



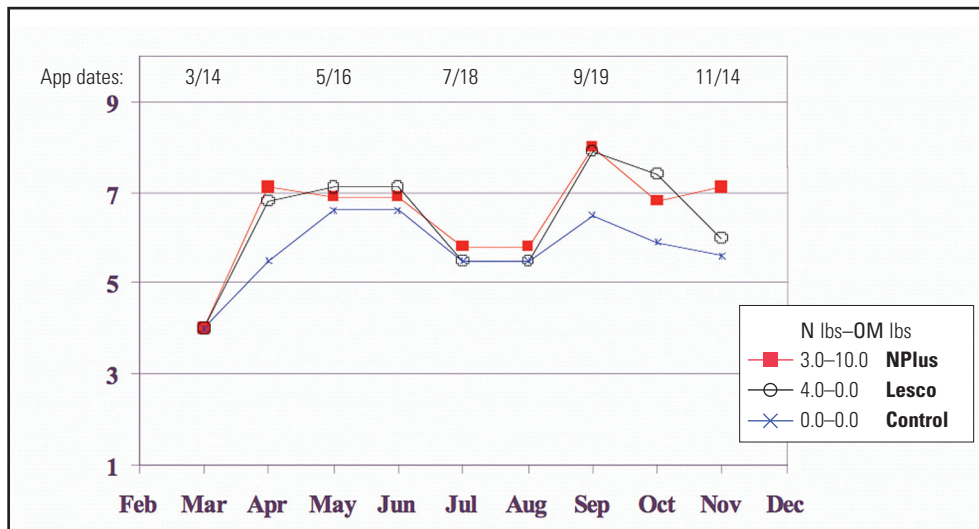
# Classic Patterns to Budgeting Organic Matter

Research Studying The Budgeting Of Organic Matter Reveals A Classic Fertility Response With Less Nutrients Required

## Nutrients PLUS – Fertility Programs with Organic Matter (Figure 1)

### KENTUCKY BLUEGRASS: 5-TREATMENT PROGRAM

Color Rating: 9 = best



Notes:

1. Kentucky Bluegrass (KB), tall fescue and bermuda grass are all a part of the study.
2. Controls receive no fertilizer and conventional programs receive standard N rates (4 lbs/1000 sq ft/year) but no organic matter.
3. Programs with organic matter received less N (3 lbs/1000 sq ft/year) plus either 10 lbs, 15 lbs or 20 lbs of organic matter.
4. For each grass type there are both high maintenance, 5-treatment programs and low maintenance, 3-treatment programs.

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Color responses with no significant difference were realized in programs with organic matter compared to conventional programs without organic matter even though 1/3 and at times 1/2 the amount of nitrogen was applied (Figure 1). The addition of organic matter theoretically adds energy to the soil which living organisms use to convert essential nutrients into forms more available to the plant. 18 programs with organic matter are all working and show the need to continue the study for this effect over the long-term. To date, it is shown how in programs with organic matter there is enough readily available nutrient to provide the same green-up as the conventional programs. Further, these results were extended throughout the entire season and may be attributed

to the water insoluble nitrogen complexed in the organic compounds. Based on these findings alone, the budgeting of quantified amounts of organic matter predicts similar results to a conventional program and the reduced nutrient requirements offers the industry a proactive approach to nutrient management. In years two and year three, control plots receiving no applications will continue to decline in color and quality. Of interest will be to see if the programs with organic matter actually improve over time. If so, besides budgeting organic matter for its valuable, water-insoluble, slow release nitrogen, other benefits may be occurring related to the increased activity of the soil biology.

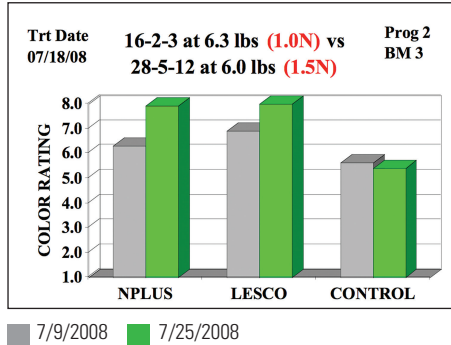


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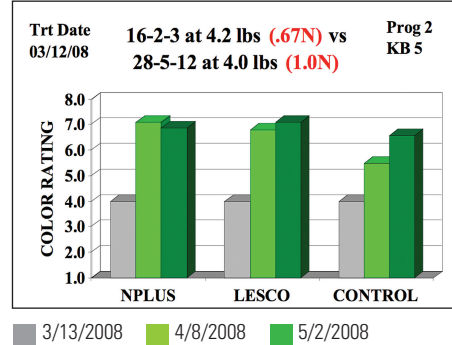
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## Nutrients PLUS – Single Treatments With Organic Matter (Figure 2)

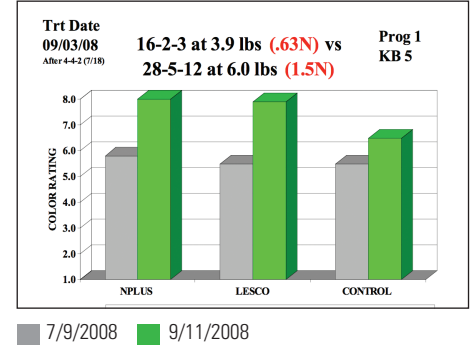
### BERMUDA - SUMMER



### KENTUCKY BLUEGRASS - SPRING



### KENTUCKY BLUEGRASS - FALL



Notes:

1. Warm-season and cool-season grass types responded throughout the seasons—spring, summer and fall.
2. Besides Bermuda and Kentucky Bluegrass, applications of 16-2-3 were also made to tall fescue with similar results.

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A number of Nutrients PLUS granular fertilizers were used in the programs. Nutrients PLUS 16-2-3 in particular provides a good example of how singular treatments can deliver results at significantly reduced rates of nitrogen (Figure 2). This is partly explained by classifying fractions of water insoluble nitrogen (WIN) from both organic sources, poultry manure and biosolids, like it is in conventional slow release nitrogen such as Urea Formaldehyde (UF). Together, these two sources of organic matter in 16-2-3 essentially replicate UF's range of activity. There are historical and technical reasons why the two distinct organic fractions have not been combined previously. Utilizing modern processing methods, both are now available to be mixed. Again, the combined mixture offers extended periods of activity closely resembling that found in standard UF formulations. By adding in three other conventional sources with their respective periods of release within the shorter ranges (quickest, quick and slowly available) a customized finished product is produced.

A caveat remains. The two organic fractions of WIN are delivered to soils embodied in a complex of organic matter. UF is not. In the absence of these substances less biochemical reactivity results and the mineralization of nitrogen to plant available form is diminished. The delivery of WIN embodied within self-contained sources of energy that gets used towards ensuring its conversion into a more available form is a more efficient methodology. Adding to this effect and supported by the results of bioassays<sup>1</sup>, the presence of naturally derived beneficial microbes in the particular form of composted poultry manure used when making the mix (of five nitrogen sources) will further enhance the product's performance. The benefits from the direct uptake of simple organic substances are also known. Auxins and humates are examples. They are known plant growth regulators with many benefits such as suppression of diseases and increased drought tolerance. While not the purpose of this report, an objective comparison would also have to include these merits of WIN complexed in organic matter but not provided by UF.

<sup>1</sup> Soil Food Web, Port Jefferson, NY, 2003