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THE BUCKEYE Arborist

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Ohio Chapter International Society of Arboriculture
www.ohiochapterisa.org

Meet the Member



In this issue, we introduce you to Jennifer Milbrandt. Jennifer was introduced as one of the new members of the Ohio Chapter ISA Board of Directors during the annual membership meeting in February.

Jennifer currently serves as Coordinator of Natural Resources for the City of Strongsville. Born in Pittsburgh, PA, she received her first Tree ID Field

Guide at the age of 7. She is a Certified Arborist and has been a member of the Ohio Chapter since 1993.

When asked about her favorite tree, Jennifer was quick to respond with the White Oak because of its majestic, strong and long life. She enjoys working outdoors and spending time with family and friends while hiking and camping.

Jennifer finds public education to be a challenge. The public has access to so much information on the Internet and many times the information is inaccurate or misleading. Deciding it's time to teach them when they are young, her and her two teenage daughters helped plant dwarf variety trees at Safety Town in their community.

Please take a minute to welcome Jennifer to the Chapter Board (jennifer.milbrandt@strongsville.org). She is committed to serving her profession and welcomes your questions, comments and ideas to strengthen the Ohio Chapter.

President's Branch

By Shirley Vaughn

In 2014, the Ohio Chapter ISA Board of Directors created a 3-year strategic plan that focused on growing professional arboriculture, and reaching, educating, and engaging people of all generations. The plan also focused on increasing Chapter membership. The strategic plan guides Chapter actions and challenges the Board and committees to break away from the status quo and develop new programs and services that provide unique opportunities for our members to earn CEUs, network, and encourage non-members to join.



This year's updates to the Chapter's strategic plan included reorganizing standing committees to increase collaboration and to accomplish the goals set in 2014. Several committees were combined to increase communication. The History and Awards Committees were made subcommittees of the Membership Committee, as they function to support and recognize members and document Chapter activities. The Safety and Risk Management Committee was made a subcommittee of the Education and Public Outreach Committee, since both are committed to arboriculture education and increasing awareness about trees, safety, and tree care. One new subcommittee of Membership, the Technology Subcommittee, and a new committee, the "ISA Local Committee," were formed. The Technology Subcommittee will focus on keeping our members abreast of new tools, applications and software, websites, and social media outlets that focus on arboriculture. The

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Articles

Submit articles in Word format to the Editor at info@OhioChapterISA.org for consideration. All articles are subject to technical review. Accepted articles may be edited for brevity, clarity and adherence to Chapter requirements and standards. Submissions must contain original work.

An ISA Certified Arborist in good standing may receive CEUs for work published in *The Buckeye Arborist*.

Advertising

Acceptance and publication of advertisements, editorial copy or product announcements do not necessarily imply Ohio Chapter ISA's endorsement of said products or techniques, nor does it reflect the opinion of the Chapter regarding any such product or technique. *The Buckeye Arborist* reserves the right to refuse any advertisement that is deemed unsuitable for publication.

For advertising reservations and material deadlines, rates and data – as well as other Ohio Chapter ISA sponsorship and messaging opportunities – please contact the Ohio Chapter at info@OhioChapterISA.org.

Mark Your Calendar

June 10

Ohio Chapter Annual Golf Outing
Grove City, OH

August 1

Chapter Scholarship Application Deadline

August 8-12

ISA Annual International Conference &
Trade Show
Kissimmee, FL

August 22

TREE Fund's Team Ohio Fundraiser
Kirtland, OH

February 28 – March 1, 2016

Ohio Tree Care Conference
Sandusky, OH

Visit www.OhioChapterISA.org/Events for complete details on each event.



Ohio Chapter ISA

The **Mission** of the Ohio Chapter International Society of Arboriculture is to advance responsible tree care practices through research, technology and education, to promote the benefits of trees.

The Ohio Chapter **Values** investing in the future of professional arboriculture through education, research, safety and communication, while maintaining integrity and credibility.

most exciting change to the Ohio Chapter's committee structure is the addition of the ISA Local Committee. The ISA Local Committee will be comprised of Ohio Chapter members who wish to have a leadership role in the 2018 International Conference, which will be held in Columbus. The ISA Local Committee consists of several subgroup chairs. Typical subgroups are Assistant Local Committee Chair, Volunteer Coordinator, Exhibits/Sponsorship Coordinator, Arbor Fair Coordinator, Hospitality/Decorations Coordinator, Program Committee Representative, Publicity Coordinator, TREE Fund Events Coordinator, and ITCC Local Arrangements Coordinator.

The Chapter is in need of volunteers for all of our standing committees as well as the new committees described above. If you're interested in serving, please contact me or Dixie Russell at the Chapter headquarters.

The Board assessed existing plan goals and objectives, and the tasks set to achieve those goals and objectives for their status and relevance. Existing tasks were updated and new tasks were added to ensure the Chapter is on track to meeting its goals, which include growth in membership, volunteer engagement, use of technology in arboriculture, and promotion of arboriculture as a career. Tasks and completion dates were assigned to committees rather than individuals.

TREE Fund Update

By Charles Owen

Gearing up for Florida

Spring is springing all around us and Team Ohio is working hard at training and fund raising to prepare for the Stihl Tour des Trees in October. Riders representing the Buckeye Chapter have been working both individually and collectively to accomplish our goals.

Team members are: Beth Buchanan, TREE Fund Liaison and Team Captain; Jane Chabrand, new member and participating as support; Michael Frankhauser; new rider Henry Gulich; Kevin Jones; Jonathan Mast, also new; Jeff McMullen; husband and wife Ward Peterson and Susan Paul; Laurie Skul and Dave Staats. Rider affiliations cover the municipal, commercial and utility areas of our profession as well as those not in the tree industry.

Team Ohio is committed to raising \$35,000 through the Tour this year. We have until the first of October and we are already over a quarter of the way there. If you would like to donate to the team or one of the riders please go to the Tour website: www.stihltourdestrees.org. Contributions can easily be made right from the website.

We are excited about our big event this summer! We will be back at the Holden Arboretum in Kirtland for our second annual pig roast on the evening of August 22. A wine and beer tasting is also part of the festivities. We did this last year and a good time was had by all...Please join us!

We show up at various events throughout the Buckeye State ringing the bell for the Stihl Tour des Trees to benefit the Tree Research & Education Endowment Fund (TREE Fund) and are often asked what it is all about...so here it is in a nutshell:

Our strategic plan is important to me because it balances our organizational goals with a practical vision of what our resources allow. For example, the Chapter wants to offer more scholarships, but we need to raise funds to provide more scholarships than we currently offer. Our strategic plan tasks the Scholarship Committee to host the Clays tournament or establish a new networking event or donor to raise money to fund scholarships.

The forthcoming golf tournament supports the Ohio Chapter's fundraising efforts. This year is the 17th time the Chapter has hosted a golf tournament. The funds raised this year go directly to Team Ohio for the Tour de Trees. Full-tour cyclists commit to raising at least \$3,500 for the TREE Fund. The money raised supports the discovery of better methods of propagation, planting and care of urban trees. The Tour also funds education programs aimed at connecting young people with the environment and with career opportunities in the green industry.

You do not have to be a single digit handicap to play in the tournament. The format is a scramble, which enables players of all abilities to hit the links, make a few birdies and pars, and have a lot of fun along the way.

The Stihl Tour des Trees is a weeklong, 500-mile bicycling tour with an ambitious agenda:

- ▶ To fund important research focused on improving the health of urban trees
- ▶ To fund educational programs aimed at connecting young people with the environment and with opportunities in the green industry
- ▶ To raise awareness in the communities we visit to the importance of trees, the quality of urban life, and the value of science-based professional tree care
- ▶ To engage and educate young people about how trees grow, why people need trees and how they can help care for the trees in their lives.

Every full-Tour participant commits to raising a minimum of \$3,500 for the TREE Fund in addition to pedaling 500+ miles in a week, rain or shine. They do it for the challenge, the mission and the camaraderie. Their legacy is a promise of strong, healthy urban trees for generations to come.

Since 1992, the Tour has generated more than \$7.2 million and has funded a variety of research projects and educational programs for budding tree care professionals. Continued success is directly attributed to corporate sponsorship. Corporate sponsors ensure that all money raised by Tour riders is applied to research and education projects, not event costs. The TREE Fund gratefully acknowledges the support of our Partners and Sponsors, without whom this event would not be possible.

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News From National

BCMA Temporarily Suspended – ISA is temporarily suspending the administration of the current Board Certified Master Arborist (BCMA) exam as of June 1, 2015. Based on the organization's dedication to quality programs, continuous improvement, and customer satisfaction, the ISA Board decided to suspend the BCMA program to allow time to work on improving the overall exam experience and provide a more fluid transition to a new exam.

“ISA is committed to quality and our goal is to provide the best program for the industry,” states Jim Skiera, ISA's Executive Director. A new exam will allow ISA to better accommodate the global reach of the BCMA credential. “We realize that this decision affects our members and Certified Arborists, but we are dedicated to offering flexibility for BCMA candidates and continuing to serve those who already hold the credential.”

Individuals currently holding the BCMA credential will not be affected and will be able to continue to earn CEUs to maintain their credential. Those individuals who are already in the test-taking process will be most affected. Applicants will be given three options: 1) take the current exam within your scheduled time-frame, 2) wait and take the new exam when it is launched, or 3) request their money back for the exam application. No new applications or retake forms will be accepted for the current exam after May 31, 2015.

Research Needs Assessment Survey – ISA and TREE Fund have completed a joint research needs assessment project. The main goals of the project were to identify the research needs and interests of the arboriculture community and to help the two organizations proactively support the research needed for the long-term growth of the profession. To accomplish these goals, a survey was sent to a representative sample of ISA members, and more than 2,500 survey responses were tabulated.

A final report summarizes the survey's key findings, implications of the findings for ISA and TREE Fund, and recommendations for actions to take based on these implications. View the full report at <http://www.isa-arbor.com/education/portaltoresearch/index.aspx>.

First Online Graduate Certificate in Urban Forestry – Oregon State University has launched the nation's first online Graduate Certificate in Urban Forestry program. Courses are delivered through Ecampus – a national leader in online education. No other university in North America currently offers a graduate urban forestry program in this flexible, accessible format. The program is geared towards teaching students to apply the principles of urban forestry, green infrastructure, policy, planning, and leadership to the management of city forests.

CEU Approvals – ISA has been working to streamline the post-

approval CEU process. In its current state, the process is very labor intensive and has potential for creating a negative experience for our credential holders. Please be on the lookout for courses and workplace training programs that could be pre-approved for ISA CEUs. By encouraging courses to be pre-approved, ISA can offer a more efficient process, credential holders earn their credits more quickly, and the program organizer will see higher enrollment.

For more information on news topics, contact ISA.

Another Opportunity to move OTCC to Northern Ohio

In 2016, the chapter will hold OTCC in Sandusky, Ohio at the Kalahari Conference Center and Water Park February 28, 2016 to March 1, 2016. The venue allows us to put all attendees on one level for classes and workshops. We can have all our breaks in the same room with the industry vendors, suppliers and sponsors. Our conference will be over the weekend at Kalahari and we encourage attendees to bring their families. Kalahari offers the largest water park in the US, multiple restaurants, shopping, fitness center, spa and fun for all ages. The Tree Workshop which has the highest attendance each year is being held in the same rooms as the vendors. We continue to tweak and adjust the program schedule to allow adequate opportunities for attendees to network with peers, meet with vendors, and have the best opportunity for continuing education credits. We also want to give our industry vendors, suppliers and sponsors from Northern Ohio and Southern Michigan an opportunity to have a conference in their back yard. We expect to bring in ISA members from Michigan, Indiana and Pennsylvania to Kalahari.





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Chapter Scholarships Available

The purpose of the Ohio Chapter ISA Scholarship Program is to promote professional arboriculture within the state of Ohio. The goal is to assist individuals with the financial responsibility of professional arboricultural development through higher education in the field or via the International Society of Arboriculture Certified Arborist program.

Scholarship Program Application Term: June 1 – August 1

Scholarship Option I – Certified Arborist Scholarship \$750 Value

4 Scholarships Available

Successful Recipients Receive

1. One-year membership to the International Society of Arboriculture (ISA) (Value \$130)
2. One-year membership to the Ohio Chapter ISA (Value \$45)
3. A copy of the ISA Certification manual to prepare for the examination (Value \$85)
4. Access (reserved seat) to Ohio Chapter sponsored Certification Preparation classes
5. Registration to Certification Examination (Value \$150)
6. Check for \$225 to assist in travel expenses and any other study materials as deemed appropriate by recipient.

Applicants will be judged by the Scholarship Committee on their ability to successfully pass the Certification Test.

Eligibility Requirements

The ISA Certification Board requires a candidate to have a *minimum of three years of arboriculture experience*. Acceptable experience includes the practical use of knowledge involved in pruning, fertilization, installation and establishment, diagnosis and treatment of tree problems, cabling and bracing, climbing or other services that directly relate to arboriculture. Examples include *but are not limited to*:

- ▶ Tree Care Companies
- ▶ Instructors of Arboriculture/Horticulture
- ▶ Nursery and Landscape Personnel
- ▶ Consulting Arborist
- ▶ Municipalities & Campuses
- ▶ Pest Control Advisors/Applicators
- ▶ State Forestry Personnel
- ▶ Utility Personnel

The eligibility requirement also may be satisfied with a two-year degree in arboriculture and two years of practical experience or a four-year degree in a related field and one year of practical experience.

An *arborist* by definition is an individual who is trained in the art and science of planting, caring for, and maintaining individual trees. ISA Arborist Certification is a non-governmental, voluntary process by which individuals can document their base of knowledge. It operates without mandate of law and is an internal, self-regulating device administered by the International Society of Arboriculture. Certification provides a measurable assessment of an individual's knowledge and competence required to provide proper tree care.

Certification is not a measure of standards of practice. Certification can attest to the tree knowledge of an individual but cannot guarantee or ensure quality performance. Certified Arborists are individuals who have achieved a level of knowledge in the art and science of tree care through experience, passing a comprehensive examination developed by some of the nation's leading industry experts on tree care.

Scholarship Requirements

1. All applicants who receive the scholarship, (regardless of passing the exam or not), will be required to provide the Ohio Chapter ISA Executive Board/Committees 25 hours of volunteer time within one year of receiving the scholarship. This requirement may be fulfilled by volunteering at the Ohio Tree Care Conference (OTCC), educational programs, public outreach opportunities such as libraries or other non-profit venues to distribute OH/ISA literature.
2. Certified Arborists must also continue their education to maintain their certification, as it is desirable that they remain up-to-date on current techniques in arboriculture. To maintain certification, Certified Arborists must obtain 30 Continuing Education Units (CEUs) within a three-year period. Scholarship recipients who successfully obtain certification must obtain these CEUs at their own expense. The Scholarship Committee will assist the recipients in learning of the many low-cost opportunities for receiving CEUs.
3. Applicants must work or provide service in the state of Ohio and exhibit a demonstrated interest in arboriculture.
4. All scholarship recipients must attend the mandatory Certified Arborist Prep Course offered by the Ohio Chapter ISA to prepare individuals for the ISA arborist certification examination. Scholarship may be revoked from individuals that do not attend the mandatory training sessions.

Scholarship Option II – Professional Development Scholarship \$500

2 Scholarships Available

Successful Recipients Receive

1. Check for \$500 to cover appropriate basic study materials pertaining to particular certification (i.e. books or media materials)
 - Transportation expenses are the responsibility of the recipient.
 - Testing deadline is within one year from receipt of scholarship and is the responsibility of the recipient to schedule. Recipients must submit documentation to Ohio Chapter ISA. Deadlines for test registration vary and are also the responsibility of the recipient.

Scholarship Requirements

1. Applicants for this scholarship must be a current ISA Certified Arborist, seeking professional development in one of the other ISA certification areas, including Tree Worker Specialist Certification, i.e. Aerial Lift Specialist or Climber Specialist, Municipal Specialist Certification, Utility Specialist Certification, Board Certified Masters Arborist (BCMA) Certification and Tree Risk Assessment Qualifications Course (TRAQ).
2. Applicants must also hold current membership in the Ohio Chapter ISA.

Scholarship Cont. on page 8

3. Applicants must submit 3 letters of recommendation from Arboriculture/Horticulture professionals; at least 1 of these must include a letter of recommendation from an ISA Certified Arborist professional.

Scholarship Option III – Traditional Student Scholarship \$1,000 Value

3 Scholarships Available

Successful Recipients Receive

1. \$1,000 Check disbursed to the academic institution where enrolled.
2. Complimentary Student Membership in the Ohio Chapter ISA for 2 years (value \$40).

Scholarship Requirements

1. Applicant must be an Ohio Resident, currently enrolled in a 2-year or 4-year accredited post secondary arboriculture, horticulture, urban forestry or related degree program. Proof of enrollment must be submitted, i.e. course schedule or transcript from the institution.
2. Applicant must submit with the application 3 letters of recommendation; 1 from an academic advisor, 1 from a current or previous Professor, and 1 from another instructor or industry professional.
3. Applicant must submit a personal statement as to why he/she feels they would be a good candidate for the OH ISA Scholarship.
4. Applicant must maintain a minimum 2.5 GPA.

Application Instructions (See Insert)

Review Process

- Applications lacking ALL eligibility requirements will not be accepted for consideration.
- Submission of all required documentation is the responsibility of the scholarship recipient.

Applications must be postmarked on or before August 1 for consideration.

Applications and required materials are the responsibility of the applicant.

Recipients will be notified by mail by September 15 and announced in The Buckeye Arborist publication of the Ohio Chapter ISA.

Accepted applicants will be required to submit a photo for publication purposes.

Questions may be submitted to info@ohiochapterisa.org. No phone calls please.

Mail completed application and documentation to:

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By Thomas Munn

The **Mission** of the Ohio Chapter International Society of Arboriculture is to advance responsible tree care practices through research...

How does the Ohio Chapter (OCISA) advance tree care practices through research? Late January 2015 OCISA sent a check to the Tree Fund for \$25,000 – the fourth such payment of a five payment plan. OCISA's goal and plan to donate \$125,000 to the Tree Fund will be complete in January 2016.

Why TREE Fund? What's in it for me?

Recently our ISA publications are labelled "Arboriculture and Urban Forestry – in partnership with the Tree Fund". Are you an ISA member? Are you taking full advantage of your ability to search research articles through the www.isa-arbor.com website? Create your user name and password, sign in, and go to "Education and Research" tab, then "Portal to Resource", and then "Research Databases and Search Engines". Feel the power coursing through your fingertips as you now have access to decades of research on pruning, planting, and all other tree care practices. You may also select FREE CEU articles to read and take a test to receive CEU's for your arborist certification. All this great stuff online, at your convenience, is funded in part by the TREE Fund. Would you rather listen than read? Free podcasts from Detective Dendro to leading lecturers in arboriculture are available for your use. How many of our Ohio members have either benefited, participated, or been funded by Tree Fund? Search the Research using "Ohio" as a key word, and see the TREE Fund work done in Ohio! Do we search the research? For members, it's free to search!

So, how does the Ohio Chapter FUND the TREE Fund?

Investments

\$51,183 was earned from OCISA investment funds starting in July 26, 2012! Yes, the Ohio Chapter started to work towards a SUSTAINABLE source of funding research by investing. We have been successful!

High volatility will continue this year both in stocks (equities) and bonds (treasury bills, etc.). It is probably not a good year to watch your retirement investments month by month, but rather year by year. Investors predict a rocking roller coaster ride through 2015, but a modest 5% - 7% rate of return at the end of the year. The investment strategy of OCISA is that one half of the funds are invested in seventy percent bonds (usually very steady and stable growth). The other half of the funds are invested with fifty percent stocks (growth potential), and fifty percent bonds (slow and steady). We minimize risk, maximize growth, and don't put all the eggs in one basket. So far, OCISA has been able to pay the TREE fund commitment of \$125,000 with \$51,183 earned through investments. The money did the work for us.

Investments are also good sources of funding the Chapter when revenues are down and expenses are up. Unexpected expenses may arise, and the Chapter is prepared. We are used to talking to people about promoting tree health. We can see the analogy of financial health.

Arborists and Investments

We explain our profession in financial terms to attract a wider audience. This sells more tree work and expands our municipal budgets. We provide cost-benefit analysis for urban trees, and rate of return on investment (planting and maintenance). We calculate and publish the cost of deferred maintenance along highways and utility rights of way (Pay me now or pay me lots more later). We measure urban tree canopy and calculate storm water runoff reduction DOLLAR values. We look at customer behavior, retail pricing, and retail sales in business districts with trees versus without trees. Trees are like money in the bank.

In summary, we have invested our lives in the tree care industry, and it turned out to be a great investment!



We are honored to recognize in this issue, the following individuals who recently received new credentials. Congratulations to all!

CERTIFIED ARBORIST

Joseph R. DeLong
William Ryan Forister
Michael Gray
Matthew C. Guthrie
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Tree Tech Bytes

A Protocol in Foliar Analysis “An Arborist’s Best Practices in Nutrient Management”

By Mark A. Webber

For this month’s edition of Tree Tech Bytes, I have chosen to explore the topic of foliar analysis. This expands on the last edition of the Buckeye Arborist (March/April 2015) about soil testing and the protocols to follow to insure the results are accurate. Keep in mind that tissue (foliar) tests assess plant nutrient uptake while soil tests predict nutrient availability. In many cases there can be a poor relationship between soil and plant nutrient levels. In general, foliar analysis is more reliable than a soil test for judging the nutrient status of a given tree or plant (Gao, Boggs, Chatfield). The best option is to test both the soil and the leaves and compare results to determine not only the nutrient levels in the soil, but how they are being utilized by the tree (ANSI A300 (Part 2)).

I believe foliar testing is an important part of tree/plant health management best practices. Foliar testing can actually give the practicing arborist a window of knowledge of what is happening inside the plant (McGinnis, Stokes, Cleveland). This test provides insight about if the subject plant is utilizing a fertilizer, compared to a soil test which only shows availability in the soil.

Growers of grapes, nursery stock, turfgrass, tobacco, nut growers and other industries are using foliar analysis to reduce fertilizer cost, reduce environmental impact of improper fertilization applications, and meeting the needs of the plants they are growing to maximize the production needs and optimize plant functions. Certified arborists are required to follow a code of conduct and to follow industry “Best Practices”, which the ANSI A300 (Part 2) - 2011 Soil Management a. Modification, b. Fertilization, and c. Drainage states that soil modification shall be used to meet an objective (section 10.2.1 “Reason”). More importantly, the ANSI standard under section 15.2 states that:

“Soil and/or foliar nutrient analysis should be used to determine the need, formulation, and rate of fertilizer”

Using foliar testing should be part of the practicing arborist’s regime of best practices when diagnosing and making plant health recommendations. Furthermore, foliar testing provides the only means to determine what a plant’s Nitrogen status is; which can provide valuable insight into a plant’s future nutrient needs.

So what is Foliar testing?

Plant tissue analysis, or tissue testing, is a chemical measurement of essential plant nutrients within a sample of plant tissue. It can be used to identify nutrient related problems (deficiencies, toxicities, or imbalances), rule out nutrition as the source of a problem, monitor nutrient status as a basis for managing a crop/plant fertility program, and/or evaluate the effectiveness of a fertility program.

Collecting a good sample

Tissue sampling methods depend on the plant in question and the purpose of the sample. The plant part to select depends on the target plant and sometimes on the stage of growth as well (see Table 1). Guidelines for sample collection may differ based on whether you are trying to diagnose a problem or just monitor nutrient status. In all cases, it is important to

collect enough material to represent the entire area of interest. To receive good interpretations, you must submit a good sample!

The use of tissue analysis to measure concentrations of nutrients in an “indicator” plant part collected at a specific stage of plant development. Then, they compare those measurements to established standard values known as sufficiency ranges. Therefore, you must submit the correct plant part(s) at the correct growth stage to receive valid interpretations and recommendations on a Plant Analysis Report (Hudak-Wise). Sampling incorrectly can result in misleading findings and inappropriate nutrient management decisions.

Deciding when to sample

The best time to collect samples (when petioles are part of the sample) is between mid-morning and early afternoon. Nitrate nitrogen levels in petioles are especially subject to variation, based on time of day and environmental conditions (drought, cloud cover). Additionally, you want to target plant tissue that is in mid-growth regions of the produced foliage of the current growing season; see Figure 1.

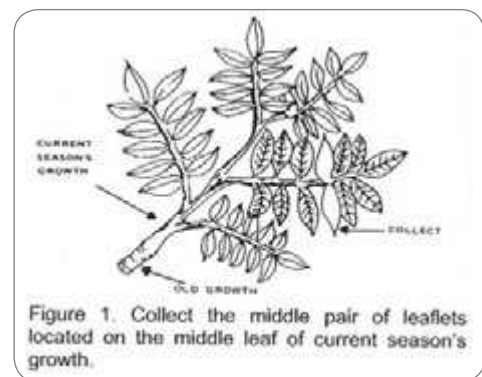
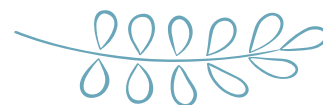


Figure 1. Collect the middle pair of leaflets located on the middle leaf of current season's growth.

Figure 1: Source (University of Kansas)

Taking a representative sample

Proper sampling is the key to reliable plant analysis results. When problem solving, take samples from both “good” and “bad” areas. Comparison between the two samples helps pinpoint the limiting nutrient. Comparative sampling also helps factor out the influence of stress due to drought, disease, or injury. Always take matching soil samples from the root zones of both “good” and “bad” plants for the most complete evaluation.



Tree Tech Bytes Cont. on page 12

Table 1. Sampling procedures for plant tissue analysis (McGinnis, Stokes, Cleveland)

Target Plant	Growth Stage	Plant Part	# of leaves collected
Apple Fruit or Crab Apple (mid-June to mid-July)	5 to 10 weeks after full bloom Most recent mature leaf from mid shoot, leaves near base of current year's growth, or leaves from spurs; 4-8 leaves per plant from 20-30 plants	50	
Azalea	Prior to flowering	Most recent mature leaf	75-100
Boxwood	Summer	2-3" cuttings from terminal growth	20 cuttings
Conifers	Summer	Terminal shoot from upper 1/3 of tree; do not sample from leader or top whorl	20-40 needles
Fir (Sept-Dec)	During dormancy Two or three shoots from the upper 1 /3 or 1/2 of 8-12 trees. DO NOT sample from leader or top whorl.	15-30 shoots	
Grass (Turf) least two days regrowth	During normal growing season; at Two handfuls of freshly mowed grass (with trash removed)	2 handfuls	
Holly	Summer	Most recent mature leaf	30-50 leaves
Hydrangea	Early summer	Most recent mature leaf	30-50 leaves
Ornamental shrubs & trees(not conifers)	During active growth	Most recent mature leaf on current year's growth	30-100 leaves
Spruce	Mid-season to late summer	2-3" terminal cuttings	25 cuttings

Packaging and Shipment

Place each tissue sample in a paper or cardboard (never plastic) envelope, bag, or box so drying can begin during transport. Label each sample with the appropriate sample identifier that you indicated on the sample information form for the lab you are sending to. Plan to have samples arrive at the lab within 24 hours of collection, so use a delivery service which guarantees arrival. If delay is unavoidable, air dry or refrigerate samples until shipment.

Additionally, make sure the paperwork for the lab of your choice is written neatly in pencil so that it is easy for the lab to run the test you have requested, and keep a copy of the document that you send.

How much does it cost?

Each lab has different costs depending on the test you want to have performed. Some labs offer specialized tests for certain nutrients and or a full panel of nutrient values. Be sure to ask the lab of your choice what those costs are before engaging their services. Typically, foliar testing can cost 2-3 times more than soil testing.

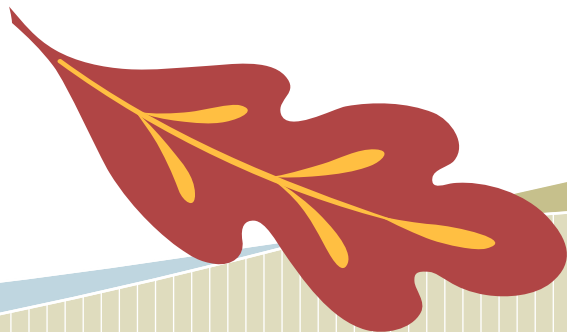
What Lab to choose?

Soil and foliar testing labs are located in many areas of the Midwest, I would recommend you call the lab of your choosing and identify that they have had prior experience and they follow and understand the protocols of testing. Additionally, ask them if there are any specific packaging and paperwork required to provide you an accurate test result. This list is provided to you only as a reference and not as endorsement by me or by the Ohio Chapter ISA.

Lab name/Location	Web site	Phone number
Cornell University	http://cnal.cals.cornell.edu/	(607) 255-4540
Soil and Plant Nutrient Laboratory MSU Extension Service Department of Crop and Soil Sciences Michigan State University East Lansing, MI 48824-1325	http://www.css.msu.edu/SPNL/	(517) 355-0218
Soil and Plant Nutrient Laboratory MSU Extension Service Department of Crop and Soil Sciences Michigan State University 48824-1325	http://www.css.msu.edu/SPNL/	(517) 355-0218
Agricultural Analytical Services Laboratory Penn State University University Park, PA 16802	http://agsci.psu.edu/aasl	(814) 863-0841
CLC Labs 325 Venture Drive Westerville, OH 43081		(614) 888-1663
Brookside Laboratories, Inc. 308 South Main Street New Knoxville, OH 45871	http://www.blinc.com/	(419) 753-2448
Regulatory Services University of Kentucky 103 Regulatory Service Building Alumni & Shawneetown Roads Lexington, KY 40546-0275	http://soils.rs.uky.edu/index.php	(606) 257-7355
Spectrum Analytic, Inc. 1087 Jamison Rd NW Washington Court House, OH 43160-8748	http://www.spectrumanalytic.com/	(740) 335-1562 (800) 321-1562
Calmar Soil Testing Labs 130 South State Street Westerville, OH 43081	http://www.calmarlabs.com/	(614) 523-1005 (800) 80-SOIL

Source (Gao, Boggs, Chatfield)

Mark A. Webber is a Board Certified Master Arborist with nearly forty years of relevant professional experience. He provides forensic investigations, reports, and testimony in matters related to tree maintenance and removal; plant value; management of nursery and landscaping operations; and an assortment of horticultural issues. He can be contacted at mwebber@webberlandscaping.com



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CEUs at Home

Benefits and Costs of Trees

By Shirley Vaughn

The value of trees cannot be taken for granted. Trees provide shade, but also offer unique benefits such as enhancing aesthetic value, making us cooler, absorbing pollutants, and improving the economic and social climate of a community. The benefits trees provide are not “free”. Trees have costs associated with their planting and maintenance, along with management challenges such as growing trees in urban areas.

When considering the benefits a tree provides, one must acknowledge the cost of owning that tree and caring for it during its lifetime. Some of the costs associated with growing trees in urban areas include purchasing, planting and establishing the tree, and irrigating it when necessary. Throughout the tree’s lifetime, it also requires pruning, mulching, plant health care, debris clean up, and risk management, which all cost money and take time. Whether a tree is located beside a home, next to city hall, in a park or along a street, that tree requires routine maintenance.

When trees in urban areas are not properly planted, maintained, and managed, they can become liabilities. In some situations, the maintenance required may exceed the benefits that the tree is producing. Understanding the benefits and costs of urban trees helps the arborist make informed decisions about planting, pruning, and removal. By reducing the risk associated with trees and improving tree

health, arborists can play a critical role in enhancing the quality of life in a community.

Aesthetic, Environmental, Economic, and Social Benefits

Environmental tree benefits include improvements in air quality, the sequestration of carbon, reductions in stormwater runoff and erosion, and energy conservation. Trees emit oxygen during photosynthesis and collect and filter airborne particulate pollutants, which are stored on leaves. This reduction in particulate matter cleanses the air we breathe. Also, trees absorb carbon dioxide during photosynthesis. Some of this

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- Trees decrease energy consumption and moderate local climates by providing shade and acting as windbreaks.
- Trees act as mini-reservoirs, helping to slow and reduce the amount of stormwater runoff that reaches storm drains, rivers, and lakes. 100 mature tree crowns intercept ~100,000 gallons of rainfall per year (U.S. Forest Service 2003).
- Trees help reduce noise levels, cleanse atmospheric pollutants, produce oxygen, and absorb carbon dioxide.
- Trees can reduce street-level air pollution by up to 60% (Coder 1996). Lovasi (2008) suggested that children who live on tree-lined streets have lower rates of asthma.
- Trees stabilize soil and provide a habitat for wildlife.



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CO₂ is stored as the woody tree biomass while some of the CO₂ is stored as carbon-based tissue. This process, called carbon sequestration, can be an effective way to minimize excess carbon in the atmosphere. A tree only stores carbon during its lifetime. Thus, when it dies or is removed, some of the carbon is returned to the atmosphere through burning or normal decomposition processes.

Stormwater runoff is a problem in some urban areas. Trees can help decrease stormwater management costs through their mere presence in a landscape. Leaves and branches intercept rainfall and slow some of the rain as it passes through the tree's canopy. Because of trees, the amount of throughfall reaching the ground is lessened, which slows erosion and decreases the volume of runoff entering storm and combined sewer systems. Tree roots also hold the soil in place and further reduce erosion. In addition to reducing the volume of stormwater runoff, trees also help purify stormwater runoff.

The contribution of the urban trees towards conserving energy is reflected in their ability to shade structures and surfaces, reduce electricity use for air conditioning in summer, and divert wind in the winter, which reduces energy consumption. Trees located near and around buildings can significantly reduce heating and cooling costs. Climate and the location of the trees in relation to buildings can affect the amount of energy used. Trees with leafy canopies located on the south and west sides of buildings typically contribute the most

- Tree-lined streets are safer; traffic speeds and the amount of stress drivers feel are reduced, which likely reduces road rage/aggressive driving (Wolf 1998a, Kuo and Sullivan 2001b).
- Chicago apartment buildings with medium amounts of greenery had 42% fewer crimes than those without any trees (Kuo and Sullivan 2001a).
- Chicago apartment buildings with high levels of greenery had 52% fewer crimes than those without any trees (Kuo and Sullivan 2001a).
- Employees who see nature from their desks experience 23% less sick time and report greater job satisfaction than those who do not (Wolf 1998a). Hospital patients recovering from surgery who had a view of a grove of trees through their windows required fewer pain relievers, experienced fewer complications, and left the hospital sooner than similar patients who had a view of a brick wall (Ulrich 1984, 1986).
- When surrounded by trees, physical signs of personal stress, such as muscle tension and pulse rate, were measurably reduced within 3–4 minutes (Ulrich 1991)

to reducing air conditioning demands. During winter and in cooler climates, deciduous trees allow sunlight to pass through to warm buildings. Strategically placed trees can also serve as windbreaks, which is especially beneficial in colder climates.

Trees provide important habitats for the numerous bird, insect, and animal species in urban areas.

Economic tree benefits include increased residential and business property values, attractive business districts, increased rental rates for apartments and offices, and energy savings for buildings as well as surfaces, such as pavements. Research has found that properties with well-positioned and maintained trees command a higher appraisal and sales value than similar properties without trees. Tree-lined streets and commercial districts attract more businesses and consumers. Also, when these areas are surrounded by trees, shoppers tend to stay longer and pay more for goods and services.

The social benefits of trees have been researched for many years, with findings showing that the presence of trees help people relax, heal, and learn. The calming effect of nearby trees and urban greening can significantly reduce workplace stress levels and fatigue, calm traffic, and even decrease the recovery time needed after surgery. Trees can also reduce crime. Apartment buildings with high levels of greenspace have lower crime rates than nearby apartments without trees. Natural settings also have been linked to behavioral and learning improvements in children.

Benefit Value and Appraised Value

i-Tree was developed by the U.S.D.A Forest Service and its public and private partners to estimate the value of the economic and environmental benefits trees provide. i-Tree is public domain software or free software which should be used to convey the value of the benefits provided by trees. i-Tree is not a substitute for tree appraisal systems such as the “Trunk Formula Method,” which was developed by the Council of Tree and Landscape Appraisers to estimate tree replacement value.

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- Trees increase residential property values by an average of 7% when present in the yard or neighborhood. Commercial property rental rates were 7% higher when trees were on the property (Wolf 2007).
- Trees moderate temperatures in the summer and winter, saving on heating and cooling expenses (North Carolina State Univ. 2012, Heisler 1986).
- On average, consumers will pay about 11% more for goods in landscaped areas, with this figure being as high as 50% for convenience goods (Wolf 1998b, Wolf 1999, and Wolf 2003).
- Consumers also feel that the quality of the products is better in business districts having trees than those considered barren (Wolf 1998b).
- The quality of landscaping along the routes leading to the business district had a positive influence on consumers’ perceptions of the area (Wolf 2000).



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A photocopy of the answer form is *not* acceptable. You must be a current member of the Ohio Chapter ISA for your CEU test to be processed. You will be notified only if **you do not pass**. If you do not pass, you may not re-take the test. **This test will qualify for ISA CEUs.**

- When a tree dies, _____ of the carbon is returned to the atmosphere through burning or normal decomposition processes.
 - all
 - none
 - some
 - none of the above
- Consumers feel that the quality of the products is _____ in business districts having trees than those considered barren.
 - poorer
 - better
 - cheaper
 - none of the above
- Trees provide _____ benefits.
 - environmental
 - economic
 - social
 - all of the above
- Trees placed on the _____ and _____ side of the building provide the most shade.
 - north and south
 - east and south
 - west and south
 - north and west
- Trees emit carbon dioxide during photosynthesis and absorb oxygen.
 - True
 - False
- Trees located in an urban area can:
 - reduce crime
 - improve air quality
 - decrease stormwater runoff
 - all of the above
- When appraising a tree, the arborist can use i-Tree to determine the tree's replacement value.
 - True
 - False
- When surrounded by trees, physical signs of personal stress, such as muscle tension and pulse rate, were measurably increased within 3–4 minutes.
 - True
 - False
- Birds, insects, and animal species in urban areas do not use urban trees for shelter or food.
 - True
 - False
- Theoretically, which tree should be planted to save the most energy in this home?
 - Crabapple on the west 80 planted feet from the house.
 - Sycamore on the east planted 200 feet from the house.
 - Crabapple on the north planted 30 feet from the house.
 - Red oak on the south planted 80 feet from the house.

The Buckeye Arborist

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