

# EFFECTS OF FUNGICIDE TREATMENT ON WHEAT YIELD AND GRADE 2002-03

J. W. CHAPIN AND J. S. THOMAS

DEPARTMENT OF ENTOMOLOGY  
CLEMSON UNIVERSITY

**Location:** Edisto Research and Education Center, Barnwell Co. SC, Field D-13 C.

**Design:** RCB with five replicates; plot size 8 rows (8" spacing) x 40'

**Soil Type:** Marlboro sandy loam.

**Rotation:** 2002 strip-till corn; 2001 peanut, fallow; 2000 strip-till corn; 1999 peanut, fallow

## **Planting**

**Date:** Nov 26, 2002

## **Seeding**

**Rate:** 24 seed / row foot

## **General**

**Fertility:** 30 lbs. / acre N (11.3 gal S-25) was applied 19 Dec and 65 lbs. / acre N (23.4 gal S-25) was applied 14 Feb (GS 23). Total N = 95 lbs. /acre, total S = 13 lbs. / acre.

**Herbicide:** 0.30 oz Express 75DF was applied 10 Feb.

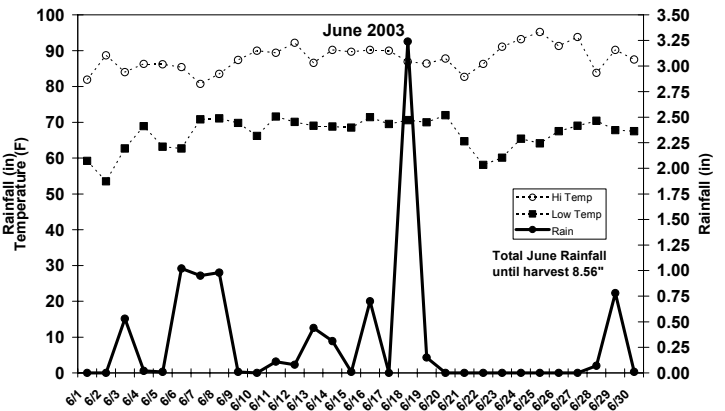
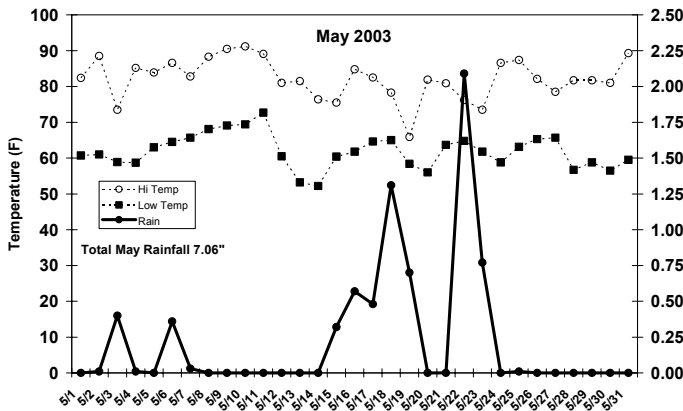
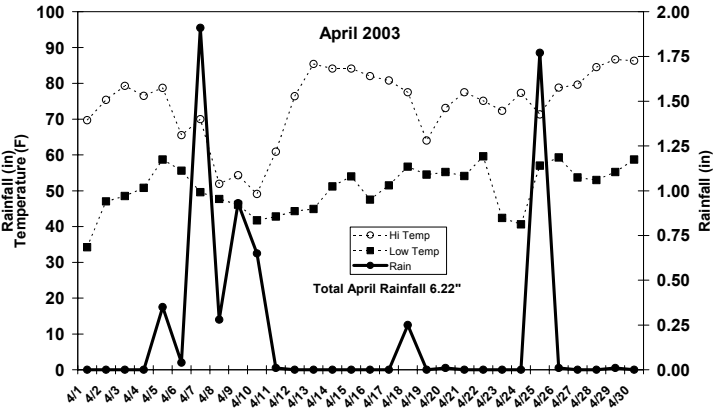
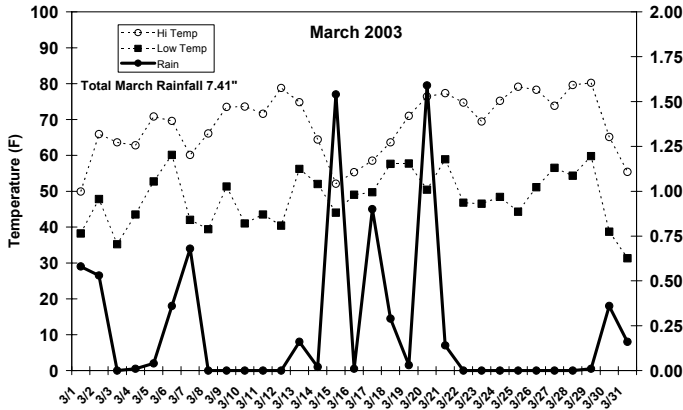
**Insecticide:** Warrior T (3.87 oz /ac) applied with N 14 Feb.

**Methods:** Fungicides were applied at flag leaf emergence 2 April (GS 39, ligules showing on approximately 50% of plants) with a tractor-mounted CO<sub>2</sub> pressurized sprayer delivering 5.0 gpa @ 50 psi through Tee Jet TX-6 hollow cone tips. The boom was shielded with Red Ball broadcast hoods to prevent drift. 24 Apr Powdery mildew (PM) was rated by two observers on an arbitrary 0-5 scale where 0 = none observed, 1 = some disease present on lower stems, 2 = disease affecting the lowest leaves, 3 = disease affecting mid- and lower-canopy leaves, 4 = disease symptoms affecting some F-2 and F-1 leaves; 5 = entire plant diseased. 30 April (GS 3/4 kernel fill) PM was rated by two observers estimating percent chlorotic flag leaf area from 10 flag leaves each per plot. Plots were rated 13 May (GS soft dough) for leaf blotch flag leaf chlorosis and/or necrosis by estimating percent leaf area affected. In addition, plots were given a relative "green" score (1-3, 3 = greenest). The inner six rows of each 8-row plot were harvested 25 June with an Almaco plot combine. Yield samples were weighed on an electronic balance. Test weight was taken by funneling a sub-sample of grain through a Seedburo No. 151 filling hopper and weighing one dry pint of grain on an electronic scale. Grain moisture content was measured with a Burrows DMC-700 moisture meter. All yields were adjusted to 13.5% moisture before analysis.

**Analysis:** ANOVA, using SAS PROC GLM.  
Fisher's protected LSD was used for mean separation ( $P=0.05$ ).

**Notes:** Weather delayed harvest by approximately 3 weeks and significantly reduced yield and test weight.

The following charts are temperature and rainfall recorded for March – June 2003.



**Table 1. Wheat fungicide effects on disease, yield, and test weight, Blackville, SC 2001-02.**

| Treatment *                  | Powdery Mildew                           |                                 | Leaf Blotch                     | Green Score                            | Yield                   | Test weight             |
|------------------------------|--|---------------------------------|---------------------------------|--|-------------------------|-------------------------|
|                              | <u>(0-5 score)<sup>a</sup></u><br>24 Apr | <u>% FL chlorosis</u><br>30 Apr | <u>% FL chlorosis</u><br>13 May | <u>1-3 scale<sup>b</sup></u><br>13 May | <u>Bu/ac</u><br>25 June | <u>Lb/bu</u><br>25 June |
| Headline 6 oz                | 1.7 cd                                   | 4.0 b                           | 12 c                            | 2.4 a                                  | 74.1 a                  | 53.1 a                  |
| Quadris 6 oz                 | 2.0 bc                                   | 4.3 ab                          | 20 ab                           | 2.1 a                                  | 70.1 ab                 | 53.0 a                  |
| Quadris 3 oz +<br>Tilt 3 oz  | 1.4 de                                   | 4.8 ab                          | 18 bc                           | 2.1 a                                  | 69.6 ab                 | 53.1 a                  |
| Headline 4 oz                | 2.0 bc                                   | 4.1 b                           | 20 ab                           | 2.1 a                                  | 68.4 b                  | 52.7 abc                |
| Quadris 4 oz                 | 1.8 cd                                   | 4.6 ab                          | 20 ab                           | 1.9 ab                                 | 68.0 b                  | 53.0 a                  |
| Stratego 10oz                | 1.1 e                                    | 4.2 ab                          | 20 ab                           | 2.3 a                                  | 67.7 b                  | 52.9 ab                 |
| Quadris 2 oz +<br>Tilt 2 oz  | 2.3 ab                                   | 4.7 ab                          | 24 ab                           | 1.8 ab                                 | 67.1 bc                 | 52.3 c                  |
| Headline 2 oz +<br>Tilt 2 oz | 1.8 cd                                   | 4.4 ab                          | 22 ab                           | 2.0 a                                  | 66.2 bc                 | 53.0 a                  |
| Tilt 4 oz                    | 1.7 cd                                   | 4.0 b                           | 26 a                            | 1.8 ab                                 | 65.6 bc                 | 52.4 bc                 |
| Untreated Check              | 2.7 a                                    | 5.4 a                           | 26 a                            | 1.4 b                                  | 62.1 c                  | 52.3 c                  |

Chapin and Thomas 03

Coker 9835 planted 26 Nov 2002; harvested 25 June 2003.

Means followed by the same letter are not significantly different, Fisher's protected LSD ( $P=0.05$ ).

\* Fungicide treatments were applied 2 Apr (GS 39).

<sup>a</sup> 0 = none observed, 1 = some disease present on lower stems, 2 = disease affecting the lowest leaves, 3 = disease affecting mid- and lower-canopy leaves, 4 = disease symptoms affecting some F-2 and F-1 leaves; 5 = entire plant diseased

<sup>b</sup> 3 = greenest

Leaf F-1 disease ratings taken in untreated check 30 April (F-1 leaf) = 22 % PM chlorosis and 5-10 % leaf blotch chlorosis. Powdery mildew did not progress after 30 April ratings.