

# Controlling His Destiny

by Matt Hagny

Josh Lloyd wasn't the kid who always wanted to farm. In fact, he largely ignored it during his college years: "I was going to go make my millions elsewhere, but eventually I realized being my own boss wasn't so bad." He studied business at K-State, so when he suddenly decided to go into farming with his dad, it was all new. Josh had certainly helped out with farm labor over the years, but never took much interest in what happened when, or why, until he returned to the farm in '98—and suddenly needed to know!



Josh's inquisitiveness during that first year back prompted him to ask why they weren't doing continuous no-till. Josh's father, Gale, had been experimenting with no-till but was having trouble getting over the hurdle of 'this is the way we've always done it.' Mostly no-till was still a crazy idea, though. They'd heard of only a couple success stories in the region. Josh's father had attended the '97 No-Till on the Plains conference in Salina, and suggested they attend the January '99 rendition of the conference. Apparently it was quite convincing, since Lloyds went 100% no-till that spring.

Lloyds already had decent crop diversity in place, with wheat, milo, and soybeans grown on their farm southwest of Clay Center, KS well before no-till came along. The main issues in Josh's mind for converting to no-till were: 1) getting the seed planted properly, 2) figuring out how to fertilize no-till effectively, and 3) doing the weed control. Josh got busy searching for answers.

Following the example of a few other successful no-tillers in the area, Lloyds' starting point for a no-till drill was the Deere single-disc opener, specifically, a 15-foot JD 1560 box drill. That quickly got traded for a 30-foot 1860 air drill—"It seemed like I spent all summer on the tractor with the fifteen-foot drill. I didn't want to work that hard." Eventually that air drill got traded for their current 1890 on 7.5-inch spacing.

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Solutions to Josh's question on no-till fertilization continue to be developed on their farm. Lloyds' program currently uses dry pop-up applied with the air drill for wheat and milo, plus additional fertilizer during the winter. They also apply hog manure from a neighbor's hog barn. The manure is injected about 6 inches deep on 36-inch spacing, and while the applicator does disturb some soil, the main problem they've faced is wheat lodging in the year following the application. Josh is going to try using

milo for the first crop after the manure application, although lodging could still be a problem in it as well. Josh notes that he could reduce the rate of hog manure, but he wants to get as much out there in one shot as possible: "I only want to apply to a field once every 5 or 10 years. The applicator disturbs the soil more than I'd like, plus the weight of the wagon with all that liquid manure on board creates some compaction issues."

Lloyds quickly figured out they needed to be doing all their own herbicide application, which is accomplished with a 3440 Spracoupe. Hiring their application work proved to be too costly, and timeliness was unsatisfactory much of the time. "Getting things sprayed on time makes a big impact as far as how much chemical to use, level of control, and yield reduction caused by letting the weeds get too big in-crop. Hiring it done also meant that we had to buy the chemical from them. So not being at someone else's mercy was another factor." Josh roughly calculates that for \$3/a



Josh strives for precise placement of his wheat seed, while preserving as much residue as possible.

Photo by Josh Lloyd.

application fee, 3 times a year on their acres—the decision to buy the self-propelled sprayer was “a no-brainer.” They’d previously owned a tractor-mounted sprayer, but soon discovered that it tied up an expensive tractor much of the year, was uncomfortable at 8 mph in the field, and was a hassle to use: “It just wasn’t the right tool for the job.”

Josh scouts the fields frequently: “Dad was always good about running the numbers, but [after planting] he only windshield inspected, then just showed up with the combine.” Some surprises were unpleasant, so Josh is more vigilant and checks on the crop by actually going into the field periodically. To Josh, it’s just like monitoring any other investment.

### Adjusting Their Agronomy

With his business education, Josh watches the numbers even more closely than Dad did, and is always trying to sleuth out a way to make a few more dollars growing the crop. For instance, Josh is trying to improve wheat yields with better management: “We are seeing wheat yield increases from no-till and longer rotations. Moisture is not a limiting factor here—it’s having so damned much disease.” Also, inadequate fertility in some fields. Josh notes some huge (17 bu/a) responses to pop-up fertilizer on wheat in some testing he’s done, and recognizes the need to push the fertility harder on wheat.

In past years, Lloyds’ pop-up fertilizer on wheat has consisted of 135 lbs/a of blended product to end up with 11-35-25-1 (N-P-K-S) applied. For the fall of ’04, they opted to simplify by applying 100 lbs. of 11-52-0, with Josh noting that they can broadcast the potassium with the urea during the winter.

Lloyds have used their air drill to apply urea during the winter for the



Photo by Matt Hagney.

Josh does the detective work to help ensure good economic results over the long-term.

past 3 years. Josh describes taking all the down-pressure off, so that the opener is barely nicking the soil to place fertilizer. He’s left some check strips where he had the openers completely out of the ground, and couldn’t tell any difference in the crop. Since he has some concern about wear-and-tear on the openers, plus the stubble destruction, he is planning on running everything this winter with the openers up. He’s also planning on

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blocking off some runs to achieve a 15-inch spacing with the urea.

“We’re trying to push the envelope with the wheat,” notes Josh. “When we first made the switch we weren’t putting down enough seed and fertilizer . . . . The overlaps with the drill always yielded 5 to 10 bushels more—and consistently 5 bu/a better, year after year.” While he’s unsure of whether it was the 2X pop-up or the 2X of seed that made the difference, he upped both for now—until he can do more research to sort it out. His seeding rates now run from 120 to nearly 150 lbs/a.

Milo also gets pop-up fertilizer along with the seed on 15-inch spacing. In

the past, Lloyds applied 20-40-5-7-1 (lbs/a of actual N-P-K-S-Zn) in-furrow, although Josh thinks he’s seen some germination problems on occasion, and is planning on dropping some of the extra N out of the milo pop-up mix. The remaining fertilizer for milo is applied during the winter with the air drill. Josh continues to check yield variation from stand densities, and has incrementally pared seed drop back from 95,000 to approximately 45,000 without yield penalty even on good years. He notes some decrease in weed suppression with the lower plant densities.

Lloyds’ soybeans are planted at a frugal 125,000 seeds/a, and in 2004 Josh made some check strips planted at 100,000 to test the idea of going even lower. Despite good conditions (a 43-bu/a farm avg.), Josh found no yield reduction in the thinner strips. Josh says he’ll stay with the 125,000 seed drop for now, but will continue his experiments.

### Some Analysis Required

Josh also studies his yield maps, looking for any clues to help his management along. He notes that one high-yielding area with suspiciously well-defined edges has been quantified as consistently producing milo and wheat yields 20+ bu/a better than adjacent areas. “We could

always tell visually that something was going on there. It wasn't until we asked Grandpa that we found out that 55 or 60 years ago it was an old feedlot." Soil tests revealed soil OM to be somewhat different, but the real eye-opener was the high levels of P and K persisting in the old feedlot area—which prompts the question of how hard we should be pushing the fertility on wheat.

Josh expresses some frustration with the process, however. "I'm trying to eliminate all weather and other abnormalities influencing my yield data [by averaging

**"With no-till, we're a lot more profitable."**

multiple years]. I want better [composite] yield maps. . . . I was all gung-ho on yield mapping and soil sampling, but it didn't tell me a damn thing." That may be slightly overstated, but his point is taken. Josh describes the fact that his milo yield maps overlay nicely across multiple years (the low-yielding areas are always low yielding), but soil tests are inconclusive as to the cause—if not nutrient level or other obvious characteristics, perhaps it's soil depth and water-holding capability?

Josh's main concern with his yield mapping's lack of correlation with measured soil parameters has to do with his knowledge of the details, and how they can often flip from year to year. "How do I get organized to analyze this data, and make sure what I'm seeing is real? It's hard to sort this out and figure out exactly what I'm seeing . . ." Josh's questions: "What happened? What is the conclusion? What can happen to throw it off?" He cites the example of lodged wheat seriously hurting yields, despite high nutrient levels.

Josh's other record-keeping has proven more fruitful. He tracks

yields on each field, and has them going back more than 15 years on many tracts they farm. His spreadsheet shows how a field did in relation to the farm-wide average that year, and then these can be totaled for a period of years for each crop. It gives him a nice picture of which fields are productive and which are not. Josh notes that it comes in quite handy when the question arises as to whether to be aggressive or not in retaining a rented tract, or how much it might be worth if up for sale.

He picks out some other trends by comparing whole field averages, such as the fact that the ones having had an application of hog manure often yield up to 35% more wheat—if they don't lodge. Josh's soil testing provides further confirmation, which reveals the fields with higher P readings tend to produce better wheat yields.

### Evidence of Progress

Lloyds continue to experiment with their rotations too. Before no-till, they often did two years of wheat followed by a single year of milo and then a soybean (on all except the poorest fields). Currently they are working from a 'simple' wheat >>milo >>soybean rotation to a fully



Photo by Matt Hagny.

Lloyds have installed Flexi-coil distribution towers on their JD1890 to improve uniformity of seed flow to each opener.

'stacked' wht >> wht >>milo >>milo >>soy >>soy. Josh has seen no yield lag on any of his second-year crops. Corn was once part of their rotation as well, but milo has been more profitable during the drought; Lloyds traded their planter off last year, so that's the end of corn for them for now.

Josh was once much more enthusiastic about double-cropping, but a long series of abnormally dry summers has seriously wounded that enthusiasm. He does like a strategy of double-crop sudan for hay, then grazing the regrowth (Lloyds background a large number of steers) on wheat stubble destined for milo the next year. He intends to ramp up



**Yield map of the mysterious high-yielding area (northeast corner) that was eventually discovered to have been a feedlot some 60 years ago. Soil tests reveal the persistence of large nutrient differences:**

	Old Feedlot (0-6 inch)	Adjacent Area (0-6 inch)
OM	3.1%	2.6
P (Bray 1)	84 ppm	24
K	567 ppm	256
	(6-18 inch)	(6-18 inch)
OM	2.1	2.5
P (Bray 1)	124	11
K	689	281

double-cropping again when the moisture pattern returns to normal or wetter-than-normal. He hasn't had any trouble with excessive moisture in his wheat stubble so far, but he notes that it has been abnormally dry basically since he returned to the farm in '98.

Josh is actively pursuing cover crops, especially looking for something between the stacked soybeans to maintain residue levels—currently he's experimenting with both spring & winter oats, barley, and several other species to see which, if any, provide sufficient cover and weed suppression to be worthwhile.

Lloyds are gaining efficiencies in other areas, too. GPS guidance gets them to plus-or-minus 6 inches for spraying and seeding, significantly reducing costly overlaps. Josh has started doing more seeding and harvesting up and over terraces as well, rather than on the contour. Josh notes that these changes have improved efficiencies by 20% on those field operations.



Photo by Matt Hagmy.

Josh finds no-till's improvements in soil structure and earthworm numbers quite remarkable. Both depend on the heavy residue cover.

Lloyds find many indicators confirming that no-till is moving them in the right direction. Josh mentions the soil crumbling apart in his hands, and takes satisfaction in the high number of earthworms in residence. He notes the importance of the thatch layer by relating one experience planting corn a couple years ago: "I got more mud on my tires driving down the road *to get to* the field than I did once I was in the field."

Josh says yields are good with no-till, and that their yields are edging out their neighbors' who're still using tillage. Josh also points to other benefits: "[In '04] anywhere I did tillage to smooth up waterway edges or old tillage ridges—that was the only place the milo went down. And the milo was more sickly looking in those areas. Neighbors who 'skip-a-till'—or more [full tillage every year]—had more problems with lodging."

"With no-till, we're a lot more profitable. And we have more time to spare—sometimes we're actually looking for stuff to do." Josh eagerly puts some of that time into minding the Ps and Qs of the operation. Right on track: well-planned, well-executed. Nice returns on investment. Free time. Ahh, the good life.

**The SD No-Till Association is planning another top-notch conference for Feb. 14-15th, 2005 at Pierre, SD. More info at [www.sdnottill.com](http://www.sdnottill.com).**

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