the resort was up even though several greens had been badly vandalized and closed, and late summer rains allowed the turf at the municipal course to resume normal growth and appearance.

Oh ye of little faith. The turf doesn't have to be green and soft to survive or provide a playable surface.

Those doing the most complaining typically are at golf courses with circa-1970 irrigation technology while expecting Y2K conditioning. Forget about it. The margin for error with respect to turfgrass water management has become increasingly thin with ever-faster greens and lower heights of cut. Drought conditions quickly highlight the deficiencies in the watering system, and simply cranking up the run times to make up for poor distribution uniformity invariably results in soft, muddy spots where embedded lies, mud on the ball, and no roll are the norm - all in the midst of a drought. This inefficient use of water results in a blatant waste of our most precious resource.

If course operators and players truly are concerned about uniformity and consistency on the golf course, then the irrigation system is the place to start. Modern irrigation control capability, components, and design have greatly improved the ability of golf course superintendents to accurately meet the variable turf water demands. Improved control and coverage also will result in significantly reduced water use over the year. Oh, can't afford to replace your 29-year-old irrigation system? Buck up and find a way to finance replacement of the golf course's most valuable infrastructure item or quit whining and hit the ball. Golf was invented prior to irrigation and has survived most of its life without it. Many would argue it was a better game without it, too.

The USGA is committed to funding research that investigates turfgrass breeding and selection, and management practices that enable reduced water use. We will continue to seek out every alternative to reduce water use and be better stewards, but it will be much easier if golfers come to support this endeavor. So, this is a plea to the American golfer. Firm and dry conditions promote better and more exciting golf. Brown is beautiful, too!

Listen closely - it's all about the water.

Matt Nelson is an agronomist in the USGA Green Section 5 Northwest Region. Reprinted with permission from: USGA Green Section Record, January-February 2003 issue.

Turf Management in a Certified Audubon Cooperative Sanctuary

By Bobby Wallace

At the Grand Harbor golf courses, we approach pest management with the concept of protecting the environment while keeping a top-grade playing surface for our golfers. We do not treat with preventive applications, only curative. Our policy is to spot-treat affected areas rather than apply to large portions of the course. We use the lowest curative rate and the least problematic chemicals for any particular pest.

Buffer Zones for Lake Edges

We have a protective buffer zone around lake edges where no pesticide spraying or fertilizer application is permitted. Primo, a growth retardant with no water soluble properties, is used to help keep a 5 foot no-mow area that not only achieves a transition zone with a natural look to our lake edges, but helps to absorb any chemicals that might possibly leach towards the water. In addition, we are installing littoral-zone plantings that will filter contaminants, and add wildlife cover, feeding and nesting areas for water birds and small animals such as otters.

Fertilization

Our fertilization program concentrates on slow-release fertilizers and foliar feeding to maximize

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nutrient retention and drastically reduce the possibility of any leaching to any water source.

Water-Use Conservation

The Grand Harbor site was conceived with a large, scenic, interconnected storm-water lake system. This engineered retention services a high percentage of our irrigation water needs for both the golf courses and the residential areas of our development. We also receive re-use water from Indian River County which is the only supplemental water source besides the lake system for one 18-hole course. Overseeding has been reduced to "tees only" as winter ryegrass uses large amounts of water. We minimize our water use by monitoring soil moisture content and setting our irrigation program accordingly. There is also much hand watering of hot spots and use of wetting agents for mounds and other features which are historically troublesome.

Turf Management in a Certified Audubon Cooperative Sanctuary

Our pest-management goal is to protect the environment while keeping a top-grade playing surface. We do not treat with preventive applications, only curative. Our policy is to spot-treat affected areas rather than apply to large portions of the course. We use the lowest curative rate and the least problematic chemicals for any particular pest.

Buffer Zones for Lake Edges

We have a buffer zone around lake edges where no pesticide or fertilizer application is permitted. Primo, a growth retardant with no water-soluble properties, is used to help keep a 5-foot no-mow area that not only achieves a natural looking transition zone, but helps to absorb any chemicals that might possibly leach towards the water. In addition, we are installing littoral-zone plantings that will filter contaminants, and add wildlife cover, feeding and nesting areas for water birds and small animals such as otters.

Fertilization

We concentrate on slow-release fertilizers and foliar feeding to maximize nutrient retention and drastically reduce the possibility of leaching to any water source. We also monitor the weather and postpone product spread any time there is a probability of rain. We comply with the "Best Practices" standards in all formulations and applications.

- Bobby Wallace

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