



# Modern Ag Product

## BioBase Field Report

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BioBase is perhaps the most versatile product in the Modern Ag Product line. BioBase is a unique formulation containing a number of substances designed to improve the soil environment and crop response. BioBase is not crop specific, and can be applied at any time during the season. BioBase addresses a wide range of soil-related concerns.

BioBase works to stimulate and enhance soil biological activity by providing a balanced nutrient source and soil environment conducive to aggressive microbial proliferation. Immediately upon incorporation into moist soil, BioBase begins the process of restructuring problem soils. BioBase contains flocculating agents which increase soil macro-pore space. An increase in pore space results in improved soil aeration, increased water penetration and retention, and reduction of the effects of compaction. As soil biological activity is enhanced, the process of soil restructuring is accelerated.

Most of the characteristics that we normally associate with a productive soil are either directly or indirectly associated with aerobic biological activity. Microbial activity determines the tilth of a soil through flocculation, aeration, and humus formation. A healthy soil is very much a living entity that is teeming with a wide variety of microorganisms. However, many of our agricultural soils are not biologically healthy. Modern intensive farming often requires extensive use of agricultural chemicals and salt-based fertilizers. Large scale farming uses heavy machinery to maintain timely planting

and harvest schedules. Tillage operations may be necessary when soils are too wet or too dry. Crop residue may be removed or improperly decomposed and growing cover crops may prove impractical. The regular use of BioBase can be an important tool to maintain and improve soil health and crop productivity.

The capability of any soil to supply a growing crop with available nutrients is largely a biological function. Almost all the sulfur, 98% of the nitrogen, and as much as 90% of the phosphorus that a crop will take up will come from biological sources. This does not mean that crop plants will take up these nutrients in an organic form although that is a possibility. Nutrients are mostly taken up in the mineral form as nitrates, sulfates, phosphates, etc., but their availability to growing plants is directly related to aerobic biological activity. The key word here is availability. Nutrient availability is the function of soil microbes and biological decomposition of products such as humus. Soil microbes directly improve the availability of plant nutrients while making the soil more conducive to root growth. An expanded root system allows crop plants to access and take up nutrients and moisture.

BioBase contains organic complexing agents which increase the availability of plant nutrients and acts as a humus generator by enhancing soil microbial activity.

BioBase also increases the efficiency of applied fertilizers and results in improved crop response. Organically

complexed nutrients are less subject to loss from leaching, volatilization, chemical fixation, and clay fixation.

The complexing properties of organic carbon found in BioBase also serve another important function in many agricultural soils. High alkalinity and salinity pose a problem in soils in many coastal and arid areas. Sodium salts are especially damaging to both crop yield and soil structure. BioBase buffers salt by dissociation and organic chelation and immobilization of the component elements. Dissociated salts are far less damaging to crop and soil and remain dispersed in the soil profile. Multiple applications of BioBase during the growing season is the most effective in salt management.

BioBase is as versatile in terms of application as it is in terms of activity. BioBase can be applied to any soil type either before, during, or after planting. An early season initial application is recommended for greatest activity. BioBase can be water run, broadcast and incorporated, band sprayed, or side dressed. BioBase can be tank mixed and applied with most fertilizers or impregnated onto dry fertilizer. BioBase is compatible with most herbicides, insecticides, fungicides and plant growth regulators. The organic acids in BioBase may increase the activity of some agrichemicals and caution should be used when mixing pesticides with BioBase.