



Response of Tomato to HUMA GRO® SUPER PHOS® and SUPER NITRO®

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Research Report (U.S. Domestic)

Objective

The objective of this study was to evaluate phosphorus (P) use efficiency resulting from Huma Gro® **SUPER PHOS**® (SP, 0-50-0) application on tomatoes and use of Huma Gro® **Super Nitro**® (SN, 30-0-0) as an alternative to UAN-32.

Materials and Methods

This study was conducted at the Maricopa Agricultural Center (MAC). The field had P higher than 10 ppm; the experiment was strip-block design with 5 replications. The treatments included a 100 percent fertilizer recommendation with monoammonium phosphate (MAP) and lesser amounts of **SP**.

The fertilizer treatments were as follows:

1. Control
2. Control with **SN**
3. MAP (11-52-0) at 100% program (62.3 lb P/ac)
4. 75% P as **SP** (2.14 gal **SP**/ac)
5. 50% P as **SP** (1.43 gal **SP**/ac)
6. 25% P as **SP** (0.72 gal **SP**/ac)

For treatment 3, all MAP was applied pre-plant and power-mulched into the bed as is the standard practice. For the **SP** treatments (4, 5, and 6), the P applications were split into one-fourth the product applied at pre-plant then roto-mulched into the beds, while the remainder was added in three separate applications through the drip irrigation lines. For treatments 1 and 3, UAN-32 was used as the N source, and the N was weekly applied through the drip lines. For treatments 2, 4, 5, and 6, **SN** was used as

the N source applied in split application. A rate of N equivalent to that applied in the MAP (9.84 lb N/ac) was applied pre-plant and power-mulched into the beds. The remainder was applied through the drip lines at the same time as the UAN-32 for treatments 1 and 3.

The tomatoes (cv. Mountain Fresh) were planted on a 11.8-inch in row spacing on 39.4-inch wide elevated beds. The stands were established by sprinkler irrigation. After establishment, all required irrigations were applied by drip irrigation. Statistical analyses were performed using SAS (SAS Institute, 1999a and 1999b).

Results

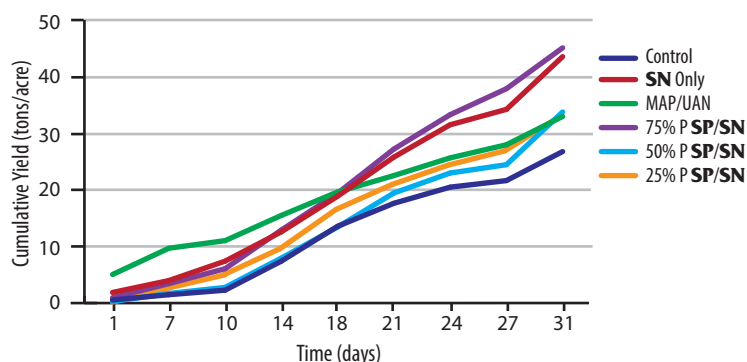


Figure 1. Tomato Cumulative Yield

Conclusions

- The total cumulative yield associated with **SP** at the 25% or 50% rate was as good as MAP at the 100% rate.
- The highest cumulative yields were associated with treatments 2 (**SN** only) and 4 (75% P **SP**/**SN**), suggesting that **Super Nitro**® may be a better in-season N source than UAN-32.

NOTE: 1 gallon of **SUPER PHOS**® (12.7 lb/gal at 68°F) is equivalent to 50 lb of P₂O₅ (P₂O₅ x 0.44 = P)



HUMA GRO® Products Are Highly Efficient and Effective Due to Our Unique Delivery System
SUPER PHOS® and **SUPER NITRO**® can be applied by foliar application, according to label directions, without the risk of phytotoxicity. They can be soil-applied for a controlled and efficient nutrient release while keeping nutrients in the root zone available and soluble in the soil solution for rapid and controlled uptake by plant roots without being blocked by clays or organic matter. Phosphate encourages the production of amino acids, proteins, and carbohydrates necessary for cellular division. Nitrogen enhances cellular respiration and promotes a longer productive crop life.