

Don Moe, Delia

Modifying Equipment: A Low-Cost Way to Begin Direct Seeding

-by Sandra Taillieu (August, 2003)

Don Moe and his wife Angie farm 1100 acres west of Delia, Alberta. The land consists of dark brown loam soils. Like many farmers, Don's success in farming is often a result of creative engineering.

"I wanted to try direct seeding and I couldn't afford an air drill, so I figured I'd modify some old equipment," says Don. He converted his 31-foot Wil-rich cultivator into a seeding unit with Atom Jet knife openers, Techno-Till precision packers, and a Concord air cart. This low-cost conversion has enabled the Moes to adopt direct seeding on their farm.



Don Moe

Don started farming in 1992 with a 50-50 wheat-fallow system. "I used to work ahead with a field cultivator in the spring," says Don. "We needed to do so much cultivating to prepare the seed bed for the hoe drills." Strong winds would blow precious topsoil off the land and dry out the seedbed.

"That first year we had a 3 inch rain that ripped the soil loose and deposited it down in the creek, leaving a big gully," Don remembers. "It was pretty depressing to see topsoil lost like that."

Don & Angie decided it was time for a change.

"I wanted to conserve the soil," says Don. "I could see the neighbours benefit from direct seeding, especially the moisture conservation."

The Delia Conservation Club

Don became a member of the Delia Conservation Club and got together with his neighbours to learn from their experiences.

"We had guest speakers come in and talk to us," says Don. "And we learned a lot from talking to each other about what worked and what didn't."

"Talking to farmers who have been direct seeding for a while helped to give me a short-cut," says Don. "I didn't have to learn everything on my own."

Don put together the experiences of other farmers with his own ideas to make his system work. He found a way to direct seed with the investment he could afford.

Creative Engineering

Don converted their farm from a conventional tillage system to a one-pass direct-seeded system. Don had a chisel plow cultivator he bought from a neighbour. It was actually a Wil-rich cultivator that was one of the early air-seeders consisting of a cultivator and an air delivery system.

"It had air tanks similar to a Valmar mounted on the hitch when I bought it, but the tanks weren't operational" explains Don. "There was a 50bu-30bu split on two tanks for seeding with 16 inch shovels and farmers would harrow pack behind it. At first it just sat in the weeds but I wanted to try direct seeding so I put the tanks back on and got an opener-packer system from Techno-till."



Don's modified seeder

"I had seen the ad and I knew I could mount an opener and packer on the cultivator and make a seeder," says Don. "I checked out a lot of different openers and packers and talked to farmers in the club. I was impressed with the Techno-till system because of how simple it was with few moving parts or bearings."

"With some of the wheel mounts, if your shank trips back, the wheel can hit the frame of the cultivator," explains Don. "My concern was to make sure I had the clearance."

"I talked to Walter Schoenhofer from Techno-till at Farm Tech and got a list of different farmers who had tried it. I drove up to Veteran to look at how one guy's machine worked. This farmer had similar land and conditions," says Don. "His fields looked good so I thought I'd give it a whirl!"

"The first year I tried it out, I had a local company float some fertilizer," says Don. "I used the tank on the hitch and did a couple hundred acres as a trial. That year, we had really dry conditions with hard ground so that tested the penetration. The straw clearance was good even though I hadn't done a great job of managing residue the year before."

Don has been really happy with the Techno-till packing system. "It's pretty forgiving," he says. "If you go a little deeper than you want to, the packers follow the openers. I aim at 3/8 inch packed soil over the seed. If you have a dry spring and you want to go a bit deeper for moisture, you don't end up packing too much soil over the seed."

"It takes a bit of checking to make sure each packer is mounted the same on every shank," explains Don. "If you need to adjust for wheel tracks you can but it wasn't a problem for me."

Don was really happy with the germination the first year so he decided to finish building the seeder. "I still needed a way to place fertilizer," says Don. "I bought a Concord fertilizer tank and manifold which holds 150 bushels that I double shoot," he explains. "I had to make a hitch from an old cultivator to pull this thing which took a bit of time but it didn't cost too much."



Don's Concord fertilizer tank

Don's Farm-Built Seeder

Don explains how his seeder works: "The seed goes down through the atom jet opener, the packer comes out behind, the fertilizer comes into the packer and is placed to the side and slightly above the seed."



Don's opener-packer system

"I was a bit worried about that because everyone at the time had to be placing fertilizer deeper and below the seed," says Don. "But, I didn't think deep placement was good for moisture loss either. With this seeder, the fertilizer is placed off to the side and there are no problems with separation."



Rear view of the packer

"There is a spring at the back of the packer which can be adjusted but I don't because I find that it already packs pretty well," says Don. "The opener cuts a trench. Two burrs underneath the packer pull moist soil in from the sides of the trench. The bottom part of the packer packs and a chain follows to clear the trench. This little black strip is open to the sun and warms up more quickly, while standing stubble is a barrier to the wind."

"The atom jets have a carbide tip and also carbide burrs," explains Don. "I was worried

that the burrs might break off but I haven't lost one yet."



Front view of the Atom Jet opener

Don has had good residue clearance with 12 inch shank spacing on his seeder. "I try to leave up to 12 inches of stubble," he says, "And I've never had any problems with clearance, even at the wheels."

"I have a 60 foot sprayer so with a little overlap on my 31 foot seeder, it works out well for spraying," says Don. "I have a marker but I overlap enough that I can see it in the crops."

Don has had success in direct seeding canola, barley, winter wheat, spring wheat, and CPS wheat with his farm-built seeder. It has worked well in wet and dry conditions and saved him the considerable cost of investing in a new air drill.

"In 1999 I spent \$200/shank for the opener/packer unit," says Don. "The Concord cost me \$4500."

Don admits his seeder was built a little more complicated than it needed to be simply because of how it evolved. "I have two independent air delivery systems: one for the seed and one for fertilizer," explains Don. The orbit motor on Don's tractor runs the seed delivery system and a separate motor on the Concord runs the fertilizer delivery system.

"If I were to do it again, I would keep the openers and packers, go with a floating hitch cultivator and a single tank behind," says Don.

Overall, Don is happy to direct seed with his farm-built seeder. "It does everything I want it to do," he says.



Don & his 31 foot farm-built seeder

A New System

Don has seen improvements on his farm with his new seeding system.

"Since we started direct seeding, we have much less wind and water erosion," says Don. "We save moisture in the spring and the emerging crop is sheltered from the elements by standing stubble."

"I also put a lot less hours on my main tractor," says Don. "I use my spray tractor a lot more with pre-seed burn-off, in-crop and sometimes a post-harvest pass. I may get some pre-harvest done depending on the situation."

"My chemical bills are higher now that I am direct seeding," admits Don, "but my maintenance bill is lower. I get more life out of my main tractor and I spend less money on fuel."

"I get better germination on my solonchic soils than when I used to cultivated ahead," says Don. "I used to dry the seed-bed out and nothing would come up in those spots."

Now, if I can get through it with the seeder, the crop will germinate."

"I would say my direct seeding system works better than conventional systems," says Don, "although we haven't had enough years with average moisture to compare."

Don's advice to anyone wanting to try to build a low-disturbance direct-seeding unit is this: "There are lots of farmers with a good air seeder who are using sweeps. All they have to do is buy the opener/packer unit and they are set."



Don's CPS Wheat Crop: August, 2003

Websites

Check out Don's packers-
<http://www.technotill.com/>
and atom jet openers-
<http://www.harvesttechnologies.com/>

Retrofitting Equipment for Direct Seeding:
<http://ssca.usask.ca/2001proceedings/linnel.htm> - Bob Linnell, Soil Conservation Agriologist, Saskatchewan Soil Conservation Association, Weyburn, SK

Farmer-to-Farmer Network-
<http://www.reducedtillage.ca>