Harvesting Nature's Science



HUMA GRO® SUPER PHOS™ Efficiency Review

Research Report

Summary:

A research report on the efficiency of Bio Huma Netics, Inc.'s SUPER PHOS™ product compared to commonly used chemical fertilizers.

Introduction

Fertilizer use efficiency is an economically important aspect of cropping systems that is dependent upon factors such as genetic characteristics of the crop, soil characteristics, and properties of fertilizers. If one fertilizer is more efficient than another, a grower can apply less and yet produce as much of a yield as by using larger quantities of another fertilizer. Growers have seen the good results from applying phosphoric acid rather than dry phosphate to the alkaline soils of the West. They can apply less phosphoric acid and yet get yields far in excess of when they applied the same amount of P_2O_5 from dry phosphate fertilizers.

More efficient fertilizers are important to growers by reducing the cost of shipping the fertilizer, since less can be used to get the same result. More efficient fertilizers are also easier to handle and less costly to apply since less is needed. With the more prevalent drip systems now in place, less of more efficient fluid fertilization can be used instead of the inefficient conventional dry fertilizers.

Four fluid fertilizer products made by Bio Huma Netics, Inc. (BHN) were tested for plant uptake efficiency and were compared to the commonly used fertilizers available for growers. Since the root systems of monocots and dicots are different, both crop types were tested for nutrient uptake. The efficiency of uptake of other nutrients was also tested (i.e. does the BHN SUPER PHOS™ increase the uptake of N from UAN-32 or other common fertilizers?).

Experimental Setup

The fertilizers tested were SUPER PHOS™, SUPER K™, 44-MAG®, and Z-MAX®. Barley and cantaloupes were the monocots and dicots tested respectively for uptake. All were planted in sand culture since the sand provided little of these nutrients except Ca and Mg. An equal amount of nitrogen (UAN32) was added to all treatments. The SUPER PHOS™ was compared to 10-34-0, the SUPER K™ to KCl, the 44-MAG® to Epsom salts, and Z-MAX® to Zinc Sulfate. The fertilizers were added all at the same time, preplant. Additional nitrogen was added to the cantaloupes after 4 weeks, since they take longer to grow. Since 10-34-0 has N in it, less UAN-32 was added to that treatment so that the N would be constant in all treatments.

To determine uptake, the plants were harvested at ground level, dried, weighed, and analyzed for all the fertilizer elements. Uptake was considered to be from the added fertilizer, since the sand contained little nutrient except for Ca and Mg. Even if some of the nutrient tested did come from the sand, both fertilizers were added to the same sand, so a comparison could be made.

On a per-acre basis, the fertilizer additions were 88 pounds/A for N. The cantaloupes received an additional 62 pounds/A. Phosphate (as P_2O_5) added at 100 pounds/A. Both K and Ca were added at 200 pounds/A, Mg at 100 pounds/A, and Zn & B at 2 pounds/A.

Each treatment was replicated three times. The entire experiment consisted of two plant types, four fertilizer elements, two types of fertilizer, and 3 replicates per treatment for statistical evaluation.

Data and Results

Barley (monocot).

What is very interesting is the efficiency of nutrient uptake. The SUPER PHOS™ increased the N uptake by 24% over that receiving the 10-34-0 (52.7% vs. 42.5%). P uptake was increased 42% over the controls receiving the 10-34-0 (15.9% vs. 11.2%). K uptake was increased 27% over the controls receiving the 10-34-0 (34.5% vs. 27%). Other increases were 26.9% for Ca, 40.3% for Mg, 30.8% for Zn and 24.9% for B above the control results.

Cantaloupe (dicots).

SUPER PHOS™ added to cantaloupe was similar in the efficiency increases found in Barley. N, P, Ca, Mg, Zn and B were all improved in efficiency of uptake over the control. K was slightly negative.

Conclusion

Using SUPER PHOS™ as the P source for the monocot, barley, would save 48 pounds of N, 33 pounds of P_2O_5, 27 pounds of K_2O, 12 pounds of Mg, and 1 pound of B per acre. This is a savings of $57.2 per acre. Ignoring the enhancements in the uptake of the other fertilizers, the SUPER PHOS™ alone would save nearly $9 per acre in fertilizer cost for barley.*

Using SUPER PHOS™ as the P source for the dicot/cantaloupe, would save 44 pounds of N, 18 pounds of P_2O_5, no K_2O, 10 pounds of Mg, 1.4 pounds of Zn, and 1 pound of B per acre. This is a savings of $44.41 per acre for cantaloupe. A savings in N & P alone is $23.59* per acre.

SUPER PHOS™ appears to be of benefit to both monocots and dicots. The SUPER PHOS™ is indeed super. The results were very positive.

* Dollar savings were on fertilizer and micronutrient costs at time of trial. Current costs may be higher.

HUMA GRO® Products
Are Highly Efficient and Effective Due to Our Unique Delivery System

MICRO CARBON TECHNOLOGY™
Delivering Nature's Science™

SUPER PHOS™ is a highly efficient for both foliar and soil application. SUPER PHOS™ is a liquid formulation complexed with Micro Carbon Technology™, which keeps phosphate available in the soil and soluble in the soil solution for uptake by plant roots. It encourages the production of DNA, amino acids, proteins and carbohydrates within the plant.

If you would like to learn more about this top quality product,
contact us directly at 480-961-1220
or visit our website at www.humagro.com.

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