

# NITREA PLUS

Infused granular nitrogen fertilizer

## Features and Benefits

- Enhances nutrient uptake through the increased availability of nutrients
- Facilitates a rise in root branching by creating longer root hairs, thus elevating nutrient uptake
- Acts as a humectant to attract and retain moisture
- Flexible delivery methods on granular fertilizer or as a liquid sprayed onto the soil and/or foliage of plants

## What is NITREA™ PLUS?

NITREA PLUS is a negatively charged (anionic), biodegradable amino acid polymer with molecules small enough to remain highly water soluble, but large enough where it can not be taken up by a plant.

The anionic sites on the polymer attract positively charged ions (cations) and prevent them from forming insoluble complexes with anionic ions and compounds such as phosphates, nitrates, sulfates, chlorides and bicarbonates.

Due to the increase in water-holding capacity along the polymer, the anionic sites can carry a higher solution of nutrients, which allows them to be held at a higher concentration and be more available to the plant. Through this process, NITREA PLUS acts as a crystal growth inhibitor that delays the formation of insoluble, unavailable precipitates that form between cations and anions.

With the addition of NITREA PLUS, growers in a variety of growing environments can increase the efficiency of their traditional nutrient management programs.



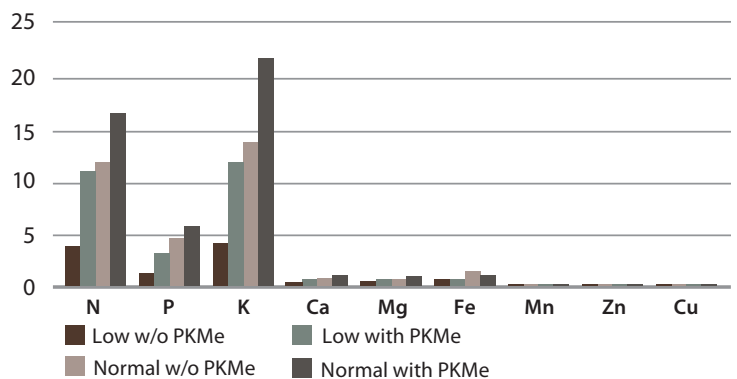
## PKMe effects on root morphology and nutrient uptake

In many crops, the root system of plants treated with NITREA PLUS will have more root branching and longer root hairs, enabling them to make greater use of available nutrients both in the soil and from fertilizer applications, allowing the plants to develop faster and easier. Research from the University of Illinois (below) shows both an increase in rooting and the uptake of nutrients.

	Root hair length (mm)	Lateral branches per plant
Nutrient	0.53	220
Nutrient + 100 ppm NITREA PLUS	0.71	219
	Seminal roots (mm)	Lateral branches length
Nutrient	29.1	3.6
Nutrient + 100 ppm NITREA PLUS	35.2	4.3

*Dr. F Below, University of Illinois*

## PKMe Nutrient Uptake



### Nutrient Uptake—Wheat Seedling

Professor Fred Below, University of Illinois

100 ppm PKMe in normal and low (20% of normal) nutrient solutions (mg/plant)

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## PKMe nutrient uptake rates

Nutrient level	N	P	K	Ca	Mg	Fe	Mn	Zn	Cu
Low w/o PKMe	4.3	1.1	4.7	0.28	0.38	0.69	0.0039	0.0055	0.0011
Low with PKMe	11.1	3.3	12.3	0.78	0.64	0.69	0.0118	0.0135	0.0034
Normal w/o PKMe	11.6	5.0	14.4	0.87	.068	1.82	0.0123	0.0146	0.0100
Normal with PKMe	16.7	5.8	21.7	1.32	0.96	1.27	0.0323	0.0222	0.0058

## Recommended use rates

<b>Vegetable Crops</b> (including artichokes, beans, brassica vegetables, bulb vegetables, carrots, celery, cole crops, cucumbers, leafy greens, legume vegetables, lettuce, melons, onions, peas, peppers, petiole vegetables, potatoes, root and tuber vegetables, spinach, sweet corn, tomatoes)	Apply .5 - 2 qt/acre when applying fertilizer either in furrow during time of planting, through drip irrigation, overhead irrigation or when applying nutrition in a foliar application.
<b>Field Crops</b> (including alfalfa, cotton, corn, dry beans, forage grasses, hemp, herbs and spices, oil seed, rice, safflower, sorghum, soybeans, sugar cane, sugar beets, sunflowers)	Apply .5 - 2 qt/acre when applying fertilizer either in furrow during time of planting, through drip irrigation, overhead irrigation or when applying nutrition in a foliar application.
<b>Berries, Trees and Vine Crops</b> (including citrus, date palm, nuts, pome fruits, stone fruits, blackberries, cranberries, grapes, raspberries, tropical/subtropical fruits)	Apply 1 - 3 qt/acre via irrigation during a fertilizer application (liquid or granular). Multiple applications of 2.0 liters can be made for a total of 8.0 liters per hectare.
<b>Strawberries</b>	Apply 1 qt/acre in furrow at planting and 2.0 liters per hectare at first bloom. Depending on the variety, successive applications of 2.0 liters per hectare can be applied every 6 weeks throughout the plant's life cycle.
<b>Sod Farms</b>	Apply .5 - 2 qt/acre when applying fertilizer—either as a preplant or after the sod is established.
<b>Nursery/Greenhouse Crops</b>	Apply a constant feed in order to deliver 25 - 50 ppm of polymer in a continuous feed irrigation system. If only feeding once a week, apply 100 - 200 ppm.
<b>Granule Fertilizer</b>	Apply up to 1 qt/ton. Fertilizer blend should not contain more than 40% urea. If blends contain more than 40% urea, drying amendments may be needed.
<b>Liquid Fertilizer</b>	Apply 1 - 2 qt/acre.

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