

Golf Courses Implement Compost Tea Program

Pest management on golf courses has traditionally included regular pesticide applications, particularly on greens. Golf courses are under increased pressure to minimize the use of chemicals and golf course managers are looking for alternatives. Compost tea is emerging as an effective tool for suppression of turf diseases and reduction of synthetic fertilizers.

Phil Rossi, Integrated Pest Management (IPM) Coordinator for Golden Gate Park in San Francisco, has been using compost tea for control of fungus diseases since 1997. Tea is used as a soil drench and as a foliar on golf and lawn bowling greens. "Fungus is the number one problem for greens and we used to apply fungicide on a regular schedule" he says. Greens are under stress due to compaction caused by foot traffic, close-crop mowing and San Francisco's foggy weather. "Ammonium fertilizers also deplete the microorganisms that could help to crowd out agents that contribute to fungus," says Rossi.

Tea is also used in the Conservatory of Flowers. "Tea creates a biofilm on leaf tissue," says Rossi. "Essentially, that's a screen or shield of plant health-promoting microorganisms. They colonize the leaf surface and create a barrier against pathogenic organisms."

Rossi says that compost tea is not the end-all step for turf and plant health, rather it's the last layer of a whole-system biotic approach.

The tea is brewed in two 100-gallon and one 25-gallon brewers purchased from Growing Solutions (www.growingsolutions.com). Compost is a 50-50 blend of vermicompost from a worm farm in Florida and thermophilic compost made by the San Francisco Presidio Trust. The tea is diluted with an equal volume of dechlorinated water and applied at a rate of two gallons per 1000 square feet every two weeks. "Since you have to brew the tea, it's a little more labor than fungicide applications," says Rossi, "But in terms of the application, it's a wash." Boom-type power sprayers are used to apply tea to the greens and gun applicators are used in the Conservatory.

San Francisco's IPM Policy was implemented in 1997 by City Ordinance. City Parks staff must employ non-pesticide management tactics first and use chemicals only as a last resort. The program has improved safety for golfers and lawn bowlers as well as City workers. "From our standpoint, it's definitely a worthwhile program," says Rossi.

Christa Conforti, IPM Coordinator for the Presidio Trust in San Francisco, evaluated the effects of compost tea on golf course greens over a one year period. Greens were sprayed



Compost tea application with a walk-behind boom sprayer, San Francisco Presidio Trust.

with one gallon of compost tea per thousand square feet weekly during times of high disease pressure and every two weeks during times of moderate or low disease pressure. Application methods alternated between drench applications in which the tea was watered in for 5-10 minutes after being applied, and foliar applications in which the tea was left on the surface of the greens.

Turf treated with compost tea had less microdochium patch disease, a foliar fungus, than untreated turf. Thresholds for disease on golf greens are very low. Mean percent of treated turf areas with microdochium symptoms was 0.042%, while 0.604% of untreated turf exhibited symptoms.

Turf treated with compost tea had longer root length than untreated turf. Mean root depths of treated turf was 2.5 inches, while that of untreated turf was 1.9 inches. A deeper root system improves the ability of turf to withstand foot traffic.

Compost and compost teas are made on-site. Compost is made from equal parts wood chips, grass clippings, horse manure and horse bedding. Biodynamic preparations are added to the windrows and compost is processed for a minimum of four months. Growing Solutions tea brewers are used and additives (molasses, sea kelp, cane sugar, rock dust, yeast) are added before brewing. Tea is applied with a boom sprayer within four hours of brewing.

Conforti has made compost tea an integral part of the Presidio Golf Course turf maintenance program. "The differences in rooting depth and microdochium patch were small, but they were significant," she says.