Direct Seeding: A Look That Has to Grow on You.

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I started direct seeding in 1996; by 1999, 100% of my personal farm was being seeded with no tillage involved. It hasn’t always worked the way I wanted it to, either. 1997 was one of the best years I think anyone can remember for moisture. That was seen in yields everywhere. I worked very hard trying to incorporate alternative crops in the beginning. There were Canola, Safflower, Mustard, and Flax, just to mention a few. The Canola was a money maker for me under the conventional summer fallow system but has proven very difficult in the continuous spring system. Cold dry springs and frosts have made stand establishment very difficult, if not impossible. It has been the same for the mustards. I have worked with the University of Idaho, trying their most frost-tolerant varieties with little success.

Safflower is one that was profitable as a spring crop, but because of the amount of moisture it uses as a full season crop, following it with any crop became an obvious problem. Flax as well as many of the other crops I played with did not want to produce without more generous moisture and temperatures than I receive in the spring. One of the reasons I was interested in the alternative crops was Rhizoctonia root rot. We soon found that every crop we had tried was susceptible and that some, like safflower, were even better carriers than barley. At this point I decided to stay with spring cereals.

The first spring wheats I concentrated on were Dark Northern Spring. The difference in price between it and soft white was the main reason. It was working reasonably well, but at a yield disadvantage. I learned that for me, as the years got dryer, I would rather have a low protein than a low test weight and good protein. The price reduction for test weight is just too much. The last 3 years I’ve concentrated on continuous soft white spring wheat and spring Triticale.

I have always had good success with Roundup® in the spring. For years I was at 7 ½ gallons of water per acre but was frustrated with wheel tracks at times and some occasional escapes. This year I moved up to 15 gallons of water and 5 to 10 pounds more pressure to keep droplet size down for more surface coverage. It appeared to do a very good job this year. I have always included ammonium sulfate in the solution. All but one year I was able to have 2 weeks between spraying and seeding for green bridge management.

I have played around with seeding rates and actually had some plots one year looking at seeding rates of 60, 75, 90, and 105 pounds per acre trying to maximize plant stands as they are doing in the Midwest. What I found was once I got over 75 pounds I was just putting money in someone else’s pocket. Given the varieties that are bred to tiller and with moisture as a limiting resource, I am money ahead to stay around 70 pounds at seeding. I have for years fertilized to what soil test indicated were possible yields based on moisture. One thing demonstrated years ago was that starter fertilizer made a big difference with spring crops planted into cold soils. I have been using 16-20-0-14 dry with the seed and deep banding the majority of nitrogen in the form of Aqua Ammonia.

Drills are always a hot topic of discussion. I chose to go with a single disc opener for less soil disturbance and seed placement. It is my opinion that the best drill to use is the one you can make work for you. I could probably make any of the drills work with a little time and experience. If money were no object and I were starting all over I would probably start with a cultivator type drill opener. I think it would work best for the first 3 to 4 years to level and smooth out all the ditches and rough conditions in the field caused by different tillage operations like subsoiling and undercutting. It’s amazing how long some of those conditions remain in the field. Even something thought to be not severe, like the rotary subsoiler, can last up to 5 years. Once fields were smoothed and some of the effects of tillage were gone, then a disc opener would work much better.

Has there been any improvement in soil quality? The wind can blow, and the snow flow and I have no soil movement at all. There are three considerable size sediment dams in my fields in different areas, thanks to our conservation district, NRCS, and the old ACP program. In the last 5 years the only water behind them has come off of
the county roads. There are also some draws of considerable length and depth that have not had a ditch of any kind in them since I stopped the tillage. Here again moisture is the limiting factor. More moisture means more crop and crop residue and more residue means more organic matter. Soil tests in undisturbed native soils have shown an organic level of about 1.6% to 1.7% maximum for my moisture (11.5 inches) and soil type. My annual soil tests show no distinct pattern of increased organic matter.

I have only one weed I consider a problem, Russian thistle. Patches of perennial weeds have appeared, but I find a four wheeler and some glysophate and picloram (Tordon®) take care of them. Grassy weeds, cheatgrass and goatgrass are controlled with the spring application of Roundup®. I have not found any combination of herbicides to do the job I would like and still be cost effective in crop, so I make sure to spray postharvest with Surefire (Paraquat and Diuron) and 20 gallons of water with a penetrant additive. The other trick I have done with postharvest spraying, is once the temperature gets to 80°F, I stop until the following morning. It takes more time but I have found I get a much better job when there is some humidity.

For people who are interested in the yields, I think we can say we have made good use of the moisture we have received. We started out with some very exciting yields and then reality struck. When adding up the soil moisture, what was found was that I was getting a very predictable yield, in fact the only yield the plant could produce. WSU has an average of 33 bushels on the research plots. Mine is 27 bushels, which I attribute to the first years being DNS, and to larger areas have greater variability.

This year I planted 15 acres of 3 different varieties of alfalfa to see if I can make a perennial crop work in my rotation. It is not the cheapest thing to establish but looks very promising this first year. One variety outperformed the other two quite impressively. Weed control was three mowings. I also had some dormant seeding plots this year. I am interested in seeing if some of the spring workload can be moved to the fall, and whether there is a yield advantage from either late seeded winter wheat or spring wheat facultative or otherwise. Also included was winter and spring Triticale. Since this is the first year and we are having a very mild winter, I’m not going to make any snap judgments. The winter Triticale, winter wheat, and spring wheat Alpowa all did very well as compared with the spring seedings but were all within the yield range for the moisture given.

There are savings to this system that deserve some conversation. Time is probably the biggest. I have gone from putting more than 300 hours a year on my 8650 JD (300 HP) tractor to just over 80 hours on 1100 acres. I pay special attention to my sprayer now that I didn’t in the past with conventional tillage but only another 25 hours on my 4630 JD (150 HP) tractor. Other savings are fuel, oil, tires, and parts. Then there is the CO₂ that has yet to be quantified.

In conclusion, I want to say that in the dryer areas direct seeding may not be for the faint of heart. You have to be committed to the long term. You don’t have to do the whole farm at once, but it will work better if you are committed to the system. We have had more than 100 years of experience with conventional tillage and an uncountable amount of money spent on research and equipment development. Give Direct Seeding the same amount of time and commitment and think of the possibilities.