



INTRODUCTION TO THE RESEARCH

Initiated by **THE
Brightleaf
RESEARCH
FUND**

MAKING USE OF FERTILIZERS CONTAINING ORGANIC MATTER & THEIR BUDGETING

The introduction of chemical fertilizers and their ability to deliver plant nutrition cost effectively all but eliminated organic matter as a recognized value throughout much of the 20th century- at least as far as organic fertilizers is concerned. Simply referring to this type of fertilizer as organic fertilizer rather than fertilizer containing organic matter may itself be reason it has met resistance, albeit inexplicably, by contemporary academic and commercial establishments.

Improved soil biology for better nutrient mineralization and reduced pressure from turfgrass diseases are two definitive benefits gained from the use of fertilizers containing organic matter. Turfgrass and ornamental plants also realize improved heat and drought tolerance from the application of these fertilizers when substances from the organic matter are taken up directly by the roots. The centerpiece for any organization's sustainable land care plan can be based on these resulting nutrient management and water conservation practices. Related research has demonstrated this benefit (see below). This should be of no surprise. Organic matter's role in soils is one of the most studied fundamentals in agriculture. To say it is vital would be an understatement. Soil biology, plant life and society itself relies on organic matter and its dynamic nature.

Anything referred to as *organic* carries with it a myriad of connotations—most

are misconceptions. Risk for such emotional distractions is avoided by highlighting organic matter as an active ingredient in fertilizer. The quantity of organic matter applied in a fertility application is most important. Poultry manure and biosolids enables the highest volume of organic matter to be applied for obtaining results cost effectively. Their conversion as a potential pollutant to a beneficial use is a bonus for society when properly processed. When purchased and applied by landscapers, a major environmental solution is also realized. Exactly how much to apply in fertility applications is a question in need of an answer that is long overdue. Without benchmarks, would results from conventional N, P, K products be possible? No. For results, professionals have been budgeting nitrogen-based fertility programs for decades. Today, it is Nutrients PLUS who has been assisting clients with methods for budgeting.

Now, instead of just budgeting for N,P,K their customers are learning how to budget for the fourth benchmark and the proper amount of organic matter. Without this benchmark one is shooting darts in the dark.

Collectively, the following studies provide the amount of organic matter needed for results and certain benefits gained- such as drought tolerance. Other benefits from organic matter don't apply such as changing soils physically. Amending soils would require much greater volumes.

BRIGHTLEAF RESEARCH AT VIRGINIA TECH

The research encompasses two diverse locations at a coastal research station and plots located on the campus's Shenandoah mountain region utilizing three grass types representing over 80% of the nation's cultivated turf.

VT is the university of choice because much of today's commonly accepted practices related to use of organic substances for improving plant health, better methods of fertility, improved disease resistance and drought tolerance dates back over decades of research by renowned scientists such as Dr. R.E. Schmidt's work with biostimulants, auxins, gibberellins, humic acid and other organic substances.

That tradition continues with oversight from principal investigators Dr. Erik Ervin and Dr. Rory Maguire for the Brightleaf research; others such as Zhang and Evanylo in their related research.

BUDGETING ORGANIC MATTER

THE BRIGHTLEAF FUND initiated this work. The study begins in 2008. A prerequisite to receiving benefits such as drought tolerance from fertility programs with organic matter is to first learn how much to apply. These programs are examples of those prescribed for clients in 40 U.S. states and in Canada. Precedence for improved nutrient mineralization is also cited from a study at Ohio State University and disease suppression from Cornell University.

RELATED RESEARCH

DROUGHT ASSESSMENT OF AUXIN-BOOSTED BIOSOLIDS

Xunzhong Zhang, E.H. Ervin*, G.K. Evanylo, and K. Haering. Department of Crop and Soil Environmental Sciences, Virginia Tech, Blacksburg, VA 24061

* "Any organic material could be a carrier for auxin, not just biosolids." Dr. Erik Ervin

CYTOKININ-CONTAINING SEAWEED AND HUMIC ACID EXTRACTS ASSOCIATED WITH CREEPING BENTGRASS LEAD TO DROUGHT RESISTANCE

Crop Science, VOL. 44, September-October 2004. Xunzhong Zhang and E. H. Ervin

