



New tillage tool follows ground contour even on terraces and hilly ground. It's built in a series of 5-ft. wide sections joined at the front by 30-in. long flexible "tie bars".

REDUCES MACHINERY COSTS BY 80 PERCENT

## One-Pass Tillage Tool "Precision-Plants" At 9 Mph

"It lets me work up the ground with precise depth control at high speeds and plant or apply anhydrous or liquid fertilizer at the same time," says Kelly McNichols, Burr Oak, Kan., about his home-built "super flex" tillage tool that's designed to always follow the ground contour, even on terraces and hilly ground.

The "Accu-Flex", as McNichols calls it, was designed by McNichols' friend Herb Jeffery. It's built in a series of 5-ft. wide sections that are joined at the front by 30-in. long flexible "tie bars". Each tie bar connects the center of one section to the end of the adjacent section and serves as a pivot point, allowing all sections to flex and twist independently. The front of each section is free to flex up or down via a series of ball joints. Each section is equipped with "shallow draft" sweeps that mount on hollow shanks set 20 in. apart. Tillage depth is controlled by a single hydraulic valve. Three sets of fertilizer tubes mount inside each shank and exit under the sweep, allowing application of anhydrous ammonia or liquid fertilizer. A seed tube mounts behind each shank.

The back of the implement is equipped with press wheels that mount on 5-ft. wide gangs.

McNichols' rig is 36 ft. 8 in. wide and consists of seven sections. Last spring he used it for the first time to plant wheat, pulling an

80-bu. Gandy Orbit Air air seeder behind the rig and planting in 10-in. rows. (The seed tubes are split at the back of each shank). The 4-wheeled air seeder was mounted on the frame of an old gravity flow grain wagon.

"I can use it alone as a primary or secondary tillage tool, or pull an air seeder or fertilizer rig behind it. It eliminates the need for a separate field cultivator, chisel plow, fertilizer applicator, planter, and drill. The only other tillage tool I still use is my disk. As a result my total investment in machinery is only about 20 percent of what it had been. I can apply anhydrous ammonia in a separate operation with the same tool. Or, I can pull a liquid fertilizer tank behind the air seeder.

"Jeffery used computer aided design to engineer the unit. We also built a unit for Jeffery, who has used it for two years to plant wheat, soybeans, and milo. He has planted at speeds as high as 7 to 9 mph with no negative affect on seed germination levels. Most farmers get nervous if they go over 5 mph with a planter, and grain drills generally are limited to about 6 mph. Faster speeds cause the openers to throw too much dirt over the seed. Some double disc drills will go faster, but they have a lot of wear points.

"There are three reasons we can plant at such high speed. One is that each section is free to pivot up or down about 6 inches, allowing the sweeps to work without gouging



Each section is fitted with "shallow draft" sweeps that mount on hollow shanks set 20 in. apart. Three sets of fertilizer tubes mount inside each shank and exit under sweep. A seed tube mounts behind each shank.



Press wheels on back mount on 5-ft. wide gangs. Wheels can be converted to either 10 or 20-in. spacing by changing the position of two bolts.

or coming out of the ground. Another is the shallow draft of the sweeps, which keeps them from throwing a lot of dirt. The third reason is the design of the seed tubes. The bottom part of each seed tube is bent back away from the direction of travel, allowing soil to fold around the tubes and cover the seed without allowing it to bounce around. The lower 6 in. of each seed tube is replaceable depending on whether we want 10 or 20 in. spacing. We set the seed tubes on 20-in. centers for milo and soybeans and 10 in. for wheat. By changing the position of two bolts we can convert the press wheels to either 10 or 20-in. spacing.

"Last year we planted 170 acres of soybeans in standing milo and it worked great. This year I may even try using the Gandy air

seeder to plant corn. The company is developing a corn metering delivery system that singulates the seed much like the old International Cyclo planters. Last year Jeffery's nephew used soybean metering wheels on the Gandy air seeder to plant corn in test plots."

Each press wheel gang can be removed by pulling two pins and sliding the gang backward. A harrow assembly can be installed in place of the press wheels.

The rig folds to a transport width of 16 ft. 3 in. (There's one extra shank on the center section so the total width is not a 5-ft. multiple).

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## Rock Picker Built From Old Potato Harvester

"I'm always looking for ways to do things as cost effectively as possible and that's how I got the idea of converting an old potato harvester to rock picking," says William Holcombe, who bought a harvester at an auction for \$1,000.

The first step was to remove all parts from the harvester that were not needed to pick rocks, a job that took only about 2 hours.

Next, Holcombe made a box for the back of the machine to catch rocks. It's made of plate steel and is welded together. The back has a tailgate that opens up to dump. Two hydraulic cylinders open and close the tailgate. The cost of the box and two cylinders was \$375.

After a total of about 40 hours of work, Holcombe took the machine to a field that he had already prepared for planting. He

first raked rocks into windrows with a stone rake.

"It worked well, picking up rocks from fist-size and on up. Best of all it only takes one person to operate, with no strain on anyone's back. Previously, I hired a crew of workers to pick rocks. Now I can clear 10 acres of land in 5 hours. Before it took 5 men two days to do the same work.

"There's little on-going maintenance required, other than regular greasing. I bought some additional chain at an auction for a reasonable price so I should be able to operate for years at little or no cost. It works so well I started doing custom work. Other farmers are amazed by how well it works."

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