

# No excuses out there . . . just ask Hans Kok about no-till

[by DeeDee Sigler, IASWCD communications manager](#)

Almost eight months ago, a new initiative entered into play in the state's agricultural conservation arena on behalf of the Indiana Conservation Partnership (ICP) and Indiana hasn't been the same since.

The project and the people behind this natural resources brainstorm are Hans Kok and Dan Towery of the [Indiana Conservation Cropping Systems Initiative](#) (CCSI). The CCSI was developed by the ICP to promote a systematic approach to production agriculture. The Initiative focuses on:

- Continuous no-till/strip-till,
- Cover crops,
- Precision farming, and
- Nutrient and pest management.

The CCSI is a resource for Indiana's 92 Soil and Water Conservation Districts to carry out conservation cropping systems goals and objectives. The end goal is to improve soil and water quality and profitability on Indiana cropland.

Recently, I had the chance to meet up with Hans Kok in the middle at a farm in Hendricks County. The setting was a no-till field with corn stalks from the prior season's crop providing protection from wind and water erosion.

A metal "swing set" like contraption was set up . . . a rain simulator Hans will use this summer at field days across the state to show farmers the benefits of no-till versus conventional tillage in farm fields.



"I designed the simulator about 10 to 15 years ago. It is based on a larger simulator from the Agricultural Research Service that we used at Kansas State," Kok says, "that took more than half a day to set up. This one shows the same results and you can set it up in about an hour and have everything ready for farmers."

"I set up the simulator in no-till fields like we're in right now and till out one strip behind those triangles," Kok says. "It is designed at the top where the water (rain) comes out to give you a 2 1/2 inch per hour rain storm, so it's very similar in rain drop size and energy to a natural rain storm that would hit a farm."

The rain simulator is hooked up to a water source, either a tank or a faucet and runs for approximately 30 minutes. One strip is tilled and the other left in no-till. Kok says the results are obvious soon after the simulator is turned on.

"You see muddy water coming off the tilled soil and the no-till soil usually doesn't do anything. We show the raindrop splash with tubes sitting in there. Whether you do it on sandy soils or clay soils, flat fields or steep slopes, it shows how the residue and structure of a no-till field really protects the soil from erosion," he emphasizes. "As soon as you start tilling the soil again even after many years of no-till you get erosion pretty quick."



According to Kok, farmers reaction to the rain simulator is pretty typical. "They're generally amazed. They never expect the erosion to be that bad in their own fields," Kok adds.

To further emphasize the effects of tillage, Kok says he digs little holes in the front of the simulator and collects jars of water and to show farmers how much mud is in the water and then puts together some facts and figures like how much soil they're using, and how many truckloads of mud is in the rainstorm.

"It is pretty amazing when you start looking at those numbers," reveals Kok. "You either see clear water coming off the no-till side or no water at all and farmers can't believe it. Most tillage farmers think no-till has a lot of runoff too, but the rain simulator shows them what really happens."

The rain simulator provides a comfortable (and dry) opportunity for people see what occurs during a downpour. Kok places white pipes in the field that show the splash erosion. When the rain hits the soil, the raindrops, in essence, seal the soil.



"The raindrops splash up the soil, and all that splashed material lands back on the soil again, making a crust (like concrete) that is hard to penetrate for the rest of the rainfall," Kok says. "That happens on bare soil after just one rainfall. Farmers think if you have tillage out there it opens up the soil for water. I haven't found a soil type that (if left bare after tillage) doesn't seal over when it rains," adds Kok.

That is why with the residue in a no-till field there is either no sealing or much less and the water infiltrates into the ground.

### **When did we determine no-till was better to farm?**

"We couldn't put seed in the ground with this much trash or residue on the surface and we couldn't control the weeds. We didn't have the technology until the 1960s," Kok says. "It's that simple. That's why we were doing tillage. It's not that we were doing things so wrong, it's that we were using 1700's technology."

Kok adds that we've progressed, but it always takes a long time for new technology to be adopted. In other places in the world, they've adopted no-till like crazy such as Australia, New Zealand, Argentina and Brazil where they are almost entirely no-till.

"They've taken the technology, they've seen the value of it, they see the money it saves farmers to go no-till. But here in the states, we've been slow to implement it, and in Europe it has been even slower.

"But with something like this rain simulator, it shows the value of no-till. It wakes a lot of people up," Kok says. "A farmer came up to me in Kansas and said he saw the rain simulation a couple of years earlier and started thinking about what we were doing to the land and switched his whole farm over to no-till.

"I've yet to meet a topography or soil type or climate where we can't incorporate no-till."

**What are the biggest obstacles you hear from farmers here in Indiana to no-till ?**

- Equipment,
- My soils won't work, or
- My operation doesn't fit in with no-till.

"And I don't buy any of those reasons," Kok says matter-of-factly. "Because I've seen it enough over the years.

"Equipment, especially in a corn/soybean rotation is not true. Any corn planter built in the last 10 to 15 years can be adapted to work. We have two videos on our Web site ([www.ccsin.org](http://www.ccsin.org)) showing farmers how to set up their planters for no-till. We have 24-row planters in a no-till set-up that are going through massive amounts of trash with no problems . . . 300 bushel corn no problem."



Kok adds that yields aren't an issue. "Some university research shows a yield drag in no-till and I don't buy that either. I've done no-till research and if farmers are showing me they're getting 300 bushel corn with no-till I tend to believe that," he says.

"Here in Indiana, approximately one quarter of the corn acres are no-till, so I know the other three quarters can be switched to no-till. And, over 60 percent of our beans are no-till. That's funny because I would have thought it was the other way around."

Kok says the big concern Indiana farmers have here with no-till corn and residue is soil temperatures. "You may have a little cooler soil temperatures at planting because the residue is shading the sun out, and that is a valid concern. But, I've talked to so many farmers who tell me they don't even adjust their planting dates. In fact a lot of no-till farmers can go in the fields earlier than conventional farmers," Kok says.

"They don't have to do all that tillage, so it's a timing factor. After you till your soil is so loose and muddy, if you get any rain you have to wait for the ground to dry before you can get your planter in there. No-till

farmers drive on a mat of crop residue that is not as loose and provides better traction." Kok says "if conditions are right, farmers put their corn in and go."

The Conservation Cropping systems Initiative is moving forward into a busy spring and summer with invitations streaming in from Districts for field days. Although Kok, Dan Towery and NRCS' no-till expert Barry Fisher will be the featured speakers at field days, Kok says "We'll have no-till farmers involved in those field days. If you get farmers talking about their experiences, that is what really counts. We explain the why and have the farmers go into the details and show them how they make it work on their farm."

The [Indiana Conservation Cropping Systems Initiative](http://www.in.gov/isda/ccsi/) is online at <http://www.in.gov/isda/ccsi/>. The CCSI now has a listserv on its Web site under **Latest News** on their home page. >>[Collaborate with fellow no-till farmers on the CCSI listserv](#) allows Indiana farmers the ability to collaborate and share technical information regarding their conservation tillage strategies.

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