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Brian Burgess, DTS engineer

New Eaton Electronic Controller Helps Carrots Take Root

Location:

Holton, Michigan

Segment:

Agriculture

Challenge:

Replacing a chain-driven, mechanical-drive system with a hydraulically driven system

Solution:

Eaton EFX controller

Results:

Seed planter retrofitted with Eaton electrohydraulic products has increased productivity over the previous mechanical design

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Background

In the Midwest, the typical growing season is about 175 days. A successful season is highly dependent on fair weather and reliable planting machinery that offers exact, efficient performance. Farmers can't control the weather, but they are in command of the equipment they utilize. With today's high-tech world, it's no surprise that they are asking for ag implements that help them work smarter and are far more advanced than those of a decade earlier.

Vogel Engineering Inc. of Holton, Michigan, is a company that farmers turn to for top-performing planting and harvesting equipment for truck crops, such as carrots and pickles.

When a Vogel customer wanted to improve the performance of his seed planter, Vogel turned to its longtime Eaton products supplier, DTS Fluid Power of Grand Rapids, Michigan, for help in retrofitting the machine with bushel loads of smarts.

Challenge

The folks at Vogel explained to DTS Engineer Brian Burgess that the retrofit project involved replacing a chain-driven, mechanical-drive system with a hydraulically driven system that would plant seeds at a rate proportional to how fast the vehicle was moving. Burgess learned that the mechanical-drive system was cumbersome and did not allow the speed to be adjusted easily as field conditions changed.

"I quickly realized that the application was a natural fit for Eaton's new EFX electronic controller," Burgess says.

"An electrohydraulic design would enable the planter to automatically increase or decrease the planting rate as the vehicle speed changes, as well as enable the operator to adjust the rate for varying conditions.

"However, because Eaton's EFX controller and accompanying software were all-new to us, we needed to sell ourselves on them first, and then sell the customer."

Meanwhile, the Vogel customer wanted the seed planter to be up and running in time to plant carrots, which gave DTS a two-month window for system design and implementation.

Solution

Burgess immediately plowed into the project with the support of Eaton's applications and marketing team. He designed an electrohydraulic



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system based on an Eaton EFX 1612 electronic controller and CONTROL F(x)™ programming software.

"Although we are very knowledgeable about Eaton hydraulic components, creating control programs and integrating Eaton electrohydraulic products required a leap of faith," Burgess says.

"However, we decided that if we didn't move one foot forward into progressive hydraulic solutions, we wouldn't be moving anywhere. So we took the plunge into electro-hydraulics and ran with it.

"The support from Eaton has been phenomenal. The Eaton F(x) team educated us and Vogel on the software, components, and electrohydraulic circuitry and worked alongside us in designing the system."

Results

Impressed with the functionality of the system and the fact that the operator interface was very straightforward, Vogel gave DTS a green light to begin system installation work on the seed planter. Final tweaking and adjustments were made on a carrot field headland, and the planter didn't stop humming throughout the entire planting season. In fact, the retrofitted seed planter has increased



Carrots are being planted at record speeds with a Vogel seed planter that has been retrofitted with EATON's EFX controller and CONTROL F(x) software.

productivity over the previous mechanical design.

As a result, Vogel is considering the use of Eaton controllers and CONTROL F(x) software on more of its ag equipment.

DTS is also aggressively seeking more applications for Eaton electrohydraulic products.

"Distributorships that are considering taking on the products should not be apprehensive," Burgess notes.

"Yes, the products are complex, but they are not overwhelming. With Eaton's support, we can now offer controllers and software packages that we previously obtained from outside sources. The potential of Eaton electrohydraulic products is very exciting and will enable us to provide complete system solutions for our customers."

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