Extremes in pH can result in reduced availability of some plant nutrients and/or toxicity problems. In an establishment study at Penn State, we noticed seedling inhibition following incorporation of a two-inch layer of poultry manure compost (pH of 9.1) into a clay loam soil. It is likely that the high pH and presence of ammonium in the compost caused ammonia toxicity and subsequent death of the seedlings. Fortunately, most soils are buffered against rapid and drastic changes in pH and even composts, with extremes in pH, might not alter the overall soil pH a great deal. To be on the safe side, however, try using materials with a pH as near to neutral (7.0) as possible.

Nutrients

When compared with fertilizers, composts generally contain low amounts of plant nutrients. Whereas a small amount of quick-release ammonium nitrogen is present in some composts, most nitrogen is in the organic form and is slowly available to turf. Studies with composted sewage sludges show that only about 10 percent of the total nitrogen is available to plants during the first growing season. This means that large amounts of compost must be applied to supply all or most of the turf's nutritional requirements.

Little is known about the nitrogen release characteristics of other composts. Other nutrients, such as phosphorus, potassium, calcium and magnesium can be present in significant quantities in composts. Some composts, however, may contain very low concentrations of one or more of these nutrients. Thus, fertilizer supplements may be required.

Many questions remain concerning the availability of nutrients from composts.

In most cases, composts are applied to the soil surface at a rate between a one-inch layer (about 2.2 cu. yds./1000 sq. ft.) and a two-inch layer (about 4.4 cu.yds./1000 sq. ft.) then incorporated into the soil to a depth of four to six inches. In order to get maximum performance from your application, make sure the compost is thoroughly mixed with the soil and is not forming a layer at the soil surface. Depending on the material, this may require several passes with rototilling equipment. The lower rate (one inch layer) would be better for fertile soils and the higher rate (two-inch layer) for sandy soils, clay soils or sub soils low in organic matter). We have found that if more than two inches are used, it can be difficult to mix the material four to six inches into the soil. On heavy soils, it is helpful to rototill the soil first, then apply the compost and incorporate.

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RESEARCH SUMMARIES

Bluegrass Nematode Damage

Plant Disease
Disease Notes
Pratylenchus fallax on Turfgrass in Ontario
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Surveys in 1995 and 1997 of golf courses throughout southern Ontario for plant parasitic nematodes revealed evidence of *Pratylenchus* spp. in 13 out of 14 samples taken from fairways. The species in the surveys was identified as *Pratylechus fallax* Seinhorst.

Bluegrass (*Poa pratensis*) was the main type of grass on the fairways surveyed. *P. fallax* might cause signficant damage to turfgrass by directly destroying the roots and the wounded roots might become vulnerable to secondary infection by soilborne pathogens.

Plant Disease is published by the American Phytopathological Society, St. Paul, MN.