

The 2003 Fraser Fir Freshness Survey

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During the Christmas tree harvest and sell season last year, we conducted a survey to evaluate handling and care of Fraser fir Christmas trees on the farm and in two diverse market places; the Raleigh, NC area and the Ft. Lauderdale/Miami, FL area. The survey consisted of 1) collecting foliage samples from trees in North Carolina fields and storage yards to determine moisture content, 2) collecting foliage samples from Christmas tree vendors' stored and displayed trees for moisture content determination, and 3) appraising vendors' storage and display techniques.

Methods

Growers: Samples were collected from North Carolina fields

Distribution of Vendor Types Sampled in the Survey

Vendor Type	NC	FL	Total
Chain Store	0	4	4
Choose and Cut Farm	3	0	3
Grocery Store	12	4	16
Home Improvement	3	8	11
Nursery/Garden Center	6	0	6
Retail Lot	16	11	27
Total	40	27	67

and storage yards during November 19-21. Usually one 3 inch-long shoot was collected from 10 trees at a farm, storage yard or both. A total of 24 fields (269 samples) and 24 storage yards (323 samples) were collected from Ashe, Alleghany, Avery and Jackson Counties. We thank the growers listed in the accompanying table for their participation in the survey.

Vendors: Fraser fir Christmas tree vendors were visited December 8-10. In the Ft. Lauderdale/Miami area, 27 display lots and 11 storage areas were sampled and appraised. During this same time, 40 display lots and 5 storage areas were sampled and appraised in the Raleigh area. One 3 inch-long and discreetly located cutting from each of 10 trees was collected at each display or storage area. The accompanying table summarizes the distribution of vendor types sampled in the survey. Additionally, for each vendor, a detailed form was

Grower Participants in the 2003 Fraser Fir Freshness Survey

Aubrey Henderson
Bill Stanton
Bruner Sides
Buddy Nelson
Charles Sturgill
Dale Shepherd
Dan McKinnis
Earl Deal
Fred Wagoner
Graham Ferrell
Greg Sexton
Homer & Bonnie Sides
Jack Wiseman
Jerry McAbee
Joe Freeman
John Wagoner
John Weaver
Johnny Wishon
Mike Carpetner
Pat & Lewis Gaskin
Percy Edwards
Ron Hudler
Spot Ward
The Shores
Tom Miller
Tom Sawyer
Tommy Beutell
Tony & Randy Duncan
Virgil Barrier
Waightstill Avery
Wayne Moss

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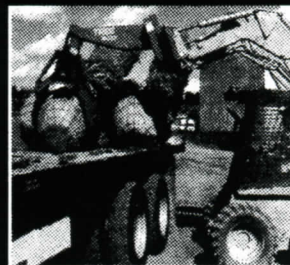
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completed on site to document location, prevailing environmental conditions, species sold, prices, promotional materials, customer service, storage practices and display practices.

Moisture Content Determination: Upon collection, cuttings were placed into individually labeled envelopes and the 10 samples representing a treatment were put into a plastic bag and immediately placed on ice. The fresh weight was determined the afternoon or evening that the sample was collected. Later, samples were oven-dried to 100°C in the lab on campus in Raleigh. The following formula was used to calculate the moisture content of each sample:

$$\% \text{ MC} = [(\text{Fresh Weight} - \text{Dry Weight}) / (\text{Dry Weight})] \times 100$$

These moisture contents were then classified as follows based on previous research:

- **Acceptable** (greater than 100%) – Tree is in good moisture condition and likely to rapidly rehydrate under proper care.
- **Marginal** (80-100%) Tree is under moisture stress but capable of slowly rehydrating under proper care.
- **Critical** (less than 80%) Tree is under acute moisture stress, unlikely to substantially rehydrate even under proper care, and is likely to continue to dry out.

Results & Discussion

Prices: The average retail price of a 6'-7' Fraser fir sampled in both markets was remarkably similar, \$46.66 in the Raleigh (range = \$27.86 to \$71.00) and \$46.44 (range = (\$34.95-\$80.00) in Ft. Lauderdale/Miami areas. The greatest price difference between the two regions occurred at retail lots and home improvement centers where Raleigh area trees (\$50.30 and \$27.86, respectively) were considerable cheaper than Ft. Lauderdale/Miami are trees (\$63.83 and \$34.98, respectively). Prices in grocery stores were only slightly higher in Florida than in North Carolina (\$29.95 vs. \$35.99). The two types of vendors sampled in the Raleigh area that were not found in the Ft. Lauderdale/Miami area included 'choose and cut' growers selling mountain grown Fraser fir with an average price of \$44.66 and garden centers with an average price of \$52.50. Conversely, relatively inexpensive chain stores trees (\$40.73) were sampled in Ft. Lauderdale/Miami and not in Raleigh. With these high and low priced market segments represented differently by region, the overall regional prices balanced out.

Species: Other species, usually Douglas fir or balsam fir, were often sold alongside North Carolina Fraser fir, especially in the



Figure 1. Truth in advertising? Canaan fir is sometimes mixed with and sold as North Carolina Fraser fir. While its appearance is similar to Fraser fir, it has poorer needle holding ability and is more susceptible to trunk splitting.

Ft. Lauderdale/Miami area. Fraser fir was the preferred species and commanded a higher price. However, too many times during the survey, we observed Canaan fir being mixed with and sold as North Carolina Fraser fir (Figure 1). Canaan fir is not Fraser fir but a geographic source of balsam fir from West Virginia. While its appearance is similar to Fraser fir, it has poorer needle holding ability and is more susceptible to trunk splitting. Canaan fir should only be marketed as Canaan or balsam fir or else consumers will come to distrust Fraser fir as a superior real tree choice. In addition, Canaan fir should be marketed to areas with cooler climates where severe heat stress is less likely to induce needle loss.

Moisture Content: The average moisture content of North Carolina Fraser fir sampled on the stump was 148% while that in storage yards was 140%. These values strongly suggest that extremely fresh North Carolina Fraser fir was shipped last year. Yet, while this is true, it must be recognized that the sampling occurred during, and immediately after, exceptionally heavy rainfall on November 18-19. This 2003 data will serve as a good baseline to compare results from other years when precipitation may be inadequate.

Types of Vendors: The average moisture content of the samples from Fraser fir Christmas trees both stored and on display in the Raleigh area was 120%. The same values in the Ft. Lauderdale/Miami area were 115% and 117% for stored and displayed trees, respectively. These values indicate that on average, the trees sampled had lost some moisture since leaving the farm but were still fresh and in good condition.

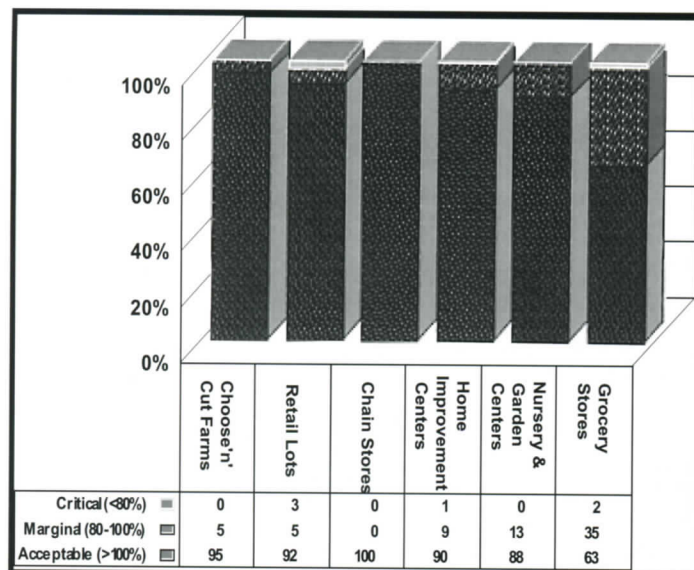


Figure 2. Percent of samples with acceptable, marginal and critical moisture contents for various types of Christmas tree vendors sampled in the survey.

However, freshness varied from vendor to vendor (Figures 2 & 3). Grocery stores in particular had freshness problems although a few grocery stores were taking exceptional care of their trees. The average moisture content for grocery stores

was 104% and of the grocery store trees sampled, 37% had a marginal or critical freshness level ($MC < 100\%$). While grocery stores had more trees with marginal freshness, similar percentages of problem trees with critical moisture content occurred in retail lots and home improvement centers. While percentages of 1% to 3% seem small, these are the trees that, if sold, represent a safety risk to customers and are a liability to our industry.

Storage Methods: Most Christmas tree vendors in the Raleigh area did not irrigate their stored trees in 2003. However, in North Carolina, there was no difference between the moisture content (120%) of the irrigated and not irrigated samples. On the other hand, most vendors in the Ft. Lauderdale/Miami area did irrigate and a large difference was detected between the irrigated ($MC = 121\%$) and not ($MC = 99\%$) samples. In Florida, 50% of the non-irrigated stored samples had marginal or critical moisture contents. In other words, half of the non-irrigated trees lost enough moisture in storage to harm freshness. On lots without irrigation, this quality degradation occurred equally to high-priced trees that met premium USDA grade standards as to lower quality trees.

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Final Points

During the survey, we learned of a considerable, and in part, unmet demand for good quality large Fraser fir Christmas trees among both public organizations and consumers (usually wealthy) with large homes. We heard numerous complaints of buyers not being able to obtain large trees and their concerns that the supply would disappear in the future. In the Raleigh area, WRAL, Channel 5 did a story on the shortage of big Christmas trees. Also in Raleigh, there appeared to be a shortage of tabletop Christmas trees. If North Carolina growers do not shift production to capture these product markets, other regions of the country presently hit with sagging sales will do so, or worse, these consumers will switch to artificial trees.

In the Raleigh area, three local 'choose and cut' grower farms were visited that sold pre-cut Fraser fir from the mountains, a common practice among eastern North Carolina growers. These growers provided some of the best tree care that we observed. In fact, one grower was storing his cut trees in water troughs under shade. Such an arrangement is a win-win for the Christmas tree industry. Not only is Fraser fir sold fresh from a Christmas tree farm (albeit not the one it was produced on), but the farm owner also makes a nice profit and can satisfy local customers looking for Fraser fir. The NCCTA has an opportunity to actively promote these types of arrangements with Christmas tree associations of other southern states that represent almost exclusively "choose & cut" farms.

This survey confirmed that North Carolina is cutting and shipping fresh Fraser fir Christmas trees. Indeed, in the areas surveyed, the freshness and quality of North Carolina Fraser fir at least matched, and usually exceeded its competition. However, problems sometimes occurred after Christmas tree

vendors receive our product. Obviously, such problems are more likely to surface in warmer climates so we must be especially careful when shipping to these regions. It was heart-breaking to see instances where growers' hard work in managing, harvesting and shipping a fresh, quality product was ruined due to ignorance, neglect or laziness. We must be more diligent in providing our customers with sound information. They need to keep our North Carolina Fraser fir moist and shaded both in storage and display. As the grower, you should take responsibility to do quality checks on how your customers are handling your trees. This will either give you confidence that consumers are receiving the product you intended, or it may identify a need for you to work more closely with your retailers to see that consumers do receive a fresh product.

We all work hard to produce North Carolina Fraser fir, the perfect Christmas tree. Let's continue to work together to make sure that a perfect Christmas tree is what our end-consumers take home for Christmas.



POINT of SALE MATERIALS Available from NC tree supplier:

North Carolina Fraser Fir 3'X6' Banner – "We proudly feature North Carolina Fraser Fir-the Perfect Christmas Tree"

Weather proof sign 9"X12"-same text as banner

Tree Care Poster for Retailer (Also, available for your printer in Spanish)

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