

**During this week we will aerify tees, fairways, and light rough areas. Then on June 2, we deep-tine aerify the greens, verticut tees, verticut fairways and light roughs, topdress greens and tees, fertilize wall to wall and, finally, spray for mole cricket control.**

fertilizer to stimulate bermudagrass growth and we minimize irrigation as much as possible.

A new factor we're trying this year is to use the Primo growth regulator. We apply Primo on tees and par three approaches to regulate the ryegrass growth.

Since the growth regulator is foliar uptake, we anticipate very little effect on the 419 bermudagrass as the regulator was applied while the bermuda was shielded by the ryegrass.

We hope this will reduce the competition to determine the dominant turf desired during this transition period.

Our spring cultural practices go beyond the overseeded areas and we also work on fairways and roughs to recover from 200-plus rounds of golf per day we have during the winter season.

The first week in June becomes very busy and this year June 2 is the big day.

During this week we will aerify tees, fairways, and light rough areas. Then on June 2, we deep-tine aerify the greens, verticut tees, verticut fairways and light roughs, topdress greens and tees, fertilize wall to wall and, finally, spray for mole cricket control.

This "wild day" is successful because the work gets done all in one day, result-



*Mechanical removal of winter grass by means of aerification will help the bermuda base recover quickly.*

ing in the golf course being closed only one day.

About half of the work (the deep-tine aerification, fairway verticutting and custom spraying) is contracted out to the

professionals to make this all possible.

The advantages for Venice G&CC with this approach is that we have fewer closed days for renovations, fewer complaints about "tearing up the course," and have





*Light verticutting is an excellent cultural practice which should be done often to open up the overseeding turf canopy for sunlight to reach the summer grass.*

more effective utilization of irrigation by watering in the fertilizer, sand topdressing and insecticide all in one night.

We have many factors here at Venice G&CC that make this day successful and hope other clubs weigh all factors if considering such an undertaking in one day. Remember, this will not work for everyone and Plan B is on standby!

*Troy Smith  
Venice G&CC*

### **Problems in the rough**

A handful of golf courses in the state

have the unfortunate pleasure of overseeding the entire golf course. Our transition problems occur mostly in the roughs so we will focus on that.

In the rough areas, we lower heights in April to help open up the canopy (1 inch or less) of the perennial ryegrass.

We aerify in mid-May and decrease water enough to stress the ryegrass, but not so much as to stress the bermudagrass.

When temperatures begin to remain in the mid 60s to low 70s at night, we begin to push the bermuda with fertility in hopes that it will out-compete the rye.

With a little luck and a few truckloads of sod, we try to be in decent shape by Aug. 1.

This year we have also purchased an older type of ryegrass. By using a first-generation variety, we hope it will have less tolerance for heat, insect and water so it will check out faster. In recent years the second-generation ryegrasses we utilized were so good that they were not “transitioning” until early July.

Call me this coming July and I’ll let you know if this idea has worked!

*Tom Alex  
Grand Cypress GC, Orlando*

**Generally speaking, transition should coincide with your aerification. Treat it like a grow-in: lots of soluble nitrogen ... lots of water... stick to your daily mowing schedule.**

### **Transition begins in February**

I believe the transition actually begins for most of us in February.

Think about it: our grooming practices actually begin to thin the overseeding and expose some bermuda. If the weather is warmer, more grooming or — in some

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**We must prepare the bermuda base  
So we can make the change with grace  
We can't delay for time is pressing  
To verticut and apply topdressing.  
So, when we play this dreaded date.  
Don't force the turf too long to wait.  
Mother Nature will give no quarter.  
Grass needs food, and air, and water.**

cases — brushing is necessary.

Most of us reduce our fungicide rates, slightly increase fertilization and continue to lower the height of cut. So, let's face it, if we didn't aggressively do these simple things, the overseeded grass would dominate.

When it's time to really force transition, I find it necessary to verticut in four directions: two ways with the triplex and two ways with 22-inch walking greensmowers.

I'll follow up with aerification using  $\frac{1}{2}$ -inch or  $\frac{5}{8}$ -inch tines and simplex-brush the sand from the plugs back in. This does leave some debris (rhizomes, stolons, thatch and grass) on the surface.

However, I'm convinced that the sand in these plugs is an important greensmix or topdressing. Why haul it away when we've already paid for it at least once?

We also apply any soil amendments at this time. Routinely I will adjust the pH, alter hydrophobic spots with water-holding polymers and fertilize with natural organic fertilizers.

The result to all of this effort is usually a stronger, more prevalent bermudagrass plant.

However, the bentgrass certainly responds well to these programs too! So...we continue to groom, verticut, fertilize, dry out and lower the height of cut until we overseed again.

What a vicious cycle.

*Steve Wright, CGCS  
Alaqua CC, Longwood*

### **Weather is the controlling factor**

Making the transition from cool-sea-

son playing surfaces to warm-season playing surfaces is an annual guessing game in North Florida. There are things that can be done culturally to speed up or slow down the process, but weather is the controlling factor.

Ideally, the nighttime temperatures need to be in the 50- to 60-degree range, with daytime highs in the 80- to 90-degree range.

"Consistently" is the key word. It is not uncommon in North Florida to experience nighttime lows in the 40s in May.

Keeping this in mind, most superintendents in the area schedule their aerification in early June. This event, preceded by several weeks of low mowing, light vertical mowing, and increased fertility usually speeds up the transition from cool-season to warm-season grass.

Generally speaking, transition should coincide with your aerification. Treat it like a grow-in: lots of soluble nitrogen ... lots of water... stick to your daily mowing schedule.

And, oh yeah — eat your lunch in your office for a couple of weeks.

*Tom Cowan, CGCS  
Deerwood Club, Jacksonville*

## **Taking a position on the act of transition or ... It's not nice to fool Mother Nature**

I find myself in an awkward position, Trying to write about "Spring Transition."

For Spring has sprung a month ago, And change began as well you know.

Beneath the soil the roots are sluffing, Green blades above their weakness bluffing.

The time to act is now, says I. Please Mr. chairman, let me aerify!

You ask if I must start so soon? I cannot hold back spring 'til June! New roots and shoots will come calling, While, with tournaments, you are stalling.

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So we can make the change with grace.  
We can't delay for time is pressing  
To verticut and apply topdressing.

So, when we play this dreaded date,  
Don't force the turf too long to wait.  
Mother Nature will give no quarter.  
Grass needs food, and air, and water.

I know the greens won't putt the same,  
But if we wait, whom will you blame?  
When one hot day before your eyes,  
The sun cooks all our bents and eyes.

*Joel D. Jackson, CGCS  
Disney's Magnolia GC*

### **No set solution**

Like many of you, each year I hope for a smooth transition from winter overseeding to base bermudagrass.

Again, like many of you, I do what I can to contribute to this changeover and encourage the type of growth that I desire.

**To make a long story short, there is not set solution or answer. You must do what you feel best suits your needs and situation, whether it is cutting height, verticutting, fertilization, water or even chemical application to force a species out.**



**What we fail to remember from time to time is that we often contribute to our own transition headaches by being forced to overlook some of the basic cultural practices mentioned above. For instance, heavy play forces you to take steps that can't help but make the transition more difficult. When you play 95,000 to 100,000 round per year on 18 holes, your turf is undoubtedly under stress!**

Naturally, decreased cutting heights, verticutting, increased fertilization rates and decreased irrigation levels encourage the decline of the overseeded cool-season grass and encourage takeover by the warm-season bermudagrass.

This process, in combination with cultivars that naturally have a tendency to exit more gradually, makes our jobs somewhat easier.

What we fail to remember from time to time is that we often contribute to our own transition headaches by being forced to overlook some of the basic cultural practices mentioned above.

For instance, heavy play forces you to take steps that can't help but make the transition more difficult. When you play 95,000 to 100,000 round per year on 18 holes, your turf is undoubtedly under stress!

To overcome this stress, two methods utilized are increased height-of-cut and elevated fertility levels. These practices make transition more difficult, but may be necessary evils.

More than likely my transition will be slower unless continued heavy play in combination with increased temperatures force out the overseeding.

To make a long story short, there is not set solution or answer. You must do what you feel best suits your needs and situation, whether it is cutting height, verticutting, fertilization, water or even chemical application to force a species out.

Not every golf course can be treated the same. The transition cultural practices you choose to utilize must be dic-

tated by your experience and expertise in your particular situation not by Simon Says!

*Marshall Edgren, CGCS  
City of St. Petersburg*

**A**s you can see from the testimonials of the previous writers, transition can be a very testy time of the year. The most consistent aspect of the practices of these superintendents is the subject of "less than perfect conditions."

Everyone who goes through spring transition will somewhere on his golf course experience turf conditions which are unacceptable to the golfing membership. In certain instances these problems can be relatively minor occurrences while at other times they can seem like a runaway train with conditions spiraling out of control.

And sometimes the bad conditions are not related to how well a superintendent is handling the transition period.

The most influential factor in a smooth transition is out of the hands of the superintendents; it is of course, Mother Nature.

If the winter is too warm and the spring too cool, the overseeding will be heavily entrenched in the base grass. Under conditions as these, the warm-season grass is not able to overcome the virulent winter grass naturally with the aid of cultural practices normally utilized

for the transition period

The result in this scenario can be uncontrollable thinning of the turf accompanied by a sharp tongue from the greens chairman.

This situation is where the ability to speak and relate to your members concerns will come in handy.

Superintendents must reach out to the members and educate them. It is most important, particularly when the chips are down.

When events have overtaken your programs and have forced you into alternate programs, you must walk the pro shop floor daily, seek out and confront your detractors in a professional manner. Take time to educate them on what the true story is.

Remember, innuendo can bury you.

Remember also that the darkest hour is just before the dawn, and transition is no exception.

The spring transition time also marks the time when the fun starts: it leads into summer and fall, when you do all your cultural practices. It kicks off the summer months when your special projects will be accomplished. It gets you ready for the catcalls from the members which will come later in June as the mole crickets devour your turf and turn once-brilliant stands of fairway turf into mushy, roll-the-ball-to-a-green, spotted turf.

Spring is an eternal event — an event that offers hope of a better tomorrow, hope of sunny days with a fair breeze and quenching evening thunderstorms.

It is the springboard to the rest of the year, it is the most beautiful time of year with trees and plants of all varieties coming forth with new life and to put away the old. It is inspiration and unfortunately short-lived but never forgotten.

Remember this the next time your members castigate you for the unfortunate spring transition of the turf.

Speak to them kindly, educate them humbly and then ask them to walk with you in one of the world's greatest parks, stopping along the way and smell the roses.

**The spring transition time also marks the time when the fun starts . . . .**

## Dear Friends of Turf Management:

On December 10th, 1993, the EPA published its final rule to regulate methyl bromide as an ozone depleting chemical under the Clean Air Act. This rule schedules a complete phase-out of methyl bromide production and consumption on January 1, 2001.

The methyl bromide industry is challenging the EPA's rule on the basis that the science of ozone chemistry, as it applies to methyl bromide, is not well established and that suitable substitutes for many of its uses do not exist.

The immediate effect of the final rule during 1994-1995 will be felt on the pricing of methyl bromide products for the following reasons:

- Producers will need to increase their prices to cover the cost of methyl bromide's defense.
- Demand for methyl bromide products will continue to increase as production becomes restricted to 1991 levels beginning in 1994.
- Methyl bromide products may be levied an excise tax because of formal listing as an ozone depletion substance.

### What this means:

Although the bulk of methyl bromide usage is confined to agriculture, methyl bromide's role in turf establishment remains substantial as the best product available for the control of nematodes, soil pathogens and weed seeds.

If your long range plans include methyl bromide fumigation to rectify contaminated fairways, as an example, it may be time to accelerate your plans while the product is *still* available.



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# They didn't teach me this in turf school!

BY SCOTT BELL

A few years ago, Florida law mandated that I have monitoring wells installed around my fuel tanks in order to watch for groundwater contamination from the underground fuel storage tanks that we used to fuel the equipment.

Immediately after installation, our monitoring wells showed evidence of fuel in the samples. Upon notifying the local DER/HRS representative, my fears were quickly confirmed by him.

After discussing the matter with the club officials, the decision was made to convert to an above-ground system as quickly as possible.

We decided to install the Convault double-walled, concrete-enclosed tanks because of the obvious durability of the tanks and our desire to never be in this situation again. We were given a fair period of time to remove the suspect underground tanks which helped to spread these large expenses over a longer period of time.

The DER representative that I worked with was fair and reasonable and I responded by affording him the same consideration. I'm sure that my being cooperative with the DER official helped the situation and it helped get us a reasonable amount of time to remove the tanks.

In retrospect, I think he knew better than I the large expenses we would be incurring to remove the tanks, so I think he gave us time between the installation of the new tanks and the removal of the old tanks.

When we finally had the fuel tanks removed, contaminated soil and groundwater were found.

**Little did I know that morning what a long and hard road that I had in front of me.**

**In retrospect, I think he knew better than I the large expenses we would be incurring to remove the tanks, so I think he gave us time between the installation of the new tanks and the removal of the old tanks.**

The staff from Brevard Oil Equipment showed up to remove the tanks and, shortly after breaking through the concrete, they found that the soil was contaminated.

Little did I know that morning what a long and hard road that I had in front of me.

They started digging on Tuesday and they did not stop until Thursday night.

We had to go to Scotty's to buy plastic to line the ground so we could stockpile the soil.

As the hole was being dug, the boundaries had to be defined. Six-foot squares were dug to a seven-foot depth; soil samples were taken just below the surface, at about the midway depth and a third sample was taken just above the water table.

The soil samples were measured with an organic vapor analyzer (OVA) and those reading between 10 and 500 ppm represent contaminated soil. Our samples almost always read above 500 ppm.

OVA readings above 500 ppm represent excessively contaminated soil and usually both soils have to be remediated in some way.

By the time the four boundaries were determined, three days had passed, two backhoes were being used simultaneously, four large piles of contaminated fill sat covered up within my maintenance complex, and a hole approximately 60 feet by 50 feet by 7 feet deep existed in the parking lot.

The situation was extremely stressful, and anxious thoughts about very costly cleanups filled my mind.

I began to call other superintendents whom I knew had gone through this for advice and support. I read all of the ma-

terial that I could find pertaining to fuel spills. The contractor, Drew Bently of Brevard Oil, was very helpful in guiding me through the first process and educating me about soil remediation.

Ultimately Bently's knowledge and guidance saved me \$30,000.

The tanks were removed and inspected by Drew and by me and no holes were found in the tanks. The main pollutant was found to be gasoline.

One theory of how the soil became so polluted is that the piping may have leaked over the years.

Another idea is that the large trucks that used to fill the tanks by the gravity method would often overfill the tanks and cause large amounts of fuel to spill onto the ground. This practice caused the state to adopt overfill guidelines that now require overfill protection devices on all tanks. Years of overfill may have accumulated in the soil to cause this situation.

Once the tanks were removed, the next step was to develop a plan to deal with the soil, which sat in four huge piles at our complex. Large sheets of plastic covered the soil to protect it from the rain.

Since I had a large amount of undeveloped, uninhabited and unused land available, "landfarming" of the contaminated soil was a real possibility. Drew encouraged me to pursue the landfarming method because of the great savings versus incinerating the soil in Kissimmee and paying the trucking fees.

At this point I was tired of looking at the stinking soil but I knew that landfarming the soil as for me. We began to develop a plan to deal with the 800 tons of contaminated fill.





*This pit, which once housed underground storage tanks, became known as "the swimming pool" during the decontamination process.*

I still had a huge hole in my shop complex that was a constant liability. Every night before we went home, we parked all of large equipment around the hole and wrapped the site in yellow warning tape in case someone were to get within our fenced shop area.

The time frame between the initial discovery and the time that we landfarmed the soil and filled in the hole was over two months. In that time the plastic used to cover the contaminated soil had to be replaced once because the weather had destroyed it.

Analysis of the groundwater revealed that it also was highly contaminated. Of course this was bad news because now not only did the soil need treatment, so did the groundwater.

During the two months that the hole

was open, the hot Florida sun and rains helped to clean the site. The groundwater contamination numbers reduced significantly during this time and algae, insects and weeds began to live in the bottom of the hole.

Finally we received authorization to go ahead with the plan to landfarm the contaminated soil.

I contacted a local fill contractor, Ed Hall, to arrange the transport of the polluted soil to the landfarm site and the hauling in of soil to fill our hole — or "swimming pool" as it was called by us and some of my friends.

The "swimming pool" was filled in first, and because the soil for filling was located close to the shop, the hole was filled in quickly.

The landfarm site was cleared by my

staff and the landfarm was prepared by Brevard Oil and my staff. Construction of the landfarm was done by clearing the site and grading it smooth.

We chose a flat site in the middle of one of our parcels about an acre to an acre in a half in size. Once cleared, 10 mil plastic "visqueen" was used to line the bottom. The soil was hauled in and spread out to a depth of about four to six inches.

Fumes could be seen rising into the air as the soil was spread.

After a day of trucking and working the soil, the landfarm was complete. The sides of the farm had to be bermed up and covered to prevent any rain water from leaving the site during storms.

The farm was turned five to six times a week with a disc to help the soil release





*Contaminated groundwater requires special equipment like this stripping tower to remove residual material.*

**The landfarm was plowed five or six days per week for many months. The financial savings made the work worthwhile and I would recommend the technique to anyone who has the acreage, the labor pool and the time. As I said earlier, landfarming saved us at least \$30,000 over the cost of trucking the soil to an incinerator.**

the gas. The hot sun also helped to deplete the gas from the soil.

The first couple of months saw a large decline in the OVA readings in the soil tests, but after the readings got very low, the decline seemed to flatten out and it took more time to degrade the gas.

For instance, the initial readings when the soil was removed from the ground were 500 ppm to over 1000. After about six weeks, the readings were generally below 200 ppm — a large decline.

However, it then took more than six weeks to get the readings below 60 ppm and then below 10 ppm, the final target.

After months of testing and plowing, contaminated soil does clean up. Samples have to be taken for a series of expensive

tests to prove that the soil is clean so it can be taken out of the landfarm if you so desire.

The soil remediation was very labor intensive. The landfarm set-up, hauling, spreading of the soil, and the plowing

took many man-hours.

The landfarm was plowed five or six days per week for many months. The financial savings made the work worthwhile and I would recommend the technique to anyone who has the acreage, the labor pool and the time. As I said earlier, landfarming saved us at least \$30,000 over the cost of trucking the soil to an incinerator.

After all the time and effort that we devoted to the landfarm and soil remediation, we were still only three quarters of the way home.

### **Now for the groundwater**

We had removed the tanks, excavated the soil, remediated the soil and now we had to deal with the groundwater.

When the tanks and the soil were removed, a water sample was taken from the bottom of the hole and tested. The results indicated that more testing and possible remediation were necessary.

While the hole was open, we ran a stripper for a week and that helped to cleanse the water. The fact that the hole was open for two months also helped to clean the water as the air, sun and naturally-occurring microbes attacked the contamination.

In order to comply with the law, we were required to file a Contamination Assessment Report, or CAR, to the Florida Department of Environmental Regulation. The CAR explains that we did have contaminated soil and that we are correcting the problem.

The CAR mainly deals with the contaminated groundwater and is another expensive report, usually costing between \$11,000 and \$20,000 depending on the extent of the contamination and the number of wells and tests needed.

In order to complete the CAR, you must show how the groundwater is flow-

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