

## Moss Control Highlighted at PACE Turfgrass Research Seminar

Silvery thread moss (*Bryum argenteum*) is the number one problem on many Poa and bentgrass greens largely because many products that control moss also control turf, according to Wendy Gelernter, Ph.D., research director for the PACE Turfgrass Research Institute (PACE). "Attempts to control moss using these products frequently backfires," Gelernter said, "because wherever the turf is thinned and/or stressed due to phytotoxicity, the first plant to re-colonize the area is usually moss."

Lack of turf-safe moss-control products and other turf management topics were discussed June 27th at the ninth annual PACE Turfgrass Research Seminar in San Diego. More than one hundred golf course superintendents and turf managers attended the 10-session seminar. Presentations and handouts from all the sessions are available to PACE members at the PACE website at [www.paceturf.org](http://www.paceturf.org) (Non-members may signup at the site for a free trial membership).

Because of their potential to harm turf, moss control products need to be selected carefully, Gelernter said. Products that are effective for moss but have the potential to injure turf include iron-based products such as ferrous sulfate, copper hydroxide (Junction®) and sodium carbonate peroxyhydrate (Terracyte®). Despite the phytotoxicity potential of these products, however, some superintendents have successfully integrated them into their moss control programs. But, Gelernter said, "remember to test anything new on a small area first and incorporate products into your program gradually."

Research trials from around the country confirm that the two most effective moss-control products with the least phyto-potential are chlorothalonil (Echo, Daconil, Manicure) and carfentrazone (QuickSilver). Chlorothalonil has been labeled for moss control on greens for several years, but the EPA is currently reviewing an expanded label request for carfentrazone that would include greens. Gelernter said higher application volumes (greater than 2 ga/1000 sq. ft.) and repeat applications are necessary with most products for best results.

"One of the most important and also most overlooked aspects of moss control is the follow-up," she said. "After the moss has died and there is a bare area on the green, it is absolutely critical to encourage turf growth so it wins the race to fill in the bare spot before the moss does. This means providing the turf with enough water and nutrients—basically treating it as though it were growing in for the first time—to give it the edge over moss."

Larry Stowell, Ph.D., also a PACE research director, discussed the role of several nutrients in pest management, including the role of reduced phosphorous levels in suppressing Poa annua invasion of bentgrass greens. Stowell, Gelernter and Frank Wong, Ph.D., UC Riverside, reviewed the activity and recommended use patterns for newly registered products, including fungicides, such as Endorse and Emerald; insecticides, such as Allectus and Arena; and herbicides, such as Velocity and Revolver. Shoumo Mitra, Ph.D., Cal Poly Pomona, reviewed results of the wetting agent studies he conducted as part of the nationwide GCSAA-USGA wetting agent project.

PACE Turfgrass Research Institute (PACE) is a membership organization that provides research, education and information services to the turf management community. Founded in 1993 by its research directors Wendy Gelernter, Ph.D. and Larry Stowell, Ph.D., the PACE mission is to generate and share independent and objective agronomic information among turf professionals so they may develop management programs that are effective, practical and scientifically sound. (Please see page 12 for table)

## California Launches Online Endangered Species Tool

The Department of Pesticide Regulation has created a new, online resource to help protect endangered species in California. It is the first interactive, public database of its kind in the nation.

The free, Web-based resource allows pesticide applicators and others to quickly and easily identify local habitat for endangered animals and plants, and advises applicators on required precautions. The system is called PRESCRIBE, for "Pesticide Regulation Endangered Species Custom Real-time Internet Bulletin Engine."

"PRESCRIBE represents a major advance for information on endangered species," said Mary-Ann Warmerdam, DPR director. "It also makes life easier for businesses that must comply with complex regulations."

The database replaces more than 2,500 pages of endangered species protection bulletins for 56 of the state's 58 counties.

The system uses a search engine to deliver custom data reports through common Web browsers. A user begins by selecting the county desired, then the township, range, and section where a pesticide application is anticipated. PRESCRIBE then identifies the listed species that may be present, down to a one-square-mile area.

In addition, it can search for 30,000 pesticides by brand name, as opposed to paper bulletins that listed only the name of an active ingredient.

Once species and pesticides have been identified, the system lists protective measures for each species and pesticide combination. The measures were developed from biological studies of the U.S. Fish and Wildlife Service, and adapted to California uses. The custom instructions are brief enough to be attached to pesticide user permits, sales receipts and work orders.