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Effects of Headline® on Soybean Aphid Resistant and Susceptible Varieties

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Abstract

With the introduction of soybean aphid-resistant varieties, growers have another option for controlling the pest. This study was designed to see how each variety responded to Headline® fungicide at different application timings.

Keywords

RFR A11112, Plant Pathology and Microbiology

Disciplines

Agricultural Science | Agriculture | Plant Pathology

Effects of Headline® on Soybean Aphid Resistant and Susceptible Varieties

RFR-A11112

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Introduction

With the introduction of soybean aphid-resistant varieties, growers have another option for controlling the pest. This study was designed to see how each variety responded to Headline® fungicide at different application timings.

Materials and Methods

Three separate trials were conducted at ISU Northeast Research Farm, Nashua, Iowa for this study in 2011. All studies were planted on May 19, 2011 at a rate of 188,810 per acre. The fungicide treatments were Headline applied at 1) R1, 2) R2, 3) R3, 4) R1 + R3, and 5) untreated control for each trial.

The first trial was planted with NK S24-J1, which is susceptible to aphids. All treatments were applied with insecticide in this trial on July 11. The second trial was planted with NK S24-J1 and no insecticides were used. The third trial was planted with NK S25-F2, which

is resistant to aphids. No insecticides were applied to any treatments in this trial.

Headline® treatments were applied at a rate of 6 ounces per acre with NIS. Treatments were applied on July 12 (R1), July 20 (R2), and August 8 (R3).

Aphids were counted twice during the growing season by counting aphids on five plants in each plot and averaging those plants per plot. The first aphid assessment was on August 12 and the second a month later on September 12. Plots were harvested October 7 with a JD 4420 combine.

Results and Discussion

In Trial 1, there were no differences found between the means (Table 1). There were no differences found in grain moisture or in the aphid assessments. Of the three trials, Trial 1 had the greatest average yield.

In Trial 2, when Headline® was applied at growth stage R2 or later (including R1 +R3), those yields were greater than Headline® applied at R1 and the UTC (Table 2). This difference in yield can be correlated to the first aphid counts.

In Trial 3 (using the aphid resistant variety), there were no differences in yield between the treatments (Table 3).

Table 1. Yield and aphid population measurements of an aphid susceptible soybean variety (NKS 24-J1) treated with various fungicide treatments and insecticide.¹

Treatment timing	Insecticide	Aphid 1	Aphid 2	Moisture	Yield
Headline® R1	Warrior	16.7A	64.1A	10.7A	64.1A
Headline® R2	Warrior	11.5A	63.9A	11.0A	63.9A
Headline® R3	Warrior	10.8A	65.1A	10.9A	65.1A
Headline® R1 + R3	Warrior	16.7A	28.2A	10.9A	64.9A
UTC	Warrior	8.6A	30.9A	10.7A	63.2A
LSD (alpha≤0.1)		NS	NS	NS	NS

¹Means within a column sharing a common letter do not differ (P≤0.10).

Table 2. Yield and aphid population measurements of soybean treated with various fungicide treatments (NKS 24-J1) only.¹

Treatment timing	Insecticide	Aphid 1	Aphid 2	Moisture	Yield
Headline® R1	None	61.3B	50.9A	10.8A	56.0B
Headline® R2	None	63.8A	27.6A	10.8A	58.3A
Headline® R3	None	63.2A	70.4A	10.8A	57.6A
Headline® R1 + R3	None	62.9A	31.4A	10.7A	57.4A
UTC	None	59.2C	71.8A	10.7A	54.0C
LSD (alpha≤0.1)		1.6	NS	NS	1.4

¹Means within a column sharing a common letter do not differ (P≤0.10).

Table 3. Yield and aphid population measurements of an aphid-resistant (NKS 25-F2) soybean variety treated with various fungicide treatments only.¹

Treatment timing	Insecticide	Aphid 1	Aphid 2	Moisture	Yield
Headline® R1	None	5.8A	14.2	9.9A	63.5A
Headline® R2	None	8.7A	8.0	9.9A	64.0A
Headline® R3	None	3.1A	8.0	9.9A	63.6A
Headline® R1 + R3	None	3.0A	6.5	9.9A	64.8A
UTC	None	6.0A	21.9	9.9A	61.6A
LSD (alpha≤0.1)		NS	4.4	NS	NS

¹Means within a column sharing a common letter do not differ (P≤0.10).