

<b>X</b>	<b>FOLIAR NUTRIENT &amp; TOP-DRESSED GRANULAR FERTILIZER APPLICATION TRIALS</b>
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**Objective:** Assess the use efficiency of foliar applied nutrients or top-dressed granular fertilizer, as it relates to yield and quality of *B. napus* canola.

**Background:** Boron is one of the micronutrients that can reduce yields in deficient soils. As well, sulphur deficiencies have become more numerous with the push to higher yields with other agronomic practices. Companies such as Phosyn have been developing foliar applied nutrient products, which may have a role in enhancing canola yields under deficient conditions. Top-dressing of granular sulphate prior to bolting may also be utilized as a rescue treatment if adequate sulphur has not been applied prior to seeding. However, this method does rely on adequate rainfall to ensure that the sulphur reaches the root zone in order to allow sufficient uptake by the plants.

**Methodology:** These trials consisted of the following treatments in a RCB design:

**Top-dressed Granular Fertilizer Trial:**

Dauphin, MB

1. Check
2. Top-dressed ammonium sulphate (21-0-0-24) @ 20 lb/ac of S.

**Boron Trial:**

Mundare Satellite Site (A)

1. Check (no foliar nutrient applied)
2. Bortrac 1X (1.2 L/ac Bortrac applied at the onset of stem extension)
3. Bortrac 2X (1.2 L/ac Bortrac applied at the 4 to 6-leaf stage and at the onset of stem extension)

**Sulphur Trial:**

Mundare Satellite Site (B)

1. Check (no foliar nutrient applied)
2. Sulphur F3000 1X (2.0 L/ac Sulphur F3000 applied at the onset of stem extension)
3. Sulphur F3000 2X (2.0 L/ac Sulphur F3000 (applied at the 4 to 6-leaf stage and at the onset of stem extension)

## DAUPHIN, MB

### Methodology:

This trial was seeded May 16 at a depth of ¾ to 1" into good moisture conditions, using the variety 45A51. The seeding rate was 7 lb/ac. No sulphur was applied prior to seeding, but all other macronutrients were applied at recommended rates. Weed control included Vantage Plus (0.5 L/ac) applied at the 2 to 3-leaf stage. The granular ammonium sulphate was applied at the rosette stage at a rate of 20 lb/ac of S using a spin spreader centred on a 60 ft plot. Tissue samples were collected at the flowering stage. The youngest mature leaf was collected from 30 plants in each plot, and then the four samples were bulked together for each treatment.

### Observations:

No visible differences were noted between the two treatments throughout the growing season. The tissue test indicated that the sulphur content in the plants was sufficient in both treatments at flowering, although the top-dressed treatment had a slightly higher sulphur level.

### Results:

TOP-DRESSED GRANULAR FERTILIZER TRIAL Dauphin, MB						
System	Yield (%)	Yield (bu/ac)	Contribution Margin (\$/ac)	Oil (%)	Grade	Days To Maturity
Top-dressed sulphate	103	29.3	117.30	42.5	1	89
Check	100	28.4	119.55	42.6	1	89
LSD		2.93		1.11		
CV%		4.3		1.1		

### Discussion:

Top-dressing of ammonium sulphate had no significant impact on yield, oil content or days to maturity of 45A51. The slight yield increase was insufficient to offset the additional fertilizer costs.

## MUNDARE SATELLITE SITE (A)

### Methodology:

Spring soil tests indicated marginal levels of boron within a small area of a commercial canola field. Boron application rates of 0.5 to 1.5 lb/ac were recommended. The field was seeded to Nex 715 on May 22 at 5.5 lb/ac with a JD 735 airseeder with sweeps and harrow/packer combination. The field was fertilized with a fall application of anhydrous ammonia at 75 lb/ac (actual N) and a seed-placed blend of 8-25-20-15. Weed control consisted of spring applied Edge granular at 20 lb/ac and spot spraying with Lontrel (0.227 L/ac). Treatments were swathed on September 18 and combined on November 1.

**Observations:** There were no visible boron deficiency symptoms on any treatments throughout the growing season. Plant tissue sampling conducted at the time of applying the Bortrac treatments did not indicate any boron deficiencies in the trial area. Cool weather in late August and September delayed maturity and swathing commenced to try to avoid green seed problems with impending frost. However, cool conditions did not allow proper curing of canola in the swaths and all treatments had high levels of green seed.

**Results:**

<b>BORON FOLIAR NUTRIENT APPLICATION TRIAL</b>					
<b>Mundare, AB</b>					
<b>Treatments</b>	<b>Yield (%)</b>	<b>Yield (bu/ac)</b>	<b>Contribution Margin (\$/ac)</b>	<b>Oil (%)</b>	<b>Grade</b>
Check	100	20.3	31.87	N/A	Sample
Bortrac 2X	99	20.0	(1.04)	N/A	Sample
Bortrac 1X	97	19.6	11.87	N/A	Sample
LSD		1.90			
CV%		6.9			

Note: A value of \$10.80/ac was used for spot spraying Lontrel.  
Brackets in Contribution Margin column reflect a negative value.

**Discussion:** There were no significant differences in yield among treatments. This was not surprising due to the lack of visible boron deficiency symptoms and sufficient levels of boron within the plants at the time of Bertram applications. Differences in contribution margin reflected added costs for Bortrac treatments.

**MUNDARE SATELLITE SITE (B)**

**Methodology:** Spring soil tests indicated deficient levels of sulphur within a small area of a commercial canola field. Sulphur application rates of 25 to 30 lb/ac were recommended. The field was seeded to Nex 715 on May 22 at 5.5 lb/ac with a JD 735 airseeder with sweeps and harrow/packer combination. The field was fertilized with a fall application of anhydrous ammonia at 75 lb/ac (actual N) and a seed-placed blend of 8-25-20-15. Weed control consisted of spring applied Edge granular at 20 lb/ac and spot spraying with Lontrel (0.227 L/ac). Treatments were swathed on September 18 and combined on November 1.

**Observations:** There were no visible sulphur deficiency symptoms on any treatments throughout the growing season. Plant tissue sampling conducted at the time of applying the Sulphur F3000 treatments did not indicate any sulphur deficiencies in the trial area. Cool weather in late August and September delayed maturity and swathing commenced to try to avoid green seed problems with impending frost. However, cool conditions did not allow proper curing of canola in the swaths and all treatments had high levels of green seed.

**Results:**

<b>SULPHUR FOLIAR NUTRIENT APPLICATION TRIAL</b>					
<b>Mundare, AB</b>					
<b>System</b>	<b>Yield (%)</b>	<b>Yield (bu/ac)</b>	<b>Contribution Margin (\$/ac)</b>	<b>Oil (%)</b>	<b>Grade</b>
Check	100	18.2	18.32	N/A	Sample
Sulphur F3000 1X	94	17.1	(2.36)	N/A	Sample
Sulphur F3000 2X	93	17.0	(16.60)	N/A	Sample
LSD		3.53			
CV%		14.8			

Note: A value of \$10.80/ac was used for spot spraying Lontrel.  
Brackets in Contribution Margin column reflect a negative value.

**Discussion:** There were no significant differences in yield among treatments. This was not surprising due to the lack of visible sulphur deficiency symptoms and sufficient levels of sulphur within the plants at the time of Sulphur F3000 applications. Differences in contribution margin reflected added costs for Sulphur F3000 treatments.