Seeding Rates for Precision Seeded Canola

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Canola: Relationship between Plant Density & Seed Yield

- Yields are generally maximized at plant populations above 50 plants m$^{-2}$
- Canola can compensate at low plant populations by increasing branching to maintain yield over a range of plant densities
- Uniformity of plants show to be important when plant density decreased
Figure 1. Uniform stands yield more, especially at lower plant densities.

Seed Metering Systems for Air-Carts

UltraPro Roller

Valmar Roller
Study Objectives

• Assess seedling uniformity of the UltraPro Roller compared to a traditional Valmar Roller

• Determine if differences in uniformity affect minimum plant population require to reach maximum yield potential of canola
Target 10 seeds m$^{-2}$

Target 20 seeds m$^{-2}$

Target 40 seeds m$^{-2}$

Target 80 seeds m$^{-2}$

Target 160 seeds m$^{-2}$

Target 320 seeds m$^{-2}$
Seeding Rate Effect: **
Roller Type Effect: *
Seeding Rate x Roller Type Interaction: NS

10% improved emergence with Valmar likely due to UltraPro metering seed more accurately – releasing fewer seeds.
Broken-Line Regression:
Standard Error of Distance Between Plants vs. Plant Density

High Yielding Sites
Low Yielding Sites
Broken-Line Regression: Seed Yield vs. Plant Density by Roller Type

High Yielding Sites

Low Yielding Sites

Plants m2

Seed Yield (kg/ha)

Valmar  UltraPro
Preliminary Conclusions

• Lowest seeding rate was likely not metered out accurately
  • It appears the UltraPro may more accurately meter out seed than the Valmar
• Increasing plant population rapidly decreased variability in distance between seedlings
  • Plant uniformity was affected by plant density, not roller type
• Plant uniformity does not appear to be as important as plant density/other factors in determining canola yield potential
  • High yielding sites – needed 38 plants m\(^{-2}\) to reach maximum yield, but uniformity was maximized at 27 plants m\(^{-2}\)
  • Low-yielding sites – needed only 17 plants m\(^{-2}\) to reach maximum yield, but uniformity was maximized at 38 plants m\(^{-2}\)
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