

# 2001 Kansas No-Till Tour, Epilogue

by Matt Hagny

In August a year ago, No-Till on the Plains, Inc. launched the inaugural<sup>1</sup> run of its Kansas No-Till Bus Tour, which met with spectacular success by quickly filling all the seats on the 50-passenger bus, plus a caravan of 20 to 30+ people tagging along by car or pickup at various tour stops. It was a discerning crowd, asking challenging questions of our farm hosts and panel of ‘experts’ during our 2 days together.

We kicked off the event at Doug Palen’s farm headquarters south of Glen Elder, with Palen describing his parents’ exit of the crop production segment of the farm in 1994 to pursue other endeavors, in essence telling Doug to ‘sink or swim’ on his own. Just starting out, and not being able to afford hired help, plus having caught a glimpse of what no-till *could* do, Palen decided to tackle this new style of farming as his best choice to get into business with as



Photo by Tim Christian.

During the 2001 Kansas Tour, Doug Palen describes seeding these soybeans directly into warm-season CRP sod (including little bluestem), without tillage, matches, or other goofing around. Looks like he got it right.

little overhead and labor as possible. It worked. Palen has been 100% no-till since 1995 and no longer considers tillage an option (except when acquiring new farmland that needs to be leveled).

From ‘95 through ‘01, Palen farmed solo, with only occasional part-time help (he added a full-time hand in ‘02), and yet was able to get across considerable acreage with only 30 feet of 750 drills and a 12-row JD 7200 planter. Plus, his fields are scattered across 25 miles. Palen is very meticulous in reconditioning his seeding equipment each winter, and has

added a number of aftermarket parts to tweak the performance of his seeding tools. It must be paying off, because his agronomist has made many notes about his stands bordering on being too thick the last couple years (I know, because I’m Palen’s agronomist). More importantly, he achieves consistently high rates of emergence across crops and in varying conditions, which tells me that his soils are improving and his attention to detail on seeding tools is paying off. One of the most impressive situations was a field of milo in ‘01 that was literally planted in the mud and didn’t get a drop of rain for 3 weeks after seeding, yet emerged marvelously! (If your seeding equipment is set up right and you’re planting into moisture, you really

*don’t* want a rain soon after planting.)

The group viewed the pull-type 90-foot Flexi-coil sprayer with wheel-booms that Palen had been leasing for several years (he now runs a used Fast pull-type sprayer instead). Palen mentioned that he is much more satisfied with air-induction (AI) nozzles for reducing drift than



Photo by Doug Palen.

Later that year, harvesting those same soybeans—looks like just a regular field, unless you look closely for clumps of dead grass.

with skirted or shielded booms. He also runs a GPS light bar for guidance, and notes significant reductions in overlap.

We looked at several of Palen’s fields, including some RR soybeans planted into warm-season grass CRP sod that was killed with only two herbicide applications in ‘01 (Roundup + 2,4-D pre-plant, then Roundup + Select post-emerge), and none the prior year. The kill was phenomenal—some management, some luck. We also spent some time discussing soybean inoculants, noting their critical importance on land never having grown soybeans previously.

We stopped in several other fields of Palen’s, noting that they all had a

<sup>1</sup> KCRMA had a tour while hosting Carlos Crovetto in ‘97, which traveled to a number of no-till farms in Kansas over a couple days—but this was our first bus tour.

nice surface mulch with identifiable stalks from 4 or 5 prior years of crops, which had accumulated under his ultra-low-disturbance methods. Palen's rotation has been primarily wheat >>milo >>milo >>soybeans in the recent past, with some corn and alfalfa mixed in. Palen has done some 'stacked' wheat in the past, and is now making that a standard practice in his

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operation. He's now working on stacked soybeans, so that his rotation is becoming wht >>wht >>milo >>milo >>soy >>soy, sometimes with two years of corn substituted for the two milo years. In the mid-90s, Palen typically grew sunflowers in the same place in the rotation as the soybeans, but has quit them saying that they cannot compete economically with soybeans. Palen is also experimenting with some cover crops and double-crops after his 2d-year wheat to make use of all available moisture.



Photo by Tim Christian.

Looking over Stones' FSO openers.

We then headed up the road to Kent Stones' headquarters near Lebanon (Kansas, that is), who was *Leading Edge's* cover story for the premiere issue (Dec. '01.) (*Editors: for many of the details of Stones' operation, refer back to that issue —also available at [www.notill.org](http://www.notill.org).)* Stones described for us a bit of their farm history, and how he & his wife Cindy got into no-till, saying that for their operation, no-till has been undeniably more profitable and less risky than tillage-based systems. They have been 100% no-till since '97, and have completely eliminated summerfallow by going no-till.

We poked around Stones' machinery, which covers a very large number of acres each year—making his overhead per acre quite healthily low, despite much of the equipment being late-model. When quizzed about his seeding equipment, Stones remarked, "Seed placement is absolutely *the* most critical aspect of no-till." Consequently, he and his hired man, Terry, spend lots of time making observations and adjustments during seeding, as well as major off-season time rebuilding openers.

Stones farms mostly silty clay loam soils formed in loess. The soil texture and semi-arid climate allow him to broadcast the majority of his N fertilizer as urea during the winter, with good results. He has experimented with other methods, including applying everything during seeding, but currently favors winter b'cast due to the economics. They truck the urea in themselves, then apply it with a boom that fits onto their Flexi-coil air cart.

We also looked at Stones' comparisons of stripper-harvested wheat vs. sicklebar, noting the remarkable differences in weed growth (fewer, smaller weeds in the stripped

wheat). Stones thought the stripped stubble was also storing moisture better than the cut stubble, and was equally plantable in the spring (he has since revised his opinion, noting some rather serious bunching, bridging, and other residue-flow problems with stripped wheat stubble, especially when it rots off at the soil surface and begins accumulating in drifts even before spring seeding begins). Stones also described considerable efforts and adjustments needed to get grain yields with the stripper head to equal the sicklebar.



Photo by Tim Christian.

Discussion of one of Palen's corn fields, including the value of residue (part of the stubble had caught fire the previous year).

(As you can see, Stones is ever the researcher and strategist, and is relentless in studying all aspects of his operation.)

Next was Harold Krause's farm near Hays, where we toured a few of his fields including some of his dryland no-till corn, which was holding up admirably well in the hot dry season of '01. Krause's dryland rotation is typically wheat followed by corn or milo, then to sunflowers, and then summerfallowed (Krause has some irrigation in addition to his dryland).

We observed a detailed spraying demonstration put together by Bob Wolf (a K-State spray technology specialist) and Greg Simpson of Simpson Enterprises. On a Spracoupe, Wolf demonstrated quite an array of nozzle types at various pressures—the pattern differences were visibly striking. Wolf said that in his research, the venturi (a.k.a. air-induction, or AI) nozzles have

performed equally with flat fan or Turbo TeeJets for herbicide efficacy, but with markedly less drift. Wolf described some other types of tip/boom arrangements, including air-assist, electrostatic, and double nozzle (where the small droplet pattern is directed into a high-volume pattern), and their uses, generally noting these as being better suited to desiccants, fungicides, and insecticides, rather than herbicides—we were relieved that we didn't need to spend big \$\$ on these devices for our herbicide work.

Following our supper in Hays, our panel of Bob Wolf, Ray Ward (soil scientist & founder of Ward Labs), Paul Jasa (U.Neb.-Lincoln seeding equipment specialist), and myself recapped a few thoughts for the day, and answered some questions. Then some of us adjourned to the bar, where the really important discussions took place (although they didn't *all* involve agriculture).

Bright and early the next day we set out for Randy Schwartz's farm north of Great Bend, who was another Feature Farmer for issue #1 of *Leading Edge*.

**Ray Ward contends that ripping is way oversold: "If roots are penetrating the 'plow layer,' then leave it alone."**

All dryland, Schwartz has been 100% no-till for over a decade now, with very good results (except for the habitual hailstorms hitting his area in 3 of the last 4 years, plus the recent drought).

For farming 2,500 acres, Schwartz's overhead is astonishingly low—and he does virtually all field operations himself, including haying, with only part-time hired help. Just before our arrival, Schwartz was harvesting sunflowers using a corn head *with no*



Photo by Tim Christian.

Ray Ward describes changes in soil structure.

*modifications*—we found a little grain shattering, but generally thought it was a quite reasonable job of harvesting without the time and expense of adding sunflower pans to a straight head, or buying an all-crop head, or installing Corn-Sol plates in the corn head (Schwartz notes that the unmodified corn head only works if the flowers aren't too dry). This bit of management typifies Schwartz's style—keep it simple, but effective. Don't waste precious \$ on fancy new equipment or gadgets for which the return on investment is rather speculative, or an illusion. And always evaluate your return *per hour*—chasing that last little bit of yield often isn't worth it; sometimes your time is better spent on something else.

Up until this point of the tour, we had been looking at farms in regions with reasonably decent soils and climate. We got a reality check at Gene Albers' near Cunningham. I made an attempt to explain some of the differences en-route, especially making a point about nighttime temperatures: the higher elevations at Great Bend, Hays, Lebanon, and Glen Elder make for much cooler nighttime temps. A corn or milo plant can produce only so much photosynthate (sugar) during the day, which must sustain it during the night when it can't do photosynthesis, plus have some left over for growth and/or grain-fill. Cooler nights allow the plant to slow down its metabolism, consuming less sugar. A few degrees warmer causes much higher sugar consumption just

to stay alive, plus the plant is attempting to grow more rapidly because of the warmth—throw in some conditions where daytime sugar production isn't maximal (drought, excess heat, cloudiness) and things go to hell in a hurry. This is why corn and milo production is so much more difficult in south-central Kansas (we sometimes joke about the "Wichita trade winds" cooking us), and even cotton is adversely affected. Further complicating matters are the typically shallower soils and lower OM occurring in that region.

Albers had been experiencing all of this (in spades) in 2001, which we saw firsthand in some of his milo fields that couldn't exert a head due to drought. He had thick stands of double-crop milo and forage sorghum in his wheat stubble, which also needed rain soon if they were going to make much (his cattle provide the backup plan). His soybeans were also likely to be harvested by



Photo by Tim Christian.

Paul Jasa discusses crop rooting characteristics with tour participants.

cattle if he didn't get rain soon. Albers has been 100% no-till since 1997, and does all his seeding with a 15-foot 750 drill.

Ray Ward did some digging with his trusty spade in one of Albers' milo fields to see how the root development was proceeding. It was a bit shallow, which Ward explained was normal in a soil of this type (Farnum) with a crop like milo. Someone asked about ripping or subsoiling, which Ward explained was mostly just equipment companies trying to sell you stuff you don't

need. He said that in certain situations deep ripping might have value in redistributing a compacted layer (note that it *doesn't* make the compaction disappear), but often those implements were used incorrectly or in circumstances where they weren't needed. Ward recommended always checking root development with a spade before deciding if subsoiling is necessary: "If roots are penetrating the 'plow layer,' then leave it alone." Ward explained that roots tended to follow old root channels or earthworm burrows, unless these pores are disrupted by tillage.

Off we went again, to Joe & Sue Swanson's farm near Windom, where they have experimented with no-till for decades, and have been 100% no-till since 1997. (*Editors: see issue #2 for more details on their operation.*) Swansons' area also suffers from warm nights much like Albers' area, although the soils are somewhat better—mostly loess deposits (Crete and Smolan series) on upland, plus a few bottomland fields along the Little Ark. River.

Paul Jasa and I went over some planter tips while we looked at Swanson's equipment, consisting of an 8-row JD 1750 planter and a 15-foot 750 drill. Jasa noted that



Photo by Tim Christian.

Jasa on planter attachments. Jasa also provided insights on row spacings, plus some of the history and patents of various planter gizmos.



Photo by Tim Christian.

Matt Hagny and Joe Swanson discuss Keeton performance and longevity, although Hagny looks like he's ready for a cocktail.

coulters didn't help planter performance any, and that properly adjusted residue managers are all you need in front, if anything. He also emphasized the importance of having enough frame weight when attempting to run high down-pressure on the openers. Jasa also brought up some interesting facts on the history, patents, and licensing of some opener and attachment designs—which actually explains quite a bit about who brings what to market. I described the reasons for poor performance of 'notched' (indented) CIH gauge tires on JD/White/Kinze planter units (essentially allowing the blade to lift the sidewall before the seed is placed, which sometimes allows seeds to bounce or roll under a chunk of sidewall), and talked a bit about differences in spoked closing systems and the conditions where they excel over traditional smooth closing wheels. I commented on how absolutely critical the Keeton's performance actually is, especially if spoked closing wheels are used that provide no additional firming. Jasa mentioned the Rebounder and J.S. Ag's notched covering discs as worthwhile add-ons for CIH row units.

We then went to a cover crop/double-crop plot put in by Swanson and

myself after the '01 wheat was harvested, where we are looking for good alternatives to double-crop flowers in his rotation. Although double-crop flowers have been profitable for Swanson in recent years, he dislikes the high input costs—he's looking for less risk. Swanson recognizes the need to grow *something* right after the wheat in his area, whether a revenue-generating double-crop or a true cover crop. In the plots, the pearl millet, canola, and vetch all looked a bit stressed by the hot weather—not surprising for the vetch and canola, which have cool-season growth habits. I expected the pearl millet to look better, as it originates from the desert borders of Africa, although it did eventually perk up later in the season (as did the canola). The sunn hemp (*Crotalaria juncea*) and cowpeas were the most impressive for handling the hot dry weather, and were also the best at suppressing weeds (the sunflowers were also quite good). The pearl millet and soybeans were intermediate for weed suppression; the canola and especially the vetch and check strips were rather weedy by late summer (the weeds were chopped by hand, so Swanson & I really noticed the differences!) The plot was seeded to corn in '02 with different N rates to measure legume contribution of N, although it looks like corn yields will be extremely low this year and we may not learn much—however, the various strips did produce some emergence and early growth differences in the corn, as well as affecting how drought stressed it was later in the season (no, the check strips were *not* the ones with the least drought-stressed corn). We'll see what the yield data shows.

Lastly, we took a quick look at a corn field near Swanson's home, where he & his dad commonly threw out their leftover night-

crawler fishing bait years ago. The nightcrawlers had built up quite a population over the years, and it was very easy to find their middens. Unlike our common transient-burrowing earthworms (gray worms or field worms), nightcrawlers live in permanent vertical tunnels that often penetrate 4 feet or more, resulting in rainfall infiltration rates

unlike anything you've ever seen before (despite the fact that they eat much of the surface residues). In this particular field, the nightcrawler population had moved partway up the hillside (they aren't native to Kansas), and Swanson reports a measurable yield advantage to the area with the nightcrawlers—prompting the question of

whether we should be undertaking a serious effort to introduce them to other fields.

And so it goes—while we continue to refine an already profitable system, we discover even more questions to ask, and new possibilities to consider. The journey continues to unfold . . . .