



Clemson automates peanut digger for improved yields

MEDIA RELEASE

Scott Miller, Public Service and Agriculture

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BLACKVILLE — An automated peanut digger developed by Clemson University agricultural engineers could save growers \$19 per acre or more by reducing yield losses due to inaccurate digging depths, research shows.

The technology uses a depth gauge that can automate the digger's hydraulic top link that controls blade depth. Doing so maintains a steady digging depth throughout a field regardless of soil texture, a unique and important feature for the variable clay and sandy soils in the Southeast.

“If you grew two-ton peanuts, it wouldn't matter if you didn't dig them properly,” said Clemson Extension agent Andrew Warner, who demonstrated the technology to growers at the annual Peanut Field Day at Clemson University's [Edisto Research and Education Center](#) in Blackville Sept. 3.

In sandy soils, digger blades begin to dip, while clay soil pushes the blade up. In both cases, peanuts are damaged and yield is lost.

Manually adjusting the blade depth on a peanut digger is labor-intensive and time-consuming. And because proper blade depth so greatly impacts yield, digging peanuts is a learned skill most farmers do not trust to their staffs.

Clemson's automated digger changes that, said Warner, who has been developing the patent-pending technology with Clemson agricultural



Attendees at the Clemson University peanut field day watch a demonstration of the variable-depth peanut digger created by Clemson agricultural engineers. The technology monitors and automates the digger's blade depth to maximize yield.

Image Credit: Clemson University

engineer Kendall Kirk, peanut technician James Thomas and Amadas Industries engineers.

“That would give farm owners and managers more time to solve other problems on the farm rather than spend hours digging peanuts,” Warner said.

To make it work, farmers would need to set their blade depth to an optimum depth based on soil textures in their field. A sensor gauge then monitors blade depth in the soil to maintain a steady depth. If growers have a solenoid valve and hydraulic top link installed on their digger, the depth gauge can communicate to the valve through a controller to adjust blade depth. If not, the gauge notifies the tractor operator that blade depth needs to be manually adjusted.

“We’re developing a unit that could be installed on basically any commercial digger out there,” Warner said.

Installing the technology would cost around \$3,500, an investment that could be recouped in about one-and-a-half years based on early research results. In 2013, Clemson reported \$19 an acre in improved yield based on tests in peanut fields at the Edisto Research and Education Center. Soil conditions can affect the technology’s impact on yield. Wetter soil is easier to dig, for example, so yield improvements from the automated digger would be minimal, Warner said.



Clemson University agricultural engineer Kendall Kirk prepares to demonstrate a peanut digger that monitors and automatically adjusts blade depth to maximize yield.

Image Credit: Clemson University

South Carolina growers harvested 108,000 acres of peanuts in 2014 at a value of \$91.1 million, according to the National Agricultural Statistics Service. Yields averaged 3,800 pounds per acre.

Clemson has demonstrated the technology on a two-row digger. Moving forward, Clemson will test the automated digger on larger four- and six-row diggers, Warner said. The project is funded by the S.C. Peanut Board, a farmer-led organization whose mission is to increase consumer awareness and consumption of peanuts while creating a positive economic impact for producers.

Clemson’s Edisto Research and Education Center conducts the annual peanut field day to provide

growers with research-based information on peanut variety performance and control methods for weeds, pests and diseases.

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