

Duerr said a European golf course superintendent is extremely well trained. He must study agronomy, turf-care diagnosis and treatment for three years before he is allowed to serve as an apprentice on a golf club staff. After completing his training, he is greatly sought after and highly paid by competing foreign clubs.

Most of the Europeans agreed that, although golf courses play a big role in their work, they devote much effort in turf care of lawns around schools, hospitals, sports arenas, hotels, spas and sanitoriums.

Michael Van der Lienden, who owns a distribution firm in DeBilt, The Netherlands, said the bulk of his business is done in the school and university markets. His country has 12 golf courses to which he sells equipment and services.

In Spain, the golf course market is growing swiftly, according to Francisco Rein, a representative of Coprima Ltda., Madrid. This is because of tourism, Rein stated, which accounts for 60% of Spain's income. The government, with tourists' dollars in mind, provides low-interest loans to entrepreneurs who develop golf courses in Spain. Today there are lush, green golf courses located in areas where arid sand dunes once stood vulnerable to the hot basque winds. Because of irrigation systems, which keep bermudagrass thriving in Spain, this country now offers tourists a fine selection of superbly kept golf courses.

## New Management Announced For Landscape Contractors

Thomas O. Lied, president of the Associated Landscape Contractors of America has announced the selection of Executives Consultant, Inc., Washington, D.C., to manage the 300-member national trade organization.

The newly appointed executive director of ALCA is Walter M. Kiplinger, Jr., an ECI partner and former public information director for the National Recreation and Park Association and editor of *PARKS & RECREATION* magazine.

Executive Consultants, Inc., currently manages six national trade associations, among them the American Society of Landscape Architects.

ALCA will maintain offices in Washington's Southern Building until the first of the year. Headquarters will then move into ECI facilities at 2011 Eye Street, N.W., Washington, D.C.

# Scientist Assails DDT Myths

The supposed worldwide distribution of DDT raises some questions of credibility, according to University of Minnesota soil scientist Russell Adams, Jr.

"Pesticides such as DDT are normally used over limited areas," Adams says. "For them to be distributed all over the globe would require some means of transport, either by atmospheric or water routes.

"Most pesticides used eventually reach the soil through direct application or they are washed from plants by rain. Much of the pesticide reaching the soil is then broken down by micro-organisms or it reacts chemically with soil moisture.

"Under the right conditions, DDT may bind itself to soil particles. But because DDT doesn't dissolve easily in water or cling to soil particles too readily, it often escapes into the air as a vapor. Once it reaches the atmosphere, DDT is often destroyed by the sun's ultraviolet rays."

"If DDT is truly present in the Antarctic snowcap, the only way it could have arrived there is through the atmosphere. But neither the mechanisms of atmospheric distribution nor the stability of pesticides in the atmosphere has been studied well enough outside the laboratory to make any firm conclusions," he says.

Adams feels that most of the current confusion over pesticide residues may be directly connected with the development of sophisticated sensing devices. Instruments such as the gas chromatograph can easily detect the presence of DDT in a substance, even though the amount may be as small as one part per trillion.

"This is like sorting through 1,280,000 bushels of wheat for one kernel of smutty grain," he says.

"Even scientists who are familiar with methods used to measure pesticides find it difficult to interpret how important these small amounts are. Also, there are many naturally occurring compounds, and some synthetic

organic compounds being added to our environment that look like pesticides when they pass through the gas chromatograph.

"Carrots, for example, may contain natural compounds, which mimic aldrin and dieldrin, two chemical relatives of DDT. Gas chromatographs are sometimes unable to single out and measure natural compounds when the man-made chemicals are also present. This fact has been known for years. Yet some pesticide analysts still appear to be unaware of it.

"A number of other compounds that are easily confused with DDT have been detected in birds and fish. These compounds are commonly used in petroleum products, rubber, coolants, and several other materials. They are reported to be toxic to wildlife and they affect the calcium metabolism of birds. Yet DDT continues to receive all the blame.

"Since these compounds resist chemical breakdown and are used extensively, some early findings that pointed to widespread DDT contamination are open to question."



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