USA

JumpStart® wettable powder

phosphate-solubilizing inoculant for

corn, all wheat, pea, lentil, chickpea, dry bean, sunflower, sugarbeet, sorghum, soybean, canola, mustard, alfalfa, and sweetclover

Extended label

USA

MINIMUM GUARANTEE

ACTIVE: 7.2 x 10^8 cfu *Penicillium bilaii* per gram

INERT: wettable powder

How to apply

Inoculate seed on-farm by adding the contents of one 57 g (2.0 oz) or one 285 g (10.0 oz) container to the appropriate amount of water (refer to Table 1) prior to or during seeding.

Applicators are available for inoculating seed with JumpStart. JumpStart can also be applied during seeding using on-the-go treaters (refer to on-the-go treaters manual for application instructions). Applicators used previously for pesticides should be triple rinsed before being used for JumpStart application.

To divide the contents of a bottle of JumpStart, first dissolve the entire contents of the bottle in 500 ml (0.5 US quarts) water, mix thoroughly and divide the mixture into smaller quantities as desired. JumpStart in solution must be applied to the seed within 6 hours.

JumpStart can be used with nitrogen-fixing rhizobia inoculants. To mix JumpStart with a liquid inoculant, first dissolve the entire contents of the JumpStart wettable powder bottle in a small amount of water or the liquid inoculant for easier mixing. Pour the mixture into the remaining liquid rhizobia inoculant and mix to dissolve. No additional water is required.

JumpStart applied to bare seed should be planted according to the planting windows in Table 1. JumpStart can be used with most seed-applied treatments but the planting window may be reduced. For up-to-date pesticide compatibility and bare seed stability information please contact Novozymes Biologicals at 1-888-744-5662.

Continuous flow application

Wheat, pea, lentil, chickpea, or dry bean

- Apply the JumpStart suspension to seed using a flow regulated applicator when transferring seed from the bin to the truck, or from the truck to the tank or seed cart
- Fill the applicator tank with the required volume of cool, clean water (refer to Table 1)
- While mixing continuously, slowly add the contents of the JumpStart container to the water in the applicator tank
- Mix well and agitate continuously to avoid settling
- Determine the conveyor, brush auger or auger flow rate in bu/min, and set the applicator to achieve the required flow rate (refer to Table 2). For best mixing run the auger or conveyor at full speed and less than full capacity

Batch application

Corn, soybean, sunflower, sugarbeet, sorghum, canola, mustard, alfalfa, or sweetclover

- Apply JumpStart suspension to canola, mustard, alfalfa, or sweetclover using a batch treater or cement mixer
- Fill the applicator tank with the required volume of cool, clean water (refer to Table 1)
- Add the contents of one 57 g (2.0 oz) or one 285 g (10.0 oz) JumpStart container to the water in the applicator tank
- Mix well and agitate continuously to avoid settling
- Put seed in the batch treater or cement mixer. Do not overload treater with seed. There must be enough space for mixing
- Slowly apply the proper volume of JumpStart suspension to the seed as it tumbles (approximately 2 minutes). Example: If you are treating 1 bag/25 kg (55 lb) of alfalfa seed from an 57 g (2.0 oz) container, use 1/3 of the suspension
- Re-bag the inoculated seed
- Repeat with the remaining bags. Note: re-shake or continue agitating the JumpStart suspension in the applicator until fully suspended before inoculating the remaining bags of seed

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Table 1. Application rates and bare seed planting windows

57 g (2.0 oz) container			
Crop	**Seed inoculated by one 57 g (2.0 oz) container**	**Approximate water volume**	**Planting window (bare seed)**
Wheat	1,100 kg (2,400 lb, 40 bu)	7.0 litres (7.6 US quarts)	30 days
Pea	1,900 kg (4,200 lb, 70 bu)	6.0 litres (6.1 US quarts)	30 days
Chickpea	1,500 kg (3,300 lb, 55 bu)	4.0 litres (4.6 US quarts)	30 days
Dry bean[1]	1,100 kg (2,400 lb, 40 bu)	3.5 litres (3.9 US quarts)	30 days
Lentil	1,100 kg (2,400 lb, 40 bu)	3.5 litres (3.9 US quarts)	30 days
Soybean	1,135 kg (2,500 lb, 50 bu)	3.5 litres (3.9 US quarts)	30 days
Sunflower[2]	100 kg (230 lb)	2.0 litres (2.1 US quarts)	30 days
Sorghum[3]	136 kg (300 lb)	1.8 litres (1.9 US quarts)	60 days
Alfalfa/sweetclover	68 kg (150 lb)	1.5 litres (1.6 US quarts)	7 days
Canola/mustard	63 kg (140 lb)	1.5 litres (1.6 US quarts)	60 days
Sugarbeet[3]	5 units	1.0 litres (1.0 US quarts)	7 days
Corn	800,000 kernels (10 bags[4])	2.8 litres (3.0 US quarts)	60 days

285 g (10.0 oz) container			
Crop	**Seed inoculated by one 285 g (10.0 oz) container**	**Approximate water volume**	**Planting window (bare seed)**
Wheat	5,500 kg (12,000 lb, 200 bu)	35.0 litres (38.0 US quarts)	30 days
Pea	9,500 kg (21,000 lb, 350 bu)	30.0 litres (31.0 US quarts)	30 days
Chickpea	7,500 kg (16,500 lb, 275 bu)	20.0 litres (23.0 US quarts)	30 days
Dry bean[1]	5,500 kg (12,000 lb, 200 bu)	17.5 litres (20.0 US quarts)	15 days
Lentil	5,500 kg (12,000 lb, 200 bu)	17.5 litres (20.0 US quarts)	30 days
Soybean	5,675 kg (12,500 lb, 250 units)	17.5 litres (20.0 US quarts)	30 days
Sunflower[2]	500 kg (1,150 lb)	10.0 litres (11.0 US quarts)	30 days
Sorghum[3]	680 kg (1,500 lb)	9.0 litres (9.5 US quarts)	60 days
Alfalfa/sweetclover	340 kg (750 lb)	7.5 litres (8.0 US quarts)	7 days
Canola/mustard	315 kg (700 lb)	7.5 litres (8.0 US quarts)	60 days
Sugarbeet[3]	25 units	4.7 litres (5.0 US quarts)	7 days
Corn	4,000,000 kernels (50 bags[4])	14.0 litres (15.0 US quarts)	60 days

[1] Use with pinto, great northern, black, navy, kidney, red, and pink bean.

[2] When treating confectionary sunflowers, increase water rates to ensure proper coverage.

[3] The application rate is currently under review. The rate provided is based on our experience with other crops.

[4] 80,000 kernels per bag

- Once JumpStart is mixed in water, apply to seed within 24 hours
- The planting window is the maximum time allowed between JumpStart application and seeding
- Application with other seed treatments is possible but may reduce the planting window. For up-to-date pesticide compatibility information and bare seed planting windows, please call contact Novozymes Biologicals at 1-888-744-5662 or visit our corporate website at www.bioag.novozymes.com

phosphate-solubilizing inoculant

Table 2. Applicator flow rate calibrations [based on one 80 g (2.8 oz) container or 1/5 400 g (14 oz) container]

Auger flow rate				Applicator rate[2]									
				Wheat		Pea		Lentil and dry bean		Chickpea		Soybean	
bu/hr	bu/min	lb/hr	lb/min	minutes/ container[3]	quarts/ min	minutes/ container[3]	quarts/ min	minutes/ container[3]	quarts/ min	minutes/ container[3]	quarts/ min	minutes/ container[2]	quarts/ min
240	4.0	14,400	240	10.0	0.75	17.5	0.34	10.0	0.38	13.8	0.33	10.3	0.37
360	6.0	21,600	360	6.7	1.13	11.7	0.51	6.7	0.56	9.2	0.49	6.8	0.55
480	8.0	28,800	480	5.0	1.50	8.8	0.69	5.0	0.75	6.9	0.65	5.1	0.73
600	10.0	36,000	600	4.0	1.88	7.0	0.86	4.0	0.94	5.5	0.82	4.1	0.92
720	12.0	43,200	720	3.3	2.25	5.8	1.03	3.3	1.13	4.6	0.98	3.4	1.10
840	14.0	50,400	840	2.9	2.63	5.0	1.20	2.9	1.31	3.9	1.15	2.9	1.28
960	16.0	57,600	960	2.5	3.00	4.4	1.37	2.5	1.50	3.4	1.31	2.6	1.46
1080	18.0	64,800	1080	2.2	3.38	3.9	1.54	2.2	1.69	3.1	1.47	2.3	1.65
1200	20.0	72,000	1200	2.0	3.75	3.5	1.71	2.0	1.88	2.8	1.64	2.1	1.83

[2] Applicator rates are calculated assuming one 57 g (2.0 oz) container or 1/5 285 g (10.0 oz) container of JumpStart is suspended in: 7 litres (7.6 US quarts) of water to inoculate 40 bu of wheat, 6 litres (6.1 US quarts) of water to inoculate 70 bu of pea, 4 litres (4.6 US quarts) of water to inoculate 55 bu of chickpea, 3.5 litres (3.9 US quarts) of water to inoculate 41 bu of soybean, or 3.5 litres (3.9 US quarts) of water to inoculate 40 bu of lentil or dry bean.

[3] Minutes to apply one 57 g (2.0 oz) container or 1/5 285 g (10.0 oz) container of JumpStart. (See instructions for dividing container contents in How to Apply.)

How it works

The active ingredient in JumpStart, the naturally occurring soil fungus *Penicillium bilaii*, grows on plant roots and makes less available residual soil phosphate immediately available for crop use.

Storage and handling

The active ingredient in JumpStart is a living organism and requires specific storage conditions to ensure viability and product performance. To maintain product viability:

- Store JumpStart containers and JumpStart-inoculated seed in a cool unheated facility < 20 °C (68 °F), away from sunlight and direct heat sources
- Minimize temperature fluctuations
- Avoid freeze/thaw cycles
- Use the entire contents of the container once opened
- Use before the expiry date. The expiry date is valid only for unopened containers stored according to the conditions listed above

The active ingredient in JumpStart is *Penicillium bilaii* spores. If use of this product by individuals allergic to molds and/or fungi is unavoidable, absorption by eye or skin contact, inhalation, or ingestion must be prevented to minimize the chance of an allergic reaction. Wear standard protective clothing and equipment including gloves, safety glasses and a NIOSH-approved respirator. In case of contact with skin or eyes, immediately flush exposed areas with plenty of water. Get medical attention if irritation occurs.

Unused JumpStart and unplanted JumpStart-inoculated seed should be disposed of in accordance with applicable civil statutes and guidelines.

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Where to use for maximum benefit

For soils low to medium in available phosphate:
Use JumpStart with the lower recommended P fertilizer rate from soil test results. If you do not soil test, use with your normal P fertilizer rate.

For soils high to very high in available phosphate:
Replace the starter in-row P fertilizer application [16.8-22.4 kg P_2O_5/ha (15-20 lb P_2O_5/acre)] with JumpStart.

Benefits of using JumpStart may be limited on:

- extremely sandy soils (greater than 85% sand)
- extremely high organic matter soils (greater than 14% organic matter)
- fields that have been heavily manured over the last several years

Limited warranty

The seller warrants that this product contains a minimum number of *Penicillium bilaii* colony forming units as specified on this label. The seller makes no other warranty expressed or implied as to product viability or performance since product storage, use and growing conditions are beyond the seller's control. Seller's guarantee is limited to the terms set out on the label and subject thereto. Buyer assumes the risk to persons or property arising from the use or handling of this product and accepts the product on that condition.

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Rethink Tomorrow

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*Available 24 hours a day/ 7 days a week, April – June 15, otherwise business hours.

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