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

Sample	Weight	TW	M%	Yield at 13.5%	
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	
Averages:					
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

Sample	Weight	TW	M%	Yield @ 13.5%
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
Averages:				
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

Sample	**Weight**	**TW**	**M%**	**Yield at 13.5%**
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
Averages:				
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

TREATMENT	REP.	MOISTURE	TW	YIELD @ 13.5%
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.