

# Northwest Iowa On-farm Research Soybean Yield Response to Headline Fungicide

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### Introduction

Six years ago the Northwest Iowa On-Farm Research Project was started to cooperate with local farmers to compare crop production methods on a field scale size. Through this project, over 300 replicated comparisons have been done. Beginning in 2012, the Northwest Iowa On-Farm Research project will be recognized as a part of Iowa State University Farmer Assisted Research and Management (FARM) program. This program will also expand to southwest Iowa, north central Iowa, and central Iowa.

In 2011, 67 projects were conducted with 18 cooperators from Sioux, Lyon, Osceola, and O'Brien counties.

Foliar fungicides have been used in the past to combat fungal pathogens that can lead to a decrease in yield. Recent observations have suggested that even in the absence of disease pressure, a fungicide may still provide a yield increase.

### Materials and Methods

Five farmers from Sioux, Lyon, and Osceola participated in soybean fungicide trials in 2011. Row spacing, planting date, planting population, and tillage is detailed in Table 1. The previous crop at all locations was corn. Headline fungicide (pyraclostrobin) was applied at the R3 stage of growth using a ground applicator at the rate of 6 oz/acre tank mixed with 0.25 percent volume-to-volume of non-ionic surfactant. Typical carrier rate was from 13 to 15 gallons

of water per acre at 40 psi. Plots were evaluated for brown spot, frogeye leaf spot, and Cercospora leaf blight during the first week of September for disease pressure. Yield data was collected either by a yield monitor or a weigh wagon. A basic statistical analysis was performed to determine a yield response.

### Results and Discussion

Three of the five locations showed a yield response by applying Headline fungicide to soybeans at R3 ( $P < 0.10$ ) (Table 1). Average yield increase for the five experiments was 2.1 bushels. Disease incidence was extremely low ( $< 1\%$ ) for all locations that were rated. This data suggests that there may be a yield response to Headline fungicide even in the absence of significant disease pressure. It should be noted that this is a single year data set and to draw a stronger conclusion, multiple years should be considered.

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**Table 1. Soybean response to Headline fungicide.**

| County  | Variety       | Row spacing | Planting date | Planting population <sup>1</sup> | Tillage      | Yield, bu/acre |         | P-value <sup>2</sup> |
|---------|---------------|-------------|---------------|----------------------------------|--------------|----------------|---------|----------------------|
|         |               |             |               |                                  |              | Fungicide      | Control |                      |
| Sioux   | Pioneer 91Y90 | 30 in.      | May 11        | 140,000                          | Conventional | 73.4           | 70.3    | 0.01                 |
| Osceola | Kruger 2301   | 30 in.      | May 12        | 130,000                          | Conventional | 66.9           | 64.1    | 0.03                 |
| Sioux   | Pioneer 93M11 | 36 in.      | May 10        | 140,000                          | Conventional | 62.7           | 60.3    | 0.07                 |
| Lyon    | Stine 22LC32  | 20 in.      | May 18        | 145,000                          | Conventional | 57.3           | 55.9    | 0.49                 |
| Osceola | Pioneer 92Y30 | 30 in.      | May 10        | 140,000                          | No-Till      | 48.4           | 47.5    | 0.67                 |

<sup>1</sup>Population is in plants/acre.

<sup>2</sup>P-values <0.10 denote a statistical yield difference due to fungicide application.