



GroZyme

FROM SINGULAR PRODUCT TO INTEGRATED SYSTEM COMPONENT



by Dr. Brian Gardener, Technical Director, and Cliff Ramsier, Owner/Board Member

Early on, sales and distribution of GroZyme® were central to Ag Spectrum Company's success. But the commitment to bring research-proven technologies to farmers led the company to a complete farming system (Figure 1). What we now call the Maximum Farming System® would not have come to be without GroZyme, nor would it be as successful without this remarkable product.

A Truly Unique Biostimulant

In the 1980's, "nontraditional" ag inputs we now call biologicals, including various microbial inoculants, seaweed extracts, humic substances, and amino acids, entered the agronomic marketplace. From its beginning, Ag Spectrum marketed one of these products, trademarking it as GroZyme. What made Ag Spectrum different, however, was more than the product itself. Rather, it was the company's commitment to respecting farmers by providing scientifically validated research.

Extensive research on GroZyme revealed

its value as a biostimulant of both soil microbial and root activity (Figure 2). Early work by Subler et al. showed that crop residue decomposition was accelerated and root:shoot ratios were increased when GroZyme was applied to soils. Subsequent work showed that such effects could lead to improved emergence and that co-formulation with Blitz further improved the consistency of yield increases.

As it became clear that early strengthening of crop rooting was beneficial, attention turned to asking how starter fertilizer formulations might best be used to improve farm incomes. Instead of focusing on what was conveniently formulated, Ag Spectrum asked how to optimally formulate a starter to achieve maximum benefits for the crop. By paying attention to plant developmental stages, such

as kernel number determination in corn, Ag Spectrum developed the unique formulation of Clean Start® and combined it with Kick-Off® and GroZyme to achieve truly superior results in early season crop support.

Ag Spectrum also considered how soil testing might best be used to improve the rooting environment to increase yields. Realizing that soil type was a major determinant of yield led to ST/MZ mapping.

Figure 1: The founders of Ag Spectrum, whose commitment to helping customers succeed led them on a journey from a singular product to full system management decades ahead of the competition.



Careful review of the fundamentals of soil science revealed that increasing soluble Ca levels improved air-water balance, effecting changes that were more important than adding dry P and K. By focusing on such fundamental truths, unique algorithms calculating nutrient supplementation rates were developed that optimized net returns for farmers.

Subsequently, the company considered how reproductive supports, already widely used in specialty crops, might be profitably used on agronomic crops. Through collaborations with some of the world's leading experts, Ag Spectrum was able to bring to market uniquely formulated foliar fertilizers that meaningfully included GroZyme in order to improve flowering and pollination, reduce the risk of yield-limiting micronutrient stresses, and increase rooting during the reproductive phase of plants.

A Central Feature of Optimal System Management

Scientists now classify biological products according to their primary function as biopesticides, biofertilizers, or biostimulants, but marketers tend to focus on the nature or source of active ingredients included. We know that some of these biological products have multiple beneficial effects, and some are specifically formulated to do so. However, Ag Spectrum was the first company to understand and successfully integrate its biostimulant into a complete system of soil and crop fertility management.

In transitioning from product- to system-focused marketing, Ag Spectrum's founders were able to point out that applied field research has limited value. By

estimating the yield return of a product or practice in a side-by-side study, one remains at the mercy of site-specific variables, including soils, weather, and management implementation. By increasing the number of site years in a study, one might gain some confidence in the average response. However, that average value means nothing to an individual farmer working a specific location, with particular labor and

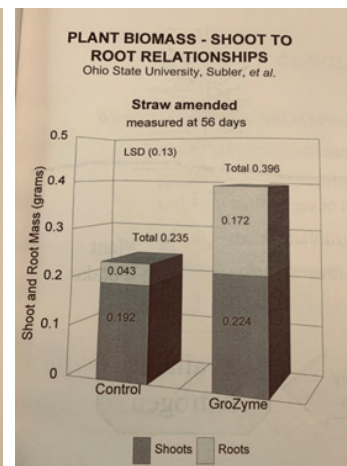
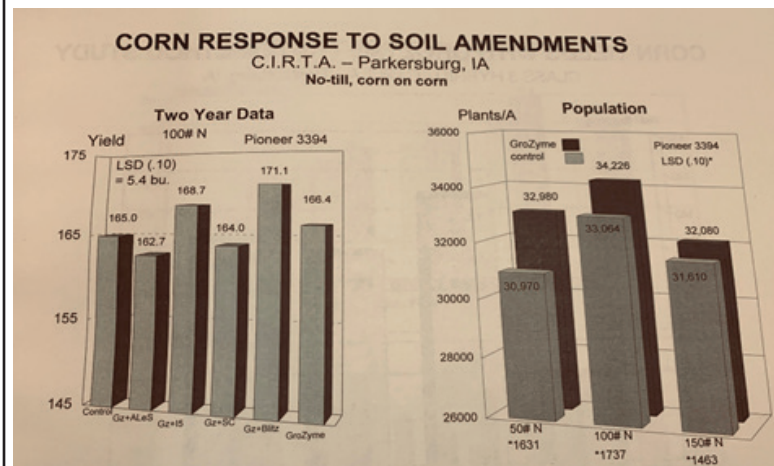
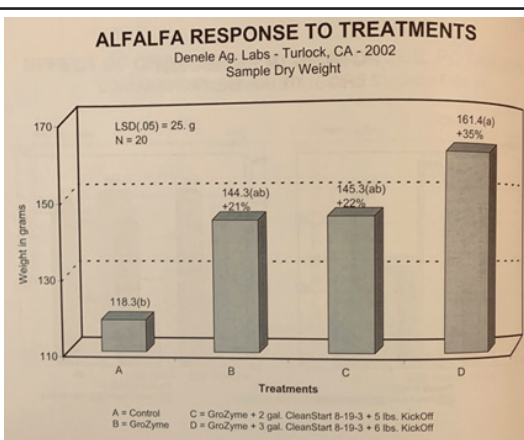


Figure 2: An early compilation of research supporting the use of GroZyme contains more data than most other biostimulant products currently on the market.

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equipment constraints, in any given year.

Ultimately, the ONLY way to help any individual farm, is to understand its unique soils, work through management challenges, and make better decisions using scientifically-sound technologies and practices. The research supporting the Maximum

Farming System is generally referred to as "basic" science, i.e. research describing the fundamental nature of things. Through its understanding of natural processes operating in farmers' fields, Ag Spectrum is able to formulate better products and design more effective practices to optimize crop production for each individual farmer.

After nearly forty years, Ag Spectrum's journey continues as new scientific insights are made and new technologies come on-line. While we continue to ask good questions and seek out worthwhile answers, it is humbling to realize that the scientific foundations on which the Maximum Farming System was built remain the same. By creating a healthy rooting environ-

ment and applying the 5Rs, nutrient use and land use efficiencies are increased, as are farmers' net returns. So, as our journey continues, remember that the Maximum Farming System of today started with and continues to rely on the beneficial effects of GroZyme. ▲