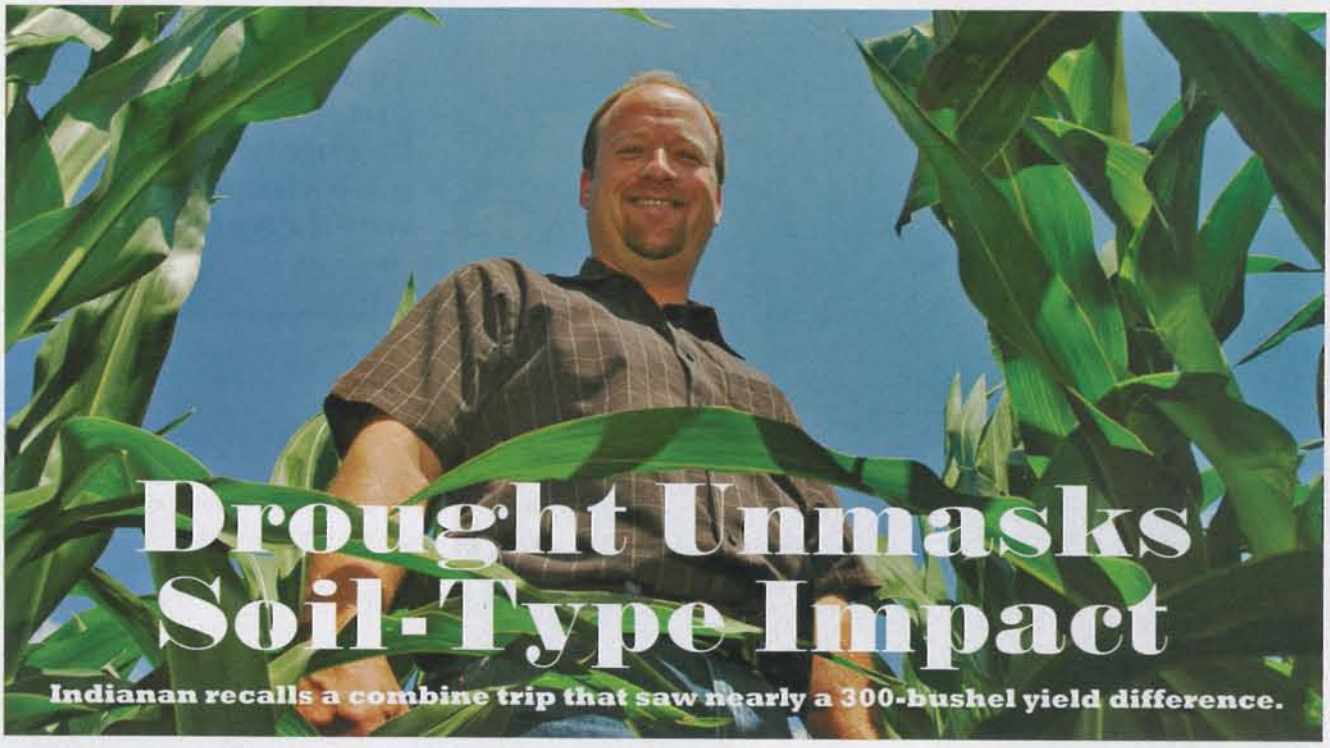
By Gil Gullickson, Crops Technology Editor

High Yield TEAM



Drought Unmasks Soil-Type Impact

Indianan recalls a combine trip that saw nearly a 300-bushel yield difference.

Last fall, Scott Lasater received a view of how soil types impact yield without leaving his combine cab. The Gaston, Indiana, farmer works fields containing a mix of soil types. They range from peat soils with head-turning 45% organic matter levels to sticky clay soils that quickly dry out during droughts like 2012.

Last year, one field had both types.

"I watched the yield monitor in one field go from 13 bushels per acre to 298 as I rolled across one field," he says. "In that particular field, the mucky peat soils didn't run out of water, but clay hills did. I had never seen nearly a 300-bushel difference occur in a field."

Those differences likely will be magnified in this drought-stressed area of east-central Indiana this year.

"The variability in hybrids is exaggerated in a high-stress year," he says. "This year, there is an extreme difference in hybrids of similar maturities. Some are handling the stress better; others are not handling it as well."

That's why hybrid selection continues to reign as one of the top corn production factors that Lasater considers.

"The single biggest thing for growing corn is picking the right genetics and planting them on the right soils," says Lasater. "When I'm evaluating hybrids either for high- or medium-to-low-producing soils, I use unbiased university data and company-provided data to make those selections. I have seen a hybrid that handles stress tolerance well give up 20 bushels per acre in highly productive soils."

Besides matching hybrids with soil types, factors like disease resistance, nitrogen utilization, and drydown rank high.

"I planted one hybrid in the early 1990s that had a good balance between yield and drydown, but it was susceptible to gray leaf spot," he says. "It was a popular hybrid, but getting caught by severe gray leaf spot taught me not to plant hybrids highly susceptible to disease."

Certain genetic lines also are wetter than others, he says. In some cases, though, the increased moisture at harvest time can be worth it. One hybrid he's planted can be 1.5 points wetter than hybrids in the same relative maturity.

"In that case, I thought the extra yield punch was worth it," he says.

"From a return-on-investment standpoint, you're often better off having wetter grain and drying if you get more yield," says Bruce Battles, Syngenta crop specialist. "More and more farms are set up with grain-drying capabilities."

Lasater normally plants hybrids with relative maturities of 105 to 114 days. He varies populations between soil types, pushing populations on high-organic matter soils up to 37,500 plants per acre from his normal 36,000 plants per acre. "On hills, I cut them back to 30,000 or 32,000 plants per acre," he says.

For 2013, Lasater plans to continue the following five steps.

1 APPLYING STARTER FERTILIZER

Lasater applies liquid starter fertilizer at planting. "It does slow me down, and it is not convenient," he says. Still, an eye-popping on-farm comparison in 2011 found starter applications netted an ➢

Photography: Gil Gullickson

This head-high corn in mid-June is planted on one of Scott Lasater's fields with 45% organic matter. In most years this field is impacted by excess water.

extra $49 per acre.

"I can't say why I saw such a huge return," says Lasater. "It was wet and warm really early, and there was rapid early growth."

2 STRIP-TILLING

"I used to be die-hard no-tiller," he says. "But I noticed my top-producing farms weren't having as good a yield as they once had. It was due to an inhibited rooting pattern and minor fertilizer stratification."

Lasater then morphed to a mix of strip-till and deep ripping. He first dabbled in strip-till with a neighbor before getting a strip-till machine of his own.

"Strip-till is an art," he says. "The tillage part of a strip-till unit is not that difficult," he says. The hard part is getting fertilizer accurately metered to each row.

"One advantage of strip-tilling in the fall is that I place the nutrients so they are ready for the corn in the spring at planting; the nutrients will be right there for the roots," he says.

Lasater has deep-ripped certain fields to break up compaction. Strip-till also helps conserve moisture, something key in a dry year. In the future, moisture conservation will be a bigger issue, he says.

3 ROTATING CROPS

"I'm not a big fan of corn-on-corn," he says. "Typically, our continuous corn yields will be 20 bushels less than corn on beans if extra N is not applied."

Crop rotations also help insect and weed cycles between the two crops.

"Our 10-year proven yields for soybeans are 57 bushels per acre," says Lasater. "Now, if I were in an area where I could consistently grow 230-bushel-per-acre corn and 47-bushel beans, it might be different. But the ratio I've had of 195-bushel corn to 57-bushel beans is a comfortable one."

4 TILING

During a drought year, drainage is far from farmers' minds. Still, pattern tiling has helped ensure timely planting for Lasater in recent years. On some of his wetter soils, Lasater has tightly pattern-tiled them with 50-foot spacings.

"A few years ago, I was able to plant 700 acres of pattern-tiled soils when I couldn't have planted otherwise," he says.

> **Year in and year out, preemergence herbicides will give you better weed control.**
> – Kevin Bradley

5 CONTROLLING WEEDS

Lasater prefers to apply 2,4-D to curb fall-germinating weeds. That's followed up in spring with a residual preemergence herbicide and a post-emergence nonselective herbicide like Liberty or Roundup. "I have had good luck with both my Liberty and Roundup corn being equal in yield," he says.

A key is the preemergence residual herbicides, notes Kevin Bradley, University of Missouri Extension weed specialist. He notes that lack of rainfall for activation likely soured some farmers on them in 2012.

Still, he advises farmers to stay the course. "Year in and year out, preemergence herbicides will give you better weed control," he says.

You'll also see better yields minus the grass and broadleaf competition. "In Missouri, we are losing yield by waiting too long to treat," says Bradley. On average, 2.4 bushels per acre were lost in 2011 Missouri trials when just a post-emergence chemical was applied.

Bradley says an overlapping residual program can work well by first applying a preemergence residual herbicide followed by a postemergence mix of glyphosate and a residual herbicide. "Cost increases, but you get better weed control," he says. •