

Soybean Yield Response to Headline Fungicide Applications

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Introduction

BASF Corporation agronomists have reported that applications of Headline fungicide improve general soybean plant health and ultimately improve yields. The response to Headline fungicide was evaluated in 2005 at the Northern Research Farm. Soybeans sprayed at stage R3 yielded 4.3 bushels more than the check plots. In 2006 the experiment was expanded to evaluate the yield responses of four varieties treated at stage R3. Additionally, one variety was evaluated for responses to treatments applied at stage R1 and stage R3.

Materials and Methods

The experiment used a randomized complete block design with variety as main plot factor and fungicide treatment as the split plot treatment. Each treated plot was 20 ft × 80 ft; check plots were 15 ft × 80 ft. Four unique early maturity group II varieties were evaluated. The experiment was treated with glyphosate on June 12 and July 6 to control weeds. All four varieties were treated with 6.5 oz/acre of Headline fungicide. Additionally, one variety had a third plot that was treated at stage R1. The R1 treatment was applied on June 30. The R3 treatments were applied on July 20. Plots were evaluated on August 25 at stage R6.5.

Results and Discussion

An average response of 2.6 bushels/acre increase was attained by treating these plots at stage R3 (Table 1). Responses ranged from 1.1 bushels/acre to 3.8 bushels/acre. Across all varieties, the comparison of treated versus not treated was determined to be statistically

different. Two of the four varieties demonstrated a response to a fungicide treatment that was statistically significant.

Variety C had an additional plot. This plot was treated at stage R1. An average response of 2.9 bushels/acre was attained when the soybeans were sprayed at stage R1 (Table 2). Both treatments demonstrated a statistically significant yield response over the check.

The plots were scouted on August 25 to determine diseases present and the degree of severity (Table 3). Incidence of cercospora leaf blight was less than 1%; therefore, the ratings are not reported.

The treated plots yielded an average of 2.6 bushels/acre more than the check plots in 2006. The treatments did not reduce the incidence or severity of bacterial blight, and only slightly reduced the incidence and severity of brown spot. The fungicide treatments dramatically reduced the incidence of frogeye leaf spot and reduced the severity from approximately 3% to 1%. Headline fungicide is labeled to control frogeye leaf spot, therefore, a response was expected. Defoliation from either frogeye leaf spot or from cercospora leaf blight did not occur in the check plots. Based on the responses obtained in both 2005 and 2006, it seems that treating soybeans with Headline fungicide at stage R3 provides a positive yield response. The degree of response seems to be dependent on the soybean variety.

Acknowledgments

The authors wish to thank BASF for their financial support of this study.

Table 1. Yield response (bu/A) to treatment with Headline fungicide at stage R3.

Variety	Treated	Check	LSD _{0.05}	Response
A	55.1	54.0	N.S.	1.1
B	56.3	53.8	1.5	2.5
C	55.3	51.5	2.5	3.8
D	52.7	50.0	N.S.	2.7
Average	54.9	52.3	1.9	2.6

Table 2. Comparison of average yield responses attained from Variety C at two crop stages.

Treatment	Yield (bu/A)	Response (bu/A)
R1	54.4 a	2.9
R3	55.3 a	3.8
Check	51.5 b	-----

LSD_{0.05}=1.86 bu.**Table 3. Summary of diseases present on August 25.**

Disease	----- Incidence (%) -----		----- Severity (%) -----	
	Check	Treated	Check	Treated
Bacterial blight	100	100	12.5	15
Brown spot	100	95	26	20
Frogeye leaf spot	84	37	3.1	0.8