

Branching Out

Volume I, Issue I September, 2007

What's In Your Water?

A basic understanding of water quality and its effect on field- and container-grown plants is essential to ensure high crop quality and avoid unnecessary slow downs in production cycles and their increased expense.

A water quality test should be done at least once each year during peak irrigation season. Ideally, an early season test should be done also. One pint of water collected from the irrigation nozzle that has been running for several minutes is a sufficient quantity. A water quality report should include the following tests results: pH, Alkalinity or (Bi)carbonate, Hardness, Electrical Conductivity, Sodium (Na), Phosphorus (P), Calcium (Ca), Magnesium (Mg), and Iron (Fe). If specific water quality issues are suspected, additional tests can be conducted at a nominal cost.

The **pH** of a water sample is less critical than the pH of the substrate or soil. One common misconception is that irrigation water with high pH will elevate the pH of the substrate. That is not necessarily true. Water with an elevated pH can grow high quality plants, as long as high bicarbonates are not the cause of the high pH. Municipal water sources routinely have very high pH (8.0 – 9.0) with a low alkalinity. These water sources are often very acceptable for producing plants. While a high water pH can reduce the efficacy of pesticides, they do not typically raise the substrate pH of a short term container crop. However, irrigation water with a high pH should be checked for bicarbonate concentration.


Elevated **Alkalinity** is a common water quality issues in Kansas, especially when well water is the water source. High alkalinity is an indication of high concentrations of **Bicarbonates** and/or **Carbonates** in the water, and it will cause the pH of the container substrate or soil to increase over time. Think of Alkalinity as “liquid rock”: every time you irrigate with high-alkalinity water, you are applying a dose of limestone to your crop. Laboratories differ in how they express alkalinity so the grower should become familiar with the units of the particular lab conducting the tests. If the concentration of bicarbonates in the irrigation water is above recommended ranges, acid injection may be required to bring the alkalinity to an appropriate concentration.

Hardness of irrigation water is a measure of the Ca and Mg concentrations. It can be used as a general indicator of Alkalinity because Ca and Mg are often the cations that combine with bicarbonate to form the compounds that can increase pH. 'Hard' water should be checked for bicarbonate concentration.

Electrical Conductivity (EC) and **Total Dissolved Salts (TDS)** are two measures of the amount of salts (any anions and cations, including fertilizers) dissolved in the irrigation water. High concentrations of salts can affect the ability of plant roots to absorb water. Seedlings and plugs are particularly sensitive to high salt concentrations, whereas woody nursery crops are generally more tolerant. Different salt meters measure in different units. However, an accepted conversion is 1 mmho/cm (or 1 mS/cm) EC = 640 ppm TDS. If irrigation water has high salt levels it is particularly important to sufficiently irrigate your containers. Insufficient irrigation only adds salts to the container without properly leaching the salts through the container. Nurseries with elevated salt in their irrigation water should routinely monitor the soluble salt level in the container using the pour-through method.

Calcium (Ca) and **Magnesium (Mg)** are the primary macronutrients of concern. Not only can they contribute to hardness, but because the presence of one antagonizes the uptake of the other, if the ratio of Ca : Mg is not within a favorable range, Ca or Mg deficiency can result. Look for a Ca : Mg ratio of 3:1 to 5:1. However, there is a wide margin of error around these ratios. . If concentrations are high, yet the ratio of Ca to Mg is acceptable, then simply reduce the Ca and Mg

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OPPORTUNITY IS NOWHERE

How many of you read it as “Opportunity is no where”? You should read it: “Opportunity is now here.” This is where Greensburg, Kansas is at today. After a May 4, F-5 tornado devastated 95 percent of the community, many people believe this is an opportunity to build a “Greener Greensburg.”

What does it mean to build green?

- using building methods to be fuel efficient
- building with recycled materials
- using alternative energy sources: wind, solar, and geothermal
- installing storm water systems for recovery and use
- working trees into the landscape to keep structures cooler
- setting aside green space
- using pervious surfaces and have a plan that cuts unnecessary impervious surfaces
- placing utilities underground

Community trees:

- provide cooling through shade and wind reduction
- mitigate CO₂ and produce O₂,
- combat noise, dust, and pollutants
- increase property values
- reduce storm water runoff and erosion
- create wildlife habitat
- improve the quality of life

Before the tornado, Greensburg had about a 25 percent tree canopy cover. The national average is 20 to 25 percent canopy. They had no tree inventory information, but I am estimating that they had a public tree canopy of approximately 3,000 trees and at least another 3,000 private trees. With a 95 percent loss, they have approximately 5,700 trees to replace, which would eventually provide them a 25 percent canopy cover.

Most of the trees in the core area were a total loss. FEMA paid for 629 tree removals that were between the sidewalk and the street, or if there was no sidewalk, trees that were within 5 feet of the street. Greensburg removed an additional 1,000 to 1,500 trees within their easements.

There are four phases to the replanting efforts:

Phase 1: Salvage: Evaluate what trees are to remain and properly prune those remaining trees. Unfortunately not many trees will remain in the core area.

Phase 2: Planning: The planting areas include the downtown area, the parks and schools, Highway 54, and the street trees in the neighborhoods. The plan will consider that these planting areas will integrate ‘green infrastructure’ principles.

Phase 3: Planting: Planting trees with the thought of not inundating the community with labor and maintenance that they cannot provide. There could be many phases of, and years of planting, ahead.

Phase 4: Maintenance: It is not just about replanting large numbers of trees, but seeing them through the establishment period. With a USDA Forest Service grant, we intend to place a K-State intern in Greensburg for the next three summers to care for the plantings.

I have further divided the replanting efforts for public trees into 5 major project areas:

-Downtown

-Parks and Schools (will involve youth groups as volunteer planters)

-HWY 54 (will work with KDOT on an Enhancement Grant)

-TCUSA Boulevard (have asked each KS TCUSA to donate a tree each)

-Street Trees within the neighborhoods (will organize the residents to assist in maintenance of the trees)

Greensburg has the chance to implement a master plan that involves a thorough mix of green and grey infrastructure principles. They will need to rebuild downtown, the schools, the neighborhoods, the streets and sidewalks, the utilities, and the parks.

The Kansas Forest Service will be involved with the replanting efforts from planning and education to implementation and maintenance. We will provide educational programming and technical assistance to the city and homeowners as they plan and replant the canopy.

We may be able to start with the parks, as they will be cleared first. I look for the street trees in the neighborhoods to be the last to be planted as homes are rebuilt. We may be able to start this fall, but we are not going to start until there is a master plan to follow.

This may require some patience as they work through the planning phase. My wish is that we not just get trees replanted in

OPPORTUNITY IS NOWHERE...continued

Greensburg but get them through the establishment period.

One idea is to solicit each of the 115 Kansas TCUSA's to donate a tree to be planted in Greensburg. Some have already donated and some are waiting for their 2008 budget year. Many TCUSA communities have already volunteered planting labor. My thoughts are to pick a major street and plant it as a Kansas TCUSA Boulevard. The cities of Hutchinson and Marysville have each collected \$1,000 for this project.

I recently visited Franklin, Kansas to view their progress after the town was leveled by a tornado 4 years ago. I spoke with a resident who said they now have birds back and how wonderful that was to hear that again. The city of Udall had a similar experience after their tornado. They said that there were no birds ... and that is why Udall would like to donate trees through their Historical Society. I received a phone call from the North Carolina HOPE program that plants hardwood trees there. They would like to donate 200 trees to Greensburg. These are just a few examples, of the nationwide support.

A 'Greensburg Tree Initiative Fund' has been started for the replanting of trees. The fund is set up through Sunflower RC&D and is a 501 C-3 for all donations to be tax deductible. Anyone wishing to donate may write a check to Sunflower RC&D in care of, Greensburg Tree Initiative, 705 East Main, Harper, KS 67058.

We have many communities and groups that would like to donate seedlings and I am trying to cater to these requests as we can fit them into the master plan. However, what we really need most is cash donations to buy landscape-sized material to give immediate impact to the rebuilding of their tree canopy.

Please do not misinterpret this, as we need capital to be able to come into Greensburg with landscape-sized material to increase our efforts for this to become a sustainable urban forest again. We need to be able to purchase uniform-sized material and of a desirable species for Greensburg. This fund is set aside strictly for the tree replanting projects for public trees for Greensburg.

Our partners include: USDA Forest Service, Kansas Forest Service, Sunflower RC&D, Kiowa County Extension, K-State Research and Extension, KDOT, KNLA, KAA, KAABG, National Arbor Day Foundation, various Kansas TCUSA communities, and other Kansas communities.

Volunteers include: Westar's Green Team, 4-H Clubs, Master Gardeners, TCUSA Communities, other Kansas Communities, and church and youth groups.

I have had two KNLA members step forward with donations of trees for Greensburg. Hillside Nursery, Wichita has donated 30-50 trees and Sha-Na-Kee Farms, Hesston has donated 50 trees.

I will continue to seek grants funds to get Greensburg green again. If you would like to be involved in the replanting efforts in Greensburg, please let me know. I will be working closely with Carmen Stauth, the Kiowa County Agricultural agent and Roger Masenthin the Sunflower RC&D Director. We have a 'treemendous' opportunity to make Greensburg — greener.

Tim McDonnell, Ex-Officio
KNLA

Congratulations on becoming Certified!

- * Bobby Fields of Hermes Landscaping
- * Brandon Powell of Johnson's Garden Center
- * Brian Strole of Hong's Landscaping

These three nurserymen passed the KNLA Certified Nurseryman's Exam held in July at the John C. Pair Horticulture Center.

What's In Your Water?

in the fertility program (for example, add less pre-plant dolomitic lime). When problems occur it is typically because Mg is lacking in comparison to Ca. Magnesium sulfate (Epsom Salts) can be used as a remedy.

Iron (Fe) can be deficient in plant tissue due to elevated soil pH. However, high Fe concentration in irrigation water is not the solution. Fe concentration above 4 ppm can clog irrigation emitters and can cause staining of the plant tissue. Injecting a chelating agent can reduce the concentration of Fe in the irrigation water.

The following table list recommended ranges for various constituents of a water quality test. Remember these are recommended ranges and the plant tolerance may vary depending on your particular production practices.

Test Factor	Upper Limit for Nursery Crops
pH	5.4 to 7.0
Alkalinity (bicarbonate + carbonate) if expressed as CaCO ₃	2 meq/L 200 ppm
Bicarbonate (HCO ₃ ⁻)	122 ppm (2 meq/L)
Hardness (Ca + Mg)	150 ppm CaCO ₃
Electrical Conductivity	2.0 mmho/cm (2 mS/cm)
Total Dissolved Salts (TDS)	1,280 ppm
Sodium Absorption Ratio (SAR)	10
Sodium (Na)	69 ppm
Chloride (Cl ⁻)	71 ppm
Phosphorus (P)	1 ppm
Potassium (K)	10 ppm
Calcium (Ca)	0 to 120 ppm
Magnesium (Mg)	0 to 24 ppm
Sulfur (S)	20 to 30 ppm
Aluminum (Al)	0 to 5 ppm
Boron (B)	0.5 ppm
Copper (Cu)	0.2 ppm
Iron (Fe)	0.2 to 4.0 ppm
Manganese (Mn)	1.0 ppm
Zinc (Zn)	0.3 ppm
Adapted from 'Water Consideration for Container Production of Plants'; NCSU Horticulture Information Leaflet 557 (http://www.ces.ncsu.edu/depts/hort/hil/pdf/hil-557.pdf)	

Dr. Jason Griffin
John C. Pair Horticulture Center
Kansas State University



Kansas Nursery and Landscape Association

Founded in 1923, KNLA has maintained a commitment to education, cooperation and professionalism.

Dues Schedule

Certified Employee or Student \$ 20

Allied/Associate \$ 55

Active Members

Under \$300,000 \$ 75

\$300,001 to \$1,000,000 \$100

\$1,000,001 to \$3,000,000 \$125

\$3,000,001 to \$6,000,000 \$225

\$6,000,001 to \$10,000,000 \$525

Membership in KNLA Gives You...

- ▶ A voice in the Kansas Legislature through our lobbying efforts.
- ▶ Representation in Congress through sponsorship of the American Nursery and Landscape Association.
- ▶ Access to ongoing Research at Kansas State University and the Horticultural Research Institute.
- ▶ The opportunity to become recognized as a Kansas Certified Nurseryman.
- ▶ KNLA newsletter.
- ▶ Access to resources such as the Kansas Effective Landscape Guides and Horticulture reference books.

Membership Classification

Active Members

A business, located in Kansas, that (a) is actively engaged in the wholesale or retail nursery business which derives a majority of its revenues from the sale of horticultural products and materials related thereto or (b) has a separate division or department actively engaged in the wholesale or retail nursery business which division or department derives a majority of its revenues from the sale of horticultural products and materials related thereto.

Associate Members

Nurseries whose place of business is not in Kansas and persons or entities engaged in allied trades, such as horticultural printers, publishers of trade papers, dealers in nursery supplies, manufacturers of agricultural implements and landscape architects, employees of private and/or governmental institutions whose duties are of a horticultural nature, students and employees of Active Members may become Associate Members of the Association.

The term "nursery business", as used in this Article, refers to the production, distribution, or planting of or landscaping with plant materials, including but not limited to, trees, shrubs, vines, and other plants having a persistent woody stem or stems, and all herbaceous annuals, biennials, or perennials, generally used for outdoor or indoor plant. Members shall designate one of its employees to represent the company.

Membership Application

Company Name _____

Address _____

City/State/Zip _____

Phone _____ Fax _____

Email: _____

Web: _____

Name of Person (s) Representing Your Company

Name _____

Title _____

Name _____

Title _____

1. How long in business? _____

2. Type of business (circle all that apply)

(RE) Wholesale	Lawn Care	Grower
Garden Center	Irrigation	Contractor
Landscape	Design	Build

3. Number of employees (full-time equivalent)

1 - 10 11 - 50 51 - 150 150+

4. Interest in committee involvement

None Some Much

5. Other Memberships _____

KNLA Member Sponsoring This Application (name) _____

Billing:

Certified/Student _____ Allied Associate _____ Active Members _____ **TOTAL AMOUNT ENCLOSED** _____

Check Enclosed _____ Visa/Master Card Number: _____ Expiration Date: _____

**Send Completed Application (incomplete application will be returned) and payment to:
KNLA - 1604 Beechwood Terrace - Manhattan KS 66502 - 785-313-3973 - kansasnla@sbcglobal.net
Please note the change of address.**

If you are a retailer please complete this form as we must have an updated copy in our file. Thank you!

KANSAS DEPARTMENT OF REVENUE RESALE EXEMPTION CERTIFICATE

The undersigned purchaser certifies that the tangible personal property or service purchased from:

Seller: Kansas Nursery and Landscape Association
Address: 1604 Beechwood Terrace Manhattan KS 66501
Street, RR, or P.O. Box City State Zip+4

will be **resold** by me in the form of tangible personal property or repair service. I hereby certify that I hold a valid Kansas sales tax registration number _____, and I am in the business of selling _____

(Description of product (s) sold; food, clothing, furniture, etc.)

Description of tangible personal property or services purchased: _____

I understand and agree that if the items purchased with this certificate are used for any purpose other than retention, demonstration, or display while being held for sale in the regular course of business, I am required to report and pay the sales tax, based upon the purchase price of the items.

Purchaser: _____
Name of Kansas Retailer

Address: _____
Street, RR, or PO Box City State Zip+4

Signature: _____ Date: _____

THIS CERTIFICATE MUST BE COMPLETED IN ITS ENTIRETY

WHO MAY USE THIS CERTIFICATE? Only those businesses, groups and organizations that are registered to collect Kansas sales tax and provide their Kansas sales tax number on this form may use this certificate to purchase inventory without tax. The seller may require a copy of the buyer's Kansas sales tax registration certificate as a condition for honoring this certificate. See also *Resale Exemption Certificate Requirements* in Publication KS-1520, *Kansas Exemption Certificates*.

Nonprofit groups or organizations exempt by law from collecting tax on their retail sales of tangible personal property (such as a PTA or a nonprofit youth development organization) should use the exemption certificate issued to it by the Department of Revenue when buying items for resale.

Wholesalers and buyers from other states not registered in Kansas should use the Multi-Jurisdiction Exemption Certificate, Form ST-28 M, to purchase their inventory. **HOWEVER**, if the inventory item purchased by an out-of-state buyer is drop shipped to a Kansas location, the out-of-state buyer must provide a Kansas sales tax number, either on this certificate or the Multi-Jurisdiction Exemption Certificate, for the sale to be exempt.

Contractors, subcontractors, or repairmen may not use this certificate to purchase their materials, parts or tools. Retailer/ Contractors should use a Retailer/Contractor Exemption Certificate, Form ST-28W, to purchase their resale inventory.

WHAT PURCHASES ARE EXEMPT? Only goods or merchandise intended for resale (inventory) are exempt. Tools, equipment, fixtures, supplies, and other items purchased for business or personal use are **TAXABLE** since the buyer is the final consumer of the property.

The items purchase with this certificate must correspond to the type of business buying them. For example, a retail clothing store may only reasonably purchase items of wearing apparel and accessories with this certificate. All other kinds of items are not usually sold by a clothing store to their customers and, therefore, cannot be purchased with this certificate.

LABOR SERVICES. This certificate applies ONLY to items of tangible personal property. A contractor may not use an exemption certificate to purchase the labor services of another contractor or subcontractor. Taxable labor services performed by a contractor can **ONLY** be purchased without tax with a Project Exemption Certificate issued by the department or its authorized agent.

Communication . . .

We Need Your Email Address!

In an effort to be more efficient and serve you better, we will be sending future newsletters electronically. To continue receiving the latest edition please send your email addresses to:

kansasnla@sbcglobal.net

We understand your concerns regarding privacy and spam mail and have no intention to share this listing with others.

We're on the web
www.kansasnla.org

PLACE YOUR AD HERE!

1/4 Page = \$50

1/2 Page = \$100

Job Postings = Free - for KNLA Members Only!

Contact: Patricia at kansasnla@sbcglobal.net

Kansas Nursery & Landscape
Association

1604 Beechwood Ter
Manhattan, KS 66502



Have You Paid Your 2007 KNLA Membership Dues?

If you have not, enclosed is a copy of the membership form for your convenience. Dues are important for any organization as they are the basis for providing working capital. A timely payment is appreciated! If you have questions about your membership status, please contact Patricia at 785-313-3973. Thank you!

Upcoming Events

- October 23** **KNLA Fall Field Day, John C Pair Horticulture Center, Haysville KS.**
PLEASE SEE THE BROCHURE IN THIS NEWSLETTER FOR MORE INFORMATION
- January 6-8** **WNLA, The WESTERN, Overland Park, KS.**
For more information please see their website at: www.wnla.org
- January 6** **KNLA Certified Nurseryman's Exam** at the WESTERN, Overland Park, KS,
8 am—12 Noon. Contact Patricia at 785-313-3973 to register.