No longer voodoo science, tailor-made composts coming

By MARK LESLIE

Having conquered the nursery industry, scientists searching the disease-suppressive capabilities of compost anticipate barrier-breaking improvements in the golf and landscape industries in the next future.

"This is no longer voodoo, but real science," said Dr. Harry A.J. Hoitink, professor of plant pathology in the environmental graduate studies program at Ohio State University.

Hoitink, who has been researching solid-waste compost and its disease-suppressive capabilities since 1972, predicts that "tailor-made composts are coming."

Specifically, use of yard-trimming composts in top dressing and in root-zone mixes in golf course construction will bring wide-ranging improvements in turfgrass maintenance, he said.

"The net effect I project in the next decade," Hoitink said, "will probably see a gradual phasing out of fungicides used to control root disease."

"We may see decreased insect problems, also, although much of that remains to be documented. Since stress aggravates insect problems, and compost alleviates stress in plants, it will help in this area as well."

A prize student of Hoitink's from 1978-82, Cornell University Associate Professor of Plant Pathology Eric Nelson agrees that composts will "dramatically reduce" fungicide use.

"We established 10 to 15 years ago that there is not a soil-borne disease in plants that we cannot control with compost," Hoitink said. "If we look at undisturbed natural ecosystems, such as hardcore, I think this highlights the player's role with what we do."

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Compost seen as future replacement for methyl bromide

Methyl bromide, used to sterilize putting surfaces for reconstruction, will be replaced by compost mixes on golf courses, according to Ohio State University Professor Harry A.J. Hoitink.

Most of the nursery industry has not used methyl bromide for a decade now, Dr. Hoitink said, adding: "To do that on golf courses will require the same kind of procedure—blending and formulation—that we have perfected over the years for the nursery industry.

"The technology exists to replace methyl bromide with compost because compost, produced and cured properly, can be colonized with appropriate micro-organisms to control those soil-borne plant pathogens against which we fumigate with methyl bromide.

In 1972 OSU revealed technology with procedures of composting which essentially led to the elimination of methyl bromide by the nursery and greenhouse industry by 1976. Very few nurseries have used methyl bromide since then.

Hoitink predicted that in agriculture "by and large, only those crops fumigated with methyl bromide today will be able to pay a relatively high price for compost. The reason is that compost will substitute for methyl bromide for control of soil-borne plant pathogens. In addition, fungicide applications required after fumigation are reduced or eliminated in some cases. This is due to the disease-suppressive properties of composts used by nurserymen today. Proof for this was first published from OSU in 1978. It has been practiced increasingly by both florists and nurserymen since that time.

Compost research

Continued from page 25

...is that sometimes they work and sometimes they don't. A given batch of a material might work sometimes and not others, on some sites and not others, and we have no understanding why that is happening.

Turf research is different than container nuramentals research because turf is perennial, Nelson said. "In a container you start with a clean plant and you can protect it more effectively than a plant like turf that's already infected." Nelson, however, that in new plantings turf is very similar to container mixes. "In fact, we've used compost as construction mix amendments—replacing peat with compost—and we get dramatic results, especially in regard to Pythium root rot control," he said.

"In the absence of any amendment, or in the presence of peat, you get complete loss of turf. We're [the industry] growing grass under stress. We're cutting it so short and so under stress. We need more research. There are so many variables—climate, terrain—" we're [the industry] growing grass under stress. We're cutting it so short and putting a lot of stress on the grass, so we're relying on chemicals to keep the grass alive. I think we have to start feeding our grasses more, raising the height of cut and other cultural things as well as using natural organics.

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