



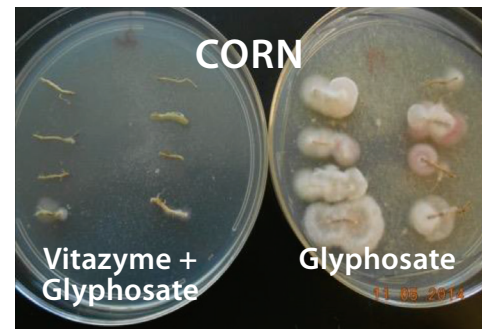
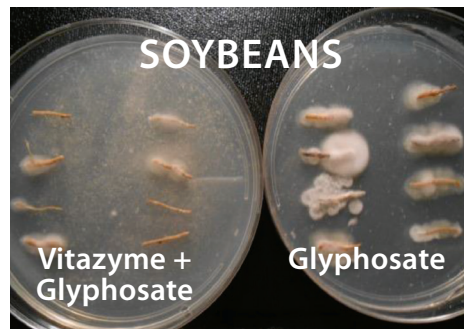
A Brassinosteroid-Based Biostimulant Improves Plant Growth, Soil Health, and Tolerance to Glyphosate Stress

A summary of a paper presented at the Fourth International Biostimulant Conference, Barcelona, Spain, November 18-21, 2019 by Manjula V. Nathan, Robert J. Kremer, Paul W. Syltie, Timothy M. Reinbott, Kelly A. Nelson, and Xiaowei Pan, Division of Plant Sciences, University of Missouri, Columbia, Missouri USA

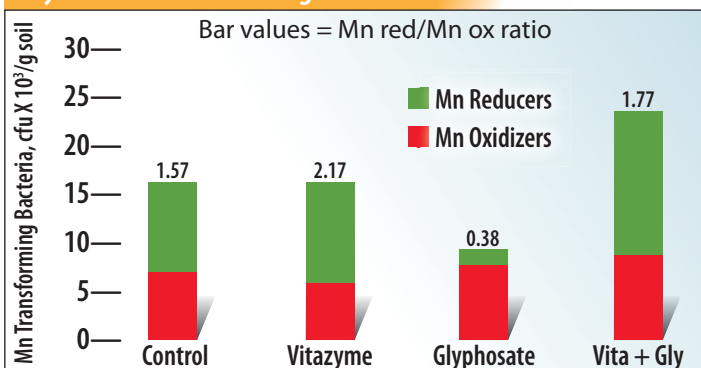
A multi-year study with Vitazyme biostimulant on corn and soybeans in Missouri proved that the negative effects of glyphosate in soil-plant systems can be remediated. The study examined root growth, *Fusarium* infection, and the proliferation of beneficial microorganisms in response to (1) no products, (2) Vitazyme alone, (3) glyphosate alone, and (4) Vitazyme and glyphosate applied together.

Findings include:

- Vitazyme supplements soil health functions and plant growth, as evaluated in root growth and soil and root micro-effects with Vitazyme, which contains brassinosteroids.
- Multiple assessments of sensitive biological indicators of soil health successfully evaluated Vitazyme as a factor in suppressing effects of glyphosate on root growth and rhizosphere biology in transgenic cropping systems, and improving soil health.
- Soil microbial diversity (PLFA groups) was restored by Vitazyme in soils planted to maize and soybean treated with glyphosate. High soil microbial diversity is essential to maintain stable ecosystem and crop productivity.
- Biostimulants can be major management factors for addressing productivity problems and declining soil health associated with transgenic crops in current crop production systems.



Soybean Mn Transforming Bacteria



Maize Mn Transforming Bacteria

