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In May we will be regrassing the whole golf course except the roughs. We will be installing TifEagle on the greens, TifGrand on the surrounds and no-till Celebration in the fairways. The clubhouse will also undergo a major renovation from top to bottom. We open up again in October. It will be interesting to see what changes will be in store for our weed management program then.

Central: Laurel Oak CC, Sarasota

Darden Nicks, Superintendent

We have modified our weed-control programs in response to budget cutbacks and observation of weed pressure, or the lack of it. We have been able to cut back on the perennial multiple large-scale grassy-weed preemergent applications of Ronstar® sparged onto fertilizer, that were previously employed, thus creating substantial savings in the chemical budget. We still apply seasonal preemergent, spot-spray applications of Barricade® to some roughs and bunker faces to help control broadleaf

weeds and Poa annua.

Our biggest weed problems are nut sedges, tropical signalgrass, dove weed and some bull paspalum. We do apply some Dimension® preventively around the clubhouse and driving range perimeters to control tracking of ryegrasses used to overseed those areas.

To control our cool-season grassy weeds, we apply tank mixes of Celsius® (3 oz/A) and Katana® (2.5 oz/A) via boom spray in roughs and on bunker faces.

In the summer season to combat dove weed, signalgrass and sedges, we increase the rates to 5 oz/A of Celsius® and add 12 oz/A of Dismiss South®. Sometimes we will replace Katana in our Celsius® mix with .88 oz/A of Monument® when spraying sedges, broadleaves and late season Poa.

We also go after dove weed with the label rate of Buctril and spot spray outbreaks found usually in shady areas, mulch beds, bunker faces and north-facing mound slopes.

Fortunately we do not have a big goosegrass problem, but if we have the need to treat for goosegrass, we use a mix of

Revolver® with a “pinch” (less than 1 oz) of Sencor®.

The bulk of our weed-control efforts are done by spot spraying from utility carts with small volume electric spray tanks. The spraying is done by the superintendent or assistant as part of a concerted program to target any current weed outbreaks. The weed infestations are scouted, sprayed, logged and monitored for control effectiveness.

We definitely take the IPM approach to our weed-control programs and we have found that our region of the county tends to have heavier blue/grey clayey soils, so the product stays in place longer and requires less frequent follow-up applications. We no longer use MSMA for grassy weed control. The heavier soils have the added benefit of having lower nematode populations. But that’s another story.

South: Boca West CC

Steve Wright, CGCS Head Superintendent and K.C. Henderson, Superintendent Fazio II Course

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HANDS ON

input on herbicide programs on seashore paspalum turfgrass. Overall, Boca West like many others have adjusted their programs not only because of budget crunches but also based on the increased prices of the newer, more selective, herbicides.

While Boca West still boom-sprays for weed control, that too is done with a spot-treatment approach by targeting the higher-traffic, damper areas that are more prone to weed infestation.

Follow-up treatments of sporadic outbreaks are done with the smaller electric 15-gal. sprayers; 2.5-gal. backpack sprayers are used when treating paspalum encroachment into the bermudagrass.

One of Wright's chief priorities is the overall safety factor regarding turf responses to products, making sure to minimize any root pruning effects. He tries to maintain a uniform inventory of products that will give results on both grass types. As a last resort, Wright and K.C. are not bashful about using a pocket knife to administer the *coup de grace* on persistent or stray weeds.

In the paspalum on the Fazio II course, signalgrass and crabgrass are the biggest headache in the summer and *Poa annua* in the cooler months. Henderson says if they go after the signalgrass in the cooler months beginning in October, he has good results just using salt to knock back the plants. The procedure is to wet the signalgrass clumps lightly with water from a spray bottle and then sprinkle granular salt over the plant. The cooler weather prevents the plant from regenerating quickly. He also says even if the plant does not completely die, it is easily pulled out once it weakens.

On the bermudagrass courses, signalgrass, goosegrass and crabgrass are the biggest offenders.

Back in 2009 and 2010, with the looming cancellation of MSMA, Wright said they tried everything on the signalgrass and crabgrass, but MSMA with a little Sencor was still the most effective product. Combined with Monument, it also worked well on controlling encroaching paspalum in the bermudagrass. Of course MSMA is no longer a viable option as inventories of the old turf-labeled materials are being used up.

Now Wright and company are using tank mixes of Celsius (12 oz/A) and Dismiss South (5 oz/A) to control the big three weed pests in bermuda and it took multiple applications to affect the signalgrass. Henderson uses a Dismiss (*not* Dismiss South) and Drive, a mix called Solitaire to control goose and sedge in paspalum. He said that the product worked best in the early spring with temperature in the 70s. Once the temps starting getting up into 80s he could see some turf burn.

Boca West also maintains an active preemergent program. Formerly using Ronstar and Dimension mixes, Wright discovered that the new Tower product is working quite well. They make three applications a year; March, May and late August or early September. These applications help suppress goosegrass and signalgrass in the warm months and *Poa Annua* in the cool season. As Wright noted, "Timing is everything."

Currently Wright is also evaluating Specticle, another new preemergent product to see how it might fit into their program.




ROTATE, ROTATE, ROTATE!

By Todd Lowe
USGA Florida Region Senior
Agronomist

Goosegrass removed from a Texas putting green that was later confirmed to be resistant to a sulfonylurea herbicide.” Photo courtesy Gary Brooks, Bayer Environmental Science.

Golf courses constantly battle weeds in our region due to subtropical conditions that favor rapid establishment and growth. Eradication of weeds however, is economically and environmentally impossible. Thus a philosophy of maintaining an acceptable level of control is required and the use of herbicides is a necessary part of an integrated pest management program. Weed management programs on most Florida golf courses generally includes two to four preemergent herbicide applications for warm-season and cool-season weeds, and spot treatments of postemergence herbicides to kill infestations of established weeds.

There are a variety of herbicides that are effective on turfgrass weeds in our region. Factors that are often considered when purchasing herbicides include cost, safety, efficacy, and ease of application. However, an additional factor that is overlooked is mode of action. It is human nature to continue using products that provide consistent results, or are the least expensive, but we



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may be doing more harm to our golf course in the long run.

Some annual weeds like goosegrass and annual bluegrass produce

thousands of seeds that can be quite genetically diverse. Some seedlings may have a herbicide-resistant gene, and if the same herbicide is applied each year, this gene can be passed along to future generations.

To date, goosegrass and annual bluegrass resistance has been confirmed with several different turfgrass herbicides.

For goosegrass, resistance has been documented with Illoxan (*diclofop*), Fusilade II (*fluazifop*), Dimension (*dithiopyr*), Pendulum & others (*pendimethalin*), Barricade (*prodiamine*), Surflan (*oryzalin*), Balan (*benefin*) and Team (*trifluralin*). For annual bluegrass, they include Dimension, Pendulum & others, Barricade, Surflan, Balan, Team, Prograss (*ethofumesate*), Princep & others (*simazine*), Aatrex & others (*atrazine*) and Sencor (*metribuzin*). There has been a recent report of sulfonylurea herbicide resistance in goosegrass as well, but results are not yet published (*see picture*).

Rotating different modes of action is recommended to reduce the development of herbicide resistance. An example might include rotating

Ronstar into a preemergent Barricade program, if it has been applied consecutively for several years. Pendulum and Surflan would be poor choices for rotation in this scenario, as these

It is human nature to continue using products that provide consistent results, or are the least expensive, but we may be doing more harm to our golf course in the long run.

chemicals have similar modes of action as Barricade. Some basic knowledge of herbicide families is necessary to make an informed decision, but these are easily accessible via the internet or turf management textbooks.

Consider your weed control programs and whether reduced control of a particular weed like goosegrass or annual bluegrass has occurred. If the same herbicide has been applied for several years consecutively, then there may be a chance that resistance is occurring. Rotate herbicides with different modes of action to reduce the likelihood of herbicide resistance and improve weed management efficacy at your golf course.



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JUMP START HIGH TRAFFIC AREAS

By Todd Lowe

Golf cart and other vehicle traffic has taken its toll on bermudagrass health over the past few months and has created a ragged appearance in high traffic areas. Bermudagrass growth decreases significantly when nighttime temperatures drop below 50 degrees F and eventually ceases to grow at all. Florida golf courses receive most of their play at this time, and continual traffic removes green turfgrass

Like a bear coming out of hibernation, the turf is hungry, and feeding it at this time will significantly improve turf quality.

leaves and exposes the tan-colored underlying stems. The soil in high traffic areas also becomes compacted, and this further reduces turfgrass root growth and oxygen uptake.

Although there continue to be a few cold nights, a gradual temperature increase over the past few weeks has caused the bermudagrass to green up throughout the region. Golf course roughs have been especially responsive to increased soil temperatures, and are maintaining better color and overall quality. Now that sustained bermudagrass growth and recovery can take place, several cultural practices are recommended to improve turf quality.

High traffic areas will benefit from soil cultivation practices at this time. Deep slicing or solid-tine aeration are particularly beneficial, as they cause less surface disruption than hollow-tine aeration, while relieving soil compaction.

Increased fertilization will also improve turf recovery. Most nutrient reserves have been depleted, and the turf must convert stored energy from its roots to create new green leaves. Like a bear coming out of hibernation, the turf is hungry, and feeding it at this time will significantly improve turf quality.

Peak winter season play will continue over the next couple of months, but increasing soil temperatures will help sustain better turf quality. Give your turf a little jump start at this time, with supplemental soil cultivation to relieve compaction, and fertilization to feed the grass. ■



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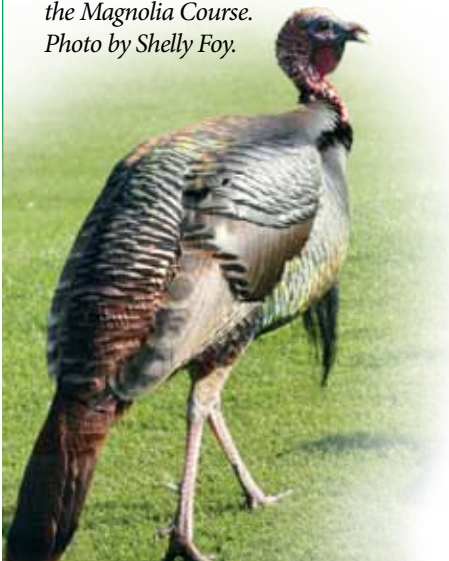
On the Disney courses you can find solitude even in the middle of the busy resort. Photo by Joel Jackson.

By Shelly Foy

The words “Disney” and “Magic” easily go together. I learned first hand how true this is when I had the opportunity to spend a couple of days visiting the Walt Disney World golf courses, all five of which are fully certified Audubon Cooperative Sanctuaries.

There are four 18-hole courses, and one 9-hole walking course at Disney World.

Close up of one of Disney's wild turkeys on the Magnolia Course. Photo by Shelly Foy.



The Palm (130 acres) and Magnolia (142 acres) were the first, built in 1971, both designed by Joe Lee. Lake Buena Vista Golf Course, also a Joe Lee design (105 acres) opened in 1972, and Osprey Ridge (194 acres), a Fazio course, opened in 1991. Oak Trail (32.7 acres), the nine-hole walking course, was designed by Ron Garl and opened in 1980.

Every golf course has a unique story to tell. The foundations for their success are staff longevity and commitment to their environmental programs, the abundance of wildlife on the properties, and the fact that even though you know you are in the middle of the Walt Disney World Resort, on the majority of golf holes you think you are in the middle of Florida one hundred years ago.

The golf management team of the Disney Courses, Gary Myers, CGCS, manager, Golf Course Maintenance Operations; Robert (Bob) Karnes, superintendent of Osprey Ridge and Lake Buena Vista; and Scott Welder, superintendent of Magnolia, Palm, and Oak Trail, collectively has almost 100 years of experience managing these courses. Myers has been at WDW for 15 years, Karnes for 37, and Welder is celebrating 40 years in 2011. The three of them know every square foot of the

properties, and their experience helps them anticipate problems and head them off.

Karnes, the environmental liaison for the golf courses, spends a lot of his free time reaching out to schools to promote environmental stewardship. He and Tami Jones, superintendent, are currently working with five schools in the area, either giving talks or working on community outreach projects.

Karnes has a goal of speaking to 5,000 students this year, and he is well on his way to meeting this goal. He and Jones have what they call the “Audubon International Road Show” - they enlarge and mount wildlife photos to help teach kids about Florida wildlife.

To garner support from other cast members, they are hosting a WDW Golf Maintenance Photo Contest, offering prizes, and enlarging to winners to join the road show in local schools.

“Every day I come to work and just try to make a little magic happen,” Karnes says. Sometimes it is hard to gauge success of environmental programs, but Karnes was thrilled to recently receive a call from the front desk of the Old Key West Resort letting him know guests are asking for hotel rooms close to the golf