FARMER TO FARMER
SUCCESS STORIES

Build Soil By Respecting Residue

John Agee, Agee Farms, Logan County, Ill.

Conservation farming has come a long way since John Agee Jr. and his father, John Sr., first began wrestling with changing their approach to tillage. That was 20 years ago. The time, labor, equipment and cost—both in dollars and soil—involved with conventional tillage was taking its toll, and the Agees, always willing to adopt a better way of doing things, began exploring no-till and strip-till on their rolling ground. Now firmly established as a strip-till operation, Agee Farms has continued to grow at a pace that makes a significant statement about the conservation practices it embraces. This success is particularly striking in light of the operation's large percentage of continuous corn.

The patriarch is gone now, but John Jr., 59, continues the legacy with his own son, Justin, 35. Knowing that "the best way to get started is to talk with someone who gets it," as he did years ago, Agee generously shares his long view of conservation farming with others, including the skeptics among us.

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Farmer to Farmer Success Stories are a series of interviews of farmers sharing how they have found success in incorporating conservation into their operation. To follow this series, visit. *www.HarvestingThePotential.org*

Q: How did you get started using conservation farming methods in continuous corn?

A: When we first got started, I had been farming for 20 years, and we were looking for a different avenue. We were spending a lot of time working the ground. We first tried no-till, but we kind of tussled with it, and we didn't have the right kind of combine to grind up the trash.

At the time, strip-till was new. We went to a couple of meetings before we tried it. At those meetings, the approach was presented in a way that, on the surface, seemed intended to discourage someone from starting. It was as if they almost wanted to talk you out of it, showing you everything that could go wrong with it. That had the potential to spook you a little. But for us, it was a matter of learning about what not to do and things to watch out for, so that approach didn't deter us. Because if there is something out there that runs this farm better, we'll adopt it. We don't want to cut corners; it comes back to haunt you.

Q: Isn't residue management a big problem in the fall and spring?

A: There is a lot of good healthy corn out there now, and farmers are exactly right when they say the stalks are hard to break down! However, it's amazing how broken down those corn stalks become by spring. We take some important steps to make sure this happens.

During harvest, we grind stalks down to a controllable height with the corn heads. Our combines have Yetter rollers that break up those tough corn stalks and squeeze them, making them more susceptible to breaking down and making organic matter. The root ball is left intact to stabilize the soil.

After harvest, we run the AerWay over the field with the rolling basket behind it, spreading the residue out so the trash won't be streaked unevenly. The AerWay breaks the residue up further, knocking down stalks and chewing them up. It pokes holes about 6" down, like a lawn aerator.

Over time, this harvest residue on Agee Farms' strip-tilled, continuous corn will turn into soft, mulchy soil that "makes a marvelous seedbed," says John Agee Jr.

Then we run an ammonia bar over it to help the residue decompose. The ammonia contains N-Serve, a stabilizing agent. The applicator has a straight blade and mole knife, which we line up between the old corn rows. It's important to get a nice 4" berm in the tillage strip and do a clean, straight job, so it's easier to follow in the spring. We also apply dry fertilizer in the fall.

We have to carefully manage that ammonia in the fall. Timing issues can delay you—cold weather, early freezes and so on—so you have to be Johnny-on-the-spot.

In the spring, we apply nitrogen. We run a 24-row John Deere planter with the same unit width to match up with the ammonia bars. The biggest challenge is staying on that same groove we made earlier, but getting a good berm with the strip-till in fall helps us stay on track in the spring. We also use John Deere Autosteer technology, which has been unbelievable in helping us strip-till. It's important to make sure you have seed placed in that berm at the right depth. Later in the spring, we'll sidedress with urea.

This approach does require more management in the fall, but it makes the spring work much easier.

Q: Don't I have to bury the residue to break it down?

A: Any time you bury residue, you are losing your conservation advantage. Besides, I don't like mixing stalks down into the seedbed. First, it's bad for the seed kernel; it sets up disease problems. Second, with residue in the ground, you have a hard time getting a good seed bed in the first place. You wind up planting into trash instead of soil.

The residue that is worked over with the AerWay builds organic matter because it stays in the top 2" to 3" of soil, where it can be best utilized. Deep tillage works residue too deep into the soil, where it can't be utilized as well.

When you walk the ground in the fall, all you're stepping on are stalks. But by spring, the trash has deteriorated about 50%, with the rest getting closer to being dirt. The roots have broken down as well. By next fall, all that trash will be organic matter.

Q: Wouldn't it be simpler to harvest silage or remove the residue for corn stover?

A: I would not want to remove it. The advantage of using the residue in strip-till is to build organic matter. Good organic matter is going to keep the ground from washing and blowing away. It all helps.

Q: Doesn't surface residue increase insect pressure?

A: There have been arguments about that, but I don't feel there is enough evidence to substantiate

An Aerway and rolling basket break up and evenly spread residue thrown out by combines outfitted with Yetter rollers, which first squeeze and crack the tough stalks. Afterward, stabilized ammonia is applied over the residue to help it decompose further. The ammonia bar is outfitted with a straight blade and mole knife, which line up between the corn rows and create a 4″ mound for the following spring's seedbed.

them. We don't seem to have any more problems with insect pressure than anyone else. If we get rootworm, then everyone around us has it, too. And we don't use any more pesticide than we did with our previous method.

Q: What about compaction of the soil with strip-till or no-till?

A: You can run across that occasionally, but in normal years, I really don't. For example, after an extremely wet year in 2009, we ran an inline ripper just to break up compaction. And 10 to 12 years ago, we had some tighter ground that we drove over numerous times, and we had to break it up.

If you think you have an issue because of very heavy soils, heavy rains, harvesting in the mud or soils that are beaten down with traffic, then you might need to aerate occasionally with an inline ripper to break up compaction. Too often, however, there is really no advantage to it, and it winds up being a waste of money, fuel, manpower and equipment.

Q: I hear you use cover crops. What's your process?

A: We have used tillage radishes for three years. The first year was trial and error; the next year we tried more, with about 10% of our ground in cover crops. This year, we didn't have time to get them in before the ground froze. If you don't have cover crops in by Oct. 20 here, you might as well not plant them. This fall we plan to do more, though.

In the years we got them in, they worked great. We plant them with an air seeder a couple of days after harvest in the ammonia groove. The next day, we AerWay them.

These big radishes get down deep, breaking up any compaction. They also hold a little nitrogen and help us build organic matter. And they don't affect the spring work; they die off on their own, and no herbicide burndown is necessary.

You have to do your herbicide applications in the spring, but it's the same money and the same effort.

There are also about 100 other mixes you could use, so I suggest getting a recommendation from your seed dealer for a cover crop that is right for you.

Q: With corn prices as low as they are, I can't afford to add practices that don't give me a return. What about yield and my bottom line?

A: The bottom line is to try to make more dollars and, in 20 years of doing this, I believe our yield has been just as good as anyone. Our chemical expense is a little higher, but we have less machinery expense because we don't have tillage equipment.

There is no way to test what one year's conservation methods are gaining, bushel to bushel, in the same year, especially when corn prices are so negative. Instead, it's a long-term process. For example, with cover crops, you are looking years ahead. What you gain in the future will exceed that year's cost. You're going after more organic matter, having less compaction and holding more nitrogen, and you reap the benefits down the road.

The organic matter you gain is going to keep your valuable ground from washing and blowing away. To see if your soils are staying put, check in the ditches first. If they are black and full of dirt and trash, you know you have an issue with soil loss. Our ditches are real clean right now.

Soil life will increase, too. In a roundabout way, they do some tillage for you. You can just see that the soil has good aeration from microbial soil life and earthworms. In the spring when we are dragging ammonia in the groove, we can tell that the soil is very mulchy and soft, and the soil color is dark and rich. It makes a marvelous seed bed.

We were first attracted to this approach by the economics. Then, as we spent more time doing this, it became more apparent that what we wanted to leave on this farm was the good stuff for future generations. A lot of these conservation methods help us do that.

Q: I'm used to the way I farm; why should I risk changing anything?

A: The bottom line is that, when you first start, it does seem that way. After you learn the system, though, it becomes a lot easier in the end. If you stay on top of the management, it makes work so much easier in the spring. There is enough information out there to learn how to make it work, but you have to be happy with it.

Q: What do you wish you had known when you first started using strip tillage?

A: I wish I'd known 20 years ago how important it was to have a nice mound and to not peel it off too far and make a valley, where water stands in it. Those are the two mistakes most people make when starting out.

While the AerWay unit aerates the soil by poking holes 6″ deep, it only incorporates residue into the top 2″ to 3″ of soil, where it can be best utilized.

Q: Do you expect these approaches to catch on further?

A: Absolutely. You do what needs to be done. In our area, as one guy learned from another, strip-till has grown in the last 15 years. The best way to get started is to talk to someone who gets it.

Ten years down the road, we're going to see conservation catch on as margins get closer and closer. Producers are going to be looking for a way to cut their expenses. And the cost savings are not just in the equipment; they're also in fuel and labor.

Q: Looking into the future, what would you like to see on your farm?

A: I would like to see my farm in the field, not in the ditch. We have to keep our soil intact so it will be there for future generations. If you only take and never put back in, and just hoard it and use it up, it will gradually go away. We're trying to keep it going for our kids' futures—for everyone's kids, so the country can have food for a long time to come.

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