



Miller modified his Deere 8200 drill by mounting a fertilizer box on front and adding knives that band liquid urea 3 in. to the side of the furrow and 2 in. below the seed.

One-Pass Drill Applies Liquid And Dry Fertilizer

"I farm land in a high rainfall area of north-eastern Oregon using a wheat-alfalfa rotation with conventional tillage and limited irrigation. The rotation consists of up to 4 years of continuous wheat, so with the narrow profit margins in grain crops, I need to get the most out of those crops," says David Miller, Milton-Freewater, Oregon.

"In the past I would make two trips across fields to fertilize and finish the seedbed, which would result in a loss of moisture. I took a look at no-till drills that do multiple operations in one pass but decided I wanted a one-pass drill for conventional tillage. I wanted to be able to put down dry starter fertilizer for the emerging plants and also put down primary nitrogen and sulfur for later growth.

"I already owned a Deere 8200 12-ft. drill with disc openers on 6-in. spacing. The 8200 has capacity for about 1,400 lbs. of wheat seed but no fertilizer. I decided to modify it.

"The first thing I did was to modify a dry fertilizer box I bought from Barber Engineering. I reduced its capacity to 1,000 lbs. of dry fertilizer and mounted it in front of the grain box on the drill. There are other models of fertilizer boxes available that'll fit Deere drills but they're limited both in fertilizer and seed capacity so you have to stop too often.

"The Barber fertilizer box uses a metered feed screw with individual openings along the bottom that feed fertilizer into plastic 1 1/4-in. drop tubes running to the disc openers.

"Instead of using the rear opening built into the disc opener casting, I found a plastic 'Y' fitting from Deere that's used on some corn planters to channel the fertilizer and seed through the front opening in the disc opener.

This allows a more direct line for the fertilizer tube to follow which prevents any bridging of fertilizer inside the tubes.

"All parts of the delivery system are either pvc plastic or stainless steel to prevent corrosion. The fertilizer feed screw is driven off the main drive on the drill for the seed metering drive. That way, when the openers are lifted, both seed and fertilizer drops are disengaged.

"The second addition I made to the drill was mounting a 2-in. square toolbar just ahead of the openers. It's supported by the main frame of the drill. The toolbar is equipped with 12 fertilizer knives, centered between every other opener on the drill. The knives band liquid urea solution 3 in. to the side of the furrow and 2 in. below the seed.

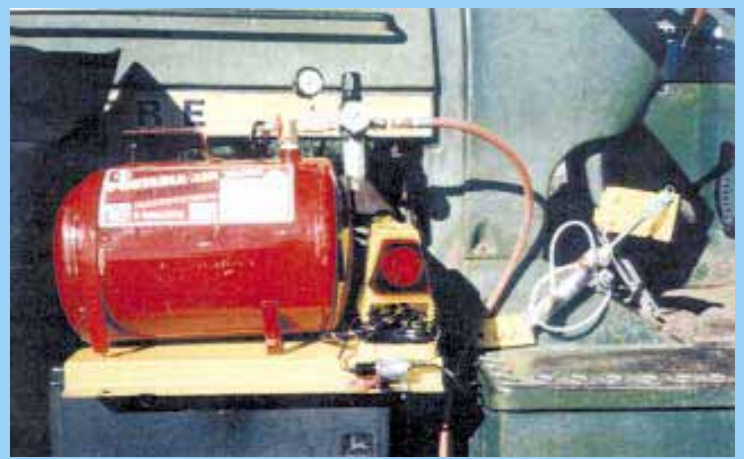
The knives are rolled up out of the ground with a hydraulic cylinder. A hydraulic-controlled ball valve is plumbed into the cylinder circuit to stop fertilizer flow when the knives are raised out of the ground. Deere cultivator tool clamps provide depth and spacing adjustment for knives on the toolbar. The liquid fertilizer is carried in saddle tanks on the tractor and delivered by a pto roller pump to manifolds on the drill which are equipped with metering orifices.

"By making the placement of starter and liquid fertilizer more precise, lower application rates are possible, less residue is turned up from tillage, and we eliminated the expense and moisture loss that we had before from making two extra passes across fields. The knives disturb little ground and have the added advantage of removing tractor tire tracks ahead of the drill."

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Knives clamp onto a 2-in. sq. toolbar mounted ahead of drill's openers.



A 5-gal. air tank, 12-volt compressor, 8-in. cylinder, and valve allow Roberts to activate the clutch on his Deere 4430 tractor by either hand or foot with very little effort.

Add-On Air Clutch Is Easy On the Back

"I first came up with the idea of an air-operated clutch two months after I had back surgery for a herniated disc," says W. Harvey Roberts, who designed an air clutch for his Deere 4430 tractor.

"We grow 35 acres of sweet corn, which we pick by hand. The 4430 has a quad-range transmission. We're continually starting and stopping the tractor while the boys place corn in our over-sized front-end loader bucket. This continuous depressing of the clutch was difficult for me. Even using both feet, it caused me a considerable amount of pain.

"At first I had the idea of using a hydraulic cylinder to activate the clutch but I couldn't find one short enough. The next idea was to use air pressure.

"I bought an 8-in. long cylinder with a 3-in. stroke, a 3-way foot and/or hand valve, a 5 gal. air tank, a 12-volt air compressor, regulator, and water and air filters.

"I fabricated a bracket that attaches to the clutch pedal and a second bracket that mounts

on the floor of the tractor to anchor the air cylinder. I then connected all the components together and hooked up 12 ft. of air hose to form a closed-loop system.

"To activate the clutch, all you have to do is depress the foot or hand valve about 1/2 in. Takes very little effort. The air cylinder requires a constant 40 psi to operate. The small 12-volt compressor I bought provides enough pressure to keep the 5-gal. tank pressurized. Total cost of components was about \$350.

"The great thing about it is that the air cylinder doesn't interfere with regular manual operation of the clutch. You just have to disconnect the roll pin that holds the air cylinder to the clutch pedal.

"Maintenance on the system is minimal. Because it's a closed loop air system, moisture and dirt don't get into the system."

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To make chick shelters, Haswell simply places satellite dishes upside down and mounts them on posts.

Satellite Dishes Make Great Chick Shelters

Upside down satellite dishes make instant shelters for poultry, says Rick Haswell or Carnduff, Sask.

Haswell was looking for a way to protect 6-week-old pheasant chicks from the rain. Haswell, along with his wife Virginia and brother-in-law Allistar Hogg, run a pheasant

hatchery on their farm. They supply about 3,000 pheasants for wildlife conservation groups who sponsor raise and release programs.

Haswell simply mounts the dishes upside down on a wood posts.

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