



## Fertilizer's Perfect Complement

### THE PRODUCT

BioPath® is a biological fertilizer complement from Mosaic formulated with proven strains of PGPR - Plant Growth Promoting Rhizobacteria - that increases nutrient availability, uptake and utilization and improves early season plant growth and vigor optimizing yield potential in corn.

### BIOPATH AT WORK

BioPath contains select, highly effective strains of spore-forming *Bacillus* bacteria (PGPR) colonize in and around developing corn roots and promote positive plant growth responses.

#### Increased nutrient availability.

The select strains of *Bacillus* in BioPath produce organic acids and enzymes that improve the solubilization of fertilizer into plant-available forms.

#### Improved nutrient uptake and utilization.

BioPath helps harness soil nutrients so corn plants have the nutrition they need at peak uptake times throughout the season, particularly during the "Corn Sprint" - the mid-season, rapid growth period that generally runs from V6 to R3.

#### More robust roots.

The microbes in BioPath support vigorous root growth and development via the production of plant growth promoting compounds.

#### Increase ROFI and optimize yield potential.

Better nutrient efficiency combined with greater early season corn plant growth and vigor can increase the return on fertilizer investments and optimize yield potential.

### NOT YOUR AVERAGE BIOLOGICAL

Not all biological products are created equal, and there can be confusion when evaluating product performance. Individual bacterial strains can elicit specific plant growth responses - or not. BioPath uses *Bacillus* strains that have been carefully screened and selected for their ability to form symbiotic relationships with corn roots to improve nutrient availability, uptake and season-long use.

# Technical Information



## BIOPATH OFFERS THREE DISTINCT ADVANTAGES OVER COMPETITIVE PRODUCTS

### Ease of use.

BioPath is compatible with most liquid fertilizers and crop protectants, has no special storage conditions, and has a 24-month shelf-life. It also has a shelf-life of up to 18 months in fertilizer blends, ensuring it's ready to go when your customers are.

### Consistent performance.

The strains of *Bacillus* bacteria in BioPath, their modes of action and use rates are well-understood. BioPath has consistently performed in research trials, with over an 80% win rate.

### Economics.

BioPath's cost per acre is at or below the industry standard. Coupled with a yield advantage ROI of over 3 to 1 makes it an economical way to improve return on fertilizer investment.

## FLEXIBLE APPLICATION

BioPath is a safe, simple and convenient complement to most liquid fertilizer programs. It is compatible with starters, UAN and most crop protectants.

### Rate Recommendations

- Stand-alone application
- Starter or sidedress: 16 oz. per acre

## AS INGREDIENT

FERTILIZER RATE	INCORPORATION RATE
UAN @ 40 GPA	0.3%
UAN @ 20 GPA	0.5%
UAN @ 10 GPA	1.0%
Starter @ 5 GPA	2.0%
Starter @ 3 GPA	3.5%

**APPLY AT PLANT OR WITH  
SIDEDRESS NITROGEN**

## PRODUCT DETAILS

### Mode of Action

Nutrient solubilization and cycling to improve plant macronutrient and micronutrient availability.

### Fertilizer Compatibility

Effective with a wide range of raw nutrients, blends and organic solutions. Contact a Mosaic representative for a complete list of compatible fertilizers.

### Active Ingredients

*Bacillus subtilis* (2 x 10<sup>8</sup> cfu/ml)  
*Bacillus methylotrophicus* (2 x 10<sup>8</sup> cfu/ml)  
*Bacillus /icheniformis* (1 x 10<sup>8</sup> cfu/ml)

### Shelf Life

24 months in concentrate  
Up to 18 months in fertilizer

### Packaging

2 x 2.5-gallon case  
275-gallon tote

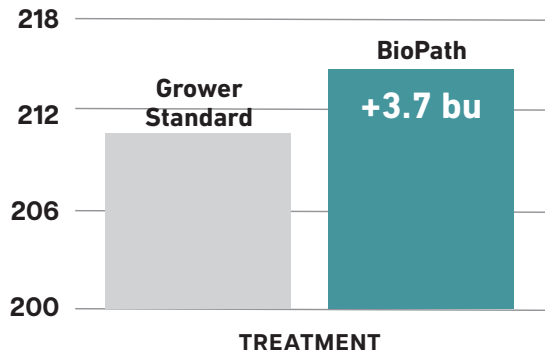
## PROVEN PERFORMANCE

Sidedress application of BioPath at 16 oz. per acre increased corn yield by an average of 3.7 bu/ A with over an 80% positive response, providing over a 3 to 1 ROI.

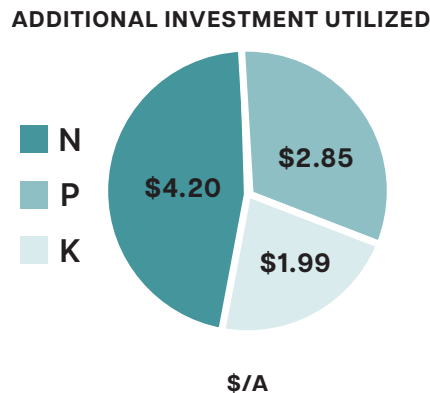
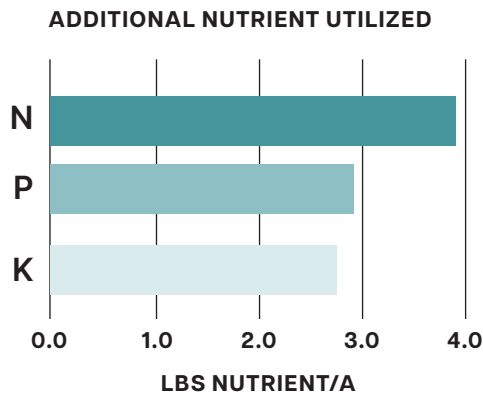
In-season evaluations in 2021 showed statistically significant increases in total uptake of phosphorus and micronutrients and a numerical increase in total uptake of nitrogen, potassium and secondary nutrients. **By increasing the amount of crop nutrient uptake from the fertilizer already applied, BioPath allows growers to capture almost \$9.00/ A of additional fertilizer investment.**



### BioPath Optimizes Yield Potential



### Increase Return on Nutrient Investments with BioPath



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Additional nutrient utilized calculated using typical corn fertilizer rates in the USA (180 N, 90 P, 160 K). multiplied by the treatment effect increases in total nutrient uptake of 2.2% for N, 3.2% for P and 1.7% for K. Nitrogen\$ utilized calculated using UAN32 \$444/ton, Phosphorus\$ utilized calculated using MAP \$800/ton, Potassium\$ utilized calculated using Potash \$647/ton. <https://www.dtnpf.com/agriculture/web/ag/crops/article/2021/10/06/fertilizer-price-gains-losing-steam>.



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