



Soybean Product Response to PPO Herbicides

Trial Objective

- PPO herbicides, such as sulfentrazone and flumioxazin, are important residual herbicides in a soybean weed control program.
- Soybean injury from these herbicides has occurred early in the growing season, typically from cool, wet growing conditions.
- Questions have arisen if there are differences in how soybean varieties respond to these herbicides.

Research Site Details

Location	Soil Type	Previous Crop	Tillage Type	Planting Date	Harvest Date	Potential Yield (bu/acre)	Planting Rate (seeds/acre)
Gothenburg, NE	Hord Silt loam	Corn	Strip tillage	6/3/19	10/14/19	80	160K

- The study was set up as a split plot with three replications where PPO herbicide was the whole plot and soybean product was the subplot.
- Nine soybean products (listed below in Table 1), ranging in maturity from a 2.5 to 3.5 MG, were evaluated.
- PPO herbicides applied at planting (June 5, 2019) included:
 - » Sulfentrazone at 0.3125 lb ai/acre
 - » Flumioxazin at 0.096 lb ai/acre
 - » Untreated
- Plots were sprinkler irrigated and weeds were controlled as needed with no additional fungicide or insecticide applied.
- Plots were harvested, and yield was calculated.

Understanding the Results

- The main factors of the research, PPO herbicide treatment and soybean product, impacted yield.
 - » Figure 1 reports the average yield across all soybean products, where sulfentrazone negatively impacted yield while the flumioxazin treatment and the untreated plot had similar yields.
 - » Potential soybean injury from flumioxazin and sulfentrazone is dependent on weather conditions around application. In this instance, no response was observed from flumioxazin.
- Although the interaction of soybean product by PPO herbicide was not significant, the values are listed in Table 1 to provide additional insights.



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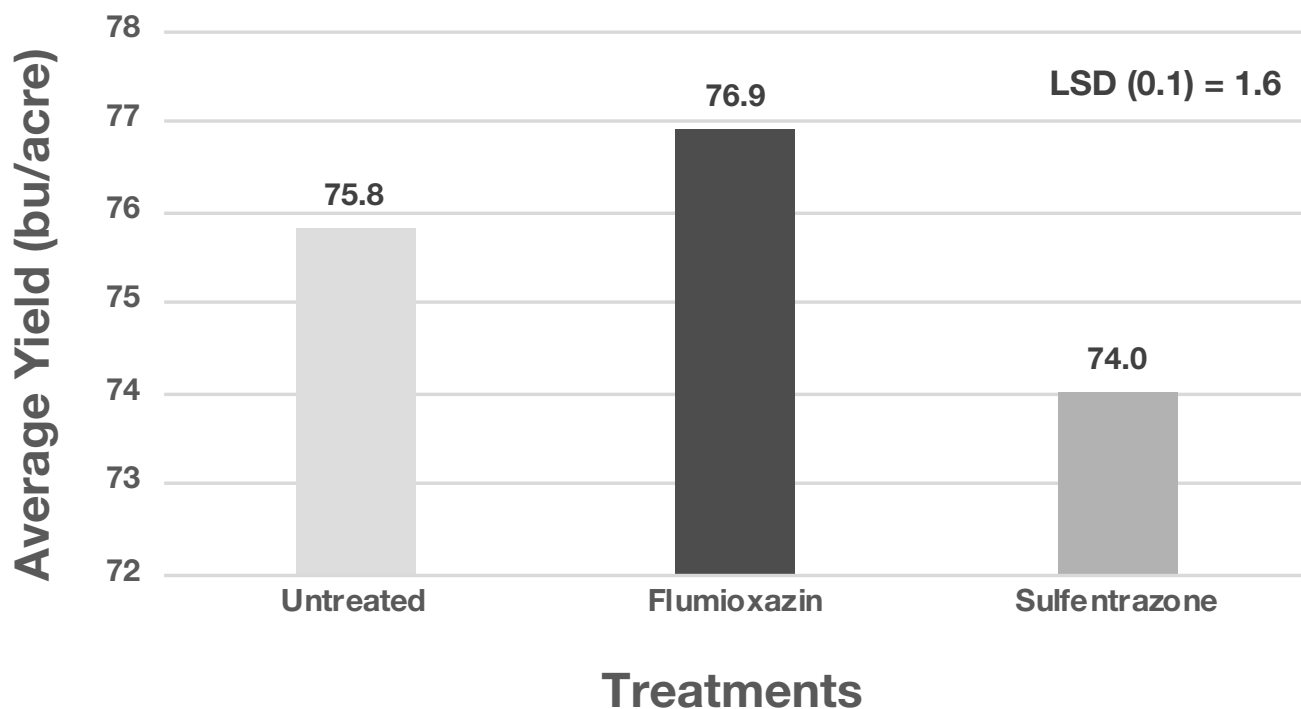


Figure 1. PPO herbicide impact on yield across all soybean products.

Table 1. Soybean product response to PPO herbicide treatment.		
Soybean Product	Flumioxazin	Sulfentrazone
	Yield Difference (bu/acre)*	
2.6MG	4.0	2.7
2.7MG	-3.2	0.3
2.9MG-A	1.1	-6.3
2.5MG-A	0.1	0
2.9MG-B	4.4	0.2
3.3MG	1.6	-4.0
2.5MG-B	0.1	-4.9
2.9MG-C	3.1	-5.9
3.5MG	-0.5	2.0
LSD (0.1)	-----NS-----	
*Difference in average yield from the untreated control.		



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Figure 2. No visual differences were observed late in the growing season across the entire study when comparing PPO treatments and soybean products.

Key Learnings

- PPO herbicides can impact soybean yield differently.
- Farmers should weigh the benefits of flumioxazin or sulfentrazone as part of their residual weed control program against the potential negative impact on yield these herbicides can sometimes cause.

Legal Statements

The information discussed in this report is from a single site, replicated demonstration. This informational piece is designed to report the results of this demonstration and is not intended to infer any confirmed trends. Please use this information accordingly.

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