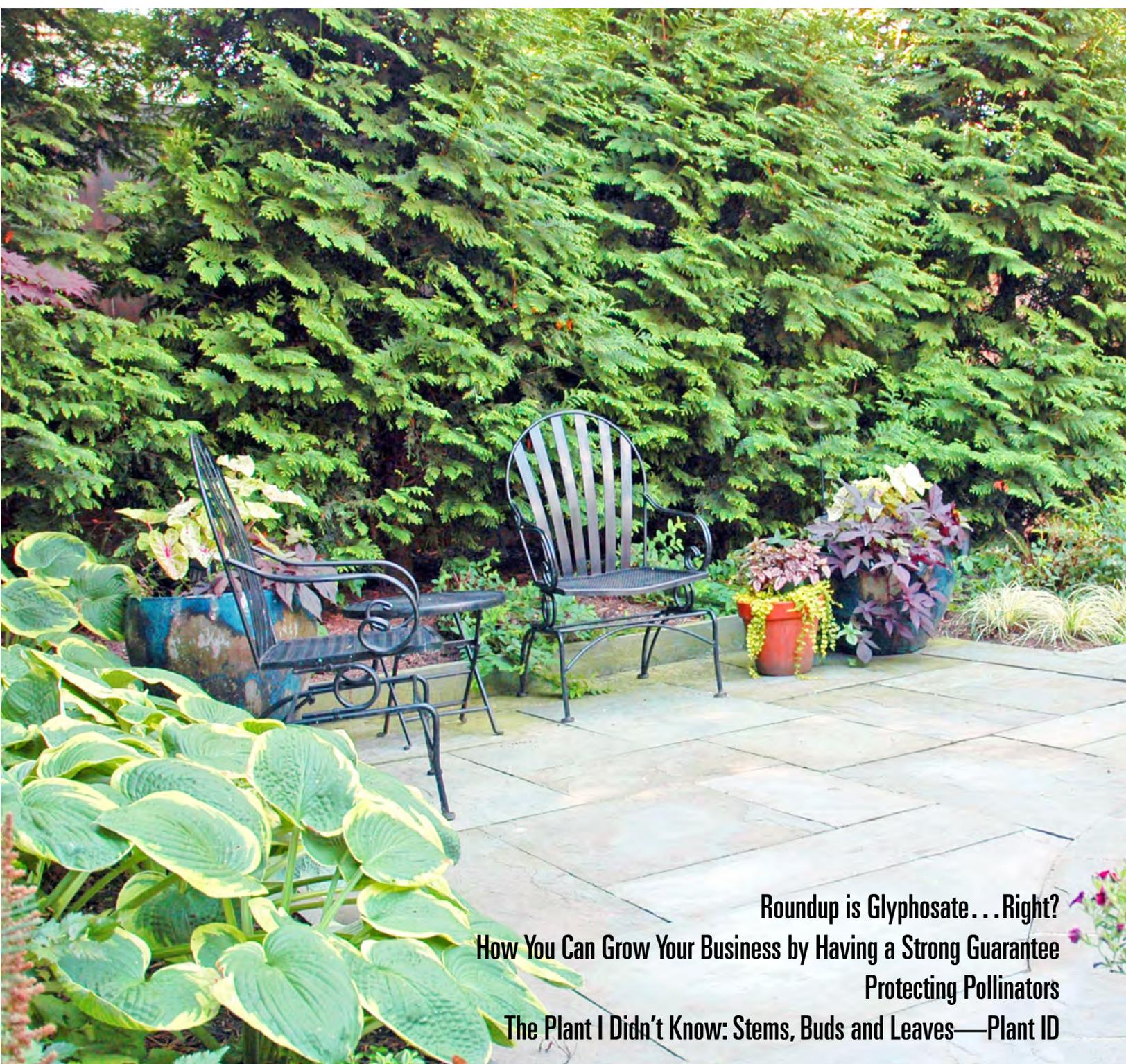


JUNE 2015

GROUNDWORK

A PUBLICATION OF THE LANDSCAPE CONTRACTORS ASSOCIATION MD•DC•VA



Roundup is Glyphosate... Right?

**How You Can Grow Your Business by Having a Strong Guarantee
Protecting Pollinators**

The Plant I Didn't Know: Stems, Buds and Leaves—Plant ID



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June 2015



on the cover

A Small Washington, DC Garden

Fine Earth Landscape, Inc.

Total Residential Contracting

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Certification 2015

Landscape Industry Certified Technician—Exterior

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Training-Field: Saturday, June 20

Written Test: Tuesday, July 14

Hands-on Test: Saturday, July 25

For more information: www.lcamddcva.org

Plant of the Month



Welcoming Wisteria
to the Garden Party

"Feature" and "Plant of the Month" articles can also be found online under the GROUNDWORK ARTICLE ARCHIVE section at: www.lcamddcva.org

CALENDAR OF events

JUNE

- | | | |
|----|--|---|
| 19 | Certification 2015
Training—Classroom | Agricultural History Farm Park
Derwood, MD |
| 20 | Certification 2015
Training—Field | Agricultural History Farm Park
Derwood, MD |

JULY

- | | | |
|----|-------------------------------------|---|
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Written Test | Johns Hopkins University
Rockville, MD |
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Derwood, MD |

AUGUST

- | | | |
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SEPTEMBER

- | | | |
|----|---|---|
| 16 | LCA 2015 Mini-Workshop
Stanton Gill, David L. Clement, Mary K. Malinoski,
Suzanne Klick, and Karen K. Rane
<i>The Pests of Herbaceous Annuals and Perennials in
the Landscape: Hands-on Training Session</i> | Johns Hopkins University
Rockville, MD |
|----|---|---|



LCA 2015 Mini-Workshop
Johns Hopkins University, Rockville, MD
Program.....9:30 am–Noon
Lunch.....Noon



Wednesday, September 16, 2015
**The Pests of Herbaceous Annuals
and Perennials in the Landscape:
Hands-On Training Session**

*Stanton Gill
David L. Clement
Mary K. Malinoski
Suzanne Klick
Karen K. Rane*

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GROUNDWORK, the official publication of the Landscape Contractors Association, MD•DC•VA, is published monthly by LCA, 9707 Key West Avenue, Suite 100, Rockville, MD 20850.

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E: lca@mgmtsol.com W: www.lcamddcva.org.

Office hours: Monday–Friday, 8:30 am–5 pm (EST).

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Editorial Deadline: The deadline to submit copy is the first of the month for the following month's issue and is on a space-available basis.

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President's Message



Matt Owens, MBA, LIC
2015 President

What if you...

- Greeted every person with whom you came into contact today with a smile?
- Went out of your way to do something above and beyond what was asked of you?
- Looked at every “problem” as an opportunity to use your skills and expertise?
- Went the extra mile for your co-workers, the same as you would for a client?
- Understood that change is difficult but necessary for survival?
- Did what you said you were going to do all of the time?
- Could make a positive impact on someone’s life, personally or professionally?
- Spent more time coming up with solutions rather than complaining?
- Were a better listener?
- Held *yourself* as accountable as you do your co-workers or family members?
- Went out of your way to explain the “why”?
- Looked at your role as being responsible for training your replacement?
- Recognized that you don’t know what you don’t know?
- Took the time to do something about that?
- Volunteered for something you have never done before?
- Could wipe your slate clean? What would it look like?
- Went a day without your cell phone? Would it *really be the end of the world*?
- Realized that taking risks could improve your performance?
- Didn't take people for granted?
- Treated everyone with the dignity and respect they deserve, all of the time?
- Tried to explain “success” to your most inexperienced crew person?
- Weren't bottom-line driven?
- Thought and dreamed like a child, even as an adult?
- Were kind to even those you don’t know?
- Blocked out time in your hectic schedule to focus on your goals?
- Took the time to reconnect with someone you haven’t seen or spoken to in a while?
- Could wave your magic wand and paint the big picture? What would it look like?
- Realized that you were in the wrong seat on the bus?
- Gave, gave, gave instead of took, took, took?
- Got more involved in your industry, your firm, your employees—what would it take?
- Actually took ANY of these opportunities to better yourself, wouldn’t things be so much better for everyone, including you?

What if...

A handwritten signature in black ink that reads "Matt Owens". The signature is fluid and cursive, with a long horizontal line extending to the right.

Matt Owens, MBA, LIC
LCA President

Roundup is Glyphosate . . . Right?

By David L. Roberts, Ph.D.
Senior Academic Specialist
College of Agriculture and Natural Resources
Michigan State University

Introduction

The subject of this article is not to promote the March On Monsanto bandwagon of followers, some of whom apparently believe Monsanto is a nasty American corporation solely seeking profits while destroying the planet. Nor is my goal to praise Monsanto for producing many fine products enabling farmers to help feed the world. Rather, my somewhat lackluster but still important intention is to simply clarify some issues surrounding the Roundup product line of herbicides that may be confusing to the public and professional alike.

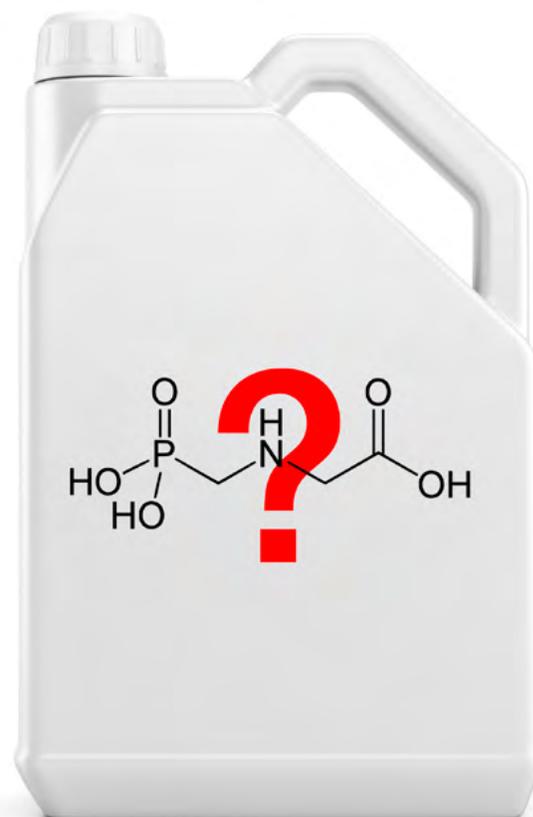
The active ingredient of the original Roundup was glyphosate, invented and patented by Monsanto sometime after The Creation. Over the ensuing years, Roundup garnered a stellar reputation among users as a highly effective, low-cost wonder herbicide. With inactivity upon contact with soil (or organic matter) and, hence, virtually no residual, this stuff was just what the doctor ordered when it came to killing weeds in unwanted places

while allowing an immediate capability to replant or reseed as desired.

In recent years, however, there has been an increase in damage to non-target plants from Roundup products or from other companies' products with similar active ingredients. These non-target plants include trees, shrubs and, well, just about any plant one can imagine (Photo 1). Why is this happening?



Photo 1: Initially, the damage to these oak trees was believed to be due to oak wilt, a lethal disease. Further investigation disclosed that the damage was caused by an herbicide product containing glyphosate and imazapyr. The herbicide had been applied the year before to the driveway of this horse farm.



Roundup Product Clarification

For many years, Roundup was sold with glyphosate as the primary active ingredient. As time went by, but especially after glyphosate went “off-patent,” the folks at Monsanto decided they needed to enhance the efficacy of Roundup while continuing to advance the sterling reputation that the Roundup brand had achieved. Subsequently, Roundup has become a line of herbicide products, and this has apparently become rather confusing to people who are accustomed to the original glyphosate Roundup.

Today, Roundup is still sold with the active ingredient glyphosate, but other active ingredients have been added: primarily the contact herbicides pelargonic acid and diquat dibromide, and the systemic herbicide imazapyr (Photos 2A–C). You may recall, perhaps with some frustration, that the original Roundup (glyphosate) might take at least 1–2 weeks before plants turned yellow and began to die. The Roundup

folks in all their infinite wisdom understood the average impatient consumer's desires—"We want to see that plant die NOW, not next month." So they added pelargonic acid, a fatty acid herbicide, to the formulation to ensure a rather fast "meltdown" of the plant. To immense gratification of the consumer, the sprayed plant often withered the same day of application while glypho-

for a year or more in soil, it is important to understand that planting seeds or transplants into imazapyr-contaminated soil may result in harm to these plants.

Avoiding "Roundup" Damage to Trees and Landscape Plants

There are apparently at least two rather confusing aspects about the current Roundup line of products. First, individuals who have used the original Roundup (Glyphosate) in the past apparently believe that the "Extended Control" or "365" formulations are sim-

ply stronger doses of glyphosate, without understanding that other very lethal and long-lasting herbicides have been added to the product line. I suspect that these other chemical herbicides are not understood by the general public and even some professional applicators. Second, according to the packages and labels, recommended use of most Roundup products include locations such as driveways, patios, sidewalks/paths, tree rings, mulched areas, etc.—exactly where the roots of many trees and shrubs grow. The imazapyr compo-



Photo 2A, 2B and 2C: Expanding from the original glyphosate active ingredient, Roundup products now contain a variety of other chemicals to enhance the glyphosate's effectiveness and longevity. Be cautious of products containing imazapyr around trees, shrubs, and other desirable plants.

sate became systemic to eventually kill the roots. Diquat dibromide largely does the same thing as pelargonic acid except ever so slightly slower.

The real problem for landscape plants, trees and gardens is the imazapyr component of some Roundup products. Imazapyr has been or currently is an active ingredient in the Roundup Extended Control and Roundup 365 products. Interestingly, some Roundup Extended control products contain diquat dibromide rather than imazapyr. Confusing enough? Imazapyr is a deadly, long-lived herbicide to most plants. Of considerable concern is that imazapyr is a carboxylic acid herbicide (like DuPont's Imprelis) that is soluble in water. In other words, imazapyr tends to move with water (irrigation or rain), either laterally across the landscape or by leaching down through the soil to the roots of tree and shrub, sometimes with deadly consequences (Photo 3A). Furthermore, because imazapyr persists

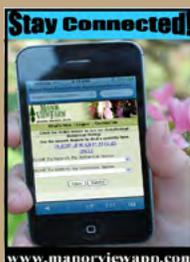


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ment of certain Roundup products may leach into the root zones of trees and shrubs and be taken up systemically, causing severe harm to these plants (Photo 3A). It must be noted that there are many products marketed under different manufacturers' labels that contain similar active ingredients and that are just as deadly (Photos 4A and 4B). While the percentages of these active ingredients in these different products may vary slightly, imazapyr and other potentially long-lasting chemicals can do serious harm to our desirable plants (Photos 5A, 5B and 5C).

To avoid damage to trees and landscape plants, it is very important to read and follow the label directions of the product you intend to use. It is important to understand that roots of trees often extend horizontally 1–2X the height of the tree. If there is any chance that the roots of trees and shrubs may exist anywhere in the vicinity of the area the herbicide is intended to be applied, it may be best to avoid applying any herbicide containing imazapyr (or similar long-lasting, leachable herbicide). If mistakes do happen, which according to my observations is happening in greater frequency, do not remove trees or shrubs immediately. Affected plants sometimes recover with time, depending on the dose they receive (Photos 3A and 3B).

For more information, please feel free to email David Roberts at robertsd@msu.edu or contact a professional plant health care provider. The author, MSU, and MGIA do not endorse any particular products. If using pesticides, be sure to read and follow label directions. 🌱

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Photo 3A: The mulch rings of these trees were treated with a product containing imazapyr, with apparent deadly consequences. Note that the topically applied imazapyr not only leached into the root zones of the trees but also into the turf.



Photo 3B: Of the apparent damage to trees in Photo 3A, two apparently died and had to be replaced. Remarkably, many of the other trees eventually recovered! Believe it or not, most of the affected trees survived two years without foliage! provided there is green cambium tissue beneath the bark, never give up!!



Photo 4A and 4B: In addition to the ever popular Roundup line of products, there are other manufacturers' products containing the same active ingredients, glyphosate and imazapyr, albeit at slightly different percentages.



Photo 5A: This dogwood contains sparse, straggled foliage as the result of a glyphosate application to the mulched area adjacent to the tree. Unfortunately, the application was also applied to epicormic shoots (suckers) emerging from the lower trunk and roots.

Photo 5B and 5C: A close-up photo of the tree in Photo 5A shows the deformed foliage (5B) compared to normal foliage (5C). Luckily in this case, the tree is likely to recover with time.



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How You Can Grow Your Business by Having a Strong Guarantee

By Tom Borg



One of the keys to winning initial and return business from your prospective clients is a solid guarantee. Simply stated, your clients want to have the assurance that the services or products they purchase from your company are going to provide them with what they want and need. This is nothing less than what you and I would expect, were we to purchase a product or service from some other business.

This expectation is based on a strong instinctual need that Abraham Maslow categorizes in his *Hierarchy of Needs* as security. We all possess this basic need. When we recognize and openly promote our guarantee to our prospects and clients, we eliminate their fear of not getting what they paid for.

Research shows that your clients will purchase more quickly and more often when you provide and communicate a strong guarantee in what is often

referred to as risk reversal. Marketing expert Jay Abraham explains that typically, most companies have a guarantee, but is not written or even verbalized to their prospective or current clients. The absence of this kind of communication creates doubt and suspicion. People just don't know for sure if your product or service will deliver what they want.

One of the critical concepts to keep in mind is that when your potential clients are comparing your green industry company to a competitor and see all things as being equal, they will always go with the company with the lowest price. In other words, if they don't see a big enough difference in the value that you can provide to them, they will buy from the company that is the cheapest.

By having a strong guarantee, you can create leveraged value. This is where your potential prospects will see the additional advantage of going with your

company over a competitor because their perception is that they will get more for their money.

According to sales guru Tommy Hopkins, there are three things most people want when they are spending their hard earned money:

1. **The best quality**
2. **The best service**
3. **The best price**

Yet, we all know most companies cannot provide all three of these elements and stay in business for very long. One of these elements will have to be minimized in order for them to compete. Typically, the best price is the one that most potential clients will give up as long as they get the best quality and the best service.

This is the place where your guarantee becomes most valuable to your prospec-

tive clients. By having a guarantee, you are assuring the purchaser of your goods and/or services that they will be getting the kind of additional value that will justify the price you are charging.

A good analogy that I like to use with my green industry clients when I explain this concept is an old fashioned balance scale—the kind of scale that has two sides to it.

Let's say you are weighing beans. As you add more and more beans to one side of the scale, it will eventually tip in the direction that is heaviest. When it comes to deciding whether or not a prospective client will buy from you instead of your competitor, it depends a lot on whether or not they see more value in going with your company. A rock solid guarantee can be the deciding factor that adds enough value to tip the scale in your favor.

In my research with my clients, I have learned that one of the reasons green industry business owners do not have or communicate their guarantee is because they are afraid a customer will take advantage of it. Another concern is the fear they won't be able to back up that guarantee. Maybe their product or service lends itself to some irregularity or inconsistency.

Yet, when you stop to think this through, you would not want anyone walking away from your business feeling like they did not get their money's worth. If they feel like they did not get what they paid for, they will tell oth-

ers. According to research, the average unhappy customer will tell 9 to 16 other people about their complaint regarding your company or organization. I call this "reverse marketing." You don't even need a budget for reverse marketing. It will just happen

when you have unsatisfied customers. Reverse marketing will cost you plenty.

Any business owner in his or her right mind would not stand for a marketing campaign designed to smear their good name. Yet, he or she is

doing just that by not having a strong guarantee that is communicated to their client base on a regular basis. This type of strategy encourages unsatisfied customers to walk away and tell their friends, family, and business acquaintances to avoid doing business with that particular organization.

An easy fix for this quandary is to formally create a powerful guarantee you can live with and promote. Have it printed on a sign that hangs in your lobby, printed on your email signature, and/or proudly displayed on your website. Hold a meeting with your staff and discuss the reasons behind your company's guarantee. Make it a point to regularly communicate it verbally to everyone, including prospects, clients, and employees.

A huge advantage to having a strong guarantee is that it raises the bar within your own organization. It forces you and your team to live up to the reputation you have created, to maintain the high standards of service and quality that you promise to deliver.

Having a strong guarantee will hold everyone in your company accountable and motivate you and your employees to make sure that you deliver what you promise. It most likely will tip that imaginary scale in your potential clients mind, differentiate you from your competitors, and add profits to your bottom line.

Of course, if you choose, you can justify charging a higher price by providing the guarantee your competitors are afraid to match with their prospects and customers. Remember, added value justifies a higher price.

So, when you provide the kind of assurance your prospects and clients really want, through a strong written and spoken guarantee, you will be building your business for the long prosperous haul. ■

This article first appeared in Irrigation & Green Industry magazine.

A huge advantage to having a strong guarantee is that it raises the bar within your own organization.

Tom Borg is a business expert who works with small and mid-size Green Industry companies to effectively and profitably improve customer acquisition and retention. He helps these businesses through his use of consulting, speaking, training and coaching. To

ask him a question or to hire Tom, please contact him at (734) 404-5909 or email him at tom@tomborg.com, or visit his website at www.tomborgconsulting.com.



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Protecting Pollinators

What is going on with pollinators, what role do pesticides play, why should you care, and what can you do?



By Paula Shrewsbury and Stanton Gill
University of Maryland Extension

Note from the authors: This article was originally written in April 2014 for the members of the Green Industries to inform them of current issues associated with bee pollinators and pesticides. We have revised the article somewhat to reflect new research-based information on pollinator health. Anyone who gardens or maintains and/or grows plants should be conscious of protecting pollinators. There was recent article published in the Washington Post that cited a survey of beekeepers and reported winter losses of over 42% among those surveyed. This makes sense, as we experienced one of the coldest Februarys in several decades.

What is the problem?

Pollinator health has recently been the focus of popular media, environmentalists, apiary specialists, scientists, farmers, horticulturalists, and the general public. Following the winter of 2006, unusually high honey bee colony losses were reported by beekeepers in the United States, and in other countries

over the last decade. This syndrome became known as “colony collapse disorder.” In addition to issues with honey bee health, research on bumble bees and other solitary bees has raised concerns about declines in the number of species and abundance of these pollinators. Most data on bee decline is on honey bees, less so on bumble bees, and even less on solitary or wild bees. However, the general consensus is that pollinators are at risk.

What is causing the problem?

Numerous scientific studies, both laboratory and, to a lesser extent, field studies, have been conducted to identify causal factors relating to declines in honey bee and bumble bee populations. Causal factors likely vary in their impact between honey bees and bumble bees. In recent reviews of the data, scientists have identified multiple factors or “stressors” that affect honey bee or solitary bee health, including

parasites (*Varroa* mites), pathogens (fungi, viruses), poor nutrition, habitat loss (limited floral resources and nesting sites), management stress, and pesticides. Native bee declines and honey bee colony loss may be the result of the above stressors working independently, but most evidence demonstrates that it is factors interacting in combination, or synergistically, that impacts the health of bees. For example, exposure of bees to certain fungicides can increase the toxicity of pyrethroids to bees; poor diet due to limited floral resources can compromise a bee’s immune system, making it more susceptible to parasites and pathogens; and pesticide exposure can affect a bee’s disease tolerance and increase susceptibility to disease.

Data suggest that pesticides in general, and neonicotinoids in particular, are not primary factors in honey bee decline or colony collapse disorder. For bumble bees, pesticides may play a larger role,

but there is still a need for more field studies evaluating impacts on bees. Little is known about the effects of pesticides on solitary bees. There are many “issues” associated with the interpretation of the data from research studies. For example, laboratory studies sometimes evaluate levels of pesticides that are greater than bees would likely be exposed to under field conditions. In addition, bee biology and behavior can influence the actual levels of pesticide exposure that bee or bee colonies encounter. This questions the accuracy of inferences from laboratory to field situations and emphasizes the need for more field studies with field relevant exposure levels.

What about neonicotinoid insecticides?

Some groups have focused on the class of insecticides called neonicotinoids, citing them as a major cause of problems with bee health. Regulations have been implemented in Europe that restrict the use of neonicotinoid insecticides. In the United States, big box stores have responded to pressure from environmental groups by requiring that all flowering plants treated with neonicotinoids be labeled as such. The EPA has accelerated reviews of neonicotinoid insecticides and mandated the addition of a “bee advisory box” on all products containing neonicotinoids. There is pressure from various groups to remove or further restrict the use of neonicotinoids, especially from ornamental and turfgrass systems.

What are neonicotinoid insecticides and their potential risks?

Neonicotinoid insecticides are insect neurotoxicants. In the Green Industries these include imidacloprid, thiamethoxam, clothianidan, acetamiprid, and dinotefuran. They have many desirable features, such as broad-spectrum activity, low application rates, low mammalian toxicity, systemic movement upward in plants, and multiple application methods (soil drenches, foliar sprays, or injected into plants). They have proved very effective and generally safe in controlling many sucking, plant-boring, and turf-feeding insects. Their distribution throughout the plant and long residual activity has contributed to their effectiveness in controlling plant-damaging insects. Because of these benefits, neonicotinoids are widely used in the Green Industries (and agriculture) for managing many potential pest insects. Neonicotinoids are especially useful for tree conservation and invasive insect species management. For invasive species such as emerald ash borer, Asian longhorned borer, and hemlock wooly adelgid, neonicotinoids are one of the most effective tools for preventing massive loss of trees in urban forests and

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landscapes. Neonicotinoids have been effective in controlling numerous landscape and turf pests.

However, neonicotinoids, like several other classes of insecticides are toxic to bees. Mis-application to trees when in bloom and bees are foraging (against label directions) has resulted in massive bee death. Laboratory studies have indicated that acetamiprid is less toxic to bees than the other neonicotinoids. In general, application rates are higher for ornamental plants than agricultural crops. Statements have been made that the higher rates and systemic activity of neonicotinoids increase the likelihood that toxins will end up in pollen and nectar at levels toxic to bees. A concern is when neonicotinoids are sprayed on open flowers of insect-pollinated plants, or with some plant species they have the potential to move systemically into pollen, nectar, and guttation fluids, posing particular concern for exposure to pollinators. There is still a lot we do not know about the effects of pesticides, including neonicotinoids, on pollinators and other beneficial insects, and their movement into and residual activity in various plant parts. In addition, bee behavior can affect actual exposure of bees on these plants. Therefore, more research is necessary before it can be said how pesticide residues in ornamentals and turf affect pollinator health.

What course of action and factors should be considered when managing potential pests in ornamental and turf systems?

First, neonicotinoid insecticides are in the spotlight as a major factor affecting bee health, regardless of what the data suggest. In addition, complete information is still lacking on their impacts on pollinators, especially for bumble bees and solitary bees. Second, the green industries tends to rely on products that

contain neonicotinoids for managing a wide array of pests. In some situations, these are the best or only choices; for other pests, there are alternative management tactics that could be used. Third, there is the potential for EPA, or even specific counties within states, to remove or greatly restrict the use of neonicotinoid insecticides, especially use in ornamental and turf systems. Therefore, it would be wise to reduce the use of and reliance on neonicotinoid insecticides in your business and be sure you and your employees are aware of potential risks—to pollinators and non-targets in general—of the insecticides they are applying. Many other insecticides are also toxic to pollinators and non-targets. Be sure to READ THE LABEL thoroughly and follow the directions.

Consider the following when making plant and pest management decisions.

Implement Integrated Pest Management (IPM) practices. Choose non-chemical management tactics whenever possible. Select pesticides that have low impact and risk to pollinators. Only use neonicotinoids when other effective products do not exist (i.e., reduce reliance on neonicotinoids). Avoid prophylactic use of neonicotinoids (i.e., do not apply unless you actually have an insect at levels likely to cause damage to the plant or turf). Know which plants are wind-pollinated vs. insect-pollinated, and avoid using neonicotinoids on insect-pollinated plants in general. Similarly try to avoid trunk and soil injection of neonicotinoids on insect-

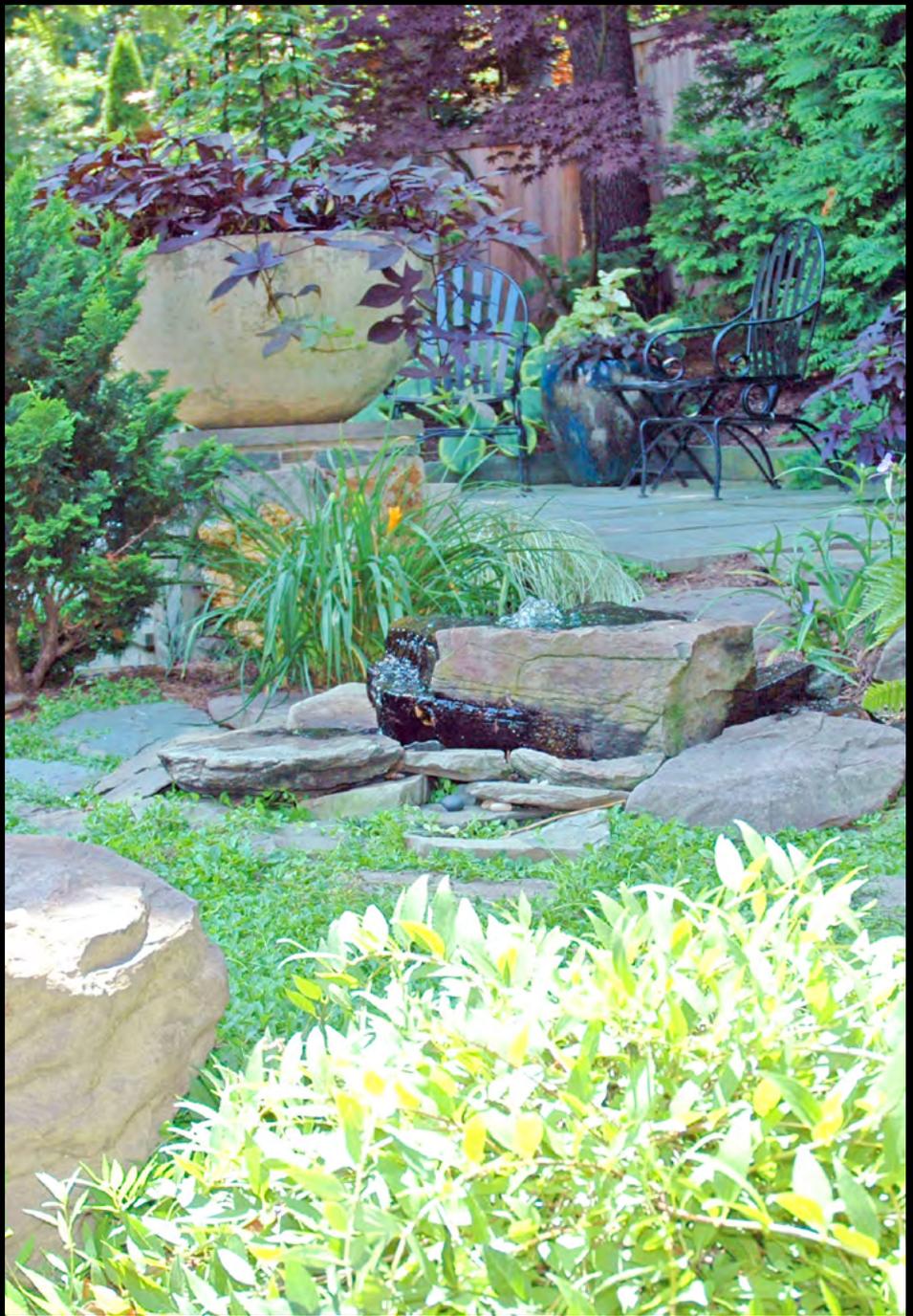
pollinated plants (not enough is known on residual levels of neonicotinoids in the nectar and pollen over time to assess risk). Do not apply foliar sprays to flowering plants until after petal drop. If a neonicotinoid is needed, use a product with acetamiprid before other active ingredients. Be sure to mow turfgrass to remove flowers from weeds (e.g., clover) immediately before or after an application of a neonicotinoid.

What can you do to conserve pollinators?

We need to conserve pollinators to ensure that populations are diverse and abundant enough to meet food crop pollination needs and ensure the integrity of natural ecosystems. Plant a diversity of flowers in flower beds or conservation strips that are known to provide adequate floral resources to pollinators. Maintain natural areas. Provide nesting habitat for solitary bees, such as bundles of hollow reeds or canes or commercially purchased bee tubes or “hotels,” as well as bare patches of soil. Reduce exposure of bees and flowering plants to pesticides. 🍀

Information and comments provided in this article are based on scientific information currently available to the best of the author's knowledge (written May 2015).

Article revised from: S. Gill and P. Shrewsbury, Protecting Pollinators – Part 1, April 2014, Commercial Ornamental Horticulture, Focusing on IPM website, University of Maryland Extension, <http://extension.umd.edu/ipm>.



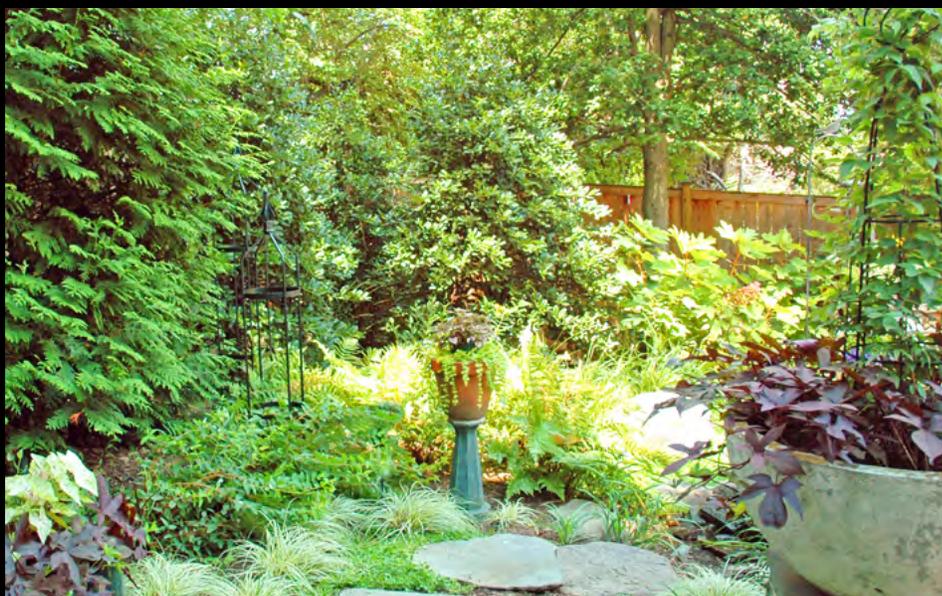
A Small Washington, DC Garden

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This small Washington, DC, garden begins in front with an inviting courtyard layered with textured plantings and an antique planter focal point. Steps up to a quiet terrace in the back garden lead you to a garden path past a rock pond. Seating boulders and lush mazus create an open space to linger by the water. 🌿

EXCELLENCE IN LANDSCAPE PROFILE



The Plant I Didn't Know: Stems, Buds and Leaves—Plant ID

By Amy Stone, Ohio State University Extension

Have you ever met a plant you didn't know? We have probably all had that experience of walking onto a client's property, looking at a plant or plants in their landscape, and wondering to ourselves "what is that plant?" At that moment, our eyes move upward, our heads tilt to the side, and we begin searching for that information that is filed away in our brains somewhere. Does that sound familiar?

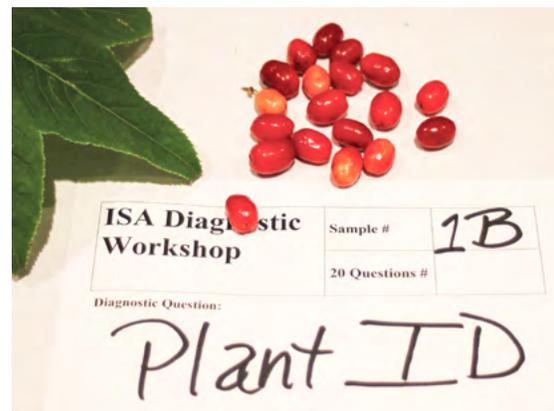
While that "mystery plant" may or may not be one that we've encountered in the past, there is a process that can be helpful when we come across those "horticultural stumpers." It may be as simple as identifying a plant for our own knowledge or for a customer. Or it could be the basis of something deeper. I often use the term "plant scene investigators (PSI)" to describe what we do on a daily basis in our jobs in the green industry. We are frequently asked to identify plant issues and develop a plan

of action that addresses the concern. Sometimes issues are complex and involve multiple causes. Sometimes issues go unsolved, even with our best intentions and efforts. The basis of solving many of the issues we face in the industry begins with "What is that plant?"

The *20 Questions of Plant Diagnostics* is a popular Ohio State University fact sheet written by Joe Boggs, Erik Draper, Jim Chatfield, Sarah D. Ellis, and Michael J. Boehm (The fact sheet can be found online at http://ohioline.osu.edu/hyg-fact/3000/pdf/PP401_03.pdf). While the fact sheet covers 20 different questions in the diagnostic process, the first three questions in this process concern the actual plant, with the first being "What is the Plant?"

So where to begin? Here is a quick list of questions to help you in the plant ID process.

Name that plant—the first step in plant diagnostics.



- Is the plant herbaceous or woody?
- If it is herbaceous, is it an annual, biennial or perennial? If it is woody, is it a tree or a shrub?
- What are some key characteristics of the plant?

While we tend to focus on leaves and flowers, especially during the growing season, what other characteristics or clues can be helpful? In the case of woody plants, what characteristics can help in the identification process all year long?



How could Plant ID have predicted this failure?

It is important to be able to ID Plants all four seasons.

Stems

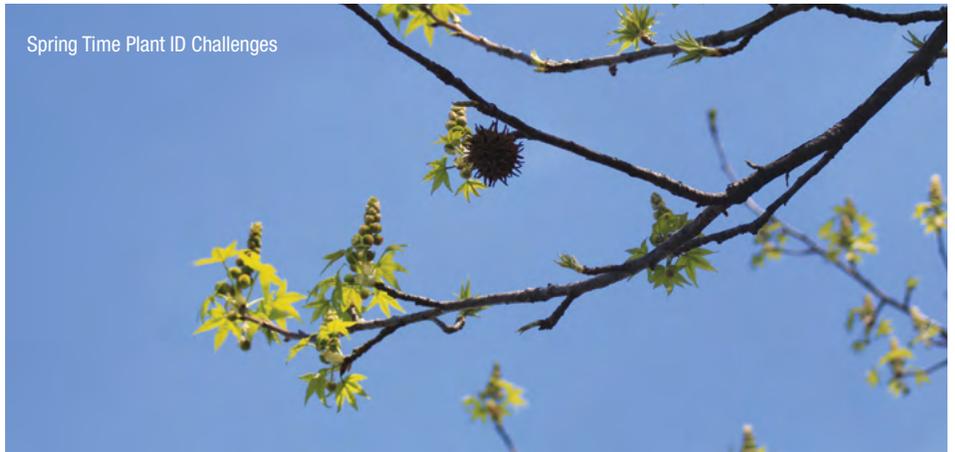
- What is the color?
- Is it straight, zig-zagged, or contorted?
- How does it feel?
 - » Smooth/Rough
 - » Ridges
 - » Thorns

Buds

- How big or small are they?
- Where are they located on the stem?
- How do they feel?
 - » Sticky
 - » Smooth
 - » Scaly

What is the overall shape or silhouette of the plant?

- Upright
- Pyramidal
- Vase Shaped
- Prostrate



In addition to the actual plant identification process, what resources can be useful out in the field as we dig deeper to try to identify that mystery plant? Apps, keys, books, bulletins, and websites can all be helpful tools we use. 🌱

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Welcoming *Wisteria* to the Garden Party

The deep purple hues in *Wisteria frutescens* 'Longwood Purple' add depth—Photo by Brushwood Nursery, www.GardenVines.com

By Mary Olien, Green Spring Gardens Alexandria, Virginia

A curtain of lilac wisteria blossoms swaying from an arbor conjures a feeling of hospitality in the mid-spring landscape. Like any good host, a skilled gardener makes it look easy. Like any good party, it takes planning and selecting the right guests to have an enjoyable occasion for all, including the neighbors. Growing the right wisteria in the right location with the right cultural methods leads to an enjoyable experience for the gardener, the guests, and the landscape beyond.

Four species of wisteria (Pea Family or Fabaceae)—*Wisteria floribunda*, *W. frutescens*, *W. macrostachya*, and *W. sinensis*—are generally available in cultivation. Two are native to the eastern United States: *W. frutescens*, or American wisteria, and *W. macrostachys*, or Kentucky wisteria; and two are Asian: *W. sinensis*, or Chinese Wisteria, and *W. floribunda*, or Japanese wisteria. The

Asian species were introduced into the United States in 1816 and 1830, respectively, and over time, they have worn out their welcome, becoming bullies in natural areas throughout most of the East and Southeast.

These four wisterias can be difficult to distinguish, but all share some general features. All have alternate pinnately compound leaves on long, twining stems. The direction of twining, clockwise versus counter-clockwise, is an identifying feature. As a member of the pea family, they have five-petaled flowers, with one petal as a hood, two as wings, and two fused to form a keel. The table on p. 26² summarizes the differences found among these species.

The flower racemes are borne on current season's growth or new wood for the native species and on last season's growth or old wood for the Asian species. Although the vines are generally



Wisteria frutescens 'Nivea' is one of two white flowered forms of the native wisteria. (The other is *W. macrostachys* 'Carol Mack.')—Photo by Brushwood Nursery, www.GardenVines.com

hardy to zone 5, the flowers on the Asian species may be killed by frost, spoiling the bloom for that season. Because the native species bloom on new wood in May and June with occasional rebloom through the summer, frost is less an issue in the mid-Atlantic region. Unlike the Asian wisterias, which may remain in a juvenile stage for more than 10



A Japanese wisteria screens a front yard from a busy street in Annadale, Virginia.
—Photo by Mary Olien

years, the native wisterias bloom within one to three years.

There are several popular cultivars of the native wisterias. ‘Amethyst Falls’ was named and released by Head-Lee Nursery in Oconee County, South Carolina. This less vigorous variety grows to 15–25 feet, has 5-inch-long racemes of lavender blue flowers with a yellow blotch. Its superior qualities as a plant for urban gardens have been recognized by the Pennsylvania Horticulture Society as a Gold Medal winner in 2006. Other cultivars of this species include *W. f.* ‘Magnifica’ with purple blue flowers with a significant yellow blotch, and *W. f.* ‘Nivea’, a white-flowered cultivar that also has a yellow blotch. For a deeper, rich purple color, select *W. f.* ‘Longwood Purple.’

The other native wisteria, Kentucky wisteria, *W. macrostachys*, is hardier and

2015

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Tips for Presenting Your Award Entry in the Best “Light”

Planning—Capture plenty of “before” shots from many viewpoints prior to the project start. If you are taking over a maintenance project, document those before shots as well. Later, shoot the project from the same angles.

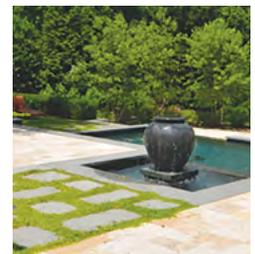
Patience—Don’t rush the entry. Be sure it has a time to mature. Plan to photograph it in all seasons—especially in peak color.

Preparation—Remove any debris from patio, pool deck, lawn, and plant beds; be sure turf areas are properly mowed and without dead areas; be sure litter, water hoses, and garbage cans are out of sight; remove pool sweep and litter from the pool.

Lighting—Soft morning or early evening light lessens the contrast and is ideal for taking the best pictures. Photos taken in full sun at mid-day will wash out your photos and cast dark shadows.

Views—Frame your view carefully, removing telephone poles and traffic signs, excessive concrete curbs, and pavement. Take before and after shots from the same point of view. Get closeups detailing your craftsmanship (at least five are required if you are entering in the Craftsmanship category). Take photos from unusual perspectives, such as from the roof or air, or show views from inside.

Creatively tell the story—Use the entry form to detail the client’s objectives, your vision, and special or unusual problems encountered. Use the photos and photo descriptions—in the correct order—to walk the judges through the project and present it in the best “light.”



even less aggressive than the American wisteria. Its lavender blue flowers are sweetly fragrant. The cultivar *W. m.* 'Blue Moon' was selected for its hardiness in Minnesota as well as its tendency to repeat bloom two or three times in the season. Also available are *W. m.* 'Aunt Dee' with pale lavender blooms and 'Clara Mack' with white flowers. Mike Creel of Woodlanders Nursery in Aiken, South Carolina, saw this selection in Clara Mack's garden in Columbia, South Carolina. The original had come from an old estate in North, South Carolina.

Both species of Asian wisteria appear on invasive plant lists in our region; thus, it is difficult to recommend either plant listed on the invasive plant list for our region. If Asian wisterias are grown, the gardener should be willing to commit to managing the growth, seed production, and seed dispersal. With that in mind, select one of the better cultivars that exhibit differing floral traits, such as color and size of raceme.

As a wildlife plant, the native wisterias are best known as important host plants and nectar source plants for the silver spotted skipper. On another wildlife note, deer seem to leave the wisterias alone. Insect or fungal pests are not a major problem.

Growing wisterias is relatively easy. Although the native habitat for the American and Kentucky wisterias includes moist woodland edges and stream banks, both will thrive under a wide variety of conditions. Full sun generally results in more abundant blooms in these two species. Both prefer soil that is slightly acidic but grow well in neutral soils as well.

As evidenced by the invasive tendencies of the Asian wisterias, they seem only to be threatened by low temperatures.



A 10-year-old *Wisteria frutescens* 'Amethyst Falls' graces an arbor in the Wildlife Garden. —Photo by Mary Olien



The graceful long racemes of *Wisteria macrostachys* 'Blue Moon' add romance to the garden.—Photo by Brushwood Nursery, www.GardenVines.com

Although they appear quite similar, a few key features help distinguish among the major wisteria species.

Feature	American (<i>W. frutescens</i>)	Kentucky (<i>W. macrostachys</i>)	Japanese (<i>W. floribunda</i>)	Chinese (<i>W. sinensis</i>)
Number of leaflets	9-15	9	15-19	7-13
Vine stem color and length	Brown, 30-40 feet	Brown, 25-30 feet	Light gray to white, 65 feet or more	Gray, to 40 feet or more
Twining	Clockwise	Counter-clockwise	Clockwise	Counter-clockwise
Bloom time	June, on new wood, repeat bloom	June, on new wood, repeat bloom	May, on old wood	May, on old wood
Flower color	Lilac, purple/blue with a yellow spot, also white	Lilac purple, light blue	Violet, violet blue, also, pink and white	Blue-violet, also white
Raceme	Stout, 4-6 inches	8-12 inches, with 70-90 flowers	Slender, 12-18 inches, flowers open from base to tip	6-12 inches, flower open simultaneously
Fragrance	Yes	Yes	Yes	Less fragrant
Seed pods	Smooth, 2-4 inches long	Smooth, 3-5 inches long, velvety	Velvety, 4-6 inches	4-6 inches

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JUNE 2015

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7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

Training Sessions 1 and 2 (circled 19 and 20)

Registration Cutoff (boxed 30)

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5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Written Test (circled 14)

Hands-on Test (circled 25)

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Although they do grow as far north as Massachusetts and have survived a few seasons in Maine, neither Asian species appears on the invasive plant lists of northern New England or west of the Mississippi River.

Getting satisfactory bloom on some Japanese and Chinese wisterias provides a challenge for gardeners in any climate zone. The plants can remain in the juvenile phase for 10–15 years. Gardeners have tried superphosphate, root pruning, and aggressive stem pruning to force earlier bloom. Purchasing known cultivars of mature plants grafted on rootstocks is the most reliable way to ensure that bloom occurs sooner rather than later.

The key recommendation for growing any wisteria is the selection of a very sturdy structure upon which to grow the vines. The trunks of Japanese wisteria can become massive, with diameters exceeding 12 inches over many years. The vines are so strong, they have been known to pull eaves off houses and to pull down trees with their rampant growth. The twining stems can strangle small trees. Although the native wisterias are less aggressive, their stems are still heavy and abundant.

The only way to manage wisteria growth is to commit to regular and aggressive pruning in the winter and after bloom. Removing excess new growth back to 6 inches in mid-summer, and then thinning these and pruning back to two to four buds in the winter is the only way to manage the growth and stimulate flowering on the Asian wisterias. Pruning the Chinese wisteria to a standard and managing either Asian wisteria as a bonsai are other creative ways to manage wisteria to a most stunning effect. Since native wisterias bloom on new wood, prune regularly through the summer to thin the growth and



The close-up view of the 'Blue Moon' wisteria flower shows its parts: the standard (with the yellow blotch), the wings, and the keel. Photo by Brushwood Nursery, www.GardenVines.com

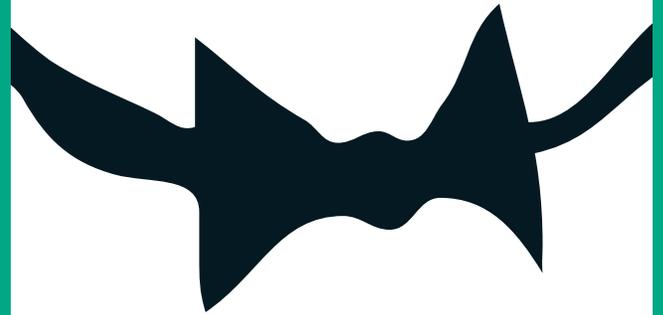
reduce the stem length to stay within the desired bounds.

The genus *Wisteria* was named by 18th century botanist Thomas Nuttall, in honor of his friend Caspar Wistar, a professor at the University of Pennsylvania. Previously known by the genus name *Glycine*, it is believed that the spelling changed from wistaria to wisteria when writing the description for the genus. Whether the spelling change was intentional or a typographical error is unknown.

If you missed hosting a party when wisteria blooms in the spring, seek a time in the fall when the seeds ripen. Not only are the dangling seedpods decorative, but the American wisteria seedpods release

their seeds explosively. According to Dr. Jan Haldeman, professor emeritus of biology at Erskine College, this can be quite a sight when numerous pods have developed over the season. Certainly, this is good entertainment for all the gardeners on the guest list. 🍀

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June 2015 Issue:
Wednesday, July 1, 2015

Can You Diagnose This Symptom of Douglas Fir?



By David Clement, University of Maryland Extension

Swiss needle cast disease only infects Douglas fir and is caused by the fungus *Phaeocryptopus gaeumannii*. The disease causes yellowing of the needles and premature needle drop, resulting in a thin canopy. After infection, during new shoot elongation in the spring, fungal fruiting bodies appear in rows following the stomata on the underside of infected needles as early as August or more commonly, later in the fall of the first year. These fruiting bodies appear as "black lines" on the lower needle surfaces. Airborne ascospores are released during the growing season (April–September) during rainy periods. Diseased needles may produce spores for up to three seasons before shedding. The disease spreads mostly within the infected tree and to adjacent trees, but spores can be disseminated by wind over longer distances.

These infected needle symptoms are very similar to those found on blue spruce trees infected with *Rhizosphaera* needle cast caused by the unrelated fungus *Rhizosphaera kallhoffii*.

Management

Trees should be sprayed with chlorothalonil product (containing a spreader sticker) according to label directions. Ideally, apply first in the spring as soon as new growth starts, but some control can still be achieved after new growth is 1/2 to 2 inches long. Depending on rainfall frequency, protectant sprays should continue until mid-June at 7–10 day spray intervals. Nursery managers should follow a more intensive spray program, which may include protective sprays through mid-August. Treatments should be applied for at least two years, and perhaps up to three or four years depending on the severity of the infection. 🌿

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