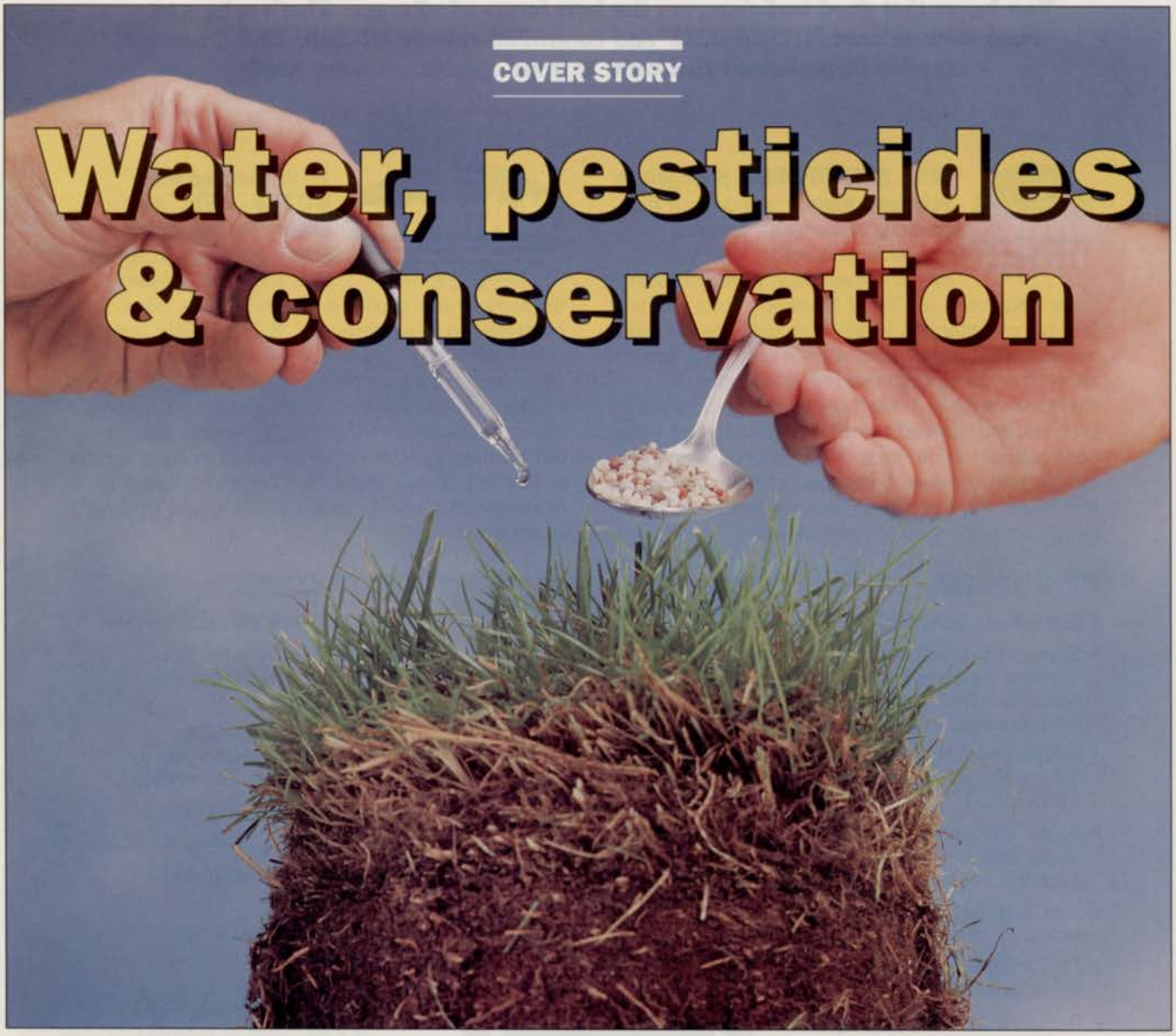
LANDSCAPE MANAGEMENT

COVER STORY

Water, pesticides & conservation



Advances in technology will better equip landscape managers to deal with the 'Decade of the Environment.'

Water...

by David Kopec, Ph.D., University of Arizona

■ In the 1990s, water conservation and water quality on turfgrass will become more important issues for landscape managers.

In some areas of the country like the Southwest, legislators have set limitations on water allocations for turf. With increased water rates, too, turfgrass irrigation becomes an extremely costly line item in a management budget.

What can be done about the high cost and "visibility" of maintaining turf?

1. New/alternative grasses, like buffalograss, are being developed.

Buffalograss *(Buchloe dactyliodes)* breeding programs are unleashing improved turf-type cultivars. The initial releases will be available as sod or plugs, much the way hybrid bermudagrasses are established.

Buffalograss has a lower water requirement than Kentucky bluegrass, and has thus survived in the low desert areas of the Southwest. It is starting to be used in the Midwest and South Central states in low-traffic areas.

Also, other native grasses may potentially be used as low maintenance, low

water-use turf species. These include some of the grama grasses (side oats, blackgrama and bluegrama), some of the lovegrasses, and curly mesquitegrass *(Hilaria belangeri)*. Turf-type selections of the latter are being evaluated to see if superior characteristics can be passed on to future generations through seed. This grass is adapted to Texas, New Mexico and Arizona.

2. New irrigation systems have been designed to irrigate turfs more precisely, with less waste. They also offer excellent record-keeping, thanks to micro-chip technology.

Compared to the mechanical clocks used in the past, solid state controllers offer greater versatility in start/stop features and irrigation scheduling options. Some even offer plug-in, plug-out storage chips, which record irrigation station run times for permanent water use records. Many of the new controllers can be hooked up to soil moisture sensors and rain or wind switches.

Weather station networks in many states can provide turfgrass growers with estimates of turfgrass water use based on local weather conditions. Weather stations can calculate a daily atmospheric demand for water, called a reference ET (Ref-ET).

Local researchers can mathematically adjust the Ref-ET value for turfgrass water use. That value can then be used to determine how much to irrigate.

Weather networks are available through the university system. Check with the Division of Cooperative Extension in your state to see if an "ET" program is available.

Irrigation companies now offer weather station and controller packages which calculate the Ref-ET from conditions on the golf course, and then apply irrigation based on the previous day's ET. Added features include flexibility in irrigation scheduling (days on/days off), irrigation amounts (relative to the Ref-ET), automatic data storage, and multiple start/stop cycles which can help prevent further runoff or puddling.

3. Using secondary water is becoming more popular because the use of potable water for landscape irrigation is becoming a sensitive issue—even in places where water supplies are plentiful. This makes a lot of sense since there are generally large amounts of effluent produced daily, and turf is an efficient filter of effluent.

Logistics of having large turf facilities next to water treatment stations need to be worked out to keep costs practical. Users need to be aware that the suitability of the irrigation water can be determined by a water quality test.

4. Xeriscaping involves five or six principles using landscape plants and groundcovers for water conservation, energy savings, or both. Water catchments, tree and shrub placements for shading and protection, and the selective use of plant materials are part of the program.

Xeriscaping is being developed even in areas which receive large amounts of rainfall.

Original concepts in xeriscape programs called for eliminating turfed areas. But research should be conducted to determine if actual water use of trees in mesophytic or xeriphytic settings have a lower requirement (on a ground basis area) than turfs.

My guess is, some will and others will not.

Pesticides...

by Roch E. Gaussoin, Ph.D., University of Nebraska

■ Many successful landscape operations use pesticides as a necessary component of their programs.

With the 1990s being called "The Decade of the Environment," people in the industry are apprehensive about where pesticides will fit. Yet many indicators point toward a landscape industry which includes continued, though more conscientious, pesticide use.

One aspect of Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) amendments passed in 1988 is the re-registration of most pesticides. Manufacturers, in addition to new data acquisition, are required to pay a fee to the EPA for re-registration. So it is reasonable to expect that some of the "older" chemicals now available for turf and ornamentals might not survive the re-registration process. The end result will be fewer, but safer, pesticides.

Some future considerations and how they relate to pesticide use:

1. Signs cautioning consumers of a pesticide application are becoming a common sight all over the country. Posting treated lawns is law in eight states, with more possible in the not-too-distant future. It is here to stay; applicators may want to consider posting at their location *before* it becomes mandatory.

Although pre-notification of pesticide-sensitive individuals is law in only one state (Maryland), many states are considering such legislation. This legislation, if passed, would require the notification of individuals who claim to have had allergic reactions to pesticides.

2. Applicator training requirements will probably become more strict. Requirements to become a certified pesticide applicator may involve more frequent and rigorous testing and/or training. Individuals applying pesticides under the direct supervision of certified pesticide applicators may also be required to undergo documentable and verifiable training exercises.

3. Ground and surface water contami-

Monsanto markets a closed application system called Expedite, a backpack sprayer with pre-mixed pesticide containers.