

# Factsheet: Canola Response to Shallow vs. Deep-banded Nitrogen Fertilizer Formulations Relative to other Benchmark Management Practices



## Objective:

The objective of this trial was to demonstrate the potential benefits, under field conditions, of banding a nitrogen use efficiency product at depths of 5 cm or deeper relative to the shallower banding depths commonly achieved with commercial equipment (when side-banding is combined with shallow seeding) and other benchmark practices.

## Methodology:

The trial was established in the spring of 2020 at Scott, SK. There were 10 different fertilizer treatments consisting of untreated urea (46-0-0), SuperU (46-0-0) and UAN (28-0-0). The untreated urea and SuperU were placed as a side-band (2-3.5 cm), mid-row shallow band (2-3 cm), deep-band (>5 cm) and broadcast. UAN was applied as a flat fan foliar application and dribble band foliar application. Each treatment was applied at time of seeding at a rate of 100 lbs N/ac.

**Table 1.** Treatment list for nitrogen fertilizer form and placement on canola at Scott, SK.

Treatment #	Nitrogen Fertilizer Form	Fertilizer Placement	Fertilizer Depth (cm)
1	Untreated urea	Side-band	2-3.5
2	Untreated urea	Mid-row shallow band	2-3
3	Untreated urea	Deep band	>5
4	Untreated urea	Broadcast	
5	SuperU	Side-band	2-3.5
6	SuperU	Mid-row shallow band	2-3
7	SuperU	Deep band	>5
8	SuperU	Broadcast	
9	UAN	Flat Fan Foliar Applied	
10	UAN	Dribble Band Foliar	

## Key Findings:

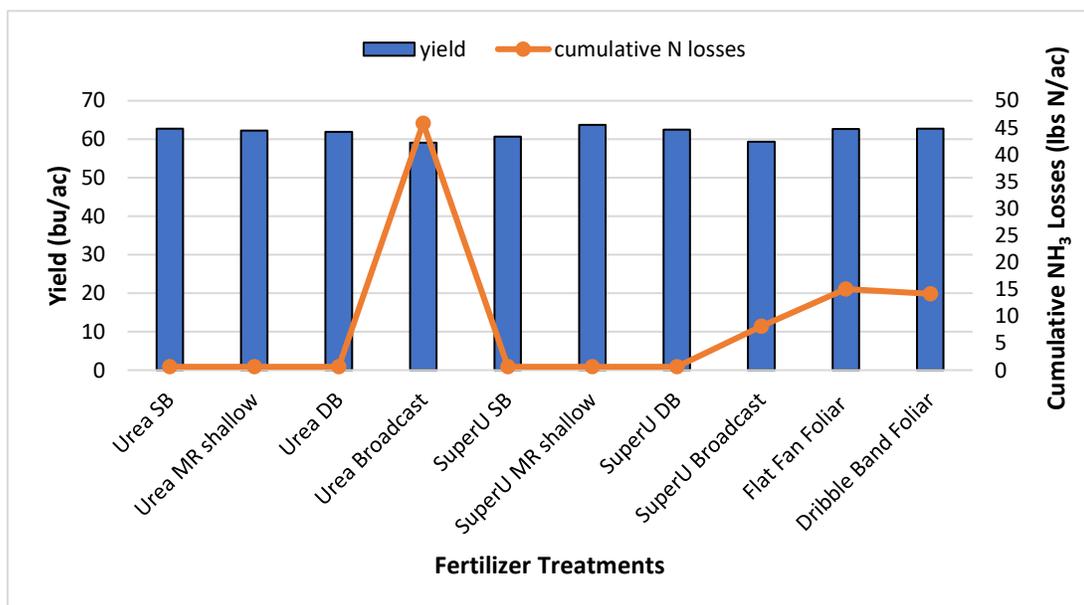
- Results showed the treatments of surface application of N fertilizer resulted in higher amounts of NH<sub>3</sub> losses; with the highest amount of cumulative NH<sub>3</sub> losses from the broadcast of untreated urea at 46 lbs N/ac; followed by flat fan UAN at 15 lbs N/ac, dribble band UAN at 14 lbs N/ac, and broadcast SuperU at

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8 lbs N/ac. Treatments of side-band, mid-row shallow, and deep-band showed minimal losses of NH<sub>3</sub>, cumulatively 1 lbs N/ac for each treatment.

- Mid-row applications at shallow (2-3 cm) and deep (>5 cm) placements tended to result in higher plant densities compared to side-band, indicating the mid-row placements of fertilizer may be at lower risk of seedling burn than the side-band placements.
- The lowest yields were observed by broadcast applications of urea and SuperU (59 bu/ac), which also experienced higher amounts of NH<sub>3</sub> losses (8 and 46 lbs N/ac) (Figure 1).
- The highest yielding treatment was the application of Super U as a mid-row shallow placement at 64 bu/ac.
- There were minimal yield differences between urea, SuperU, and UAN, indicating yield response was more dependent on placement than fertilizer formulation.



**Figure 1.** Yield (lbs/ac) of canola and amount of cumulative NH<sub>3</sub> losses (lbs N/ac) in response to nitrogen fertilizer formulations and placements at Scott, 2020.

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