

8 critical questions to ID weeds

There are plenty of diseases that can be misidentified on your course; this article only highlights five of them. Before you accidentally misidentify and make a possibly damaging mistake, it might be smart to get in touch with a weed specialist to professionally diagnose what you have growing. When you contact a specialist, they will most likely ask the following questions, so make sure you have the answers at the ready.

- Is it a woody plant or an herbaceous plant?
- Is it a broad leaf, or more like a grass?
- If it's broad leaf, how are the leaves attached to the stem? Are they by themselves or in groups?
- What is the shape of the leaf? Is it round/elongated? One leaf at a time?
- Is it a plant that grows vertically, or one that spreads from the base and then opens up? Or is it more like a vine that grows around objects?
- How are the leaves attached to the plant?
- Are the flowers at the top of the plant?
- What are the dimensions of the plant?

Using the answers to these questions, it should be relatively easy to narrow down what weed it is that's left you confused.

There are a few ways to identify this weed. One is to look at the seed head, which Christians says is unique because it has an awn at the tip of each seed.

"It's a spike-like seed head but it has a hair-like structure at the tip of each one," he says.

Most often, nimblewill is confused with Bermuda grass, so a lot of times people end up ignoring it because they think it is part of their Bermuda grass turf. However, even though it looks similar to Bermuda grass, its spreading growth habit can cause the area to look like the Bermuda grass is contaminated. That's why superintendents should still try to control it instead of just letting it grow.

A characteristic important to look at when identifying nimblewill from Bermuda grass is the ligule. A nimblewill ligule looks more like a membrane, whereas a Bermuda grass ligule looks hairy.

"If you're confused [between the two]," says Leon, "look and if you see that hairy area at the base of the leaf, it's Bermuda grass. Nimblewill has a more membranous ligule."

Nimblewill leaves are also wider and more spaced between leaves than Bermuda grass leaves.

Another important identifier is the flower.

"If you let it flower, Bermuda grass is going to produce a flower that has five spikes, or little branches, that form a star," says Leon. "Nimblewill will have just one branch, vertical, and it's very finely covered with little flowers."

Gardner says you can also tell a Nimblewill by looking at a cross section of its leaves.

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“If we don’t identify the plant correctly, we might end up using **weed management practices, or weed control tools;** such as herbicides, mowing or mulching; that will not only have limited impact on the management or control of that species, but could make things even worse.”

– Ramon Leon, University of Florida

“What I tell people to look at is to rip a piece of a leaf and look at it in cross section because most of the time grass leaves either have rolled or folded vernation,” he says. “Nimblewill is folded, but when the leaf is completely unfurled it almost looks like a w with rounded corners in cross section.”

SMOOTH BROME. Smooth brome is a weed common to the Midwest states. It grows rapidly in

the spring and fall, but blends in with the turf grass during the summer. Like the quack grass, smooth brome also produces rhizomes, but not to the extent of quack grass. It will also grow to be taller than quack grass, and its leaves will be wider.

Another distinct characteristic of smooth brome’s leaves is that there is usually a watermark at the tip of the blue-green leaf; a bleached out area that looks like a “V.”

The way to tell smooth brome apart from other wide-plated weedy grasses, such as orchard-grass, quack grass, and tall fescue, is to look at the leaf sheath.

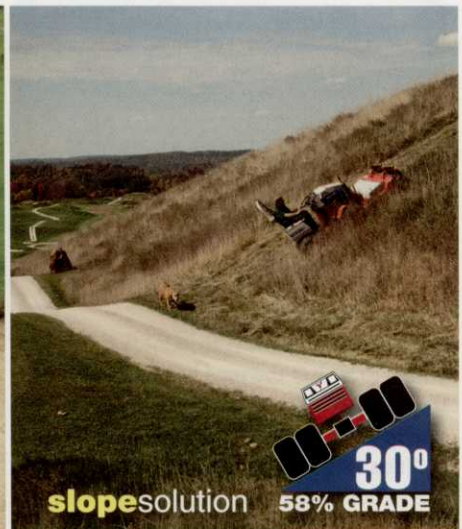
“The best way to identify it is the closed sheath,” says Christians. “[It] is one of those course textured perennial grasses that sticks out of the turf, particularly in spring and fall.”

Once again, flowers are also a good way to identify smooth brome correctly.

“If you let it flower, basically you’re going to see a pinnacle that opens up and branches out many times,” says Leon. “If you have different layers of branches, and when you let it grow completely, it’s going to look more like a feather, which is very different from quack grass.”

ANNUAL BLUE-EYED GRASS. This particular weed is relatively new to the golf course scene, and is very similar to annual bluegrass. Mudgem says people may be misidentifying this weed a lot because it’s so new, and therefore unfamiliar. Because of this, a lot of superintendents think what they’re treating is annual bluegrass.

“They’re both winter annuals,” says Mudgem. “You find them commonly on golf courses and



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lawns, but the annual blue-eyed grass has a little flower, whereas *Poa annua* has a whitish looking seed head. But if you have a small *Poa* plant and a small annual blue-eyed grass plant, they do look similar. When they get established later in the spring, you can tell them apart.”

Another way to identify the blue-eyed grass is by the stem and leaves.

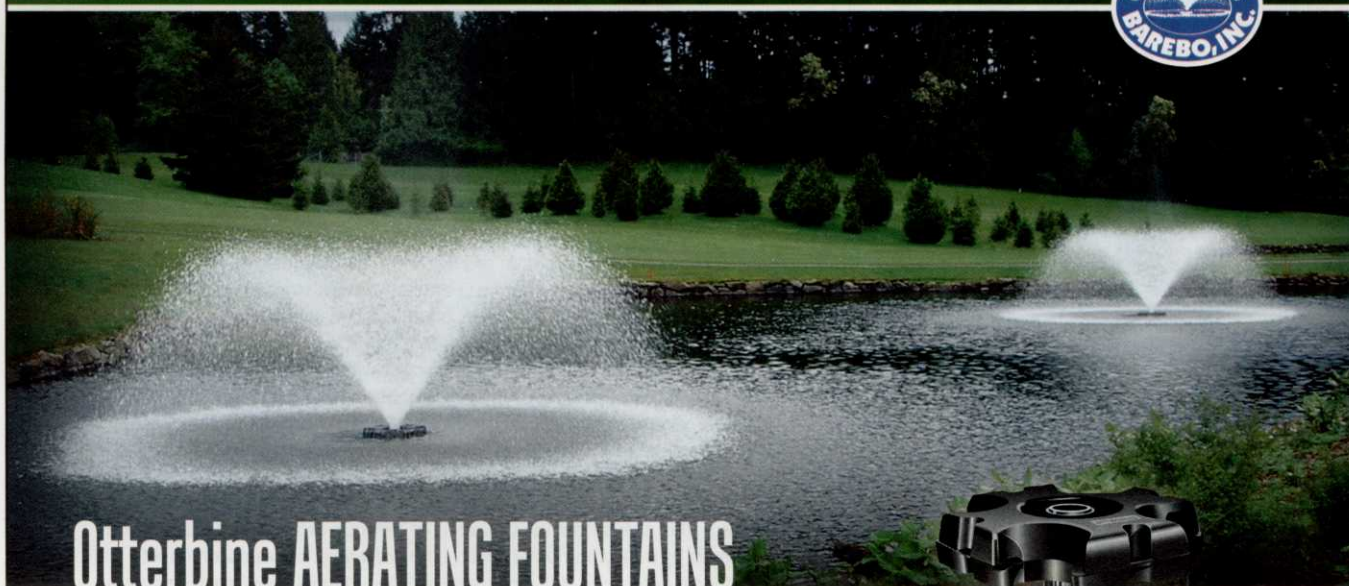
“[T]he base of the leaves and of the plant is very, very flat,” says Leon. “The color of the leaves tends to be light green, even if you put a lot of nitrogen on your lawn.”

Leon says the tip of the stem is also flat, and this is where the blue-eyed grass flower grows. The flower has six petals; often pink, purple or a dark blueish-purple; and looks like a tiny lily.



Annual blue-eyed grass is often mistaken for annual bluegrass.

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PLANT HEALTH

According to Mudgem, this year he's gotten more calls regarding annual blue-eyed grass than in the past 25 years combined.

"It just exploded out there in the market," he says. "It's kind of interesting how things happen like that."

This seems to be a common trend in weeds, especially with all the different herbicides on the market to target specific weeds.

"If you have a golf course and you're spray-

ing for certain weeds, you may not control other weeds that may become a problem," he says. "You could be going along fine and then all of a sudden come across a weed that causes a problem. When you have all these herbicides out there, you have shifts in weed populations." **GCI**

Katie Tuttle is GCI's assistant editor.

There's an app for that

So you've read the articles a dozen times, you've tried all the steps, and you still can't tell if the weed in front of you is nimblewill or Bermuda grass. Never fear! Today's technology makes it much easier to solve your weed ID problem at the touch of your cell phone.

Turf apps, such as TurfPath, allow users to easily identify the weed they're staring at, without requiring you to bring along a wheelbarrow filled with textbooks, brochures, and photographs.

"The concept for Turfpath was to provide real-time updates to turfgrass managers by crowdsourcing pest reports from its users," says John Kaminski, the creator of TurfPath. "Environmental predictive models are a good way to get an idea of what pests may be approaching, but are usually limited in accuracy. I figured actual reporting of active pests from the app's users would be a more accurate way to know what's happening in any region and the quantity of reports would help identify the potential severity and movement of the problem. Turfpath also has a wealth of other basic information that allows users to identify their pests and find control options. With the rapid increase in the use of mobile technology, developing Turfpath seemed like a great way to provide a powerful pest management tool for the turfgrass industry."

And TurfPath's not the only one. Similar apps are popping up all over the internet, giving superintendents books-worth of information at the tips of their fingers. GCI has compiled a list of the most popular and most resourceful weed identification apps. Head over to the app store and download the following immediately.

- **Turfpath**
- **Turfgrass Management** – This app is a must have for all superintendents and turfgrass managers. Besides the wealth of information in the "living database", this app offers other resources in the form of Power Point presentations and article publications. These are perfect for when you have 5 or 10 minutes under a tree, pull out your iPhone and scroll through an article or slideshow.
- **Evernote** – This is a great app for once you have identified your weeds/pests to build your own custom database on what you actually have on your property. You can take photos of the weeds and store them in Evernote. You can store the product labels of your treatments in Evernote for future reference and you can even attach a copy of your spray record with the weed identification for future reference.
- **MWM (Mobile Weed Manual)** – This is a mobile weed management program created by the University of Tennessee. It has a database of descriptions, pictures and solutions to weeds you may encounter in turfgrass. One of the biggest pros of this app is the intuitiveness of the app. It really harnesses the power and functions of the iPad in terms of the multigestures to create a very easy way to navigate and search through the app. This app is also free, which is always good.
- **ID Weeds** – This app is from the University of Missouri Extension and allows you to search for weeds by their common or Latin name, view a list of weeds, or identify weeds based upon a number of different characteristics. Details about each weed are presented, along with photographs of the weed specified.
- **WeedAlert.com** – This app, from PBI Gordon, is actually a website that works on mobile devices. Very easy and intuitive to use. The only con is that since it's an app built by PBI, all of the solutions involve PBI products. This isn't a bad thing, especially if those are the products you use.
- **NCSU Lawn Care** – This is a great all around turf management app, but more designed for the homeowner, but certainly can be used for the turf professional. Has tips, photos, videos, and a library of pests including weeds that can be used for identification. It's mostly built around southern grasses.



Jeffrey D. Brauer is a veteran golf course architect responsible for more than 50 new courses and more than 100 renovations. A member and past president of the American Society of Golf Course Architects, he is president of Jeffrey D. Brauer/GolfScapes in Arlington, Texas. Reach him at jeff@jeffreybrauer.com.

ALLOWANCES AND CONTINGENCIES

Long ago, a contractor turned in a bid that included an additional line item for \$50,000. He labeled it “stuff I probably forgot.” I liked his honesty, even if his high-price and non-conforming bid cost him that project.

Even if your architect draws detailed plans, you can expect field changes in your renovation.

There are many different ways to get a golf course built – the main methods are using plans and specifications to design or designing in the field. Generally, detailed plans closely quantify most work items, including green size, bunker size, etc. before construction. Field design firms try to predict quantities based on past projects.

Most projects follow the proverbial desire for “champagne on a beer budget.” Thirty six years of experience has taught me to be smart and plan on spending 10-20 percent more than the client really wants to get the product they really want and need.

Depending on how unique the final design and your site conditions are, there is greater potential for inaccurate scope of work.

I once saw a field designed project that had estimated 100,000 square feet of sand bunkers. A field decision to add a massive fairway bunker between two holes used 120,000 sq. ft. of the 100,000 sq. ft. sand allowance. Despite an attempt to reduce sand by the addition of several turf islands, the

owner had to find money for about twice the sand originally budgeted.

But, no matter how much prior planning your architect puts in, there are always field changes for a variety of reasons. While we attempt horse trading among items to balance budgets, many field changes require more money. Causes include:

- Inaccurate topo or base maps, making accurate, detailed design nearly impossible.
 - Inaccurate “As-Builts” are the exception rather than the rule. Most courses seem to have “a guy” who knows where everything is, but no maps confirming it, so unknown conditions are very common on renovations, where we often find old and forgotten infrastructure, resulting additional work the Contractor couldn’t possibly have bid.
 - Many field “additions” are really “put backs” resulting from overly optimistic “value engineering” in the design process to meet a specific budget.
 - Most clients don’t fully understand plans or budgets, and things always look different to them in the field in summer than on a spreadsheet in winter.
 - Some clients expect (or add) non construction items like equipment, tee signs, etc. to the established construction budget, effectively reducing it below what was anticipated.
- So, it is always wise to:
- Include a contingency fund of at least 10 percent. 15 percent is better, and 5 percent is too skinny.
 - Don’t publicize the contingency. Architects and contractors tend to find ways to spend it...
 - Save as much as possible until the end of the project, when potential for unexpected costs seem unlikely, and use it for more sod to ease the grow in process.

It is also wise to include small allowance items in the base budget. For instance, years of small change orders for drainage additions make me include a standard \$5,000-\$10,000 drainage allowance line item in the bid form. It is used mostly around cart paths, planned on grade, but often built even one inch too high or low, causing drainage issues.

I have had clients “prioritize” drainage problems that are all equally unacceptable. Once a contractor is on site, it is a great time to do more, since the unit prices for additional work are lower than bringing a contractor back for many little projects.

Other typical over runs include:

Irrigation. Some typical problems include:

- You can’t grow grass without irrigation, and any time holes are relocated, it usually takes more heads to get new areas cover and sometimes more heads to maintain perfect triangular spacing.
- When trying to reuse existing heads to save money, we find 10-25 percent of them will be unsuitable to re-use, but never know for sure until they are dug out.

Cart paths. We usually want more cart path (and curb) in the field, whether to get golfers closer to tees and greens, provide maintenance and beverage cart short cuts, or connections to restrooms. As with drainage, it is always tempting to add more... and more... no matter how many lineal feet are called for.

And, it often seems like the last section of existing path we tie into is in poor condition, or not perfectly located. It often becomes obvious when installing connecting dowels

(BRAUER continues on page 58)

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TINY BUBBLES

By Helen M. Stone

Aeration can help you find a clear solution to your pond problems

Mother Nature is probably the most efficient lake designer of all. Large, deep lakes stay naturally clean and clear for decades. However, like all biological beings, lakes age. They fill with sediment and organic matter and eventually become meadows. In a manmade lake or pond, this progression can speed up to the point that the pond or lake is a stinking mess in just a few years.

While golf course lakes are undeniably an aesthetic asset, looks aren't everything. Golf course lakes hold irrigation water, capture storm runoff, aid in drainage and can even be a favorite fishing hole. However, with all the responsibilities on a golf course superintendent's priority list, lake management might be considered a necessary evil.

"Most superintendents consider ponds a nuisance or even a pain in the butt," says Bud Laidlaw, western regional sales manager for Otterbine Barebo. Based in Phoenix, Ariz., Laidlaw has seen his share of poorly managed lakes in his long career.

"When I was 16, I worked on a golf course and when I was mowing a green close to a pond, I was instructed to just throw the grass into the pond. In the old days,



"Aeration may be the best ticket to turn your pond back into the one you remember or want it to be."

we didn't know any different," he chuckles.

Over the past three decades, there has been untold amounts of research and innovation in the lake management business. Still, "Probably only about 30 percent of the superintendents I work with know how deep their ponds are," Laidlaw says.

The depth of your pond is criti-

cal when selecting an aeration system. But let's back up a bit and decide whether you need a system or not.

If you are relying solely on chemicals to control algae, you might want to reconsider. As golf courses are put under a public microscope, chemical usage and water conservation are under major scrutiny. "In Canada, the

use of chemicals to control algae is already banned," says Richard Panten, owner of Platinum Ponds and Lake Management in Greenville, S.C. Although Panten is licensed by the state of South Carolina to spray aquatic herbicides in open waters, it's not his first choice in techniques.

"One thing I can say about chemicals is that if you use them

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Above: Installation of an aerator fountain.



one year, you'll have to keep using them the next year and the next," says Laidlaw. "I have nothing against chemicals; they can be a great tool in a crisis situation where you have an algae bloom. But when you spray an algae bloom, it doesn't evaporate into

the sky. It falls to the bottom of the pond and contributes to the benthic zone. It decomposes and provides nutrients for the next algae bloom."

Benthic zone? Simply a scientific term for the bottom of the lake, where sediment and

sludge build up, and organic matter decomposes. This zone can build up anywhere from one to five inches a year. That can mean a major loss of water storage capacity. A one-acre lake loses 80,000 gallons of water with every three inches of sludge

and/or sediment accumulation.

There are two major factors contributing to algae blooms and a lake's decline: nutrient loading and lack of oxygen. Chemicals cannot "cure" either.

It's natural for the benthic layer to build up gradually. But

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