

"WORKS AS GOOD AS A COMMERCIAL TILLER"

Roto-Tiller Built From Old Combine Cylinder

By Bill Gergen, Associate Editor

Saskatchewan farmer Mike Hango, wanted a rototiller for his garden and to work the ground up around rows of trees. He didn't want to spend the money for a commercial one so he built his own 3-pt., 6-ft. wide model using the threshing cylinder and other parts out of a junked-out Deere 65 pull-type combine.

He removed the 40-in. long threshing cylinder and stripped it down to the shaft, keeping the bearings and part of the steel frame on each end of the cylinder shaft. He cut the shaft in half and welded each end into a 3 1/2-in. dia., 5-ft. long, 1/2-in. wall steel pipe. He cut round discs out of 1/4-in. steel plate and welded pairs of them together, then had a machine shop punch holes in them. He then welded the discs onto the pipe and bolted commercial roto-tiller blades onto them.

He used 1/4-in. thick scrap sheet metal to make the hood and bolted the combine's pto-driven gearbox on top of it. The gearbox drives a shaft that double chain-drives a pair of sprockets (the sprockets and chains originally were used to drive the combine cylinder).

"It does a good job of working manure into my garden and comes in handy for digging up prairie grass where I want to plant trees. I spent only about \$500 to build it,"

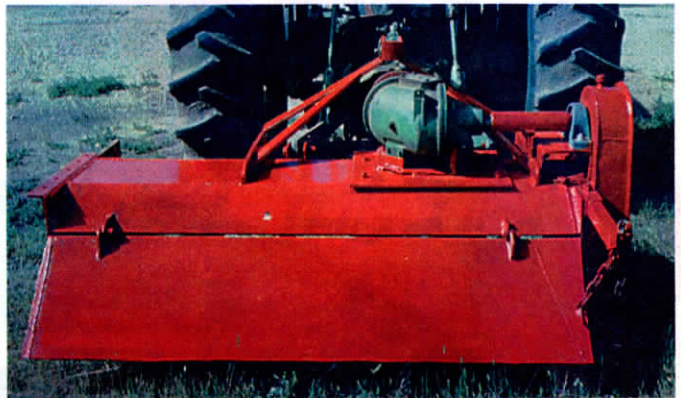
says Hango, who pulls the roto-tiller behind his 35 hp Deere 1040 tractor. "I bought all of the combine parts at a sale for \$20. The rest of the money was for new roto-tiller blades. A hinged "door" on the back side keeps dirt from flying out the back side of the machine and helps to level the ground. The rig is offset to one side so I can work the ground close to trees without having tree branches in the way. Each blade is mounted slightly ahead of the one next to it, forming a slight spiral pattern that keeps all the blades from hitting the ground at the same time so they don't bounce up and down too much.

"I had been using an old field cultivator that I cut down to a 7 ft. width. However, it didn't do as nice a job of tilling the garden and in hard ground the tines tended to come up out of the ground. Also, it didn't do a good job of breaking up grass that crept into the edges of my garden.

"The only problem is that the blades can go only about 3 in. deep. If I want to till 6 in. deep I have to make two passes. The problem is that the bottom of the chain guard drags on the ground and prevents the blades from going deeper. Next time I'd use a smaller drive sprocket at the bottom."

The cylinder shaft was smaller in diameter than the hole inside the pipe so Hango had collars machined out to fit inside the pipe before he welded the shaft in. He made the chain guard by cutting out a cardboard template and transferring it to sheet metal. He had a machine shop bend 5/8-in. thick sheet metal to make the 3-pt. hitch. A 1 1/2-in. long, 3-in. wide steel skid on one side of the rig can be adjusted up or down by repositioning bolts in the skid legs.

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Hango made a hood for the tiller out of 1/4-in. steel plate and then bolted the combine's pto-driven gearbox on top of the hood.



Steel discs were welded to combine cylinder shaft. Large sprocket at end of shaft is chain-driven off pto.



Conventional tiller blades bolt to discs on shaft. One problem with the design was that the chain guard keeps tines from working deeper than 3 in. If he did it again, Hango says he'd use a smaller drive sprocket.

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"Built From Scratch" Combine-Mounted Baler

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pickup which can leave a lot of hay in the field, especially when you turn.

"I baled about 400 bales with it last season and they turned out fine"

The project began with a hunt for a Massey 510 diesel combine. He wanted a 510 because it has just 1 ft. of ground clearance so it rides lower to the ground than almost any other combine, Laczko explains. That makes it naturally well suited to picking up hay.

He bought a mid 1970's 510 for \$3,000 and stripped it down to the frame from the cab back.

He reinforced the frame lengthwise with 2 by 6-in. steel tubing and extended the steering axle 1 ft. on each side so he could mount the 5-ft. wide, 6-ft. high baler on back without hampering steering ability.

Laczko built the bale chamber out of 3/8-in. thick steel plate and welded it to the combine frame.

"It seems like it would be complicated to build a baler, but it wasn't that hard," he says. "In part, I copied a Canadian-made

Shop Core baler that doesn't use a belt tightening system. The five belts, which I salvaged off a grain elevator, tighten as the bale chamber fills up. The back door belts have to turn to start the bale."

A series of 12 5-ft. long, 5-in. dia. rollers, fitted with 1/2-in. dia. cleaning rods for wet hay, mount on 1 1/2-in. dia. stub shaft axles mounted in bearings along the sides of the baler.

Laczko had to reduce the speed of the baler to three-quarters the rpm's of the combine engine. And he had to reverse the direction of the driveshaft off the engine.

"The baler runs the opposite way the engine runs," Laczko explains. "I drive it with a roller chain off the back of the separator clutch shaft sprocket. By driving it with the separator clutch shaft, I can stop it any time with the clutch."

Hay is fed to the baler by the combine's original feeder chains.

If the baler plugs up, an alarm goes off in the cab. Laczko used the same alarm that originally warned of problems with the

straw walkers.

"The back door of the baler is fitted with two 2 1/2-in. by 20-in. hydraulic bypass cylinders off a Vermeer baler on each side of the bale ejector door, instead of the spring-loaded catch found on many balers," says Laczko. "You set the bypass for whatever tension you want and the cylinders push the door open when the bale's done. At that point, a light goes on in the cab so the driver knows the bale's ready to dump."

A manual lever in the cab is used to control the twine wrapping arms. Twine is cut by hand. Laczko is still perfecting an automatic cutter.

"I'm also working on a new design for a pull-type baler that'll outperform any pull-type baler on the market, and will be custom-built to fit on my transport truck," says Laczko.

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