



Ryden combined two 12-ft., 7-in.-spaced Deere drills into a single 3 1/2-in.-spaced drill.

ELIMINATES NEED FOR HERBICIDES

Double-Seeding Stops Weeds, Boosts Yields

"You almost can't believe it if you don't see it with your own eyes," says Dave Ryden, a Hallock, Minn., farmer and manufacturer who's boosted yields more than 50% and totally eliminated the need for herbicides by "double seeding" wheat with a home-built, 2-in-1, narrow-row grain drill he built from two Deere drills.

Ryden has been experimenting with double seeding for the past 4 years. He seeds side-by-side comparison fields of wheat and barley, comparing crops sown at a normal 1 1/2 bu. per acre rate with crops sown at 3 bu. per acre.

"We picked the weediest field on our farm to test the ability of heavy-seeded grain to compete with weeds without chemicals. In the 64 acre field we double seeded 20 acres of barley and seeded the rest of the field with wheat at 1 1/2 bu. per acre rate. We had to spray the wheat three times for wild oats, buckwheat, smart weed and later for broadleaf weeds. We didn't do any spraying in the heavily seeded barley crop and you couldn't see any weeds in it. At harvest there was no lodging and, even though it was a poor year for barley in our area with yields at 40 to 45 bu. acre, we averaged 62 bu. per acre in our double seeded crop with no dockage. Test weight and protein content were surprisingly high," says Dave Ryden.

In 1987, Ryden compared single-seeded wheat with double-seeded wheat. "This time we used the best ground on our farm and put on double fertilizer to see what would happen. We couldn't believe our eyes. You could stand in the 1 1/2 bu. per acre field and see right to the ground. But, when you stepped over into the double-seeded crop, you couldn't see anything but heads. We had 200 acres of double-seeded wheat and used no chemicals. Yields averaged nearly 70 bu. per acre versus less than 50 bu. per acre on the single-seeded acres. One surprise was that the heads in the double-seeded grain were longer than the heads in the single-seeded grain. You would expect the opposite. An agronomy professor who's been following our experiments told us he thinks the heads were longer because the dense canopy keeps the soil from crusting and drying out. The soil in the single-seeded fields was badly crusted. He also said that we could have a fungus problem in wet years due to higher population seeding. We haven't had the problem yet, though, in 4 years of double-seeding," says Ryden.

He and his son, Dave Ryden, Jr., built the



Dave Ryden, Jr., opens the canopy of a double-seeded crop to show that there are no weeds growing under its thick cover.

double drill by combining two 12-ft., 7-in.-spaced LL Deere drills to make a 3 1/2-in.-spaced drill. The press wheels from the front drill are all mounted on the back drill so each disc opener is followed by a press wheel. Specially built harrow teeth behind each disc opener throws moist soil back over the seed, mixing enough dry soil with the moist so the press wheels will not build up with mud. (These harrow teeth work so well Ryden now manufactures them to fit other drills.) He says that by harrowing as he seeds he can eliminate another trip over the field and get more moisture to the seed for faster germination. "We have not converted any other drills to double-seeding so we don't know how difficult it would be with other models. However, if there is enough interest, we hope to begin manufacturing double drills using existing, used equipment," says Ryden.

Some farmers and researchers who've taken a look at Ryden's experiments say double-seeding could be a problem in a dry year. "I don't agree with that. My theory is that if weeds can grow in between the rows, which they still will do even in a dry year, you'd be better off to grow wheat there. Weeds use more moisture than grain," he says.

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The giant drum roller stands 7 ft. high, 12-ft. wide and weighs 30,000 lbs. when filled two-thirds full with water.

"DISAPPEARS" ROCKS AS BIG AS A BASKETBALL

Giant Roller Presses Rocks Underground

Twenty farmers near Ste. Rose, Man., Canada are using a giant "drum roller," partially filled with water, to push rocks beneath the soil surface and to seed grasses and forages into land recently cleared of brush.

The neighboring farmers, who had previously formed a buying co-op, paid \$18,000 for the drum roller, which was made by Ralph Dodge, a Lundar, Man., farmer. Made of 3/4 in. high grade steel, the roller stands 7 ft. high and 12 ft. wide. It weighs 15,000 lbs. without water; 30,000 lbs. when filled 2/3 full of water.

The unit is surrounded by a rectangular frame made of 4 x 8 in. plated steel tubing. In field position, the tractor drawbar is connected directly to this frame.

Mounted on the frame, in front of the drum, are boxes for grain seed, forage seed, and fertilizer. Behind the boxes is a tine harrow for mixing seed into the soil.

The farmers pull the drum roller with a 80 - 120 hp tractor at 4 to 5 mph. The rig pushes rocks into the soil, out of sight, and covers them with a little soil at the same time.

The drum roller works great for establishing pasture and forage crops, says one of the co-op members, Alfred Bretecher, Toutes-Aides, Man. "This is cow country, with stony land recently cleared of trees and brush. With all the rocks, a rock picker is too slow. The drum roller lets us 'clear' rocks fast, and seed crops at the same time."

According to Bretecher, farmers are using the roller to seed crops such as alfalfa, pasture grasses, and coarse grains such as rape seed and flax which are used as cattle feed. Seed and fertilizer rates are controlled by a drive wheel running off the roller.

To effectively press rocks into the soil, we must use the roller on fields that are well tilled and a little moist, says Bretecher. "If the ground is too wet, we can't use the roller because mud builds up on the drum. If the soil is too dry and hard, we'll have trouble

pressing the rocks in.

"When soil conditions are right, however, the drum roller can push down rocks the size of a basketball," says Bretecher. "When stones are out of sight and a little dirt covers the top of them, it's doing a good job. The difference before and after is amazing. After you've finished, you can't believe it's the same field."

Once an alfalfa crop is established, the pressed-down land is workable for quite a few years before it needs to be packed again, says Bretecher.

Dodge has made several similar rollers, in sizes ranging from 4 to 7 ft. in dia. and 8 to 15 ft. in length. He hires a Winnipeg manufacturer to roll the drums. For reinforcement inside the drums, he welds in several sets of 8 x 3/8 in. steel spokes, criss crossing them vertically and horizontally. "The reinforcing rods ensure that the roller won't cave in when it hits large rocks," Dodge points out.

A 4 in. shaft runs lengthwise through the roller to prevent it from "wobbling" while rolling. Inside both ends of this shaft is a 2 ft. long, 3 in. dia. stub axle, equipped with large bearings which allow the roller to turn.

A 1 1/2 hp pump is used to fill the roller through a 2 in. plug. There's one plug on each end of the roller. "One plug is up, the other down so, if you ever get stuck, you can let the water out no matter what position the roller is in," notes Dodge.

For transport, the unit is supported by 2 single tires in front and by 2 sets of dual tires in back, all of them 20 x 8 in. truck tires. A 10 ft. hitch connects the roller frame to the tractor drawbar. "By driving the roller over a log, you can raise the drum high enough to drop the wheels, and then lock the tires in place by inserting a 1 1/2 in. pin into the main frame," explains Dodge.

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