

April Agronomy Report

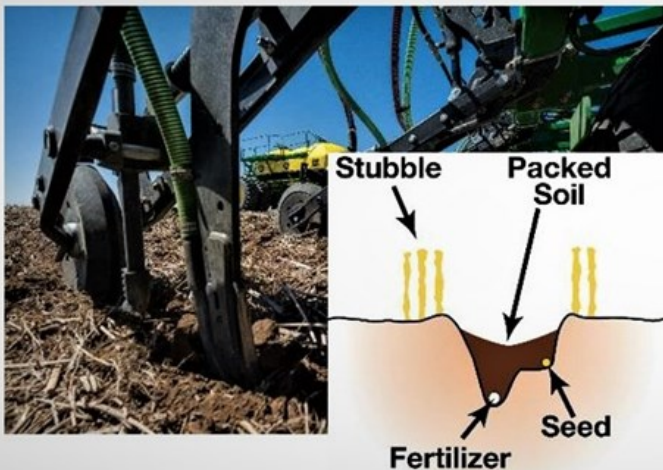


HOE DRILL VS. DISC DRILL...

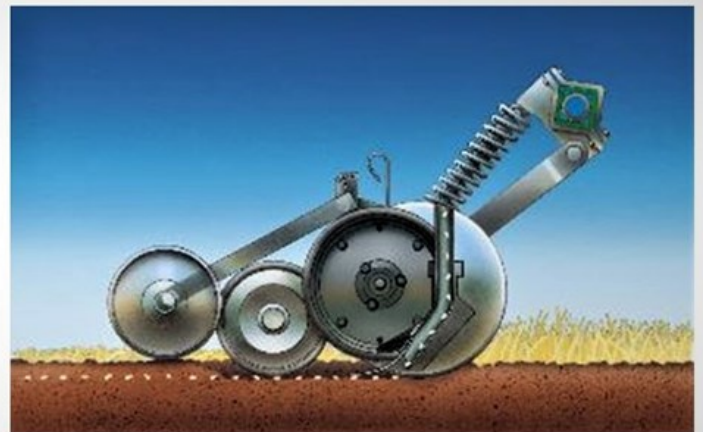
Have you ever noticed that as you travel across Western Canada, you see distinct differences in the types of seeding tools farmers use? In some areas disc drills dominate, but in other places they are a rarity and hoe drills are commonplace. I have worked in agriculture in all the Prairie Provinces dating back to the 1980s, and while I noticed these trends, I never gave them much thought, as equipment was not my focus in those days. But now as a member of Battle River Implements, it has become something I have wondered about more. And apparently, I am not the only one who found this curious, as there have been several studies done on the subject.

Why these very different openers are popular in different geographies seems to come down to two overriding factors – soil type and climate.

Hydraulic Shank – John Deere 1870

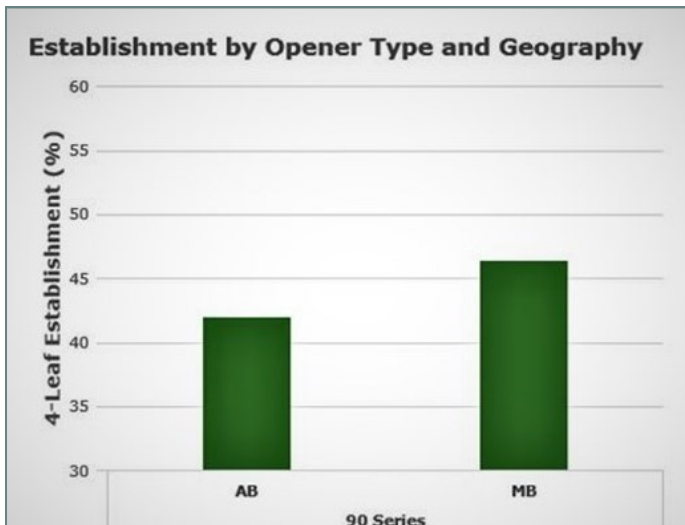


Single Disk – John Deere 1890/95

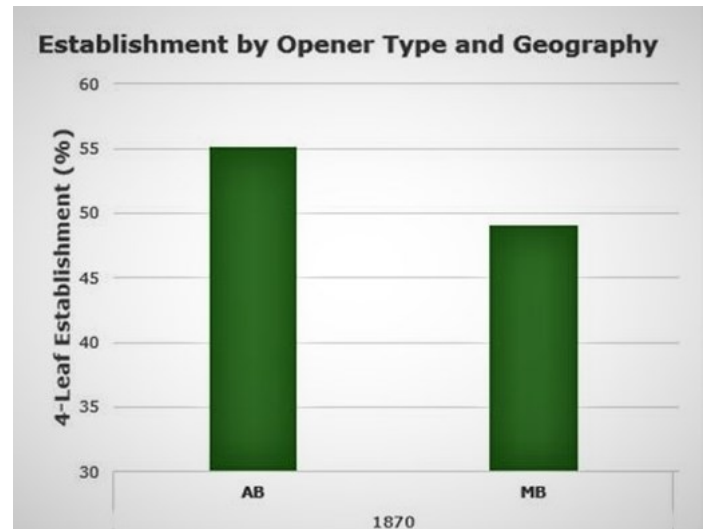


Internal studies conducted by the John Deere agronomy team on canola emergence done on Manitoba Clay Loam soils vs. Alberta Loam soils, showed there were distinct differences in how the openers performed. The first thing that becomes apparent when you look at the graphs below, is that it seems easier to establish a good canola stand on the lighter loam soils of Alberta than on the heavy clays of Manitoba, regardless of which tool you are seeding with.

The second thing that leaps out at me is how much better the 1870* performs in lighter soils than in clay. The level of emergence improves by about 12%. The 90 series disc drill only shows a 3% swing in plant counts between the two soil types and geographies.



John Deere 90 Series Disc Drill



John Deere 1870 Hoe Drill

A single disk in heavier soils may result in better seed to soil contact and perform better.

Hydraulic shank openers like our 1870 perform well in certain soil types, pressing the seed into the seed shelf with light soil cover on top. As you get into heavier soils, which can bring up larger soil aggregates in the seeding zone and is prone to soil “falling” over the top of the seed to be pressed, performance can be degraded. A single disk in heavier soils may result in better seed to soil contact and perform better. In all soils, the single disk press wheel presses the seed firmly into surrounding soil at the bottom of the furrow.

*recently renamed as P540, P556 and P576, the last 2 numbers referring to the width of the unit

Why does the 1870 outperform the disc openers in our area?

So, if disc drill configurations give you more consistent seed to soil contact under a wide variety of soil textures; which is essential for consistent emergence in canola, why does the 1870 outperform the disc openers in our area? This seems to be where climate comes into the equation. Under reduced tillage conditions, soils remain colder longer into the spring. This is not a critical issue in more southern parts of the Prairies, where conditions are often conducive for seeding by mid to late April. In east central Alberta, these cold soil conditions often persist well into May, giving us a very small window between the last killing frost and end of our optimum seeding window (canola yield potential drops about 1.7% per day after May 20th). The 1870 clears a 3 inch wide residue free band as it plants the canola, creating a microclimate of black soil that warms more quickly than the surrounding field, allowing fast germination and emergence of the canola.

Studies show that creating a small residue free zone consistently gives canola an advantage in establishment in all soil types and climates. In our part of the country, that advantage can be significant, with some studies suggesting as much as a 12% improvement. While this feature is a built in benefit with hoe openers, it should also be applied to disc drills with the addition of row cleaners. John Deere is currently doing trials with various row cleaners to see how they compare to the 1870 in creating a small residue free zone. One of the initial challenges we have run into is the tendency for the row cleaners in the rear ranks to throw residue far enough to cover up the front rows. So it appears some modifications still need to be done to our current row cleaners so we can use them effectively without sacrificing one of the main benefits of a disc drill – the seeding speed advantage it hold over a hoe drill.





So the bottom line on which is better; disc drill or hoe drill comes down to the soil on your farm. If you farm on some of the heavier soils in the area that are plagued with hardpan, it can be very hard to consistently have good seed to soil contact with a hoe opener, while a disc opener such as the John Deere 1895 may allow you to seed without tearing up the seedbed. In lighter soils, it seems the advantage goes to John Deere 1870. Remember, no matter what seeding tool you use, the key to success is seeding at the appropriate speed. Reducing speed and improving seedbed quality pays no matter what system you operate.

When you want to cut corners remember this



Improving
survivability from

50% to 70%

can improve
profitability by

\$10 – 20 / acre



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