

# Limbs & Needles

FALL/WINTER 2017

*Serving the Christmas Tree Industry in the South*



***INSIDE:***

***Elongate Hemlock Scale Incidence, Control & Effects on Markets***

***Forced Air Cooling: A New Spin on Postharvest Care***

***Evaluating Herbicide Injury in Container Grown Fraser Fir Seedlings***

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*The mission of the North Carolina Christmas Tree Association is to promote "real" Christmas trees through marketing and education. We will contribute to the success of the Christmas Tree Industry by providing ethical, professional, and visionary leadership.*

## Limbs & Needles

**Keeping Christmas Real  
Since 1959**

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# President's Message

Dale Cornett



I hope that each of you had a safe and healthy summer. With the help of early season rains, we have had another great growing season. In all the fields I have had a chance to visit, I have found that the Frasers have exceptional side growth and excellent color. This should translate into satisfied customers and consumers for the 2017 season.

The North Carolina Christmas Tree Association's (NCCTA) semi-annual summer meeting, trade show and farm tour was held August 25 & 26 at Shatley Farms in Jefferson, NC. It was hosted by the Ashe County Christmas Tree Association. Attendees enjoyed educational and technical speakers, over 40 vendors, door prizes provided by vendors, a pig pickin' hosted and sponsored by Dick & Linda Workman, and a tour of farms in Ashe County that included Barr Evergreens, the NCDA&CS Upper Mountain Research Station, and Frosty's Choose & Cut.

Educational topics ranged from an overview of phytosanitary certificates to the struggle of internet marketing. Attendees learned about current NCCTA funded research being conducted by North Carolina State University's Extension agents. They also previewed marketing pieces for upcoming ad campaigns from the Christmas Tree Promotion Board, learned how to use those materials to benefit their own businesses, and, were able to have group discussions regarding impactful issues happening within the industry.

I believe that the NCCTA is greatly responsible for the growth and advancement of Fraser Fir as the preferred species of Christmas tree. The promotional efforts funded by your financial support through membership

dues, Fraser fir assessment, advertising in the Buy-Sell Guide and Choose & Cut Memories booklet, participation in semi-annual meetings, and all other various contributions have made this possible. NCCTA continues to look for ways to expand Fraser fir promotion. We are currently working to find ways to tie your Buy-Sell ad directly and proportionally to the NCCTA website. I believe that the continued efforts of the NCCTA will solidify a higher demand for North Carolina Fraser fir in the future, and along with programs implemented by the Christmas Tree Promotion Board to increase the demand for REAL Christmas trees, this will be a win-win situation. I encourage you to continue your support of NCCTA by renewing membership, paying Fraser fir assessment, and purchasing advertising in NCCTA publications like the Buy-Sell Guide and the Choose & Cut Memories booklet.

I believe that with continued promotion of North Carolina Fraser fir by the NCCTA, foresight from our industry leaders, additional insight from the Christmas Tree Promotion Board, and advocacy from the National Christmas Tree Association, we do not have to repeat the extreme fluctuation in supply and demand that we have experienced for the past eight years. With all of these programs in place, I believe we are positioned better than we have ever been before to balance supply and demand.

Thanks to all for allowing me the opportunity to serve. It has been an enjoyable and enlightening year and I look forward to year two of serving as President.

Wishing you all a safe and blessed harvest. 🌲



**See the Latest News: [NCCTA.blogspot.com](http://NCCTA.blogspot.com)**

*See highlights from the 2017 Summer Meeting on page 38.*

**WWW.NCCHRISTMAS TREES.COM**

# Why Should I Become a Member of the North Carolina Christmas Tree Association?



**To promote** the traditions and memories of celebrating Christmas with a Real Tree.



**To protect** and grow your business. NCCTA works to stop legislation and regulations that are negative to you and others growing, wholesaling and retailing Real Christmas Trees and to support beneficial legislation and regulations.



**To be part** of a community of Christmas Tree professionals and share the knowledge and experiences of thousands who share your concerns, questions and needs.



## Special Benefits for NCCTA Members

- **PayAnywhere:** Credit card processing that helps support NCCTA with every swipe.
- **First Pioneer Insurance Agency:** Offers a special worker's compensation insurance program.
- **LifeStore Insurance:** Insurance discounts offered to members for property and liability coverage, workers compensation and health plan options.
- **Auto Owners:** NCCTA Members which will save 10% on all Commercial Lines of insurance (ie: Commercial Auto, General Liability, Inland Marine Equipment Coverage and Farm Property).
- **First Benefits:** NCCTA members are eligible for workers' compensation coverage with no other membership requirements. (LifeStore Insurance and First Pioneer Insurance represent First Benefits Insurance at their respective agencies in the High Country).

## Membership Benefits

- ✓ Listing with link to your own website on [www.NCchristmastrees.com](http://www.NCchristmastrees.com) where over 92,000 visitors search for Christmas trees annually.
- ✓ Annual listing in the Buy-Sell Guide that promotes REAL trees to thousands of buyers
- ✓ Annual listing in the Choose and Cut Directory that promotes REAL trees to thousands of consumers
- ✓ You will receive an annual subscription (two issues) of Limbs & Needles Magazine; keeping you up-to-date on association news, technical information, Christmas tree research information, and industry updates and marketing & management tips.
- ✓ Updated tree inventory listing available on website after September 1
- ✓ Retail lot listing on website with Google location services
- ✓ Access to NCCTA's Online Member Center, with resources such as classifieds, wholesale buyer mailing list, choose & cut promotional mailing list, and digital archived copies of Limbs & Needles
- ✓ Attention to relevant legislative issues on State and National Level
- ✓ NCCTA funded research projects through NCSU & NCDA&CS are beneficial for success and growth.
- ✓ Local, regional, state, and national advertising
- ✓ Expanded promotional opportunities and organizational planning through Specialty Crop Block Grants obtained by the NCCTA
- ✓ Access to free retailer promotional materials provided through grant funding
- ✓ Representation at Industry Trade Shows and Consumer Shows where the Buy-Sell and Choose & Cut Memories publications are distributed.
- ✓ Use of the NCCTA logo and the NCCTA trademark design "North Carolina Fraser Fir, The Perfect Christmas Tree"
- ✓ Representation with educational and governmental organizations
- ✓ Access to experts in the field – speakers, other members, sponsors
- ✓ Provides great opportunities to meet and network with industry peers
- ✓ Reduced registration rates for annual Winter and Summer meetings where industry leaders share information and insights, and growers interact and share their individual experience.
- ✓ NCTA T.I.P. benefits
- ✓ You will be a part of North Carolina's voice for the Christmas tree industry. Whether that means presenting a Christmas tree to the Governor, meeting with legislators regarding concerns for our industry, or participating in promotional opportunities in the media, NCCTA members have visibility and a voice.



# Executive Director's Report

Jennifer Greene



*“A brand is no longer what we tell the consumer it is — it is what consumers tell each other it is.” ~ Scott Cook*

As NCCTA continues to promote North Carolina Fraser Fir, our current focus is targeting millennials. With Specialty Crop Block Grant funding, NCCTA seeks to establish creative partnerships to expand its social media campaign, targeting parents of young families in order to influence more of them to buy North Carolina Fraser Fir.

NCCTA is currently seeking a social media intern through Appalachian State University's BB&T Student Leadership Center, Business Career Services program, to assist with generating creative and technical content to enhance our social media campaign and website content. Our target is millennials.

The NCCTA also plans to further develop NCchristmastrees.com to include material for specific audiences.

As you prepare for harvest season, know that the NCCTA has promotional materials available to you at

NO COST. The materials are provided with Specialty Crop Block Grant funds and are available on a first-come, first-served basis. There are no limits as to how much you can get. The goal is to get these items onto your retail lots, your choose & cut farms, and to your customers at garden centers, retail lots and stores.

Items available include:

- 36" x 55" Vinyl Fraser Fir Banners
- 12 x 18" Coroplast Fraser Fir outdoor signs
- Fraser fir tree care sheets
- Real Trees Make Scents brochures

Help spread the word about the our industry and the benefits of real North Carolina Fraser fir! Contact the NCCTA office to request materials. You may pick them up at the office or we will mail them to you for only the cost of shipping charges. 🌲

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# National News

Wilson Barr



The National Christmas Tree Association's board of directors met in August in conjunction with the Wisconsin Christmas Tree Producers Association's Summer Meeting in Green Bay. At that meeting, officers were elected for terms beginning in January of 2018. Paul Schroeder will serve as president, Dugald Kell was named president-elect, Bentley Curry will continue as treasurer and the Executive Committee will be rounded-out with Bob Schaefer, Steve Meier and Tom Dull (past president).

Also in Green Bay, the NCTA held the National Christmas Tree and Wreath Contest. Twenty-one Christmas tree growers from across the country entered trees in the competition and there were 18 wreaths. A Balsam Fir grown by David and Jim Chapman of Silent Night Evergreens, located in Endeavor, Wisconsin, was awarded as 2017 Grand Champion and Ed Hedlund of Hedlund Christmas Trees, in Elma, Washington, was named Reserve Champion of the contest.

Because, the contest is held every other year, both the 2017 and 2018 champions are awarded. The 2018 Grand Champion winner is Larry Smith of Mountain Top Fraser Fir of Newland, NC and the 2018 Reserve Champion is Russell and Beau Estes of Peak Farms of Jefferson, NC.

Gary Hague of Hague's Christmas Trees in Hatfield, Pennsylvania took Grand Champion honors for his un-

decorated wreath and Kathy Shore of Kathy Shore Nursery in Sparta, North Carolina was named Grand Champion in the decorated wreath category.

In late September, the White House Blue Room tree was selected. Chief Usher, Timothy Harleth and White House Superintendent of Grounds, Dale Haney, joined Jim, David and Diane Chapman in northern Wisconsin to select the official White House Tree. The tree will be delivered in late November, upholding a 52-year tradition for the National Christmas Tree Association.

Finally, with the season right around the corner, the National Christmas Tree Association has secured Doug Hundley, a retired extension specialist from North Carolina, to serve as the "Voice of the Industry" this season by responding to consumer and media calls during the season. This effort is being funded by the Christmas Tree Promotion Board. 🌲

## National Christmas Tree Association

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[www.realchristmastrees.org](http://www.realchristmastrees.org)



**SAVE THE DATE:**

**NCCTA 2018  
Winter Meeting**

**March 1 & 2**

**Meadowbrook Inn, Blowing Rock**

Meeting details will be available  
on the NCCTA website



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**Jill R. Sidebottom**  
Area Christmas Tree Extension Specialist,  
NC State University

## Elongate Hemlock Scale Incidence, Control & Effect on Markets

The NCCTA funded project, *Elongate Hemlock Scale Incidence, Control & Effect on Markets* was funded for \$4,000. The project originally was funded from September 2016 to August 2017 but because funding wasn't received until early 2017, an extension was requested through 2018. Much of the work on this project began in October 2016 using funds from the previous NCCTA grant.

The project objectives are:

- Evaluate Sivanto for Cinara aphid control in the fall.
- Evaluate how elongate hemlock scale (EHS) is impacting Christmas tree markets in Florida.
- Evaluate the extent of EHS in hemlocks and other conifers in Georgia and eastern North Carolina.

In addition, last year's project, *Controlling Pests – Protecting Natural Enemies*, is on-going. This project's objectives are to evaluate control of all Fraser fir pests while also determining the impact of pesticides on natural enemies.

One project that many of you have probably heard of by now is Florida's request for a host study to determine the potential for EHS to become a pest of conifers grown in Florida. This work is being supported through grants from the Christmas Tree Promotion board. I am working with Dr. Adam Dale, Turf and Ornamental Entomologist, at the University of Florida in Gainesville on this project.

### Objective 1: Continued Sivanto Observations

Sivanto was evaluated in October 2016 in trees at the Upper Mountain Research Station (UMRS) in Laurel Springs after IPM technician Brad Edwards discovered Cinara aphids in our trees. On October 17, 2016, he treated 11 trees with a mixture of Sivanto (9 fl oz/100 gal) and LI-700 (34 oz/100 gal) in a back-pack sprayer.

Cinara aphids were monitored 22 days after applica-

tion (DAA) on November 8 & 35 DAA on November 21. No aphids were alive in treated trees, but they were found in ever-increasing numbers in untreated trees growing right next to those treated up until the time it got cold enough to kill them—temperatures dipped into the teens in early December last year. Therefore, it appears that Sivanto worked well to control Cinara aphids.

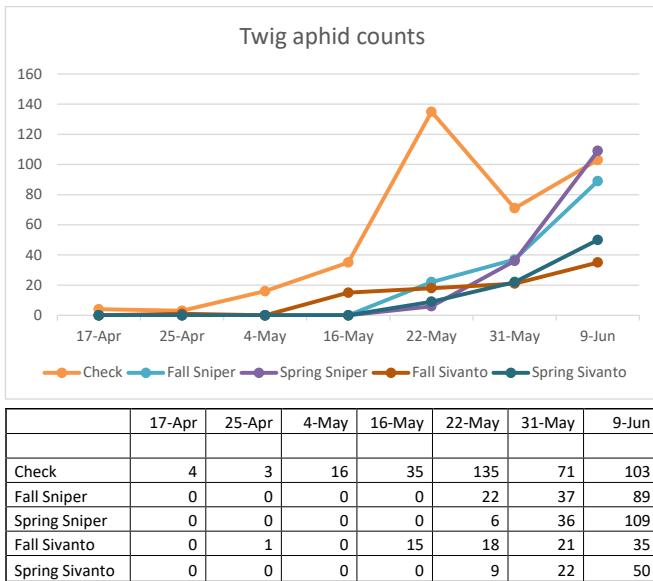
Twig aphid control with Sivanto was also evaluated in 2017 at the UMRS to continue objectives from the previous grant. There were five treatments:

- Fall-applied Sivanto (October 13, 2016)
- Fall-applied Sniper (October 13, 2016)
- Spring-applied Sivanto (April 10, 2017)
- Spring-applied Sniper (April 10, 2017)
- Untreated check

Twig aphid damage was light even in the untreated trees this year as there were so few twig aphid eggs in these plots. That wasn't true in some growers' fields. At the UMRS, all the trees were either treated with Sivanto or left untreated in 2016 which allowed the natural enemies to flourish and resulted in reduced egg numbers and therefore less BTA pressure in 2017. There was an average of just 0.1 eggs per shoot going into 2017 this spring—basically, you had to look at 10 shoots before finding a twig aphid egg.

The number of aphids found in these trees through the spring are plotted in Figure 1. Twig aphid damage and spider mite incidence is reported in Table 1.

Surprisingly, the fall-applied Sivanto gave the best twig aphid control. This is the first indication that fall-applied Sivanto may control twig aphids the following spring. To test this, several demonstrations will be conducted during fall 2017 using Sivanto to determine both Cinara aphid control and control of twig aphids the following year.



**Figure 1.** Twig aphid counts through the spring in fall and spring applied Sivanto or Sniper as compared to untreated trees.

Sniper did a far better job of controlling spider mites, but also resulted in fewer natural predators (Table 1). There were fewer predatory insects such as lady beetles, hover flies, lacewings and dusty wings where Sniper was used no matter when it was applied. But the effect of Sniper on the parasitic wasp depended on application date. When applied in the fall, it seemed to reduce parasitic wasp numbers more. In the fall, the wasp is laying eggs inside the scale where it will overwinter. In fact, fall-applied Sivanto appeared to reduce wasp numbers too. However, we applied Sniper early enough in the spring (April 10) that there was hardly any effect on the wasp—

which doesn't become active until later in May. Most growers aren't treating for twig aphids that early in the year, thereby reducing the risk of having a greater impact on the wasp.

Levels of EHS and the parasitic wasp were evaluated through the fall of 2017 and harvested.

## Objective 2: Elongate Hemlock Scale in Southern Markets

Scale incidence was evaluated in stores in North Carolina, Georgia and Florida from November 23 to December 3, 2016 with Georgia and Florida locations specifically visited on November 28-30. Locations visited include Marion, Morganton, Hickory, Sylva, Franklin in North Carolina; Clayton, Cornelia, Commerce, Athens, Madison, Valdosta in Georgia; and Gainesville, Ocala, Lady Lake, Leesburg, Inverness, and Crystal River in Florida. Christy Bredenkamp, Jackson and Swain County Agriculture Agent, traveled with me down south and also took the Sylva and Franklin evaluations.

To evaluate the incidence of scale, Christy and I walked past baled trees stacked at lots to look for EHS. Only the outside trees of those leaned up against each other and only the side of the tree next to walkways were inspected. Basically, we were looking for problems like a customer might do and not like an inspector.

We kept a tally of the total number of trees examined as well as the number of trees with scale. We kept track if trees were only lightly infested (from as little as one scale on the tree to scales on one to several shoots), heavily infested (the majority of the foliage infested) or

Treatment	Percentage of trees with needle curl	Percentage of trees with more than bad needle curl	Percentage of trees with live mites (April 17 – June 9)	Total number of predators observed (April 17 – June 9)	Encarsia wasp counts from two yellow sticky cards in June
Fall Sniper	57%	1%	0.1%	11	26
Spring Sniper	54%	0.3%	0%	11	66
Fall Sivanto	48%	0%	14%	20	22
Spring Sivanto	62%	1%	10%	26	167
Untreated	83%	7%	10%	52	101

**Table 1.** Twig aphid damage and presence of spider mites and natural predators following treatment in either the spring or fall applied Sivanto or Sniper as compared to an untreated check.

somewhere in-between (medium infested). Wreaths and other greenery were also inspected.

Overall, 70% of stores had some level of scale infestation. This did not vary between the states. EHS was also observed on Douglas fir in both Georgia and Florida, from trees coming from somewhere other than North Carolina.

### **Objective 3: Elongate Hemlock Scale Observations Outside of Western North Carolina**

There is a concern, expressed by Florida officials, that EHS will attack other conifers besides its common hosts of hemlocks, firs, spruces and Douglas fir, which are not grown in Florida.

In the scientific literature, there is a paper published the mid 1980s which states that EHS was found from New York to Georgia and as far west as Ohio. It's now found in Michigan. But we weren't sure exactly where in Georgia it was found. I had learned from Georgia forestry officials that it was found at low levels in hemlocks in the mountains of Georgia, but I didn't know how far south it reached.

In trying to locate the plants needed for the host study, I contacted Dr. Ron Determann, Vice President of Conservatories at the Atlanta Botanical Garden. He invited us to visit this past spring, and Christy, Travis Birdsell, Ashe County Extension Agent, and I visited their main gardens in Atlanta on May 30, 2017. Dr. Determann has worked with the Florida yew and Florida torrey tree for 30 years. These plants are on the endangered species list, and their main threats are loss of habitat, an aggressive Fusarium disease of the torrey tree, and pressure from deer which browse off seedlings. There are hemlocks in the landscape in Atlanta and several at the Atlanta Botanical Garden. We found EHS at very low levels on these plants and on a Chinese Douglas fir. We didn't find any on other conifers growing around these or on Florida torrey trees in pots adjacent to infested hemlocks. Most of the EHS was infested with parasitic wasps.

I have also scouted two eastern Christmas tree farms without finding any EHS. Both of these farms purchase and display cut Fraser fir as well as selling choose and cut.

The EHS incidence was also evaluated in Hickory, North Carolina on hemlocks in the landscape as well as other conifers. Hickory has abundant hemlocks in the landscape, and near the SALT Block at least, there was abundant EHS on hemlock hedges and trees. Travis helped



*Infested Shoot - It's easy to infest Fraser fir. These immature scales were found 25 days after infestation.*

me examine some of these other conifers on June 20. The only other conifer besides hemlocks that had EHS was a single immature male nymph on a Deodar cedar.

On August 30, Paige Patterson, Watauga County Extension Agent, and I visited with Dr. Adam Dale in Florida. We visited three Florida Christmas tree farms, one of which gets cut Fraser fir from Michigan, and the other which gets cut Fraser fir from North Carolina. A thorough examination of the trees found only pine needle scale and a few other unidentified scale, no EHS.

### **The Host Study:**

Dr. Trevor Smith, Division of Plant Industry Director in Florida, stated in a January 31, 2017 letter to Phil Wilson, State Plant Regulatory Officer, North Carolina, that a "robust" host study of trees in the families of Cupressaceae, Pinaceae and Taxaceae would "alleviate some of the concerns" in Florida. A list of 19 potential conifer species hosts was included. In working with Dr. Dale, several species were dropped and others added to reflect the major conifer species in Florida and those that could

potentially be impacted. For instance, two of the original species in the January 31 letter, pond cypress and bald cypress, are deciduous and could not possibly support EHS which only feeds on the needles. Also included in the study are known hosts not grown in Florida like hemlocks, Fraser fir, and blue spruce to demonstrate that the infestation techniques are working and perhaps to determine if even known hosts vary in their susceptibility.

The host species in Florida included in the study are listed below. Note that Florida USDA Plant Hardiness Zones go from 8a in northern Florida to 11a in the Keys:

- Florida torrey (Torrey taxiflora) – native to Florida, endangered species, USDA Plant Hardiness Zone 6a – 9a
- Florida yew (Taxus floridana) – native to Florida, endangered species, Zone 8a - 9b
- Atlantic white cedar (Chamaecyparis thyoides) – native to North America, documented in north-central Florida, Zone 4 – 9
- Leyland cypress (Cupressus X leylandii) – widely planted across the US and Florida, Zone 5 - 9
- Sand pine (Pinus clausa) – widespread in Florida, most common choose-and-cut Christmas tree in Florida, Zone 8 - 9
- Spruce pine (Pinus glabra) – found in northern Florida, occasionally grown by Florida Christmas tree growers, Zone 8 - 9
- Virginia pine (Pinus virginiana) – native to eastern North America, occasionally grown by Florida Christmas tree growers, Zone 4 - 8
- Southern eastern red cedar (Juniperus virginiana var. silicicola) – native to Florida and used by Florida Christmas tree growers. I couldn't find the planting zone for this variety. Eastern red cedar is found in USDA zone 2 - 9. Reports of some southern eastern red cedar as far as Ohio.
- 'Green Giant' arborvitae (Platycladus orientalis) – occasionally grown by Florida Christmas tree growers, Zone 5 – 7
- 'Blue Ice' Arizona cypress (Cupressus arizonica) – native to southwestern US and not found in Florida but grown by Florida Christmas tree growers, Zone 6 - 9
- Slash pine (Pinus elliottii) – widespread throughout Florida, important forest tree, Zone 7 - 11
- Loblolly pine (Pinus taeda) – widespread throughout Florida, important forest tree, Zone 6b – 9b



**Travis Birdsell looks for elongate hemlock scale below an infested Chinese Douglas fir at the Atlanta Botanical Garden**

- Deodar cedar (Cedrus deodara) – native to Asia, found single EHS in landscape in Hickory, not commonly grown in Florida and considered an invasive species, Zone 7 - 9
- Eastern hemlock (Tsuga canadensi) – not grown in Florida but known host – used as check to make sure infestation techniques are working, Zone 3 - 7
- Fraser fir (Abies fraseri) – not grown in Florida known host – used a check to make sure infestation techniques are working, Zone 4 - 7
- Blue spruce (Picea pungens) – not grown in Florida and not as common a host as Fraser fir and hemlocks but found occasionally – used as an intermediary host, Zone 3 - 7



*Scouting Florida choose and cut trees for scale pests.  
No EHS was found in Florida.*

The study will be conducted in the greenhouse at the Mountain Horticultural Crops Research Station at Mills River, NC. The greenhouse will be maintained above 50°F at night through the winter to mimic conditions in Florida. Twenty-five plants of each species will be arranged in five replications of five trees each on benches in the greenhouse. A four-inch branch of heavily infested Fraser fir will be attached to each plant with a zip-tie in late September. A second infested branch will be attached in mid-November which will more closely mimic the potential for spread from cut Fraser fir sold in Florida at Christmas. Trees may be infested again in May depending on results through the winter. A plant will be considered a host if the EHS is able to attach, feed, grow to maturity, and support reproduction.

A preliminary study this spring to test infestation techniques resulted in abundant crawlers moving onto

Fraser fir and hemlocks, but few surviving on the blue spruce. Immature scales were found on needles within two weeks and adult scales within two months.

### Many thanks:

It's been difficult getting all the plant material together for the host study. We've been working at it since early 2017. Many people helped with these efforts including the following:

- Rusty Barr for blue spruce seedlings, pots and growing media and help in potting plants
- the Atlantic Botanical Garden for donating Florida yews and Florida torreya
- Whitetop Grower's Association for Frasers
- Dee Clark for hemlocks
- Travis Birdsell's family for hemlocks
- Dr. Sue Kossuth for the Robin Blue cultivar of the southern red cedar
- Steve Gilly with Andrews Forest Service Nursery in Florida for slash pines and sand pines
- Christmas Tree Hill Nursery for pots
- Jerry Moody for potting soil
- Upper Mountain Research Station director Tracy Taylor and his staff for caring for seedlings all summer and working with us on this project for the last 3 years.
- Anthony LeBude for use of his greenhouse
- NCCTA and Christmas Tree Promotion Board for grant funding

Also, many thanks to Brad Edwards for his assistance in field demonstrations. Thanks also to John Frampton, Tom Ranney, and Adam Dale for their advice with this project and all the County Agents. 🌲

# WHY

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- To protect** and grow your business. NCCTA works to stop legislation and regulations that are negative to you and others growing, wholesaling and retailing Real Christmas Trees and to support beneficial legislation and regulations.
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**\$195,000 pledged to date**

*Thank You*

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**Yates Christmas Tree Farms**

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**The Hudler Family**

**Tucker Tree Farms**

**T.R. “Dick” & Linda Workman**

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**NC State Natural Resources Foundation, Inc.**



# Christmas Tree Research Fund and the NC State Natural Resources Foundation, Inc.

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# FORCED AIR COOLING

## A New Spin on Postharvest Tree Care



**Jeff Owen**  
Area Christmas Tree Extension  
Specialist, NC State University

**Travis Birdsell**  
Agricultural Extension  
Agent, Ashe County

**Brad Edwards**  
IPM Program Assistant, Ashe,  
Alleghany, & Watauga Counties

Those attending the 2017 summer meeting of the NCCTA may have appreciated the cool breeze from two stacked 54 inch fans that pulled hot afternoon air out of the warehouse. Those fans were first used last year to cool 32 pallets of Christmas trees in a postharvest research study at Carolina Fraser Fir Company (figure 1). For years, fruit and vegetable farmers have used fans at night to draw field heat from tarp-covered bins of produce, cooling them down to near ambient temperatures. With our traditionally cool harvest seasons, the concept was never applied to Christmas trees – until now.

If the last two years are any indication, we can expect hot days for at least part of our harvest season. During postharvest research studies conducted in 2015 and 2016, I measured six days over 70 degrees Fahrenheit during a two-week period spanning the end of October and the first few days of November. The day we conducted our first forced air cooling study at Carolina Fraser Fir Company, ambient temperatures reached 76 degrees. Piled or palletized trees are likely to hold on to field heat without any provision for air circulation. Ideal storage temperatures are in the 40-50-degree range and better



**Figure 1.**

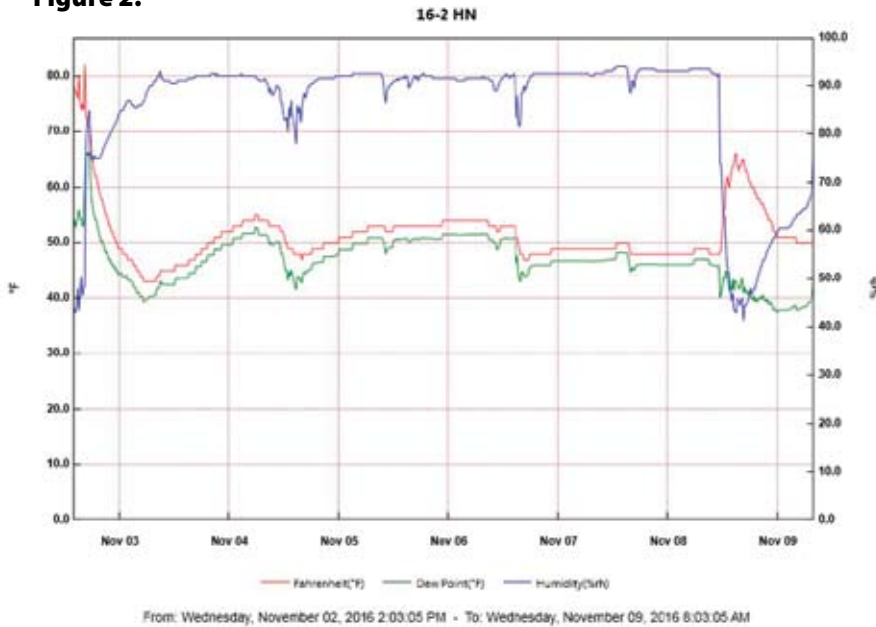
below 40 degrees. Even when nighttime temperatures reach those levels, it can take days for piles or pallets of “hot” trees to passively cool off.

Stored trees don’t just contend with trapped field heat but create additional heat of their own – the heat of respiration. Heat of respiration is the heat released by the chemical reaction of plant respiration. When

a Christmas tree is cut and baled, photosynthesis stops. Trees have to respire to produce the energy they need for cellular function. While the amount of energy is small, it can add up – especially if trapped in the center of a pile or pallet of trees.

Drs. Sylvia Blankenship and Eric Hinesley published a heat of respiration study on Fraser fir in 1990 that

**Figure 2.**



has guided much of the current post-harvest research on Fraser fir. They found that Fraser fir produced twice as much heat of respiration on the first day after harvest as on the second day, and the rate declined rap-

idly from there. They also found that the heat of respiration was four times greater if ambient temperatures were near 70 degrees than at 40 degrees Fahrenheit. It wasn't just that the trees were warmer themselves, but

that the chemical reactions proceeded at a faster rate.

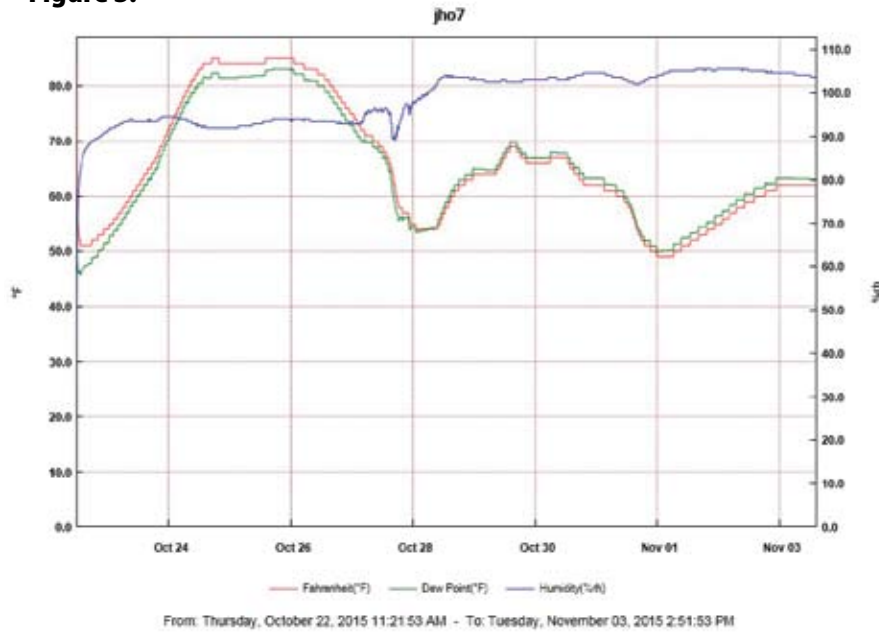
Figure 2 shows the temperature curve in the top third of a pallet of Christmas trees built on the day after trees were harvested in a 2015 study. Over the first two days, the temperature climbed 20 degrees above ambient outdoor temperatures, held, and then declined to ambient temperatures. This heat of respiration curve for Fraser fir closely followed those observed in fruits and vegetables. Temperatures above 90 degrees were associated with bronze scalding in hotspots that indicated pressure points between trees.

Heat of respiration provides an opportunity for management. If the temperature of the trees can be dropped, respiration slows. If the temperature can be lowered for the first day or two after harvest, the risk of trapping enough heat to damage trees is also avoided. Forced air cooling



**Figure 3.**

**Figure 3.**



could alter the conditions that have led to tree scalding in piles or pallets.

In 2016, we conducted two trials of our forced air cooling technology using two 54-inch fans. At Carolina Fraser Fir Company (CFFC), we conducted a trial under ambient outdoor temperatures. At Kathy Shore Nursery (KSN), we conducted a trial in their humidified refrigerated warehouse. In both cases, we lined up two rows of pallets of Christmas trees, double-stacked, frame-to-frame with the trees perpendicular to the row. With the fan set to blow away from the pallets at one end, tarps covered the top and far end of both rows of pallets. Short a tarp, we only set up 32 pallets at CFFC (figure 3), but covered the full 40 at KSN. The fans were run from about 6pm until 8am the next morning. The fans pulled air through the central alley between the two rows of pallets and through the trees in the pallets along each side. Pallets were full enough to minimize any voids that could provide an alternate path for cool air to be drawn in.

Figure 4 shows the temperature curve from a pallet in the CFFC ambient air, forced air cooling study. From an initial temperature in the mid-seventies, temperatures dropped 33 degrees over the night of November 3. This pattern was observed across all measurements of the stack of pallets. Ambient night temperatures reached a low of 41 degrees. Fans cooled the trees to 42 degrees. As there was less difference between the temperature of the trees and ambient temperature over the course of treatment, the efficiency of cooling declined slightly. Getting within a degree or two of the nighttime low temperature was certainly close enough.

Even though heat of respiration still occurred, only a slight temperature bump was observed on November 4 that did not persist (consistent with foundational heat of respiration research).

The study conducted at Kathy Shore Nursery the following week occurred in conditions that were better for growers and worse for re-

search. Freezing temperatures beforehand pre-chilled the trees used in the study. Rather than being able to show how refrigerated air can augment forced air cooling, we kept cool trees cold. There has to be a temperature differential and heat to draw out to justify this cooling treatment.

We included two additional treatments in the forced air cooling study that provided alternative approaches to the fans. In some pallets we reduced the number of trees from 35 to 30. In other pallets we placed two pieces of perforated corrugated drain line in the center and upper center of the pallet. Both of these strategies reduced temperatures. The high temperature in the reduced density pallet was 5-6 degrees lower than in the untreated check pallet. The high temperature in the pipe pallet was 3-4 degrees lower than in the check pallet. If a few degrees are enough to stay below damage thresholds, then either of these strategies could be a practical choice.

Additional research using fans to cool trees is planned for the 2017 season, weather permitting. We still need to measure the potential benefit of a refrigerated warehouse. We would also like to test using one fan instead of two. If we could still move enough air with half the electricity and resources, it would be much more practical and portable.

Our research was conducted on pallets. However, the technology could just as easily be applied to piles of loose trees. Fans could be placed at the end of two piles of trees covered with a single tarp. It would work exactly the same way as pulling air through stacked pallets as long as the only way air could be drawn to the fans was through the trees them-

selves. Distributing perforated corrugated pipe sections through piles of trees could also increase ventilation and buy a few critical degrees of cooling.

An understanding of heat of respiration emphasizes the importance of initial on-farm storage. Storing trees vertically in shade is one way to cure them and allow heat to escape. Forced air cooling might be another means of reducing temperature and overcoming heat of respiration that would allow palletization directly from the field.

Leaving trees in the field for a day or two also provides time for heat to escape, but it subjects trees to potentially dangerous levels of drying. A fresh Fraser fir can lose more than half its water in a single day of sunny exposure. That internal water sustains needles and ensures that the tree will take up water when properly displayed. Moisture lost on the farm reduces the resilience of trees on the retail lot. Proper farm storage is the foundation of proper tree care.

Postharvest care of Christmas trees has always been a process of managing and reducing risk – the risk that trees dry out, scald, lose needles, develop cracks in the trunk, or otherwise suffer diminished quality. On the whole, growers have designed tree care practices to address normal weather. When “normal sunny” was a high in the mid-sixties and lows in the forties, growers could

do the usual things: stop cutting in the heat of the afternoon, get trees out of the sun as soon as possible, and tighten up cutting and baling crews. When highs get into the upper seventies, a more thorough plan should be in place. More stress means that trees dry

out faster, cracks happen sooner, etc. While you can hope for seasonably cool weather, you need to plan for the extremes. Forced air cooling could be a technique that isn't needed every season, but ensures quality in the years it is used. 🌲

“Moisture lost on the farm reduces the resilience of trees on the retail lot. Proper farm storage is the foundation of proper tree care.”

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# Evaluating Herbicide Injury in Container Grown Fraser Fir Seedlings

**Amanda Taylor, Travis Birdsell,  
Jeff Owen, and Joe Neal; NCSU**

Perhaps the only thing more certain than death and taxes is the presence of weeds. Year in and year out, they rear their heads when the time is right, often going unnoticed until they are flowering and setting seed.

To keep weeds down and prevent them from going to seed, growers rely on a combination of pre- and post-

emergent herbicides, supplemented with sanitation practices. Herbicides are selected based on two factors: which weeds it kills or prevents (efficacy) and which crops are not injured by the product.

Identifying weeds in the nursery is the first step in choosing an herbicide. It is easier to identify weeds later in the season when they are flowering, but this is often too late in the season to guide herbicide selection and treatment. Pre-emergent herbicides need to be applied

**Table 1. SUMMARY OF PRODUCT ACTIVITY**

<b>Product</b>	<b>Rate (Low/High)</b>	<b>Activity (pre or post emergence)</b>	<b>Some of the Weeds Controlled</b>
<b>Fiesta</b>	50 / 100 oz / 1000 ft <sup>2</sup>	Post	Broad spectrum control of broadleaf weeds. Particularly effective on horseweed, groundsel, eclipta, bittercress and seedling oxalis.
<b>Harmony</b>	0.25 / 0.5 oz/ acre	Post / Pre	Broad spectrum
<b>FirstRate</b>	0.3 / 0.6 oz/ acre	Post / Pre	Broad spectrum
<b>Gallery</b>	8 / 16 oz/ acre	Pre	Broadleaf weeds, including chickweed, bittercress, oxalis, horseweed, dogfennel, spurge
<b>Goal, Goaltender</b>	1/2 pint / acre	Post / Pre	<b>Pre:</b> Crabgrass, barnyardgrass, annual bluegrass, clover, groundsel, woodsorrel, bittercress, spurge, mallow, smartweed <b>Post:</b> Seedling annual grasses and broadleaf <b>Weeds:</b> groundsel, pigweed, smartweed, wild mustard, lambsquarters
<b>OH2</b>	1.73 / 2.3 lbs / 1000 ft <sup>2</sup>	Pre	Several annual grasses and broadleaf weeds including large crabgrass, bittercress, groundsel, spurge, oxalis, dogfennel, cudweed, prickly lettuce
<b>Reflex</b>	1 / 1.5 pint / acre	Pre / Post (some broadleaf weeds)	Purslane, carpetweed, eclipta, lambsquarters, suppression of yellow nutsedge
<b>Ronstar</b>	80.6 / 122 oz / acre	Pre	Bittercress, lambsquarters, purslane, evening primrose, annual bluegrass, bristly foxtail, crabgrass, goosegrass
<b>Snapshot</b>	100 / 200 lbs./acre	Pre	Chickweed, henbit, groundsel, annual bluegrass, crabgrass, carpetweed



<b>Table 2. INJURY RATING SCALE</b>	
<b>0</b>	No Damage
<b>1</b>	Very light chlorosis
<b>2</b>	Severe chlorosis
<b>3</b>	Very light necrosis
<b>4</b>	Light necrosis
<b>5</b>	Moderate necrosis
<b>6</b>	Severe necrosis, bud damage
<b>7</b>	Severe necrosis, dieback
<b>8</b>	Severe dieback
<b>9</b>	Almost dead
<b>10</b>	Dead

before seeds germinate. Even post-emergent herbicides must be applied to juvenile stages of weeds that are often hard to identify. For these reasons, herbicide selections and treatment decisions are generally based on last year's weeds, particularly those that were problematic to control. But it is important for growers to learn to identify the weeds when they are young and be able to recognize when something new has come into the field.

Because no herbicide controls all weeds, hand-weeding is an essential, but often neglected, component of an effective weed management program. Pulling weeds before they go to seed reduces the amount of weed seeds on site that will germinate in the future.

The other most important aspect of selecting an herbicide is choosing one that is safe to use on the crop being grown. Herbicides that kill weeds are of no use if they cause significant damage to crops. Although there is extensive information on herbicide injury to common woody ornamental crops, there is little information available on the safety of herbicides for use on container-grown Fraser fir seedlings and transplants.

A study was set up in the summer of 2017 to evaluate injury to container grown Fraser fir seedlings caused

by the applications of various pre and post-emergent herbicides.

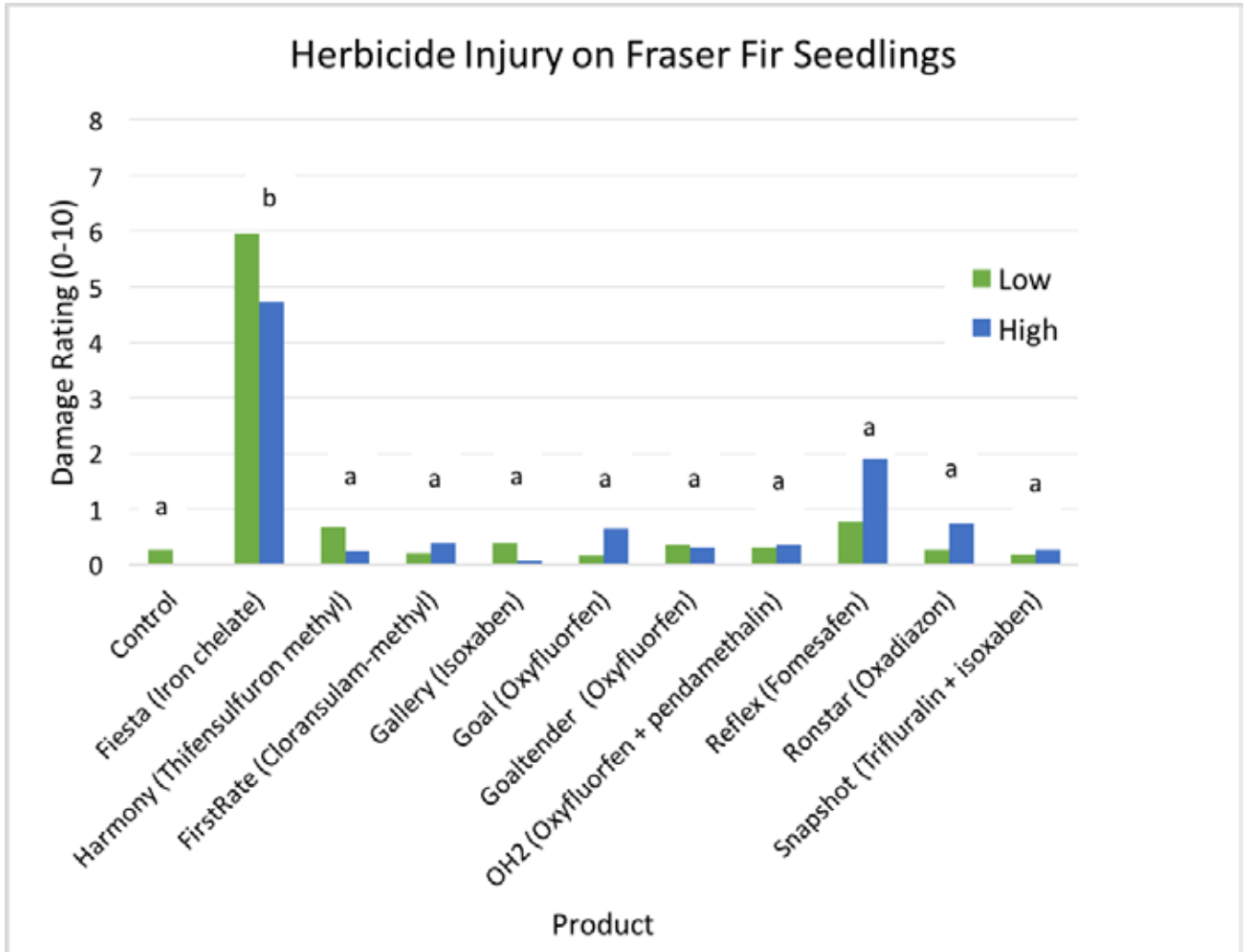
Seedlings were grown in 24-cell trays, and herbicide applications were made twice during the growing season. The first application was made on June 8, prior to bud break. The second application was made on July 28, when new growth was hardening off. Each product was tested at both a low and a high rate (Table 1).

Trees were evaluated for injury 3, 7, 14, and 28 days after treatments were applied. Injury was rated on a scale of 0 to 10, with 0 being no injury and 10 being severe injury and death (Table 2). Only new growth was rated after the second application, so that injury from the first application was not taken into account. A weighted average of individual tree damage ratings was then calculated for each tray.



***Fiesta applied at both the low and high rate caused extensive damage to seedlings.***

# Evaluating Herbicide Injury in Container Grown Fraser Fir Seedlings



**Figure 1.** Treatments with different letters are significantly different from one another. Seedlings were treated with herbicides at both a low and a high rate. Letters refer to differences between treatments, not rates. Applications were made on July 28th when new growth was semi-hardened off. Data shown were taken 7 days after treatments were applied.

The majority of the products tested did not significantly injure seedlings (Figure 1). The only product that caused significant damage was Fiesta (iron chelate). Trees suffered extensive damage (dieback or death) to the new growth with both rates of Fiesta, when treated in the summer. [Fiesta was not applied on June 8th prior to bud break.]

Although other products caused varying degrees of yellowing and necrosis, the damage was not significant

enough to be different than the control. Damage was mainly necrotic needles that eventually fell from the trees. Although few products damaged seedlings, many are not labeled for container production.

Thanks to the NC Christmas Tree Association, N.C. Extension – Ashe County, and Barr Evergreens for providing resources that made this study possible. 🌲

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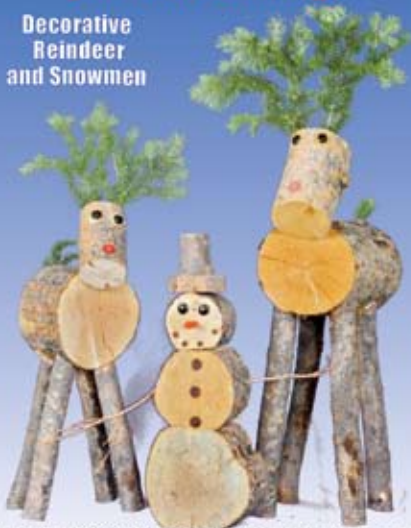
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# CALS Visits Western North Carolina



During the summer of 2017, the photography crew from NC State's College of Agriculture and Life Sciences visited western North Carolina to shoot various scenes and landscapes highlighting the agricultural industries and production practices unique to the mountains--from vineyards, to ginseng plantations, to apple farms, to Christmas trees. Their stop in Watauga County included a visit to Panoramic View Christmas Tree Farm in Meat Camp, just outside of Boone, owned and operated by NCCTA member, Joey Clawson. The photos from his farm and others across western North Carolina will be used as stock images for NC State and other publications and are available on NC State's Flickr page. To see the entire 'collection' of photos from their tour, you can visit: <https://www.flickr.com/photos/ncstate/sets/72157683317881150>







# Promotion Board Prepares for the 2017 Season

The Christmas Tree Promotion Board has announced plans for the upcoming holiday season, and Christmas tree growers from across the country are being asked to get engaged in this year's campaign.

## Something Old, Something New

The 2017 campaign will feature some of the best creative assets from last year's campaign; including the "It's Christmas, Keep it Real" theme and logos, several of the videos and a revised version of the campaign website and social media pages. The Promotion Board is working again with our creative partner, Concept Farm. New for 2017, Concept Farm will be producing a series of "Grower Videos" featuring six Christmas tree growers and their families in five videos. These videos will provide consumers a glimpse into a Christmas tree grower's life and livelihood; the commitment of Christmas tree growers and how they bring joy to families across the country each and every holiday season.

Also new for this season, the Promotion Board has teamed up with Fleischmann Hillard, a powerhouse public relations firm. The team from Fleischmann Hillard will be responsible for expanding the reach of the campaign with both the traditional and electronic media. The team is currently planning media events around four high-visibility Christmas tree lighting ceremonies in different regions of the country. Also in the planning process is a satellite media tour, where a lifestyle expert, teamed up with a Christmas tree grower, will provide media interviews secured by the FH team from coast to coast, all on one day.



*Tree lighting ceremonies in several cities around the country will be an opportunity for the promotional team to share the "It's Christmas. Keep it Real!" message.*

The Fleischmann Hillard team has also secured on-line "influencers" who have strong followings for their blogs and social media posts, to be present during the shooting of the grower videos to help tell that story to their fans. Those same influencers will do follow-up stories about selecting their real Christmas tree as we enter the season. Additionally, the team has prepared a press release and "Infographic" that can be shared with the media.

Other outreach possibilities are under consideration and will depend largely on budget and the ability to engage quickly if an opportunity is presented.

## Your Campaign

Because this program is fully funded by Christmas tree producers and importers, industry members are asked to be sure that they are aware of all that is taking place with the Promotion Board and the holiday campaign. The easiest way to stay informed, is to receive the CTPB electronic newsletter. “We send updates twice a month directly to your inbox,” explains Marsha Gray, CTPB Industry Communication and Program Director. “By providing us with your email address, we can provide important updates in an inexpensive and timely manner.” Currently, there are more than 3,500 email addresses receiving the electronic newsletter. (see sidebar for sign up instructions)

Growers are also urged to use the “It’s Christmas. Keep it Real” campaign logos and artwork in their promotional efforts. A new, easy-to-use Grower Resource Center has been set up to allow growers and retailers to easily download logos, banner designs and more. Industry members can visit: [www.CTPBresourcecenter.com](http://www.CTPBresourcecenter.com) to access campaign materials for their individual use.

And, probably the most impactful way for industry members to engage with the campaign is through Face-



*Twice-monthly newsletters provide information and updates to the industry.*

book. Growers and retailers are encouraged to “Like, Follow and Share” the “It’s Christmas. Keep it Real” Facebook campaign. The team creates attractive and fun messages and images for you to share. This expands the campaign message, while providing industry members with great content for their social media campaign.

Mark Arkills, chair of the Promotion Committee, reminds Christmas tree producers, “This is your campaign. You are funding it with your assessment dollars and you should know how that money is spent. We want growers and importers to engage in the campaign and in the process, so that they can make an informed vote when the referendum comes around next year.”

## Ready, Set, Go!

So, when does all of this exciting stuff happen? The Facebook campaign posts will begin on September 15. We will only post once a week or so, but with increasing frequency as we get closer to Thanksgiving. The “It’s Christmas. Keep it Real” consumer website will unveil the 2017 campaign on or around October 15. We will be announcing the dates and locations for the Christmas tree lighting ceremonies in the electronic newsletter once those sponsorships have been secured. We will also announce the satellite media tour and other events in the electronic newsletter. STAY TUNED! 🌲

## Getting Engaged:

- > To receive the CTPB electronic newsletter, please email your request to: [info@christmastreepromotionboard.org](mailto:info@christmastreepromotionboard.org). Please check your inbox, spam or junk folders first to see if you are already receiving our newsletter. You will see: “Christmas Tree Promotion Board” in the FROM column.
- > To engage in our Facebook Campaign, log-in into your Facebook page and type “Its Christmas Keep it Real” in the search box. Click on our page (it has the campaign logo) and LIKE and FOLLOW the campaign page.
- > Use campaign logos and banners by visiting the Grower Resource Center: <https://www.ctpbresourcecenter.com/>



# Communicating with Your Hispanic Workers

**Eligio Larraga**  
Great Lakes Ag Labor Services

Agriculture's reliance on Hispanic labor results in countless challenges for everyone involved. Potential legal issues for the farmer, rooted in America's flawed immigration policy, are just the beginning. Growers sometimes also find themselves facing opposition from their local communities, often stemming from subtle shades—or blatant forms—of racism.

And invariably, there come objections from a segment of poorly-informed locals who think “those Mexicans” are stealing jobs from Americans, despite the fact that anyone with a day's experience in agriculture understands full well that few if any “domestic” workers are unwilling and/or able to even attempt such jobs, much less stick with them throughout the span of a growing season.

Unfortunately, that's not the end of it. Those growers determined enough to navigate these waters, and fortunate enough to secure a promising crew of Hispanic workers, aren't yet in the clear. Their success as workers, and the farmer's success as a businessman, still hinges on one vital indispensable component: communication.

And, even that's not the end of the story, because communication isn't just about sharing information with the spoken word. Spanish-speaking farmers have an obvious advantage, but they're not likely to be reading this article in the first place. The present assumption is that the grower will not be investing much time in learning Spanish. Regardless, there is much ground to be gained in just recognizing some of the cultural differences between Anglo and Hispanic cultures.

## No habla

With some effort, patience and an open mind, growers can dramatically improve relations with Hispanic workers. Their effort and patience will help with the language barrier. An open mind – and some additional

patience – will help with the cultural part, which is just as important as the language.

The Internet abounds with sound advice about how to start bridging the language barrier. Websites as popular and trusted as WikiHow list dozens of smart and simple tactics for not just chipping away at the language barrier, but doing so in a manner that will help you avoid turning a challenging situation into an ugly one.

A few examples of what to avoid:

- Speaking louder doesn't help.
- Baby talk doesn't help.
- Using bigger, less commonplace words won't help.
- Fillers and colloquial non-words like ‘um’ and ‘like’ and ‘yeah’ definitely do not help.
- Repetition does help, but only if your reiterations match how you originally said it.
- Interrupting or speaking over others doesn't help.

## What would work?

People are visual. Using visual, action-based depictions of your instructions help tremendously. Even someone who's never heard the English word “shovel” will understand what's meant by the physical acting out of using an imaginary shovel, accompanied by illustrative pointing toward the site of a future hole and where the dirt from that hole should be piled.

Similarly, pictures definitely help. You don't need to be a Rembrandt to draw a shovel or a simple map of your field to get your point across.

Finally, please remember that less is usually more. In their impatience to achieve understanding, Americans too often speed up when they should slow down.

If your five-word description only gets blank stares, adding more words won't help. Heaping more and more words onto someone who is not comprehending won't make them comprehend. Slow down, and strip your lan-



guage down to its most basic form – then repeat it, preferably with some visual cues to help connect the dots.

Finally, understand that the differences between English and Spanish go well beyond simple vocabulary. Not only are the words different, but the sentence structure is different and many of the fundamental sounds are different. When I first immersed myself in American culture to learn English, I didn't just struggle with continually translating from one language to the next in my head before allowing myself to speak the words of it all. I quickly found that I was struggling physically to properly make sounds that my Spanish-speaking mouth wasn't at all familiar with. Learning English was as much a physical effort as it was intellectual.

## Culturas

People of all cultures have far more in common than they do differences, but even subtle differences can become stumbling blocks if narrow thinking prevents one party from being open-minded to trying to bridge the gaps that those few differences create.

Just like any given group of everyday Americans, any given group of Hispanics may include a variety of individuals in terms of ambition, ability, intellect and aptitude. Understanding how those differences manifest themselves between cultures, however, is useful, practical information that can help American employers relate to a Hispanic workforce.

For better or for worse, it's not particularly out of the ordinary for a Mexican to, for whatever reason, simply not show up for work on any given day. As alien as it may strike an American employer, many Hispanic workers grew up in a culture that's become surprisingly tolerant to such behavior.

It's customary in America for employees to give two weeks' notice before quitting a job – a custom not at all commonplace in Mexico, where prolonged unannounced absences are often the first clue to an employer that their worker has moved on to other opportunities.

More disruptive still is the role that pride plays within the dynamics of a predominantly Hispanic work-

force. Under the noses of countless American employers there's formed the confounding truth that "the worst boss a Mexican can have is..."

Care to guess?

That's right: Another Mexican!

That's the extent to which pride and jealousy and envy – age-old cultural underpinnings – can undercut an employer's best intentions in the unanticipated side effects of raising expectations, delegating authority, and promoting one worker to a higher station than his peers.

I wasn't your typical migratory worker when I first came to America from Mexico 17 years ago. I was part of that minority of ambitious go-getters, motivated more by learning the language than earning a paycheck to send home to my family.

When I was offered a promotion, it inspired me to learn more. I welcomed that it made greater demands on my language skills, reporting to my boss and giving clear directions. For me it was a source of pride – I felt more like what I was doing really mattered; it made me feel important – but that caused friction between my coworkers and me.

At my first landscaping job, 17 years ago, I was working for a cousin and I moved from South Carolina to Georgia to take the job. At that point my English was decent and I had a driver's license – advantages that a younger guy already working there didn't have.

The trouble was my cousin didn't make it clear who reported to who, and that ambiguity meant friction and resistance which made it difficult for us to establish clear lines of authority – who reported to who.

Traditional Hispanic dynamics dictate that new guys start at the bottom – regardless of what skills and abilities they bring with them – unless the boss makes it very clear who's in charge of who.

Employers are better off standing back and observing their crews, assessing the extroverts and introverts, the group-joiners and the solitary types, the outspoken and the wallflowers, the followers and... leaders.

Investing some time in observing how workers inter-

“Their success as workers, and the farmer's success as a businessman, still hinges on one vital indispensable component: communication.”

act with each other can pay off in circumventing avoidable conflicts and strife that could erupt at the worst possible time of the growing season.

That said, adjusting the pecking order – promoting one Hispanic to a higher position than his peers – is best executed in an unannounced as-warranted fashion so the culture’s endemic pride and envy don’t pit worker against worker.

At the risk of suggesting too big a picture, it remains true that – since the dawn of civilization itself – mixing cultures has led to conflict, but it’s also resulted in some of humanity’s greatest leaps forward. Even setting aside America’s broken immigration system, the globalization of agriculture (and every other societal institution that our one common race has devised) will increasingly make our industry a laboratory for testing these sometimes challenging dynamics. Realistically, it will remain an ongoing experiment for years to come, but with some heartfelt effort and compassionate patience on the part of everyday growers like you, we can move forward – together – toward solutions that benefit us all.

### About the Author

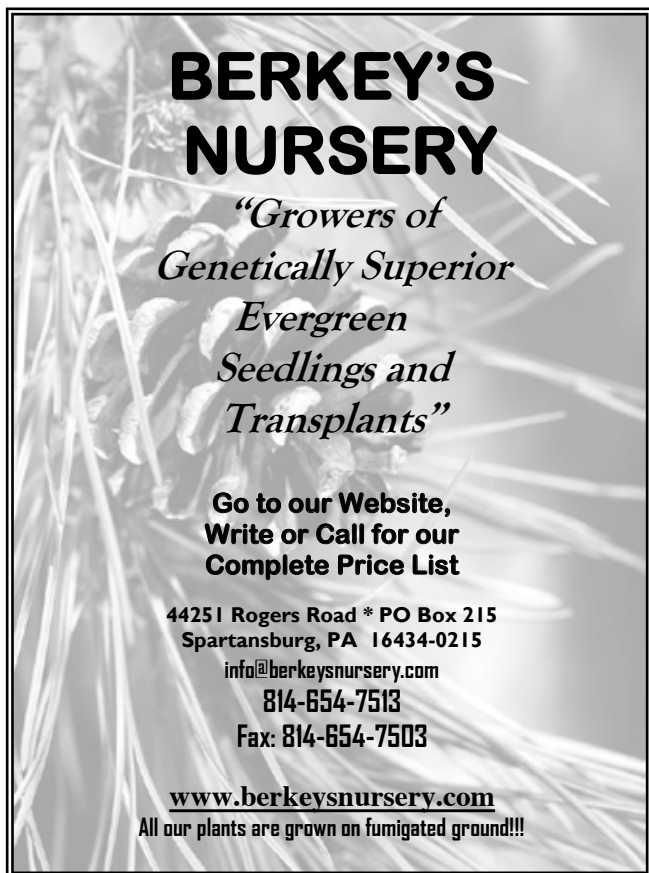
Eligio Larraga is a Sales and Field Representative with Great Lakes Ag Labor Services. His primary role is to help farmers implement and use the H-2A Visa program, in addition to training the farm workforce.

A graduate from the Technological Institute of Valles city in Mexico, he possesses a Bachelor’s Degree in Agronomy. Eligio is fluent in English and Spanish and brings a wealth of first-hand knowledge relating to cultural competency.

Eligio has worked in the Landscaping industry since 2000 in Georgia and South Carolina, including starting his own business in 2003. After relocating to Michigan in 2014, Eligio worked for TruGreen and became a certified pesticide applicator.

Eligio lives in Lansing, MI and is currently working on the development of a Leadership Training program for supervisors and crew leaders, focused on the Agriculture industry for farmers who use the H-2A program. 🌲

Originally published in *The Michigan Landscape* magazine, a bimonthly publication of the Michigan Nursery & Landscape Association (MNLA.org).



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# TREES FOR TROOPS

Thanks to over 25 NCCTA growers for contributing more than 800 trees to troops last year, which were shipped to families stationed on bases at Fort Bragg and Fort Campbell in December 2016. You gave military families a wonderful Christmas memory. We couldn't have done it without the help of our two loading stations and their staff which included the Avery County Cooperative Extension and the NCDA&CS Upper Mountain Research Station. We were also happy that many school students helped; Ashe & Avery County ROTC students and Alleghany 4-H students loaded trees and local primary and middle school students contributed drawings and holiday wishes on tree tags.

2017 marks the 13th year of the program, and the Christmas Spirit Foundation will be delivering the 200,000th tree to a deserving military family.

## We Need Your Help

It's not too late for Christmas tree producers to get involved with the 2017 Trees for Troops campaign, and local growers can participate by donating trees through your state coordinator, Jennifer Greene. Please consider the Trees For Troops program this year. In addition to tree donations, we are looking for growers to help load trees on the FedEx trucks, direct volunteer helpers, and to provide snacks for volunteers (either store-bought or homemade). Help military service members and their families have a wonderful Christmas.



**2016 Trees Donated**

**2017 Goals**

**473** Upper Mountain Research Station

**300**

**310** Avery County Cooperative Extension Center

**200**



To learn more and get involved, please contact Jennifer Greene at [NCchristmastrees.com](http://NCchristmastrees.com) or call the NCCTA office at (800) 562-8789.

Trees For Troops is a joint effort between the National Christmas Tree Association's Christmas Spirit Foundation and FedEx. The North Carolina Christmas Tree Association is the North Carolina coordinator for Trees For Troops. 🌲

[www.treesfortroops.org](http://www.treesfortroops.org)



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# Summer Meeting Highlights

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 Cornett Carolina Trees  
 NC Cooperative Extension - Ashe Center  
 Sexton Farms  
 Sturgill Tree Farms



### Bronze \$250

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 Cline Church Nursery  
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*Exclusive hosts and sponsors of social and dinner event, Dick and Linda Workman.*

# Summer Meeting Highlights



## 2017 NCCTA Summer Meeting Exhibitors:

*Thank you to each of our exhibitors and allied business partners for their support of the real Christmas tree industry and the North Carolina Christmas Tree Association.*

- A Plus Fire & Safety
- AGRIfinancial Services
- Allen Wealth Management
- Ashe County Chamber of Commerce
- Badgers Welding
- Bayer Crop Science
- Belac Products, LLC/Evergreen Elf
- C. L. Services, Inc.
- Carolina CAT
- Carolina Farm Credit
- Carolina Soil Company
- Corriher Tractor & Bobcat of Lenior
- Crop Production Services
- First Citizens Bank
- First National Bank
- First Pioneer Insurance Agency, Inc.
- Fraser Knoll
- Fresh Cut Tech, LLC
- Greenscape Tools, Inc.
- Gulf Relay
- H&H Farm Machine Co, Inc.



- Itasca Greenhouse
- Jefferson Rent-All
- Johnson Price Sprinkle PA
- Lee Publications/Country Folk Grower
- LifeStore Insurance Services, Inc.
- MegaCorp Logistics
- Millhouse Logistics
- Mistletoe Meadows
- Mountain Kubota of Boone
- Nationwide Agribusiness
- NCDA&CS - Agronomics Division
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- Ross Chrysler Jeep Dodge Ram
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- Weyerhaeuser – Western Regeneration
- Workmanship Financial Group

# 2017 Summer Meeting Highlights

## ASHE COUNTY

Summer Meeting Farm Tour Stops:

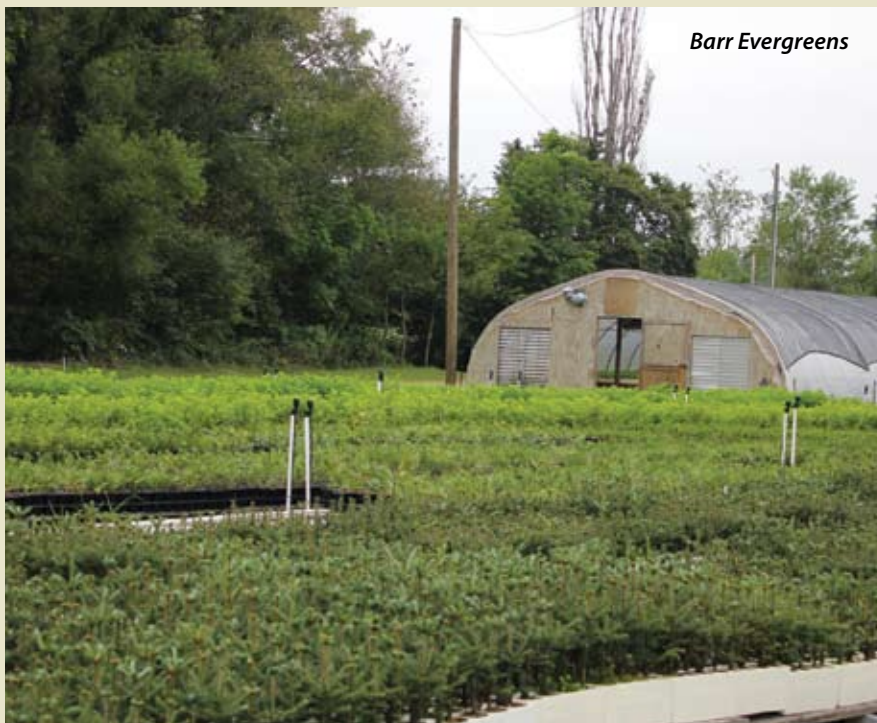
**Barr Evergreens • NCDA&CS Upper Mtn Research Station • Frosty's Choose & Cut**



On Saturday, farmers & industry partners participated in a farm tour of Ashe County Christmas tree farms. At Barr Evergreens, attendees toured nursery facilities, which included media mixing and potting machines, containerized tree and shrub nursery production, and greenhouse Fraser fir seedling and containerized transplant production. Amanda Taylor, Area Specialized Agent for Nursery and Greenhouse shared the preliminary results of phytotoxicity and efficacy studies of pre- and post-emergent herbicides in containerized Fraser fir production. At the NC Department of Agriculture & Consumer Services Upper Mountain Research Station in Laurel Springs, attendees toured and heard from Superintendent Tracy Taylor about ongoing projects. Dr. Jill Sidebottom, Mountain IPM Conifer Specialist, chronicled balsam twig aphid and elongate hemlock scale control measures used at UMRS over the past several years, their efficacy on controlling pests and protecting predators, and how control measures influence non-target

pest populations. The final stop was at Frosty's Choose & Cut. This location operates a "year round" choose and cut, as well as a corn maze and pumpkin lot that has family friendly events and activities. Attendees enjoyed a hay ride around the farm and an overview about the logistics of the operation. Jeff Owen, Area Extension Specialist for Christmas Trees walked attendees through an herbicide study that focuses on incorporating various alternative herbicides into a chemical mowing system for weed control. Seeing is believing, and participants were asked to rate their favorite control measures in the field. There was also an update about ongoing chemical cone control trials.

It would be impossible to thank all of the individuals that gave their time, support, and efforts to help make the 2017 summer meeting success. On behalf of the NCCTA Board of Directors, staff and members, a very big THANK YOU to everyone who contributed and helped make the meeting a great success. 🌲



*Barr Evergreens*





# 2017 Summer Meeting Highlights

## ASHE COUNTY

Summer Meeting Farm Tour Stops:

**Barr Evergreens • NCDA&CS Upper Mtn Research Station • Frosty's Choose & Cut**



*Frosty's Choose & Cut*



*Barr Evergreens*



*NCDA&CS Upper Mountain Research Station*

# CONGRATULATIONS!

## WINNERS

OF THE

### 2017 NCCTA Tree & Wreath Contests



#### FRASER FIR

Grand Champion

**Charles Sturgill, Sturgill Tree Farms**

2nd Place

**Lynn Smith, Merlyn Farms**

3rd Place

**Rusty & Beau Estes, Peak Farms**



#### OTHER SPECIES

1st Place

**Lynn Smith, Merlyn Farms**

2nd Place

**Rusty & Beau Estes, Peak Farms**

3rd Place

**Charles Sturgill, Sturgill Tree Farms**

The annual NCCTA Tree & Wreath Contest was an additional highlight of the show. The contest was sponsored exclusively by County Farm Bureau Federation Boards including Ashe County, Avery County, Jackson County, Mitchell County and Watauga County. Tree and wreath contest winners were presented checks courtesy of Farm Bureau Federation, and awards for their prestigious Christmas trees.

# CONGRATULATIONS!

## WINNERS

OF THE

### 2017 NCCTA Tree & Wreath Contests



#### UNDECORATED WREATH

Grand Champion

**Joe Freeman, Mistletoe Meadows**

2nd Place

**Beau & Rusty Estes, Peak Farms**

3rd Place

**Kathy Shore, Kathy Shore Nursery**



#### DECORATED WREATH

1st Place

**Kathy Shore, Kathy Shore Nursery**

2nd Place

**Beau & Rusty Estes, Peak Farms**

3rd Place

**Joe Freeman, Mistletoe Meadows**



# FIELD DAY

Saturday, July 15 • 2017



The Tennessee Christmas Tree Growers Association held a Field Day on Saturday, July 15, 2017 in Mountain City, TN. Wintergreen Farm hosted the event that was well attended with attendees coming from Tennessee, Virginia, North Carolina, South Carolina, Georgia, Mississippi and Alabama.

The day began with introductions and a farm tour conducted by Simon and Vonnie Smith of Wintergreen Farm. This included a tour of the nursery, greenhouse and several blocks of trees grown on their farm. After lunch, there were shearing and wreath demonstrations along with a discussion of pest and weed control.





---

Fraser Knoll Equipment and Supplies was on hand with a good selection of growing and selling supplies.

The weather was beautiful and Christmas Tree growers were able to network and share ideas.

For more information about the Tennessee Christmas Tree Growers Association, visit the website at [www.tennesseechristmastrees.org](http://www.tennesseechristmastrees.org) or contact the President, Justin Diel at [tnchristmastreegrowers@gmail.com](mailto:tnchristmastreegrowers@gmail.com). 🌲

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# Mountain Top Fraser Fir Named NCTA's 2018 Grand Champion Christmas Tree Grower

A Fraser Fir Christmas Tree grown by Larry Smith of Mountain Top Fraser Fir, located in Newland, was awarded the 2018 Grand Champion at the National Christmas Tree Association's (NCTA) 2017 National Christmas Tree Contest. Because, the contest is held every other year, both the 2017 and 2018 champions were awarded at the recent NCTA Tree Contest held in Green Bay, Wisconsin. As grower of the Grand Champion tree, Larry has earned the honor of presenting the official 2018 White House Christmas Tree next season. Since 1966, NCTA members have presented the official Christmas Tree for display in the White House Blue Room.

The 2018 Reserve Champion is Rusty and Beau Estes of Peak Farms, located in Jefferson. Traditionally, the Reserve Champion grower has provided a Christmas Tree for the residence of the Vice President.

The contest was held in Green Bay, Wisconsin in conjunction with the Wisconsin Christmas Tree Producers Association meeting and attracted 21 contestants from across the country; each competing grower having previously won a state contest to qualify. Trees can fall into five different species categories and are first scored by a panel of judges. Judges are experienced growers and former contest winners representing different geographic regions of the United States. The top two winners in each of the species categories are then subjected to a popular vote by convention attendees by secret ballot to determine the Grand and Reserve Champions.

White House staff members typically travel to the Grand Champion's farm in the fall to select the tree that will grace the Blue Room. That tree will need to be approximately 18 ½ feet tall, much larger than the 6- to 8-foot trees entered in the contest. The chosen tree is typically harvested and presented to the White House shortly after Thanksgiving.



Also, another North Carolina grower, Kathy Shore, Kathy Shore Nursery, Sparta, was named Grand Champion Winner of the National Wreath Contest, also held at the Green Bay event.

Congratulations to the North Carolina winners and producers of fine Fraser fir trees and wreaths who make our state proud. 🌲

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## National Christmas Tree Association Honors Industry Leaders

Select industry leaders were recognized by the National Christmas Tree Association for their leadership and commitment to the Christmas tree industry on August 18 during the banquet of the Wisconsin Christmas Tree Producers Association.

Cline Church of Cline Church Nursery, Fleetwood, NC was recognized with the Presidential Iron Horse Award for his dedicated service to the National Christmas Tree Association. Fellow North Carolina grower, Harry Yates, presented the award.

Cline began planting Christmas trees in high school in the early 1970's and continues to plant trees today, with the intention of passing the business on to his children.

Harry noted that the Church family has a long history in the Christmas tree industry, as well as a long history of leadership on a local, state and national level. Cline is a past president of the Ashe County Christmas Tree Association, served many years on the NCCTA board of directors, served on the NCTA board of direc-

tors for 14 years and NCTA president in 2012 & 2013. Clines family has also served numerous roles in the industry on a local county, state and national level.

"Cline brought a unique style of leadership to our industry. He is extremely intelligent, but more importantly, he brought a common sense approach to problem solving, networking, building consensus among all industry stakeholders. Cline always led through example, hard work, and perseverance. Cline is a great listener and is always accessible. He epitomizes the old fashioned values: respect, honesty, integrity and hard work."

NCTA President, Tom Dull noted, "Cline Church is the epitome of what every Christmas tree professional should strive to be. He is a tireless supporter of the industry with his time, his finances and his willingness to share his knowledge. Cline took very seriously his leadership role in the NCTA and was a role model for those of us coming behind him. It's people like Cline Church for whom the Presidential Iron Horse Award was developed." 🌲

# William Waightstill Avery

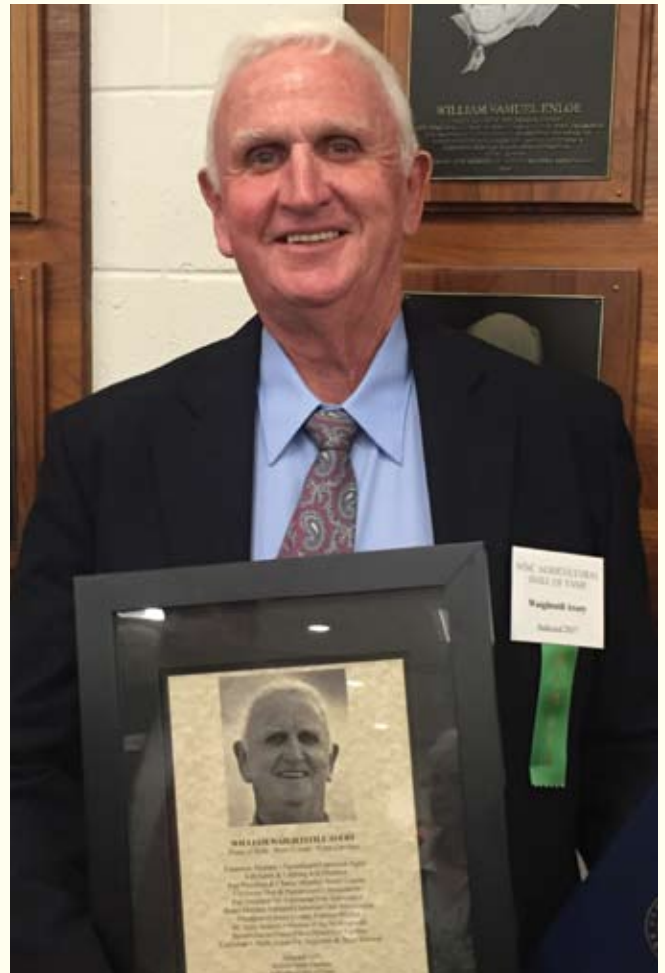
## Inducted Into WNC Agricultural Hall Of Fame

WNC Communities held the 27th Annual Western North Carolina Agricultural Hall of Fame Induction Ceremony at the Mountain Horticulture Crops Research & Extension Center in Mills River in May. William Waightstill Avery, a pioneer in agriculture in Western North Carolina, was inducted at this year's luncheon.

This annual event recognizes stewards of our Western North Carolina agribusiness sector and honors the visionaries and leaders of the agriculture industry. At a time when Western North Carolina is seeking new methods of sustainability, WNC Communities is proud to recognize those who have made significant contributions to one of our state's most important sources of revenue.

For over 45 years Waightstill Avery has been a driving force for agriculture in Western North Carolina and beyond. He was a pioneer in developing the Christmas tree industry and has experimented with many other new agricultural enterprises including medicinal herbs and agri-tourism. His work with youth in the 4-H program was instrumental in shaping the lives of young people in the mountains.

Born in Banner Elk, Mr. Avery grew up on a farm that was deeded to his family by King George III during revolutionary times. After graduating from Lees-McRae College and earning his undergraduate and graduate degrees from N.C. State University, Mr. Avery started his career in the N.C. Cooperative Extension Service, where he served in WNC counties (Yancey, Mitchell and Avery). Early in his career, we worked as a 4-H agent and participated in the Western District Leadership Conference. He also served as an advisor at the NC State 4-H Club Congress. Mr. Avery was actively involved in 4-H when the movement from school-based programs to community 4-H clubs began. He worked to locate, recruit and train new 4-H leaders for the new community clubs, encouraging parents to work with youth in the community. Many of the 4-H clubs that Mr. Avery helped create have lasted for more than 30 years.



In addition to his work with youth, Waightstill played a seminal and pivotal role in establishing the Christmas Tree industry in WNC. During his tenure as Extension Agent and County Extension Director, Fraser Fir production dramatically increased throughout the entire western region. Under his leadership, and with his unique ability to get growers to work together, the number of Christmas tree producers in Avery County increased to over 900 growers. He formed a county growers association to help aid in the growing, marketing and production of Fraser Firs and taught many growers how to successfully market their trees. Through his contacts



nationwide, he was able to make Fraser Firs a household name and put Fraser Firs on a national stage. "I think it's safe to say, with confidence, that if you asked any agricultural leader or farmer with a historical perspective on the WNC Christmas tree industry that Waightstill's name would be among the first names mentioned as an innovative leader in developing this important WNC agricultural enterprise," said Dr. C. Michael Brooks, Professor Emeritus, School of Medicine at the University of Alabama at Birmingham. He also pioneered the marketing concept of the mail order Christmas tree. Originally working through catalogues, the mail order service now includes TV and internet sales. Mr. Avery has appeared on the QVC shopping channel personally!

Waightstill Avery also has an enormous influence on agriculture by encouraging farmers to diversify, which was particularly critical as many WNC farmers transitioned from tobacco as a primary cash crop. He worked with N.C. State Extension Specialists and oth-

er farmers to experiment and develop alternative farm products appropriate for small family farms. Some of those initiatives include seedling production, berries, shrubbery, hops, and farm fresh vegetables from local markets.

Presently, along with Christmas trees, Mr. Avery is growing vegetables and fruits for local farmers markets. He is currently the president of the Avery County Farmers Market. He is past president of the N.C. Christmas Tree Association and Board of Director on the National Christmas Tree Association. A clear leader in Western North Carolina agriculture, Mr. Avery has been a grower, educator and champion for agriculture and farmers.

WNC Communities is honored to award stellar leaders in agriculture with a plaque on the prestigious WNC Agricultural Hall of Fame Wall located in the Mountain Horticulture Crops Research & Extension Center in Mills River, NC. 🌲

“ Mr. Avery has been a grower, educator and champion for agriculture and farmers ”

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# Calendar of Events

January 23, 2018

**Valle Crucis Leadership Retreat  
& BOD-FFPC Meeting**

January 24, 2018

**2018 Budget Committee Meeting  
(Executive Committee Only)**

February 28, 2018

**BOD/FFPC Meeting**  
Meadowbrook Inn, Blowing Rock

March 1 & 2, 2018

**2018 Winter Meeting**  
Meadowbrook Inn, Blowing Rock

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