Planting Canola

What is ‘Singulation’ and ‘Planting’?
- Singulation is when a specialized meter is used that is capable of separating one seed at a time and sending it to the opener
- A Planter is toolbar that has multiple singulation meters on it

What is ‘Volumetric’ metering?
- Volumetric metering is when seed is metered in bulk, via a roller or auger, and is diverted to each opener through a distribution manifold
Planting Canola

Opportunities?
1) Reduce input costs by reducing seeding rates
2) Obtain higher yields due to a uniform plant stand
Planting Canola

Challenges

1) Higher equipment cost if a planter is not already owned
2) Many planters are not suited for no-till conditions
3) Unable to apply full load of fertilizer at time of planting
4) Typically wider row spacing (15-30”)

Yield Adjustment by Canola Grown at Different Plant Populations under Semiarid Conditions

S. V. Angadi,* H. W. Cutforth, B. G. McConkey, and Y. Gan

Article in Crop Science - July 2003

- Trials conducted in Swift Current from 1999 to 2001 where they hand thinned small plots to get desired uniform and non-uniform stands
- Used a non hybrid canola called Arrow
Results

- When the uniformly distributed plant stand was reduced from 8 plants/ft$^2$ to 4 plants/ft$^2$, there was no reduction in yield.

- When the non-uniformly distributed plant stand was reduced from 8 plants/ft$^2$ to 4 plants/ft$^2$, yield was reduced.
Results

The most significant outcome of the project seems to be the comparison between the seeders themselves. The Monosem precision planter set on 12” rows yielded significantly better than the planter on 20” rows or the conventional air drill in both trials.
Evaluations of Nitrogen and Planting Equipment in Spring Canola
by Meghan Moran, OMAFRA Canola and Edible Beans Specialist

In 2017, a canola agronomy trial was conducted by Deb Campbell, of Agronomy Advantage and Darcy Martin, on Darcy’s farm in Kenilworth, Ontario. The trial was conducted at one site for one year, so further testing would be required to validate the results, but Campbell

Agronomic treatments included the following:

- Seeding with a John Deere drill on 7.5” rows vs. Monosem twin row planter on 30” centers.
- Seeding rates of approximately 3, 4.75 and 6.25 lb/ac with the Monosem planter and 5 lb/ac with the drill.
- Nitrogen rates of 110 lbs actual N applied pre-plant, compared to split applications of 110 lbs pre-plant followed by 40, 78 or 115 lbs applied at full rosette.
Yield Results: Plots were harvested with a Claas Lexion 750 with an auger head, and an extended pan and knives on either side of the header. There were no significant differences in yield based on seeding rate. It is well documented in scientific literature that a canola stand can meet yield potential at populations ranging from 5 to 20 plants/ft$^2$. In addition, the yield of plots seeded with the drill did not differ from yield of Monosem planted plots.
Issues with these previous trials

- Do not use the same opener between drill and planter
- The planter is unable to apply all fertilizer at time of planting
  - Requires multiple passes
- Planter is typically wider row spacing
Bourgault Trials
Singulation versus Volumetric metering
Bourgault Trials

Questions

1) Can we achieve equal spacing of canola plants in the seed row when using a singulator?

2) Will singulation of the seed provide a yield advantage over traditional volumetric metering?
Canola Singulation Treatments

1) Singulation versus Volumetric
   ▪ Using the same opener, fertilizer placement, and row spacing

2) Three seeding rates:
   ▪ Low 1.5lbs
   ▪ Medium 2.5lbs
   ▪ High 5.0lbs
Canola – Heartbeat graph
2019 Canola - Singulation vs Volumetric vs Seeding Rate

LSD at 90%
Yield - 8.7

Low Seed Rate
- 1 plant/ft²
- Yield: 43.7
- Germination: 47

Medium Seed Rate
- 1.6 plants/ft²
- Yield: 48.6
- Germination: 36

High Seed Rate
- 3 plants/ft²
- Yield: 57.1
- Germination: 32

Singulation vs Volumetric at each seeding rate.
To address these questions, trials were conducted in 2010, 2011 and 2012 at Scott, Saskatoon, Swift Current, Melfort and Indian Head, SK. to determine the yield potential of low canola plant populations. Canola was seeded at 5, 10, 20, 40, 80, 150 and 300 seeds/m².
AgriARM
Yield Potential of Low Canola Plant Populations

![Graph showing yield (bu/ac) vs. plants m-2. The yield increases as the plant population increases up to a certain point, then plateaus.](image-url)
2019 Canola Trial Results - Singulation

Big lesson learned from this year with Singulation

- Germination that is stamped on the bag may not be accurate
- Very important when comparing singulation to volumetric is to make sure that the seed size represents what’s actually in the bag

LOT NO: C3LTB13009-00
1000 SEED WT: 4.6G
NET WT: 22.68 KG (50 LB)

Small - 2.3% of sample - TKW of 2.5 g
Medium 1 - 9.2% of sample - TKW of 3.6 g
Medium 2 - 66.4% of sample - TKW of 5.6 g
Large - 22.1% of sample - TKW of 7.7 g
Bourgault Trials

Questions

1) Can we achieve equal spacing of canola plants in the seed row when using a singulator?
   ▪ Not this year

2) Will singulation of the seed provide a yield advantage over traditional volumetric metering?
   ▪ Not this year
Summary

Opportunities?

1) Reduce input costs by reducing seeding rates
   - Can you also reduce seeding rate when using volumetric metering by watching where fertilizer is placed?

2) Obtain higher yields due to a uniform plant stand
   - Due to the plasticity of canola and capability to compensate when given space, is there truly a yield advantage?
Future Bourgault Singulation Trials

- Seed lot will be tested prior to seeding to ensure adequate germination
- Seed lot will be selected with a larger TSW
- Plant slower, allowing time for seed to be singulated and reach bottom of the seed trench
Thank-you!