

# Give Your Canola a Boost

Proven Additional 2.6 Bushels per Acre

## BioBoost<sup>®</sup> Liquid

### BioBoost Liquid Trials

BioBoost Liquid for canola is an innovative plant growth promoting rhizobacteria (PGPR) with proven efficacy. From 2007 to 2012, BioBoost Liquid has been in 118 trials in North America. Over the five year period, **BioBoost Liquid averaged a five percent increase, or an additional 2.6 bushels per acre, of canola seed.**

### Performance in Trials

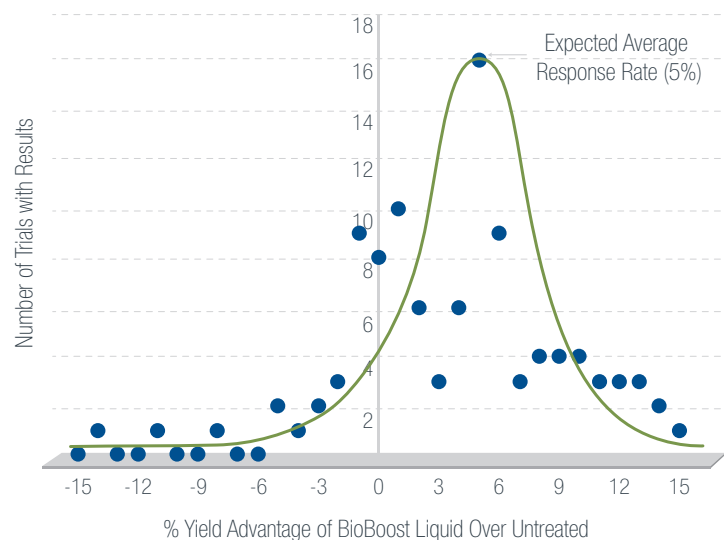


Figure 1: Average yield response on 118 trials conducted from 2007 to 2012 (replicated small plot and strip trials).

### Modes of Action

The active ingredient in BioBoost Liquid, *Delftia acidovorans*, has a number of beneficial modes of action which include:

- Stimulating root and root hair development, helping the plant access more water and nutrients;
- Colonizing roots to out-compete other soil bacteria and fungi; and
- Increasing the amount of sulphur available to the plant.

### Features

**Active ingredient:**  $1 \times 10^8$  *Delftia acidovorans* per ml

**Ease of use:** One package to open and add to the tank

**Application:** After planting (Pre-emergence) until the 6 leaf stage

**Area treated:** One bladder treats 16.2 hectares (40 acres)

**Package size:** 10.4 litre bladder per case, 45 cases per pallet

Rate	Active	Minimum Water
Acre	260 ml (8.8 fl oz)	38.5 L 10 US gal
Hectare	643 ml (21.75 fl oz)	95 L 25 US gal



These modes of action work to support higher canola yields, depending on environmental and soil conditions.

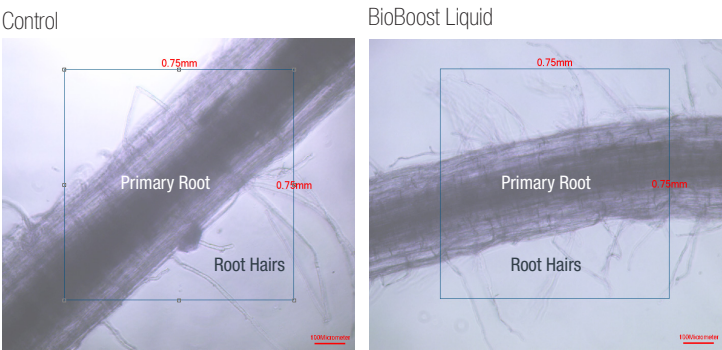


Figure 2: Increased root hair number on canola treated with BioBoost Liquid (right) versus the control (left). Increased primary root length also observed with BioBoost Liquid (not shown).

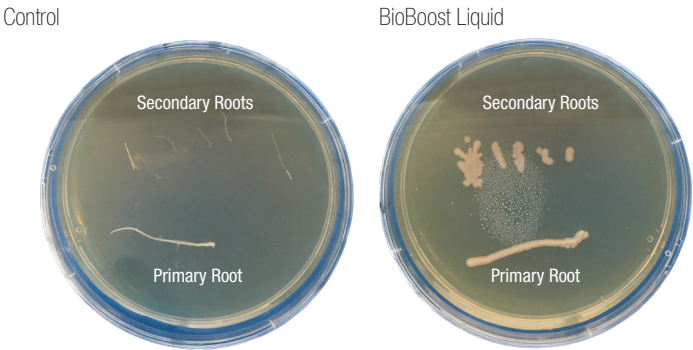


Figure 3: *Delftia acidovorans* colonizing canola roots treated with BioBoost Liquid (right) versus the control (left).

### Boosting Sulphate-Sulphur Fertility in Canola Production

Canola requires a high amount of sulphur and can only uptake the mineral form called sulphate-sulphur. Production of sulphate-sulphur from other sulphur forms is a biologically-mediated process. *Delftia acidovorans* assists in converting multiple forms of sulphur into the sulphate-sulphur format the plant can efficiently uptake. To generate a proof of concept, BioBoost Liquid was tested in combination with sulphur fertility of both elemental and sulphate-sulphur applications. In trials across eight test sites, BioBoost Liquid, in combination with elemental sulphur, had an average yield increase of 9.66% over elemental sulphur alone (Table 1). This result complements demonstrated sulphur oxidation by *Delftia acidovorans* in laboratory tests (Figure 4).

Efficacy Testing as an Elemental Sulphur Oxidizer	Eight Site Average*
Control	100.00
Control + Elemental Sulphur	107.75
Control + Sulphate-Sulphur	112.51
Control + BioBoost Liquid	113.92
Control + Elemental Sulphur + BioBoost Liquid	117.41
Control + Sulphate-Sulphur + BioBoost Liquid	117.45
Difference between Control + Elemental Sulphur and Control + Elemental Sulphur + BioBoost	9.66

Table 1: Efficacy Testing as an Elemental Sulphur Oxidizer. Increase in yield when combining the control with elemental sulphur and BioBoost Liquid versus the control combined with elemental sulphur only.

\*Eight test sites include Dauphin, Neepawa, La Salle, Elm Creek, MacGregor, Millet and Fort Saskatchewan.

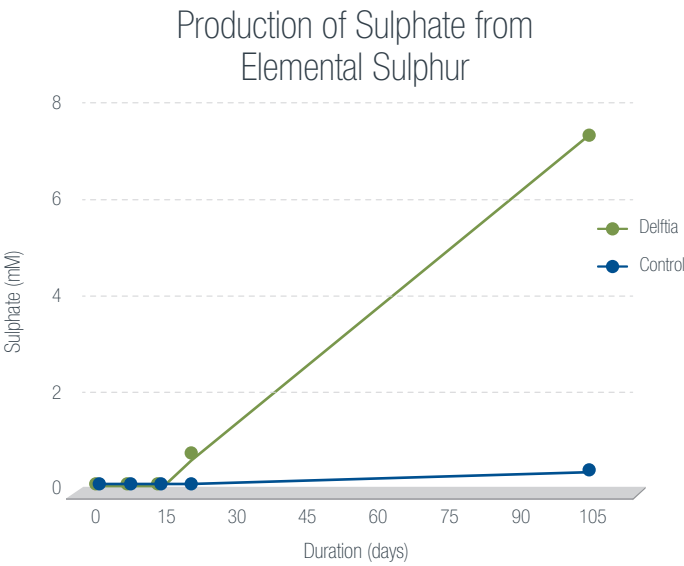


Figure 4: Results of a bioassay indicating that *Delftia acidovorans* in BioBoost Liquid oxidizes sulphur. Results of the negative control are shown for comparison.

### About Lallemand Plant Care

Lallemand Plant Care (LPC) specializes in employing microorganisms including, but not limited to, yeast, bacteria, fungi and plant derivatives for biocontrol (i.e., controlling of harmful insects or microorganisms), biostimulation (i.e., eliciting natural responses) and biofertilization (i.e., enhancing plant nutrition).

Using a “field-led, science-supported” approach, LPC works closely with clients to deliver the right products for the right applications that benefit crops and create better customer experiences.

To find out more on how you can boost your crop’s performance, talk to a Lallemand Broad Acre Crop Representative, toll-free at 1-844-590-7781, or visit [crops.lallemandplantcare.com](https://crops.lallemandplantcare.com)