

**SUMMARY**

Development of an effective soil microbial enhancer and organic fertilizer

**DATA**

2002 (part of field dissertation involving extensive field research)

**SOURCE**

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**MORE INFORMATION**

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## Commercially competitive organic fertilizer/soil microbial enhancer

One of the significant problems associated with organic turfgrass management programs has been the inability to develop and maintain the needed high levels of overall turf quality and aggressiveness (recuperative potential) when using natural organic fertilizers. The literature published regarding the positive soil structure/building and disease reduction effects of organic fertilizers and amendments on professional turf is voluminous, as well as the negative aspects of usage volumes, mower/roller pickup, bulk storage, foul smell, seasonal effectiveness and cost. In view of these disadvantages, the most desirable natural organic fertilizer/amendment should include: The highest level of *natural organic* nitrogen available; the lowest C/N ratio possible (preferably under 4 for more rapid microbial breakdown and nitrogen availability); easy application (preferably a liquid soluble/flowable spray application to avoid particle pickup during mowing and to enhance response time or a very fine greens grade granular); and high microbial populations and activities after application. EcoOrganics, Inc. has developed and tested a line of soybean-based natural organic materials. The central product was named "SoylMicrobial" due to the very rapid and extensive enhancement of soil microbial populations. It is formulated as a wettable powder which forms a suspension for spray applications. It has one of the highest natural organic nitrogen levels in the industry (13-2-1) allowing, for the first time, the ability for spray-applied spoon-feeding. It is a 100 percent natural organic de-

rived through a complex extraction of soybeans – not a by-product of the meat/fowl industry. Use of a totally food-grade product eliminates the foul smell, and a no "salt index" allows for mid-summer applications. Importantly, research shows it provides rapid and extensive enhancement of soil microbial populations. Turf quality ratings for USGA greens profiles showed no observable differences between SoylMicrobial and Inorganic treatments indicating, for the first time, that a 100 percent natural organic material can perform equally as well as an inorganic material during a nitrogen "spoon feeding" program, particularly to USGA sand greens (Fig. 1). Applications of SoylMicrobial result in extremely rapid and large increases in existing soil microbial populations compared to Milorganite and inorganic nitrogen treatments (Fig. 2). This rapid response is again due to the low C/N ratio of the material and application as a flowable liquid spray (flowable powder) which carries the material into the soil more effectively, as well as having a much larger surface area for microbial activity. These results suggest that the elevated microbial activities enhance degradation of native soil organic matter as well as overlying mat and thatch. Research is now in progress to further quantify these results in addition to potential weed control characteristics. A roster of six different flowable, greens grade and coarser fairway and rough granular products should reduce disease and thatch pressures, result in more rapid increases in color and density and become components of strong IPM programs.

Figure 1. Enhancement of microbial populations in response to Soy/Microbial, Inorganic and Milorganite applications on a USGA sand green profile

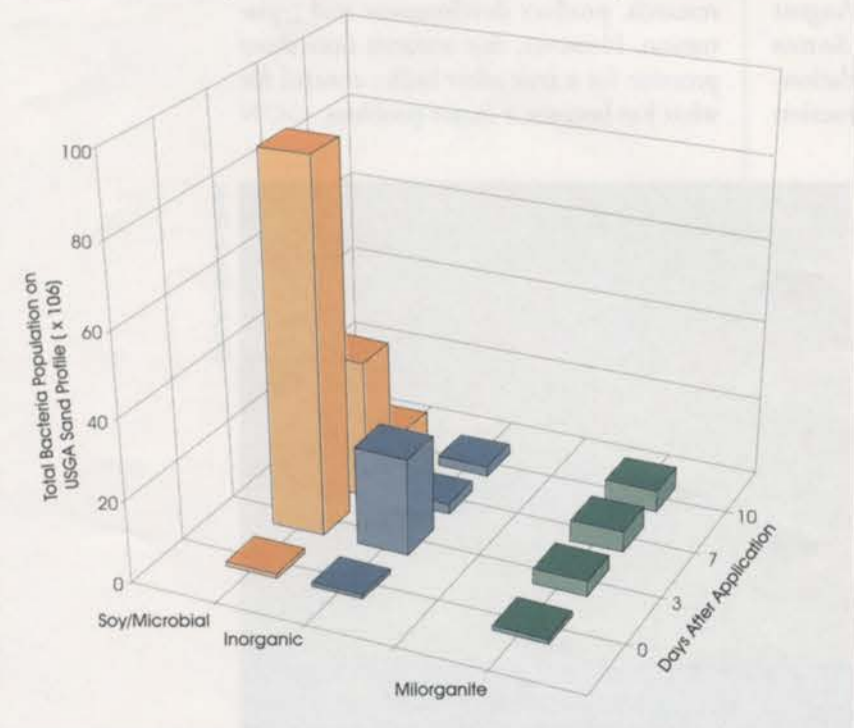


Figure 2. Seasonal Turf Quality comparison of Soy/Microbial with Inorganic fertilizer on a silt-loam native soil.

