Grain is unloaded by the combine auger into hopper on front of cart, where a bubble-up auger moves it back. Power is provided by an engine on back of cart.

"When the field cart pulls alongside, I can empty both the tow cart and the combine without stopping," says Kreikemeier.

By Lorn Manthey, Contributing Editor

Combine Tows His Modified Grain Cart

"I modified a used Orthman grain cart to pull behind my 780 Claas combine, which saves me a good chunk of money during harvest because it takes the place of a second cart, tractor and operator," says Nebraska grain and cattle farmer Greg Kreikemeier. "I can fill the cart with up to 550 bushels using the unloading auger from the combine. When the field cart pulls alongside, I can empty both the cart and the combine without stopping."

To configure the setup, Kreikemeier built a special hitch on the cart using 2 long pieces of 3 by 5-in. steel tubing and a single shorter 6 by 10-in. rectangular tube. The smaller tubing connects to the front drive axle of the combine and pulls the cart while the larger one connects to the rear axle under the straw spreader. Kreikemeier estimates this setup puts about 4,000 lbs. of tongue weight on his Claas 780 combine, which runs a 16-row corn head. The cart has its original 24.5 by 32-in. tires that follow in the same tracks as the combine.

Grain is delivered to the cart by the combine's tank unloading auger from the transport position. Kreikemeier moved the auger's potentiometer linkage to a different location so the combine's computer thinks the auger never folds in. Grain falls from the combine auger into a hopper on the front of the cart, where a 16-in. bubble-up auger moves it to the center of the cart.

The cart's power comes from a 170 hp. engine salvaged from a used IH 1460 combine. It's mounted on a box frame at the back of the cart, with a fuel tank located between the wheels. A drive line that operates whenever the engine is running powers the bubble up auger. A 4-groove belt with a hydraulic tightener on the same shaft engages the cart's side discharge auger. Kreikemeier replaced the cart's original 16-in. discharge with a 20-in. auger and a deeper sump that unloads the cart 50 percent faster. "We can unload a full cart of about 550 bushels in 80 seconds," Kreikemeier says. "I can easily watch the cart activity on a monitor in the cab connected to cameras on the back of the combine and top of the cart."

The cart controls are on an electronic circuit board mounted in the combine cab, programmable for bypassing the Murphy safety system on the engine. "I've got it programmed to run the starter on the cart motor for 8 seconds, start and stop the bubble-up and unloading augers, and turn the cart motor off if I'm not using it," Kreikemeier says.

The unload auger operation, grain gate, engine on/off and high/low throttle operate with four small wires from the cab to the cart. Hydraulic power for the cart is from the combine with 2 1/2-in. hoses.

"The pull-behind cart gives me a lot of flexibility during harvest because I can break through a half-mile long field and make it part of the way back before unloading to the cart pulled by the tractor," Kreikemeier says. "The $20,000 or so invested in the unit has certainly been worthwhile."

Go to farmshow.com to see a video of the tow-behind grain cart in action.

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Vol. 43, No. 6, 2019

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FARM SHOW (ISSN #01634518) is published 6 times per year for $25.95 per year ($29.95 in Canada) by Farm Show Publishing, Inc., P.O. Box 1029, 8500 210th St. W, Lakeville, Minn. 55044. Periodicals postage paid at Lakeville, Minn., and Madelia, Minn. POSTMASTER: Send address changes to FARM SHOW, P.O. Box 1029, Lakeville, Minn. 55044 (ph 952 469-5572; fax 952 469-5575; email: circulation@farmshow.com; website: www.farmshow.com). Single copy price is $5.95 ($7.50 in Canada). Publication No. 469490.

In Canada:
Publications Mail Agreement No. 40032660, Return Undeliverable Canadian Addresses To: Dycom Mail Svcs.,495 Berry St.,Winnipeg, MB R3J 1N6; Email: circulation@farmshow.com

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Nov.-Dec., 2019

Bayer Crop Science researchers started developing short corn in Mexico and are now testing it in new hybrids in the U.S. The corn is no taller than 7 ft.

Short Corn Might Be Coming Soon

Shorter, thicker cornstalks are less likely to blow over. It also allows application equipment into fields later in the season. Bayer Crop Science is betting growers in the U.S. and Canada will go for stalks that stop at about 7 ft. versus today's 10-ft. or taller hybrids, if they can deliver competitive yields.

"We started developing short stature corn in Mexico in areas where they often have hurricane-like winds," explains Dr. Calvin Treat, global corn and soybean technology lead, Bayer Crop Science. "We're currently testing the trait in brand new and nearly new hybrids in the U.S."

Commercial introduction in the U.S. is expected in 2022 or 2023. In the meantime, the short trait is being evaluated for yield and more.

Researchers are looking at different populations and row-width combinations. In the U.S., they are working with both biotech (insertion of a gene) and non-biotech (traditional breeding), which is required in Mexico.

"Canopy closure seems pretty similar between tall and short versions of the same hybrid at the same population and row width," suggests Treat. "However, we have seen a good response to higher populations and narrow rows compared to taller corn."

"We are still gathering data, but there may be faster root growth, which could reduce drought stress," says Treat.

He suggests short corn could also help with wet conditions like much of the Midwest experienced in 2019, conditions that can cause nitrogen deficiencies. "It gives you about a week to 10 days broader window for getting in and side dressing with nitrogen," he says. "That benefit also holds true if a field experiences a late season pest explosion. Short corn allows a different way to manage corn."

Other possible benefits include in-season cover cropping. High clearance equipment could get in later in the season to plant between rows.

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