

# Better Turf With Compost

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Several superintendents in the Chicago area have been replacing their traditional sand/peat/seed mix with compost to repair divots. The time to germinate new grass in these repaired divots have been reported to be as little as one-fifth the time required by the traditional mix.

There are several reasons that compost worked in this application, and these reasons apply equally well to a number of other jobs around the well-maintained golf course. At the risk of telling many of you things you already know, we'll address a few of the reasons compost does good things for turf.

## Selected results from a typical laboratory test

Organic Matter . . . . .	29.4%
pH . . . . .	7.4
Carbon-to-nitrogen ratio . . . . .	15:01
Moisture content . . . . .	48.0%
Nitrate nitrogen . . . . .	639.0 ppm
Phosphorus . . . . .	7.0 ppm
Calcium . . . . .	656.0 ppm
Magnesium . . . . .	216.0 ppm
Sodium . . . . .	176.0 ppm
Boron . . . . .	5.0 ppm
Zinc . . . . .	52.5 ppm
Manganese . . . . .	1.8 ppm
Iron . . . . .	23.3 ppm
Copper . . . . .	1.7 ppm

Soils consist of air, water, minerals and organic material. The mineral portion of soil is generally clay, silt, sand or some combination of these. The organic portion, humus, consists of partially decomposed (composted) plant and other organic matter. Humus, which results from the slow decomposition of plant material on the ground, not only has had plenty of chance to pick up stray weed seeds, but it may support some plant pathogens. Commercially composted humus has been decomposed in very large windrows that are held at over 140°F for two months or more, and all weed seeds have been killed.

Compost consists of partially decomposed organic matter, and it  
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is very similar to the organic matter found in soil; so from here on, "compost" may be read "humus." While the mineral portion of soil may vary widely in appearance and combustion by region and geological origin, the organic material, which results from decomposed plant and animal life, is similar nearly everywhere. Soils that are thought to be rich topsoil generally contain 3 to 5 percent organic material. Stable compost ranges from 28 to 35 percent organic content.

Compost absorbs and holds large amounts of water very much like peat. Unlike peat, it doesn't become water-repellant when it dries. The water in compost is available, as needed, to the plants growing in it. Compost contains nutrients and trace elements which are essential to healthy plant growth.

And compost contains life—bacteria and fungi which help maintain or restore a healthy balance of soil microbes. The proper balance of these organisms results in healthy plants which are more resistant to disease and insect damage than plants grown without compost. These microbes also support other beneficial life-forms, such as earthworms. Together, they cause the soil to "clump," providing paths for air and water to circulate in the soil, improving percolation and infiltration, reducing compaction, and increasing resistance to erosion. Another valuable function of the microbial life in soil is the "tie-up" of excess nutrients. These are retained and then made available to plants, as required, in an easily usable form.

The organic portion of soil is not permanent. Even the relatively stable organic material, which remains after the composting

process, slowly decomposes over time; and it decomposes more rapidly the more the soil is tilled. Once-fertile, over-used soil which has become powdery or compacted and which will no longer produce plants of acceptable quality has lost much of its organic component. Since it may take between 100 and 150 years, under ideal conditions, to create one inch of topsoil through the natural cycle of undisturbed plant grown and decay, the need to protect and systematically to restore organic material to heavily-cultivated soil is apparent.

**The Chemical Solution**

As soils have become less fertile through intensive use, chemical solutions have been increasingly used as a substitute for natural fertility. Because these chemicals make it possible to grow acceptable plants in poor soil, they have allowed such highly intensive

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use of soils that, in many cases, there is one-third or less of the original organic matter left. As a direct result:

- Because organic material retains excess nutrients, without organic matter, fertilizer which is not captured by root systems soon after application leaches into ground water and nearby surface water, resulting in wasted fertilizer and significant environmental damage.
- As organic matter is used up, larger and larger applications of fertilizer are required to achieve the same results.
- Soils are much less resistant to erosion, and because of their dusty, hardpan consistency, water runs off the surface rather than soaking into the soil.
- Drought resistance is materially reduced because the soil will not retain as much water from rainfall.

## A Better Solution

Test on golf courses and athletic fields show that the use of compost in establishing new turf helps increase the speed and total percentage germination of turf seed and increases the knitting of sod roots. Further, the resistance to heavy wear of turf grown in soil amended with compost, and the ability to recover from such use, improves significantly.

Similar experience by landscapers indicates that incorporating compost into beds before planting, and the use of a soil/compost mixture for backfilling after planting shrubbery and trees, results in larger, healthier plants, lower plant mortality and materially reduced fertilizer requirement.

## How to Use It

Here are some proven ways to use compost:

To establish new seed:  
*Till 2" of compost to a depth of 5" and plant.*

To establish new sod:

*Spread 2" to 4" of compost on graded soil, disc in, rake smooth, and install sod.*

To improve high-stress areas:

*Topdress with 1/2" compost twice a year.*

Planting herbaceous ornamentals:

*Till 2" compost into top 5" to 7" of bed.*


To revive dry, brown rough:

*Topdress with 1" of compost twice a year.*

Planting shrubs and trees:

*Mix backfill with 10% to 30% compost.*

On established turf:

*Core aerate, topdress with 1/4" compost, and drag in. Recommended twice a year.* 



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