

Precision farming: Satellites, phone towers guide tractors, planting

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U.S. and Russian satellites and cell phone towers are guiding tractors perfectly down farm fields, saving money, bolstering production and helping keep the environment cleaner.

Known as precision agriculture, farmers can plant exactly spaced seeds and till perfectly straight rows without any hands on the wheel.

Midwestern farmers began using a simple, less accurate form of the GPS technology in the mid-1990s, but it is just arriving in northeastern North Carolina.

"It's the latest thing on the block here," said Ron Heiniger, a crop specialist and a professor at North Carolina State University. "Ten years from now, every farmer will have it."

With an antenna on the tractor and a computer screen in the cab, farmers can also precision-apply fertilizer so every area of a field yields its best.

Pesticides are sprayed in the right amounts to be effective without excess, reducing nitrogen runoff into the environment.

Precision farming follows the mantra of the four rights: the right product at the right rate in the right place at the right time.

Chuck Jackson was the first farmer in Pasquotank County to install a complete system on his equipment, he said.

In the second year of use, Jackson said, he can plant more without overlap, reduce soil compaction, save fuel and even work longer.

"The more I do in a day, the sooner I can get home," Jackson said.

"It didn't take a genius to learn how to do it."

He runs the tractor in a straight line down the field without even having to concentrate on the rows and without his hands on the wheel.

When he harvests, the equipment measures yields in every section of the field so next year he can apply fertilizer exactly where it is needed, he said.

"It does everything," he said.

Jackson found a minor drawback. He would temporarily lose satellite service at some point in the day. But he also found he could keep going long after sundown. The system would guide him even over a dark field.

"Anybody who has it doesn't want to give it up," said Stephen Mount, business manager and GPS specialist for B&S Enterprises in Elizabeth City. "It's like air conditioning."

A government system of satellites called Wide Area Augmentation System, or WAAS, is still used for less-precise work such as spraying chemicals.

More recently, real time kinematic systems, or RTK, using either U.S. and Russian satellites or cell phone towers, can pinpoint planting locations within an inch. RTK is better for planting, Heiniger said.

Once the coordinates for a farm field are recorded, a farmer can start planting at the same spot year after year, he said.

An RTK system can cost about \$22,000. A farmer would have to subscribe to a local tower for about \$1,000 a year or buy his own base station for about \$13,000, Mount said.

Farmers have been hesitant about taking on new technology and the ensuing costs, but attitudes are changing, Heiniger said.

State and national agriculture experts have promoted the technology. Farmers who have it speak well of it. Organizations and state agencies are holding regular conferences on precision farming.

More schools are offering courses on the topic, and websites explain it.

"This," Heiniger said, "has been among the most readily adopted technologies we've got out here."