

# 2004 Ohio Soybean Seed Fungicide Treatment Study

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Soybean diseases in Ohio have increased in number and severity over the past 10 years so that today, the loss of productivity from disease averages over \$150,000,000 per year. This loss is greater than from any other factor except weather. The increase in soybean disease is due primarily to short crop rotations or no crop rotation. It is estimated that Ohio soybean producers lose an average of five to eight bushels per acre per year to disease. In most years, several diseases are present but some are not recognized due to low levels of infection. It is noteworthy that by the time symptoms of a particular disease appear, the yield loss has already reached seven to ten percent. In many fields there is significant yield loss to disease even though no symptoms are evident.

In the past, we have relied on varieties' disease resistance and tolerance to provide some measure of control. Many of the Phytophthora control genes are no longer effective because the pathogens have evolved and can overcome the genes' defense mechanism. During the past ten years, fungicide seed treatments have been used effectively to improve soybean stands and increase the general health of soybean root systems following planting.

In 2004 we continued to evaluate soybean seed treatment fungicides. Eight fungicide seed treatments were applied to seed of Asgrow AG3302, within five weeks of planting at the labeled application rate. Eight replications of each treatment were used at each of six test sites. The results of that work are presented in Table 1. Agronomic practice, site characteristics and monthly rainfall for each test site are described in Tables 2 and 3.

The average yield increase due to fungicide seed treatment in 2004 was 2.0 bushels per acre. Yield increases due to specific treatments across test sites ranged from 0.3 to 5.2 bushels per acre, and the maximum yield increase due to treatment at a test site was 8.9 bushels per acre. Fungicide seed treatments almost always improve plant stand and plant health. Seventy five percent of the time their use increases grain yield by more than three times their cost. The take home message is that fungicide seed treatments are very effective tools for improving plant stands and root system health. Fungicide seed treatment should always be used on soybeans in Ohio regardless of variety, crop rotation, soil type, planting date, or tillage. Cruiser (an insecticide) as part of one of the seed treatments in both 2003 and 2004 increased yield by 3.0 and 4.8 bushels per acre respectively.

**Table 1: Effect of Fungicide Seed Treatment on Soybean Yield at Six Ohio Test Sites in 2004.**

<b>Company</b>	<b>Treatment Description</b>	<b>N1*</b>	<b>N2</b>	<b>C1</b>	<b>C2</b>	<b>S1</b>	<b>S2</b>	<b>Mean</b>
Gustafson	Rival + Allegiance FL	62.7	48.3	52.7	62.9	71.5	74.0	<b>62.0</b>
Gustafson	Yield Shield + Gaucho 480	64.4	48.7	50.4	65.1	71.2	78.1	<b>62.9</b>
Agriliance	Warden RTA	62.4	53.5	50.7	69.1	69.9	78.4	<b>64.0</b>
Agriliance	AGST 02001	63.8	49.4	49.1	59.7	71.1	72.4	<b>60.9</b>
Syngenta	Apron Maxx RFC + Apron XL	61.0	51.3	49.5	61.6	70.0	72.5	<b>61.0</b>
Syngenta	Apron Maxx RFC + Apron XL + Cruiser	62.9	57.8	53.7	70.1	74.8	75.6	<b>65.8</b>
Trace Chem	L1269-D4	63.4	49.3	48.5	69.3	70.4	77.8	<b>63.1</b>
UTC		62.4	48.9	45.4	62.0	67.6	77.3	<b>60.6</b>
<b>Mean</b>		<b>62.8</b>	<b>50.9</b>	<b>50.0</b>	<b>65.0</b>	<b>70.8</b>	<b>75.8</b>	<b>62.6</b>
<b>LSD 0.3</b>		<b>1.6</b>	<b>2.7</b>	<b>2.5</b>	<b>3.8</b>	<b>2.1</b>	<b>2.3</b>	<b>1.0</b>

\* N1 = Henry Co., N2 = Huron Co., C1 = Mercer Co., C2 = Delaware Co., S1 = Preble Co., S2 = Clinton Co.

**Table 2. 2004 Production Background Information**

	<b>N1</b>	<b>N2</b>	<b>C1</b>	<b>C2</b>	<b>S1</b>	<b>S2</b>
	<b>Henry Co.</b>	<b>Huron Co.</b>	<b>Mercer Co.</b>	<b>Delaware Co.</b>	<b>Preble Co.</b>	<b>Clinton Co.</b>
<u>Tillage</u>						
Fall	None	Plow	Chisel	None	None	Chisel
Spring	None	Field Cult.	None	None	None	Field Cult.
<u>Soil and Crop Background</u>						
Soil Type	Hoytville	Kibbie	Mercer	Blount	Crosby	Westland
Soil pH	6.7	5.7	6.4	6.1	6.8	6.2
Soil Test P(ppm)	56	72	40	52	78	47
Soil Test K(ppm)	251	437	221	230	298	248
Fertilizer	0-0-0	0-0-0	0-0-0	0-0-0	0-0-0	0-0-0
Previous Crop	Corn	Soybean	Corn	Wheat	Corn	Corn
Plant Date	5/28	5/18	5/29	5/13	5/11	5/10

Weed Control was accomplished with Roundup7 UltraMax7

**Table 3. 2004 Rainfall Data**

	<b>N1</b>	<b>N2</b>	<b>C1</b>	<b>C2</b>	<b>S1</b>	<b>S2</b>
	<b>Henry Co.</b>	<b>Huron Co.</b>	<b>Mercer Co.</b>	<b>Delaware Co.</b>	<b>Preble Co.</b>	<b>Clinton Co.</b>
----- 2004 (Normal) -----						
May	<b>8.0</b> (3.3)	<b>3.9</b> (3.6)	<b>5.3</b> (4.1)	<b>4.6</b> (3.8)	<b>5.0</b> (3.8)	<b>4.1</b> (4.7)
June	<b>4.5</b> (3.5)	<b>4.3</b> (3.9)	<b>6.5</b> (3.8)	<b>5.8</b> (3.8)	<b>6.6</b> (3.9)	<b>3.1</b> (3.6)
July	<b>2.6</b> (4.0)	<b>4.2</b> (4.2)	<b>4.1</b> (4.4)	<b>3.0</b> (3.8)	<b>6.1</b> (3.4)	<b>4.6</b> (3.9)
August	<b>3.9</b> (3.1)	<b>3.6</b> (3.5)	<b>6.3</b> (3.6)	<b>6.8</b> (3.1)	<b>2.3</b> (3.1)	<b>1.7</b> (3.5)
September	<b>1.0</b> (2.8)	<b>1.7</b> (3.2)	<b>1.1</b> (3.3)	<b>1.1</b> (2.9)	<b>5.9</b> (2.7)	<b>2.0</b> (3.0)
TOTAL	<b>20.0</b> (16.7)	<b>17.7</b> (18.4)	<b>23.3</b> (19.2)	<b>21.3</b> (17.4)	<b>25.9</b> (16.9)	<b>15.5</b> (18.7)