

pesticide specialist at the Rutgers Cooperative Extension reviewed the latest requirements brought about by the OSHA Hazard Communication Standard.

Enacted in 1983, the Standard required chemical manufacturers and importers to evaluate the hazards associated with various chemicals and to communicate these hazards to workers via Material Safety Data Sheets. Worker training, container labeling, written programs, chemical lists and maintenance of data sheets are all part of the requirement. In 1987, OSHA expanded the requirements into the non-manufacturing sector, making golf courses and lawn care operations liable in the event of non-compliance.

The three main areas of concern have to do with labelling, Material Safety Data Sheets and training.

● Chemicals must have a label that states the OSHA hazard classification, active ingredient, name and ad-



Newly elected board members of the California GCSA discuss the GCSAA conference this month in Anaheim, Calif. Top row, from left to right are, David Lozoya, David Hein, D.J. Pakala, Tim Sedgley. Bottom row, left to right, Dave Fleming, Robert Tillerman, Melvin Summer and Paul Dias.

dress of manufacturer. Hamilton says pesticides in original containers are exempt from the labeling requirement, however, if the pesticide is in a service container it must be properly labeled according to both OSHA requirements and

state pesticide regulations for service containers.

● Each chemical covered under the standard requires its own safety data sheet, which contains information regarding acute and chronic health effects, any physical health effects and the chemical's potential for fire and explosion. Sheets also are to provide information on proper storage and disposal techniques, specific safety precautions, medical treatment information and steps necessary to prevent excessive exposure to the chemical.

● Hamilton says information and training must be provided to employees about those hazardous chemicals present in their work area. This information includes the purpose and provisions of the standard, areas where the chemicals are in use and location and availability of the written hazard communication program, including the list of hazardous chemicals and material safety data sheets. □

LAWN CARE

Drought stress programs an issue

ATLANTIC CITY, N.J. — If the drought returns this summer, will you be ready? Robert Carrow, Ph.D. at the University of Georgia,

thinks it's a good idea to focus on high temperature drought stress just in case.

"The effects of future droughts will depend on how you mold your entire program of lawn care practices," Carrow said, in remarks made at the New Jersey Turfgrass Expo.

Carrow said a drought care program is especially important considering that once the LCO leaves the property, it's in the hands of the homeowner.

"The lawn care professional has total control over what he does to correct problems, but very little control over how the homeowner cares for the lawn in his own way. Let's be sure," urged Carrow, "that we're doing all we can for the turf."

Carrow described two types of high temperature stress: direct and indirect. Indirect heat stress, the most common, happens every year.

Direct heat stress is much quicker and more harmful, and occurs when heat-sensitive proteins in the protoplasm are denatured, resulting in protoplasmic coagulation of the cell wall, which collapses.

To prevent high temperature stress:

- Irrigate properly.
- Promote hardiness by using drought-resistance species and cultivars.
- Plant shade trees to protect the turf in case of severe heat conditions.
- Plenty of water is needed for transpirational cooling.
- Recommend to the homeowner the best mowing practices, since mowing height influences the root system, density of surface turf and high amount of carbohydrate reserves.

Drought stress reduction includes:

● A good overall agronomic program. It does make a difference if you have good fertilization, weed control and insecticide programs.

● Continue to educate the homeowner. What the

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ATHLETIC TURF

Working on the ideal surface

"When you come in contact with the surface as much as you do in football, poor field condition has to be a concern." That's Penn State University head football coach Joe Paterno talking about his favorite playing surface, natural grass.

To improve athletic field conditions Don Waddington, Ph.D. and Trey Rogers have been working to develop the ideal surface. They gave results of their research at the annual meeting of the American Society of Agronomists late last year.

Most recently the pair (Rogers has since earned his Ph.D. and is an assistant professor of turfgrass science at Michigan State University) looked at cutting height and soil compaction and how they affect impact.

"There are two critical interactions between the player and the ground that determine the quality of a sports surface—hardness and traction," claims Waddington.

To measure traction, compaction and impact absorption, the researchers used a portable Clegg impact tester that drops weights from 18 inches and measures how quickly they stop.

"The Penn State research indicates that differences in cutting height of the grass are not as important in absorbing impact as the mere presence of the turfgrass itself," Waddington reports.

It is not the height of the grass so much as the amount of moisture in the ground that determines the surface's hardness. As soil moisture decreases, the importance of grass as a shock absorber increases. Practices that reduce soil compaction also become more important as the soil becomes drier.

The study concludes that for traction, field managers need to be looking at how well-developed the root system is. The deeper the roots, the better the traction. And to minimize injury from impact, managers need to be concerned about how much moisture is in the soil.

Timpanaro's field wins award

Ron Timpanaro, head groundskeeper at Jack Russell Stadium in Clearwater, Fla., won the "Baseball Diamond of the Year Award" for having professional baseball's outstanding baseball diamond.

The award is presented each year to three outstanding, well maintained and safe baseball facilities in the United States by the Sports Turf Manager's Association (STMA). Jack Russell Stadium is home to the Clearwater Phillies of the Florida State League.

Others accepting awards at the STMA's January presentation in Vero Beach, Fla., include Greg Petry, superintendent of the Waukegan, (Ill.) Park District, for his work on Al Grosche Field and Joe Ardolino, assistant athletic director, for Towson State University's Burson Field in Towson, Maryland.

Grau: Mediocrity is not enough!

We're happy to pass on this short essay by Fred Grau, who passed it on to us:

"We who bear or share the responsibility for the condition of sports turf can no longer continue with just good enough when players expect excellence.

"For those we serve we want to provide excellence. If the purse strings are drawn too tightly let the parents know the situation. They are fundraisers personified.

"We can do it— just loosen the reins and say Giddyap. No athlete who has enjoyed excellence will ever again be satisfied with good enough.' "

homeowner does reflect directly on the LCO.

● Don't oversell your service. You only control half of it.

● Work with your regulatory agencies to develop favorable water-use regulations. "Without good water-use regulations, many of today's companies will be out of business in five to 10 years. Sufficient water must be there," Carrow concluded. □

PESTICIDES

What kills most sells the best

MIDLAND, Mich. — The single most important consideration when buying a herbicide is percentage of broadleaf weeds controlled, according to lawn care operators (LCOs) surveyed recently by the Dow Chemical Co.

About 100 LCOs responsible for selecting chemicals and materials for their lawn care operations were surveyed. Eighty six percent of the respondents were from the Midwest and the rest from the Northeast.

The spectrum of weeds controlled was the second most significant consideration, accounting for 18 percent of their buying decisions and nearly 20 percent for purchasing spot chemicals. In both instances, LCOs preferred herbicides that provide total control for both difficult and easy-to-control weeds, to those giving only partial control.

The participants also indicated that a chemical's ability to reduce callbacks was the third most important factor in their purchasing decision, accounting for about 12 percent of their decisions to buy broadcast and spot herbicides.

Chemical cost per acre was reported to be significantly less important than efficacy, sales support and safety. Cost accounted for nine percent of the broadcast chemical decisions and four percent for spot herbicides. The results indi-