Sydney, Australia — Citing recent studies, the International Turfgrass Society here announced that the outlook is bright for their expanded use in the turfgrass industry.

"The Brassica residues decompose in soil to release volatile isothiocyanates (ITCs), which are selectively biocidal," said P.T.W. Wong of the Agricultural Research Institute in Wagga Wagga, New South Wales. "They also exert an indirect effect on pathogens and pests by encouraging antagonistic microorganisms such as Trichoderma spp. and actinomycetes, which further reduce their inoculum potential."

Wong said more research is needed to investigate the types of Brassica residues to use, which ones release the most toxic ITCs, and the methods and rates of application for optimal efficacy without causing phytotoxic effects on established turfgrasses.

Brassica contain significant quantities of compounds known as glucosinolates (GSLs) in their tissues. GSLs are hydrolyzed by enzymes to release the volatile ITCs and other byproducts. While GSLs are relatively inactive against microorganisms, their byproducts, particularly ITCs, are highly biocidal to a wide range of organisms, including nematodes, bacteria, fungi, insects and germinating seeds.

Scientists are calling the suppression of soil-borne pests and pathogens by Brassica crops "biofumigation," and Wong reported "considerable interest in biofumigation as an alternative to synthetic soil fumigants in horticulture and for the control of intractable soil-borne pathogens in broad-acre agriculture."

He said the horticultural industry is using metham sodium (methyl ITC) as a soil fumigant, and Brassica root and shoot tissues "contain more toxic ITCs than methyl ITC... Brassica residues may, therefore, be used to biofumigate greens or turf areas requiring re-seeding."

Similarly, he said, relatively cheap mustard meal apparently significantly reduces populations of root-rotting pathogens in the soil and would suppress deleterious soil insects, nematodes and weed seeds. Whether the mustard meal is as effective as methyl bromide or metham sodium is not known.

Because it is standard practice to aerate and top dress golf greens several times a year, Wong said: "These would be convenient times to apply smaller amounts of organic amendments. The amendments may be brushed into the core holes and be present in the thatch and root zones, where they could be expected to exert the greatest effects against root-rotting or thatch-inhabiting fungi.

"The amendments," he added, "could also be covered over by a layer of suppressive compost instead of ordinary topsoil to further enhance biocontrol."

Wong warned that to successfully adopt practices which call for regular inputs of organic matter, "there needs to be some rethinking on the ideal composition of turf soil profiles."

"Turf managers may have to..."

Continued on next page
Pritchard returns to La Quinta

LA QUINTA, Calif. — Jeff Pritchard, former superintendent for PGA West, La Quinta Hotel Golf & Tennis Resort and Scottsdale’s Desert Mountain, has been named course superintendent for Rancho La Quinta Country Club, according to Vice President/Project Manager Tom Cullinan.

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