

## An innovative plant growth promoting rhizobacteria (PGPR) for canola

BioBoost Liquid for canola is a new name for BioBoost Foliar. The reason for the name change was to more accurately reflect where the product is active.

BioBoost Liquid for canola is an innovative plant growth promoting rhizobacteria (PGPR). The active ingredient is the micro-organism *Delftia acidovorans*, which is active in the soil and rapidly colonizes the root zone of a canola plant. It is applied as post-emergent spray at the 0-6 leaf stage. For ease of application BioBoost Liquid can be tank mixed with glyphosate and applied with the first post-emergent application.

Based on the trials conducted by NDSU, University of Minnesota, retailers and growers to-date, BioBoost Liquid has boosted canola yields by average of 6.3%.

### How it works

The active ingredient, the bacteria *Delftia acidovorans*, is active in the soil. It is attracted to root exudates and will move toward growing roots and colonize the root zone. The bacteria have a number of beneficial modes of action that positively impact plant root growth; this ultimately supports higher yields, depending upon environmental and soil conditions.

### Modes of Action - *Delftia acidovorans*

- The organism is a known sulphur oxidizer and may make more sulphur plant-available; and/or
- The organism may stimulate root and root hair development, thus helping the plant access more water and nutrients in limiting environmental conditions; and/or
- The organism is an aggressive root colonizer and may out-compete other soil bacteria and fungi.

In any given field and/or year one or more of these modes of action can be responsible for increasing canola yields.

### BioBoost Application

Crop	Rate/acre		Rate/hectare	
	Active	Minimum Water	Active	Minimum Water
Canola	(8.9 oz) 263 ml	10.2 US gal 38.5 L	(22 oz) 650 ml	25.1 US gal 95.0 L

### Application Notes

- Achieving good contact of the organism with soil is essential to the performance of the product, thus applying product at the 0 to 6 leaf stage allows good soil contact to be achieved.
- Apply BioBoost Liquid in the morning and/or evening when cooler temperatures are usual. Do not apply BioBoost Liquid in hot and dry conditions.
- Recommended water rates assist the organism in entering the soil profile and thus reducing the water rate is not recommended.

### KEY CHARACTERISTICS

- **Active Ingredients:**  
*Delftia acidovorans*
- **Formulation:**  
Liquid
- **Crops:**  
Canola
- **Yield Response:**  
Avg. 130 lbs/ac (6.3%)<sup>1</sup>  
(including 2010 strip trial program)
- **Application:**  
Post-emergent spray  
(0 to 6 leaf stage)
- **Package Size**  
2.75 gallon  
bladder/case
- **Area treated/case**  
40 acres
- **Tank mixable**  
Glyphosate<sup>2</sup>

<sup>1</sup> Average yield response on 16 strip trials conducted from 2007 to 2010.

<sup>2</sup> Based on BioBoost trials as well as experience in the US in 2009, no impact on weed control efficacy was noted when tank mixed with Roundup or glyphosate. When tank mixed with glyphosate only apply on Roundup Ready canola.

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BioBoost Liquid for has been tested by NDSU and the University of Minnesota. Retailers and farmers have also conducted trials. The following table summarizes the results of the trial data to-date. The 2010 data in the table represents what was available at the time of printing. We will continue to conduct trials with farmers and retailers over the coming years to demonstrate the performance of the product in real-world commercial conditions.

Year	Source	Location	Yield in lb/ac		% response
			Control	BioBoost	
2007	NDSU	Langdon, ND	2,080	2,229	7%
2007	NDSU	Langdon, ND	1,517	1,578	4%
2008	NDSU	Langdon, ND	1,319	1,589	20%
2008	NDSU	Langdon, ND	504	697	38% <sup>x</sup>
2008	U of Minn	Wannaska, MN	2,559	2,809	10%
2008	U of Minn	Roseau, MN	2,108	2,136	1%
2009	Robert Mitzel	York, ND	2,199	2,459	12%
2009	Kevin Heilman	Rugby, ND	1,999	2,099	5%
2009	Tom Olson	Langdon, ND	2,899	3,019	4%
2009	NDSU	Langdon, ND	329	654	99% <sup>x</sup>
2009	Trent Johnson	Rugby, ND	2,399	2,579	8%
2009	U of Minn	Roseau, MN Location 1	1,869	1,979	6%
2009	U of Minn	Roseau, MN Location 2	1,909	2,099	10%
2010	Hurdsfield Grain	Regan, ND	2,160	2,270	5%
2010	Hurdsfield Grain	Regan, ND	2,160	2,240	4%
2010	CHS Garrison	Garrison, ND	2,000	2,110	6%
2010	SWG New England	New England, ND	2,000	2,970	-2%
2010	Scheresky AG	Max, ND	2,000	2,088	4%
			2,074	2,203	
				130	6.3%

x = indicates the trial was excluded from average response calculation due to very low yields as a result of environmental conditions.