

There are many costs of producing Christmas trees that must be borne during the early years of the plantation. It is not until some trees are large enough for harvest and sale that a positive cash flow begins.

Production costs can include the following:

- Equipment (mowers, sprayers, shearing equipment, etc.).
- Labor (planting, pest control, shearing, harvesting, etc.).
- Seedlings.
- Chemicals (herbicides, insecticides, fertilizers, etc.).
- Miscellaneous items (signs, flagging, road maintenance, gates, etc.).

Total costs will often depend on the size of the operation. Finally, there are no guarantees of high prices at the end of the rotation because there is always the risk of valuable trees succumbing to drought, wildfire, insects, diseases, and pests.

What Type of Farm Are You Going to Have?

Christmas tree growers in Virginia have three options when growing and marketing their trees: wholesale, choose and cut, and retail lots. Selling Christmas trees wholesale refers to selling large numbers of trees at one time to one or a few buyers. Current wholesale prices for Fraser fir in 2013 were \$26 for No. 1 and \$20 for a lower-grade No. 2 tree. Choose-and-cut growers sell single trees to individual customers visiting their farms. These farms have trees of all different sizes and up to 10 different species. Alternatively, Christmas tree farmers may choose to market their trees on a separate retail lot. Each of these methods has benefits and drawbacks.

Christmas Tree Production

Site Selection

Once the grower has determined the type of farm they are going to have, the next consideration is site selection. The most suitable planting areas, spacing, appropriate tree species, and logistical constraints should be determined. The importance of proper planning cannot be stressed enough.

Plantation Planning

Proper planning before planting ensures the efficiency of subsequent operations. Planning includes determining the total number of available acres to be planted, plantation layout, and individual tree spacing. The most serious mistake is excessive planting without consideration of the subsequent labor requirements and marketing.

Site Preparation

Once the plans for the location and number of trees are laid out, the site can be prepared for planting. Inadequate site preparation creates future problems that often require extensive hand labor to correct or could even cause plantation failure. Depending on conditions, site preparation may consist of any or all of these operations:

- Eradicating existing trees and shrubs.
- Removing physical obstacles (stumps, logs, etc.) to permit cultural operations.
- Controlling grasses and other herbaceous vegetation.

Site preparation should be completed the fall before planting; herbicide treatments should be done by late summer to early fall.

Species Selection and Seedling Size

Many species of Christmas trees can be grown in Virginia. Along with species that have traditionally dominated the market — Fraser fir, eastern white pine, Scotch pine, Norway spruce, Colorado blue spruce, Leyland cypress, and Douglas-fir — many new species are being introduced. These exotic species include Concolor fir, Canaan fir, Turkish fir, Carolina sapphire cypress, and Serbian spruce, to name a few. With regards to seedling size, larger seedlings will be marketable sooner; of course, they are also more expensive.

Once you've completed your planning and seedling selection, the real work begins. For a successful venture, you must also consider the following tasks:

- Planting
- Shearing
- Pest Control
- Marketing
- Weed Control
- Fertilization
- Coloring

For details on these aspects of growing Christmas trees, see the full-length version of this article: *An Introduction to Growing Christmas Trees in Virginia*, VCE Publication 420-080; [https://pubs.ext.vt.edu/420/420-080/420-080\\_pdf.pdf](https://pubs.ext.vt.edu/420/420-080/420-080_pdf.pdf).

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For more information, contact the author, the Virginia Christmas Tree Growers Association (<http://www.virginiachristmastrees.org>), or the Mount Rogers Area Christmas Tree Growers Association, Inc. ([www.mtrogersfraserfir.org](http://www.mtrogersfraserfir.org)).

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An Introduction to Growing Christmas Trees in Virginia

By: Kyle Peer, Virginia Tech

Ed. note: Christmas trees in July? While not seasonal, I wanted to feature this article in time to promote the upcoming Virginia Christmas Tree Growers Association's Annual meeting in Staunton this August. See the Events Calendar on page 2 for details!

Virginia landowners may want to consider Christmas tree farming as an alternative enterprise for their unused open land. It is estimated that there are between 400 and 500 growers in Virginia. They range in size from choose-and-cut operations on a few acres of land to wholesale operations covering hundreds of acres, with the average farm having around 40 acres in production. Regardless of size, growing Christmas trees successfully takes expertise and an investment of time and capital.

This article provides a brief introduction to Christmas tree production in Virginia. Potential growers should certainly seek more detailed information from their local Virginia Cooperative Extension agents and specialists because proper planning can be the key to a successful plantation.

Advantages of Growing Christmas Trees

Most agricultural and horticultural crops require larger financial investments and more intensive management than timber production. Christmas tree production is a compromise between short-term, intensively managed agricultural crops and long-term timber production.

- Christmas tree rotations are much shorter than timber rotations.
- Christmas trees can be grown economically on small acreages.
- Christmas trees require less ground cover disturbance than many agricultural crops.
- Capital investment for machinery can be low for Christmas tree production.
- Many growers begin production for reasons other than economic returns.



A Christmas tree farm in Grayson County. Photo by: Jennifer Gagnon, Virginia Tech.

Misconceptions About Growing Christmas Trees

- Growing Christmas trees is easy. As you continue to read through this article, you will understand that growing a quality tree will take investments of time, work, and money.
- It will be a good use of my marginal land. It is true that trees, especially pines, can adapt and survive in a variety of climate and soil conditions. However, as a Christmas tree grower, you are not just trying to have a tree survive; you need it to thrive.
- It is a quick return on investment with a very high rate of return. Growing Christmas trees is an investment in capital and time, and it carries the same inherent risks as other types of farming.

Christmas Trees as an Investment

Experienced growers estimate that once the trees are above 3 feet tall, each acre requires about 40 man-hours per year of care. Furthermore, many cultural treatments must be done at certain times of the year. Shearing is often confined to a five-week period during early summer, and mowing is required throughout the growing season. Frequently, growers will plant too many trees and find they must hire outside help in order to keep up with all the cultural practices that need to be done in later years.

Virginia's New Century Forest Program

Since 1997, Virginia has had a Century Farm Program. This program honors Virginia families whose property has been in the same family for 100 years or more, lived on or actively farmed by a direct descendant of the original owners, and grosses more than \$2500 annually from the sale of farm products.

In 2016 the General Assembly passed a bill to enact a Century Forest Program that honors Virginia families who have owned and managed forestland for more than 100 years. For a property to be designated a century forest, it must have been in the same family for 100 years or more, include at least 20 contiguous acres of managed forests, be lived on or managed by a descendant of the original owners, and have a documented history of timber harvests or other forest management activities. If you think your forestland qualifies, application forms should be available from the Virginia Department of Forestry in July.

CONTACT OUR SPONSORS AND STATE NATURAL RESOURCE MANAGEMENT AGENCIES:



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900 Natural Resources Drive Ste. 800 Charlottesville, VA 22903 434/977-6555 www.dof.virginia.gov	228 Cheatham Hall 0324 Blacksburg, VA 24061 540/231-6391 http://forestupdate.frec.vt.edu	1400 Independence Ave. SW Washington, D.C. 20078 202/205-8333 http://www.fs.fed.us/spf/coop/programs/loa/fsp.shtml	3808 Augusta Ave Richmond, VA 23230 804/278-8733 www.vaforestry.org	3808 Augusta Ave Richmond, VA 23230 804/278-8733 www.vaforestry.org/virginia_tree_farm.html

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EVENTS CALENDAR			For the most complete listing of natural resource education events, visit the on-line events calendar at <a href="http://forestupdate.frec.vt.edu">http://forestupdate.frec.vt.edu</a>		
Contact	Date	Location	Event	Time	Fee
DCR	July, Aug., & Sept.	Virginia's State Parks	<b>A variety of events and activities</b> For a complete list, visit: <a href="http://www.dcr.virginia.gov/parks">www.dcr.virginia.gov/parks</a>	Varies	Varies
MP	Year-round	State-wide	<b>Virginia Master Naturalist Volunteer basic training</b> <a href="http://www.virginiamasternaturalist.org/chapters.html">www.virginiamasternaturalist.org/chapters.html</a>	Varies	Varies
JMM	July 17	Montpelier Station	<b>Working Woods Walk</b> Venture deep into the Montpelier Demonstration Forest on a two-hour hike guided by experts in forest conservation. Learn about cultivation strategies that generate mutual benefit to man and nature, both in the Madisons' time and today.	2 - 4	\$10/person or \$5/person with purchase of a mansion ticket
KP	Aug. 4-6	Staunton	<b>Virginia Christmas Tree Growers Association Annual Meeting</b> This meeting is open to non-members and is great for anyone thinking about growing Christmas tree commercially on their farm.	All day	TBD
KT	Aug. 5-7	Floyd	<b>Blue Ridge Woodland Growers Medicinal Plant Forest Farming Training</b> This 2-day training event will provide an overview of forest farming from the forest floor to the shelf.	Fri. 4:00 - Sun. 12:00	\$40*/person; lodging available
JG	Aug. 26-28	Wakefield	<b>Southeast Virginia Beginning Landowner Weekend Retreat</b> Spend the weekend with fellow forest owners and natural resource professionals. A combination of classroom talks, field tours, and hands-on experiences will teach new landowners about important aspects of forest management.	Sat. 7:30 - 7:30; Sun. 7:00 - 1:00	<b>No Lodging</b> Individual: \$65* Couple: \$110* <b>Lodging</b> Individual: \$145** Couple: \$250**
EL	Aug. 26-28	Mountain City TN	<b>Appalachian Sustainable Development Medicinal Plant Forest Farming Training</b> Academic and industry experts will address the whole range of a woods-grown operation, from propagating and cultivating, to harvesting, processing and marketing native herbs.	Fri. 1:00 - Sun. 10:00	\$40**
JF or AD	Sept. 13&20 or Oct. 5 & 12	South Boston or Orange	<b>Preparing for Generation NEXT</b> You value your forest and/or farmland for multiple reasons such as wildlife, privacy, recreation, timber, hunting or scenic qualities. Find out how to prepare to pass the environmental and heirloom values rooted in your forest to the next generation. Without breaking it up.	12:30 - 7:00	\$50* for up to 2 people; \$25* each additional family member
JG	Sept. 23-25	Abingdon	<b>Southwest Virginia Beginning Landowner Weekend Retreat</b> See Southeast Retreat above.	Sat. 7:30 - 7:30; Sun. 7:00 - 1:00	TBD
NC AD BW JF	Oct. 7 Oct. 14 Oct. Oct.	Essex Prince William Lee Dinwiddie	<b>40th Anniversary Fall Forestry &amp; Wildlife Field Tours</b> Join VCE, natural resource professionals, and fellow forest owners to learn about forest and wildlife management on private, public, and industry-owned lands. A complete schedule will be available in August.	All day	TBD

\*meal(s) included; \*\* meal(s) and lodging included.

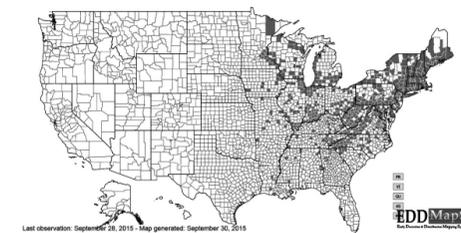
#### EVENT CONTACTS

Contact	Name/Affiliation	Phone	e-mail/website
DCR	Virginia Department of Conservation & Recreation	804/786-1712	<a href="http://www.dcr.virginia.gov">www.dcr.virginia.gov</a>
MP	Michelle Prysby	434/872-4580	<a href="http://www.virginiamasternaturalist.org">www.virginiamasternaturalist.org</a>
JMM	James Madison's Montpelier	540/672-2728	<a href="https://montpelier.org/">https://montpelier.org/</a>
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## You Ain't From Around Here! Exotic Invasive of the Quarter: Oriental Bittersweet (*Celastrus orbiculatus*) By: Jennifer Gagnon, Virginia Tech

When I was a kid in New England, my mother's decorating style was, well, let's call it late-century vegetative. As a gardener, I think the harsh winters really took a toll on her well-being. She couldn't wait to see green again, and when it was available, she brought as much vegetation into the house as she could. In early spring, she would bring in pussy willows, followed by boughs of dogwood blossoms. In the summer, she filled our home with gladiolas. In the fall, in addition to ironing colored leaves between sheets of wax paper, she would bring in boughs of what I now suspect was oriental bittersweet. It grew in abundance over the compost heap in my grandparents' yard next door. As a young adult, I lived in the deep south and didn't think about oriental bittersweet for many years. It was when I moved to Virginia (as a middle-adult) that sightings of it brought back old memories and I learned it was most likely an exotic invasive she was decorating with.

Oriental bittersweet, also called Chinese bittersweet, Asian bittersweet, round-leaved bittersweet, and Asiatic bittersweet, is native to eastern China, Korea, and Japan. It was introduced to the United States in the mid-1800s as an ornamental. It was also planted for erosion control and wildlife food and habitat. Since 1971, it has been considered weedy in all of New England and most Atlantic coastal states.



Current range of oriental bittersweet in the United States. Map by: EDDMaps.

Oriental bittersweet is dioecious, like tree-of-Heaven, meaning there are separate male and female plants. Both will flower, but only the female plants will produce fruit and seeds. The male flowers produce pollen.

Why is this species a problem? First off, my mother was not the only person attracted to the brightly colored ripened fruits of this vine. In the fall, vines are made into decorative wreaths and floral bouquets (just look on Pinterest!). Improper disposal of these items leads to seed dispersal. People looking to buy these items or this plant can readily do so through the magic of the internet (although I was pleased to see that many sites sold the native American bittersweet instead and a few even warned against buying oriental bittersweet). Additionally, the ability of the seeds to float and the wide range of birds that eats them, aid dispersal.

Second, oriental bittersweet climbs trees by twining. This twining can girdle the stems, effectively killing the trees. If dense, heavy mats of oriental bittersweet develop in tree crowns, the risks of windthrow and ice damage increase and unsafe harvesting conditions may be created - not to mention the added labor needed to remove the vines from harvested trees.

Third, oriental bittersweet is a rapid grower and quickly out-competes other nearby vegetation. Some studies suggest that it has a faster rate of photosynthesis than native species, allowing it to make food more quickly and thus grow faster.

Fourth, this species can grow in a wide range of environments. The vines grow in abandoned and agricultural fields, coastal beaches, dunes, early successional forests, forest edges, pastures, plantations, rights-of-way, along roadsides, in salt marshes, fence rows, vacant lots, yards, and gardens. While oriental bittersweet grows best in the sun, it can tolerate dense shade.

Finally, oriental bittersweet is reducing the extent of the native American bittersweet. This is in part due to its faster growth rates and higher seed production. But it also hybridizes with American bittersweet, resulting in a loss of genetic integrity. If you are planning a control effort, you definitely want to be able to tell the two species apart so you can protect the native one. The most consistent characteristics to use are the flowers and fruits. Oriental bittersweet flowers and fruits are borne in the leaf axils all along the stems; American bittersweet flowers and fruits are borne only at the tips of branches. Of course, these characteristics are only useful when the plants are flowering or when the females are fruiting. In addition, the hybrids are notoriously difficult to identify.



Bittersweet cont. on page 4



When available, the locations of the flowers and fruits are the best way to tell the difference between oriental and American bittersweet. Oriental bittersweet flowers and fruits are in the leaf axils all along the stems (left). American bittersweet fruits and flowers are located only on the tips of branches (right). Photos by Leslie Mehrhoff, University of Connecticut.

### Bittersweet cont. from page 3

#### How to Identify Oriental Bittersweet

**Growth:** Deciduous, woody, sprawling, twirling vine or trailing shrub.

**Leaves:** Alternate arrangement; shape varies widely - from round, to oblong, to long tapering points; finely toothed edges; glossy surfaces.

**Stems:** Many-branched, light brown to gray (new branches may be green); smaller branches dotted with tiny light-colored bumps (lenticels); older vines can be up to 4" thick and 60' long.

**Flowers:** Inconspicuous, small, 5-petaled, greenish-yellow; clusters of 3-7, appear in leaf axils in May - June.

**Fruits:** Clusters of 1-3 fruits attach at axils along stem; green in summer, become bright yellow/orange in late summer; outer membrane splits in September, bending back to reveal a bright red fleshy inner fruit containing 1-2 seeds which can persist through winter.

The leaves of oriental bittersweet are quite variable, ranging from round, to oblong, to long tapering points (pictured, left). Flowers appear in leaf axils in May or June (center). Smaller branches are dotted with small white lenticels (right). Photos by: Chris Evans, University of Illinois (left and center), and James Miller, USDA Forest Service (right).



#### How to Control Oriental Bittersweet:

First, make certain you are treating oriental bittersweet, not the native American bittersweet. If you're not certain, contact your local Extension office.

- Small, localized infestation can be mechanically controlled with hand-pulling. However, be certain to remove all roots. Cut climbing vines near the ground and pull roots.
- Vines climbing up trees are best controlled using a combination of mechanical and chemical methods. Cut vines at ground level. Immediately apply herbicide to cut stumps - triclopyr amine (e.g., Garlon 3A) or glyphosate (e.g., Accord) mixed with water, in winter, early spring or fall, when native plants are dormant.
- For large infestations that cover extensive areas of ground, apply triclopyr ester (e.g., Garlon 4) or glyphosate (e.g., Rodeo, Roundup, Accord) herbicide, mixed with water and a non-ionic surfactant, to the leaves in the fall, after the first hard frost or in early spring, when native plants are dormant.

If desirable grasses, sedges, lilies, or other monocots are present, consider using a monocot-safe triclopyr-based herbicide. And always follow the label on whichever herbicide you choose.

As with any invasive species control efforts, be certain to monitor the area after control, be prepared to retreat if necessary, and reclaim the site with native vegetation.

The etymology of this species is pretty straightforward. The genus *Celastrus* is from the ancient Greek *kelastros* (the name for an evergreen tree) and *orbiculatus* means round. The common name is actually more interesting and accurate. MacMillian defines bittersweet as involving or causing feelings of happiness and sadness at the same time. And oriental bittersweet evokes both of these feelings in me - happiness stemming from good memories from my childhood; sadness stemming from the amount of money and work required to prevent it from taking over my barnyard.

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Oriental bittersweet climbs shrubs and trees, preventing sunlight from reaching the crowns and eventually leading to mortality. Photo by: Nancy Lowenstein, Auburn University.