Aim Higher

by Roger Long

Josh Lloyd has implemented change ever since coming back to the farm in '98, and continues to evolve on his no-till journey since the '04 *Leading Edge* story. The drive for much of the change has been in taking advantage of opportunities that he and his dad, Gale, have encountered.

Josh has been studious of old feedlot areas in their fields, as well as pastures recently converted to cropland with no-till: "I think we sell ourselves short on potential yield." Josh resolved that he wasn't aiming high enough on yields, so the next step was deciphering how to 'close the gap.' To solve this riddle, Josh uses tissue sampling, soil tests, and geo-referenced yield data. The clues gained have pushed Josh to not only be more aggressive with N, but to look beyond N for the next level of yield.

Maybe the aim to 'close the gap' explains why Josh has gone a step beyond many growers who simply make equipment purchases to manage their income tax burden in the good years. Instead, Josh has been investing in greater productivity of the land (and reducing tax liability at the same time) by making build-up applications of P, Zn, Cu, and K-Mag where needed—with an emphasis on *balanced* crop nutrition.

Aggressive, balanced fertilization, inspired by responses to hog manure.

In 2004, the Lloyds were using their air drill to band-apply dry fertilizer by cutting through residue and just nicking the soil surface, both for pre-plant on milo as well as going into the growing wheat in late February or early March. Now, Josh uses their Case-IH 3330 sprayer to stream liquid fertilizer for wheat, milo, and corn, applying 1/3 to 1/2 at planting and the balance at about the 5th leaf. Josh has two reasons for the switch: "It was a lot of wear-and-tear on the drill, and I also wanted to make our applications more in the growing season to reduce loss"—alluding to some disastrous denitrification of pre-plant N for his full-season milo in recent years, partly due to unusually wet spring conditions. But Josh observes that denitrification is worst when thick wheat stubble sets idle until the following spring, yet double-cropping soybeans or sunflowers largely prevents the problem. (Denitrification occurs in water-logged soils, when denitrifying bacteria strip oxygen atoms from nitrate molecules, thus creating gaseous nitrogen oxides and/or N_2 which can escape into the air.)

In Josh's stream applications, "Every time I fertilize, I always put down a ratio somewhere around 7 N: 1 P: 1 S: 1 Cl. . . . As I adjust my N from field to field, everything else moves in proportion." Josh sets high but realistic goals and then fertilizes towards that end, applying 1.2 lbs N per bushel of yield goal for milo, for instance—but again, it's not just an N application, but an N + P + S + Cl mix. The pop-up blend for corn is 10-34-0 plus Zn, with the drilled milo getting ME-SZ (12-40-0-10s-1zn).

In '04, Josh and Gale didn't own a planter. They had had a planter in the past, but the drought years of '01 to '03 curtailed their corn acres. Since they were seeding milo with their air drill, they sold the planter and redirected the capital. Now—for 2011, after many years of soil improvement (via well-managed no-till) and a series of wetter years, Lloyds bought an 8-row JD 1750 to put corn back into their rotation on perhaps 10% of their acres. The planter will also be used for dc sunflowers.

Diversity and more emphasis on versatility are both themes in Josh's crop rotation thinking. With the numerous deviations, it's almost misleading to describe a single rotation scheme, but it roughly follows a wheat/ dc sunflower >>milo >>soybean series. When problems arise such as shattercane or other weeds, Josh will throw in some stacks to lengthen a rotation and manage around the issue. He occasionally stacks soybeans as well as wheat, although he's nearly eliminated stacked wheat during the wetter years of recent.

Josh's fertility philosophy for double-crops and cover-crops has also changed: "I used to just figure I was putting a double-crop out to scavenge N." Due to trial-and-error observation, Josh now sees the value in fertilizing a double-crop for its full potential. Josh is insistent that every acre of wheat stubble have something growing on it yet that summer, either a double-crop or a cover-crop. "There's a lot more runoff in the spring from neighbors' wheat stubble that didn't have anything growing on it all summer." On acres where hog manure is applied after wheat harvest, Josh uses cover crops, such as his 2010 mix of turnip, radish, w. canola, rape, Ethiopian cabbage, and sudan.

Spying new opportunities, questioning current paradigms, and advancing beyond the status quo, Josh is the quintessential instrument of change. While outwardly content, internally the Lloyds are vigilant for new ways to improve efficiency and profitability.