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Sprayer boom section and height control

Technologies strengthen land management by reducing overlap and improving environmental stewardship

Laurie Potter

Successful Farming magazine Deputy Machinery Editor

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When it comes to precision ag technology, Mike and Patrick Shuter of Shuter Sunset Farms in Frankton, Indiana, are self-proclaimed adopters. The father-and-son team has implemented some of the most innovative technology to optimize the efficiency of the 3,200 acres they farm. Their most recent investment is automatic boom section and height control technology.

In 2006, the duo began shopping for a sprayer and knew they wanted it to be equipped with tools that not only would save on chemicals by reducing over application but also would eliminate any drift potential they might have.

"We purchased a Nitro 4275 sprayer with an Ag Leader Insight display running a DirectCommand control system that has automatic boom section control. It also controls the NORAC UC5 system we use for automatic boom height control," says Mike.

Only a few years old, automatic boom section control is catching the attention of more and more farmers. That's because studies have shown it can lower input costs by 5% to 15%.

"Automatic boom section control can provide a significant return on investment through chemical savings. These returns are amplified where point rows are common," says Matt Darr, assistant professor at Iowa State University.

Darr notes that while every field can benefit from this technology, more benefits are seen in irregular-shape fields or fields practicing conservation-management techniques like terraces.

Generally, the cost for boom section control starts at around \$2,800 and can vary depending on the precision ag technology and equipment already in use. Basic requirements for the system include a GPS receiver, a controller with software capable of automatic section/row control, and CAN-bus modules and cabling.

Boom height control, on the other hand, really won't reduce input costs.

"Theoretically, it should improve the effectiveness of the pesticides because they're getting placed on the crops in a more uniform manner. But scientific data on this doesn't exist," says Darr.



"The driving forces behind these technologies are improved productivity and reduced input costs. Time is so limited during peak parts of the season that growers are always looking for ways to do things faster and better. Physical machine size does have limits depending on a grower's field size. But these technology items will make operators more productive and independent of their equipment set," says Matt Darr, Iowa State University.



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Other big benefits

The real benefit is to the operator. Boom height control takes over the responsibility and stress of monitoring field contours and making the constant boom adjustments. No longer having to move your head from side to side for many hours means the system frees you from the most demanding part of the job. Also, with the sensors not depending on light to measure boom height, your working hours can be extended well into the night to take advantage of low wind condition.

"The main height control benefits are reducing distractions and allowing focus on the machine's performance rather than controlling the boom height," Darr notes.

For the Shutters, their main interest in height control relates to being better stewards of the environment.

"Automatic boom height control gives us better control of the boom height where we're trying to eliminate any drift potential we might have. We're saving more on drift and getting better coverage by holding the boom height closer to the canopy without tipping the boom down into it every once in a while," says Mike.

"Automatic boom section and height control are both great technologies that further reduce in-cab tasks and allows focus to be more directly on the application of pesticides. This will improve in-field productivity and will allow problems to be identified and corrected quicker," says Darr.

For automatic boom height control systems, getting started requires a GPS receiver, controller with appropriate software, height-sensing components, CAN-bus modules, and cabling. Systems start at approximately \$9,300 and can fluctuate depending on the equipment previously purchased.

Whether it's reducing overlap, improving environmental stewardship, or enhancing operator efficiency, adopting these technologies makes good business sense.

"These technologies have reduced overlap and made us less concerned about causing drift problems because we can control boom height better. Even though we haven't had any problems, it's another safeguard. By investing in these technologies it's like having another piece of artillery in the toolbox," says Mike.

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