An Arborist takes care of a tree for life.

OUT ON A LIMB

FALL 2023, VOLUME 43, ISSUE 3

USDA Spotted Lanternfly Strategy on page 18.

2023 NEBRASKA GREAT PLAINS SUMMER FIELD DAY & ASTI TRAININGS

By: Alyssa Brodersen, NAA Executive Director

This year, the Nebraska Arborists Association was able to partner with TCIA on an ASTI grant that allowed us to offer an EHAP (Electrical Hazards Awareness Program) training on Thursday, August 10th, and an Aerial Lift Operations class on Friday, August 11th, during the GREAT PLAINS Summer Field Day. John Ball also hosted a Tree Biology, Insects and Diseases class on the afternoon of August 11th as a refresher and update for practicing arborists. All three sessions had a great turnout.

CPR/First Aid Certification

John Ball kicked off the EHAP session with the help of Ryan Ealy & Korey Conry. All three gentlemen are TCIA-certified trainers and qualified EHAP instructors. The three trainers worked together throughout the presentation to answer attendees' questions.

Korey Conry (above) and Ryan Ealy (below) speaking to class

After John concluded the PowerPoint portion of the class, Ryan and Korey took attendees outside to view a practice aerial rescue in a bucket truck that Asplundh Tree Expert Co. provided for demonstration purposes. This allowed attendees to see the steps of an aerial rescue in action so that they felt more comfortable performing their practice aerial rescues to gain TCIA certification.

Continued on page 3...

A QUARTERLY UPDATE OF THE NEBRASKA ARBORISTS ASSOCIATION

INSIDE THIS ISSUE:

SUBMIT ARTICLES:

If you have anything you would like to submit for inclusion in the Quarterly Update, please contact staff@nearborists.org

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FROM THE PRESIDENT

Hello everyone! I hope you all have had a very successful summer. As the high temps draw to a close and we anxiously anticipate "sweater weather," I wanted to expound a little on my brief article from our last newsletter.

For those of you who missed it, the nitty gritty breakdown is, in short, make sure you take care of yourself in the extreme conditions that we encounter, weather and otherwise. To further touch on this point, I'd like to add an observation I've noticed lately with the heat indexes consistently one hundred-plus degrees. This observation is mainly directed towards business owners, but I'm sure some of you production guys and gals will also take some value from this. The observation I made is the value A/C provides in a work truck. Currently, I have one truck that the A/C has recently quit working in. I noticed on hot days I absolutely despised driving it, even if it was an all-day job 5 minutes from the shop.

Without going into too much more detail, what I noticed more and more each day was that on the days when I had an A/C equipped truck, I was able to take a 15-30 min break to "refresh" at lunch and put in a full day of work with far less fatigue than the days where I just tried to find shade. Now, if you expand this logic to days when you are visiting multiple job sites and "window time" is greater, you can see how much of a difference it makes driving in a comfortable vehicle versus a truck that is 115 degrees.

Here is the short and sweet summary of this Article: Nowadays, it is silly not to have a truck with A/C for you or your workers. And if you sit and do the math, the increased productivity from being able to "recharge" on hot days will more than pay for any maintenance or repairs to ensure all your vehicles have proper climate control. So, keep this in mind as we slow down production for fall/winter, and I hope some, if not all, of you will have your trucks icy cold for next summer.

Speaking of fall and winter, I hope to see many of you at our upcoming Arborist School Classes and our Annual Winter Conference. Until then, enjoy the canopy and stay safe!

Dustin Nelson, NAA President

UPCOMING EVENTS

Pruning, Climbing & Safety Seminar
Thursday & Friday, October 12-13, 2023
at Carol Joy Holling in Ashland, NE

Plant Health & Tree Biology Seminar
Thursday & Friday, November 16-17, 2023
at Carol Joy Holling in Ashland, NE

Nebraska GREAT PLAINS Conference
January 16-17, 2024
At Embassy Suites in Lincoln, NE

OFFICE HOLIDAY HOURS

The NAA office will close for Thanksgiving on Thursday, November 23 and Friday, November 24.

We wish you all a safe and happy Thanksgiving!

Thank you to our Field Day Sponsors!

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Continued from page 1...

On day two, Ryan Ealy presented on Aerial Lift Operations. Ryan covered potential hazards, safety precautions, inspection, positioning, operation, chain saw use and lowering, cradling, and securing of the boom. After the presentation, the attendees were able to take a break to meet with exhibitors while getting up-close views of the equipment they brought.

After lunch, John Ball began his presentation on Tree Biology, Insects and Diseases. He spoke to a full house and had a lot of great information available for the attendees.

The association would like to thank the following Field Day sponsors for their contributions. *(Sponsors listed above.)*

We would also like to recognize our Gold Sponsors for their support: Arborjet|Ecologel & Vermeer High Plains.

Our sponsors allow us to keep putting on quality events for our members, and their continued support is greatly appreciated.

We want to thank everyone who attended the 2023 Nebraska GREAT PLAINS Summer Field Day & ASTI Trainings, and we hope to see you again next year.

THANK YOU TO OUR 2023 FIELD DAY EXHIBITORS!

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ARBORIST SPOTLIGHT

By Jim Keepers, Maturing Certified Nebraska Arborist

Zack Zimmerman

Zack's favorite fishing place

Over the past 23 years as a Certified Nebraska Arborist, I have had the opportunity to meet and work with some outstanding individuals working in our Arboriculture career field. Once in a while, I have run into a young person who has a unique drive and willingness to become a Certified Nebraska Arborist while still attending classes at the University of Nebraska at Lincoln (UNL).

I was asked to speak at one of the Forestry classes at UNL last year, and that is where I became acquainted with this individual. From our first encounter, I knew this young man had all the qualifications to excel in the Arborist career field. He just needed a push in the right direction. So, I decided to sponsor him for a scholarship to attend the NAA's 2022 Arborist School. My conclusion was correct, and this Arborist became a Certified Nebraska Arborist in record time.

Now that you know a little background of how I became acquainted with this individual, let me spend some time telling you about young Zackary (Zack) Zimmerman.

I will start by telling you he is the son of Kent & Jill Zimmerman. Kent is a Certified Nebraska Arborist working for Norris Public Power as a Right-of-Way Supervisor, and Jill is a Branch Manager at Pinnacle Bank – Beatrice. He has one sister, Joscelyn, who is currently a student at the University of Nebraska Medical Center, studying to obtain a Doctorate in Nursing Practice on her path to becoming a Nurse Practitioner. So you can see Kent & Jill have raised two intelligent young people.

Zack doing brush clearing for UNL

Now that I have given you some basic family background let's take a more in-depth look at young Mr. Zimmerman.

Zack's family photo, Zack, Jill, Kent & Joscelyn

Zack was born in Beatrice, NE, on 8th July 2001. He attended Beatrice High School and graduated with the class of 2020. He now attends the University of Nebraska-Lincoln, majoring in "Regional and Community Forestry". He made the dean's list last term with a GPA of 3.8 and is scheduled to graduate early in December 2023. He is still deciding between the Urban Forestry or Wildlife Management side of the house. He is an outside type of person. He enjoys gardening and studying trees, but I believe his true love is hunting and fishing. He also loves to cook, travel, attend concerts, and the excitement of sporting events.

Young Zack working in the garden

Let's take a look at some of Zack's summer work experiences: In May of this year, he was a university student worker operating equipment to manage vegetation and tractors and mowers, plus assisted in prescribed burns. In 2021 & 2022, he worked for the Lower Big Blue NRD. He again managed vegetation, planted trees, and maintained recreation areas. Last but not least, he worked at the Beatrice Country Club and again worked on grounds maintenance and became a varmint control expert. He is now working for a Turkey Association out of Lincoln, Nebraska. Zack also found time to provide

community support. He volunteered for the Beatrice's Backpack Program, assisting with food distributions to elementary school students. He is a present member of the Beatrice Pheasant Forever. He works as a Youth Mentor and sets up banquets and events. At the university, he was the primary programmer for the University of Nebraska-Lincoln program director and ran the social media platforms for the club. Last but not least, he was the President of the Massengale Residence Hall at the University of Nebraska-Lincoln, where he coordinated events to enhance the resident's experience at UNL. As you can see, Zack is very active in his community.

Father and son road trip testing their knowledge of tree id

Zack attended the 2022 NE Arborist School, passed the NAA exam, and completed all the requirements, so he became a Certified NE Arborist in the fall of 2022. He also has attended the NAA's 2023 Great Plains Winter Conference and Summer Field Day. Zack has one more certified title. He is Wildland Firefighter Certified.

Mighty Zack clearing a walking trail with his bare hands

Zack is very proud to share the Nebraska Arborists Certification with his father, Kent, and often, when they travel, they have tree identification contests with each other. I wonder if Jill gets tired of her husband and son both talking about trees so much. Zack wanted to become a Certified Arborist because he witnessed the magnitude of information, training, and networking that his father obtained from other arborists and the NAA programs, and he wanted to be included at this level of education regarding tree knowledge.

To summarize this article, I want to leave you with a few of Zack's words. "In my short time of being an association member, I have benefitted from meeting new people and sharing the love and knowledge of trees. I know this knowledge and these connections will be beneficial as I graduate from college and pursue my future career."

Photos: Provided by Jill Zimmerman

EMERALD ASH BORER UPDATE

By Jennifer Morris, Nebraska Forest Service

Found in Omaha in 2016, Emerald Ash Borer (Agrilus planipennis), or EAB, continues to spread across Nebraska. This year alone, EAB has been confirmed in North Platte in Lincoln County and Indian Cave State Park in Nemaha County.

After the first discovery in Detroit, Michigan, in 2002, EAB has killed hundreds of millions of ash trees in the U.S. This devastation has changed our forest dynamics and has had a significant impact on urban and rural communities, costing millions of dollars for removal and disposal of infested wood material.

EAB is an invasive, non-native, boring insect from Asia.
The larval stage is the most destructive stage during its life cycle. The larva creates serpentine galleries in the vascular tissue. As larval numbers increase, the tree declines and then dies.

Serpentine galleries created by an EAB larva

"D" shaped exit hole from adult emergence

The adults emerge in May (around 400 GDD), creating a "D" shaped exit hole 1/8" wide. The adults like to hang out in the sunny areas of the canopy, feeding on leaf tissue. The female lays her eggs on the bark tissue. The larvae hatch (around 830 GDD) and tunnel under the bark, where they feed on vascular tissue until fall. "S" shaped galleries are created, typically filled with frass. In early infestations or colder climates, EAB can take two years to complete its lifecycle. The larvae pupate in the spring and then emerge as adults, creating the next generation.

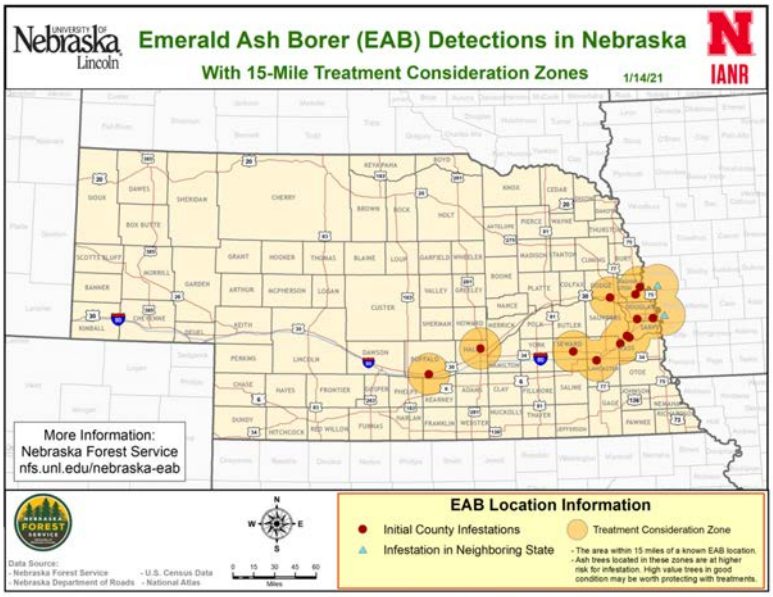
While treatment options are available for EAB, it is recommended that only highly valuable trees in good condition and good locations should receive treatment located within 15 miles of a current infestation. Viable candidates for treatment respond better and can handle the damage that treatments can cause in the long term. Trees in good condition are trees that have lush green canopies, good root flare, and very few epicormic sprouts. Compromised vascular tissue from past boring damage, with large holes and tunnels, deformities and scars, or fungal conks/decay, can hinder the systemic movement of insecticides.

A wide range of injection systems and soil applications are available on the market for EAB treatment. Trees that are less than 13-15" in diameter may be treated with soil systemics but must be treated every year.

It is best to inject an ash tree that is greater than 15" in diameter every two years by a professional, using a stronger product with an active ingredient of emamectin benzoate. The most effective time to treat for EAB is after full leaf emergence, usually mid-May through July. Treatments lose effectiveness later in the year. For more information about EAB, contact Forest Health with the Nebraska Forest Service.

Or visit our website at http://nfs.unl.edu/eab-faq#12

To learn more about EAB phenology visit:
http://www.usanpn.org/data/forcasts/EAB



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NAA CERTIFIED MEMBER ANNOUNCEMENT

As a reminder, Certified Arborists who are due to recertify at the end of 2023 will need to provide the NAA Office with:

- Proof of current CPR and First Aid Certification.
- Proof of Insurance (Public Liability with minimum limits of $500,000/$1,000,000 and Workmen's Compensation Insurance) or a signed letter stating that you will do tree work only for an insured company or government agency.
- Proof of 30 Continuing Education Units in the last three-year period (2021-2023)
- Payment of 2024 membership and certification fees and all documentation is due by December 15, 2023.
- Please contact the NAA office if you have questions about certification requirements.

NEWLY CERTIFIED ARBORISTS

Jorge Cardenas
Tzi Martinez
Joshua Seal
Scott Walker

NEW NAA MEMBERS

Tristin Campbell	Slate Mathes	Heather Sargent
RJ Deboer	Kirby Messier	Michael Schoop
Michael Dolejs	Jack Parr	Jason Selman
Carter Grant	Julian Ramirez	Tim Vrooman
Dalton Johnson	Jake Rynes	John Wynn Jr.

SUMMER LIMB DROP: A MYSTERIOUS AND DANGEROUS PHENOMENON

by Vintage Tree Care on June 7 in Tree Care (Reprinted with Permission)

Vintage Tree Care has been taking care of trees in Sonoma County for a long time. One phenomenon that we've found to be particularly dangerous due to its (seemingly) random nature is summer limb drop.

Summer limb drop (also called sudden limb drop) is the quick, unexpected loss of a limb, usually by mature trees with large limbs.

People have documented summer limb drop for a very long time. However, the true cause is still not fully understood. The cause of summer limb drop may actually lie in a few different factors (which may or may not occur in tandem).

EVAPOTRANSPIRATION

First, we have evapotranspiration (or just transpiration). This is a fancy term to describe the process of trees sweating.

On a really hot day, a large tree can draw up an enormous amount of water from its roots and trunk into its limbs. This water is intended to cool the tree as the moisture is released through the leaves. You can very easily observe this process by placing a plastic bag around a plant—condensation appears on the surface of the bag as the plant sweats.

With a very large limb on a hot enough day, a surprising amount of water can be drawn up by the tree. All of this water weighs a lot, increasing stresses on the limb and potentially breaking it outright.

This stress can be increased by other factors, including an existing defect or flaw, wind, or even infection. Any combination of these factors may be too much f or the limb to handle, causing it to drop.

LIMB DEFECTS

Preexisting limb defects are not usually what arborists associate with sudden limb drop. However, if the defect is minor enough (or even undetectable), an arborist may not recognize it as an immediate threat. *Continued on next page...*

Even minor limb defects can worsen slowly over the years, increasing in severity until eventually becoming dangerous. Something as small as a woodpecker or squirrel may have created a defect that eventually leads to the death of the limb, whether via gradual worsening of a crack or via decay.

INFECTION

A decaying limb might also be a good ingress for infection. It's been posited that an infection in the limb may be another factor that leads to summer limb drop. If the infection causes excess gases to be released in the limb, it may eventually lead to an increased internal pressure, weakening the limb's structure and, in turn, causing its failure.

DROUGHT & WEAKENED CELLULAR STRUCTURE

A generally weakened cell structure in a limb can also lead to sudden failure. During summer, the drastic increase in heat combined with the increased load of new leaves and fruit combined with the reduced evapotranspiration can cause the cellular structure of a limb to become compromised.

Reduced evapotranspiration can come as the result of a drought (like the one California is still experiencing), or just the normal summer rain decrease, cutting off the limb's normal access to water. In this weakened state, a slight breeze (or even no breeze at all) might cause the limb to drop.

On the other hand, increased evapotranspiration after a period where it was missing can have the same catastrophic effect. A rainy day after a drought may be exactly what a tree needs, but might spell the end for one of its limbs. The increased load from newly gathered water on already weakened cells may cause the limb to drop.

AVOIDING SUMMER LIMB DROP

If there's a mature tree on your property, you might want to consider the possibility of summer limb drop.

Though it can be difficult to predict, there are steps to take to both spot warning signs and reduce the chance it will happen to your tree.

The first thing to consider is that, generally, summer limb drop occurs in mature trees with large limbs. This doesn't mean it won't happen to other trees, though. The situation is most dangerous with larger trees, which can seriously injure people or damage property.

A great preemptive measure to take is to have a certified arborist inspect your tree. For many dangerous flaws, most people wouldn't even notice something wrong. An arborist can identify flaws that may be dangerous anywhere from 1-10 years into the future. You should always watch out for discoloration and visible cracking, as these can cause serious issues down the line.

Properly pruning the tree can also help. Excess foliage, a compromised limb, and a hot day might mean a big problem. Incorrect pruning (or complete lack of pruning) is also something that an arborist can quickly identify and then correct.

PIN OAK AND SILVER MAPLE CHLOROSIS TREATMENT WITH FERRIC AMMONIUM CITRATE SOLUTION

by Mark 0. Harrell, Philip A. Pierce, and David P. Mooter

Abstract. Trunk injections of a commercially available ferric ammonium citrate solution were found to be effective in correcting chlorosis of pin oak and silver maple. Two previously evaluated treatments for chlorosis of pin oak were tested again for comparison. Trunk injections of manganese sulfate, a fungicide, and an N-P-K fertilizer were also tested on silver maple, but did not improve foliage color.

Chlorosis is a common problem of trees and shrubs in many parts of the United States. The chlorosis of pin oak is usually caused by a deficiency of iron brought about by alkaline soils. Many studies have evaluated treatments for correcting chlorosis of pin oak, and most have found iron injections and implants to be very effective (1,2, 7, 8, 9, 10, 12). The chlorosis problem of silver maple seems to be less well understood, and its cause appears to vary depending on location. In Ohio, manganese implant treatments are effective in improving the chlorosis problem of silver and red maple (11), and manganese implants
are effective also in treating declining sugar maples in Michigan (4), but similar and additional manganese treatments have not been effective in correcting the chlorosis of silver maple in Nebraska (1).

The study reported here evaluated a new product containing a liquid formulation of ferric ammonium citrate for its effectiveness in correcting chlorosis of pin oak and silver maple. This product was compared on pin oak with two iron treatments already known to be effective. An additional manganese treatment, N-P-K treatment, and fungicide treatment were tested on silver maple also.

METHODS

The study involved 30 silver maples (Acer saccharinum.) and 48 pin oaks (Quercus palustris) located in Omaha, Nebraska. Silver maples ranged in size from 11.5 in. (29 cm) to 43.2 in. (110 cm) in diameter (dbh). Pin oaks ranged in diameter from 2.8 in. (7 cm) to 18.8 in. (48 cm). Most of the trees were growing in street easements. All of the trees were in an urban environment. Treatments were assigned using a randomized complete blocks design, blocking by location. Within each block, trees were selected that had approximately similar diameters.

Each pin oak showed the typical chlorotic symptoms of iron deficiency chlorosis. The silver maples showed leaf chlorosis symptoms similar to those of the pin oaks. Soil pH in the area ranged from 7.5 to 7.8 and had an average of 7.6 (n = 5). Foliage analyses of iron and other nutrients were not conducted in this study, because a previous study (1) involving trees in the same area found no correlation between foliage color and any of the nutrients N, P, K, Fe, Mn, Zn, Mg, Cu, Ca, and S. The absence of a correlation between foliage color and iron content in the foliage has been reported and discussed earlier (5, 8). The explanation for the absence is that healthy and chlorotic leaves do not differ in the amount of total iron, but do differ in the amount of iron present in a form that is usable by the plant.

Initial foliage color ratings for treatments in 1986 were made on August 23, 1985 for silver maple and August 21 and 30, 1985 for pin oak. For treatments in 1987 (only on silver maple), initial color ratings were made June 24, 1987. Treatments in 1986 were applied from April 23 to May 30. Treatments in 1987 were applied from June 24 to July 8. The application of commercial products was timed to follow manufacturer guidelines. After-treatment color ratings for treatments in 1986 were made on August 26 and 27, 1986, and August 26 and September 2, 1987.

After-treatment color ratings for treatments in 1987 were made on September 2, 1987. The color ratings were based on a 10-point scale as used in an earlier study by Harrell et al. (1) using color plates in the Munsell Book of Color (6) as color references. A rating of 10 corresponded to the darkest green observed in healthy trees. A rating of 1 corresponded to the most chlorotic and necrotic condition observed.

Continued on next page...

If a single color rating did not adequately describe the colors present in a tree, two or three color ratings were assigned, and a weighted average was calculated by multiplying each color by the proportion in which it was present in the tree. Color changes occurring after treatment were determined by substracting the initial average color rating from the after-treatment rating. Differences in color change among treatments were determined using the nonparametric Friedman's method for randomized blocks (3). The treatments and species tested were:

Iron NutriBoosters: ArborSystems, Inc., Omaha, NE. Trunk injection of a liquid formulation of ferric ammonium citrate applied at the rate of one Iron NutriBooster (0.18 g Fe) per four inches (10 cm) of trunk circumference (label rate); used on silver maple and pin oak.

Medicap FE: Creative Sales Inc., Fremont, NE. Trunk implants of ferric ammonium citrate powder applied at the rate of one Medicap FE (0.22 g Fe) per three- to four-inch (7.5- to 10-cm) spacing around the trunk (label rate); used on pin oak.

Medi-Ject: Fischbach Tree-Lawn Service, Lincoln, NE. Trunk injection of ferrous sulfate solution applied at the rate of 0.2-0.4 oz. of FeSO4 (1.2-2.4 g Fe) per inch (2.5 cm) of trunk diameter (label rate); used on pin oak.

Arbotect 20-S: Merck & Co., Inc., Rahway, NJ. Trunk injection of the fungicide thiabendazole at the rate of 2.4 fl. oz. (71 ml) of Arbotect per inch (2.5 cm) of trunk diameter (label rate) using ArborSystems' Tree I.V. MicroTip applicator; used on silver maple to determine whether the chlorosis problem was caused by a microorganism that would respond to this treatment.

Manganese sulfate injection: Manganese sulfate applied as a trunk-injected solution using a Tree I.V. applicator at the rate of 0.05 oz. (1.4 g) of MnS04 per inch (2.5 cm) of trunk diameter; used on silver maple because manganese sulfate has been reported as effective on silver maple in Ohio (11). (The rate used in Ohio was approximately 0.04 oz. (1.2 g) MnS04 per inch (2.5 cm) of trunk diameter applied as implants. The Ohio rate and method of application was not effective when used previously in Nebraska (1).)

N-P-K injection: A trunk-injected fertilizer solution containing 14% available nitrogen, 4% available phosphoric acid, and 4% soluble potash applied through a Tree I.V. applicator at the rate of 0.03 fl. oz. (0.8 ml, 0.8 g) of solution per inch (2.5 cm) of trunk diameter; used on silver maple to determine whether an N-P-K fertilizer would correct the chlorosis problem.

Control: No treatment.

Table 1. Foliage color change of pin oak following treatments in April and May, 1986.

Treatment (n = 12)	*Initial color at 8/85*	*Color change[1] at 8/86*	*8/87*
Medi-Ject (Ferrous sulfate injection)	5.4	3.4a[2]	3.3a
Iron NutriBoosters (Ferric ammonium citrate injection)	5.5	3.2a	2.6a
Medicap FE (Ferric ammonium citrate implants)	5.4	2.7a	2.3a
Control (No treatment)	5.5	-0.5b	-0.6b

[1]Color change = final color − initial color
[2]Color change values in the same column followed by different letters are significantly different from each other (P .05) using Friedman's method for randomized blocks.

RESULTS AND DISCUSSION

Pin oak. Iron NutriBoosters corrected the chlorosis of pin oak through two growing seasons in a manner equal to that of Medi-Ject and Medicap FE (Table 1). The results of the Medi-Ject and Medicap FE treatments are consistent with those reported previously (1).

Silver maple. Iron NutriBoosters improved the foliage color of silver maple in the first growing season when applied in May (Table 2) and when applied in June and July (Table 3). The color change in the second year was not statistically different from the control (Table 2). The Arbotect 20-S, manganese sulfate, and N-P-K injections did not improve foliage color in either year (Table 2). *Continued...*

Table 2. Foliage color change of silver maple following treatments in May, 1986.

Treatment (n = 4)	*Initial color at 8/85*	*Color change[1] at 8/86*	*9/87*
Iron NutriBoosters (Ferric ammonium citrate injection)	6.2	1.7a[2]	1.4a
N-P-K injection	6.2	0.8b	1.0a
Manganese sulfate injection	5.9	0.7b	0.6a
Arbotect 20-S (Thiabendazole fungicide injection)	6.2	0.5b	0.6a
Control	6.4	0.2b	-0.2a

[1]Color change = final color – initial color
[2]Color change values in the same column followed by different letters are significantly different from each other ($p < .05$) using Friedman's method for randomized blocks.

Table 3. Foliage color change of silver maple following treatments in June and July, 1987.

Treatment (n = 5)	*Initial color at 6/87*	*Color change[1] at 9/87*
Iron NutriBoosters (Ferric ammonium citrate injection)	6.3	1.1a[2]
Control	6.4	-0.2b

[1]Color change = final color – initial color
[2]Color change values followed by different letters are significantly different from each other (p .05) using Friedman's method for randomized blocks.

In the previous study (1), no treatments, including Medi-Ject, Medicap FE, Medicap MD, Medicap MN, Stemix, Stemix HV, Stemix + Zinc Stemix, Fungisol, and manganese sulfate trunk injections, and soil treatments using manganese sulfate, FeHEDTA, and aeration were effective in correcting the chlorosis condition. The results of these two studies suggest that the chlorosis of silver maple in Nebraska is caused at least in part by a deficiency of iron. Since the improvement in color of silver maple after an iron treatment was not as large as that of pin oak, other nutrients may be deficient as well, but tests have not yet identified these deficiencies.

Many products are available for treating chlorosis in trees. The evaluations in this study and the one reported previously (1) have identified Medi-Ject, Iron NutriBoosters, and Medicap FE as effective trunk injection and implant products for correcting iron chlorosis of pin oak. In our tests in Nebraska, only Iron NutriBoosters have corrected the chlorosis of silver maple to any significant degree.

ACKNOWLEDGMENTS
This study was supported by the Institute of Agriculture and Natural Resources, University of Nebraska-Lincoln, and the City of Omaha, Nebraska. Iron NutriBoosters, Tree I.V., and MicroTip are trademarks of ArborSystems, Inc., Omaha, NE. Medicap FE, Medicap MD, and Medicap MN are trademarks of Creative Sales, Inc., Fremont, NE. Medi-Ject is a trademark of Fischbach Tree-Lawn Service, Lincoln, NE. Stemix and Fungisol are trademarks of J.J. MaugetCo., Burbank, CA. Iron Sul is a trademark of Duvall Sales Corporation, Houston, TX. Arbotect is a trademark of Merck and Co., Inc., Rahway, NJ.

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CALL FOR NAA AWARD NOMINATIONS

The NAA awards committee requests nominations for the association's annual awards to be presented at the NAA business meeting during the first day of the Nebraska GREAT PLAINS Conference. All award nomination forms must be submitted to the NAA office by November 8, 2023.

The following NAA awards are open for nominations: Lifetime Achievement Award, Educator of the Year Award, and Arborist of the Year. The requirements for each award can be found on the website nearborists.org/awards-nominations.

It is not a requirement for all three of these awards to be presented every year. If you nominate an individual, the association requests your willingness to ensure the award winner and family members attend the NAA business meeting at the winter conference. The awards are a private event, so nominees are not notified of their nomination or selection. The nominating individual is notified of who has been selected for each award. Please submit a nomination form to the NAA office before the deadline if you feel someone is qualified for one of these awards.

Nomination forms should be mailed to NAA, 521 First Street, PO Box 10, Milford, NE 68405, or emailed to staff@nearborists.org by November 8, 2023.

ANOTHER CASE OF MORTALITY FROM PLANTING TREES TOO DEEP

By: Kyle Daniel, Commercial Landscape and Nursery Crops Extension Specialist, Purdue University

Stop me if you've heard this one…. A tree is in a slow decline year after year. You are called to your client's property only to find the root flare well below grade.

Most professionals in the Green Industry have encountered this at some point in their career. The most common reason for the slow decline of trees in the landscape is due to the depth of planting and girdling roots. Deep planting can cause a number of deleterious problems, including an increase in circling/girdling roots restricting vascular tissue and decay of protective bark (Fig. 1). The vascular tissue in the bark is located on the outer portions of the trunk, while the anatomy of roots contains the vascular tissue in the center. This is why roots can graft with roots and stems can graft with stems, but also why roots can girdle the stems of trees (Fig. 2)

Figure 1. A tree that's planted too deep can have bark decay from too much soil moisture around the trunk.

Figure 2. Root girdling can occur on trees that didn't have a root correction during transplanting and/or being planted too deep. Restriction of vascular tissue in the trunk will decrease the amount of water and nutrients taken up by the tree.

Excessive mounding of mulch (aka volcano mulch) (Fig. 3) can contribute to tree decline, very similar to a tree planted too deep. It's important to remember that keeping mulch several inches away from the trunk is imperative in tree health.

Figure 3. Volcano mulch can cause the same problems that a tree planted too deep can experience.

If a newly transplanted tree is planted significantly too deep, a faster decline can occur, especially in plants that can't tolerate 'wet feet' (aka too much soil moisture) (Fig.4). In heavy-clay soils, the negative effects on tree health increase by creating a bath-tub situation by water not draining expeditiously after a rainfall or irrigation event.

The root flare should be visible when transplanting trees into the landscape (Fig. 5). If no root flare is present, which is often on many conifers and smaller deciduous trees, the top most root should be considered at grade, or top of the root ball.

Always make sure to plant at grade, though there are a few minor exceptions, and never plant below grade (Fig. 6). Planting correctly is vitally important to the long-term viability of trees.

Figure 4. Decline of this juniper is caused by this tree being planted too deep.

Figure 5. The root flare on trees in natural areas is very visible. This gives a lesson on proper planting into the landscape.

Figure 6. This tree was planted significantly too deep and has led to decline and death.

Resources:
Using Pneumatic Digging Equipment to Correct Root Deformations, Deep Planting, and Compaction on Established Trees
Stem Girdling Roots

LIKE FATHER LIKE SON

By: Jim Keepers, Maturing Certified Nebraska Arborist

The Nebraska Arborists Association (NAA) was formed in 1977, but your association's "Certified Arborists Program" was not established until 1989. One of the things that makes our association unique is the individuals who become Certified Nebraska Arborists.

One unique fact is that there are four different sets of father-and-son Certified Arborists. The oldest team is John Housley Sr. and son Randy Housley, Housley Lawn & Nursery. Next comes Mark Bogus and son Brandon Bogus, A-Plus Tree Service, followed by Kevin Popken and son Samuel (Sam) Popken, Lawngevity Lawn & Tree & High School Student. Last but not least, Kent Zimmerman and his son Zack Zimmerman, Norris Public Power District, and UNL Student. Sam and Zack both recently became Certified Nebraska Arborists.

John Housley Sr. also has a grandson who is a Certified Nebraska Arborist, in keeping with the family tradition. The association also has some spouses who are both Certified Arborists.

John and Randy Housley

Kevin and Sam Popken

Mark and Brandon Bogus

Kent and Zack Zimmerman

The 29 Charter members who formed the Nebraska Arborists Association in 1977 never imagined that their newly formed association would grow and have such a diverse group of members. That is what I believe keeps our association so strong and growing. *Photos by: Jim Keepers & Mrs. Popken*

CALL FOR NAA BOARD NOMINATIONS

Nominations are due to the NAA office by November 8, 2023.

The positions of President-Elect, Secretary and Director are open for nomination. Term: 2023-2025 **In order to be eligible to serve as President-elect, the nominee for that position must have served on the Board of Directors in any capacity.**

Please visit the NAA website at www.nearborists.org/awards-nominations to obtain a nomination form and read a general description of NAA board member roles and responsibilities. Nomination forms should be mailed to NAA, 521 First Street, PO Box 10, Milford, NE 68405, or emailed to staff@nearborists.org. You may nominate yourself if you would like to run for one of these positions.

NEBRASKA STATEWIDE ARBORETUM INTRODUCES NEW MEMORIAL AND TRIBUTE PLANTING PROGRAM

LINCOLN, Neb. (August 30, 2023) -- The Nebraska Statewide Arboretum (NSA) recently introduced a memorial and tribute planting program for those who wish to honor or memorialize a loved one with a lasting legacy by planting a tree or garden in their name. From a tree seedling to a street tree to a pollinator or a school garden, NSA offers a variety of different planting options to consider. All of the trees and gardens installed using these honorary funds will be planted in a Nebraska city, town or neighborhood in need of greening. Visit plantnebraska.org/memorial-plantings or call 402-472-2971 for more information.

USDA RELEASES FIVE-YEAR STRATEGY TO COMBAT SPOTTED LANTERNFLY

USDA Animal & Plant Health Inspection Service Notice, Cecilia Sequeira & Suzanne Bond
Photos Provided by USDA

Spotted Lanternfly Egg Mass

WASHINGTON, June 26, 2023 — The U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) Spotted Lanternfly Strategic Planning Working Group has released the Spotted Lanternfly (SLF) Five-Year Strategy for fiscal years 2024-2028. APHIS brought together the working group in August 2022 with representatives from APHIS, the National Association of State Departments of Agriculture (NASDA) and the National Plant Board (NPB). The working group developed a unified approach to reduce the spotted lanternfly's spread and impacts through the effective use of available State and Federal resources.

"Spotted Lanternfly is an invasive pest that feeds on crops and natural resources. Over the next five years, Federal and State partners will work to limit the spotted lanternfly's advancement as we further scientific research that will help us develop better pest management tools and options," said USDA Marketing and Regulatory Programs Under Secretary Jenny Lester Moffitt. The five-year strategy prioritizes the following goals:

Spotted Lanternfly in Nymph Stage

- Effectively limit the advancement of spotted lanternfly and efficiently respond to its introduction within Federal and State authority and resource availability.
- Support continued scientific research towards practical management and risk mitigation.
- Establish a consistent national and State-level outreach message and educational campaign for the public and industries at risk for spreading spotted lanternfly.

SLF has spread to 13 additional states since it was first detected in Pennsylvania in 2014. Spotted lanternflies prefer to feed on the invasive tree of heaven, but they also feed on a wide range of crops and plants, including grapes, apples, hops, walnuts and hardwood trees. As resources available are limited, developing a strategy in coordination with the States to address this invasive pest is critical.

To reduce the spread, APHIS and states will create a framework to prevent human-assisted movement, promote public reporting and early detection, and continuously leverage the latest research and management tools available. The new strategy builds the capacity to combat SLF in areas at high risk of introduction and stresses that SLF management plans be based on the latest risk-assessment modeling data which helps predict where SLF populations may emerge. Federal and State partners will also unite their research resources and share knowledge about SLF to limit its movement and distribution. While leveraging best practices in the field, State and Federal partners will prioritize more research on climate and host-plant suitability, biocontrol agents, as well as other effective management tools.

In addition to representatives from APHIS, the Spotted Lanternfly Strategic Planning Working Group also included NASDA and NPB State representatives from California, Connecticut, Illinois, Indiana, New York, Oklahoma, Pennsylvania, South Carolina, Washington, and Virginia.

Steven Long, President of the National Plant Board and co-chair of the SLF working group said, "The National Plant Board believes that this renewed and refocused approach to managing spotted lanternfly will buy us the time needed to solve this plant pest riddle."

Commissioner Bryan Hurlburt, Chair of the NASDA Plant Agriculture and Pesticide Regulation Committee and co-chair of the SLF working group shares, "On behalf of the National Association of State Departments of Agriculture, we are appreciative of our engagement with USDA and the National Plant Board to develop this comprehensive strategic plan. By sharing our unique experiences, we are able to continue our unified effort to combat the spread of spotted lanternfly with best-available tools and research."

Continued on next page...

Adult Spotted Lanternfly

Adult Spotted Lanternfly

To learn more, visit www.usda.gov.

In May (2023), APHIS hosted a Tribal Listening Session on the Spotted Lanternfly Five-Year Strategy to provide Tribes insight on the plan and give them an opportunity to provide feedback. The webinar was well received with a few questions about funding, how to respond to the spotted lanternfly on sacred sites, and outreach support for Tribes. APHIS will continue to engage Tribes and solicit feedback on the spotted lanternfly management and outreach strategy.

USDA touches the lives of all Americans each day in so many positive ways. In the Biden-Harris Administration, USDA is transforming America's food system with a greater focus on more resilient local and regional food production, fairer markets for all producers, ensuring access to safe, healthy and nutritious food in all communities, building new markets and streams of income for farmers and producers using climate smart food and forestry practices, making historic investments in infrastructure and clean energy capabilities in rural America, and committing to equity across the Department by removing systemic barriers and building a workforce more representative of America.

For More Information on the 5-Year Strategy Visit: https://www.aphis.usda.gov/publications/plant_health/slf-strategy.pdf Editors Notes: This is a follow-up to the article that was published in Out On A Limb - FALL 2022, VOLUME 42, ISSUE 3, PG 17 "Kill on Sight: Why you're being asked to stomp out the spotted lanternfly"

SPOTTED LANTERNFLY – WHAT TO LOOK FOR

Spotted Lanternfly (Lycorma delicatula) is an aggressive invasive species that is present in several states. It is currently found in Pennsylvania, Virginia, Delaware, Maryland, New York, West Virginia, Ohio, Connecticut, Indiana, and New Jersey, with sightings in several other nearby states. Although this pest is not currently present in Nebraska, it is important to be vigilant for it. - *Nebraska Forest Service*

NAA SILENT AUCTION DONATIONS

Proceeds from our annual silent auction go to the NAA Education Fund. This fund provides NAA Arborist School scholarships to individuals who want to become a Certified Nebraska Arborist but otherwise would not be able to attend our training and educational classes because of funding constraints. 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, mail the form to the office or contact us at 402-761-2219. Thank you for being part of this important cause.

SCAN ME

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