

VIRGINIA ON-FARM SMALL GRAIN TEST PLOTS

Eastern Virginia

2005

A Summary of Replicated Research and Demonstration Plots Conducted by Virginia Cooperative Extension in Cooperation with Local Producers and Agribusinesses



Conducted and Summarized by:

Keith Balderson
Extension Agent, Essex County

Paul Davis
Extension Agent, New Kent/
Charles City Counties

David Moore
Extension Agent,
Middlesex County

Matt Lewis
Extension Agent, Lancaster/
Northumberland Counties

Sam Johnson
Extension Agent,
Westmoreland County

Glenn Chappell
Extension Agent,
Prince George County

Watson Lawrence
City of Chesapeake

Wade Thomason
Extension Grains Specialist,
Virginia Tech

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VIRGINIA STATE UNIVERSITY

INTRODUCTION

The demonstration and research plot results discussed in this publication are a cooperative effort by seven Virginia Cooperative Extension agents, several extension specialists from Virginia Tech, area producers, and agribusinesses. We are extremely proud to present this year's on-farm small grain work to you. After a couple of lackluster small grain years, the 2005 crop turned out to be very good. Due to the cool and relatively dry weather conditions in May, the grain fill period was longer than usual and therefore, yields were very good and test weights were excellent.

The field work and printing of this publication are supported by the Virginia Small Grains Check-Off Funds. The cooperators greatly acknowledge this support. Any small grain producer who would like a copy of this report should contact his/her local extension agent, who can request a copy from Keith Balderson in Essex County at 804-443-3551 or thbalder@vt.edu.

This is the thirteenth year of this multi-county project. Further work is planned for the upcoming growing season.

The authors wish to thank the many producers who participated in this project. Appreciation is extended to the seed, chemical, and fertilizer representatives who donated products and/or assisted with the field work.

DISCLAIMER:

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GENERAL SUMMARY

- A. **VARIETY SELECTION:** Variety selection remains one of the most important components of wheat production. In our variety plots, yields and test weight values varied considerably between varieties. The best source of information available for selecting small grain varieties is Virginia Cooperative Extension publication “Small Grains for 2005.”
- B. **SEED TREATMENTS:** In two wheat seed treatment demonstration plots with little powdery mildew or barley yellow dwarf pressure, Gaucho XT yielded 6 bushels per acre better than the untreated check.
- C. **MICRO-NUTRIENT FERTILIZATION:** In five plots evaluating copper applications to wheat, we got no statistically significant yield increase due to the copper in any of the plots. Last year we got a statistically significant yield increase in two out of seven plots. In one plot evaluating a manganese application to wheat, we did not get a statistically significant yield response to the manganese. Last year, we got a yield response to manganese in two out of three plots. Micronutrient fertilization of small grains should be evaluated on a field by field basis. Fields with high soil pH levels (6.5 or higher) are more likely to develop micronutrient deficiencies. Soil and plant tissue testing should be used by producers to help determine micronutrient needs. Further analysis of this work is available from Dr. Mark Alley, Extension Soil Fertility Specialist.
- D. **CROP PROTECTION:** In one plot evaluating fungicide applications at heading to wheat planted using minimum tillage, there was no yield increase due to the fungicide applications. In one plot evaluating fungicide applications at heading to no-till wheat, Stratego increased yields by about seven bushels per acre and Quilt increased yields by about 5 bushels per acre with wheat yields about 100 bushels per acre. In one plot evaluating fungicide applications just prior to head emergence, Stratego increased yields by just over 4 bushels per acre and Quadris increased yields by just over 3 bushels per acre with wheat yields about 100 bushels per acre. In general, disease pressure was low this year.
- E. **COVER CROPS:** Cover crops are receiving renewed attention as tools to help improve water quality in the Chesapeake Bay. The revised cover crop practice in Virginia’s BMP program provides a financial incentive to plant cover crops. Review this study that looked at four different small grains at three planting dates and three nitrogen fertilizer rates.

2005 New Kent Wheat Strip Trial
L. C. Davis Sons, New Kent

Cooperators: Producer: Boogie and Wayne Davis
 Extension: David Moore, Middlesex, VCE; Paul Davis, New Kent/Charles City VCE
 Agribusiness: Jim Wallace, Water Quality Specialist, Colonial Soil and Water Conservation District; Berry Lewis, Gustafso

Tillage: No-till into mowed corn stalks

Row Spacing: 7" rows

Soil Type: Altavista, fine sandy loam

Variety: Nineteen different varieties

Fertilization: Pre-plant broadcast 40-80-80 October 12, 2004
 Winter N 44# 24-0-0-3 February 19, 2005
 Spring N 70# 30%UAN April 8, 2005

Herbicides: Burn down 1.5pts Gramoxone Max October 12, 2004
 Post emergence 4.75oz Osprey, .33oz Harmony GT December 5, 2004

Insecticides: 2.5oz Warrior December 5, 2004

Planted: October 26, 2004

Harvested: June 24, 2005

Variety	At Planting Seeds/lb	Harvest Notes	bu/A Yield	% Moisture	Lbs Test Weight	*Lodging
USG 3137	11,350		92.5	13.5	62	0
USG 3209	15,000		94.3	16.2	60	1
USG 3592	16,000	Heavy straw	92.3	14.1	62	3
Renwood 3260	16,800		96.9	13.2	63	2.5
Renwood 3706	14,800		104.5	13.0	62	1
Sisson	13,600		100.0	13.5	62	1.5
McCormick	14,100		92.5	13.5	64	0
Tribute	13,600	Heavy straw	102.7	13.8	63	1
Vigoro 9412	14,000		100.8	13.6	62	1
Vigoro 9510	14,000	Bearded	104.9	11.6	63	2.5
Hubner 50	12,300	Tall	99.1	13.9	61	2
Hubner 84	13,500		95.2	13.1	62	1
Hubner 32	13,600		104.1	13.4	62	1
SS 8302	12,500	Bearded	99.2	14.2	61	.5
SS 520	15,100		104.9	13.1	61	1
			2			

Variety	At Planting Seeds/lb	Harvest Notes	bu/A Yield	% Moisture	Lbs Test Weight	*Lodging
Pioneer 26R31	12,500	Short	100.8	13.2	62	0
Pioneer 26R12	13,500	Bearded	91.4	13.3	62	0
Pioneer 26R15	13,500	Bearded	93.1	12.6	62	0
Pioneer 26R58		Bearded	94.5	12.5	61	0
Averages			98.1	13.4	62	1

*Lodging 1 = 100% standing
5 = flat on ground

Discussion:

This growing season showed the excellent breeding and yield potential of many different wheat varieties. Without disease and insect pressures, you could not go wrong in selecting any of these varieties. Compare these varieties to others used in the past and at other locations before making your seed selection decisions.

No Cerone was applied to this trial and some varieties stood better than others. If the lodging rating is 2.5 or greater I would recommend a growth regulator on your better soils but not on your lighter soils such as Bojac and Conetoe.

2004-2005 Wheat Comparison Plot

Cooperators: Producers: Jason Benton
 Agribusiness: Participating Seed Dealers
 Extension: David Moore, VCE-Middlesex

Soil Type: Suffolk Fine Sandy Loam

Previous Crop: Corn

Planting Date: October 28, 2004 – No-Till in 7 inch rows

Fertilization: 30-70-100 at planting
 45#N March 1, 2005
 50#N March 28, 2005

Crop Protection: Burndown with 1 quart Roundup
 ½ ounce Harmony Extra March 1, 2005

Harvest Date: June 24, 2005

<u>Variety/Treatment</u>	<u>Moisture</u>	<u>TW</u>	<u>Yield @15.5%</u>
Pioneer 26R15/Raxil Thiram (Check)	15.3	61	80.8
USG 3209/Dividend Extreme	15.5	61	82.4
Renwood 3260/Dividend Extreme	15.2	61	80.7
Check	14.8	61	79.1
Tribute/Dividend Extreme	16.3	62	81.0
Check	14.5	61	78.1
Vigoro 9412/Dividend Extreme	14.3	60	81.2
Check	14.6	61	75.3
SS 520/Raxil Thiram	14.7	60	90.5
Check	14.5	61	75.7

SS 8302/Raxil Thiram	16.0	62	83.2
Check	13.9	62	74.3
Hubner H84/Dividend Extreme	14.2	62	75.0
Check	13.9	61	78.6
Hubner H50/Dividend Extreme	14.1	62	73.4
Check	14.0	61	72.5
Hubner H32/Dividend Extreme	14.1	61	85.1
Check	14.0	61	76.5
Pioneer 26R31/Dividend Extreme	14.0	61	89.5
Check	13.8	61	75.3
Sisson/Raxil Thiram	14.1	61	86.8
Check	13.9	61	78.6
McCormick/Raxil Thiram	14.9	63	78.3
Plot Average:	79.6 bushels		
Variety Average:	82.3 bushels		
Check Average:	76.8 bushels		

Discussion:

Overall a very good plot! Great test weight as was seen throughout this season. Some observations include: McCormick and USG varieties had plump, dark brown seed. Renwood variety had smaller seed. The only variety that lodged, and that was insignificant, was SS520. SS8302 experienced considerable powdery mildew during the spring, but was not treated. Overall, insect and disease pressure was low.

Westmoreland Wheat Variety Trial

Cooperators:
Producer: F. F. Chandler, Jr.
Agribusiness: Andy Kume, Pioneer Seed
 Curtis Packett, Royster Clark
 Rusty Green, Royster Clark
Extension: Sam Johnson

Date Planted: October 27, 2004
Equipment: Great Plains solid stand 12; planted at 32 seeds/row foot.
Soil Type: Suffolk
Previous Crop: Corn
Field Prep: Dyna-Drive
Fertilization: 30-50-90 broadcast at planting
 1/15, 50 lbs. N, 6 lbs. S (24-0-0-3)
 4/4, 50 lbs. N., 6 lbs. S (24-0-0-3)
Crop Protection: 4/4, Warrior T, 2.56 ozs.
Date Harvested: July 11, 2005

Variety	Seed Treatment	% Moisture	Test Wt.	Yield (bu./acre @ 13.5%)
Sisson	Raxil Thiram Storcide	12.4	57.8	84.78
Pioneer 26R31	Raxil Thiram	12.4	57.5	84.39
Southern				
States 8302	Raxil Thiram Reldan	12.4	57.7	82.04
Pioneer 26R15	Raxil Thiram	12.3	56.4	79.57
Hubner 32	Dividend Reldan	12.7	58.8	78.77
Vigoro 9412		12.7	58.4	78.24
Tribute		12.9	59.3	77.61
McCormick	Raxil Thiram Storcide	13.1	59.5	75.46
Southern				
States 520	Raxil Thiram Reldan	12.3	56.4	74.62
Hubner 84	Dividend Reldan	12.6	57.7	74.36
Hubner 50	Dividend Reldan	12.7	56.9	72.76
Campbell 9455		12.4	56.7	64.98

Discussion:

Another variety plot with very good yields. Test weights held up very well considering the lateness of harvest and the fact that the plot received significant rainfall after the varieties matured.

Summary of Wheat Variety Demonstration Plots in Eastern Virginia for 2004-05

Discussion:

During the 2004-05 wheat producing year, extension agents in eastern Virginia planted 5 on-farm wheat variety demonstration plots in cooperation with farmers and agribusiness representatives. Plots were located in the following counties: Chesapeake, Middlesex, New Kent, Prince George, and Westmoreland. Following is a summary of all of the varieties that were planted in at least 3 locations. Producers should also review the data from each individual plot location as there was a significant difference in yields between locations. In addition to yield and test weight, producers should also consider maturity, height, standability, and disease resistance when selecting varieties the 2005-06 growing season. The best source of information for wheat variety selection for Virginia conditions is Virginia Cooperative Extension Publication # 424-001, "Small Grains in 2005."

Variety	# of Locations	Test Weight (lbs.)	%Moisture	Yield (bu./acre@13.5%)
Pioneer 26R31	4	60.6	12.9	88.5
Hubner 32	4	60.8	12.9	87.1
SS 520	4	59.1	12.8	86.7
Vigoro 9412	4	60.6	13.1	84.3
Sisson	5	60.3	13.6	83.9
Tribute	5	61.7	14.4	83.3
SS 8302	5	60.3	14.0	82.5
Pioneer 26R15	3	60.0	11.8	82.0
McCormick	5	61.9	13.9	79.3
Hubner 50	5	60.2	13.7	78.9
Hubner 84	5	60.5	13.3	75.7

Evaluation of Planting Depth in No-Till Barley

Cooperators: Producer: Five L Farms
 Extension: Matt Lewis, VCE – Nor/Lan
Variety: Price
Soil Type: Craven Silt Loam and Matapeake Silt Loam
Planted: October 27, 2004 – no-till into chopped corn stalks
Equipment: Great Plains 30' No-Till Drill
Row Width: 7.5 inches
Fertilization: 1 ton lime, 120-0-0 total preplant+topdress
Pesticides: Glyphosate burn-down
Harvested: June 18, 2005

Depth	Replication	Moisture	Yield
1.5"	1	11.0	92.6
1"	1	10.4	103.2
2"	1	10.9	98.8
1.5"	2	10.6	98.8
1"	2	10.8	106.9
2"	2	10.8	101.0
1.5"	3	11.4	103.3
1"	3	11.0	95.6
2"	3	11.3	96.6
Avg 1"			101.9
Avg 1.5"			98.3
Avg 2"			98.8

Discussion:

Seeding depth in no-till small grain can often affect yield. Extension agents often see problems when seeds are placed less than 1" deep. In this experiment, the intention was to plant seeds at 0.5", 1.5", and 2.5", but these intended depths were not achieved. The results of this experiment support that, at least on heavier soil types, a planting depth of 1" or deeper will not limit yields.

2005 New Kent Wheat Seed Treatment
L. C. Davis Sons, New Kent

Cooperators: Producer: Boogie and Wayne Davis
 Extension: David Moore, Middlesex, VCE; Paul Davis, New Kent/Charles City VCE
 Agribusiness: Jim Wallace, Water Quality Specialist, Colonial Soil and Water Conservation District; Berry Lewis, Gustafson

Tillage: No-Till into mowed corn stalks
Row Spacing: 7" rows
Soil Type: Altavista, fine sandy loam
Variety: Nineteen different varieties
Fertilization: Pre-plant broadcast 40-80-80 October 12, 2004
 Winter N 44# 24-0-0-3 February 19, 2005
 Spring N 70# 30%UAN April 8, 2005

Herbicides: Burn down 1.5pts Gramoxone Max October 12, 2004
 Post emergence 4.75oz Osprey, .33oz Harmony GT December 5, 2004

Insecticides: 2.5oz Warrior December 5, 2004
Planted: October 26, 2004
Harvested: June 24, 2005

Treatment	Yield	% Moisture	Lbs Test Weight
Untreated	100.9	13.1	61
Raxil-Thiram	101.2	13.2	60
Baytan-Thiram	103.4	12.5	60
Gaicho XT	106.9	12.5	60
Raxil MD	106.3	13.0	60
Dividend Extreme	103.8	13.0	61

Discussion:

All seed treatments yielded better than 100 bu/Ac. Gaicho XT and Raxil MD yielded, respectively, 6 and 5.5 bu/Ac higher than the untreated. At \$3.25/bu for wheat at harvest, that equates to \$17 to \$20 more per acre, not including the seed treatment cost. This plot showed little to no aphid pressure, little BYDV or powdery mildew throughout the entire season. One would expect higher returns on seed treatments when disease pressures are greater as in most growing seasons.

Compare these results with other seed treatment plots.

2004-05 WHEAT SEED TREATMENTS

Cooperators: **Producer:** Glenn F. Chappell
 Extension: Glenn F. Chappell, II
 Agribusiness: Berry Lewis, Gustafson

Date Planted: 10/10/2004

Soil Type: Mattaponi sandy loam

Previous Crop: Soybeans

Tillage/equipment: JD 1590 No-till drill

Variety: FFR 520

Fertilization: Preplant 50-100-100
 2/24/05 80-0-0
 3/30/05 40-0-0

Crop Protection: 3/30/05 Warrior – 2.0 oz
 Tilt – 4.0 oz
 Harmony Extra – 0.5 oz

Date Harvested: 6/24/05

Treatment	Rep	Moisture	Test Wt.	Yield (bu./acre@13.5%)
Dividend Extreme	1	12.2	61	81.08
Check – FFR 520	1	12.2	61	82.43
Raxil/Thiram	1	12.5	61	85.72
Gaucho XT	1	12.4	61.5	88.50
Raxil MD	1	12.1	60	85.21
Baytan Thiram	1	12.3	61	88.15

Discussion:

Grain growth and development were excellent all season with no significant disease or insect pressure.

Copper Micronutrient Plot

Cooperators: Producer: Charles Rich
 Agribusiness: Michael Rowe-Royster-Clark
 Extension: David Moore, VCE-Middlesex

Previous Crop: Corn

Soil Type: Suffolk Fine Sandy Loam

Planting Date: November 3, 2004
 24 seeds/row foot in 7 inch rows

Fertilization: 30-60-120-15S at planting
 50#N February 26, 2005
 50#N March 22, 2005

Crop Protection: Burndown with 1 quart Roundup
 ½ Ounce Harmony Extra February 26, 2005

Harvest Date: June 24, 2005

<u>Sample</u>	<u>Weight</u>	<u>TW</u>	<u>M%</u>	<u>Yield at 13.5%</u>
CR 1	825	62	13.1	80.3 (Copper)
CR √ 1	900	61	12.8	87.9 (Check)
CR 2	825	60	12.9	80.5
CR √ 2	915	60	13.1	89.1
CR 3	810	60	13.4	78.6
CR √ 3	855	60	13.3	83.0
<u>Averages:</u>				
Copper		60.7	13.1	79.8
Check		60.3	13.1	86.7

Discussion:

Good Wheat! No visible differences throughout out growing season. It is odd that the check did better than the addition of Copper in each rep. This was the case in other plots also, but this one was consistent. There were deficiencies around the area of Copper seen in several wheat fields. Use this and other micronutrient study information when making decisions for 2005-06 growing season.

Copper Micronutrient Study

Cooperators: Producer: Ronnie Russell-Corbin Hall Farms
 Agribusiness: Michael Rowe-Royster-Clark
 Extension: David Moore, VCE-Middlesex

Previous Crop: Corn

Soil Type: Eunola Loam

Planting Date: October 22, 2004
 24 seeds/row foot in 7 inch rows
 “Turbo Till” and Field Cultivator

Fertilization: Application of Biosolids prior to Corn crop
 110# N March 3, 2005

Crop Protection: ½ Ounce Harmony Extra-March 3, 2005

Harvest Date: June 21, 2005

<u>Sample</u>	<u>Weight</u>	<u>TW</u>	<u>M%</u>	<u>Yield @ 13.5%</u>
Cu 1	790	59	16.5	63.6
Check 1	775	59	16.5	62.3
Cu2	805	58	16.6	64.7
Check 2	835	59	16.3	67.3
Cu3	805	60	16.6	64.7
Check 3	840	59	16.5	67.6
<u>Averages:</u>				
Cu		59	16.6	64.3
Check		59	16.4	65.7

Discussion:

No significant advantage to application of Copper seen here. No visible advantage seen in the plot throughout the season. Use this and other micronutrient study information when making decisions for the 2005-06 crop.

Copper Micronutrient Study

Cooperators: Producer: Jason Benton
 Agribusiness: Michael Rowe-Royster-Clark
 Extension: David Moore, VCE-Middlesex
Previous Crop: Corn
Soil Type: Suffolk Fine Sandy Loam
Planting Date: October 27, 2004
 No-till-24 seeds/row foot in 7.5 inch rows
Fertilization: 27-70-90 at planting
 45# N March 2, 2005
 50#N March 28, 2005
Crop Protection: 1 quart Roundup at Burndown
 ½ Ounce Harmony Extra March 2, 2005
Date Harvested: June 24, 2005

<u>Sample</u>	<u>Weight</u>	<u>TW</u>	<u>M%</u>	<u>Yield at 13.5%</u>
JB 1	655	61	13.4	84.7 (copper)
JB √ 1	625	61	13.2	81.0 (check_
JB 2	625	62	13.3	80.9
JB √ 2	655	61	13.0	85.1
JB 3	640	61	13.5	82.7
JB √ 3	640	61	13.0	83.2
JB 4	625	61	13.2	81.0
JB √ 4	640	61	13.0	83.2
JB 5	655	61	13.5	84.6
JB √ 5	645	60	13.0	83.8

Averages:

Copper	61.2	13.4	82.8
Check	60.8	13.0	83.3

Discussion:

No significant difference in yields here. Visible differences were observed shortly after application of copper. Copper treated strips appeared greener. Use this and other micronutrient study information when making decisions for the 2005-06 growing season.

Copper Micronutrient Test Plot

Cooperators: Producer: Montague Farms, Inc
 Extension: Keith Balderson, VCE, Essex, David Moore, VCE, Middlesex, and Dr. Mark Alley, Soil Fertility Specialist, Virginia Tech
 Agribusiness: Marvin Martz, Royster-Clark

Previous Crop: Corn

Soil Type: Kempsville sandy loam

Variety: Soisson

Fertilization: 48-0-0 on November 18, 2004
 90-0-0-11 on March 11, 2005 plus .784 pounds per acre Copper on test strips, 18 pounds of Nitrogen, 1 qt. per acre Manganese and Boron per acre on May 14th

Planting Date: November 2, 2004

Seedbed Preparation: No-till

Herbicides: 1 qt. per acre glyphosate per acre as a burndown, .5 oz. per acre Harmony, .33 pt. per acre 2,4-D, and 4 oz. per acre Clarity on March 11th

Insecticides: 2 oz. per acre of Warrrior on November 18th and May 14th

Fungicides: 10 oz. per acre of Stratego on May 14th

Date Harvested: July 1, 2005

TREATMENT	REP.	MOISTURE	TW	YIELD @ 13.5%
Copper	1	16.3	61	66.0
Check	1	15.6	61	65.0
Copper	2	15.6	61	66.0
Check	2	16.6	61	71.2
Copper	3	16.6	61	69.0
Check	3	16.6	61	68.7
<u>Averages:</u>				
Copper		16.2	61	67.0
Check		16.3	61	68.3

Discussion:

There is increased interest in micronutrient fertilization of small grains. In this plot, we applied Copper to determine if we could get a yield increase. In this plot, the Copper application did increase content of Copper in the flag leaf tissue sample, but it did not increase yields. This is not surprising since the pH of the top 4 inches in this field was 5.8 and the Copper content was 16.3 in the untreated flag leaf tissue samples.

Copper Micronutrient Test Plot

Cooperators: Producer: Midway Farms, Inc.
 Extension: Keith Balderson, VCE, Essex, Dr. Mark Alley, Soil Fertility Specialist, Virginia Tech
 Agribusiness: Marvin Martz, Royster-Clark

Previous Crop: Corn

Soil Type: Kempsville sandy loam

Variety: Vigoro 9110

Fertilization: 40-60-0 in December
 50-0-0 on February 23, 2005 plus Cu on test strips
 50-0-0 in early April

Planting Date: November 10, 2004

Seedbed Preparation: No-till

Herbicides: Glyphosate as a burndown, .5 oz. per acre Harmony on 2/23/05

Date Harvested: June 25, 2005

<u>TREATMENT</u>	<u>REP.</u>	<u>MOISTURE</u>	<u>TW</u>	<u>YIELD @ 13.5%</u>
Check	1	12.5	59	63.0
Copper	1	12.5	59	59.4
Check	2	12.6	59	57.5
Copper	2	12.4	59	65.5
Check	3	12.0	59	64.4
Copper	3	12.2	59	66.7
Check	4	12.8	59	68.3
Copper	4	13.0	59	68.8
Averages:				
Check		12.5	59	63.3
Copper		12.5	59	65.1

Discussion:

Yields in this plot were somewhat low due to thin stands caused by poor seed germination. A germination test showed the seed to be over 90%, but there were obvious germination problems in this field, and this probably accounts for the somewhat wide range in yields. The soil pH of the plot area was 6.3 in the 0-4 inch soil depth and 6.4 in the 4-8 inch soil depth. Copper soil test levels were .3 ppm in the 0-4 inch soil depth and .4 ppm in the 4-8 inch soil depth. The addition of Copper did not produce a statistically significant yield increase.

Barley Micronutrient Test Plot

Cooperators: Producer: John M. Hundley and Sons
 Extension: Keith Balderson, VCE, Essex, Dr. Mark Alley, Soil Fertility Specialist, Virginia Tech
 Agribusiness: Marvin Martz, Royster-Clark

Previous Crop: Corn

Soil Type: Kempsville sandy loam

Variety: Thoroughbred

Fertilization: 40 pounds of nitrogen per acre in mid January 2005
 70 pounds of nitrogen per acre on March 16, 2005
 Mn applied at 2 quarts per acre on test strips with nitrogen on March 16th

Planting Date: early October

Seedbed Preparation: Conventional

Herbicides: .5 oz. per acre Harmony

Date Harvested: June 14, 2005

TREATMENT	REP.	MOISTURE	TW	YIELD @ 14.5%
Manganese	1	11.5	48	131.9
Check	1	11.6	48	133.8
Manganese	2	11.4	48.5	133.7
Check	2	11.2	48	134.9
Manganese	3	11.6	47.5	127.4
Check	3	11.4	47.5	126.9
Manganese	4	11.6	48	130.4
Check	4	INADVERTENTLY CUT PRIOR TO PLOT HARVEST		

Averages:

Manganese	4 reps.	11.5	48	130.9
Check	3 reps.	11.4	47.83	131.9

Discussion:

These are excellent yields. In this plot the Manganese application did not increase yields. Given the soil pH of 6.4 and a Manganese soil test level of 14.45 ppm, we probably would not expect a yield response to Mn in this case. Please note that while no commercial phosphate and potash fertilizers were applied to this plot, the field has a history of poultry litter application, and the soil tests for both phosphorous and potassium are at the medium plus to high minus level.

Evaluation of Awaken Fertilizer Additive to Wheat

Cooperators: Producer: Midway Farms, Inc.
 Extension: Keith Balderson, VCE, Essex, Dr. Mark Alley, Soil Fertility Specialist, Virginia Tech
 Agribusiness: Marvin Martz, Royster-Clark

Previous Crop: Corn

Soil Type: Kempsville sandy loam

Variety: Vigoro 9110

Fertilization: 40-60-0 in December
 50-0-0 on February 23, 2005
 50-0-0 in early April

Planting Date: November 10, 2004

Seedbed Preparation: No-till

Herbicides: Glyphosate as a burndown, .5 oz. per acre Harmony on 2/23/05

Date Harvested: June 25, 2005

TREATMENT	REP.	MOISTURE	TW	YIELD @ 13.5%
Awaken	1	12.3	59	66.5
Check	1	13.2	59	69.1
Awaken	2	13.0	59	69.2
Check	2	12.5	59	62.0
Awaken	3	13.0	59	66.7
Check	3	12.8	59	69.0
Awaken	4	12.5	59	62.8
Check	4	12.2	59	58.0
Averages:				
Awaken		12.7	59	66.3
Check		12.7	59	64.5

Discussion:

Yields in this plot were somewhat low due to thin stands caused by poor seed germination. A germination test showed the seed to be over 90%, but there were obvious germination problems in this field, and this probably accounts for the somewhat wide range in yields. Awaken 16-0-2 is a versatile fertilizer additive for use on many crops. In addition to nitrogen and potassium, it contains ACA and micronutrients. Some area growers have reported increased root growth and possible yield increases when using this product. We wanted to see if we could get a yield response with this product. Two quarts per acre were applied in water on January 5th. There was no significant increase in yields in the Awaken plots.

Late Season (Heading) Foliar Fungicide Treatment on Minimum Tilled Wheat

Cooperators: Producer: L. C. Davis Sons
 Extension: David Moore, Middlesex, VCE; Paul Davis, New Kent/Charles City VCE
 Agribusiness: Rick Love, Bayer Crop Science; Ralph Hall, Syngenta

Tillage: 2 x disked
Soil Type: Altavista, fine sandy loam
Variety: Sisson
Fertilization: Pre-plant broadcast 40-80-80 October 12, 2004
 Winter N 44# 24-0-0-3 February 19, 2005
 Spring N 70# 30%UAN April 8, 2005
Planting Date: October 27, 2004
Herbicides: Post emergence December 5, 2004 4.75oz Osprey + .33oz Harmony GT
Insecticides: December 5, 2004 2.5oz Warrior
Date Harvested: July 5, 2005

TREATMENT	REP 1	REP 2	REP 3	REP 4
Untreated	86.8	71.6	95.0	83.6
Folicur	No Yield	84.1	91.2	85.8
Stratego	82.4	80.1	86.6	84.4
Quilt	No Yield	84.0	87.5	85.1

4 Rep Averages:	YIELD	% MOISTURE
Untreated	83.6	18.7
Folicur	85.8	19.3
Stratego	84.4	18.8
Quilt	85.1	19.3

Fungicides applied on May 10, 2005

Discussion:

This study was conducted to see if late season foliar fungicide applications could increase yields by protecting heads from glume blotch and scab. As the results at this location show, there was no yield advantage to late season sprays this year. Throughout the entire growing season very little disease pressure occurred. Compare these findings with other studies before making major changes in your crop protection management.

Late Season (Heading) Foliar Fungicide Treatment on No-Till Wheat

Cooperators: Producer: L. C. Davis Sons
 Extension: David Moore, Middlesex, VCE; Paul Davis, New
 Kent/Charles City VCE
 Agribusiness: Rick Love, Bayer Crop Science; Ralph Hall,
 Syngenta

Tillage: No-Till into mowed corn stalks
Soil Type: Altavista, fine sandy loam
Row Spacing: 7" rows
Variety: Sisson
Fertilization: Pre-plant broadcast 40-80-80 October 12, 2004
 Winter N 44# 24-0-0-3 February 19, 2005
 Spring N 70# 30%UAN April 8, 2005
Planting Date: October 27, 2004
Herbicides: Burndown 1.5pts Gramoxone Max October 12, 2004
 Post emergence 4.75oz Osprey, .33oz Harmony GT
 December 5, 2004
Insecticides: December 5, 2004 2.5oz Warrior
Date Harvested: July 5, 2005

Yield bu/A

TREATMENT	REP 1	REP 2	REP 3	REP 4
Untreated	96.0	98.9	97.1	No Yield
Folicur	92.6	101.8	96.7	93.1
Stratego	107.7	105.7	98.6	105.5
Quilt	103.9	106.5	97.2	No Yield

4 Rep Averages:	bu/A	
	YIELD	% MOISTURE
Untreated	97.3	18.1
Folicur	96.1	18.0
Stratego	104.4	18.7
Quilt	102.5	18.3

Fungicides applied on May 10, 2005

Discussion:

This study was conducted to see if late season foliar fungicide applications could increase yields by protecting heads from glume blotch and scab. Yields from all treatments were excellent with a slight yield increase from the Stratego and Quilt treatments. Disease pressure was at a minimum throughout the growing season. There were several small rain events during flowering but scab did not become a problem.

Compare these findings with similar late season fungicide studies before making major changes in your crop protection management.

Foliar Fungicide Treatments at Flag Leaf on No-Till Wheat

Cooperators: Producer: L. C. Davis Sons
 Extension: David Moore, Middlesex, VCE; Paul Davis, New Kent/Charles City VCE
 Agribusiness: Rick Love, Bayer Crop Science; Ralph Hall, Syngenta

Tillage: No-Till into mowed corn stalks
Soil Type: Altavista, fine sandy loam
Row Spacing: 7" rows
Variety: Sisson
Fertilization: Pre-plant broadcast 40-80-80 October 12, 2004
 Winter N 44# 24-0-0-3 February 19, 2005
 Spring N 70# 30%UAN April 8, 2005

Planting Date: October 27, 2004
Herbicides: Burndown 1.5pts Gramoxone Max October 12, 2004
 Post emergence 4.75oz Osprey, .33oz Harmony GT December 5, 2004
Insecticides: December 5, 2004 2.5oz Warrior
Date Harvested: July 5, 2005

Yield bu/A

TREATMENT	REP 1	REP 2	REP 3	REP 4
Untreated	99.5	95.9	99.3	88.7
Tilt	97.5	94.7	96.1	93.1
Quilt	91.2	100.3	90.6	102.3
Quadris	105.8	96.9	99.3	95.8
Stratego	101.2	100.4	102.3	96.3
Folicur	96.0	96.1	101.2	92.8

	bu/A	
4 Rep Averages:	YIELD	% MOISTURE
Untreated	95.9	18.0
Tilt	95.4	18.0
Quilt	96.1	18.0
Quadris	99.2	18.0
Stratego	100.1	17.8
Folicur	96.5	17.6

Fungicides applied on April 25, 2005

Discussion:

This study was conducted to evaluate yield increases by protecting the flag leaf from blotch, tan spot, and powdery mildew. Wheat disease pressure was very light the entire growing season in this plot. No diseases approached threshold levels thus there was not a lot of difference in yields between all the flag leaf fungicide treatments. The Stratego treatment did out yield the untreated check in all four replications, and average 4.2 bushels per acre higher than the untreated check over all four replications. The Quadris treatment yielded 3.3 bushels per acre higher than the untreated check over four replications.

When selecting wheat cultivars to plant, select those with good disease resistance along with yield, test weight and standability. Always scout and use BMP information before applying crop protection chemicals.

2005 New Kent Cover Crop Study

Cooperators: Producer: Boogie and Wayne Davis
 Extension: Paul Davis, New Kent/Charles City VCE; Wade Thomason,
 Grain Specialist, Virginia Tech
 Agribusiness: Brian Noyes, District Director and Jim Wallace,
 Water Quality Specialist, Colonial Soil and Water
 Conservation District

Tillage: None, No-Till drilled into harvested corn stalks

Soil Type: Altavista, fine sandy loam

Variety: Rye – Early Graze Barley – Barsoy
 Triticale – Trical 485 Oats – Brooks

Previous Crop: NO-TILL corn

Fertilization: Broadcast - None
 Winter N - See graph – Either 0#, 25# or 50# February 19, 2005

Herbicides: Burn down 1.5pts Gramoxone Extra May 5, 2005

Following Crop: Full season soybeans planted May 12, 2005

Fungicides: None

Insecticides: None

Planted: Early – October 4, 2004/Mid – October 18, 2004/
 Late – November 10, 2004

Harvested: June 24, 2005

New Kent Cover Crop Nitrate Samples

Small Grain	DOP	ppm Nitrate			Total
		0 - 12"	13 - 24"	25 - 36"	
Rye	Early	2	1	2	5
Rye	Mid	3	1	3	7
Rye	Late	4	2	6	12
Trical	Early	4	2	3	9
Trical	Mid	4	2	3	9
Trical	Late	4	3	8	15
Barley	Early	3	3	4	10
Barley	Mid	3	1	3	7
Barley	Late	4	3	5	12
Oats	Early	4	2	3	9
Oats	Mid	3	2	3	8
Oats	Late	4	4	4	12

DOP Samples taken 2/3/2005
 Early - 10/4/04
 Mid - 10/18/04
 Late - 11/10/04

**2005 Cover Crop Study Plot Outline
New Kent, VA**

		Barley Early	Trical Late	Rye Late	Trical Mid	Oats Late	Barley Mid	Rye Early	Oats Mid	Trical Early	Barley Late	Rye Mid	Oats Early
1)	0 # N												
2)	25# N												
3)	50 # N												
4)	0 # N												
5)	50 # N												
6)	25 # N												
7)	50 # N												
8)	0 # N												
9)	25 # N												

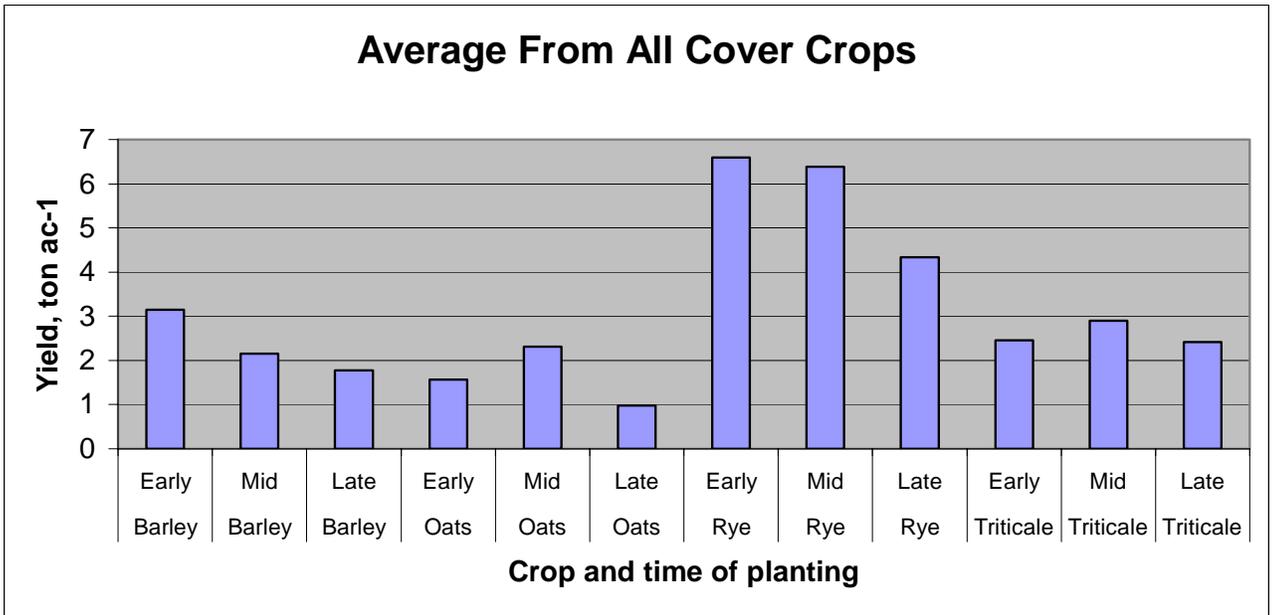
*** Each treatment was 20' x 45'

Applied 30% UAN on 2/9/2005 @ 0#, 25#, 50#/acre.

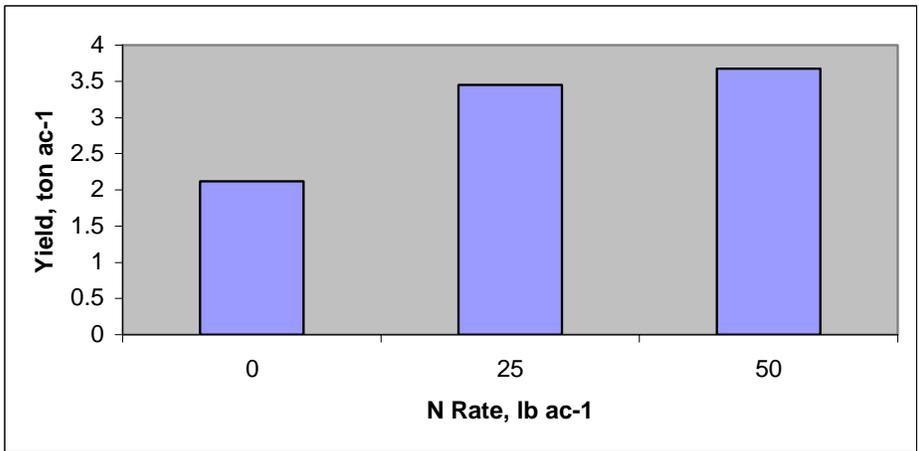
Varieties	Seeding Rate lbs/Ac
Rye - Early Graze	50#
Barley - Barsoy	60#
Oats - Brooks	60#
Triticale - Trical 485	50#

2005 New Kent Cover Crop Study Yield Results

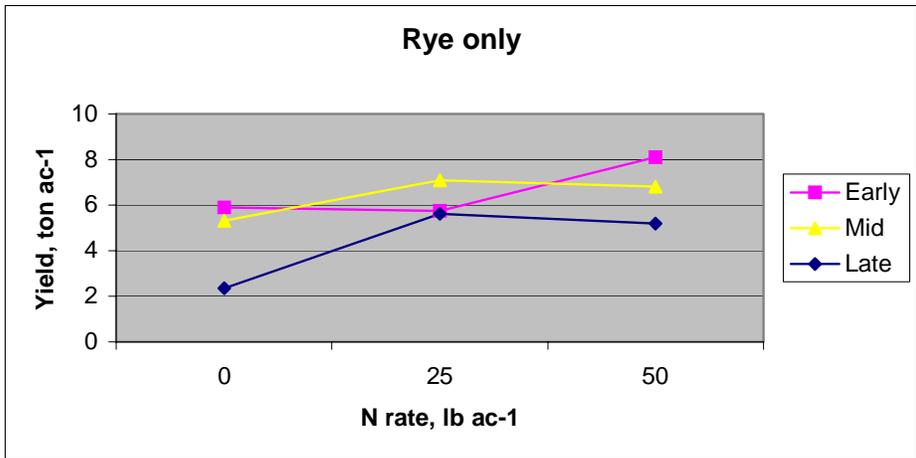
Average From All Cover Crops



GRAPH I



GRAPH II



GRAPH III

**N applied
2/19/2005**

Discussion:

Small grains make good cover crops that reduce erosion, trap unused nutrients and improve soil quality by producing biomass that increases soil organic matter. This study looked at four different small grains at three planting dates and three nitrogen fertilizer rates.

Graph I on the preceding page shows rye planted either October 4 or October 18 yielded over 6 tons of dry matter per acre. Rye planted on November 11 yielded nearly 4.5 tons of dry matter which was more than the early plantings of oats, barley and triticale. The late planted rye showed the greatest response to nitrogen fertilizer in February. All three planting dates yielded nearly 6 tons of dry matter per acre at 25 lbs. of nitrogen per acre in February. This is just a one year study at a single location and much more work needs to be done before blanket small grain cover crop recommendation can be made.

Other barley and triticale cultivars would work better than Barsoy (too short) and Trical 485 (not winter hardy enough). Taller the better because these cover crops will be planted into and killed before lodging problems might occur.

Caution should be taken anytime you are following one small grain crop, wheat, for example, after a small grain cover crop in the same year. There is an increased risk of Take-All disease which is a soil borne fungus that kills small grain roots and causes white seed heads. This is mainly a problem in poorly drained, wet soils and/or low fertility soils.

Please take advantage of both small grain and legume winter cover crops to improve your soil quality. Virginia has a new Cover Crop BMP Cost-Share program for this year. I hope it will work into your farming operation.