

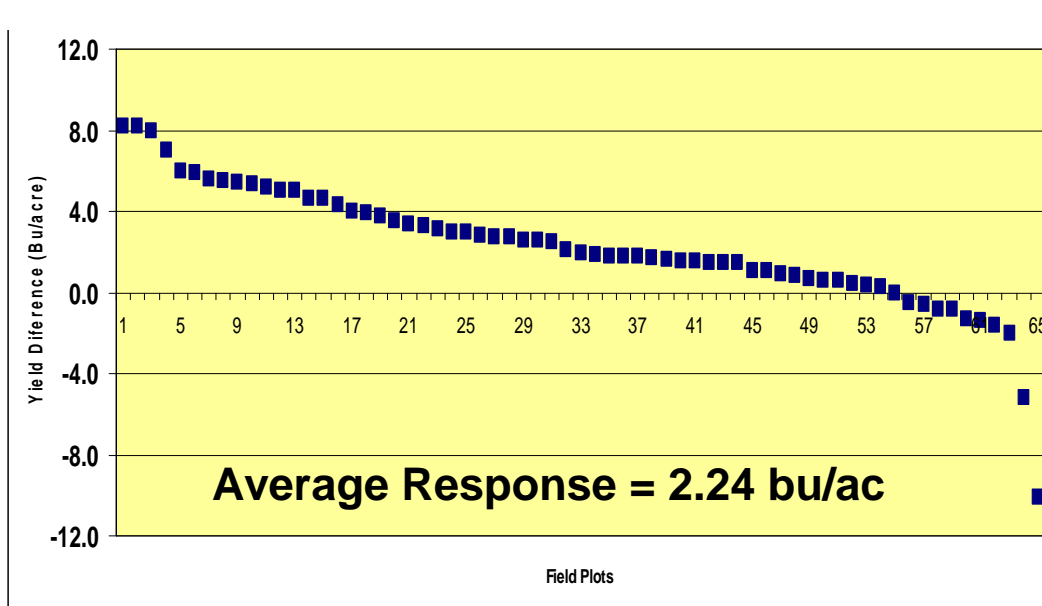
Is the Soybean Variety Important for Making Accurate Fungicide Application Decisions?

Heartland SCIA Regional Partner Project (Interim Report)

Purpose:

Foliar fungicide application has sometimes shown increased soybean yields with an average yield response in Ontario of 2.2 bu/ac (Figure 1). However, only about 30% of the spray decisions produce a yield response that is economically beneficial to the producer. So far, no clear correlation to disease pressure, tillage practice, seed variety, or weather has been demonstrated to correlate to the level of yield response achievable with a fungicide application. Recent work in corn has revealed that the yield response is highly dependent on the hybrid. This project is designed to assess whether soybean variety plays a significant role in the yield response to foliar fungicides. If some varieties respond more than others, in addition to other factors, this information could be important in making economic management decisions.

Figure 1. Yield Response to Foliar Fungicides on Soybeans (2005-2009)



Ontario Trials (2005-2009)

Methods:

This project compared the yield response of 20 soybean varieties to Headline foliar fungicides. The varieties were carefully chosen based on different parentage and a range of observed disease resistances. Trials were planted in 2 locations replicated 4 times. In 2009 these sites were near Exeter and Chatham Ontario. Seed quality

parameters including oil, protein, seed size, and germination to determine if the fungicide had any impact on seed quality.

Fields were treated as a whole when applying herbicides, fertilizers, and tillage practices.

At each field site soil samples will be collected at planting time. Field sites were also assessed for disease and insect pressure.

Table 1: Soybean Varieties that were tested at each location included:

Variety #	Variety Name
1	Secan #1 AM0908A5-DOYN
2	Secan #2 AM0808B3-DOYN
3	Secan RCAT MatRix
4	Secan RCAT MiRRa
5	Syngenta S14-A7
6	Syngenta S14-K6
7	Syngenta S17-A1
8	Syngenta S21-N6
9	Monsanto 8-60RY
10	Monsanto 28-61RY
11	Monsanto 29-60RY
12	Monsanto 31-10RY
13	Hyland RR Respond
14	Hyland RR Rodney
15	Hyland HR 12R42
16	Hyland HS 11R46
17	Pioneer 91M01
18	Pioneer 91M41
19	Pioneer 91Y90
20	Pioneer 92Y30

Results:

Conclusions – Exeter:

No differences in Days to Maturity were found. Seed quality on a scale of 1-5 showed slightly better for the untreated. Seed weight was significantly better for the Headline treated plots by 0.8 grams/100 seeds.

Yield was better for the Headline treated plots by 1.6 bushels/acre or 106 kg/ha.

Conclusions – Chatham:

Days to Maturity showed a 2 day delay in maturity with Headline. Seed quality on a scale of 1-5 showed slightly better for the untreated. Seed weight was significantly

Table2: Yield Results

Variety	Exeter		Chatham	
	Untreated (bu/ac)	Headline (bu/ac)	Untreated (bu/ac)	Headline (bu/ac)
1 Secan #1 AM0908A5-DOYN	71.9	74.6	66.4	65.8
2 Secan #2 AM0808B3-DOYN	68.8	71.2	69.1	71.9
3 Secan RCAT MatRix	68.9	70.7	55.9	54.7
4 Secan RCAT MiRRa	66.6	67.9	58.8	60.0
5 Syngenta S14-A7	69.5	69.8	53.4	57.9
6 Syngenta S14-K6	65.9	70.7	59.6	60.8
7 Syngenta S17-A1	70.4	71.0	61.2	61.5
8 Syngenta S21-N6	70.1	71.8	65.2	71.0
9 Monsanto 8-60RY	71.4	71.4	70.3	70.0
10 Monsanto 28-61RY	71.9	75.6	71.5	66.0
11 Monsanto 29-60RY	73.8	76.2	71.7	71.8
12 Monsanto 31-10RY	77.0	75.0	77.3	75.9
13 Hyland RR Respond	69.8	68.3	68.5	70.0
14 Hyland RR Rodney	65.4	70.8	59.6	62.1
15 Hyland HR 12R42	68.1	72.2	57.9	62.6
16 Hyland HS 11R46	71.7	72.8	63.6	59.4
17 Pioneer 91M01	71.4	70.1	59.3	60.5
18 Pioneer 91M41	67.9	70.0	60.9	62.7
19 Pioneer 91Y90	70.7	70.2	67.2	68.3
20 Pioneer 92Y30	70.5	73.1	64.4	66.7

better for the Headline treated plots by 1.0 grams/100 seeds. No significant yield difference was detected.

Summary:

A significant seed weight difference for the Headline treated plots of 0.8 grams/100 seeds was observed at the Exeter site. An overall average yield increase of 1.6 bu/ac was also observed at the Exeter location but no differences in variety response were measured. No differences in Days to Maturity were measured. The visual seed quality was slightly better for the unsprayed than the Headline treated plots.

At the Chatham location there was a 2 day delay in the maturity when Headline was sprayed. Seed quality on a scale of 1-5 showed slightly better for the untreated. Seed weight was significantly better for the Headline treated plots by 1.0 gram/100 seeds. No significant yield difference was detected.

This is the first of a three year study so approximately 30% of the total work has been completed. No significant changes to the trial protocol are planned for the following two years. Once all the data is collected final conclusions will be drawn.

Next Steps:

This was the second year of a 3 year project so additional data must be collected to make robust conclusions.

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