



Soybean secrets: 6 major factors that influence yield

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Fred Below, a University of Illinois crop physiologist, started a project to find the secret ingredients to better yields. He calls the philosophy that came from that project "intelligent intensification."

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weather

Weather is the defining factor. "Growers should always plant early, but the success of [the] planting date is determined by weather, which is beyond growers' control," Below said.

fertilizers

Plot studies found that fertilizer produced a 3 to 3.5 bushel per acre (bpa) yield gain.

- Potash: Those that fertilize before soybeans tend to focus on applying potash. "Soybeans require as much potash as corn, and actually remove more than corn. This probably leads to the idea that potash is more limiting in soybeans than corn," explained Belows. Potassium in residual corn stover easily leaches out over the winter and supplies the needs of the following soybean plant.
- Phosphate: "Based on the way growers fertilize, phosphate is the more limiting nutrient," Below said. The team re-tested the secrets doing omission plots and discovered that the addition of phosphate fertilizer banded below the row gave a 5 to 6 bpa yield increase.



genetics

Below has found a 3 bpa average yield increase when planting a fuller season variety. He recognizes growers plant a range of maturities to manage weather risk and spread out harvest, but emphasizes that fuller-maturity varieties are more responsive to high management. Not all soybean varieties are created equal and will respond differently to stress and management.

foliar protection

Plot studies found that foliar protection (fungicide and insecticide combined) produced a yield gain of 3 bpa.

seed treatment

Seed treatment added 1 to 2 bpa yield gains.

row spacing

Narrow rows produced 1 to 2 bpa yield gain. Row spacing testing showed 20-inch rows are more responsive to high management than 30-inch rows.