



NUTRI CHARGE[®]

LIQUID PHOSPHORUS FERTILIZER AVAILABILITY TRIAL

DETERMINING PLANT AVAILABLE PHOSPHORUS FROM APP WITH NUTRICHARGE USING ADSORPTION ISOTHERMS

Trial Location- BYU-Idaho

Investigators: Dr. Jared D. Williams Ph.D.

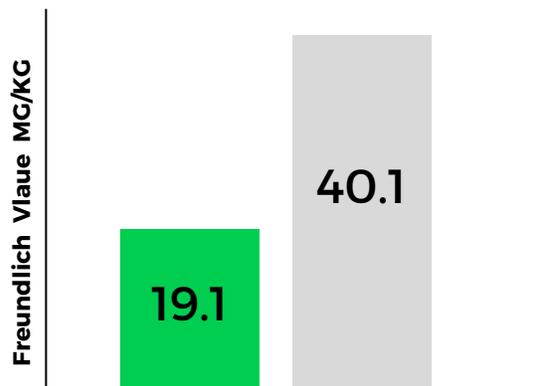
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Trial Design

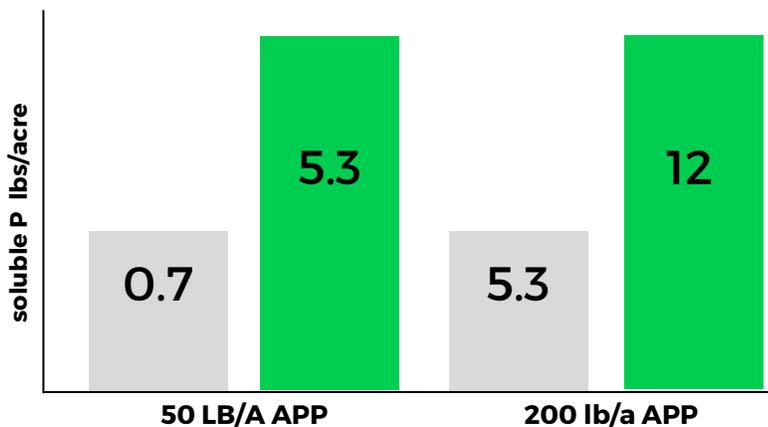
Various rates of Ammonium Polyphosphate (APP) fertilizer with and without NutriCharge were added to high P fixing Idaho calcareous soil with a pH of 8.2. These soils were then added to phosphorus adsorption isotherms. They measure the amount of P adsorbed to soil particle surfaces by adding a known amount of soluble-P to the soil and measuring the amount of P remaining in solution following an incubation period. Phosphorus adsorption isotherms are then used to determine the ability of enhanced efficiency P fertilizer amendments to prevent adsorption or fixation of applied P.

The Freundlich values indicate soil adsorption strength and capacity with higher values indicating higher adsorption of P in the soil



Data shows that the APP with NutriCharge is reducing the amount of fertilizer-P being adsorbed to the soil

The APP with NutriCharge treatment had the highest amount of soluble-P for the 50 and 200 lbs/ac fertilizer rates using the Freundlich model.



Data shows that NutriCharge increased soluble-P and decreased adsorbed-P, which is the result of the NutriCharge polymer interacting with antagonistic P fixing cations.

CONCLUSION

The APP with NutriCharge treatment demonstrated an ability to decrease P-adsorption and increase soluble-P from applied fertilizer-P in this study as compared to untreated APP fertilizers. The data in this study suggests that the NutriCharge amendment is reducing adsorbed-P by reducing the activity of P fixing cations such as calcium in the soil.