

# Heavy Rains Help No-Tiller Promote Practice to Vegetable Processor

Delaware row-crop and vegetable grower's "all in" adoption of no-till, cover crops and planting green is making positive changes to his soil, his yields and his bottom line.



**NO-TILL LIMAS.** Jay Baxter's experience with no-tilling corn into cover crops helped him convince commercial processors to allow him to try it with baby lima beans. Shown here is the row behind the no-till planter (left), bean singulation in the row (center), and emergence of the beans two days later (right).

By Dan Crummett, Contributing Writer

JAY BAXTER, a fourth-generation farmer in Delaware, says a couple of well-timed torrential rains became 'ah hah! moments' that ultimately led him to switch all of his cash crop production to no-till with the use of cover crops.

Baxter Farms is a 2,000+-acre irrigated operation near Georgetown which produces corn, soybeans, wheat, sweet corn, black eyed peas, fresh-market edamame and baby lima beans. The farm, which also produces 200,000 broilers per year, sits in an area historically home to commercial canneries and widespread vegetable production.

"Our family had been converting the farm to no-till, and had been using cover crops for some time as a way of managing the use of municipal wastewater through our irrigation systems on agronomic crops," he says, adding that they don't use wastewater on commercial vegetables.

"When we use the community wastewater, however, we're required to apply it to a growing crop in the field. That's how

we developed experience with cover crops a number of years ago."

Most commercial vegetable crop contracts specify farm management methods to be used, and when Baxter and his wife bought their first farm in 2013 and decided to grow baby lima beans, that was the case. Conventional farming methods of 'clean till' fields were required.

"Literally two days after we planted our first crop of baby lima beans, we got a 5-inch downpour that washed seed and much topsoil of the clean-tilled field into nearby ditches, into the woods and on out to the bay," Baxter explains. "That was the last time I ran a ripper on that piece of ground!"

The Baxters' baby lima bean harvest averaged 600 pounds per acre that year. Today, with fields no-till planted into cover crops, yields have hit 3,000 pounds per acre some years.

Baxter says he worked with a consultant from his local processor to share his expertise on growing other crops planted into standing and terminated covers, and to determine if the specialized harvesting

equipment used by the canners could accommodate the residue of tall covers.

"We walked a number of my corn fields and I was able to show examples of planting green into cover crops and how the crop appeared as it was emerging through the residue," he says. "Ultimately, he told me, 'This is a trend of the future, and we don't really have any choice but to try it, so if you're willing to be the guinea pig, we'll definitely try it.'"

The first year Baxter no-tilled baby lima beans into a cover crop for the contractor, harvest came during a very wet fall.

"We had two hurricanes back-to-back come up the coast and dump about 14 inches of rain on us in 10 days," Baxter recalls. "You can imagine what that did to area fields that have the water holding capacity of less than 2 inches.

"The commercial harvesters used for lima beans and other vegetables in our area weigh 55,000 pounds and ride on tall, narrow tires. They immediately became mired in muddy fields trying to harvest downed beans that had lost quality because of moisture and disease."

The harvest crews saw Baxter's fields appeared drier than what they had been experiencing and asked to harvest his crop.

"Even at 27½ tons and riding on narrow tires, the harvesters hardly made a rut on our wet no-till fields," Baxter says.

**Sweet Corn Challenge.** Traditional farming methods are strongly adhered to by sweet corn growers in the area, as Baxter discovered when he first considered no-tilling the commercial vegetable crop into a cover crop for a local processor.

"I listened to a lot of neighbors and my peers who told me I'd have trouble because the cover crop would diminish soil moisture needed by the sweet corn crop," he explains. "I knew I could irrigate so that wouldn't be a problem, but I took my neighbors' advice and worked up the ground on those fields.

"What a disaster that was," he says. "We were left with a balled-up mess, so rough I couldn't get a planter through it. We had a terrible stand but ultimately we had a good crop and the processor approved another year for us. But I was going to do it my way this time."

Baxter successfully planted the next year's crop green into a heavy, knee-high vetch-based mixture, and his no-till fields allow 24-hour harvesting even in the rain.

"It seems every time we harvest sweet corn, it's wet," Baxter says. "It doesn't matter to the processor because they have to keep the plant operating around the clock. If they can get the machines across the fields, they're picking sweet corn."

**Lessons Learned.** As he adopted "planting green" across the farm, Baxter says there were some hiccups but overall his commitment to making it work routinely provided solutions.

"The biggest mistake I made along the way was killing a grass and legume mix before I planted and coming back to plant when it was only partially dead," he explains. "All I did in that field was create rope, and if you've ever tried to plant through rope, you know it doesn't work!"

Baxter and his planting crew were so frustrated with the situation, he decided to quit spraying to terminate covers and move on to 100% planting green. The only exception would be when planting well into the summer, as on his lima bean fields.

Baxter says hairy vetch is an excellent cover crop but can make you say bad things at times.

"If we don't mow our stalks, hairy vetch can climb the residue with just enough strength to ball up as it goes through the planter," he explains. "We solved the problem by running a vertical tillage tool through the field to level out the balled-up areas and we replanted successfully.

"Still, I was tired of the same thing occurring over and over, and upon further investigation I found the residue and vetch were snagging on the set screw of the fertilizer coulters on the front of the planter. I took a piece of pipe and strapped it to the row units to deflect the residue and solved the problem at the source."

Now he's back planting in waist-high hairy vetch and behind the 16-row 9000 Series White planter the residue appears as if it had been purposely rolled between the 30-inch rows.

**Adapting Equipment.** Baxter doesn't use coulters on the planter, but insists on Yetter SharkTooth row cleaners because of their ability to cut through his covers without wrapping.

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"When we bought the planter in 2016, we designed it without the coulters. Also, we knew we wanted pneumatic down-pressure across the row units for uniform seed-to-soil contact," he explains.

"Since that time, we've moved to much narrower gauge wheels to get inside the row-cleaner furrows," he explains.

Baxter says after no-tilling for several years, rubber closing wheels no longer do an effective job of closing the trench behind his planter because his sandy soils are aggregating better and resist crumbling readily.

"We noticed after a couple of years in no-till, when planting sweet corn (which requires very shallow planting) we were leaving seeds exposed," he explains. "We tried changing the angle of the planter to force the back down but that didn't solve the problem. It was apparent we needed to change closing wheel designs.

"My planter is currently equipped with a number of different after-market closing and press wheels as part of a trial to deter-

mine which performs better. So far, I've discovered all will do the job, but I can't decipher which is best."

**Nitrogen Credits.** Conventional wisdom would hold that years of no-till and cover crop use would have made significant changes in Baxter's soil organic matter content, but he says that isn't a slam dunk.

"I have soil analysis records back to 1985 for comparison, and we've found the use of no-till and cover crops on heavier grounds seems to make more difference in increasing soil organic matter than on sandier ground. Actually, in some of our fields we've seen organic matter levels decrease," he explains.

A curious person by nature and an avid experimenter, Baxter says there are causes and effects going on beneath the surface that he hasn't unraveled yet. He knows, however, cover crop legumes such as hairy vetch can help him with his fertilizer bill, and save him time in making additional field trips to add nutrients to a growing crop.

"Our records convince us by the time we destroy a cover crop, whether it's planted green and then destroyed, or it's destroyed before we plant lima beans into it, we can credit 80 units of nitrogen.

"I don't have to make a second pass to fertilize that crop. That's one less time I have to go across the field. That's one less time we've got to pull a heavy sprayer to put a 32% UAN solution out there. I skip the entire pass because the cover crop releases its nitrogen back into the soil at nearly the perfect time when the crop needs it to create the yield it does."

Baxter's no-till cover crop management doesn't put him at a disadvantage in bragging rights on yields.

"In field corn I want to see 250-300 bushels per acre. In sweet corn I want 10 tons per acre. I want lima beans to produce 3,000-3,500 pounds per acre. And, I shoot for 80-bushel full-season soybeans. Do I do it every year? No.

"But, areas of standing water in our fields after rains are shrinking, our yields are increasing and our costs are falling," he explains. "In work we've been doing with USDA-NRCS and the National Association of Conservation Districts, along with the Soil Health Institute, we're seeing savings of \$50 per acre with some of these practices." ❁