



# Modern Ag Product

## A DECISION FOR FALL

By Norman Wilson Ph.D.

Fall is the season when harvest is finished and a farmer's schedule slows from the hectic and demanding days of spring and summer. Fall and winter provide time for growers to reflect upon the crop just completed and begin to plan for the new season. A good fertilizer and crop nutrition program is an important part of this planning process. Application of most fertilizer products can and should wait until next planting season. Modern Ag Products BioBase with Plus E and SoilCure are exceptions to this rule. These probiotic products perform best when applied to crop residue immediately after harvest and incorporated into the soil.

BioBase with Plus E and SoilCure are designed to promote aerobic decomposition of crop residue and restore microbial balance to soil. BioBase, Plus E and SoilCure are biologically active formulations with enzymes and nutrients necessary to facilitate complete transformation of organic residue to humus.

Modern farming depends on upon frequent cultivations, chemical pest control, and heavy use of acid or alkaline forming fertilizers to achieve production. These practices tend to reduce populations of aerobic soil microbes and can result in a biologically imbalanced soil. Some species of organisms may be entirely eliminated. Frequent and continued use of these practices can result in soils that are poorly aerated, biologically deficient, and in no condition to decompose large volumes of high carbon to nitrogen ratio residue produced from intensive cropping systems.

Burning and heavy applications of caustic fertilizer can reduce residue to manageable levels but do not help soils maintain or regain their biological health and structure. SoilCure and BioBase with Plus E on the other hand, aid in flocculation of soil which increases aeration and begins the systematic reduction of residue to humus. The complete biological conversion of residue requires a sequential process involving many species of soil organisms. Simple carbohydrates and proteins released by enzymatic activity provide energy for other microbes which break down complex carbohydrates such as cellulose and lignin into humus. This process efficiently recycles mineral nutrients and maintains them in an available form. The soil environment created by this activity tends to further promote populations of beneficial organisms and inhibit soil borne disease and parasitic nematodes which prefer more anaerobic conditions.

The humus that results from the aerobic decomposition of organic residue is extremely important to agricultural soils. Humus increases exchange capacity by organically complexing mineral nutrients to keep them in an available form. Humus improves soil structure, increases buffer capacity, and the dark color improves heat absorption. Humus provides organic acids and other substances which stimulate soil microbes and crop plants. Humus also improves soil water relationships as it increases water penetration, retention, and release.

Under optimum conditions, a biologically healthy soil will provide all the control measures necessary to keep parasitic nematodes and soil borne disease in check. Beneficial and harmful species of organisms are present in the soil at all times but the relative proportions of these species will depend upon the attention given to biological aspects of the soil. Most nematodes, including the plant parasitic types are facultative fungivores. They subsist primarily on large amounts of fungal decay products found in a healthy soil. Biologically balanced soils are better equipped to provide nutrition to both crop plants and the soil microbial population. Ironically balanced crop grown on biologically active soil will have enhanced natural resistance to all types of pest attack.