

## Oklahoma Soybean Board Report - 2008 Crop Year

**Title:** Yield Response of Soybeans to Fungicide Programs for Control of Soybean Rust

**PI:** John Damicone, Entomology and Plant Pathology

**Cooperator:** Chad Godsey, Plant and Soil Sciences

**Objective:** The objective was to determine the disease and yield responses of full-season soybeans (MG5) to fungicide programs designed for control of soybean rust. Various combination and application sequences of triazole and strobilurin fungicides were applied in order to determine whether yield responses are due to rust control, frogeye leaf spot control, delayed maturity (crop health benefits), or combinations of the above. Trials were run at three locations in order to increase the odds of a positive yield response to fungicide application. Single applications were made at R3 (early pod set) while two application programs were made at R3 and R5 (early pod fill).

**Results:** Soybean rust did not develop at any of the three locations. The foliar diseases brown spot (*Septoria*) and *Cercospora* blight were present and contributed to leaf drop (defoliation) late in the season (Table 2). All of the fungicide programs except the two applications of a triazole reduced defoliation compared to the untreated check. However, disease pressure was not sufficient to affect yield. Yields did not statistically differ among treatments at any of the locations or when averaged over locations (Table 3)

**Table 4.** Disease response of full-season soybeans to fungicide programs, 2008.

Treatment at growth stage <sup>1</sup>		Defoliation (%) <sup>2</sup>			
R3	R5	Bixby	Miami	Cherokee	Average
X	X	20	42	36	32 a <sup>3</sup>
Strobilurin	X	5	32	16	18 cd
Triazole	X	9	40	23	24 bc
Pre-mix	X	12	27	19	19 bcd
Strobilurin	Strobilurin	8	17	19	15 d
Strobilurin	Triazole	5	23	25	17 cd
Triazole	Triazole	14	37	28	26 ab
Pre-mix	Pre-mix	4	31	24	20 bcd
LSD <sub>0.05</sub> <sup>4</sup>					8

<sup>1</sup> Fungicide class applied at growth stages R3 (first pod) and R5 (first seed); X=no treatment; Strobilurin=Headline 6 fl oz/A at all locations; triazole=Alto 4 fl oz at Bixby, Folicur 3 fl oz at Miami, and Domark 4 fl oz at Cherokee; Pre-mix (strobilurin+triazole)=Quadris Xtra 5 fl oz at Bixby, Quilt 14 fl oz at Miami, and Stratego 8 fl oz at Cherokee.

<sup>2</sup> Leaf drop at growth stage R7 (early maturity) at the OSU Vegetable Research Station at Bixby, and at commercial farms near Miami and Cherokee.

<sup>3</sup> Values in a column followed by the same letter are not statistically different.

<sup>4</sup> Least significant difference.

**Table 5.** Yield response of full-season soybeans to fungicide programs, 2008.

Treatment at growth stage <sup>1</sup>		Yield (bu/A) <sup>2</sup>			
R3	R5	Bixby	Miami	Cherokee	Average
X	X	49.2	33.7	22.9	35.3 a <sup>3</sup>
Strobilurin	X	43.7	36.5	32.6	37.6 a
Triazole	X	40.5	42.5	21.5	34.8 a
Pre-mix	X	44.3	36.2	29.8	36.7 a
Strobilurin	Strobilurin	45.3	34.1	25.8	35.1 a
Strobilurin	Triazole	39.1	45.4	28.0	37.5 a
Triazole	Triazole	39.6	38.2	22.4	33.4 a
Pre-mix	Pre-mix	39.1	49.6	33.6	40.8 a
LSD <sub>0.05</sub> <sup>4</sup>					NS

<sup>1</sup> Fungicide class applied at growth stages R3 (first pod) and R5 (first seed); X=no treatment; Strobilurin=Headline 6 fl oz/A at all locations; triazole=Alto 4 fl oz at Bixby, Folicur 3 fl oz at Miami, and Domark 4 fl oz at Cherokee; Pre-mix (strobilurin+triazole)=Quadris Xtra 5 fl oz at Bixby, Quilt 14 fl oz at Miami, and Stratego 8 fl oz at Cherokee.

<sup>2</sup> Yield adjusted to 13% moisture using a plot combine at the OSU Vegetable Research Station at Bixby, and at commercial farms near Miami and Cherokee.

<sup>3</sup> Values in a column followed by the same letter are not statistically different.

<sup>4</sup> Least significant difference (NS=treatment effect not significant at P=0.05).