

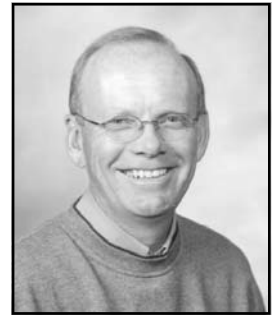
AGRONOMY NEWS



Grasslands For Tomorrow

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Roger Knapp,
DU Field Agronomist
Wild Rice Soil Conservation Dist.
8991 Hwy 32 North
Forman, ND 58032-9702
701-724-3247 Ext. 115
701-678-4311 (Mobile)

Blake Vander Vorst
Regional Agronomist
Ducks Unlimited, Inc.
2525 River Road
Bismarck, ND 58503-9011
701-355-3533
Cell: 701-391-2251

Winter Wheat Micronutrient Trial

A cooperative project to evaluate micronutrient treatments on winter wheat in 2003 was located in a field on the Kevin Anderson farm near Andover, SD. Cooperators in the project included: Kevin Anderson, grower; Dave Siefkes, Wheat Growers, Bristol, SD; SD Department of Game, Fish & Parks, Hansmeier & Sons, UAP Northern Plains, AgriPro Wheat, Syngenta Crop Protection, Prairie Ag Research, Day Co. CIA, SDSU, Day Co. Conservation District and NRCS. The objective of the project was to evaluate micronutrient treatments on winter wheat yield. The project was supported by Ducks Unlimited and TJ Technologies, Inc.

Materials and Methods

'CDC Falcon', 'Harding', and 'Jagalene' winter wheat varieties were planted on September 11, 2002 at a rate of 130 pounds per acre at the Kevin Anderson farm near Andover, SD. Micronutrient treatments (Table 1) were applied with the 5 GPA of starter fertilizer (10-34-0) at seeding with a Horsch Anderson drill equipped with Anderson openers on 15" spacing. The liquid starter treatments were applied below and between the two rows of seed. Precipitation was very good with April at 3.76", May at 3.95", June at 5.89" and July at 1.67". The wet weather favored development of tan spot, Septoria leaf spot and leaf rust.

Winter Survival was marginal for 'Jagalene', fair to good for 'Harding', and good for 'CDC Falcon'. Plots were 7.5' by 150' in size while 7.5' by 40' was harvested due to the volume of grain with high yields.

Planting was completed by Blake Vander Vorst, Steve Dvorak and Jim McKane. Nitrogen and the early fungicide plus herbicide applications were applied by Blake Vander Vorst. The late season fungicide application was applied by Wheat Growers, Bristol, SD.

The pre-harvest burn down was applied by Kevin Anderson. Plots were harvested July 25, 2003 by Dr. Roger Irwin, Prairie Ag Research, Britton, SD. An analysis of variance was done to determine statistical differences among treatments by Dr. Duane Pool.

The following management practices were applied:

May 15, 2003: 2,4-D LV6 + Tilt @ 8 oz + 2 oz/A to 5 to 6 leaf winter wheat; 12 GPA of UAN (28-0-0) applied with stream bars

June 14, 2003: Folicur @ 3 oz/A at early heading, Feekes 10.51 growth stage

July 16, 2003: Roundup @ 32 oz/A as a preharvest burn down

Soil Test Information

Nitrogen	187 lbs/A (0-2')
Potassium	354 ppm
Sulfur	44 lbs/A (0-2')
Copper	0.52 ppm
Magnesium	411 ppm
Manganese	11.5 ppm
O.M.	4.2%
Phosphorus	8 ppm
Chloride	24 lbs/A
Zinc	0.90 ppm
Boron	0.30 ppm
Calcium	2534 ppm
pH	6.5%

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

Agronomy News

Editors: Blake Vander Vorst,
Janell Rath

Phone: (701) 355-3533
E-mail: bvandervorst@ducks.org

Table 1. Micronutrient Treatments, Winter Wheat, Andover, SD 2003

Check	5 gpa of 10-34-0 - all micronutrient treatments received this application
Wheat Mix	3 pints/A of Calcium 0.7% + Magnesium 0.3% + Boron 0.1% + Copper 0.9% + Iron 0.6% + Manganese 0.5% + Zinc 0.9%
Cooper Magnesium	3 quarts/A of 50:50 mix of 7.5% EPDA Copper + 4.0% Magnesium Sulfate + Citric Acid
Magnesium	3 quarts/A of 4.0% Magnesium Sulfate + Citric Acid
Copper	2 quarts/A of 7.5% EPDA Copper

Results and Conclusions

Winter wheat variety results (Table 2) indicate that Harding had the highest protein content and Jagalene had the highest test weight. CDC Falcon and Jagalene yielded more than Harding.

Table 2. Protein, test weight, and yield comparisons of 3 winter wheat varieties averaged over micronutrient treatments, Andover, SD

Variety	Protein*	Test Weight*	Yield*
Harding	13.53 b	62.01 a	78.7 a
Jagalene	12.87 a	63.59 b	88.7 b
CDC Falcon	12.55 a	62.71 a	93.0 b

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

The wheat mix treatment yielded more than the 10-34-0 check for the winter wheat variety Jagalene (Table 3). There were no other significant differences in yield between the micronutrient treatments. In this high yield environment, the three-micronutrient treatments containing copper had a tendency toward greater yields as indicated in the treatment average column in Table 3. There were no differences in protein or test weight for the micronutrient treatments.

Table 3. Yield comparisons of micronutrient treatments on 3 winter wheat varieties, Andover, SD, 2003

Micronutrient Treatment	Harding	Jagalene	CDC Falcon	Trtmt. Ave.
Check	78.1 a	81.2 a	91.2 a	83.5 a
Copper	80.4 a	86.6 ab	95.7 a	87.6 a
Copper + Magnesium	80.9 a	93.5 ab	95.6 a	90.0 a
Magnesium	74.4 a	87.3 ab	90.4 a	84.0 a
Wheat Mix	79.8 a	94.7 b	92.0 a	88.8 a

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

Volume 3, Issue 5, Fall 2003, Missing Thank You's!!

Space prevented the sponsors from being recognized for the "2003 Dickey County Winter Wheat Management Study" article in the last issue of *Agronomy News*. Larry and Jane Anderson have been great cooperators along with their employee, LeVerne Gebhardt. Dickey Co. Extension Agent, Eugene Elhard, was instrumental in his support and assistance in seeding the plots and arranging for the tour. The following have supported the Winter Cereals Program in Dickey County in calendar year 2003:

Dickey Co. Ag Improvement Assoc.	SDSU Foundation Seed
ND Natural Resources Trust	UAP Northern Plains Seed
Wheat Growers - Oakes	James Valley Grain
Anderson Machine	ND Game & Fish Department
ND Dept. of Health & EPA	Farmers Union Oil Co. - Ellendale
Syngenta Crop Protection	NDSU - Plant Pathology
James River SCD	AgriPro Wheat

Ransom / Sargent County Small Grain Variety Trial

Dr. Joel Ransom and Scott Meyer, NDSU, have been conducting a small grain variety trial in cooperation with DU and Julie Hassebroek and Bill Hodous, Extension Agents, in Sargent and Ransom Counties, respectively. Randy and Susan Mairs have provided the land for the trials, seven miles south of Lisbon, and have been great cooperators. The Mairs also host the site for the winter wheat variety and fungicide trials along with Pat and Leonard Freeberg. The following are the 2003 yield results for the barley and spring wheat variety trials and the yields of two pea varieties.

Table 1. Performance of hard red and hard white spring wheat varieties in 2003.

Variety	Protein (%)	Test Weight (lb/bu)	Yield (bu/acre)
Granite	16.4	61.0	63.9
Ivan	13.7	61.3	74.5
Norpro	14.5	60.3	69.1
Mercury	14.4	60.8	70.4
Knudson	14.3	61.7	77.3
Keystone	14.0	62.5	67.2
Hanna	14.2	61.2	66.3
Russ	14.0	61.2	69.6
Oxen	14.0	60.2	66.6
Ingot	14.1	61.8	55.7
Briggs	15.7	62.4	76.4
HG98	13.7	59.9	72.6
Trooper	14.0	62.4	72.6
Reeder	14.4	60.4	66.4
Parshall	14.7	61.9	66.7
Alsen	15.3	62.4	69.1
Dapps	16.6	61.6	67.2
AC Vista (white)	12.5	57.9	59.2
Lolo (white)	13.2	59.6	54.6
Argent (white)	14.7	60.8	56.8
LSD 0.05	1.5	1.1	7.7

Table 2. Performance of barley varieties in 2003.

Variety	Test Wt. (lb/bu)	Yield (bu/acre)
Morex	46.2	95.0
Robust	44.8	91.5
Excel	46.5	94.5
Foster	44.7	91.9
Lacey	46.5	94.8
Legacy	45.3	97.7
Drummond	45.5	88.0
Harrington	44.8	89.4
Bowman	47.5	95.9
Conlon	45.7	90.4
LSD 0.05	N.S.	N.S.

Table 3. Performance of dry field pea varieties in 2003.

Variety	Type	Yield (bu/acre)
Toledo	Green	40.7
DS Admiral	Yellow	54.9

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2525 River Road
Bismarck, ND 58503-9011

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2004 Winter Wheat Trials

There will be more research and demonstration trials involving winter wheat in 2004 than any year since DU started the Winter Cereals program in 1999. We are excited about the new knowledge that will be gained from these activities. DU wants to especially thank **Bayer CropScience**, **BASF Corporation**, and **Syngenta Crop Protection** for their financial support of these trials.

Day County – SD: Dr. Marty Draper, SDSU, Tom Johnson, TJ Technologies, and Blake Vander Vorst, Ducks Unlimited have teamed up to conduct two studies on winter wheat. The SDSU – DU trial will involve four winter wheat varieties with 4 nitrogen-timing treatments over laid with eight fungicide-timing treatments. It is a massive 640-plot effort. The cooperator is Kevin Anderson of Andover, SD. The plot is located 2.5 miles east of Andover on Hwy. 12. Wesley, Expedition, CDC Falcon from UAP Northern Plains, and Jagalene from AgriPro Wheat are the varieties.

The other plot at this site compares 10-34-0 starter with a 10-34-0 plus a wheat mix micronutrient starter in cooperation with TJ Technologies. The winter wheat variety planted in this trial is Jagalene.

Marshall County – SD: Prairie Ag Research has planted 15 winter wheat varieties in cooperation with Dr. Amir Ibrahim from SDSU and DU on the north side of Hwy 10 just west of Britton, SD. There are three experimental varieties that include the new white winter wheat being considered for release by SDSU.

Dickey County – ND: DU and Eugene Elhard, Dickey Co. Extension Agent, are working with Larry Anderson, cooperator, on a seven variety winter wheat trial with four nitrogen treatments and a fungicide verses no fungicide comparison across the varieties and nitrogen treatments. Visto Farms is also participating in this trial by applying the nitrogen and fungicide treatments. A micro nutrient starter fertilizer treatment is also included in this trial. The trial is located 10 miles east of Ellendale, ND on Hwy. 11.

Ransom/Sargent Counties – ND: Dr. Joel Ransom, Dr. Marcia McMullen and Scott Meyer are conducting several studies at the Randy Mairs farm 7.5 miles south of Lisbon, ND on Hwy. 32. Variety trials for winter wheat, spring wheat and barley will be planted. There may also be a corn date of planting and a dry field pea trial. CDC Falcon, Wesley and Millennium winter wheat varieties were planted last fall and will be used for a multiple fungicide treatment trial in 2004.

CCSP: The CCSP (Conservation Cropping Systems Project) located one mile south of Forman, ND serves as a no-till crop rotation demonstration/research project for southeast ND and northeast SD region. Ten rotations have been established including winter wheat, spring wheat, corn, soybean, alfalfa, canola and cover crops. Walt Albus, Farm Manager, has a great challenge before him with the heavy soils in a higher rainfall climate. He hopes to avoid another two-hail storm summer in 2004. Tour dates are July 8 and August 19, 2004.

There are a number of sponsors that provide product, equipment and financial support for these trials. Please look at the plot signs and thank the sponsors as these plots would not be possible without their support.