



## **Soy<sub>fx</sub><sup>TM</sup>** *For use on soybeans*

### **What is Soy<sub>fx</sub> and what does it do?**

Soy<sub>fx</sub> is a specific/unique combination of identified and tested microbials that elicit a positive crop response. Soy<sub>fx</sub> unlocks the plant's ability to produce growth regulators and metabolites that enhance production through biosynthetic pathway efficiencies. Some benefits include: phosphate solubilization through microbial activity, increased total leaf area, reduced ethylene production (associated with aging and senescence), pH regulation, reduced reactive oxygen species, and general stress mitigation. Soy<sub>fx</sub> contains microbials that enhance regrowth following a hail event, so the point of stem breakage grows rather than growth from an axillary bud. Therefore, if there is a hailstorm early enough that replanting is an option, Soy<sub>fx</sub> reduces the need to replant.

### **Mechanisms of actions:**

- Plant pH modulation maximizes biosynthetic pathways
- Facultative anaerobic bacteria support the production of nodules in upper inch of soil
- ACC Deaminase bacteria reduce production of ethylene (stress hormone)
- ACC Deaminase bacteria interacts to reduce ROS (Reactive Oxygen Species) signaling and mitigates stress
  - o Stresses such as heat or drought or some chemicals ("burners") increase ROS's
- Slow, though continuous action microbes facilitate micronutrient availability within the plant
  - o Regulate the plant environment to support nutrient movement and availability

### **What to watch for:**

Improved seedling vigor early and larger plants as they mature. Soy<sub>fx</sub> has been shown to stimulate shoot growth with added branching and leaf size increase. It helps reduce heat stress and associated wilting to continue production at a better rate in such conditions. The robust plants have increased pod counts and greater pod fill. In cases of hailstorms on young beans, watch to see if regrowth occurs from both the stems where broken and from lateral buds.

### **Morphological response:**

- Soybeans will reach canopy faster
- Increased number of pods and size of beans in the pods
- May increase branching in a semi- bush variety
- Beans will have higher test weights because of increased size
- Plants may produce and retain pods lower on the stem
- Shorter internodes may develop to support more pods
- Larger taproot
- Increased leaf size and therefore more photosynthates

### **How to apply**

**Seed:** 1 fl. oz. per 50 lbs. (2 fl. oz./cwt) via seed treater. Can be applied alone or in combination with other seed treatments in a slurry or through a separate dosing system.

**In furrow:** 16 fl. oz. per acre and minimum of 5 gpa total volume.

**Foliar:** 16 fl. oz. per acre with 10 to 20 gallons water. Generally, Soy<sub>fx</sub> is applied with water alone, though it may be tank mixed with other products. While the window of application is not limited, earlier plant growth stages provide a season long response. Early vegetative (V2-V4) would be ideal.

### **Tank mixtures:**

No surfactant is needed for the microbes to enter the plant, though a surfactant may be acceptable if tank mixing with other products. Perform a jar test to verify compatibility of product mixture. Do not use with antimicrobial water conditioners, or water containing levels not approved under EPA human drinking water standards. This includes copper, bleach, fluoride, chloramines, chloride, bactericides, phosphoric or sulfuric acid. Do not use with propiconazole (Slant<sup>TM</sup>, Tilt®, Quilt®...). Mixing with glyphosate may result in microbial mortality.

**Cautions:**

Should not use hormone-based plant growth regulators (PGRs) with this product because the combination may result in stunted plant growth. Conduct a jar test to verify tank mix compatibility.

**Spray tip selection**

TEEJET™ XR, XRC OR TEEJET TURBO		
	Line Pressure	Application Speed
Red Tip	20 psi	8 mph
Red Tip	30 psi	10 mph
Red Tip	Max 40 psi	12 mph
Brown Tip	20 psi	8 mph
Brown Tip	30 psi	10 mph
Brown Tip	Max 40 psi	12 mph

**Application Standards:**

Follow good sprayer (and line and nozzles) cleanout before using these biologicals. Don't mix concentrated microbials with concentrated pesticides or fertilizers.

For foliar application use a minimum of 10 gpa total solution

Aerial application is acceptable, but thoroughly clean the tank and line before using.

Screen size recommendation: Not smaller than 50 mesh. No tip screen required.

Residence time on the plant before rain (rainfast): 3 hrs.

Application temperature range: 40° to 85° F (4° to 29° C)

**Improving yield:**

To maximize pod fill and benefit of Soy<sub>fx</sub>, include BioPryme in your program later in the season. BioPryme is a nutrient and amino acid source that reduces the negative effects of some pesticides, as well as facilitates nutrient movement from the leaves to the grain. Apply BioPryme foliar after R2 stage to support bean fill.

**Storage and use:**

Store between 50° and 90° F in a place out of the sun. Use contents within 72 hrs. of opening the seal on the container. Shake container well before using. Keep jugs upright and don't "burp." This fluid is a combination of living organisms in the jug, so be mindful that it may swell or contract. The jug has a pressure sensitive seal and will self-regulate as designed.

**Guaranteed Analysis:**

Soluble Potash (K<sub>2</sub>O) 1.00% From potassium carbonate

**Nonplant food:**

*Bacillus megaterium* 1.0 x 10<sup>5</sup> CFU/ml

*Bacillus pumilus* 1.0 x 10<sup>2</sup> CFU/ml

Microorganisms exempt from CFR requirements – 40 CFR 725.

**Packaging:** 2 x 2.5g jugs