



## AlphaJoule™ *For use on alfalfa*

### What is AlphaJoule and what does it do?

AlphaJoule is a mix of genetically identified and patented microorganisms selected to stimulate or support plant growth and physiology. While many microbes live naturally in a plant, this mix of microorganisms has been selected to benefit the development of alfalfa. AlphaJoule unlocks a plant's ability to produce its own growth regulators and metabolites. Some benefits include: phosphate solubilization through microbial activity, reduced ethylene production (associated with aging, flowering and senescence), pH regulation, reduced reactive oxygen species, and general stress mitigation. AlphaJoule is applied in tandem with Prymer to enhance forage production.

### Mechanisms of actions:

- Plant pH regulation through the ability to exchange electrons in chemical pathways
  - Most photosynthesis down regulates during the heat of the day
  - pH regulation overcomes "slowdowns" during the heat of the day
- Reduced ethylene production leads to better leaf retention and delayed stress flowering
- Slow, yet continuous action microbes facilitate micronutrient availability within the plant
  - Better migration of soluble nutrients and solutions in the plant
  - Regulate the plant environment to support water movement and nutrient availability
  - Fields have shown reduction in temperature on hot Aug. days – less plant stress
- Improved nutrient loading in rooting system to support regrowth and longevity

### What to watch for:

When applied to regrowth watch for bigger leaves and more branching of the stems. On the crop following application watch for more crown buds and stems coming from the stem. Additionally, watch for faster recovery after harvest, subsequent to AlphaJoule applications. If applied after a fall cutting, watch for improved winter survival and larger root systems. Increased tonnage or improved forage quality, with larger leaves. Reduced daily heat stress symptoms. Improved leaf mass and nutrient transport to support yield.

### Morphological response:

- Improved root structure and nutrient flow
- More branches from the crown after cutting
- Better leaf retention
- Better regrowth after cutting
- Larger leaves and more branching on the stems
- Delayed flowering under heat and drought stress

### How to apply:

**Foliar:** 16 fl. oz. per acre of AlphaJoule and 16 fl. oz per acre of Prymer along with 10 to 20 gallons water. AlphaJoule may be applied with water alone or tank mixed with other products (perform a jar test to verify compatibility). While the window of application is not limited, earlier plant growth stages provide better response. Apply to small regrowth alfalfa (about 3" in ht) for best results. Can apply following each cutting or at spring greenup.

### 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™, 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:**

For best results apply proper nutrient rates so they don't become the limiting factor. BioPryme should also be applied in combination to Alpha<sub>Joule</sub> at least once during the growing season or may be applied at ¼ to ½ rate at each application. BioPryme contains plant nutrients and enzymes that enhance yield and facilitate movement of plant solutions throughout the stems and roots.

**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 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:**

*Pseudomonas fluorescence* 1.0 x 10<sup>5</sup> CFU/ml

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

Microorganisms exempt from CFR requirements – 40 CFR 725.

**Packaging:** 2.5g jug + 2.5g jug of Prymer