Union County Cooperative Extension

2010 Small Grains On Farm Test Report

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To: Southern Piedmont Wheat Producers and Agribusiness Personnel

From: Andrew Gardner
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Date: 20 July, 2009

This 2010 Wheat Trial Report was made possible due to the generosity of many individuals and organizations. I wish to express my sincere gratitude to the North Carolina Small Grains Association for their kind generosity. It is with their donations that a 7 foot Great Plains No-Till Drill was purchased to make on farm trials possible. This purchase will enable the establishment of an on farm testing program to generate applicable and local trial data to further enhance the quality and volume of Southern Piedmont Small Grains. I especially wish to thank Circle S Ranch, and more specifically Travis Starnes for his donation of land, equipment and time. Without this donation the First Annual Southern Piedmont Small Grains Field Day would not have been possible.

In addition I would like to thank Mr. Andy Fowler, Mr. Steve Austin, Mr. Kevin Baucom, Mr. Greg Hargett, Mr. Everett Medlin, Cox Brothers, Mr. Byron Purser, Mr. Gary Stegall and Mr. Reggie Carriker for their donation of land and resources for trials in additional locations.

Finally, I wish to express appreciation to Mr. Perry Gardner, Mr. Shannon Braswell, Mr. Phil Williams, Dr. Randy Weisz, Dr. Carl Crozier, Dr. Christina Cowger, Dr. Dominic Reisig, Dr. Alan York, Dr. Chris Reiberg-Horton, Dr. David Monks, Union County Natural Resources Commission, Mr. Chris Ashley, and Mr. Barry Tarlton. Each of you played a pivotal role in the Union County Small Grains on farm testing program and without your support and assistance it would not have been possible.

It is my sincere desire that the information provided in the following report will be beneficial to all small grains producers that view it. Thank you for your support of Union County Cooperative Extension.

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Illustrations

Tri-County Wheat Variety Trial

On November 6, 2009, 17 varieties were planted in Southern Union County in 15 foot by 400 foot plots. Planting was conducted using a 15 foot No-Till drill into vertically tilled corn residue. All varieties were planted at 22-24 seeds per row foot to ensure consistency. Unfortunately, the freshly planted varieties received approximately 7 inches of rainfall the following week. This resulted in some severe stand losses. To avoid complete data loss the entire plots were not harvested as initially planned as this would have provided false information and unfairly presented yield data. Instead, plots were harvested using a small plot combine and were harvested perpendicular to the length at four randomly selected intervals. These intervals were at the same location within plot length for each plot, thus essentially creating four plots per variety. The yields were then calculated based on these measurements. Furthermore in an effort to avoid any major bias the highest and lowest yield for each variety was omitted to obtain an average yield for each variety. These yields are contained in Table 1.

(Table 1) Tri-County Wheat Variety Yield Data

Variety	Moisture	Test weight	Yield bu/a
P 26R15	10.31	54.70	87.7
DG V9723	10.94	53.82	85.3
Coker Oakes	15.83	55.15	81.7
Coker 9553	10.94	56.46	80.3
P 26R22	10.89	51.21	79.2
USG 3555	12.15	52.52	77.1
DG Shirley	10.53	51.70	74.4
Coker 9436	9.80	51.54	74.0
DG 9922	10.71	54.77	72.6
Dominion	10.63	54.32	72.1
Baldwin	9.15	51.60	70.7
P 26R12	11.87	53.54	62.4
USG 3209	11.02	50.03	61.7
NC Neuse	12.76	53.53	57.1
SS 8641	9.16	47.03	56.5
SS 8308	11.14	52.24	55.3
SS 520	14.20	49.51	52.7

Planting Date: 6 November, 2009

Seeding Rate: 22-24 seed/row foot on 7.5 inch row width

Burndown: Glyphosate

Postemergence: Harmony Xtra

Harvest Date: 16 June, 2010

Wheat Seed Treatments

Seed treatments are typically divided into two categories: insecticide and fungicide. The insecticide seed treatments are the more expensive seed treatment option and generally cost +/- $10/cwt. These treatments are very effective against early season insect pressure, most commonly in the form of aphids thus many times preventing Barley Yellow Dwarf Virus infections.

The fungicide treatments are the least expensive of the two, generally costing +/- $3 per hundred weight (cwt). These treatments are very effective against a broad spectrum of seedling problems such as seed borne diseases, seed rot and early season diseases.

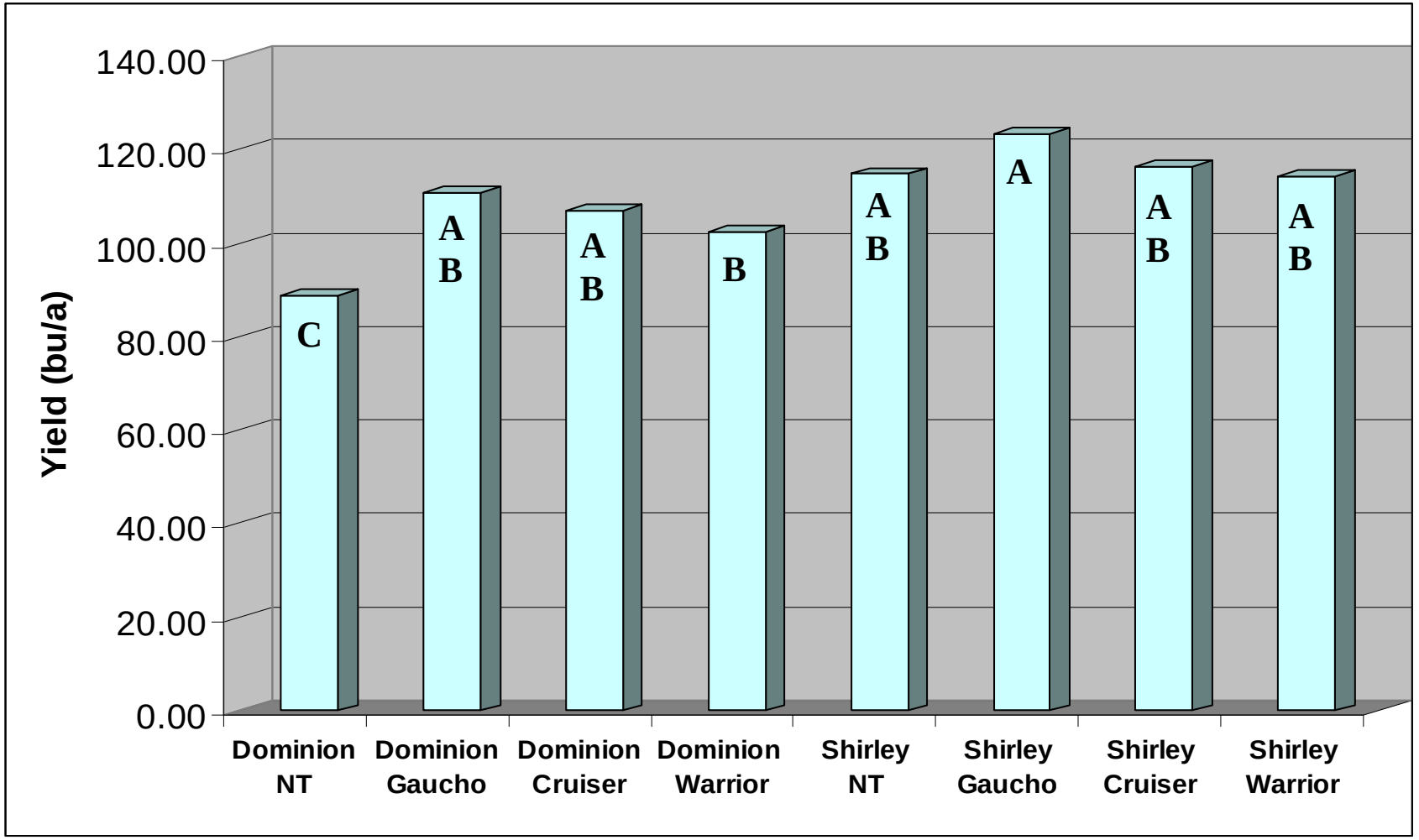
On 5 November, 2009 two trials were established to evaluate seed treatments. The first trial was conducted to evaluate insecticidal seed treatments only. Dynagrow Dominion and Dynagrow Shirley were selected due to their similar characteristics. Both varieties shared similar disease ratings in the 2008 & 2009 NCSU Variety Performance ratings with the exception of SNB and Barley Yellow Dwarf Virus (BYDV). The most important difference and thus reason for their selection in this trial was BYDV susceptibility. Shirley is rated as moderately resistant while Dominion is rated as susceptible. Therefore this trial was conducted to determine the effect of an insecticidal seed treatment on similar varieties, one susceptible and one resistant to BYDV. Treatments included Gaucho @ 2oz/cwt, Cruiser @ 1 oz/cwt, a 2 leaf application of Warrior II @ 2.6 oz/a and a nontreated check for each variety.

The second trial, planted also on 5 November, was conducted to evaluate fungicidal seed treatments. Southern States 560 and 5205 were selected for this trial. These varieties were selected due to their disease susceptibility rating differences in the 2008 & 2009 NCSU Variety Performance ratings. 5205 was rated as moderately susceptible to powdery mildew and SNB and moderately resistant to leaf rust. 560 was rated as moderately resistant to powdery mildew, susceptible to leaf rust and moderately susceptible to SNB. This trial was conducted to evaluate the effects of seed treatments as effected by variety resistance.

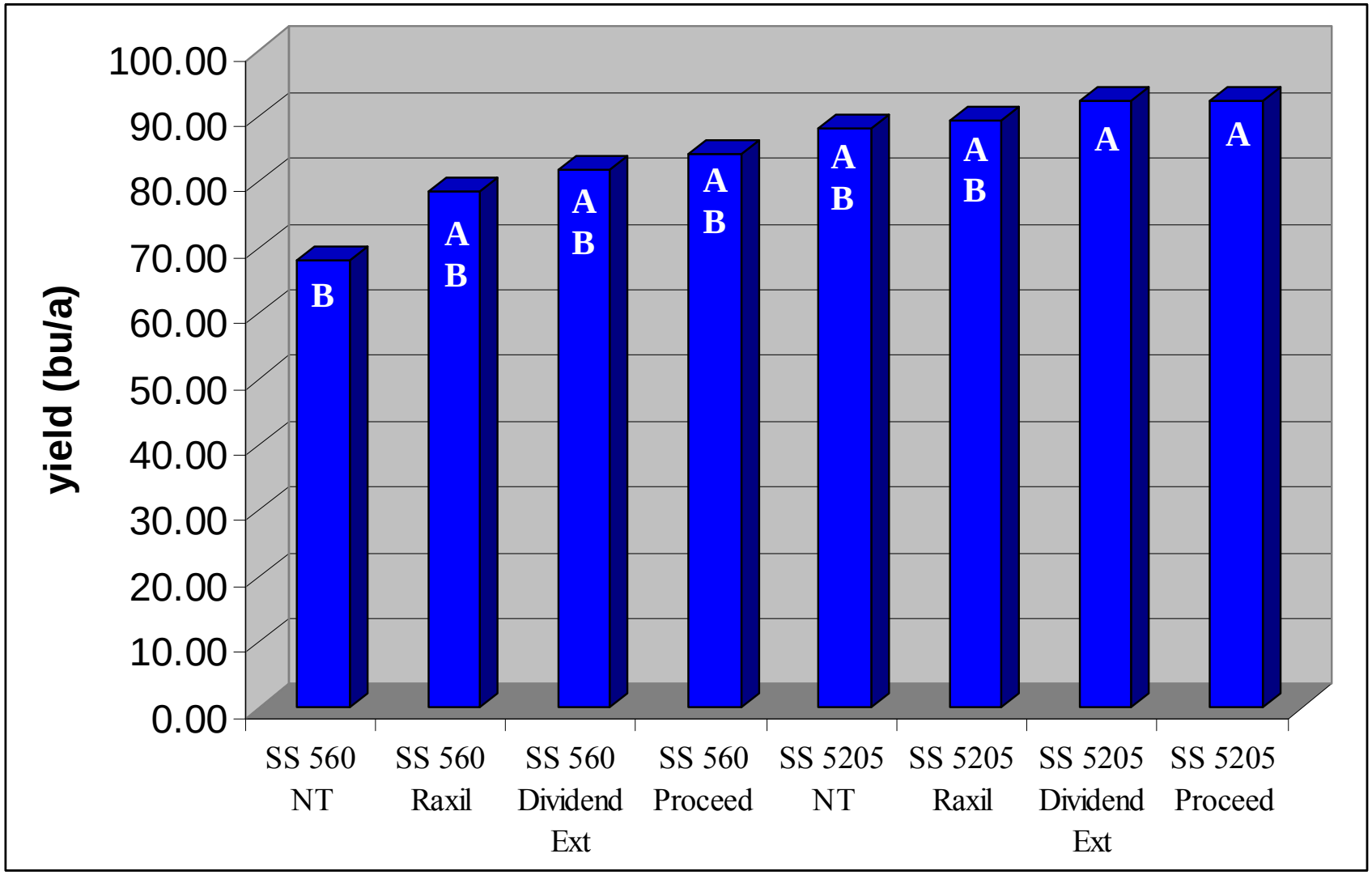
Results for the insecticide seed treatment demonstrated the advantage of variety resistance. No significant yield difference was observed with any treatment option when Shirley was evaluated. However with Dominion there was a significant advantage to treatments as all yielded greater than the nontreated check. No significant difference was recorded when seed treatments were compared to the early foliar application, only a numeric advantage to seed treatments. This is a direct reflection of visible ratings, (data not shown) as no BYDV symptoms were present in the Shirley plots. The most symptomatic plot was the Dominion nontreated followed by the Dominion foliar insecticide treatment. (Graph 1)

Results for the fungicide seed treatment trial indicate no significant difference in yield from seed treatments with SS 5205. Results also indicate with SS 560 there were no significant differences between seed treatments. (Graph 2)The only significant difference with 560 was that the non-treated check yielded less than Proceed. Statistics aside, numerical differences were great with this trial. This is explained due to water damage occurring in many plots creating large plot to plot variances within treatments.

(Graph 1) Impact of Insecticide Seed Treatments on Crop Yield



(Graph 2) Impact of Fungicide Seed Treatment on Crop Yield



Foliar Fungicide Trials

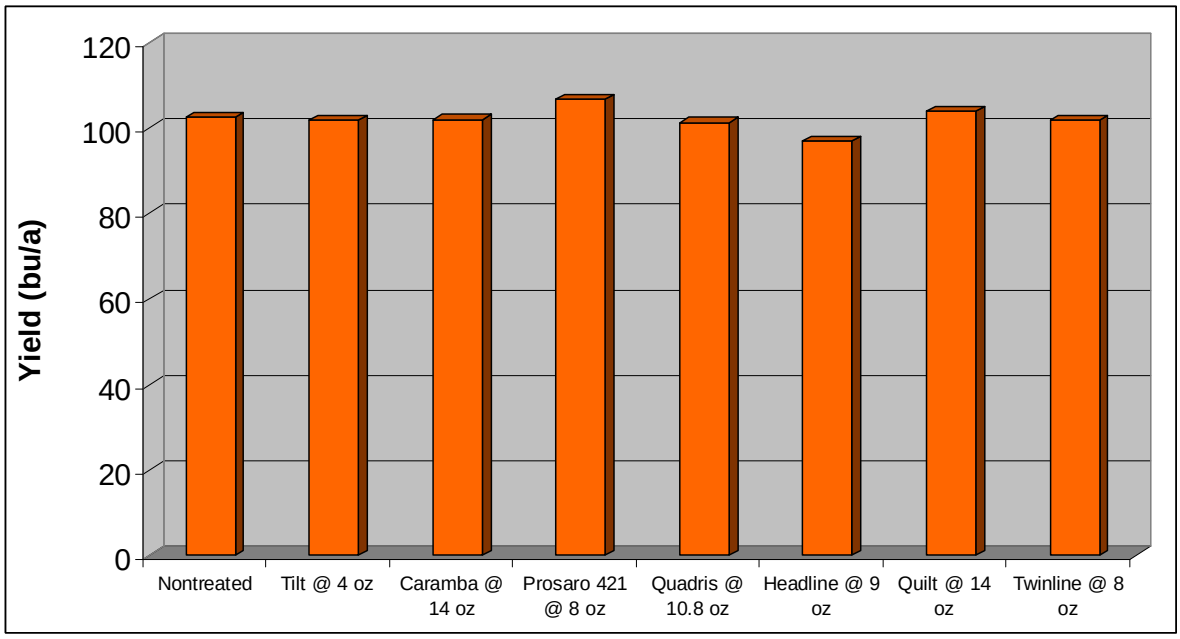
Two foliar fungicide trials were conducted in the 2009-2010 growing season. Two varieties were selected for these trials. The first trial was conducted with Magnolia while the second trial was conducted with Panola. Magnolia was selected for its susceptibility to Powdery Mildew while Panola was selected for its susceptibility to leaf rust.

Treatments included a non-treated check: Tilt @ 4 fl oz/ac; Caramba @ 14 fl oz/ac; Prosaro 421 @ 8 fl oz/ac; Quadris @ 10.8 fl oz/ac; Headline @ 9 fl oz/ac; Quilt @ 14 fl oz/ac and Twinline @ 8 fl oz/ac. All treatments were applied on April 22, 2010 when wheat was at full flag leaf emergence, but prior to heading.

The goal of this trial was to compare fungicides and determine their level of disease control and suppression. Unfortunately, due to the absence of diseases in this plot we were unable to evaluate their efficacy. However treatments were conducted to determine the effect of fungicide application in the absence of diseases.

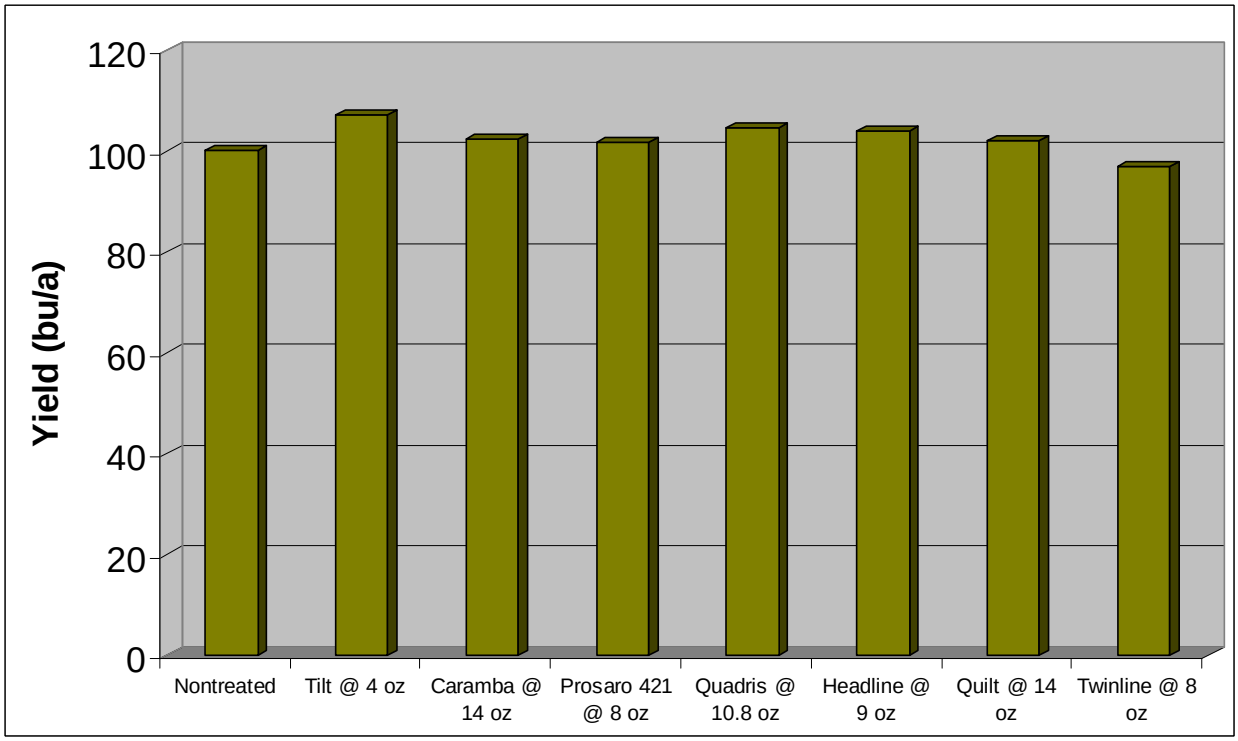
There were no significant yield differences in either the Magnolia or Panola varieties regardless of the fungicide used (Graph 3 & 4). In both of these trials based on this data there was no advantage of adding a fungicide in the absence of disease pressure.

(Graph 3) Magnolia yield as affected by fungicide application in the absence of disease pressure*



* No statistical yield difference in yield between treatments

(Graph 4)Panola yield as affected by fungicide application in the absence of disease pressure*



* No statistical yield difference in yield between treatments

Fusarium Head Blight (Head Scab) Management Trial

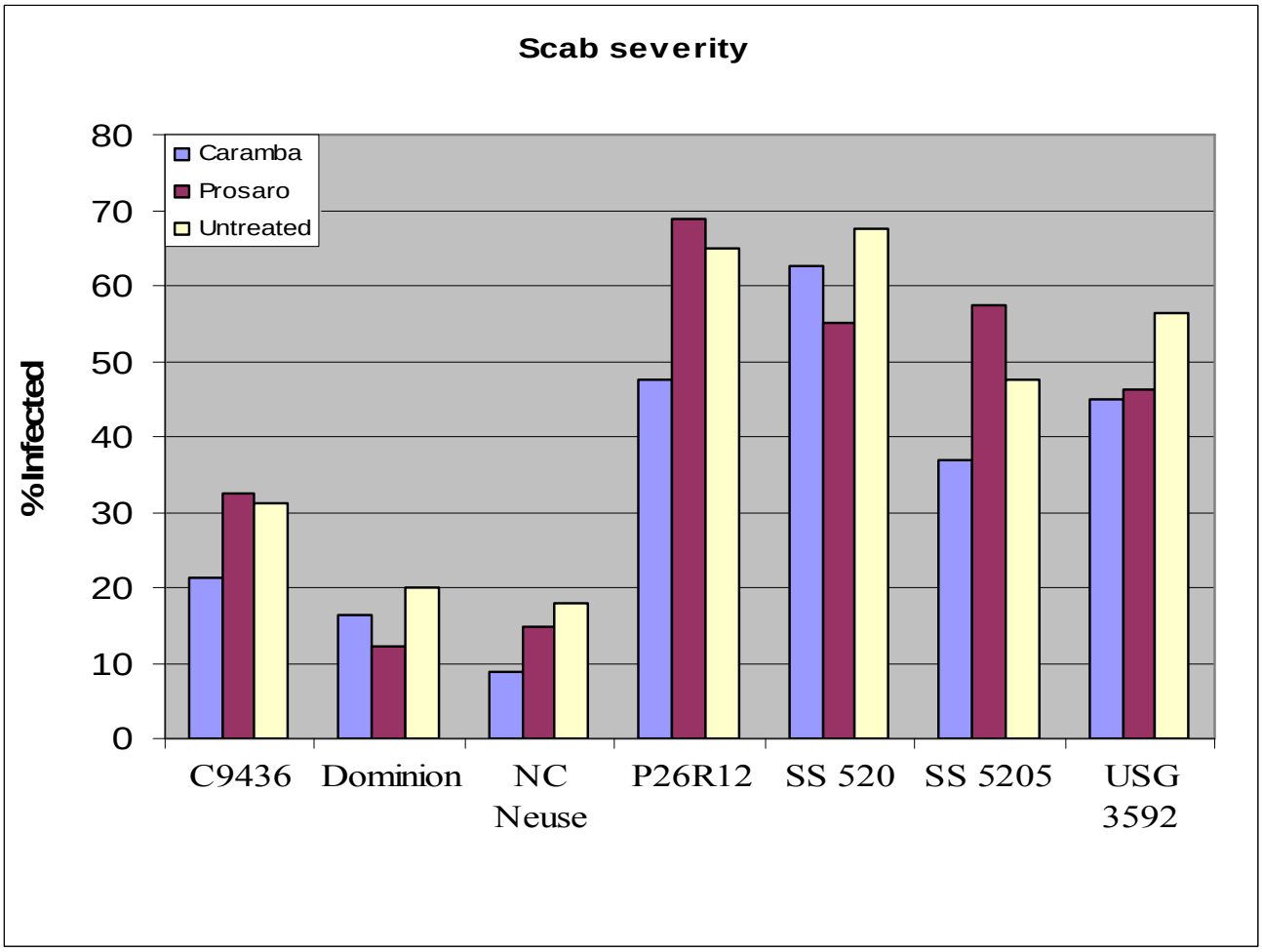
Fusarium head blight is caused by the fungus *Fusarium graminearum*. This fungus often infects the developing wheat or barley head most often when rainfall occurs at flowering. This disease caused tremendous losses to North Carolina wheat producers both in yield and quality in the 2008-2009 production season. Therefore three trials were initiated across North Carolina's wheat producing regions, one in Union County, to evaluate management techniques for this disease. Treatments included a factorial arrangement of variety x fungicide. A split plot design was used with the main factor as variety and sub-plot factor as fungicide. Fungicide treatments included a nontreated check, Caramba at 17 fl oz/ac and Prosaro 421 at 8.2 oz. Treatments were replicated 4 times.

Seven varieties were planted on 4 November, 2010 at 24 seeds/ row foot with 7.5 inch spacing. Dynagrow Dominion, NC Neuse, Coker 9436 and Southern States 5205 were planted as moderately resistant varieties. USG 3592, Southern States 520 and Pioneer 26R12 were planted as susceptible varieties. Plots were inoculated 1-2 weeks prior to flowering. Upon flowering fungicide treatments were applied.

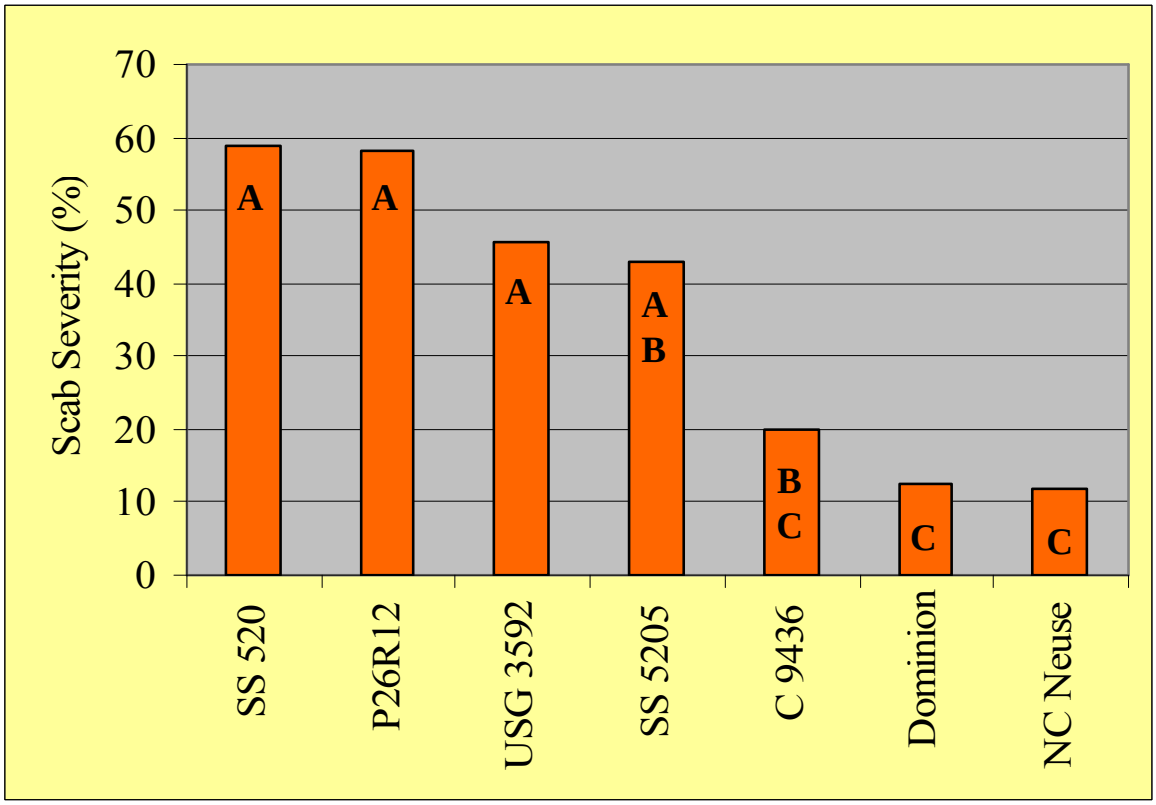
The varieties with the highest scab severity were SS 520, P26R12, USG 3592 and SS 5205. The lowest scab severity occurred with Coker 9436, Dynagrow Dominion and NC Neuse. (Graph 5 & 6)

There was a significant difference in visual control of head scab among fungicides. Prosaro 421 provided a numerical decrease, not a statistical decrease. Caramba provided a significant decrease in scab infection; however when averaged over plots a 28% infections still occurred in treated plots. (Graph 7) Samples were sent to a private lab to calculate Vomitoxin levels. Unfortunately these results are still in process and were unable to be included.

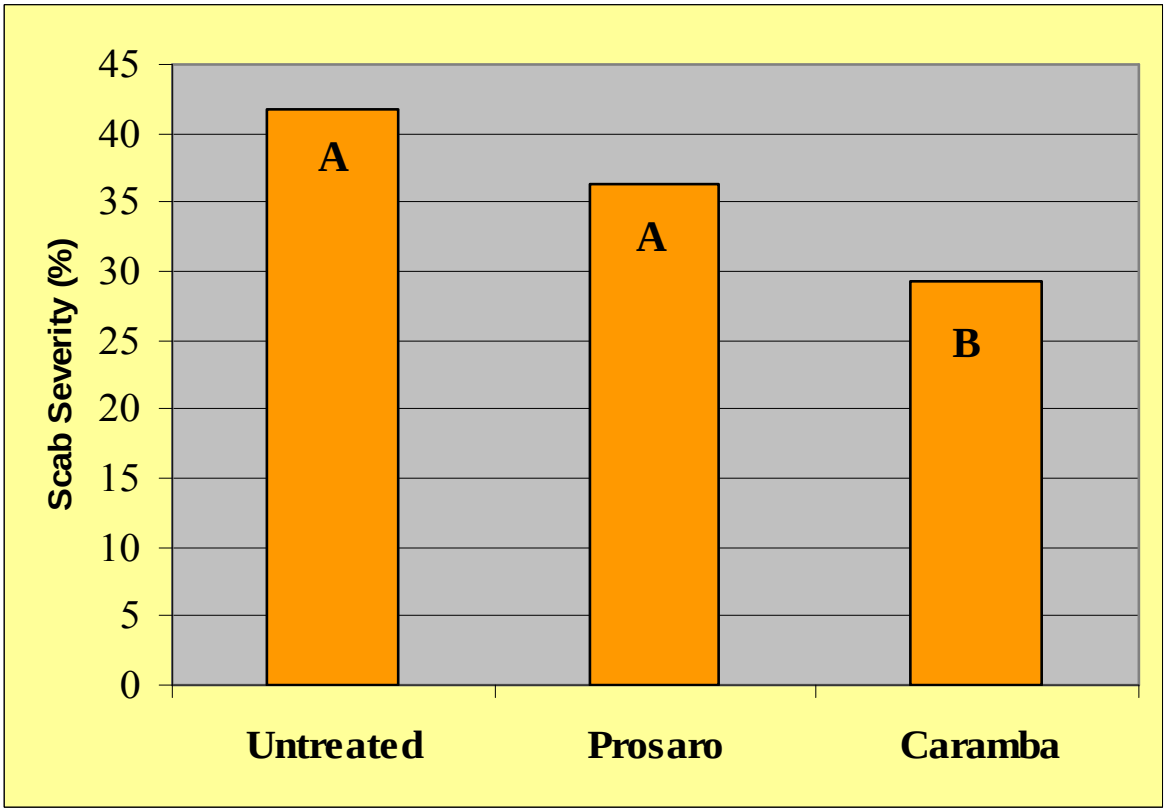
(Graph 5) Scab severity by variety by fungicide



(Graph 6) Scab Severity by Variety



(Graph 7) Scab severity as affected by fungicide



Topdress Nitrogen Additives Evaluation

In 2009 a trial was initiated to evaluate the advantage or disadvantage of adding an insecticide or fungicide with topdress nitrogen. The appeal of this treatment is that there in no additional application cost for either the fungicide or the insecticide since a fertilizer application is already being made. Treatments included 32% UAN alone as the nontreated check, 32% UAN alone to be treated if disease threshold was met, and 32% UAN alone to be treated if Cereal Leaf Beetle threshold was met. Treatments also included 32% UAN plus: Baythroid @ 1.08 oz/ac; Quadris @ 10.8 oz/ac; Quadris @ 6 oz/ac; Quilt @ 14 oz/ac; Tilt @ 4 oz/ac. Results from the 2009 trial showed no significant advantage for either the fungicide or insecticide as disease pressures or insect pressures never reached or exceeded threshold levels (Graph 8)

This trial was repeated in 2010 at a different location with a different wheat variety. Initially the 2 trials were to be conducted, one with Pioneer 26R12 and the other with 26R15. Unfortunately, due to the unseasonably wet weather this season the 26R12 location was lost. The test was continued with 26R15. Treatments were essentially the same, yet differed slightly. They included 32% UAN alone as the nontreated check, 32% UAN alone to be treated if disease threshold were met, and 32% UAN alone to be treated if Cereal Leaf Beetle threshold were met. Treatments also included 32% UAN plus: Warrior II @ 1.9 oz/ac; Quadris @ 10.8 oz/ac; Quadris @ 6 oz/ac; Quilt @ 14 oz/ac; Tilt @ 4 oz/ac; Warrior II @ 1.9 oz/ac plus Quadris @ 10.8 oz/ac. Results from this trial also showed no significant advantage for the additive treatments (Graph 9).

It was brought to my attention that due to the spatial variation of Cereal Leaf Beetle distribution within a field, small plot work may not provide accurate results for these treatments. Therefore a large scale sampling approach was taken where 7 fields within Union County (Picture 1) were monitored for Cereal Leaf Beetles for a 3 week period, beginning on April 8 and concluding on April 26, 2010. 5 fields received an insecticide application with topdress nitrogen, while 2 remained untreated. Each field contained at least 20 acres of wheat and was sampled at 4 random locations. At each location 5 stops were made and 5 tillers were examined for a total of 100 tillers per field.

Data for this trial showed threshold levels were never reached with the 5 automatic spray fields (Table 2). The highest population count of these fields was a sample of 3 larvae per 100 tillers. In the nontreated fields, one field nearly reached threshold at 14 infested tillers, yet at this point much of the wheat was at the heading stage therefore yield loss would be expected to be marginal. The second non treated field was at threshold on the first sample date and continued to increase. In this particular field the stand was thin and the producers decided to not make an insecticide treatment due to potential economic concerns.

(Graph 8) Topdress Additive Evaluations 2009

Southern Piedmont Region - Monroe NC

There were two tests near Monroe NC, one with Coker 9436 and the second with DynaGro Tribute. Treatments were replicated 4 times and included: (1) early-March applications of Baythroid at 1.08 oz/acre, Quadris at 10.8 oz/acre, Quadris at 6 oz/acre, Quilt at 14 oz/acre, or Tilt at 4 oz/acre; (2) two IPM treatments; and (3) an unsprayed check. Foliar diseases and CLB never

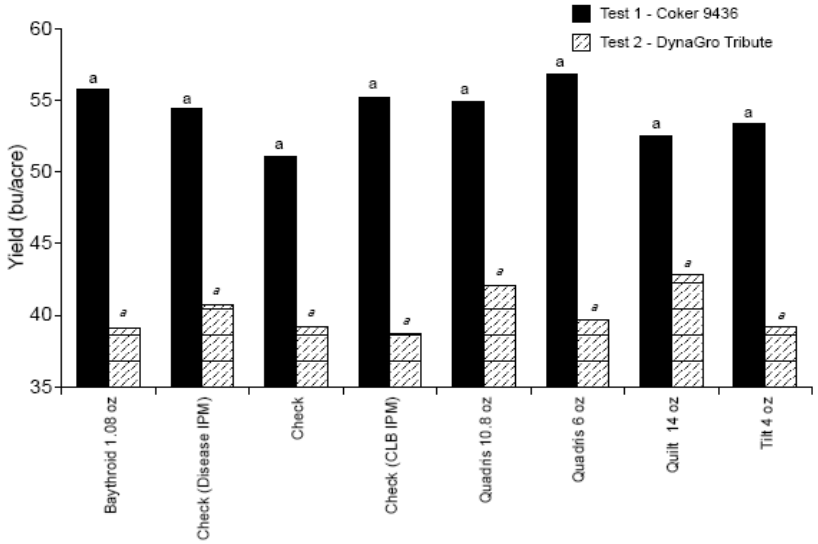
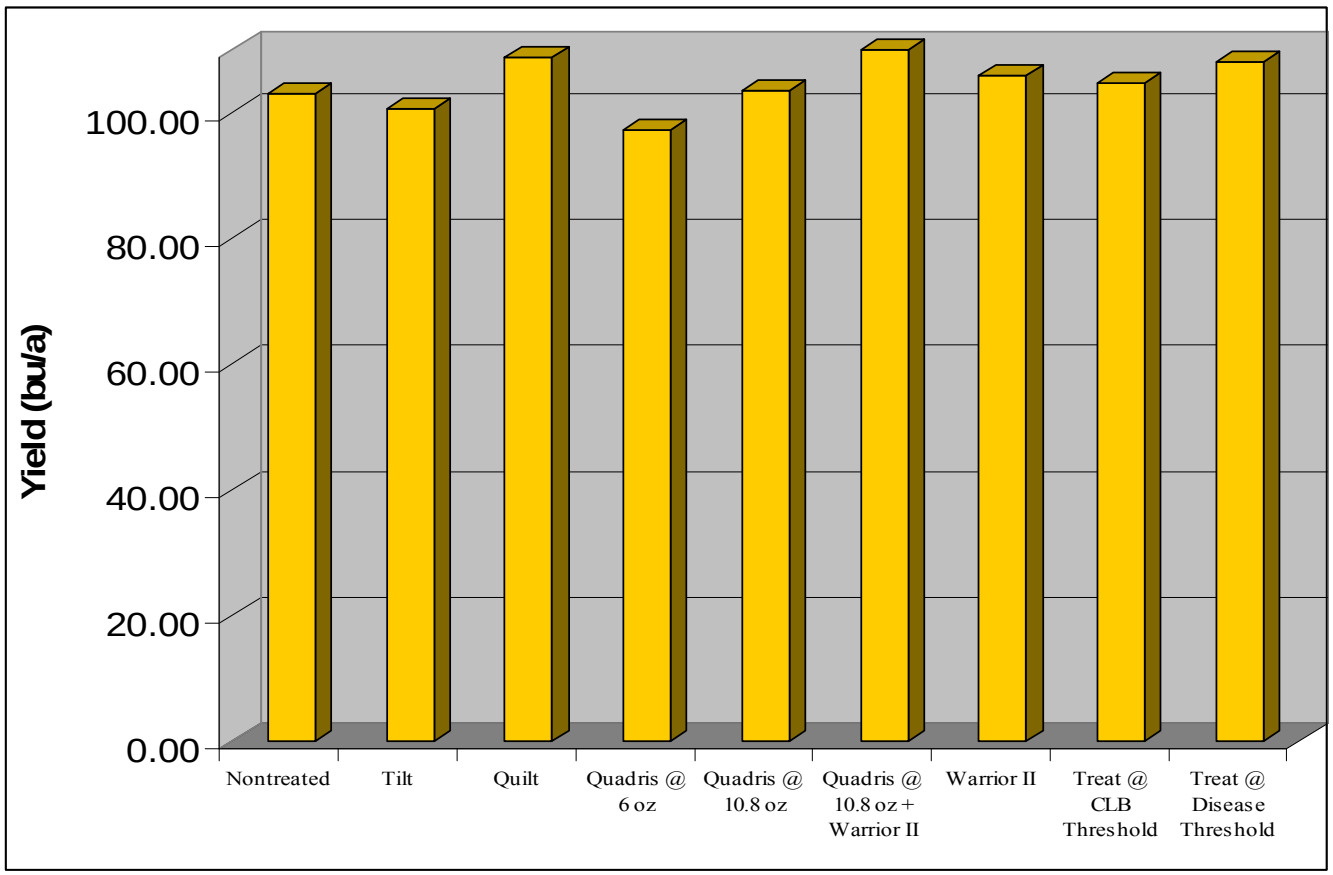


Fig 4. Yield in two tests near Monroe NC with eight treatments.

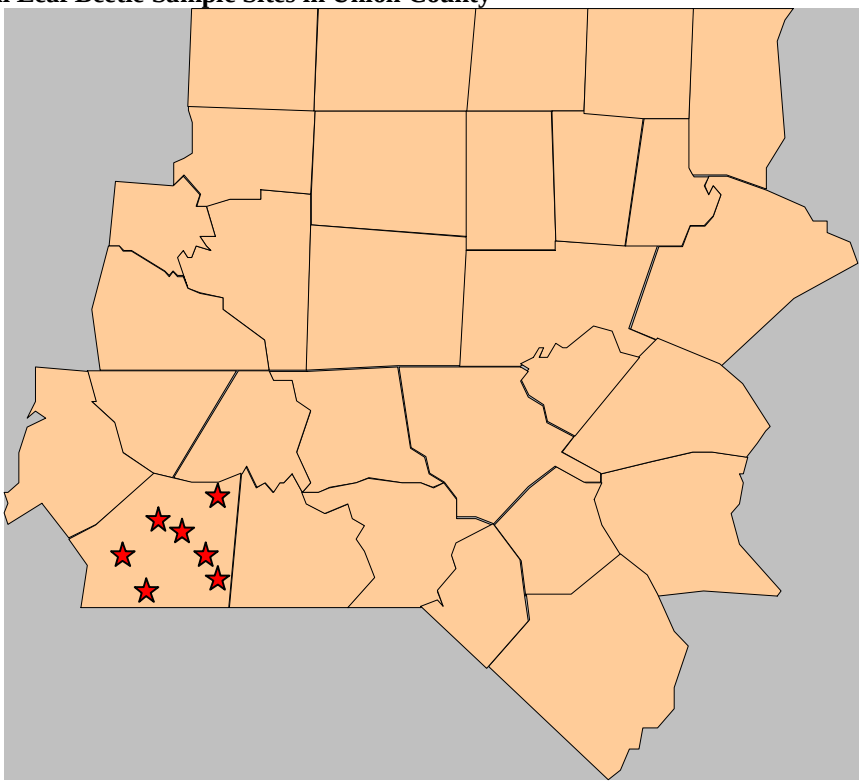
reached thresholds, and the two IPM treatments were not sprayed. **At each location, there were no differences in yield or test weight across treatments.**

(Graph 9) Topdress Nitrogen Additives 2010



*No differences in yield were significant

(Picture 1) Cereal Leaf Beetle Sample Sites in Union County



(Table 2) County Cereal Leaf Beetle Sample Data

	4/8/2010		4/16/2010		4/26/2010	
Location	**Eggs**	**Larvae**	**Eggs**	**Larvae**	**Eggs**	**Larvae**
S.Union *	1	0	1	0	1	13
SW 1	0	0	0	0	0	0
SW 2	0	0	0	2	0	2
NW *	4	11	10	24	7	43
Central 1	0	0	0	0	0	3
Central 2	0	0	0	0	1	0
SE	0	0	0	0	0	0

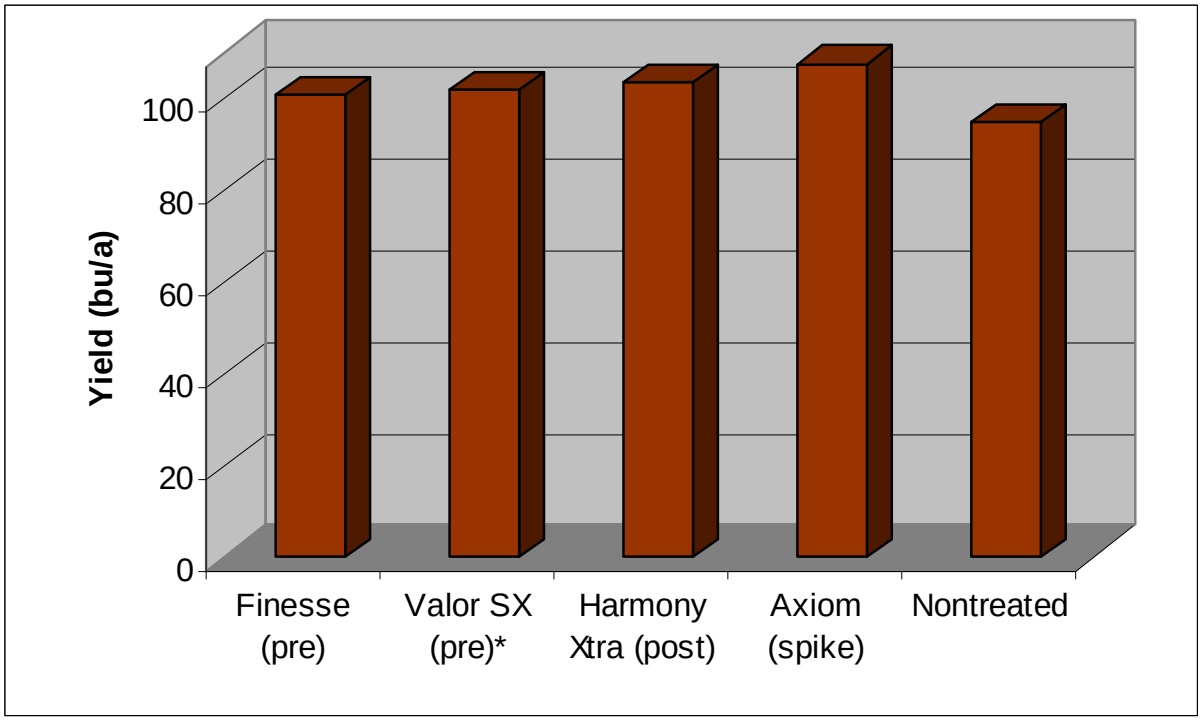
* indicates fields managed using IPM methods

Preemergence Herbicide Evaluation in Small Grains

Coker 9436 was planted on November 9th 2009 in a trial to evaluate ryegrass control with pre-emergence herbicides. Treatments included: Valor SX applied at 2 oz,14 days ahead of planting; Finesse at 0.5 oz/ac applied at planting; Axiom at 8 oz/ac applied at spike stage; Harmony Xtra applied early spring and a nontreated check. Unfortunately for this trial no ryegrass emerged however substantial flushes of common buttercup and henbit were present in the non treated plots. Weed control in all treated plots was identical and was excellent (≥94%); therefore no control data will be presented. This trial was taken to yield and is included in graph 10.

No significant differences were recorded in yield however numerical differences did occur. Numerical differences show a treatment advantage over nontreatment, yet this is not significant. The best explanation for this is the soil conditions. Much of this trial suffered from water stress which created large plot to plot variability and thus the lack of significant differences.

(Graph 11) Preemergence Herbicide Evaluation in Wheat



* Label requirements currently state a 30 day preplant interval.

Postemergence Herbicide Evaluation for Italian Ryegrass Control

A trial was initiated in Unionville, NC on November 9 to evaluate ryegrass control with experimental postemergence herbicides. Treatments included:

(Table 3) Postemergence Herbicide treatments for Italian Ryegrass Control in Wheat

Nontreated Check
Axiom @ 6 oz/a
Osprey @ 4.75 oz/ac + NIS @ 0.5v/v + UAN 4pt/ac
Axiom @ 6 oz/a followed by (fb) Osprey @ 4.75 oz/ac + NIS@ 0.5v/v + UAN 4pt/ac
Atlantis @ 6 oz/a + NIS@ 0.5v/v + UAN 4pt/ac
Atlantis @ 6 oz /a+ MSO @ 1.3 pt/a
Axiom@ 6 oz/a fb Atlantis @ 6 oz/a + NIS @ 0.5v/v + UAN 4pt/ac
Axiom @ 6 oz/a fb Axial XL @ 16.8 oz/a

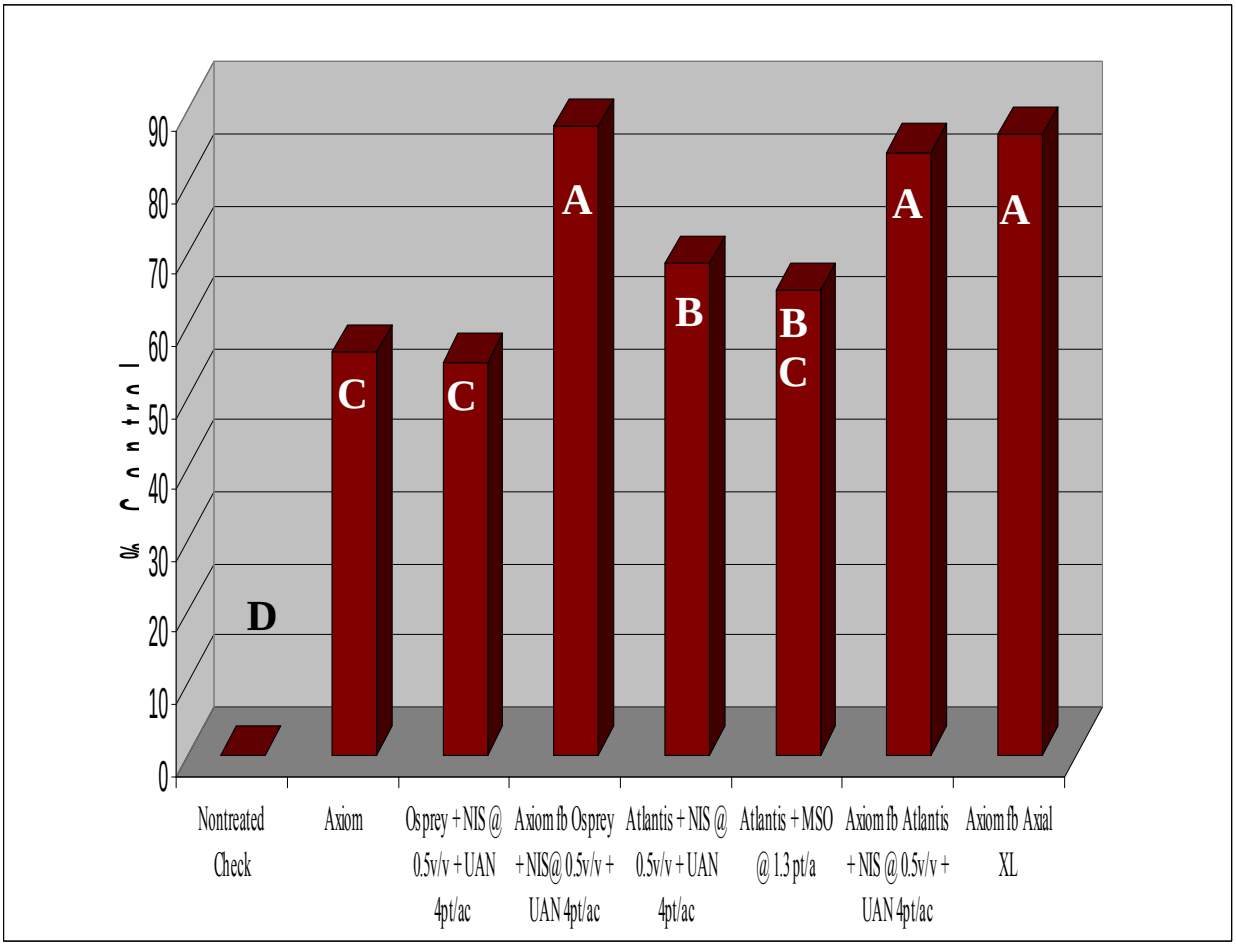
Axiom treatments were applied on November 24, 2009 to spike to 2 leaf wheat. One half of an inch of rain fell approximately 4 hours after application and was sufficient for herbicide activation. Italian Ryegrass control was evaluated 2 months after treatment and in Axiom treated plots only. Control was 88% compared to 0% in nontreated plots.

Postemergence applications were made to 3-5 leaf ryegrass on February 22, 2010. Italian Ryegrass control was evaluated 7weeks after application and data is presented in graph 11.

This trial location contained a substantial population of ALS resistant ryegrass therefore control was less than anticipated. The greatest level of control was obtained when Axiom was applied and followed by Osprey or Atlantis + NIS @ 0.5% v/v + UAN @ 4 pt/ac or Axial XL. Control when comparing Atlantis alone was numerically greater when NIS @ 0.5% v/v + UAN @ 4 pt/ac was used compared to MSO @ 1.3 pt/a though this difference was not statistically different. All treatments containing Axiom pre followed by any postemergence product tested controlled ryegrass greater than any other treatments and provided at least 84% control. Single treatment or strictly postemergence options did not provide this same level of control. This trial was taken to yield but due to large plot to plot variance in wheat stand no significant differences occurred yet large numerical differences existed.

Unfortunately pursuit of Atlantis will no longer continue due to marketing decisions. It is important to note based on the data from this trial, 84% control of a dense Italian ryegrass stand (20 plants/ft^2) can be obtained when a preemergent herbicide is applied, receives adequate rainfall for activation and is followed by a timely postemergence treatment.

(Graph 11) Postemergence Herbicide Evaluation for Italian Ryegrass Control in Wheat



Experimental Herbicide Evaluation for Italian Ryegrass Control

On November 7, 2009, a trial was initiated to evaluate the efficacy of a new experimental herbicide for Italian ryegrass control. Confidentiality agreements prevent the mention of the product name or its manufacturer therefore it will only be referred to as "Experimental XXX". Wheat was planted at 150 lbs/ac on November 7, 2009. Preemergence treatments were applied on November 9, 2009 with ½ of an inch of rainfall occurring that afternoon to ensure activation. Ryegrass populations were very dense; approximately 20 plants per square foot. Treatments include a non-treated, Experimental rates 1, 2, 3 and 4; Prowl H_20 @ 32 oz/a; Axial XL @ 16.4 oz/a; Prowl H_20 @ 32 oz/a + Axial XL @ 16.4 oz/a; and Experimental 1 + Axial XL @ 16.4 oz/a.

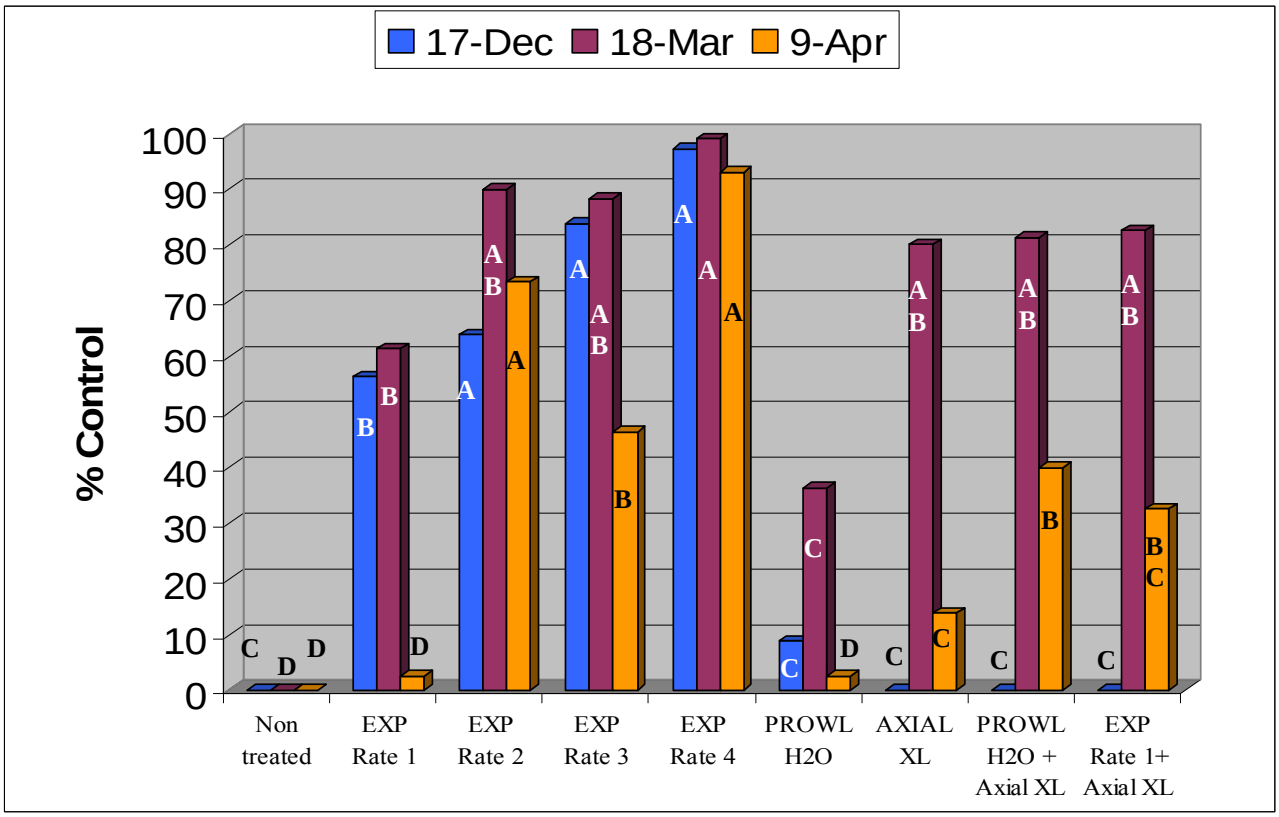
Evaluations were made 3 weeks after application and crop injury was less than 10% for all rates applied. Also control ratings 3 weeks after application showed 55-97% control (Graph 12). Postemergence applications were made on March 1 2010 and control was evaluated 17 days after this application. Control was numerically greater still with Experimental rate 4 than all remaining treatments at 99 % control. Statistically Exp. Rate 2, 3, and 4, and all postemergence treatments provided similar levels of control. (Graph 12)

Late season evaluations were conducted on April 9, 2010. Experimental rate 4 maintained excellent control for a full season control rating of 93% yet was statistically the same level as Exp 2. (Graph 12) Ryegrass control was statistically less with all other treatments.

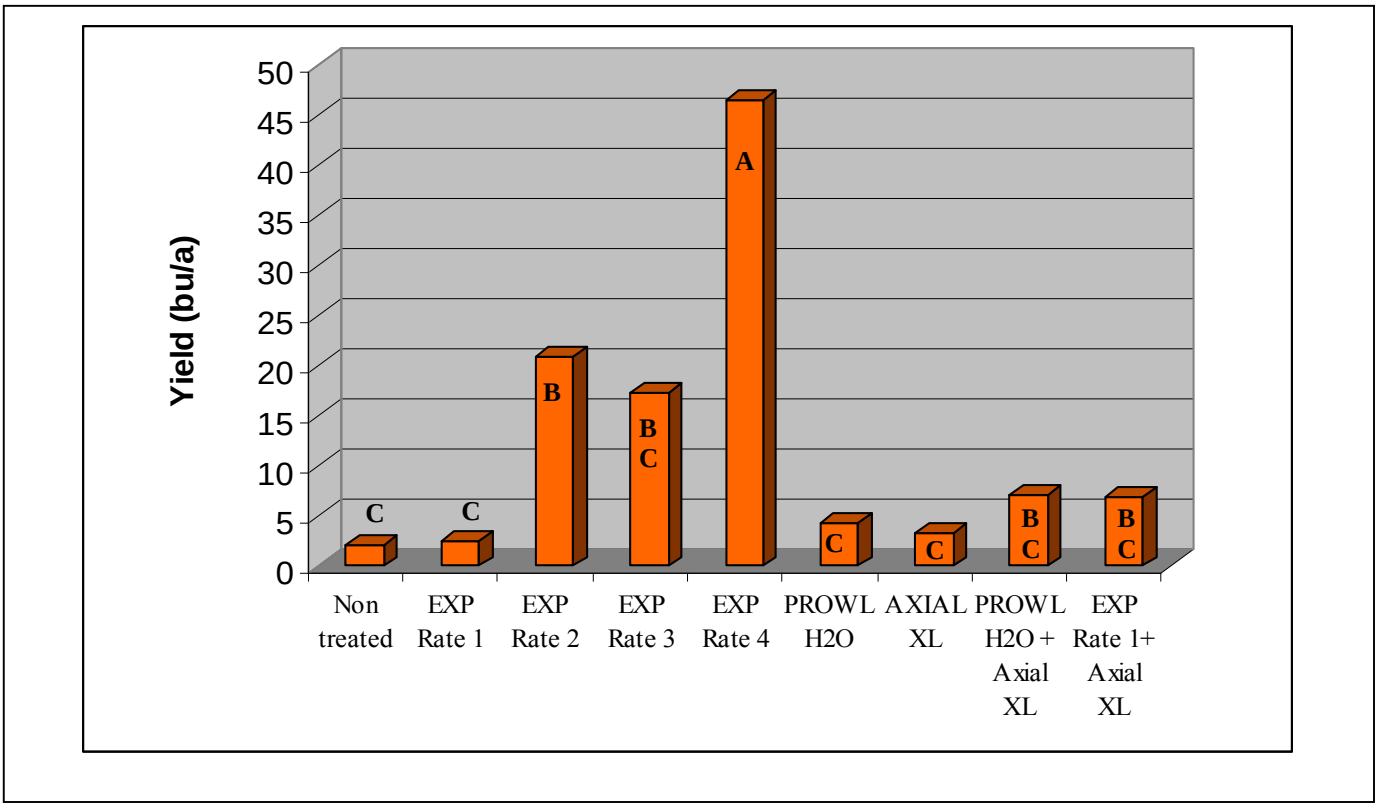
Plots were harvested on June 17 and yields were calculated on a per acre basis. Yields varied widely between treatments (Graph 13). The nontreated check yielded only 2 bushels per acre. This was due primarily to weed competition and the subsequently occurring lodging. Experimental rate 4 however yielded 46 bushels per acre.

Once commercialized, Experimental XXX will be an outstanding tool to effectively manage herbicide resistant Italian Ryegrass in the Southeast.

(Graph 12) Experimental Herbicide Evaluation for Italian Ryegrass Control Ratings



(Graph 13) Experimental Herbicide Evaluation for Italian Ryegrass Control –Yield Data

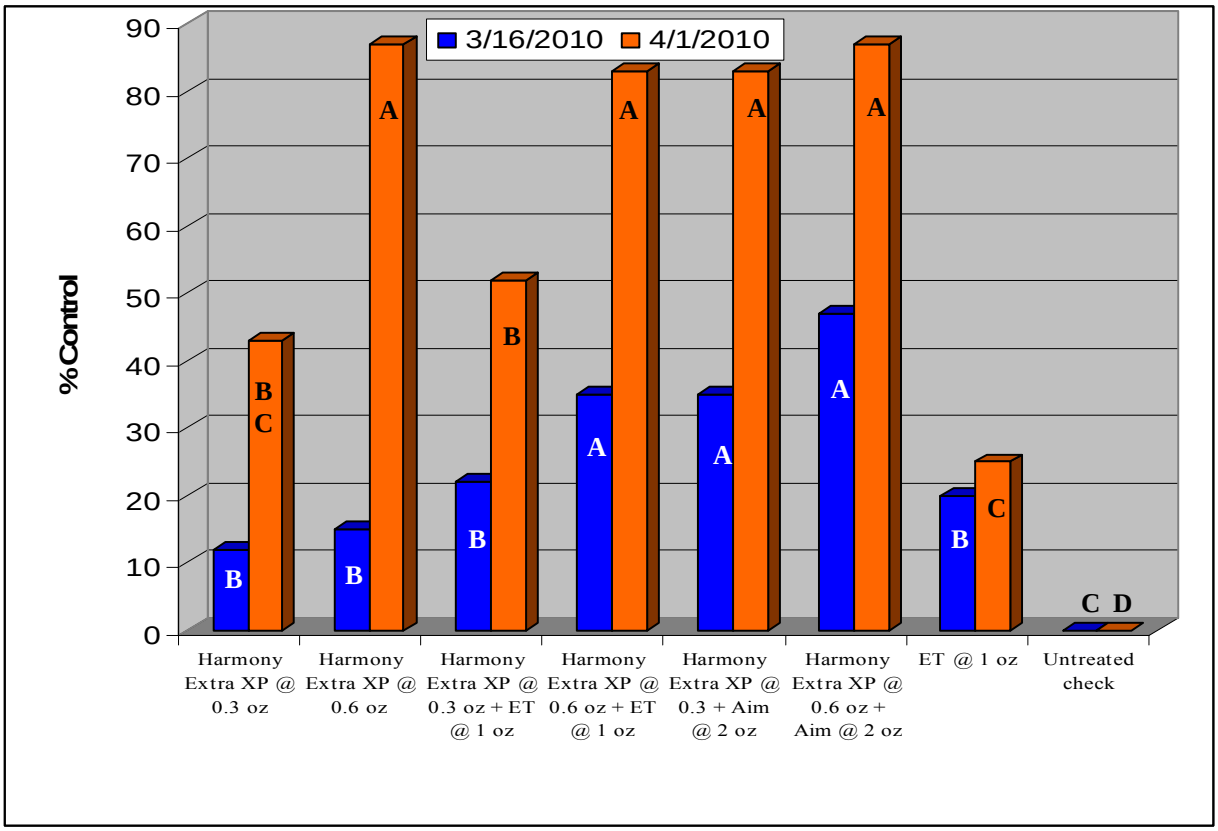


Alternative Herbicide Evaluations for Henbit Control

Herbicide resistance has gained attention in the recent production years due primarily to the widespread occurrence of glyphosate resistant Palmer Amaranth. It is also gaining attention with wheat producers especially with Hoelon and ALS resistant Italian ryegrass. Currently we have no documented cases of ALS resistant Henbit in North Carolina, but our northern neighbors in Virginia are plagued with it. Therefore in anticipation of its arrival in North Carolina a trial was initiated in Anson County, North Carolina on March 8, 2010. Treatments included: Harmony Extra XP @ 0.3 oz; Harmony Extra XP @ 0.6 oz; Harmony Extra XP @ 0.3 + ET @ 1 oz; Harmony Extra XP @ 0.6 oz + ET 1 oz; Harmony Extra XP @ 0.3 + Aim @ 2 oz; Harmony Extra XP @ 0.6 oz + Aim @ 2 oz; ET @ 1 oz and a nontreated check. All herbicide treatments included a Non Ionic Surfactant at 0.25% v/v.

Trials were evaluated 8, 16 and 24 days after application (Graph 14). Evaluations were unable to be continued due to crop shading. However, at 24 days after treatment all treatments containing 0.6 oz of Harmony provided the greatest control and performed statistically similar. The exception to this was the Harmony @ 0.3 oz plus Aim at 2 oz/ac. This provided similar control to the 0.6 oz harmony treatments. ET alone did not provide adequate control of henbit. (Graph 14)

(Graph 14) Alternative Herbicide Evaluations for Henbit Control



Poultry Manure Timing in Wheat

In November, 2010 a trial was initiated in Union County to evaluate poultry manure as it compares to commercial fertilizers by timing of application for wheat production. Treatments are included in table 4

(Table 4) Poultry Manure Timing in Wheat Treatments

1	0 N check
2	Oct Litter @ 1/4x 30lbs N rate
3	Oct Litter @ 1/4x 30lbs N rate + 60 lbs N @ GS 30
4	Oct Litter @ 1/4x 60lbs N rate
5	Oct Litter @ 1/4x 120lbs N rate
6	Dec Litter @ 1/4x 30lbs N rate
7	Dec Litter @ 1/4x 30lbs N rate + 60 lbs N @ GS 30
8	Dec Litter @ 1/4x 60lbs N rate
9	Dec Litter @ 1/4x 120lbs N rate
10	Feb Litter @ 1/4x 30lbs N rate
11	Feb Litter @ 1/4x 30lbs N rate + 60 lbs N @ GS 30
12	Feb Litter @ 1/4x 60lbs N rate
13	Feb Litter @ 1/4x 120lbs N rate
14	35 lbs N/ac Topdress
15	70 lbs N/ac Topdress
16	105 lbs N/ac Topdress
17	140 lbs N/ac Topdress

Unfortunately due to time constraints statistical analysis has not been conducted on this trial therefore data will not be included. This trial information is included simply to provide a record of its completion and data will be included in the 2011 report.

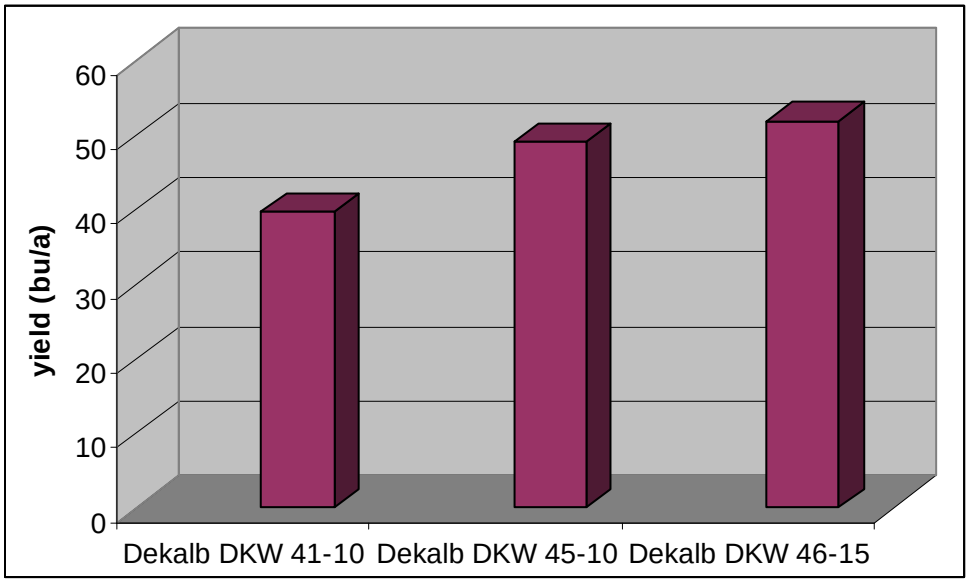
Canola Variety Trial

Canola is a crop that has seen an increased in popularity in recent production years. It provides growers with rotational options for disease, insect and weed management as well as allowing for alternative marketing options.

On 22 October, 2009 a trial was planted to evaluate 3 Dekalb Canola varieties. Multiple inquiries were made to locate additional varieties, however due to availability these three were the only ones made available and therefore tested. The three varieties included: DKW 41-10; DKW 45-10 and DKW 46-15. All varieties were Roundup Ready and received a glyphosate application in early March for weed control. All plots were planted at 4 pounds of seed per acre. Yield data was collected and adjusted to 10% moisture.

No statistical difference in yield was found when plots were harvested. Numerically, the greatest yield was obtained by 46-15 at 52.02 bushels per acre, followed by DKW 45-10 at 49.19 and finally, DKW 41-10 with 39.71 bushels per acre. (Graph 15)

(Graph 15) Canola Variety Evaluation



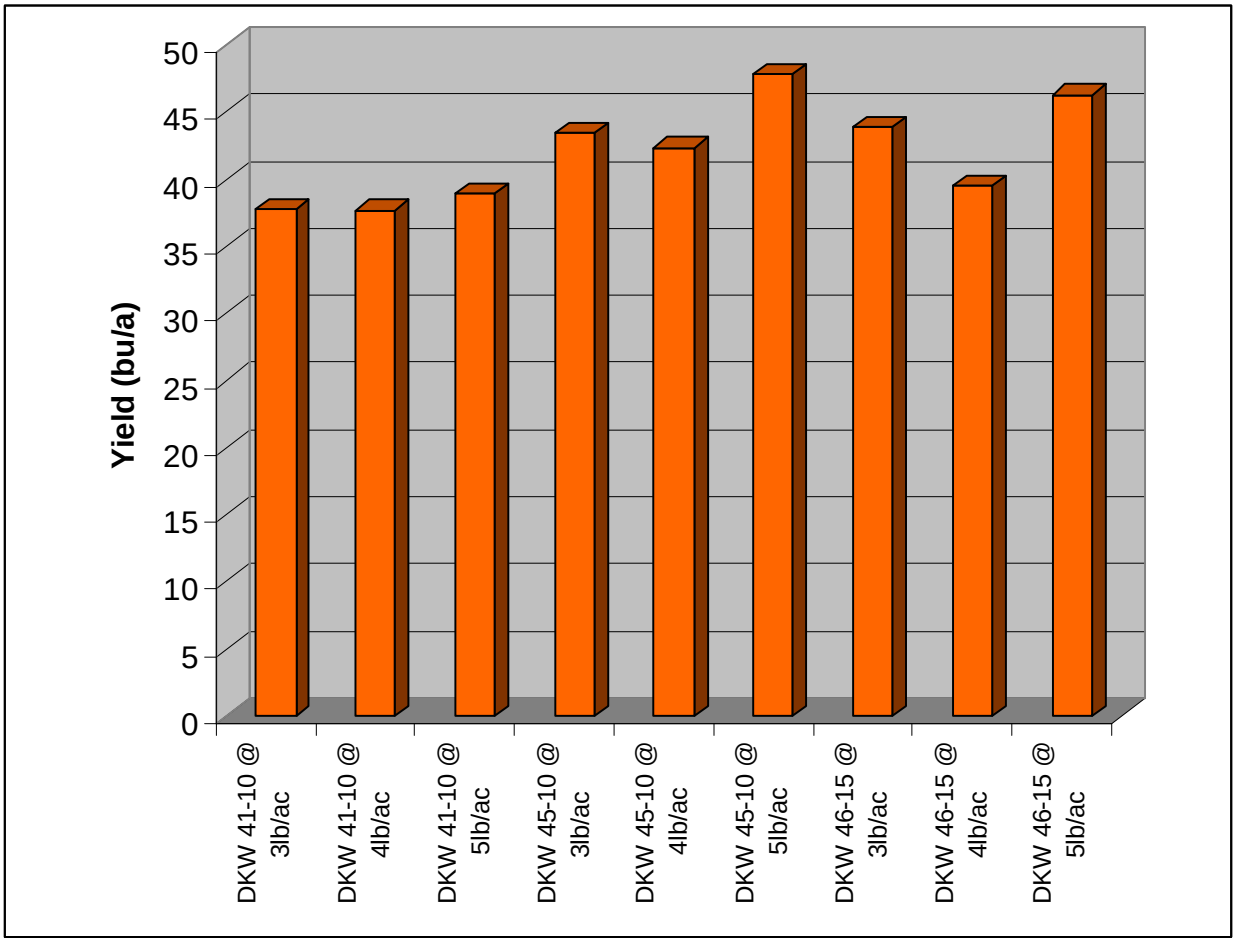
* No Significant Yield Differences Occurred

Canola Variety by Population Trial

Due to limited availability of varieties it was my goal to generate as much data as possible. Therefore a population trial was installed to try and address what population performs the best for each variety. Therefore DKW 41-10; DKW 45-10 and DKW 46-15 canola varieties were planted on 22 October, 2009 with a no-till clover drill at 3, 4, and 5 pounds of seed per acre. All varieties were Roundup Ready and received a glyphosate application in early March for weed control. Treatments were replicated 3 times. Plots were harvested with a small plot combine and yields were adjusted to 10% moisture.

No statistical advantage to increasing plant population was recorded with any variety tested. However, numerically DKW 45-10 and DKW 46-15 had the greatest yield when 5 pounds of seed per acre were used, while yield remained essentially unchanged numerically with DKW 41-10. (Graph 16)

(Graph 16) Canola Variety by Population Trial



*No Statistical Yield Differences Occurred

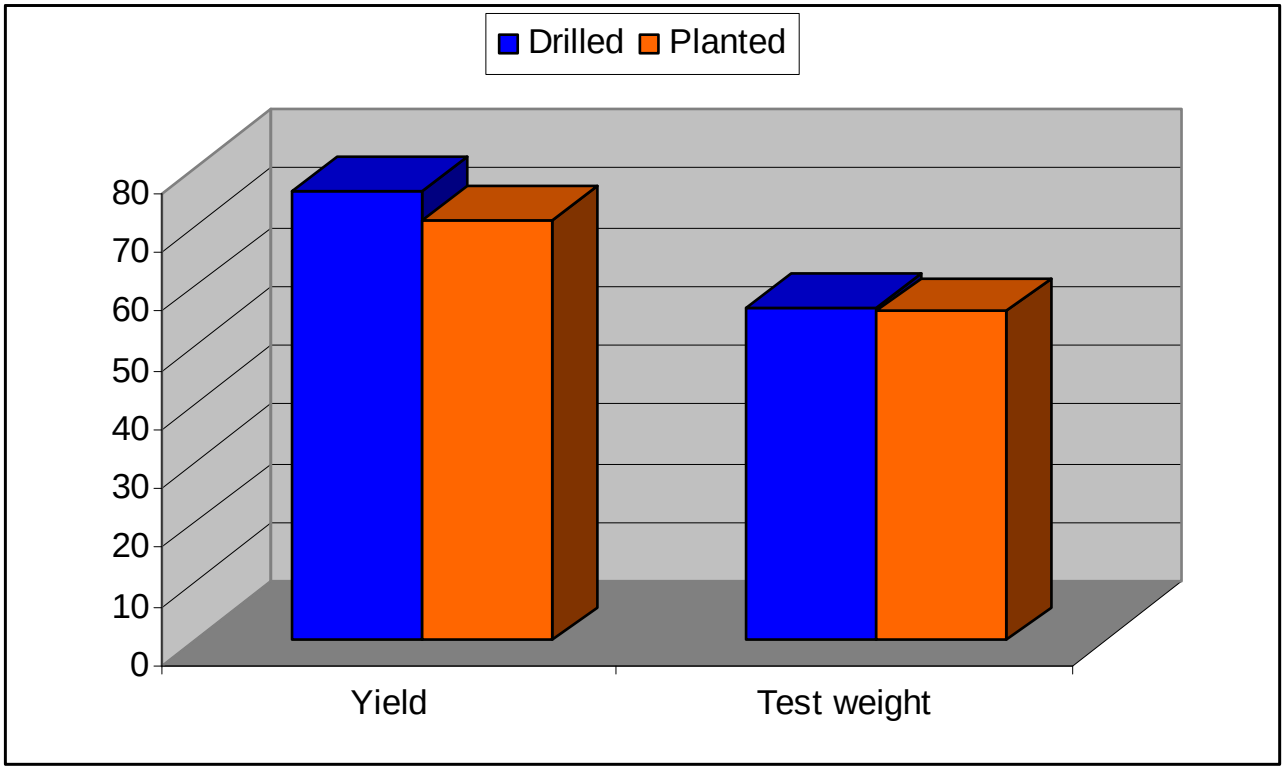
Comparison of Drilled and Planted Wheat

On November 12, 2009 a trial was initiated in Union County to evaluate wheat planted with a grain drill to wheat planted with a 15 inch planter using Southern States variety 8302. Several growers have expressed interest in this trial due to the potential to minimize their equipment burdens.

Harvest was conducted in June 18, 2010. Statistical analysis was not conducted on this trial therefore only numerical data will be presented. Drilled wheat average yield was 4.8 bushels greater than the planted wheat per acre. Test weights were also numerically greater for the drilled wheat at 0.5 pounds per acre.

It is important to note that this is only one year's data with one variety. This trial will be repeated in the upcoming season and data will be included in next year's report.

(Graph 17) Comparison of Drilled and Planted Wheat



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