



# Successful Gardening through Extension

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If you are a person with a disability and desire any assistive devices, services or other accommodations to participate in this activity, please contact Shawn Appling at 540-727-3435 during business hours of 8 a.m. and 5 p.m. to discuss accommodations 5 days prior to the event.\*TDD number is (800) 828-1120.

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## The Effects of Cold Weather and Snow on Landscape Plants

The cold, winter weather we have experienced the last month has impacted our homes and landscapes in many ways. We have all complained about the cold mornings and gray afternoons, along with the slick roads and sidewalks. Our plant friends have also experienced this cold and have responded with brown leaves, along with dead branches and flower buds that will not be evident until spring. So, what is it about winter that bothers plants and what protection measures can we put in place?

In addition to heavy snowfalls breaking branches and uprooting Leyland cypress, rapid temperature changes may injure plant tissues. Warm 60°F days followed by cold fronts lowering the temperatures below freezing can wreak havoc on plant tissues, from dead flower buds, to branch and root death. Newly expanded leaves and buds exposed to freezing temperatures may appear wilted and turn black within hours or days after the event. The damage is caused by the formation of ice crystals, which rupture the cell walls of plant cells.

Frozen soil can lead to desiccation of needled and broad-leaved evergreens. Windy, sunny days can lead to rapid tissue damage as leaves warmed by the sun begin to transpire. The water lost through transpiration cannot be replenished under these circumstances since the roots are frozen solid. This often leads to brown leaf margins or whole leaves as in the case of camellias, hollies, and junipers. The damage is most evident on the windward side of the plant.

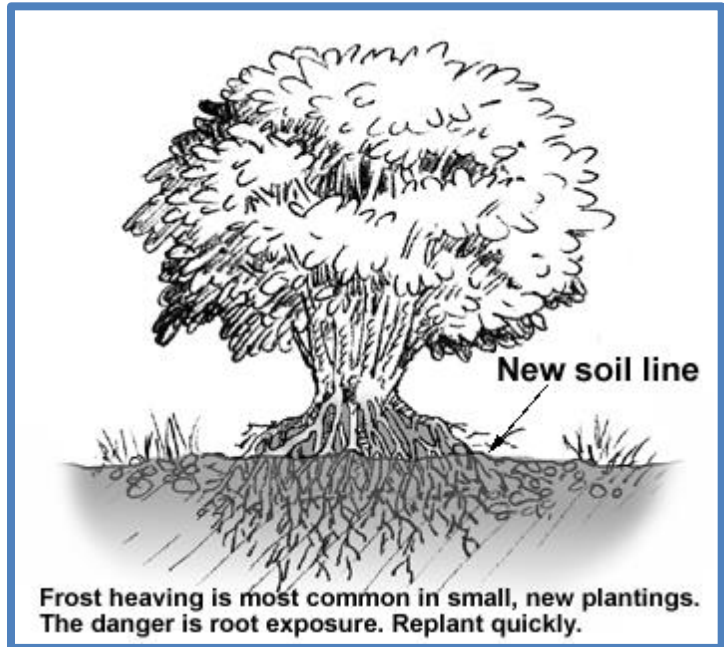


Figure 1. Frost Heaving. Virginia Cooperative Extension (VCE Publication 426-500)

Frost heaving (Figure 1) can also damage plants through the process of the soil alternating between freezing and thawing. This process can push shallow rooted plants out of the ground, exposing the roots to wind damage.

Trees and shrubs with smooth bark may also experience bark splitting (another name is southwest injury since the damage is usually seen on this side of the tree) because of sudden changes in temperature. Sunlight can warm the bark on clear days, which may cause splitting as the temperature rapidly declines after sunset or during cloudy weather. This decline in temperature freezes the water within the trunk of the tree, causing it to split open. Trees such as cherries, maples, and young fruit trees are most susceptible. Wrapping the trunk with burlap strips, painting white, or shading the trunk may help prevent the split.

Some preparations can be undertaken before the cold weather hits. The first step is to grow plants that are cold hardy in our USDA Plant Hardiness zones 6a, 6b, or 7a (for more information about plant hardiness zones please see the article below). Other steps to take include not fertilizing in fall, no late summer pruning (which may lead to new growth that is damaged by frost), watering of evergreen plants during dry fall weather, and finally mulching to slow moisture loss and prevent upheaval of newly planted plants. A two to four inch layer of mulch will reduce soil heaving.

It is best to wait to spring to determine whether or not dead limbs will need to be pruned from trees and shrubs. The spring flush of growth should hide the damaged leaves of evergreens. Patience is the best practice, because some damaged plants such as crape myrtles may not leaf out until June after severe winters. If patience is not your virtue, you can also use a pocket knife to scrape back the outer layer of bark to check for green cambium tissue. Seeing green tissue is a good sign that the plant is not totally dead, even though it is not a guarantee. Also, keep an eye on winter-damaged plants if drought conditions are experienced the following summer. Winter damage plus summer drought could lead to the demise of your perennial, shrub, or tree. For more information, please view the following articles or contact your local extension office (<http://ext.vt.edu/offices.html>):

- Mason, S. *How Plants are Affected by Cold and Winter and How to Protect Them*. University of Illinois Extension. Assessed January 18, 2018.  
<http://web.extension.illinois.edu/cfiv/homeowners/980110.html>
- Relf, D. and B. Appleton. *Managing Winter Injury to Trees and Shrubs*. Virginia Cooperative Extension (VCE) Publication 426-500. 2014.  
[http://pubs.ext.vt.edu/content/dam/pubs\\_ext\\_vt\\_edu/426/426-500/426-500\\_pdf.pdf](http://pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/426/426-500/426-500_pdf.pdf)
- Vaughn, M. *Snow and Cold Weather Can Have a Huge Impact on Landscape Plants*. North Carolina Cooperative Extension. Assessed January 18, 2018.  
<https://swain.ces.ncsu.edu/2014/03/snow-and-cold-weather-can-have-a-huge-impact-on-landscape-plants/>

## What are Plant Hardiness Zones?

The United States Department of Agriculture (USDA) separates Virginia into four plant hardiness zones (Figure 2). These zones are based on the average annual low minimum temperature recorded in the assigned zone between the years 1976 to 2005. This low temperature is the lowest temperature expected during an average winter. Some winters might be warmer than expected, while other winters are colder than expected. The USDA plant hardiness zones in Virginia range from zone 5 (average minimum low temperature -20 to -10 °F) to zone 8 (average minimum low temperature 10 to 20 °F). These zones are further subdivided into a and b zones based on five degree temperature differences, for example zone 5 is divided in zone 5a (average



Figure 2. USDA Hardiness Zone Map for Northern Virginia.  
<http://planthardiness.ars.usda.gov/PHZMWeb/Maps.aspx>

minimum low temperature -20 to -15 °F) and zone 5b (average minimum low temperature -15 to -10 °F).

Knowing your plant hardiness zone can assist you when choosing vegetables, fruits, and/or ornamentals by indicating which plants can and cannot survive the winter temperatures. Culpeper, Madison, and Orange Counties fall into the USDA plant hardiness zones 6a (average minimum low temperature -10 to -5 °F), 6b (average minimum low temperature -5 to -0 °F) and 7a

(average minimum low temperature 0 to 5 °F).

**Events of Interest**

- **2018 Winter Vegetable School on February 22 (8:30 am to 4:30 pm).** Topics will include insect pest updates, attracting pollinators, conservation tillage, food safety moderation act compliance, sweet potato production tips, and vegetable disease updates. For more information, please contact VCE - Fauquier (540) 341-7950 or email [tohlwile@vt.edu](mailto:tohlwile@vt.edu).
- **Third Annual Horticulture Dayz on February 28 and March 1.** Keynote speakers include Stanton Gil (Principle Agent, Nursery & Greenhouse Mgt., UMD) and Ed Gilman (Professor, Urban Trees & Landscape Plants, University of Florida). A youth career day will be held on March 1. For more information, please contact VCE - Fauquier (540) 341-7950 or email [tohlwile@vt.edu](mailto:tohlwile@vt.edu).
- **2018 Greenhouse and Nursery Update on March 9 (9:00 am to 4:00 pm).** Topics will include hydroponic greenhouse production tips and techniques, produce handling safety guidelines, and hydroponic plant disease updates. For more information, please contact VCE - Culpeper (540) 727-

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3435 or email [ashawn6@vt.edu](mailto:ashawn6@vt.edu); or VCE - Loudoun (703) 737-8978 or email [flores69@vt.edu](mailto:flores69@vt.edu).

- **How to Start a Home Based Food Business on March 13** (1:30 pm to 4:30 pm). This workshop will cover the regulations and food safety issues that are involved in operating a food business. For more information, please contact VCE - Culpeper (540) 727-3435 or email [rebes13@vt.edu](mailto:rebes13@vt.edu).



January 2018 is still National Soup Month! Healthy tips and recipes can be found on this blog post by Austin Brooks from 2016, located on the Virginia Cooperative Extension website: <http://blogs.ext.vt.edu/eatsmart-movemore/2016/01/12/soups-on/>