Xeriscaping Arizona: A beautiful setting and the ultimate in low water use landscapes.

that conserves water by planting native or drought-resistant species.

All plants need water for survival and growth, even the cactus found in the desert. But some require a lot more than others. Some plants, such as grasses, require more water but they cover the ground with sufficiently tight vegetative cover to cut back on loss of soil water by evaporation.

Dr. Eliot Roberts: All plants need water.

Lawngrasses are particularly effective in this way; a low-cut canopy of green foliage not only maintains a highly humid environment above the soil surface, it also creates conditions which enhance rainfall infiltration into the soil and reduce run-off.

This may not be of critical importance in areas of limited rainfall, but it is very important in humid regions of the country. The cactus-and-gravel look may be ideal for the arid Southwest, but not for other parts of the country.

Generally, native plants—both woody and herbaceous—are better acclimated to local environments than introduced species.

One prairie grass, buffalograss (*Buchloe dactyloides*), has high drought tolerance and fair to good growth characteristics for a lawngrass. When used in arid and semi-arid locations, it produces better lawns without irrigation than any other grass.

But most lawngrasses used in the United States are not native. Even Kentucky bluegrass, which is now the dominant lawngrass in the cool humid region, is not native to Kentucky. The most drought-tolerant lawngrass for use in this region is tall fescue, not so much because it uses less moisture, but because its extensive root system permits it to use soil moisture more effectively.

In the warm, humid South, bermudagrasses, St. Augustinegrasses, zoysiagrasses, centipedegrasses and bahiagrasses all have originated outside of this country. Bermudagrasses are generally more drought-tolerant than the others, but all do a reasonably good job in landscape situations.

Ed Davis of Okeechobee, Fla., has considered xeriscape from the perspective of a sod producer and has concluded:

"The turf industry supports the wise use of water in the landscape. We also continue to support the need for practical turf areas. The term 'practical turf area' is a replacement for the negative term of 'limited turf' found in early xeriscape material.

"An example of a non-practical turf area would be the narrow strip of turf found along the side of a parking lot, road or building. Islands of turf in the parking areas are also a non-practical use of turf. These areas consume large amounts of water and labor. The mounds that are so popular in the landscape design today are also an example of non-practical turf usage.

"There must be a balance of practical turf areas, plant areas and impervious surfaces in the landscape. Xeriscape, if it accomplishes nothing else, will focus attention on this balance."

—The author is director of The Lawn Institute in Pleasant Hill, Tenn.

IPM or PHC? Same care, different names

Soaps, oils and biologicals are combined with plant selection and spray techniques for tree/turf pest control at the Davey Tree Co.

■ The Davey Tree Company continues to make progress in its efforts to eliminate company-wide pesticide use by 95 percent over the next four years, says Dr. Roger Funk, Davey's director of research.

The gradual reduction in chemical use is one facet of the Kent, Ohio, company's "Plant Health Care" program, begun in the late seventies. Funk thinks the term Plant Health Care will soon replace Integrated Pest Management as a more practical description of what it is horticulturists and turf managers do. Funk also believes the term, "health care" is more acceptable to today's society than "pest management."

● Plant selection is the first step in tree/turf health care: If a plant is not truly adapted to a site, no amount of maintenance will make it healthy.

● Funk reports that Davey will begin widespread use of the biological control, B.t. (*Bacillus thuringiensis*) for gypsy moth and lepidoptera control on trees in 1992.

"After several years of research and field testing," reports Funk, "we find that the newest B.t., the 4A formulation, is satisfactory if you catch the lepidopterous insect in the early stages."

Davey has also been testing the M1 B.t. strain for elm leaf beetle larvae. Results have been good, but Funk cautions that the timing must be "exactly right."

● Milky spore for turf is more successful in the transition zone; the company notes poor results in the Midwest and East.

● Horticultural soaps and oils for tree care are also being tried and tested more than before, says Funk.

"Generally, oil does a better job on mites than soaps, and soaps do a better job than oil on aphids," says Funk. Company

research continues to determine whether the newer oils can be used during the summer leaf stage. The company has already used oils successfully during the fall, when a larger window of time exists.

"However," adds Funk, "the plants are in a more sensitive stage then, so you have to wait until they become fully dormant, as the oils will delay dormancy."

According to Funk, Davey Tree will begin using oils on a limited basis in the summer of 1992, at a two percent rate. Funk cautions other companies that re-application of oils during the summer can be harmful to trees. "We also don't know if you can apply oils to the same plant in the same year."

Other Davey research findings:

- Vegetable oils (corn, soybean): Funk says research testing of these oils has shown 40 percent control of soft-bodied, sucking insects.
- Citric oil: Has pesticide properties, but high control rates also cause injury to the plant.
- Nemoil: Quality control problems during the extraction process not yet eliminated; has potential.
- Predator insects: The problem is keeping them within the targeted area.
- Funk also looks for Murphy's Oil Soap to receive EPA registration for tree insect control in 1992.

Dr. Roger Funk: Modifying spraying equipment to reduce odor, noise and drift will be the 'salvation of the tree care industry.'

- In company turf research, oils and soaps have shown ability to control all of the common turf insects.

Selective applications are based on refinements in post-pest timing charts, and might be more accurately applied by looking at temperatures and blooming time.

- Applicator education and training: In the past, the manager made the decision to apply control products from his office. Look for applicators to become more responsible in making decisions based on identification of tree, pest and predator insects.

In developing new spray techniques, Davey wants to address what Funk calls the three "triggers" of neighbor complaints: odor, drift and noise. Solutions include:

- Downsizing equipment to suit tree size.
- Odor-masking solutions: one product, called Maskit, will hide the odor of Orthene, in a 3.3-ounce:100-gallon ratio.
- A company-designed turf sprayer with two lines, dispensing fertilizer or pesticide in amounts as small as 4 ml.

—Terry McIver

Post-emergence results are very impressive

Crabgrass control was at 100 percent for some compounds tested at Ohio State University.

■ Tests of late post-emergence herbicide efficacy show a 50 to 100 percent decline in crabgrass for some applications, according to Dr. John Street of Ohio State University.

In evaluations conducted last year at OSU, Street and field technician Jill Taylor documented late post-emergence herbicide efficacy on crabgrass. They presented their findings at the Ohio Turfgrass Foundation Field Day.

Herbicides were applied to crabgrass at the 4- to 6-tiller stages. Irrigation was withheld for two days after treatment.

The post-emergence area was verticut in two directions in mid-April and overseeded with one pound of crabgrass seed per 1,000 square feet. The stand was maintained at a mowing height of 1-3/4 inches and received an annual total of two pounds of nitrogen per 1,000 square feet. Irrigation was provided as needed to prevent wilt. Treatments were monitored for crabgrass percentage at periodic intervals after application.

"Acclaim has shown good efficacy for post-emergence crabgrass control," says Street. "However, some discoloration and stunting of Kentucky bluegrass occurs, and efficacy drops off dramatically under drought conditions.

"Impact (BASF 514) efficacy was good at the 0.125 and 0.25 ai/A rates. However, effectiveness was reduced some, and rate of activity was significantly reduced, with 50 percent crabgrass still present on September 6 (14 days after treatment)."

Impact's label rate is 0.50 ai/A, according to BASF.

Street called Impact's efficacy "excellent" at the 0.50 to 1.0 ai/A rates, and said 100 percent control was shown in two weeks' time.

Coming in Tech Center:

- **Water infiltration through the soil profile, by Dr. Don Taylor**
- **Fungicides for pythium on golf course fairways**
- **Preventing nitrate leaching**
- **Ant control in turfgrass**