

JumpStart®

CANOLA

CORN

LENTIL

PEA

SOYBEAN

WHEAT

PHOSPHATE FERTILIZER USE EFFICIENCY

Up to 90% of applied phosphate fertilizer goes unused in the year of application as it gets tied (bound) to soil particles and other elements, making it unavailable to the crop. Some of this is used over subsequent years, but at least 25% never becomes available.¹ It is crucial to make the most efficient use of fertilizer phosphate to maximize yield potential.

Factors affecting phosphate availability²

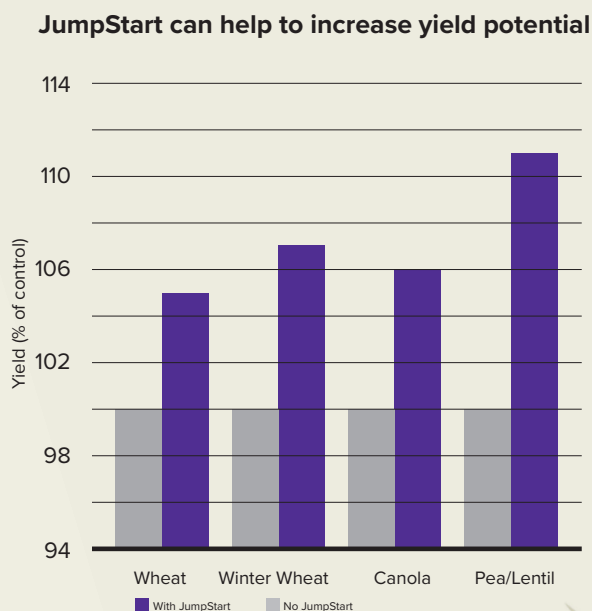
Phosphate is less available

- In soils containing high levels of cations, such as calcium, magnesium, iron or aluminum
- In soils with high clay content
- At colder soil temperatures
- In dry soils
- To crops with a tap root system

HOW JUMPSTART® WORKS

JumpStart is an inoculant containing the naturally occurring soil fungus *Penicillium bilaiae*, discovered by Agriculture and Agri-Food Canada, which grows along plant roots, releasing phosphate bound in the soil, making it more available for the crop to use.

Penicillium bilaiae, the active ingredient in JumpStart, does not eliminate the need for phosphate fertilizer, but provides crops access to more phosphate for higher yield potential.



Source: Summary of 153 wheat, 19 winter wheat, 71 canola and 38 pea/lentil independent large-plot research trials in Western and Eastern Canada over 28 years. Individual results may vary.

JUMPSTART APPLICATION

JumpStart is not crop specific. JumpStart colonizes (grows along) the root system rather than infecting the root, so you do not have to purchase a specific type of JumpStart for a specific crop.

JumpStart can be applied on-farm up to 30 days prior to seeding (depending on seed type) and can be used with many different seed treatments.

Please read the label before application for complete use instructions.

JumpStart wettable powder application rates

JumpStart is available as a wettable powder that is mixed into water and applied to the seed as a liquid. Once JumpStart is mixed into water, apply to seed within 24 hours.

Crop	400 g container		80 g container			
	Seed treated/container	Water (litres)	Seed treated/container	Water (litres)		
Alfalfa/sweetclover	n/a	1,100 lb	10	n/a	220 lb	2
Canola/mustard	n/a	1,000 lb	10	n/a	200 lb	2
Chickpea	400 bu	24,000 lb	30	80 bu	4,800 lb	6
Corn	70 bags* (5,600,000 kernels)		19.60	14 bags* (1,120,000 kernels)		3.92
Dry bean	300 bu	18,000 lb	25	60 bu	3,600 lb	5
Lentil	300 bu	18,000 lb	25	60 bu	3,600 lb	5
Pea	500 bu	30,000 lb	40	100 bu	6,000 lb	8
Soybean	300 bu	18,000 lb	25	60 bu	3,600 lb	5
Wheat	300 bu	18,000 lb	50	60 bu	3,600 lb	10

* 80,000 kernels per bag.

Crop	57 g (2.0 oz) container	
	Seed treated/container	Approximate water volume
Soybean	50 units or 1,135 kg (2,500 lb, 50 bu)	3.5 litres (3.9 US quarts)

JumpStart granular application rates

JumpStart is available in a granular formulation for canola, barley, flax, mustard, oat, pea, lentil, soybean, canary seed and wheat. Application rates will vary according to row spacing; please refer to the table below for details.

NEW SIZE 18 kg (39.68 lb) bag		
Row spacing	Application rates	Area treated per bag
6 in	5.5 lb/ac	7.2 ac
8 in	4.1 lb/ac	9.7 ac
9 in	3.6 lb/ac	11.0 ac
10 in	3.3 lb/ac	12.0 ac
12 in	2.7 lb/ac	14.7 ac

If you need more information or have questions about JumpStart, contact Monsanto BioAg toll-free at **1-800-667-4944** or visit **Monsantobioag.ca**.

¹ Source: Better Crops Vol. 86 (2002, No. 4), International Plant Nutrition Institute (formerly: Potash and Phosphate Institute).

² Source: Phosphorus for Agriculture, International Plant Nutrition (formerly: Potash and Phosphate Institute).

³ Source: *Penicillium bilaii* inoculation increases root-hair production in field pea. Robert H. Gulden and J. Kevin Vessey. May 17, 2000.

ALWAYS READ AND FOLLOW LABEL DIRECTIONS. Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible. JumpStart® and Monsanto BioAg and Design® are registered trademarks of Monsanto Technology LLC, Monsanto Canada, Inc. licensee. © 2017 Monsanto Canada Inc.

BENEFITS OF JUMPSTART

- JumpStart results are greatest in soils with lower levels of available phosphate and high to medium levels of bound/unavailable phosphate.
- JumpStart works at low soil temperatures when phosphate availability is normally limited.
- In independent research, JumpStart resulted in a 22% increase in the proportion of root that contained root hairs and a 33% increase in the mean root-hair length in field pea.³
- JumpStart can work in soils within a wide pH range. It is the level of available phosphate, not the pH, that determines the benefit of JumpStart.

ORDER YOUR CANOLA SEED PRE-TREATED WITH JUMPSTART

JumpStart is available centrally treated on many canola hybrids. Visit useJumpStart.ca for a complete list.

