

Pillars of Direct Seeding

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It's been said that the greatest change to agriculture since the introduction of the tractor is direct seeding. As with any innovation, direct seeding certainly had its growing pains. In the early days when Jim McCutcheon in Manitoba and Jim Halford at Indian Head were trying to convince us that there was a better way to put the seed in the ground, there were some wrecks. Seeding into standing stubble with the equipment that had always been used at the depth we always seeded created some real disasters. But prairie farmers are a persistent lot and lessons were learned from those mistakes. New equipment technology was developed and agronomic practices changed. Moving into a direct seeding system today is not the venture into the unknown that it was 15 to 20 years ago. That is not to say that a change in a management system will be smooth sailing. There are bound to be moments of unease and second guessing. But the lessons learned by the early adopters will benefit those moving to direct seeding today.

Time and experience has shown that there are 5 areas that require attention if direct seeding is to be successful. All areas interact with one another so failure to perfect one area will most likely lead to difficulties in the future. These areas are often referred to as the Pillars of Direct Seeding.

#1 Residue Management

The first bit of advice for anyone contemplating a move into direct seeding is to keep in mind that Direct Seeding begins in the fall prior to seeding a crop in the spring.

Straw and chaff must be evenly spread across the field. Research conducted by PAMI shows that the chaff should be spread over at least 80% the width of the cut and straw should be spread out over at least 50% of the cut width. The work of spreading the chaff must be done by the combine as heavy harrowing post-harvest will move only the straw. If the straw and/or chaff isn't adequately managed, the seeding operation could encounter several difficulties.

#2 Equipment Selection

Equipment selection involves the selection of the seeding implement, the openers and the packers. There is much to consider when choosing either of these items: \

a) Air Seeder or Air Drill?

Can the existing air seeder be retrofitted or is the purchase of an air drill required?

b) Row spacing

What row spacing for the seed rows? Will the seeding implement be able to clear the stubble? Does the implement have double shoot or triple shoot capabilities?

c) Openers

What is the dominant type of soil in which the openers will be working? Clay, loamy or sandy? What are the normal soil moisture conditions at seeding? Dry or wet? How will the seed and fertilizer be applied at seeding? Single shoot; single side band; paired row;

or mid row band? A hoe opener or a disc opener? Will the opener be able to place the seed at a consistent depth, regardless of the topography?

d) Packers

On-row packing is essential. There are a variety of packer styles available. Which style is most suited to the opener and the soil type?

#3 Soil Fertility

Meeting the crop's nutrient requirements is as critical in a direct seeding system as in any other. Nitrogen fertilizer is the nutrient that often creates the greatest challenge when applied at seeding. What form of N fertilizer will be used? If applied at seeding, will the opener be able to maintain a safe distance between the seed row and the fertilizer? How will the P, K & S fertilizers be applied?

#4 Crop Rotation

A mix of crop types is essential in a successful direct seeding system. The classic rotation is cereal-oilseed-cereal-pulse. Such a rotation has many benefits. High residue crops are alternated with low residue ones allowing for better trash management. Seeding dates, herbicide type and timing of herbicide application on a particular are all varied from year-to-year. Such inconsistency "confuses the pests". This in turn, avoids a build-up of organisms that can cause damage to any one crop. Adding winter wheat and a forage into the rotation will further serve to keep fields clean and relatively pest-free.

#5 Weed Control

Know your weeds!!! Pre-seed applications of glyphosate will figure prominently in a direct seeding system to eliminate early competition. Be vigilant about the encroachment of perennial weeds such as dandelion and Canada thistle. Post-harvest applications of glyphosate will hit these weeds hard. And as with all management systems, in-crop control chemistries must be alternated.

Direct seeding is a system of management. Constructing and maintaining its 5 Pillars will serve to ensure that the system is successful.