

*An Arborist takes  
care of a tree for life.*



# OUT ON A LIMB

WINTER 2023, VOLUME 43, ISSUE 4



*What Kills Trees on page 9...*

## 2023 NE ARBORIST SCHOOL: PLANT HEALTH AND TREE BIOLOGY

*By: Samantha Rozic, Heroes Lawn Care & NAA Board Member*

The last session of the 2023 Arborist School three-part series was held on November 16 and 17, at the Carol Joy Holling Center in Ashland, NE. Plant Health & Tree Biology was led by Laurie Stepanek, Jennifer Morris, Phil Peirce, Sarah Browning, and John Fech.

On the first day, the Nebraska Forest Service instructed on tree biology, abiotic problems, insects, and diseases. Laurie Stepanek and Jennifer Morris led the students through materials the students might find on the exam.

Jennifer discussed that plant identification is the first step in properly evaluating the plant and its problem. Jennifer continued to list the next steps in identifying the problems associated with the tree. She helped the students find the pattern of abnormality. A tree of diagnosis was painted to help get to the solution. Jennifer described how weather and moisture affect tree growth and longevity of the plant.

Laurie showed the attendees how a plant is made up at the cellular level. This knowledge could be applied to understand how water and other chemicals move throughout the tree. She helped the students understand the lifecycle of insects and different control methods for those insects. Laurie provided spectacular pictures for the future arborists to understand what they might see in the field.

On the second day of school, our friends from the University Extension office, Sarah Browning and John Fech, taught the students about things underground!

Sarah started the day by discussing soil composition and the properties it exhibits. She explored how compaction from equipment and construction can affect trees initially and over the long term. John and Sarah offered talking points that the future arborists could use to bring to client meetings.

*Continued on page 3...*



*Laurie Stepanek discusses tree biology.*

## A QUARTERLY UPDATE OF THE NEBRASKA ARBORISTS ASSOCIATION

### INSIDE THIS ISSUE:

- President's Letter P. 2
- 2023 Arborist School Continued P. 3
- Affiliate Excellence Award P. 3
- Arborist Spotlight P. 4
- The Future of Arboriculture P. 5
- Nebraska by the Numbers P. 6
- What Kills Trees P. 9
- Collecting & Starting Seeds from Trees P. 10
- Emerald Ash Borer Update P. 13
- Solving Chlorosis Problems P. 14
- 2024 Winter Conference Information P. 16
- Keynote Presentations & Registration P. 18
- 2024 NAA Slate & Ballot P. 19
- \*Ballots due by January 10th

### SUBMIT ARTICLES:

If you have anything you would like to submit for inclusion in the Quarterly Update, please contact [staff@nearborists.org](mailto:staff@nearborists.org)



## 2023 BOARD OF DIRECTORS

### Dustin Nelson, President

DnTree LLC

10825 108th Street, Weeping Water, NE

(402) 880-0280

dustytreecare@gmail.com

### Jeff Grewe, Past-President

Arbor Aesthetics

6724 Irvington Road, Omaha, NE

(402) 408-5600

jeffrey@arboraesthetics.com

### Jorge Cardenas, Treasurer

Asplundh Tree Expert, LLC

5906 South 77th St, Ralston, NE

(402) 217-4684

jcardenas6@asplundh.com

### Samantha Rozic, Secretary

Heroes Lawn Care

PO Box 390324, Omaha, NE

(402) 899-0225

samantharozic1@gmail.com

### Tom Anderson, Director

Wright Tree Service, LLC

62171 US Hwy 275, Glenwood, IA

(402) 672-0163 | (402) 672.0163

tanderson@wrighttree.com

### Tim Crawl, Director

Crawl Tree Service

3710 Highway 8, Superior, NE

(402) 469-3337

treemancrawl@yahoo.com

### Michael Seuferer, Director

Asplundh Tree Expert, LLC

4330 W Huntington Ave., Lincoln, NE

(402) 432-1276

michael.seuferer@gmail.com

### Phil Pierce, NAA Board Advisor

Consultant Forester

18307 S 132nd St., Springfield, NE

(402) 253-2860

foresterphil@gmail.com

### Stacy Hughes, NAA Board Advisor

Terry Hughes Tree Service

15802 Fairview Road, Gretna, NE

(402) 558-8198

stacy@hughestree.com

### Alyssa Brodersen

NAA Executive Director

521 First Street

PO Box 10, Milford, NE

(402) 761-2219

alyssa@nearborists.org

www.NEarborists.org

## FROM THE PRESIDENT

As I write this letter, the average temperature is still a reasonable 60 degrees in the afternoon. It might be colder by the time you read this, but one sure thing is that winter is coming. I wanted to take this time to talk about something I am very passionate about: learning.

This time of year is the perfect time to learn new things or hone in on your skills. Several in-person learning and continuing education opportunities exist, such as the TCIA Expo and our Winter Conference. Also, with the sun setting earlier, now is the perfect time to brush up on online learning.

If you are a climber, I highly recommend the “Shultz Effect,” this educational resource provides a wealth of valuable information. It covers both single-rope and traditional doubled-rope techniques, making it truly worthwhile and a great investment. Most gear suppliers also have a books/training materials section with quality learning selections. Another good read I would recommend would be the book Knots by Jeff Jepson. Most of you are familiar with his other book, The Climber’s Companion, as it is given out for our Arborist School. This is essentially the sequel based more on the foundation of knots and their uses geared toward our Industry, written by someone proficient in what we do.

The pieces mentioned above are just a small selection of the expansive educational opportunities available for new and seasoned arborists. Please take advantage of that information and better yourselves while you have the time to do so. That being said, I hope to see you all at the Nebraska Great Plains Winter Conference in January!

Dustin Nelson, NAA President



## UPCOMING EVENTS

### Nebraska GREAT PLAINS Conference

January 16-17, 2024

At Embassy Suites in Lincoln, NE

### NAA Certification Exam

Tuesday, January 16, 2024

1:00 – 5:00 p.m.

At Embassy Suites in Lincoln, NE



## OFFICE HOLIDAY HOURS

The NAA office will close for Christmas on Monday, December 25, Tuesday, December 26, and for New Year’s on Monday, January 1.

We wish you all a safe and happy holiday season!

*Continued from page 1...*

Tree fertilization and how to properly test the soil to ensure that fertilizer applications are necessary were discussed. She pointed out that different practices from other professions (farming and turf) may approach fertilizing differently than a landscaper or arborist would.

John provided insight on separation from turf, landscaping, and trees. He recommended the separation of the three to help with the longevity of the tree's life. Moisture and trees were other topics of discussion from John. He brought up irrigation and how it directly affects trees. The main debate surrounding irrigation with trees is that the typical homeowner over-irrigates.

Wrapping up the 2023 Arborist School marks not just the end of an educational series, but the growth of knowledge within our community of new arborists. Led by a team of experts, the sessions explored the intricacies of tree biology, diagnosis, soil composition, and the symbiotic relationship between trees and their surroundings. As more and more eager participants join in, this school has evolved into a guiding light for upcoming arborists. They're not just soaking in theory; they're grabbing real-world know-how that will stick with them in the field. As the sessions came to an end, it was evident that a strong commitment to caring for our green friends had blossomed among the new arborists, promising a more mindful and brighter future for our industry.



*Sarah Browning speaks about fertilizer application.*

## **AFFILIATE EXCELLENCE AWARD**

*By Kathleen Cae, Nebraska Extension Horticulture Assistant Educator*

The Affiliate Excellence Award recognizes excellence in plant collection diversity, maintenance practices, and community engagement. We present this award to the City of Bennington and to John Bohrer, Certified Nebraska Arborist & Curator of the Bennington Heritage Arboretum & the Doug Nelson Youth Complex Arboretum.

John has long been a strong advocate for community forestry, beginning with his appointment as City Forester for Bennington in 2013 and continuing with his work as director of the Bennington Public Works Department and City Arborist. Under his leadership as chair of the Bennington Tree Board, John has partnered with numerous entities to obtain several tree-planting grants for the city. As a result of his tireless efforts, the City of Bennington has been awarded 14 grants totaling \$35,000, and 153 trees have been planted around the city.

Most recently, John pursued Nebraska Statewide Arboretum affiliate site status for two green spaces in Bennington: the Heritage Arboretum and The Doug Nelson Youth Complex Arboretum, both of which became NSA affiliate sites in 2022. The once-neglected areas, which together comprise approximately four acres, have been transformed into recreational spaces featuring 25 different species of trees and numerous shrubs, as well as a previously existing iris garden containing more than 70 varieties of the Sass Iris, which was developed in Bennington during the 1920s.

John's many community forestry efforts have earned the City of Bennington numerous landscaping awards, including the Community Enhancement Award, the Tree City Growth Award, and the Arbor Day Foundation Tree City USA Award. As Bennington Mayor Zac Johns has said, "John is a true visionary who sees potential in the natural beauty of our community and its unique landscape."

Today, we celebrate the City of Bennington, the Bennington Heritage Arboretum, the Doug Nelson Youth Complex Arboretum, and curator John Borer, who brought his vision for these beautiful spaces to fruition.

**Note:** Presentation Narrative written by Michelle DeRusha, Nebraska Statewide Arboretum, Communications & Events Coordinator.

**Photos By:** Jim Keepers, Certified NE Arborist



# ARBORIST SPOTLIGHT

By *Samantha Rozic, Heroes Lawn Care & NAA Board Member*

I had the privilege to sit down and chat with Beth about her years as a female arborist. She and I bonded over our love of the outdoors and animals. I would describe Beth as extremely caring and with a big heart.

I want to start at the “beginning.” Beth got a call from a realtor friend asking if they would like to look at a house in the countryside. Beth said her family had no intention of purchasing the home and land around it. But when Beth stepped foot onto the property, she knew she needed to live there. Moving out to the countryside is what helped bloom her love of trees.

Beth and her spouse purchased a tree service company called Walkup Tree Service. During that time, Beth became a Certified Arborist with the Nebraska Arborist Association in 2001. Intended to be a part-time venture, the business soon flourished and became all-encompassing, “as many of us know, you don’t own the business; it owns you.”



*Beth Osborn*

Due to the demands and growth in other careers, Beth and her husband eventually sold the tree service to their employees; however, the experience firmly steered Beth toward an arboriculturist career path. After selling the business, Beth left arboriculture for a short period.

When she returned to arboriculture, Beth worked for Asplundh Tree Expert, LLC. Beth paved the way for women in arboriculture by becoming the first female Work Planner for the company here in Omaha. While at Asplundh, she sharpened her plant identification skills.

After her time at Asplundh, she joined the force at the City of Omaha in the Parks and Recreation Department as the first female City Code Enforcement Inspector. In her role, she has had her fair share of experiences. In the time I spent talking with Beth about her job, I could tell how much she cares for the tree canopy of Omaha. Beth has served the northeast part of Omaha in her current role for 14 years.

Beth is working hand-in-hand with Habitat for Humanity Omaha (Habitat Omaha) and replanting Omaha’s tree canopy. With the help of Diana Failla, president of the Midtown Neighborhood Alliance, and John Wynn, Omaha city forester, they secured agreements with Habitat Omaha to replant the trees they removed to build affordable housing in Omaha. Their collaboration resulted in obtaining a grant from the Papio-Missouri River Natural Resources District to obtain and plant thirty-one trees in North Omaha. Beth contacted Habitat Omaha for help finding planting locations and volunteers, not only accomplishing the replacement of trees but also continuing to raise awareness within the community.

Most recently, on June 3, 2023, WOWT News covered the planting of 80 trees throughout Northeast Omaha. This event replaced 80 trees, created a wonderful opportunity for citizens to join together for a good cause, and publicized the importance of regenerating Omaha’s urban tree canopy. When asked about her goals, Beth said, “My goal is to leave a legacy of a renewed tree canopy in Northeast Omaha that benefits our community and the environment and thrives beyond my retirement.”

Earlier this year, Habitat Omaha recognized Beth for her partnership and commitment to Northeast Omaha’s citizens’ welfare by naming a new house plan, The Osborn.

Along with being a Certified Arborist, she carries her First-Class Arborist license in Omaha and has been an active member of the Douglas County Master Gardener program. She is an ISA Certified Arborist and has her pesticide applicator license.

Beth and I had several commonalities, including our love of dogs and other animals and having served as the Secretary of the Nebraska Arborist Association.

Beth’s journey as an arborist is all about love—for trees, for Omaha, and for bringing people together. Chatting with her, it’s clear she’s on a mission to make Northeast Omaha greener and more vibrant. From planting trees to partnering with Habitat Omaha, Beth’s not just growing a canopy; she’s growing a community. Her story is about making a place better, one tree at a time, and leaving a legacy that’s more than branches and leaves—it’s about caring for nature and each other.

# THE FUTURE OF ARBORICULTURE

By *Dustin Nelson, NAA President*

What should we expect to see in the years to come for our industry? I do not have a crystal ball. But, if we follow current trends, I can foresee the industry becoming more mechanized, with many smaller companies working in unison.

The mechanized part shouldn't come as a shock to most of you. As technology advances and help gets more challenging to find, it would be asinine not to take full advantage of the many selections we have for equipment and gear these days. The vendors are starting to take note, and we are now seeing manufacturers making products specific to our line of work. Whereas, in the past, they have just re-purposed or rebranded something from another trade for us to use. In the future, I feel we will have a greater selection of products to make our profession easier, safer, and more efficient. As long as we keep buying the latest and greatest shiny things, they will continue to invest the money and R&D to create cutting-edge items to keep us buying.

That brings me to my next point. As time passes, I'm noticing the trend seems to be more small companies and less "Large Scale Companies." In the past several years, many skilled arborists have opted to go the self-employed route and start their own businesses. This becomes a double-edged sword. As more companies are established, recruiting talented arborists, capable ground crew, and so on becomes harder. Therefore, we invest in equipment instead to stay competitive. But how does such a small company afford all the equipment to offer full-scale tree service? Usually, they can't. So, we try to grow or buy the equipment, hoping to sell more work and pay for it.

What really needs to happen? What I hope the future holds for our industry is that small companies will begin to invest in specialty equipment and then come together to complete work. Much like we have crane operator companies and contract climbers, I believe that we will start to see more of this with other types of equipment in the coming years. This isn't just what I hope to see for the future of the arborist industry, but more so, what needs to occur for the sustainability of our field.

Why do we compete with each other so aggressively when we can work together to reduce our costs significantly and also serve our industry better as a whole? I could be wrong. I have been wrong before. Only time will tell.

## MEANINGFUL GROWTH FOR PEOPLE AND TREES.

**Tree Service**  
**OMAHA MAGAZINES**  
**Best of Omaha**  
**2023 Winner**

**CAREERS**

Wait 'til you see our benefits!

arbor aesthetics



**TREE CITY USA**  
An Arbor Day Foundation Program

# NEBRASKA

# 2022

## BY THE NUMBERS

**86**  
TREE CITY USA  
COMMUNITIES  
0 NEW

**67.32%**  
OF STATE  
LIVES IN A TREE CITY  
USA COMMUNITY

LONGEST-RUNNING  
ACTIVE TREE CITY USA  
COMMUNITY:  
**Auburn**  
47 YEARS

**94.51%** RECERTIFICATION RATE

**\$9,850,194**  
SPENT ON  
URBAN FORESTRY  
MANAGEMENT



REPORTED NUMBER OF  
**TREES PLANTED 7,493**

### LARGEST

**Omaha**  
POPULATION 490,377

### SMALLEST

**Johnstown**  
POPULATION 48



**\$7.45**  
average per capita

## Growth Award

**22** Growth Award  
Recipients

LONGEST ACTIVE GROWTH AWARD

**Gering**  
27 YEARS

**5** NEW Growth  
Award Recipients

## BEYOND TREE CITY USA

**TREE  
CAMPUS**  
HIGHER EDUCATION  
An Arbor Day Foundation Program

**5** Recognized  
Nebraska Schools  
**0** NEWLY  
Recognized Schools

**TREE  
LINE USA**  
An Arbor Day Foundation Program

**4** Tree Line USA  
Utilities  
LONGEST ACTIVE UTILITY:  
**Omaha Public Power District**  
23 YEARS

**TREE  
CAMPUS**  
HEALTHCARE  
An Arbor Day Foundation Program

Recognized Healthcare Facilities:



REGISTER TODAY!

# Puerto Vallarta TCIAWMC'24

WINTER MANAGEMENT CONFERENCE

*Collaboration, Connection and  
Culture in Leadership*



Scan here to  
access the full  
conference  
details!

FEBRUARY 11 - 15, 2024

WMC.TCIA.ORG | 800-733-2622



Hampton Enterprises, Inc.

# Tree Service

Relocate trees

**55" and 90" tree spades available**

Mulch and stake new trees

Help locate spadeable trees to purchase



**HAMPTON**  
ENTERPRISES  
PROPERTIES & CONSTRUCTION

contact Mark Ewalt, Landscape Director

cell: (402) 610-3937

[mewalt@hampton1.com](mailto:mewalt@hampton1.com)





# WHAT KILLS TREES

By Kathleen Cue, Nebraska Extension Horticulture Assistant Educator

Trees in native undisturbed sites live, on average, to be about 150 years old. Downtown trees have a life expectancy of 7-17 years; suburban trees 30-40 years; and rural trees 60-70 years. Why is there such a difference in life expectancy between trees in native sites and those in disturbed sites? Certainly, there are acute factors, like hail, herbicide drift, and insect infestations, that can kill trees, but the chronic issues overwhelmingly predispose trees to shortened lifespans.

While difficult to see, predisposing effects are basically unhealthy environments. This leads to unhappy trees with dysfunctional roots. Some common predisposing factors include:

- Trees are planted too deep
- Grade changes around existing trees
- Soil compaction
- Trees are overwatered
- Exposure to long-term drought
- Live in confined root spaces
- Have girdling roots
- Are not winter hardy
- Are not adapted to growing in soils with a high pH

Most of us do not recognize a tree in decline until 12-20 years after the tree has been planted. Amazingly enough, unhappy trees will grow but lack the energy to really thrive. Too often, this means conditions are not reversible, and the problem cannot be remedied. What tree owners do notice are acute conditions—leaf scorch, chlorosis, early leaf shed, smaller leaves, and reduced tree stability—symptomatic of the larger problem of unhappy trees with dysfunctional roots.

Trees have a limited ability to adapt to adverse growing conditions. Those living in adverse conditions are subject to a decline spiral, succumbing to short-term “problems” that healthy trees growing in good environments can readily withstand. If we select, plant, and manage trees with the intention that they not only survive but thrive, many tree problems are preventable, resulting in longer living trees. Check out Cornell’s Woody Plant Database to search for trees and shrubs suited to specific conditions: <http://woodyplants.cals.cornell.edu/home> .



*Raised bed dying tree.*

## Wedgle® Direct-Inject™ TREE INJECTION SYSTEM

Our advanced technology for tree treatment allows you to

**INCREASE THE  
NUMBER OF TREES  
YOU TREAT  
IN A DAY!**

- ◆ No drilling damage
- ◆ No mixing at job sites
- ◆ No guarding or return trips
- ◆ No waiting for uptake
- ◆ Treats most trees in five minutes or less!
- ◆ Successful and most profitable add-on service

Multiple injection tips designed for all types of trees, conifers and palms  
Insecticides • Fungicides • PGRs • Antibiotics • MicroNutrients

Learn more! Call 800.698.4641 or visit  
[ArborSystems.com](http://ArborSystems.com) for information and videos

**ArborSystems**  
Tree Injection Solutions



Made in the USA

# COLLECTING AND STARTING SEEDS FROM TREES AND SHRUBS

By Kathleen Cue, Nebraska Extension Horticulture Assistant Educator

Now is a great time to collect seeds from trees and shrubs to start your own and add diversity to your landscape. If you think starting trees from seeds is a silly way to get trees into your landscape, think again. I appreciate the story Justin Evertson of the Nebraska Statewide Arboretum likes to share about his 15-foot-tall bur oak. Justin started the tree from an acorn he planted just ten years ago. The tree was quick to establish and grow, disavowing oaks as slow-growing trees.

A walk through your neighbor's yard (with their permission, of course) is a simple way to collect seeds. Choose seeds with an unblemished seed coat and discard seeds that have tiny holes, as this indicates insect feeding. Be sure to mark the seeds, so you know what's what. Next, you can get the seed scarification and stratification process started.

## Scarification, Stratification

All seeds will have different scarification and stratification requirements before germination can take place. Textbooks and online resources provide a lot of information on proper techniques to meet a seed's requirements for germination. These processes are nature's way of delaying germination until conditions are met and increase the likelihood that seedlings survive.

Scarification is the softening of the hard seed coat. Nicking, chipping, or sanding the seed coat are just a few of the ways that allow water to soak through the seed coat to the embryo inside, speeding germination.



Stratification is the cold and moist period that seeds must go through to overwinter and successfully germinate when conditions are ideal. A seed from a plant in the tropics often has no stratification requirement, but it's not in a seed's best interest to germinate in December in this region, so winter hardy plants have developed overwintering strategies to help seeds germinate when the time is ideal for growth and development. People sometimes think putting seeds into the freezer is good enough to simulate stratification, but this is simply not the case. It's the cold AND moist conditions seeds are exposed to that stimulate germination come spring. Stratification data is listed in the number of days to months necessary to speed germination. Take, for instance, the shagbark hickory. Seeds will need 3-5 months of cold stratification before they will germinate.

## Scarification and Stratification Simplified

Winter itself provides the best scarification and stratification for seeds, with the freeze-thaw cycle helping to loosen seed coats so seeds can imbibe water in spring. Be sure to mark the spot in the garden so you can identify trees and shrubs once they've germinated. Keeping away squirrels and voles who'll eat the seeds is a good idea. A layer of hardware cloth or fencing with small openings can be placed above and below seeds to thwart digging. Once seeds have germinated, they can be carefully dug and moved to their permanent home.

## JOIN A WINNING TEAM!

We are always looking for ambitious, dedicated people.

### We provide:

- 401K
- Annual Bonus
- Continuing Education
- Clothing/Boots Allowance
- Health Insurance
- Dental Insurance
- Vision Insurance
- Life Insurance
- Disability Insurance
- Paid Holidays
- Paid Vacation



402-558-8198



Apply online @ [HughesTree.com/careers](https://www.HughesTree.com/careers)

## 2024 MEMBERSHIP DUES

The 2024 NAA membership renewal notices were emailed in October and mailed in November. They will be mailed a second time to those not yet renewed in December. Membership dues must be returned to the NAA office by December 15, 2023.

Each renewing certified arborist will receive a new certification card upon renewal. When recertification fees are not paid within 90 days, certification status will be forfeited. Please call the NAA office if you have any questions about your membership.

## NEW NAA MEMBERS

Collin Arant

Elizabeth Cody

Kyle Desel

Mark Dunwoody

Ben Heusinkvelt

Misty Mealey

Chris Murray

Braden Nowka

Daniel Palmquist

Aaron Steffensmeier

## NEWLY CERTIFIED ARBORISTS

Adam Klingenberg

Chris Murray



Campbell's  
CULTIVATING IDEAS



# *We're Hiring!*

For over 100 years, Campbell's has been making an enduring impact on our community from backyard retreats to iconic public landscapes. We're seeking an experienced, licensed arborist to join our team of plant lovers! Find more information, download an application, and apply online at:  
<https://www.campbellsnursery.com/careers>



# MORE DAILY GRIND THE NEW SC48TX

## FIND YOUR CREW

“STABILITY, EXCELLENT TRAINING, STRONG SAFETY CULTURE, CAREER OPPORTUNITIES, SUPPORTIVE TEAMS”... THESE ARE JUST SOME OF THE THINGS OUR TEAM MEMBERS SAY ABOUT WORKING AT ASPLUNDH. IF YOU ARE LOOKING FOR AN EXCITING OPPORTUNITY TO ADVANCE IN A CAREER WHERE YOUR DEDICATION, SKILLS AND EXPERTISE ARE VALUED, **CONTACT US TODAY.**



**ASPLUNDH**

ASPLUNDH.COM 1.800.248.TREE

**STRONG**

Scan to  
apply today!



Asplundh is an Equal Opportunity Employer.

# EMERALD ASH BORER ON THE RISE IN NEBRASKA

By Nebraska Forest Service, July 24, 2023, Shady Lane Blog

Nebraska has more than 45 million ash trees, with over 1 million in communities, which means it's likely that the impact of the devastating Emerald Ash Borer (EAB) will be felt near you...if it hasn't already.

The Emerald Ash Borer gets its name from its bright metallic green color. The insect attacks and kills all species of North American ash, including white and green ash and cultivars such as autumn purple, Patmore, and Marshall's Seedless ash. Telltale signs of an infestation include distinctive D-shaped holes in the ash tree's trunk and winding tunnels below the bark.

Lincoln alone has more than 50,000 ash trees, and the city is scrambling to keep up with removals. Recently, the Nebraska Forest Service announced that EAB had been discovered in North Platte and at Indian Cave State Park near Nebraska City. It's also been found in the Sioux City, Iowa, area and in Fremont, NE.

"As EAB populations build over the years, tree mortality will increase," said Jennifer Morris, Forest Health Specialist with the Nebraska Forest Service. "With the added stress from drought, North Platte and Indian Cave State Park will experience great losses in the ash canopy over the next decade."

It's a dire situation, but there are some measures you can take to save your ash trees if you decide to do that. Morris offers the following advice and recommendations:

- Residents with ash trees on their property who live within 15 miles of an infestation should begin making plans to either treat or remove the trees. The optimal time for treatment is spring, although professional trunk injections applied in summer will give some protection.
- Not all ash trees are suitable candidates for treatment. Because treatments must be done for the life of the tree, property owners should take time to assess their trees, choosing only high-value trees in good health for treatment. Removal and replacement with a different tree may be a better option.
- If ash trees are removed, they should be replaced with a diverse selection of trees, not just a few species. This will help avoid another significant loss of the urban tree canopy when the next serious pest arrives. Fall is an ideal time to plant replacement trees.
- The Nebraska Forest Service recommends contacting insured, certified arborists for tree removals and trunk injections. You can find a list of certified arborists through the Nebraska Arborists Association or the International Society of Arboriculture. You can also learn more about EAB at the Nebraska Forest Service website.

"LEARN CHARACTER FROM TREES, VALUES FROM ROOTS,  
AND CHANGE FROM LEAVES."

— TASNEEM HAMEED

JAN

MONTH

16-17

DAY

24

YEAR



Scan to Register

2024 GREAT PLAINS WINTER CONFERENCE

EMBASSY SUITES - LINCOLN, NE

# SOLVING CHLOROSIS PROBLEMS AND TOTAL NUTRITION FOR TREES

*By Carl E. Whitcomb PhD - Lacebark Inc. 2104 N. Cottonwood Rd. Stillwater, Ok. 74075*

Nutrition of trees with limited root systems or those planted in small spaces where soils are alkaline has perplexed scientists for years. Calcium or other bases that raise soil pH and reduce availability of micronutrients may be inherent in soil or may be residues from construction or slow accumulation of minerals in the irrigation water or a combination of factors. The end result is poor plant growth and often chlorosis.

Years of work in Florida when micronutrient deficiencies were rampant led me to conduct a huge and complex experiment in 1980 that resulted in Micromax® micronutrient fertilizer. Micromax® is a unique combination of sulfate forms of iron, manganese, copper and zinc plus boron and molybdenum. It has been very effective in eliminating micronutrient deficiencies and accelerating the growth of all plants grown in containers. Since about 1985, Micromax® has been the #1 selling micronutrient fertilizer in the world. The product was designed to be used in containers, but it seemed that it should aid plants in landscapes as well. Soon after its invention, I did a number of studies where Micromax was placed in holes around chlorotic trees. The treatment had no effect on the trees and excavations later showed micronutrients had reacted with calcium in the soil to become an insoluble cylindrical block.

My focus then shifted to sulfur treatments of the soil surface. An assortment of experiments in Oklahoma showed that if enough sulfur was applied, pH of a few inches of soil could be slowly affected, increasing micronutrient availability. Quantity of sulfur required varied with soil type and level of calcium and other bases in the soil. In some cases, several applications were necessary over a period of two years or more in order to make a change in soil pH without damaging grass or groundcover growing on the soil surface. Sulfur treatments increased availability of all micronutrients and not just iron, plus the long lasting effects that address cause of chlorosis, not just the symptom.

Research that led to Micromax micronutrient fertilizer showed that balance among the six micronutrient elements is very specific. If one element is out of balance with the others, growth restriction and chlorosis occurs even though all others may be near correct levels. Numerous experiences with what appeared to be iron chlorosis were not “cured” by applying iron. In fact, on some occasions “chlorosis” became more severe after applying iron because it was really manganese deficiency. Additional iron made the ratio of iron to manganese wider and increased severity of manganese deficiency. Work has shown that at least some of the chlorosis of trees in Michigan is manganese deficiency. In areas of the southwest, zinc deficiency may cause chlorosis.

In 1986, and another review of the many frustrating factors involved in the chlorosis problem, a possible solution came to mind. Adding all micronutrients in the correct proportions seemed the “best” answer, but how? A combination of sulfur and Micromax micronutrients into one hole might be the answer.

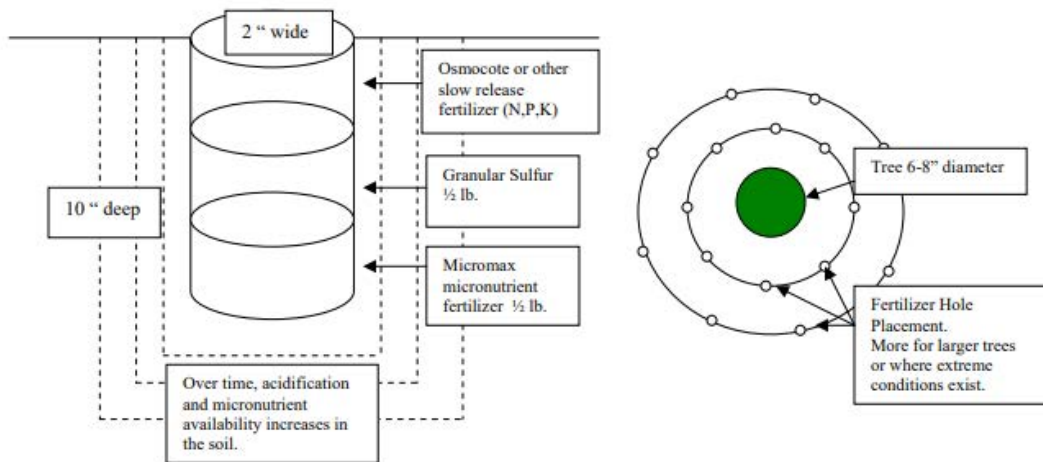
On May 4, 1986, eight chlorotic pin oaks were located. They ranged from mild chlorosis to severe chlorosis with some twig death. Trees ranged in size from five to eight inches DBH. Holes two inches in diameter were augured about 10 inches deep with eight holes per tree. Four holes were drilled about three feet from the stem at the four points of the compass. Four holes were drilled about five feet out and centered between the first holes. The objective was to contact most roots extending radially from the main stem. In the bottom was placed ½ pound of Micromax® micronutrients, then ½ pound of granular elemental sulfur (92%), then the hole was filled with about one pound Osmocote 24-4-10 (Micromax® and Osmocote are products of the Scotts Co).

When holes were drilled around the most chlorotic tree, a layer of lime rock, sand and mortar remnants existed about five to six inches below. This debris had been covered with sandy loam topsoil. Beneath the debris was alkaline heavy clay. The other seven trees were all growing in heavy clay soils with pH ranging from 7.2 to 7.8. Only an occasional root was found when drilling holes.

A check of trees on May 25, 1986 showed an improvement in foliage color. Leaf color continued to improve during the growing season. The spring flush in 1987 was a dark green for all trees except the specimen with most severe chlorosis and growing conditions. A check of the trees in September 1987 revealed all had a good green color and a strong bud set for spring. The next time the trees were evaluated in detail was June of 1990. All trees were dark green and attractive, even on the terrible site. A check with homeowners confirmed that only broadcast N, P, K fertilizer had been applied to turf. Soil samples from the worst site and just outside the fertilizer hole contained many fine roots. Analysis showed pH 5.1 and 88 ppm iron and 120 ppm manganese, whereas originally pH was 7.8 and 4.0 ppm iron and 8.1 ppm manganese.

Ten years after the initial treatment and with no further treatments other than normal surface N, P, K fertilization, all trees remained a rich dark green and were growing well. During the 2006 growing season, the eight trees were again revisited and evaluated and all trees were dark green and healthy. Seven of the locations were the same homeowners and they confirmed that no further specific treatment of the trees had been made. Three of the homes had sold several times during the 20 years, but it is unlikely that any specific treatment had been made to the trees.

This technique provides a long term slow-release system of micronutrients and sulfur in a zone in and around each hole (see drawing). The Key is creating sufficient holes to intersect a major portion of the roots. Sequence of events is probably as follows: 1) holes are drilled and micronutrients, sulfur, and fertilizer are placed around the tree. 2) With first wetting, Micromax micronutrients form a hard mass and small amounts of sulfur and N, P, K from the Osmocote are released into the soil. 3) With each successive rain or watering, a small amount of N, P, K and sulfur is released. Sulfur dissolved by water forms a very dilute sulfuric acid, which dissolves a small portion of micronutrients. Micronutrients and sulfur slowly lower pH of soil surrounding each hole. 4) New root growth in and around each hole aids in absorptive capacity of the tree. This is encouraged by N, P, K as well as sulfur and micronutrients and improved aeration. 5) Over a period of time, a zone of soil around each hole is modified to be lower in pH and rich in micronutrients in approximately the correct proportions. Note: in further studies, substitutes for Micromax have worked poorly or not at whereas any long term release Osmocote or similar products appear to work well in supplying slow release N, P, K.



A plant does not require all roots be in soil with optimum nutrient conditions for good growth. Studies have been done showing when one or more roots of a plant are in a soil or medium with favorable conditions of nutrient availability, plant growth is enhanced and problems of deficient nutrient(s) are reduced or eliminated. In *Methods of Studying Root Systems*, W. Bohm lists many techniques and over 1000 references on the subject.

Approximately one hole per inch of stem diameter is a good place to start and has been effective on a variety of trees under Oklahoma conditions. Tree injury from additional holes is unlikely. A series of rings of holes starting about three feet out from the stem has been more effective than a single ring further out (see drawing). Longevity of the treatment has been more than 20 years on my study sites, but would be expected to vary with the severity of the conditions. This technique is an effective treatment for chlorotic trees or shrubs on alkaline soils or trees where root systems have been damaged or reduced, with no risk to tree health and with a cordless drill and two inch bulb planter or spade bit, is relatively easy to install.

Patience is required as tree response to treatment is not immediate. For example, if a tree is treated during summer, typically there is little or no visible response. This treatment requires the combination of release of micronutrients and soil acidification and root growth into the treated zone. However with root growth during the fall and early spring, some green-up response with the first flush of growth occurs. In some cases a few limbs still have chlorotic leaves while other leaves show some green-up. This is because the roots supporting those specific limbs have not yet grown into the treated zone. If some limbs remain chlorotic the second season following treatment, it is likely an insufficient number of holes were used relative to conditions on the site. In one case, a large pin oak had a concrete patio that abutted a house and a concrete drive way on two sides. There was insufficient space for a full complement of holes on those two sides of the tree. Two years later and several limbs still were chlorotic. I then installed more holes just beyond the driveway in an open lawn area. The following spring the entire tree was green and has remained green for what is now 16 years.

## NAA SILENT AUCTION DONATIONS

Proceeds from our annual silent auction go to the NAA Education Fund. This is your chance to showcase your company AND support the growth of responsible tree care in Nebraska.

To contribute, please scan and complete the form and return via email to [staff@nearborists.org](mailto:staff@nearborists.org), mail the form to the office or contact us at 402-761-2219. Thank you for being part of this important cause.

SCAN ME



# 2024 NAA GREAT PLAINS CONFERENCE

JANUARY 16-17, 2024  
EMBASSY SUITES  
LINCOLN, NE

## CURRENT SPONSORS

### PLATINUM PLUS



### PLATINUM



### GOLD



### SILVER



### BRONZE

Finders Keepers Landscaping  
Hartington Tree Service  
Lincoln Electric System

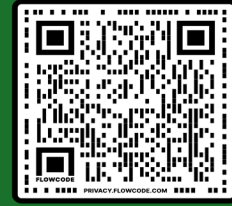


## CURRENT EXHIBITORS

Arborjet | Ecologel  
ArborSystems, Inc  
Hughes Mulch Products  
NE Dept. of Agriculture

Nebraska Forest Service  
Rainbow Ecoscience  
USI Insurance Services  
Vermeer High Plains

Exhibitors  
Register Here



## 2024 NAA WINTER CONFERENCE KEYNOTE SPEAKERS



Nicole Benjamin

### Nicole Benjamin

*Arborist & Owner at Two Dog Crew*

Nicole “carni” Benjamin, an ISA Certified Arborist, began her journey at Heartwood Tree Service, where she navigated a steep learning curve and gained diverse experience in tree work. Transitioning to subcontracting with her husband in 2018, they undertook a range of projects from utility work to treehouse builds. Nicole has worn multiple hats in the industry—groundie, climber, crew leader, owner, and safety officer—acknowledging the importance and respect each role deserves. Based near Charlotte with her family and a spirited bluetick coonhound, they traverse the USA for tree climbing events, workshops, and conferences. While her favorite tree fluctuates, she cherishes Charlotte’s expansive Willow Oaks and Tulip Poplars.



Korey Conry

### Korey Conry

*Field Safety Supervisor/Trainer at Mountain F Enterprises*

Korey Conry is a Field Safety Supervisor/Trainer at Mountain F Enterprises and has been in the tree industry going into his 5th year. He found his home in the Safety Department training and onboarding, helping develop the safety culture with new hires. He is a certified Utility Arborist through the ISA, ATSSA Flagger instructor, AHA CPR instructor, and OSHA Authorized Trainer. Korey has a background in wildland firefighting & was an emergency room technician. He also has a love for the outdoors. When he is not working, you can find him sitting under a Blue Oak in northern California turkey hunting or watching Star Wars/Harry Potter with his son Karter.



Gary Johnson

### Gary Johnson

*Professor Emeritus of Urban and Community Forestry at the University of Minnesota, Department of Forest Resources*

Gary was a faculty member in urban forestry and landscape management at three major universities (New Hampshire, Maryland, Minnesota), conducting research in tree production, tree health management, tree failures in loading events, construction damage to trees and forests, and best planting practices. He was also a practicing and consulting arborist, a seasonal tree nursery worker, owner of a landscape design/build business, and superintendent of grounds at Illinois Wesleyan University.

## LODGING INFORMATION

Contact the hotel and ask for the Nebraska GREAT PLAINS Conference group rate.

If you have any questions regarding the conference, please contact staff at the association office at 402-761-2219 or email [staff@nearborists.org](mailto:staff@nearborists.org).

Embassy Suites	Room Rates*:
by Hilton Lincoln	\$137/night (single/double)
1040 P Street	\$152/night (triple)
Lincoln, NE 68508	\$167/night (quad)
Phone: (402) 474-1111	*plus taxes

## KEYNOTE PRESENTATIONS

**Tuesday, January 16, 2024**

### **Building Habits for Longevity as an Arborist & in Life**

*Nicole Benjamin*

This talk focuses on four foundational habits that surround our day to day: Food/Fuel, Sleep/Recovery, Exercise/Movement, and our Environment. Habits dictate a large amount of our decision-making every day. Some are so ingrained they are unconscious decisions or actions... for example, when you are bored, do you stare at the wall, or do you pull out your cell phone? Habits can set us up for success or failure. They can make our lives (and work) easier or more challenging. After a quick overview of the four foundational habits, we will break down what makes a habit, how we can modify them, and how we can use habits to increase our longevity, not just in our careers but in life as well. And Nicole might assign homework that we can discuss the following day.

**Attendees  
Scan to Register!**



### **A Tree Workers Guide to Arriving to the Job Safely (When Driving)**

*Korey Conry*

Driving is becoming one of the most dangerous parts of tree work that has nothing to do with trees. We do it every day regardless of what we're doing with our work orders. Korey will do a bottom-up approach to pre-inspection and post-inspection driving so that you and your team will arrive safely at each job.

**Wednesday, January 17, 2024**

### **ChChChChanges: The Evolution of Tree Surgeons to Tree Care Professionals**

*Gary Johnson*

What was the status of arboriculture in the early 20th Century when things began to change (scientifically)? Who were the influencers that guided the practice to its current state? What were the tipping points that elevated tree care to a respected profession? What is the current status of tree care, and what direction is it headed? Sometimes, a look back helps us see the future more clearly.

### **Growth: Roots, Shoots, and Compartmentalization. A Personal Testimony**

*Nicole Benjamin*

"Do what you love, and you'll never work another day in your life..." ~ Clearly Not an Arborist  
This industry is not easy, but I can personally say it helped save my life. Through our work, we experience growth, success, failure, fear, problem-solving, disappointment, adrenaline rushes, and the list goes on. Join Nicole to talk about lessons learned through her arbor career and how we can use these lessons to continue to grow, not just as individuals but as an industry & for those who follow behind us.





Nebraska Arborists Association  
521 First Street  
Milford, NE 68405  
www.NEarborists.org

PRSRT STD  
US POSTAGE  
**PAID**  
LINCOLN, NE  
PERMIT NO. 1359

## NAA ADVERTISING RATES

<b>AD RATES</b>	<b>SINGLE ISSUE</b>	<b>ANNUAL (4 issues)</b>
Full Page	\$190.00	\$680.00
Half Page	\$100.00	\$340.00
Quarter Page	\$60.00	\$200.00
Business Card	\$40.00	\$140.00

**Call the NAA office for more information at  
402-761-2219 or email [staff@nearborists.org](mailto:staff@nearborists.org).**