



Container growers beware! Exposed root systems are more susceptible to winter freeze injury. These roots are exposed to the elements, therefore, no longer protected within the growing media and pot. Plants should be potted at the same depth of the container they are transplanted from. Too high (and too low) can both be detrimental to the survival of the plant.

# TSU NURSERY NEWS TO USE

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## EMERGING ISSUE UPDATE

Late 2019, growers began voicing concerns about dieback and yield loss (up to 60%) on *Cercis americana*. Symptoms included shoot/tip dieback (young liners may die back to the ground, and in this case, often attempt to push growth from the root system, resulting in smaller, stunted (aka mouse-eared), often chlorotic leaves (mimics nutrient deficiency), vascular streaking and in some cases mortality of the tree (liner dies back to the ground and no new growth is pushed from the root system). In cases with older trees, isolated shoots begin to exhibit wilt symptoms. Shoot tips wilt and rapidly, progressing to foliar discoloration mimicking nutrient deficiency and leaf scorch. Entire canopies will often die back quickly, resulting in a 'chunk' of tree missing. Vascular discoloration is highly visible in stem sections. Reports from growers mentioned losses over multiple years that had been attributed to environmental damage resulting from excessive rainfall and past weather stress.

There was difficulty identifying the cause of what we were seeing from our Tennessee diagnosticians, therefore, samples were forwarded to contacts at Purdue University Plant Diagnostic Lab. In 2021, Purdue confirmed a pathogen unknown to the U.S. in *Cercis canadensis* and forwarded samples to the USDA Beltsville for confirmation. Here is what the USDA reported: "A stem from a redbud, *Cercis canadensis* was sent to the Plant Pathogen Confirmatory Diagnostics Laboratory (PPCDL) by John Bonkowski, Purdue, for confirmatory testing on 06/25/2021. The redbud was located at a tree farm in Tennessee. The sample tested POSITIVE for *Rhizoctonia* sp. based on conventional PCR and sequencing. *Rhizoctonia* sp. is **Non-Quarantine**.





Vascular spotting and streaking visible within cross sample of *Cercis canadensis*. CREDIT: Amy Dismukes

In December of 2021, we met with a group of researchers, extension specialists and state regulatory specialists to discuss the growing issue. Tennessee is not the only state experiencing these losses. At this meeting, North Carolina reported confirmation in additional host plants, cultivars of redbud, dogwood, red maple and native spicebush.

NC State held a grower meeting at the beginning of January. If you would like a recorded copy of this meeting, please contact Mindy Money at [mindy.money@basf.com](mailto:mindy.money@basf.com).

#### WHAT DOES THIS MEAN?

Currently, we do not have 100% confirmation of this pathogen and cannot confirm that it is actually causing the symptoms and dieback, therefore, will continue to treat this issue as a fungal pathogen that results in vascular discoloration. PLEASE KNOW, we are ALL working diligently to identify and confirm the source of this vascular streak issue.

In order to provide control recommendations, research must be done. A multistate workgroup is in development in order to apply for funding. Best management practices will be implemental in control, including sanitized pruning. Because we know this is a vascular issue, and propose that spread may occur via spore, it is important to also protect foliage of potential host plants.

#### WHERE IS IT HAPPENING?

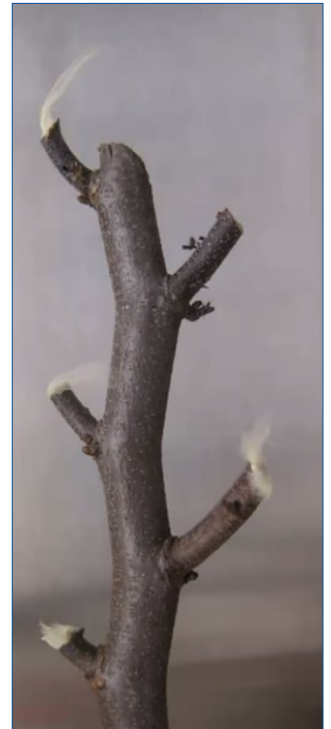
At this point, the issue has been confirmed in Franklin, White and Warren counties. We feel safe to assume it is present across the state. It has also reported in North Carolina, South Carolina, Arkansas, Florida, Alabama, Georgia and Virginia.

#### WHERE DID IT COME FROM?

At this time do not know and do not care. It may have always been around and needed an environmental coaxer OR it could be a new pathogen. The goal is to identify, confirm and research ... in order to provide research-based control or management options for the industry without laying blame or pointing fingers. This was a consensus among participating states. Because USDA is not reactive to non-quarantine pests, we in Tennessee (TSU NRC, TDA, UT and TSU), in collaboration with other states are working toward a solution.

#### SHOULD WE BE CONCERNED?

NO ONE IS IN TROUBLE! Please do not panic. Knowing that is easier said than done, let us reassure you that WE (TENNESSEE) are on it. We would like to invite you, the grower, to participate. Please work with TDA on surveys and sample requests. I will also be available for sampling. We are not concerned about who or where this issue came from, only how to stop it! Your input is vital. DON'T PANIC! Yes, we have a problem. Yes, we find a control. Please contact me at [adismuk1@tnstate.edu](mailto:adismuk1@tnstate.edu) or 970-372-8556 for questions or to schedule a site visit. You can also contact Katy Kilbourne at [Katherine.Kilbourne@tn.gov](mailto:Katherine.Kilbourne@tn.gov) or any TDA inspector.



Mycelium grown from infected branch of redbud. CREDIT: NCSU

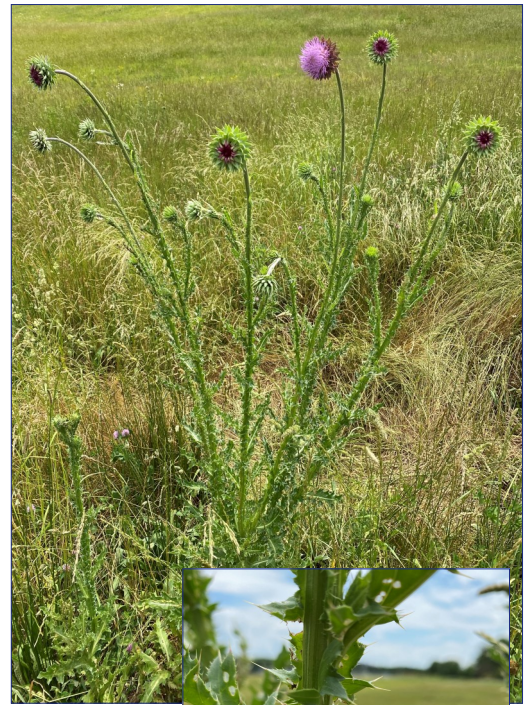
**WEED OF THE MONTH: Musk Thistle (*Carduus nutans*)** is an herbaceous cool season biennial (sometimes annual) weed native to Europe but is found throughout most of the United States. Plants prefer well-drained soils but are adaptable to a wide range of conditions and are commonly found in open areas such as pastures, roadsides, and nursery fields.

Musk thistle plants have spiny leaves and stems which are painful to touch, making it a nuisance in field-grown nursery crops where it can shade out small plants and disrupt cultural practices (fertilizing, pruning, etc.) and harvesting.

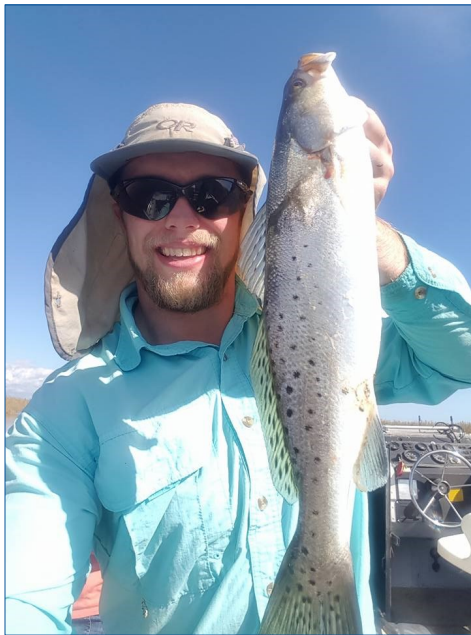
Seeds do not require dormancy, germinate in late summer/fall, and young plants overwinter as a basal rosette. In March, plants produce several stems that can grow to 6 feet tall. Musk thistle starts blooming (purple/red flowers) in May and can continue through the summer, with an individual plant producing over 10,000 seeds which are wind-dispersed up to several miles and can remain viable in the soil for over ten years.

Plants produce a long branched taproot that is difficult to remove by hand-pulling. Musk thistle tolerate mowing and can re-grow if shoots are damaged.

Post-emergent herbicide applications (2% glyphosate solution) can control musk thistle but are most effective when applied to basal rosettes (prior to stem elongation) in late winter/early spring. Pre-emergent herbicides should be used to prevent seed germination within nursery tree rows and effective products contain isoxaben and simazine. Please contact Dr. Anthony Witcher ([awitcher@tnstate.edu](mailto:awitcher@tnstate.edu)) for more information on nursery weed control practices.



CREDIT: Dr. Anthony Witcher



*From the desk of Phillip Haar, the new TSU Eastern Region Nursery Extension Specialist!*

I am originally from McDonough, Ga just north of Griffin where I grew up on a farm where we raised pigs, cows, goats, turkeys and chickens. I spent a lot of time outdoors in the woods and started collecting insects when I was four years old. As I got older I also became interested in trees and plants and started having annual organic gardens growing many vegetable crops. Upon graduating high school I enrolled at UGA where I earned my Bachelors in Environmental Science and Agriculture and later also earned my Masters in Entomology studying sugarcane aphids on grain sorghum. My graduate and undergraduate experience is largely row crop production with emphasis on insect pests, diseases and agronomy.

My role and focus now is to assist nursery growers with production needs and also educate and inform growers and landscapers of the most current best management practices and updates on the nursery industry as a whole.

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