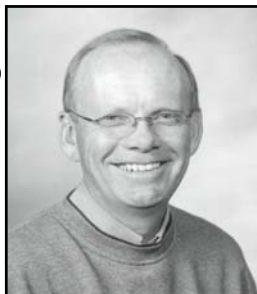


# AGRONOMY NEWS

 *Grasslands for Tomorrow*

Volume 8, Issue 2

June 2008



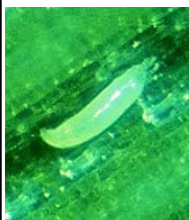
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## **Scientists Release New Disease Resistant Winter Wheat**

USDA-ARS  
Plant Health Progress



Washington, D.C. 'Mace', a new winter wheat cultivar developed by Agricultural Research Service (ARS) scientists and cooperators, could give growers an added measure of insurance against outbreaks of wheat streak mosaic virus (WSMV).

According to ARS plant geneticist Robert Graybosch, Mace harbors a gene called Wsm-1 that confers resistance to the virus, which is spread by the wheat curl mite, *Aceria tosichella*. Spraying pesticide to prevent the mite from feeding and transmitting WSMV isn't particularly effective, so growers typically resort to using a combination of strategies, such as controlling weedy grasses and "volunteer" wheat. Both are sources of WSMV that the mites can acquire through feeding. Even then, outbreaks of the virus can still occur. In the Great Plains, yearly outbreaks of WSMV claim about five percent of the region's wheat crop. Losses can be higher, as was the case in 1995, when an outbreak in Montana caused \$35 million in yield losses there.

This winter, following more than 10 years of research, development and evaluation, Mace will be made available to wheat breeders and growers as foundation seed. 'RonL', a Kansas State University release, is the only other U.S. wheat cultivar with resistance to WSMV. However, this resistance seems to fade when temperatures climb to 70 degrees Fahrenheit or higher. Graybosch works at the ARS Grain, Forage and Bioenergy Research Unit in Lincoln, Nebraska.

Temperature sensitivity isn't an issue with Mace, which inherited its virus resistance from CI 17884, a wheat germplasm line that carries a chromosome for the trait from an intermediate wheatgrass. Graybosch co-developed and tested the new wheat line with scientists at the ARS Lincoln unit, the University of Nebraska, and Kansas State University.

In two years of field trials at sites throughout Nebraska, Mace produced grain yields equal to 'Wesley' and 'Millennium', two commercial varieties. In virus-infected fields, however, Mace's yields were two to three times higher than these and other commercial varieties the scientists used for comparison.

Graybosch is handling seed requests for the new wheat line. ARS is the U.S. Department of Agriculture's chief scientific research agency. (Editor's note: Mace will be included in the 2009 NDSU and DU variety trial locations).

**Winter Annual Brome Control in No-Till Spring and Winter Wheat**  
**Michael Ostlie and Kirk Howatt. Plant Sciences Department, North Dakota State University**

Winter annual weeds present challenges in reduced tillage systems in North Dakota. Winter annuals tend to increase in frequency when a grower switches to no-till or winter wheat production if they are not prepared for the different weed spectrum. Winter annual bromes, such as Japanese brome and downy brome (photos below), are fierce competitors with wheat. Similar to winter wheat, these brome species begin growing in the fall, usually in September or early October, putting out tillers and building root mass to support rapid growth in the spring. Due to strong establishment, these bromes can complete their life-cycles early in the next growing season and compete heavily with wheat for water and nitrogen. By mid- to late May the bromes can begin heading and be physiologically mature by late June.



Managing winter annual bromes is complex. They are more difficult to control once they over-winter. In addition, a number of growers have noted regrowth from the crown of plants after herbicide application, even though the above ground tissue may get stunted or burned off Figure 1.

Japanese and downy brome populations can quickly become severe after entry into a field. Proper identification is the first step to stopping this problem. Since these are new pests in North Dakota cropland, many growers do not realize what the weed is until after the brome is thoroughly established in the field.

These bromes are some of the first plants growing in the spring, and often can be easily identified from annual grasses by their bunched nature and abundant leaf hair. Whereas foxtails and wild oats grow early in the season with very few tillers, downy and Japanese brome quickly produce many tillers, often between 5 and 10 in the fall and as many as 60 tillers when mature.

What can a reduced tillage wheat grower do about this problem? There are a number of options that can be used, besides tillage, to manage winter annual bromes. The most effective method is to spray glyphosate in the fall. Before winter, the bromes are more susceptible to herbicidal activity than they are in the spring. However, for spring wheat, spring pre-plant burndown is still effective if brome was not controlled in the fall.



There are a few control options that can be used to manage winter annual brome populations if the infestation persists into the growing season.

Olympus™, Rimfire™, Maverick®, Everest®, and Beyond®/Clearmax™ (use Beyond®/Clearmax™ with Clearfield® wheat only) have activity on Japanese and downy brome and may be used in spring or winter wheat (Table 1). As noted in the table, Japanese brome is more susceptible to these herbicides than downy brome. Also, Olympus™ Flex and Power-Flex™ may be used for controlling brome in winter wheat. None of these products provide complete control of brome in mid- to late May but will suppress Japanese and downy brome, which will help protect wheat yield and reduce seed production of the brome.

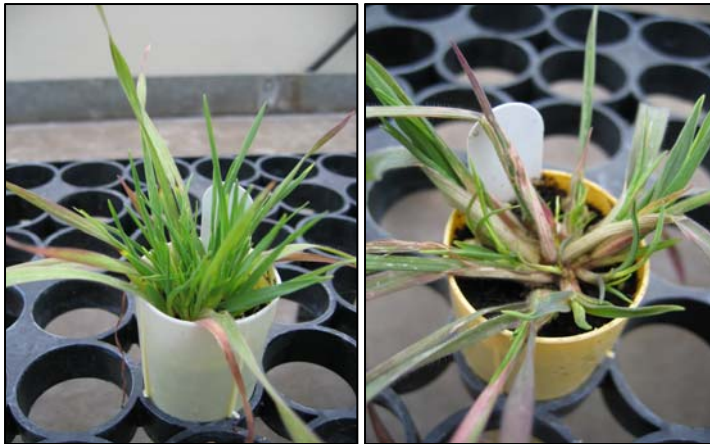
**CONTINUED....**

Please note that subsequent crop seeding may be restricted due to chemical residues. Consult the label for seeding intervals. Selective ACCase inhibitors such as Puma and Discover have not affected winter annual brome growth in experiments.

There are a number of options for controlling Japanese and downy bromes in other crops.

Glyphosate can provide good activity in RoundUp Ready crops if sprayed early. Other herbicide options are Select and Assure II for broadleaf crops. Once again, timing is critical, spraying the brome when plants are small is key for destroying crown tissue and ensuring they will not regenerate.

**Figure 1. Downy brome regrowth (left) after sublethal (right) herbicide treatment.**



Photos courtesy of Eric Eriksmoen, Hettinger REC.

Seeds of Japanese and downy brome fortunately do not persist for many years in the soil. The seeds either germinate or deteriorate rapidly. For this reason, heavily infested areas can be brought under control in a relatively short period of time with intensified management. Timely application of effective herbicides is a key to controlling winter annual bromes and eliminating seed production in the absence of tillage options. But in some severe infestations, it may be wise to reintroduce occasional tillage.

**Table 1. Expected range of control of Japanese and Downy brome with selected wheat herbicides.**

Herbicide	Japanese Brome (%)	Downy Brome (%)
Beyond®/Clearmax™	90-99	80-99
Olympus™/Olympus™ Flex	90-99	65-90
Everest®	80-90	40-80
Rimfire™	80-90	40-80
Maverick®	80-90	65-90
PowerFlex™*	90-99	65-90

\*Ratings estimated based on limited information about this new product.

<u>DATES</u>	<u>TOURS</u>	<u>DATES</u>	<u>TOURS</u>
June 23rd	<b>DU/NDSU Dickey County</b> Intensive Winter Wheat Management Study, 9.5 miles east of Ellendale, ND on Highway 11. The tour starts at 5:30 p.m. followed by a steak dinner sponsored by <b>Syngenta</b> and the <b>Dickey County CIA</b> . There are 24 varieties from SDSU, Meridian Seeds, Unity Seed Co., WestBred, Canada and AgriPro. This site also has 3 winter wheat varieties seeded in HRSW, Flax, pea and soybean stubble. Each variety in each prior crop stubble has 4 fungicide timing treatments. Dr. Franzen has a chloride/fungicide study. For additional information: <b>701-349-3249 Ext. 2</b>	June 24th	<b>DU/NDSU NWWCP</b> tour. 3 miles south of Coleharbor, ND at the junction of Hwys 48 & 200. Kent McKay, Vision Research Park and Denise Markle, NDSU have several winter wheat trials: varieties, fungicides, fertility and seed treatments. AgriPro also has a trial located next to the NDSU trial. Sponsors: Ducks Unlimited, North Dakota State University, Bayer, AgriPro, Wholesale Ag Products, Novozymes. Dinner to follow.  <b>CONTINUED ON NEXT PAGE</b>

<u>DATES</u>	<u>TOURS</u>	<u>DATES</u>	<u>TOURS</u>
June 25th	<b>SDSU Field Day</b> , west side of Highmore, SD. Tour starts at 5:00 p.m. For additional information: <b>605-688-4958</b>	July 14th	<b>NDSU/DU Ransom/Sargent</b> County Research Plot Tour, 6:00 p.m., 7.5 miles south of Lisbon, ND on Hwy. 32. Winter Wheat, HRSW and early maturing soybean variety trials with and without fungicides. The tour is sponsored by NDSU, DU, Bayer and BASF. Steak dinner to follow.
June 26th	<b>Dakota Lakes Research Farm</b> tour starts at 1:00 p.m. 17 miles east of Pierre, SD on Highway 34. For additional information: <b>605-224-6114</b>	July 14th	<b>NDSU Casselton Agronomy Seed Farm</b> tour, Casselton, ND. The tour starts at 5:30 p.m. For additional information: <b>701-347-4743</b>
June 27th	<b>Edmunds Co. Extension</b> winter wheat variety and spring wheat weed control tour. 10:30 a.m. at the winter wheat plots 1 mile west of Ipswich, SD on Hwy. 12. The weed tour will follow and is 1.4 miles north of Ipswich on Co. Rd. 13. Dr. Osborne and Dr. Moechnig, SDSU, will speak along with Blake Vander Vorst, DU, and Steve Dvorak, Pulse USA. Lunch sponsored by BASF and North Central Farmers Elevator.	July 15th	<b>NDSU Carrington</b> Research Extension Center tour, Carrington, ND. The tour starts at 9:30 a.m. For additional information: <b>701-652-2951</b>
June 30th	<b>Brookings Agronomy Farm</b> tour, SDSU, Brookings, SD. 4:00 p.m.	July 15th	<b>Brown/Day Co. Wheat</b> tour, 1:00 p.m. at Rix Farms, from Groton, SD, 3 miles north and 1/4 mile east on 130th street. 3:30 p.m., Kevin Anderson Farm, 3 miles east of Andover on Hwy. 12. 5:00 p.m., Horter Farms, east of Andover, SD at the junction of 137th street and Hwy. 12, NE side of road. Spring wheat and winter wheat variety and fungicide trials. Dr. Glover and Dr. Osborne from SDSU will speak along with Blake Vander Vorst from DU. Dinner will follow. For additional information: <b>605-626-7120</b> and <b>605-426-6971</b>
July 2nd	<b>SDSU Northeast Farm</b> tour, South Shore site north of Watertown, SD. The tour starts at 4:00 p.m.	July 16th	<b>NDSU/Wishek</b> tour starts at 7:00 p.m. The trial is 6 miles west of Wishek on Hwy. 13. Research includes winter wheat, spring wheat, barley, oat, field pea and soybean variety trials and a wheat nitrogen management trial.
July 8th	<b>NDSU Hettinger</b> Research Extension Center, Hettinger, ND. Small Grains tour starts at 3:00 p.m. For additional information: <b>701-567-4323</b>	July 16th	<b>NDSU North Central</b> Research Extension Center tour, Minot, ND. The tour starts at 9:00 a.m. For additional information: <b>701-857-7677</b>
July 9th	<b>NDSU Dickinson</b> Research Extension Center, Dickinson, ND. The tour starts at 8:30 a.m. For additional information: <b>701-483-2348</b>	July 17th	<b>Friends and Neighbors Day</b> at the Northern Great Plains Research Lab and Area IV SCD Research Farm, Mandan, ND. The tour starts at 2:00 p.m. with a campus tour and the field tour at 4:00 p.m. with a barbeque and entertainment following. For additional information: <b>701-663-6445</b>
July 9th	<b>DU/NDSU Hettinger/Morton Co. CIA/Gartner Seed Farm/Area IV SCD Research Farm</b> field tour at 6:00 p.m., 7 miles west, 1 mile north and 1/2 mile west of St. Anthony, ND. Winter Wheat and spring grain varieties, seed increase fields of new NDSU varieties. Dinner to follow.	July 17th	<b>NDSU Langdon</b> Research Extension Center, Langdon, ND. 8:30 a.m. For additional information: <b>701-256-2582</b>
July 10th	<b>NDSU Williston</b> Research Ext. Center, Williston, ND. Starts at 9:30 a.m. For additional information: <b>701-774-4315</b>		
July 10th	<b>CCSP</b> (Conservation Cropping Systems Project) tour, 4:00 p.m., followed by dinner, 1 mile south of Forman, ND at the junction of Hwys. 11 and 32. CCSP is a no-till crop rotation research and demonstration farm including no-till and strip-till comparisons. For additional information: <b>701-724-3247 Ext. 3</b>		

**Agronomy News Editors:** Blake Vander Vorst & Janell Rath

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**NEW FUNGICIDE REGISTRATIONS FOR  
WHEAT AND BARLEY**

**Dr. Marcia McMullen**  
**NDSU Extension Plant Pathologist**

**Scab Forecasting Sites:** Winter wheat fields in parts of the region are fast approaching decision time for Fusarium head blight (FHB =scab) control. Disease forecasting sites on June 9<sup>th</sup> indicated a medium to high risk for FHB infection in counties in central and eastern regions along the North Dakota/South Dakota border. Winter wheat may be fast approaching heading or flowering stages in these counties. The North Dakota scab forecast site may be found at: <http://www.ndsu.edu/scabforecast/>. MN and SD also have individual state forecasting sites, plus a multi-state scab forecast site is also available at: <http://www.wheatscab.psu.edu/>. All sites give FHB risks based on recent weather.

**New Fungicide Availability:** Fortunately, growers have multiple and good fungicide options for FHB suppression this year. Two fungicides, Folicur (tebuconazole, manufactured by Bayer CropScience) and Caramba (metconazole, manufactured by BASF), have received full federal registration from the Environmental Protection Agency for use on small grains in the US. Both are included in the class of systemic fungicides called triazoles.

**Folicur** previously was available in ND for 11 years through one-year emergency exemptions, but full registration status was finally granted on May 2. The Folicur label states that 4 fl oz/acre may be applied to wheat and barley, to control rust diseases and suppress Fusarium head blight. The pre-harvest interval for Folicur is 30 days. Grazing livestock or feeding of green forage is permitted 6 or more days after the last application. A spray surfactant is recommended to be used with Folicur. The ND pesticide registration base also indicates that **Orius**, MANA's version of tebuconazole, has received labeling, as well.

With Folicur available, Bayer CropScience has also developed a supplemental label for **Folicur + Proline** (prothioconazole) for use in 11 states, including ND, MN, SD, and MT. This label is for 3 fl oz of Folicur + 3 fl oz of Proline for the suppression of Fusarium head blight

and control of leaf diseases, such as leaf rust Septoria, and tan spot. This combination was widely used in ND in 2007, under the emergency exemption for Folicur and the full registration for Proline. Bayer anticipates a full registration for **Prosaro** fungicide (a pre-mix of prothioconazole and tebuconazole) in the near future, but that pre-mix may not be available for use in the 2008 season.

**Caramba** is a new registration from BASF, also just received in the state. Caramba is registered for wheat, barley, oats, rye and triticale. The use rate for Caramba are 10 fl oz/acre for leaf diseases and 14-17 fl oz for suppression of Fusarium head blight. For applications of 5 gpa or more, an approved adjuvant at standard rates is recommended. The pre-harvest interval is 30 days, and no livestock feeding restrictions are indicated.

The ND Dept. of Agriculture has posted the label for Folicur, Orius, and Caramba, through their web site under their pesticide registration link found at: <http://www.kellysolutions.com/nd/pesticideindex.htm>. The label for Proline also is available through this web site.

BASF has another new federally labeled product, called **Multiva**, a combination of Headline (pyraclostrobin) and Caramba (metconazole). As of June 9<sup>th</sup>, 2008, this label was not yet posted on the ND registration site. Multiva use will be aimed at leaf diseases of the small grain crops, at a 6-11 fl oz/acre rate, but indications from BASF are that it may not be marketed in this region, at least for 2008.

Complete information on pricing, availability, and strategies for use and specific disease control of these products should be obtained from the company representatives in the area. The good news for farmers is that all are excellent products and provide the means for good fungicide disease control strategies throughout the growing season.

NDSU at Fargo, and at Carrington, Minot, and Langdon Research Extension Centers, have looked at disease control with these products in recent years. Comparisons of how Folicur, Proline, Folicur + Proline, Prosaro, and Caramba compared across several years and locations are given in the two tables on page 6. Not all products were tested each year.

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# AGRONOMY NEWS

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**June 2008**

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2525 River Road  
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**Table 1. Comparison of Folicur vs. Proline vs. Folicur plus Proline, 2004. 4 trials, 3 ND locations, HRS + Durum, moderate FHB**

% Reduction from check						% Increase
Comparison 3	Rate/A	FHB FS	DON**	Leaf Spot	Leaf Rust ***	Yield
Folicur	4 fl oz	57.4	32.9	73.8	100	24.2
Proline	5.0 fl oz	71.2	35	75.5	79	28.3
Folicur + Pro. *	3.17+2.85	76.9	38.5	80.7	100	29.8

\*Folicur+Proline rates very close to rates in Prosaro; \*\* DON = deoxynivalenol = vomitoxin; \*\*\*Average of 2 HRSW trials

**Table 2. Comparison of Folicur, Prosaro, and Caramba, 2005-2007. 11 trials, 4 ND locations, HRSW + durum; 2005 a FHB year, while 2006 and 2007 were low FHB years.**

% Reduction from check						% Increase
Comparison 4	Rate/A	FHB FS	DON*	Leaf Spot	Leaf Rust **	Yield
Folicur	4 fl oz	50.2	47.8	62.8	100	17.8
Prosaro	6.5 fl oz	66	61.8	67.5	99.8	26.4
Caramba	10 fl oz	49.4	34.4	67.5	100	20.1
Caramba	13.5 fl oz	58.9	57.7	68.7	100	23.2

\*DON = deoxynivalenol = vomitoxin; \*\*Average of 3 trials of HRS that had leaf rust

## **Premium Price Market**

Sinner Bros. & Bresnahan Partners in Farming (SB&B Foods) in Casselton, ND is looking for quantities of 2008 crop Hard Red Winter Wheat and Hard White Winter Wheat. For more information on marketing your 2008 winter wheat at a potential premium price, contact:

Scott Sinner - SB&B Foods  
701.866.8495 (work)  
701.347.4900 (cell)  
701.347.4462 (fax)  
<http://www.sb-b.com>

## **Winter Cereal Sponsors**

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*South & West McLean, Ward and Mountrail Conserva-*  
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