

# On-farm Soybean Fungicide Trials

## RFR-A1322

Fungicide applications have become more popular among soybean farmers in recent years. The primary use of fungicides has been to control diseases such as Septoria brown spot, Cercospora leaf blight, and frogeye leaf spot. With higher grain prices, the economic return on production-related investments is more easily achieved. However, there are risks involved when applying fungicides during times when disease severity is low, including economic losses and increased chance of pathogens becoming resistant to fungicides.

### Methods

In 2013, nine trials (Table 1) examined the use of fungicides to control foliar disease in soybeans. In Trial 1, Priaxor® was applied at V6. In Trials 2, 3, 4, and 6, Priaxor® was applied at R3-R4, and in Trial 5, Quilt XL® was applied at V5. These treated strips were compared with an untreated control. In Trials 7 and 8, two fungicides applied at R3 (Headline and Priaxor) were compared with an untreated control. In Trial 9, Priaxor and a mixture of Priaxor and the insecticide Cobalt were compared with an untreated control. All applications were made with ground equipment. Soybeans were evaluated for foliar diseases in September in Trials 5 and 7. Treatments were replicated three or more times in each trial.

### Results

There was a statistically significant yield increase of an average of about three bushels/acre with the fungicide applications in Trials 1, 5, 7, and 8 (Tables 2 and 3). In Trial 8, the yield in the plots treated with Priaxor was greater than the plots treated with Headline, and both yields were statistically greater than the yield from the untreated control. There was not a statistically significant yield increase with the fungicide application in the other five trials. Assessment of foliar diseases in Trials 5 and 7 indicated that disease lesions from Septoria brown spot, Cercospora leaf blight, and frogeye leafspot were common in the mid-upper soybean canopy of the untreated plots and significantly less common in the treated plots. Although evaluations were not done in the other trials, it is possible foliar diseases also may have been present in the other two trials that benefited from the fungicide application. The results of these trials show that foliar applications of fungicide can result in yield increases in soybean, especially if foliar diseases are present.

**Table 1. Variety, row spacing, planting date, planting population, previous crop, and tillage practices in the soybean fungicide trials.**

| Exp. No. | Trial | County   | Variety         | Row spacing (in.) | Planting date | Planting population (seeds/A) | Previous crop | Tillage      |
|----------|-------|----------|-----------------|-------------------|---------------|-------------------------------|---------------|--------------|
| 130113   | 1     | Sioux    | Pioneer 91Y90   | 30                | 5/18/13       | 150,000                       | Corn          | No-till      |
| 130144   | 2     | Lyon     | Asgrow 2431     | 30                | 5/24/13       | 130,000                       | Corn          | No-till      |
| 130150   | 3     | Lyon     | NK19A6          | 30                | 5/18/13       | 147,000                       | Corn          | Conventional |
| 130159   | 4     | Sioux    | Asgrow 2232     | 30                | 5/24/13       | 150,000                       | Corn          | Spring disk  |
| 130302   | 5     | Crawford | NK S28-U7RR2    | 30                | 6/10/13       | 150,000                       | Corn          | No-till      |
| 130409   | 6     | Hancock  | Dyna Gro 36RY19 | 30                | 5/24/13       | 140,000                       | Corn          | Conventional |
| 130301   | 7     | Monona   | Mycogen 5N284R2 | 38-twin           | 5/20/13       | 165,000                       | Corn          | Spring disk  |
| 130120   | 8     | Osceola  | Asgrow 1834     | 30                | 5/13/13       | 150,000                       | Corn          | Spring disk  |
| 130158   | 9     | Sioux    | Pioneer 22T69R  | 30                | 5/23/13       | 150,000                       | Corn          | Spring disk  |

**Table 2. Yield from soybean fungicide trials with single comparisons.**

| Exp. No. | Trial | Treatment | Rate (oz/A) | Application timing | Yield (bu/A) |         |          |         |
|----------|-------|-----------|-------------|--------------------|--------------|---------|----------|---------|
|          |       |           |             |                    | Fungicide    | Control | Response | P-value |
| 130113   | 1     | Priaxor   | 4           | V6                 | 68.0         | 66.1    | 1.9      | 0.03    |
| 130144   | 2     | Priaxor   | 4           | R3                 | 69.8         | 67.8    | 2.0      | 0.15    |
| 130150   | 3     | Priaxor   | 4           | R3                 | 57.1         | 56.3    | 0.8      | 0.08    |
| 130159   | 4     | Priaxor   | 4           | R3                 | 72.6         | 71.4    | 1.2      | 0.45    |
| 130302   | 5     | Quilt XL  | 10.5        | V5                 | 54.3         | 48.4    | 5.9      | 0.03    |
| 130409   | 6     | Priaxor   | 4           | R4                 | 52.9         | 52.3    | 0.6      | 0.69    |

**Table 3. Yield from soybean fungicide trials with multiple comparisons.**

| Exp. No. | Trial | Treatment        | Rate (oz/A) | Application timing | Yield (bu)* | P-value |
|----------|-------|------------------|-------------|--------------------|-------------|---------|
| 130301   | 7     | Control          | --          | --                 | 63.1 a      | 0.001   |
|          |       | Headline         | 6           | R3                 | 65.1 b      |         |
|          |       | Priaxor          | 4           | R3                 | 65.1 b      |         |
| 130120   | 8     | Control          | --          | --                 | 64.7 a      | 0.003   |
|          |       | Headline         | 6           | R3                 | 66.4 b      |         |
|          |       | Priaxor          | 4           | R3                 | 68.5 c      |         |
| 130158   | 9     | Control          | --          | --                 | 70.7 a      | 0.454   |
|          |       | Priaxor          | 4           | R3                 | 72.4 a      |         |
|          |       | Priaxor + Cobalt | 4 + 13      | R3                 | 73.0 a      |         |

\*Values denoted with the same letter within a trial are not statistically different at the significance level 0.05.