

Leading Edge

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No-till
On The Plains

Bank on It!

by Charles Long

Mike McClellan and his father, Robert, farm in the vicinity of Palco, Kansas, about 40 miles northwest of Hays. Other than Mike's financial rigor, perhaps the most striking thing about their operation is the aggressiveness of cropping patterns, which were intensive during the drought and more intensive yet with recently abundant moisture.

Since going full no-till in 2000, McClellans' crop rotations certainly have evolved. Initially, Mike and



Robert tried to use the same rotation they'd used in their tillage system (wheat >>milo >>summer-fallow), by simply replacing all tillage with herbicides. Mike explains, "The chem-fallow caused several problems including loss of residue, increase of prairie cupgrass and sedges, and very hard ground—and the patches of cupgrass and sedges just kept getting bigger and bigger." Mike continues, "Now our basic rotation is two years of wheat, and from wheat we go to milo for two years. Then the challenge is to go from milo back to wheat [using a

cash crop instead of summerfallow]. So far we have been doing soybeans, sunflowers, oats, and this year we tried some field peas. Once I go out of a crop, I like to be out of it for three years before I go back to it for [a break of] disease cycle and weed pressure."

McClellans have had zero summerfallow for about 4 years now. Mike says, "Thinking about [having] something growing every year, I always think of the quote, 'Idle hands are the devil's tools.' I kind of convert that to idle *lands* are the devil's playground." He summarizes thusly: "The secret to no-till, in my



Photo by Charles Long.

McClellans' double-crop sunflowers. Mike's crop rotations are fairly intensive for his region.

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Fast and user-friendly: McClellans' tendering system.

opinion, is crop rotation. You can't just do what you were doing. When problems arise, learn how to deal with them through rotations."

As if eliminating the summerfallow wasn't enough, Mike and Robert have tried some double-cropping for the first time this year. They had about 400 acres of wheat hauled out, of their 4,500 acres of total cropland. So McClellans swathed and baled the remnants, then hired sunflowers planted. They also put sunflowers into a field where the wheat was harvested for grain, and those flowers looked better all season and in fact yielded 1200 lbs/a, or 33% more than the flowers in the baled stubble. Mike says that in the hauled/hayed wheat, the ground became very hard soon after planting the flowers due to the lack of stubble. Mike didn't get a good stand as the fields were too wet initially and then baked after the planting was finished: From a seed drop of 20,000/a, a final stand of about 13,000 was achieved.

In '08, another of McClellans' fields of harvested wheat was double-cropped to forage sorghum intended for hay. The forage sorghum showed

significant N deficiency, and Mike suspects the fertilizer was 'tied up' in the residue instead of being available for the hay crop because it was sprayed on with a burndown (he says he should've streamed the N instead). Nine inches of rain after swathing delayed baling until December, so the quality wasn't great. It was swathed at the highest setting on the swather to leave as much residue as possible, although Mike says, "I don't like how the

field looked after the hay was off. There wasn't much wheat stubble left." (*Editors' Note: Spraying liquid N likely accelerated decomposition.*) And it froze shortly after swathing so not much regrowth occurred. Mike says, "[Double-crop] sunflowers

are a better option. There's lots of wheat stubble left after the sunflowers—where the wheat was actually harvested for grain."

Are McClellans' intensive crop rotations paying

off? In '08, their second-year milo averaged 95 bu/a, while the milo planted in the wheat stubble made 135 bu/a. However, Mike notes, "The second-year milo is still very profitable." The double-crop sunflowers netted about \$150/a when Mike figures costs using custom rates for planting, harvesting, and trucking. His current thoughts are that he would only plant double-crop sunflowers again if grain prices were relatively high and he had soil moisture at wheat harvest, so they will be something of an 'opportunity crop' for him. Mike notes that some years may actually provide better double-crop sunflower yields, since he had uneven stands this year, plus losses

**On his banking career:
"It's good experience for
someone wanting to farm
to sit on the other side of
the desk for awhile."**

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To assist agricultural producers in implementing economically, agronomically, and environmentally sound crop production systems.

Objective: To increase the adoption of cropping systems that will enhance economic potential, soil and water quality, and quality of life while reducing crop production risks.

from excess moisture—about 10% of the acres drowned out. As for hailed-out wheat, Mike further comments, “I would do things differently next time. Instead of swathing and baling it, I would [spray out the aftermath] and plant the flowers as soon as possible. We lost over a month between when it hailed and when the flowers were actually planted. I would also try to plant them myself—hoping for a better stand—and use Clearfield seed.” (They own an older 8-row Kinze planter.)

While the effects of the double-crop on the following crop remain to be seen, Mike views this as a further exploration of rotational options to solve problems (in this case, excessively wet soils). He is intrigued with cover crops, although he says, “It’s really a different mindset to look at profitability over 3 to 5 years versus year-to-year. Although maybe there’s enough to be gained in the first year after a cover crop to make it pay.” Mike is kicking around the idea of using cover crops for some second-year wheat stubble, particularly ‘cocktails’ that would include turnips or radish plus a legume.

Long Way ‘Round

Mike grew up on the farm and helped with the work until attending KSU, graduating in ‘84 with a Bachelor’s in Ag Economics. After college, his father wanted him to work off the farm for a couple of years before coming back to the farm, so Mike ended up in the banking industry from 1984 until his return to the farm in ‘95. This included tenures with the Farm Credit System in Abilene and Manhattan, KS, and commercial banks in Wamego and Clifton, KS, as well as loan packaging for banks on a consulting basis in Scottsbluff, NE. Of his banking career,

Mike says, “It’s good experience for someone wanting to farm to sit on the other side of the desk for awhile.” With the roller-coaster farm economy in the 1980s, Mike got a bird’s-eye view of what can go wrong in a business sector when excess optimism reigns.

Mike expresses caution (and exercises extreme discipline) in the face of recent euphoria

“The secret to no-till is crop rotation. You can’t just do what you were doing. When problems arise, learn how to deal with them through rotations.”

by grain farmers: “Anytime farmers make a little bit of money, they figure out how to spend it. We go out and buy new machinery and bid up cash rents. The money we make, we end up spending, and it doesn’t take long for the costs involved to increase to the income we have.” As an antidote, Mike says they try to pay cash for machinery purchases, noting that the last few years have made this much easier to do.

Mike tries to lock in profitable prices for his crops using forward contracts and buying puts. An example is his ‘08 double-crop sunflowers contracted at \$30/cwt with an ‘Act of God’ clause (prices had fallen by more than half by harvest time). Mike also had about 2/3 of their ‘08 milo production covered with forward contracts and puts.

When Mike returned to the farm in ‘95, it included a cow herd, which was liquidated in ‘03 to concentrate on the cropping. As for no-till on their farm in the mid-‘90s, only an occasional milo crop was planted this way. Mike became increasingly interested in continuous no-till by watching several neighbors, and by attending no-till field days and the No-Till on the Plains conferences.

Hardware & Methods

At the outset, Mike notes, there were issues in identifying seeding equipment that would work adequately in no-till. In the ‘90s, they experimented with no-till using a Flexi-coil hoe drill, with limited success. Mike then went to Flexi-coil’s now-defunct FSO disc openers on an 8100 air drill. He liked the job the openers did with seed placement but was quite disappointed



Robert at wheat harvest, 2007.

Photo by Mike McClellan.

by the amount of maintenance they required. Mike compares the FSO drill to a race car that needs to be worked on all week so it can race on Saturday. (He nicknamed the drill: “Mike’s Big Colossal Blunder.”) In all fairness, he says, the Flexi-coil FSO opener probably did the best job of seed placement he’s seen in no-till.

McClellans’ seeding is now done with a 30-foot Deere 1890 air drill. Mike says this unit does a good job but requires greasing much more often than recommended by the manual—to keep the dust and rust out of the firming and closing pivot points. Mike’s 1890 plants their wheat, milo, soybeans, and hay crops, with all of these in 10-inch rows (he’s considering 20-inch for milo and soybeans). The 1890 is stock except for Case-IH SDX firming wheels which fit into the seed slot and do a much better job of firming the seed into the bottom of the furrow. Mike’s air drill has been rebuilt numerous times to keep it in top operating condition. The tractor used to pull the 1890 is equipped with auto-steer.

For wheat, the McClellans plant 80 – 120 lbs/a of seed depending on lateness. Dry fertilizer is applied in the seed row at 30 – 80 lbs/a of (Cargill) Mozaic’s MESZ (“MicroEssentials: Sulfur / Zinc” —prills compounded with N & P). Nitrogen is applied in the spring by streaming liquid with their Apache sprayer, based on needs calculated from soil tests.

For milo, Mike reports, “I use all Gaucho-treated seed, which I think helps tremendously. I think we were having some wireworm problems and didn’t know it, because my stand is more uniform than it ever has been, and I’ve dropped my population from 60,000 or 70,000 seeds/a, and now I’m down to 45,000 or 50,000.” (*Editors: Some of this may be due to seed vigor; usually only the high-vigor seed lots get Gaucho or Cruiser treatment.*) Mike doesn’t plant full-season milo hybrids since in many years they won’t have time to finish (their elevation is 2,300 feet). This year, Mike planted milo into field peas that were hailed out—the peas were allowed to grow back and then were sprayed off, with the milo planted on June 25: “It actually averaged 85 bu/a, so we came out all right, thanks to the late freeze.” Typically, Mike streams liquid nitrogen on the milo after planting and before emergence, again based on soil tests.

In ’08, McClellans’ soybeans were all treated before planting with Optimize inoculant, going in at 130,000 seeds/a. While they normally use maturities of 3.0 – 3.4, this year they went as high as 3.8—with the cool wet summer, the late-planted beans (and milo) barely finished. McClellans’ average soybeans yields have been around 30 bu/a, although their ’08 crop made 43.

For McClellans’ region, primary-crop sunflowers present a problem when used in place of soybeans in the rotation. Mike thinks it’s imperative to get flower fields seeded to wheat, otherwise there is too little residue to hold the soil the following spring. However, in the fall it’s often too dry to get a wheat stand in the sunflower stalks. The fall of 2007, wheat planted into early-harvested flowers had adequate moisture to germinate. This wheat yielded 40 bushels per acre. In later-harvested flowers, wheat went into dry soil and didn’t germinate until after moisture came over the winter. This wheat yielded 15 bu/a. McClellans have had better success with wheat following soybeans as compared to sunflowers, mostly due to differences in soil moisture. On years with lack of timely rain, wheat after soybeans can be troublesome enough for them, which is partly Mike’s reason for experimenting with field peas and oats, especially on poorer soils.

While McClellans haven’t had any corn for several years, at one time corn was a major part of their crop rotation, and they are again considering replacing some milo acres with it. Mike notes that the basis is currently so wide on milo that corn could yield slightly less and still be more profitable.

Their Game Plan

McClellans’ region averages about 19 inches of precipitation a year. From the late ’90s until about 2005, they were battling conditions that were too dry. In 2008, they’ve been on the opposite side of the moisture ledger. Several large rain events topped terraces, washed gullies, and destroyed roads. This caused problems with planting and spraying. Mike says they normally plant and spray over terraces, but with terrace channels full of mud and water, this wasn’t possible. Asked if terraces were still necessary with no-till,



Photo by Katie McClellan

McClellans harvesting milo in '08.



Photo by Mike McClellan.

Mike's daughter, Katie, perhaps aspiring to be a farmer.

Mike replies, "Yes, absolutely. We may do some reshaping of terraces so they are easier to farm over, but we definitely still need them. Even with terraces, we still get some gullies that wash out and we have to go back and patch them."

Some of McClellans' acreage is cash rented and some is share-cropped. The rate of cash rent per acre has increased along with grain prices, but Mike thinks that is only fair. He prefers to cash rent, as it gives him an opportunity to try different things like double-cropping and maybe something out of the norm for crops in general. When crop-sharing, Mike feels more of an obligation to stick with what has been proven. When McClellans first began no-tilling, there was resistance from some share-crop landlords due to increased fertilizer and herbicide costs, although as returns have increased with no-till, this has ceased to be an issue.

Labor for the operation is provided by Mike, Robert, one full-time hired man, and one man who works for them about two-thirds of the time and who also farms on his own using McClellans' machinery. With two daughters in grade school, one daughter in junior high, and the oldest daughter in high school, there's plenty going on, Mike says, tongue in cheek, "This time of year I don't

even have time to farm. All I do is go to ball games. We will be going to both junior high and high school games for the next 8 years straight. It is a good thing I don't have a regular job." In addition, Mike's wife owns and operates a retail

store in Hays and helps to coach grade school volleyball. The labor force keeps busy, since the McClellans do much of their own harvesting with a John Deere 9670. However, they also hire custom harvesters as needed; in 2008, they hired the harvesting of about half of their milo, as well as the double-crop flowers. McClellans' combine is equipped with guidance and yield mapping (Mike is collecting yield data but hasn't had time to analyze it yet).

The McClellans accomplish their spraying using an Apache with a 90-foot boom and 1000-gallon tank. The sprayer has guidance and auto-boom control which have proven beneficial for increasing sprayer efficiency. To keep the spraying operation running smoothly

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(with fields spanning a distance of about 30 miles), a semi trailer is equipped with nurse tanks for water and fertilizer, an area for chemical shuttles, a clean water shuttle for rinsing, and a pressure washer to clean the sprayer in the field.

Going from full tillage to pure no-till with chem-fallow, then eliminating summerfallow, to now trying double-cropping, has been an evolutionary process for Mike and Robert. Mike credits much of their success in these changes to good advice from other no-tillers. Two he mentions in particular are Alan States, who farms in the Logan area and later became a banker at Hays (Mike is currently on the board of directors for States' bank), and John Griebel of Stockton, KS, whose work with cover crops has been inspiring Mike. Regardless of the source of ideas, Mike is certain to be continually striving to improve his farm's profitability. You can bank on it. 🌱

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