

TESTING MOTHER NATURE

By Don Arenberg

Since my first article appeared in the January 1996 *sportsTURF*, many readers have contacted me, requesting information on the following.

• Readers had heard that natural materials would produce better results than synthetic fertilizers, but they had not observed any recognizable benefits from organics. Readers wanted to know why.

• Most readers requested a list of natural products that will provide definite visual benefits and wanted an opportunity to test the products. They wanted to know exactly what superior results they can expect from natural products that they cannot obtain from synthetics.

Quick Answers

Research has discovered that the

primary key to nature's success in growing healthy plants comes from plant manures and the biological processes they promote within the soil. Most newer products today are basically plant manures designed to imitate the benefits of nature and her necessary total reactions. I have not tested all products and invite manufacturers to contact me if they're interested. The following companies' products have been tested and have provided many visible benefits: Pro's Choice, Inc.; Grounds Management Consultants, Inc.; Organic Systems International, Inc.; and Biogenesis, Inc. (a division of Agro Care).

Readers, for their tests, can try products from one of those companies or from any others. Often products are packaged in smaller-size containers, so they can be tested inexpensively on small areas.

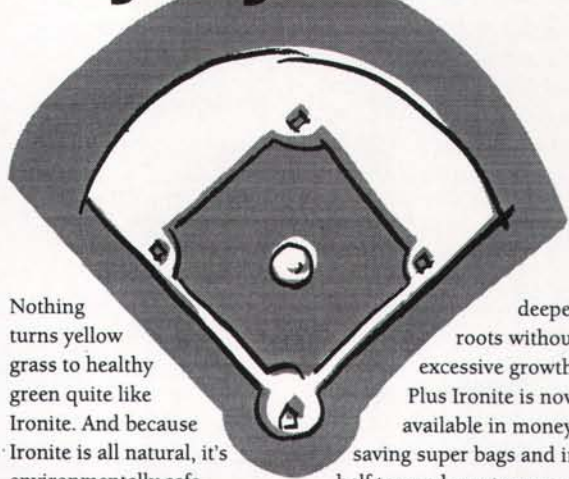
Visual results will be most noticeable when products are applied during the active growing season, May through October. It is wise to begin using natural products now, so some results can be observed before autumn arrives.

Because soils vary from region to region, natural products will perform differently from one turf area to another. Professionals should always test products on their own sites, under their particular conditions, before determining their next steps: short- and long-term programs.

Benefits To Turfgrass

Readers who set up comparison test areas — one for synthetics and another for organics — can look for the following visible reactions to turfgrass in the organic plot.

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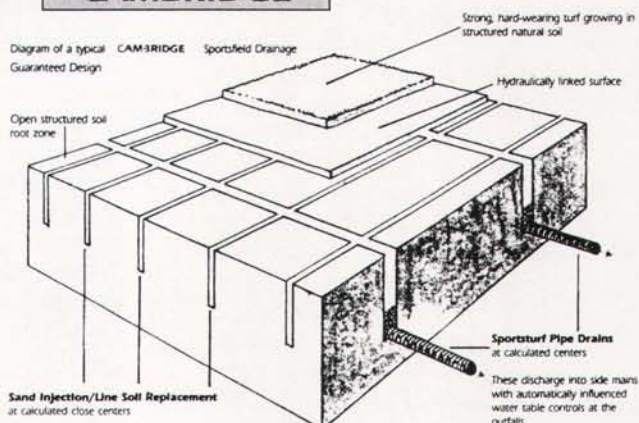
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Aggressive root growth. There should be an increase in root numbers (mass), size (thickness) and depth.

Massive, aggressive rhizome and stolon growth. The more of these structures, the denser the population of pure grass. They will restrict the growth of other plants (weeds) while eliminating bare soil and thin areas.

Deep green, attractive leaf blade color. This indicates healthy plant reactions.

Development of dense, strong, thick cell walls. This is critical in developing natural plant immunity and defense systems.

Slower leaf blade growth after grass established. The result is stronger plants, requiring less water, fertilizer, etc.

Natural Benefits to Soil

If organics prove more successful than synthetics on test plots, the following benefits should be observable in the soil.

Reduced soil toxicities. This is the main way most older turf stands can be improved.

Salts from applications of chemical fertilizers, pesticides, and ice-melting compounds accumulate in compacted soils that drain slowly. High salt levels will kill actively feeding grass roots and inhibit essential grass reactions and efficient water utilization (requiring more watering, both frequency and

quantities). Salts also kill essential soil microbes, so beneficial soil reactions cease. The soil becomes more compact, and toxic gases (methane, carbon monoxide) accumulate.

Salt concentrations can be measured with salt meters, and damaging effects can be observed visually: (1) root tips turning brown and dying; (2) grass roots growing within the top 1/4 to 1/2 inch of the soil or on the soil surface; (3) grass showing signs of yellowing and thinning. Also, compacted soils and accumulations of non-decomposing surface-mat and thatch are results of salt damage.

Certain plant manures and other natural compounds contain catalytic enzymes (produced from a symbiotic relationship between a virus and a bacteria) that convert harmful salts into beneficial compounds. Noticeable effects of salt levels becoming lower and less toxic include the following: (1) grass roots begin to grow more deeply and massively into the soil; (2) turf density and color improve; (3) soil puddling becomes less, as the soil shows signs of loosening with better penetration of water, air, nutrients and grass roots; (4) dead plant matter (mat and thatch) accumulations begin to decompose, forming essential organic soil matter.

Improved physical, chemical, biological, and productive soil characteristics. Microbial

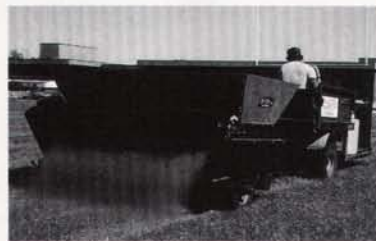
actions on compacted soils become obvious. A more "crumbly" texture is noticed as the soil becomes more "friable." "Soil aggregates" develop creating more "pore space," improving the flow of water, air and nutrients, and encouraging more growth of microbes. Deeper and more numerous grass root growths are quickly noticed.

Grass roots, rhizomes, and stolons begin to grow more profusely, deeper, appearing very white in color and aggressively developing many new shoots. As the soil conditions improve, root depth may reach six to 12 inches within a year or two after treatment begins.

As each minor improvement is accomplished, soil reactions beneficial to a desired plant are multiplied. All improvements will be visible. Not only will the grass become denser and greener, with deeper roots and more massive rhizomes and stolons, but the plant's ability to ward off adversities and heal from wounds will improve. The plant will exhibit fewer poor responses occurring from predator attacks and adversities. □

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