

# Nucleus Ortho-Phos 8-24-0-0.10 Fe for In-Furrow Applications as Starter Fertilizer in Corn

Paul Kennedy, Gary Schmunk, Aaron Hert, and Michael Cox

Helena Chemical Company, Memphis, TN  
ASA Conference | Tampa, FL



## ABSTRACT

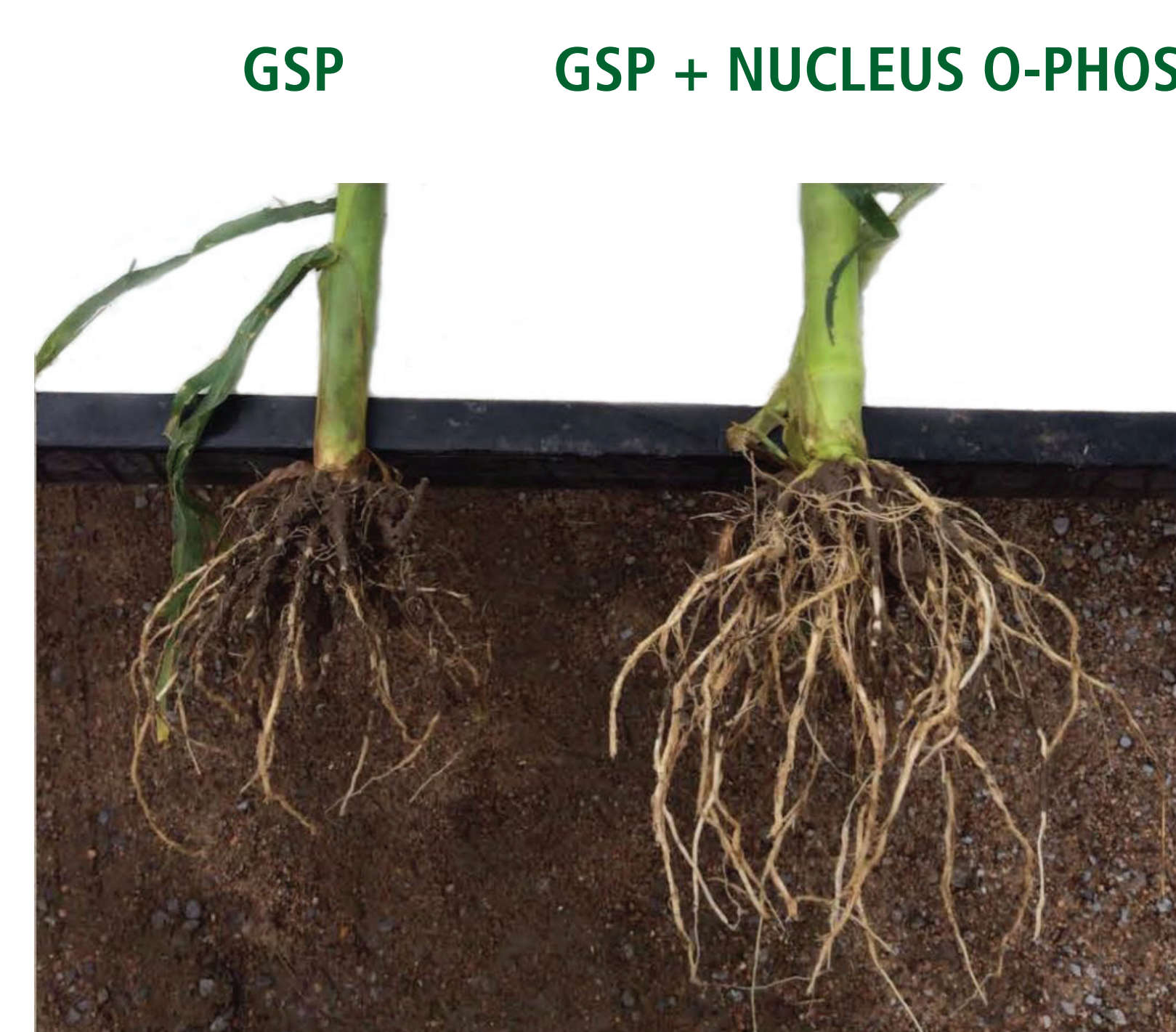
In-furrow starter fertilizers for corn (*Zea mays* L.) has been a common practice throughout most growing regions in North America. Research has shown an increase in early growth and development, as well as increased grain yield when utilizing starters. Helena Chemical Company's Nucleus Ortho-phos™ 8-24-0-0.10 Fe was applied at a rate of 3 gal/A (28 L ha<sup>-1</sup>) in eleven locations over three years: 2013 (6), 2014 (2), and 2015 (3). Field trials were placed in MN, WI (2), VA, PA, MD, ND, NE, IL, NC, and TX. All testing locations performed best management practices to promote optimal yield. Grain yield was analyzed within years and between only Nucleus Ortho-Phos and the Grower Standard Fertility Program (GSP). Corn grain yield was higher when treated with Nucleus Ortho-Phos than the GSP from 2013 to 2015. These data suggest that Nucleus Ortho-Phos is a beneficial starter fertilizer option for enhancing corn grain yield.

## INTRODUCTION

Fertilizer placed in the seed row is not a new endeavor and can have positive effects on early seedling growth. In-furrow, or starter, fertilizers promote early nutrient uptake in corn seedlings during the cooler, wet soil conditions that often render some nutrients already in the soil immobile or unavailable. Nucleus Ortho-Phos 8-24-0-0.10 Fe is a proprietary blend of plant nutrients derived from Ammonium Phosphate and Iron EDTA (Ethylenediaminetetraacetic Acid) with a pH of 6.1 – 7.5. This blend, when used as an in-furrow application, allows young seedling plants to take up readily available nutrients and, in turn, enhance plant health. Label rates range from 3 gal/A (28 L ha<sup>-1</sup>) to 5 gal/A (46.7 L ha<sup>-1</sup>).

## OBJECTIVE

To evaluate and compare Nucleus Ortho-Phos to a Grower Standard Fertility Program for overall plant health and possible increased grain yield.

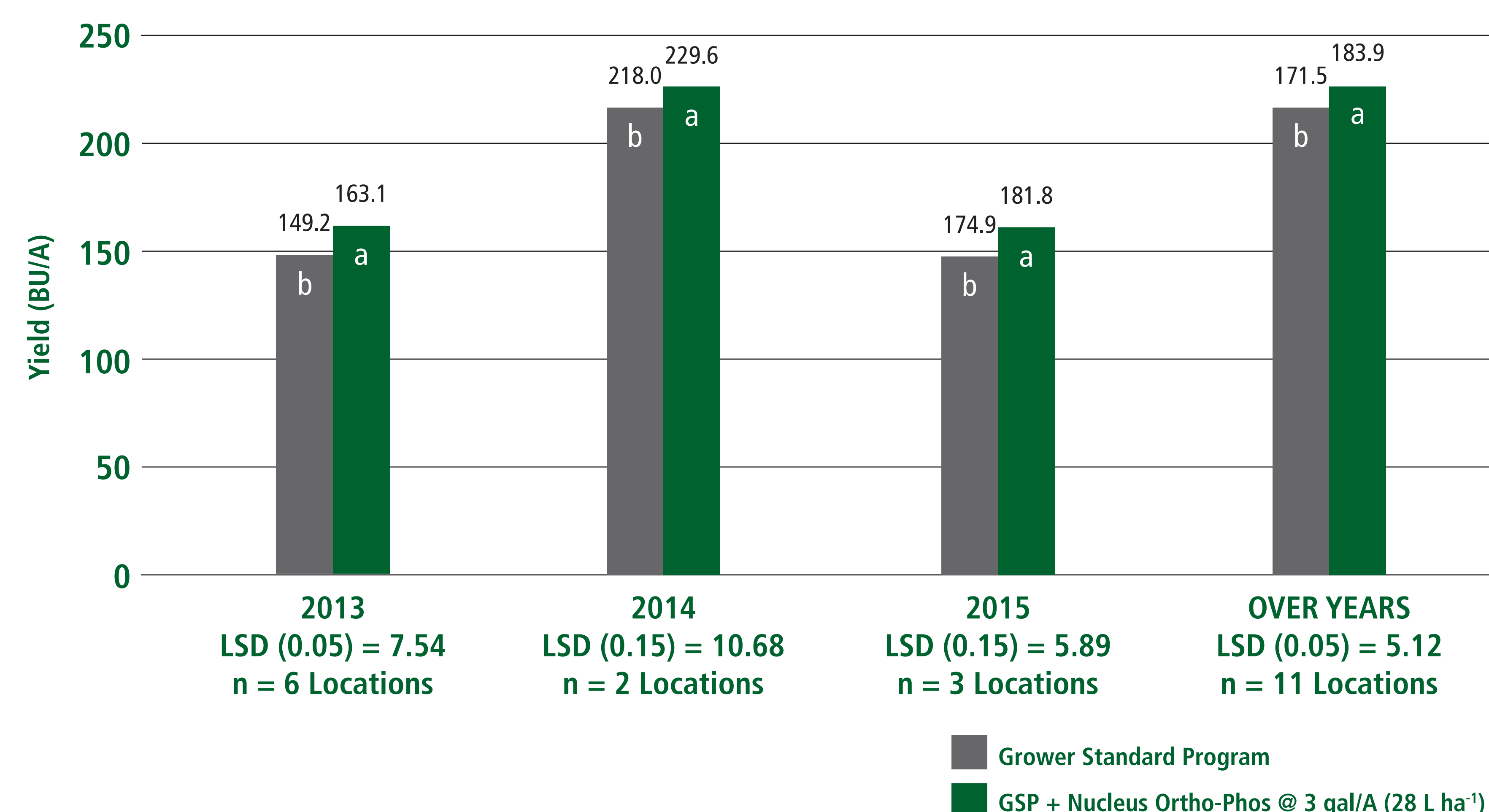


## METHODS

Field experiments were conducted from 2013 through 2015. Nucleus Ortho-Phos was applied in-furrow (IF) with the seed. In 2015, corn trials were planted in NC (SL sandy loam), TX (CL clay loam), and WI (SCL silty clay loam). In 2014, trials were placed in NE (SL silt loam soils) and IL (SCL silty clay loam soils). In 2013, trials were placed in WI (SL silt loam), MN (LFS loamy fine sand), VA (N/A), PA (N/A), MD (N/A), and ND (L Loam). All locations used a Randomized Complete Block design with 4 replications. Data were subjected to analysis of variance (ANOVA) and means were separated using Fisher's Protected LSD test.

## RESULTS

Performance of Nucleus Ortho-Phos for corn production during each of three years (2013-2015) and combined over the three years, comparing a GSP to GSP + Nucleus Ortho-Phos.



## SUMMARY & CONCLUSION

During all three years of field studies, the addition of Nucleus Ortho-Phos to the grower standard fertility program significantly increased corn yield when compared to the grower standard fertility program alone. These data suggest that using a starter fertilizer such as Nucleus Ortho-Phos in addition to a grower standard fertility program may increase corn yield more than a grower standard fertility program alone by increasing nutrient availability and uptake potential in the soil at the optimal germination and establishment timings. By optimizing early root development and seedling establishment with Nucleus Ortho-Phos, corn stand health and growth will likely be improved and yield potential increased.