



## Organic Lawn Care<sup>1</sup>

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There is a renewed interest today in organic lawn care and a trend among many homeowners to consider long-term environmental concerns in their lawn maintenance programs. The term "organic" can cover many different aspects of lawn care, including fertility and pest management. There is also a certain amount of confusion and misunderstanding over the concept of organic lawn care and what it entails, and as to whether products are beneficial or fall into the "snake oil" category.

### What is Organic?

By definition, an organic compound must contain carbon. Other than that, organics may be naturally occurring or synthetic compounds, and they may be fertilizers, pest control products, or biostimulants. More generally speaking, an organic care program would be expected to include integrated pest management (IPM) practices and recycling, and would emphasize a more naturalized and less manicured environment.

### Organic Fertilizers

Organic fertilizers fall into two main categories: natural organics and synthetic organics. Natural organics are products such as manures, dried blood, bone meal, sludge, or other plant or animal

products. These products generally contain between 3% and 10% nitrogen. Benefits from using natural organics are that they become slowly available to plants over time due to breakdown by soil microorganisms. Due to the slow-release properties of these materials, natural organics are less apt than are water-soluble fertilizers to leach from the soil, to burn turfgrass, or to cause rapid growth spurts. This may reduce the ground- or surface-water contamination sometimes seen with synthetic fertilizers.

However, there are also some drawbacks to the use of organic fertilizers. Because they are dependent on microbial activity, soil temperature and pH can play a large role in plant uptake of organics. Use in cool climates or seasons may result in less plant response, and because they are generally low-analysis fertilizers, plants often require them in large quantities. They may be bulky to handle and store, they may have an objectionable odor or appearance, and they are generally more expensive than synthetic fertilizers. Regardless of these pros and cons, a turfgrass plant is not concerned about the source of its fertilizer and ultimately will use the nitrogen and other nutrients for growth and metabolic functioning regardless of the fertilizer's origin.

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## Compost

Compost is an organic (carbon-containing) product that has undergone a period of decay. Compost may come from a variety of sources such as vegetative material, sewage sludge, cottonseed meal, peat, etc. When nutrients are contained in adequate supply, compost may be marketed as an organic fertilizer.

Applying organic matter such as compost to the soil will supply simple and complex sugars, proteins, and amino acids. This will provide a nutrient source for both the turf and the microbial population, will improve nutrient uptake through greater cation exchange capacity, and will reduce leaching. Compost may be added to the soil prior to planting or may be topdressed over existing lawns. If topdressing, it may be necessary to screen out some of the larger material before applying. Apply approximately 1/2 to 1 inch of material.

Nutrient content of compost will vary with the source of the substance. Further fertility, either from natural or synthetic sources, may be necessary for best health and vigor of your lawn. If buying commercial compost, look for the nutrient analysis label, which will tell you what nutrients are supplied. If you make and use your own compost, you may want to have it tested periodically to determine what nutrients are being provided. Compost will always supply carbon and nitrogen, but an additional source of nitrogen may still be necessary. You may also need to supply other required plant nutrients.

## Humic Substances

Another source of natural organic matter for soils is humic material. These products are similar to compost in that they are decomposed organic matter, but they generally have been decomposing for thousands of years and may come from deposits of peat, lignite, coal, or marine algae. These all contain humic acids in addition to carbon and nitrogen. They often also contain plant hormones or biostimulants, which are substances not required of fertilizers, but which the plant itself produces. Sometimes the addition of supplemental hormones may provide benefits; for example, the plant hormone cytokinin is often found lacking in turfgrass that has suffered a

root dieback or decline. Application of cytokinin can offset the resulting stress from the root decline.

Application of humic substances provides benefits beyond those offered by compost. In addition to supplying nutrients, increasing soil nutrient availability, and improving soil structure, humates have been shown to enhance photosynthesis, protein synthesis, root functioning, and seed germination. They are especially beneficial in soils that are low in organic matter, such as sandy Florida soils.

## Organic Pest Control

Organic pest control may fall into various categories: use of natural, organic products such as corn gluten meal, use of natural predators and biocontrols, and use of proper cultural practices to relieve pest pressure (integrated pest management). Often a combination of these methods will provide the most effective pest control. In addition, the use of new cultivars developed for resistance to insects or diseases can greatly reduce the overall need for pest control.

## Weed Control

The best way to combat weeds is to maintain a healthy, vigorous turf. This is best accomplished through combinations of proper fertility, mowing, and irrigation practices. One new natural weed control product has been shown through university research to suppress growth of certain weeds. This product is corn gluten meal, a substance commonly found in dog food and cooking oil. It is now commercially available through different companies and has been labeled for use on many warm-season grasses.

## Insect Control

It has been shown that many insects that plague our lawns have natural enemies in harmless insects. The use of nonpest insects to reduce populations of problem insects is gaining favor in all sectors of the turfgrass industry. Examples of this include nematode species that have been shown to be predators of mole crickets and sod webworms. For more information on this, refer to EDIS publication IG001, "Insect Pest Management on Turfgrass."

## Disease Control

The primary factors needed for a disease to develop are a susceptible host, a pathogen, and a conducive environment. Use of species less prone to disease and proper cultural practices are the most effective ways to reduce disease on your lawn. As mentioned above, proper fertility, irrigation, and mowing are all essential to disease control. Use of compost or other organic fertilizers may offer disease suppression as well. For more information on this, refer to EDIS publication LH040, "Turfgrass Disease Management."

### How Do You Know a Product Will Work?

Before you buy a product that claims to be organic, natural, or effective against a particular problem, ask these questions to determine if the product will be useful to you:

1. Are independent (i.e., university) test results available? Many companies make claims that testing has been done on their products, but it is important to ask who did the testing (their in-house lab or an unbiased university?) and what the test results showed. The information that testing has been done does not imply that the product showed a significant advantage over another product, but that fact may be omitted in advertising.

2. Are test results consistent? Are repeated tests validating the results being advertised? Will the product work under different environmental conditions?

3. Are there any problems with application of the product? For instance, if a product claims to provide natural control of a specific insect, are there any other characteristics that would deter your purchase of the product, such as toxicity to the lawn or strong odors?

4. Does this product address a problem that applies to your particular situation? For example, it is great to have a natural predator for an insect, but is the target insect one that we see in Florida, or does it only frequent colder climates?

5. Are the costs justified? Is the response going to be worth the money spent on the product, or is there just a slight or short-lived improvement in the situation? Can you comfortably live with the problem, or use another type of control, rather than correcting it? An example of this would be manually pulling weeds or eliminating the environmental condition making the turf conducive to weed growth, rather than buying a product claiming to naturally eliminate weeds.