



Tailored Solutions – Soybean Systems Management

Trial Objective

- Effective management of resources is required to optimize farm operations. In soybean production, decisions involving seed selection, seeding rate, soil fertility and eliminating or reducing the impact of plant stressors, effectively determine the productivity and profitability of the farm.
- Historically, soybeans have not been managed as intensively as corn, possibly resulting in sub-optimal yields and economic losses. Achieving higher yields and profits may require dedication of resources and a new approach to resource management in soybean production.
- This trial was conducted with the objective of determining the impact of production inputs on grain yield and ultimately the return on investment (ROI) in soybean production.

Research Site Details

Location	Soil Type	Previous Crop	Tillage Type	Planting Date	Harvest Date	Potential Yield (bu/acre)	Seeding Rate (seeds/acre)
Huxley, IA	Clay loam	Corn	Strip till	5/11/20	10/1/20	60	110K, 140K

- Nine production systems were compared in a high management system trial in central Iowa.
- A full season, 2.9 maturity group (MG), soybean variety was used for the trial.
- Plots were planted with six rows per treatment, with 30-inch row spacing, and two replications per treatment.
- Trial details are indicated in Table 1.

Table 1. Input combinations for a systems management of soybean production in central Iowa.

Production System	Seed Treatment		Seeding Rate		Zinc	Sulfur	Nitrogen	Foliar F+I
	F + I	ILeVO®	110K	140K				
1	√			√				
2	√	√		√				
3	√		√					
4	√			√	√			
5	√			√		√		
6	√			√			√	
7	√			√				√
8	√	√	√		√	√	√	√
9	√	√		√	√	√	√	√

F = fungicide; I = insecticide; Foliar F = Delaro® Complete fungicide applied at R3 growth stage; Foliar I = Leverage® 360 insecticide applied at R3 growth stage; Zinc = 0.5 lb/acre, Axilo® was the zinc source and was applied as a starter solution during planting; Sulfur = 1 qt/acre, Ele-Max® Sulfur LC was the sulfur source and was applied at V8 growth stage; Nitrogen = 45 lb/acre urea ammonium nitrate side-dressed at R2 growth stage.



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Understanding the Results

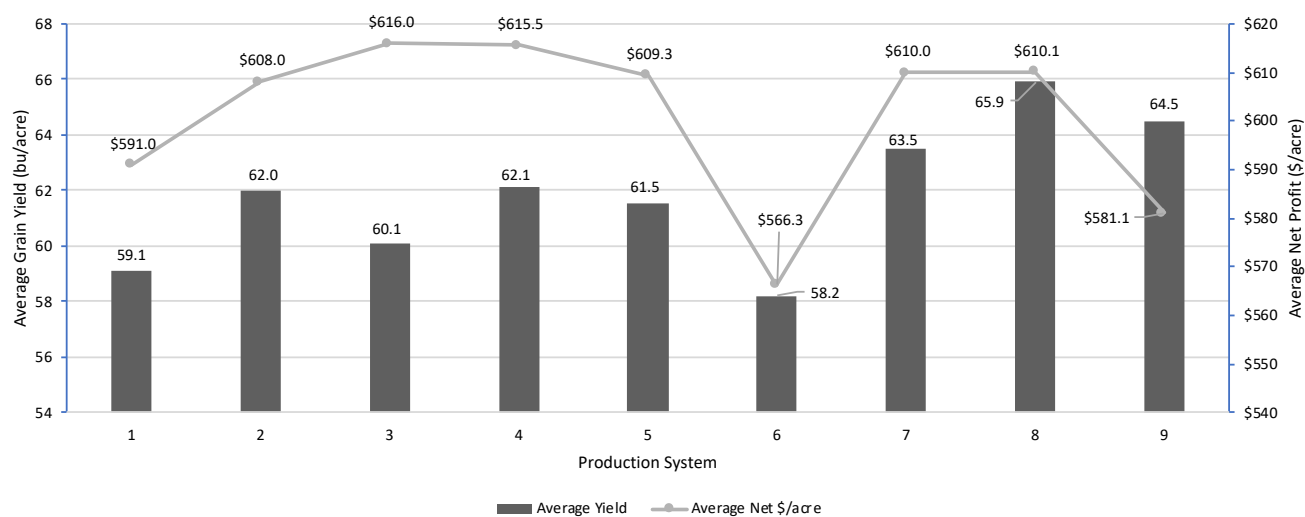


Figure 1. Effects of nine management practices on the average yield (bu/acre) and ROI (\$/acre) of soybean in central Iowa. Soybean grain price was set at \$10 per bushel.

- In general, average yields increased as more inputs were added to the system except in System 6 where the inclusion of nitrogen negatively impacted yield.
- In this trial, micronutrients zinc and sulfur (System 4 and System 5) improved yield as compared to System 1.
- ILeVO® seed treatment improved average yield by as much as 3 bu/acre (System 2 vs. System 1).
- Average yields were slightly better at 110K seeds/acre than at 140K seeds/acre (System 3 vs. System 1; System 8 vs. System 9).
- Foliar fungicide and insecticide applications improved average yields by as much as 5 bu/acre (System 7 vs. System 1).
- System 3 was the most economically profitable management program for this trial.

Key Learnings

- Except for nitrogen, the inputs used had a positive impact on soybean yield. However, the high input systems were not the most economically viable practices because the extra yield gained were not enough to offset their respective production costs.
- At the geographical region of the trial location (central Iowa), System 1 is considered the grower standard (the most common practice). Thus, apart from System 6 and System 9, all the other systems produced a positive ROI.
- Crop yield response to production inputs can be highly variable, often impacted by the environmental conditions during the growing season. Farmers are therefore advised to consult their trusted crop advisors when making such decisions.



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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.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Performance may vary, from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower's fields.

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