

Call for Abstracts

15th International Christmas Tree Research and Extension Conference

Abstracts are now being accepted for poster presentations and in-person or virtual oral presentations at the 15th CTRE conference. We welcome presentations on research and extension activities related to all aspects of Christmas tree production and marketing. Subject areas for the conference include:

- Breeding and Genetics
- Pest Management
- Post-harvest Technologies
- Tree Physiology and Management
- Marketing

Abstracts for oral presentations specifically related to the impacts of climate change on Christmas tree systems will be considered for featured presentations with extended presentation time. Please submit abstracts using the attached form to: Bert Cregg cregg@msu.edu by April 8, 2022.

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Abstract submission

Submit to: Bert Cregg cregg@msu.edu by April 8, 2022

Subject area (from call for abstracts): _____

Preferred session: Poster presentation: _____
 In-person oral presentation _____
 Virtual presentation _____

_____ I/We wish to be considered for a featured presentation related to impacts of climate change

Please use the form below for abstract submissions (see attached example):

Presentation title

Author 1¹, Author 2², Author3³, etc.

1. Affiliation and address of Author 1
2. Affiliation and address of Author 2
3. Affiliation and address of Author 3
4. Etc.

Corresponding author: author1@e-mail.edu

Abstract: (300 word limit)

Inoculation of young Norway spruce rooted cuttings with *Neonectria fuckeliana*

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The fungus *Neonectria fuckeliana* causes canker disease on Norway spruce and has become an increasing problem in Scandinavia during recent years. Lack of knowledge about pathways for the fungus, may lead to management activities promoting spread. In a greenhouse study, four different treatments of the terminal leader of three-year-old Norway spruce rooted cuttings were inoculated with a microconidial suspension using two different isolates of *N. fuckeliana*. The four treatments included different wounding techniques: 1. cutting the top shoot, 2. wounding the stem using a scalpel, 3. removal of needles, and 4. non-wounded treatment. Control plants received the same four treatments, but they were inoculated with water. Both dormant and actively growing plants were used for all treatments. Nine months after inoculation, the study was terminated and lesion length under the bark was measured. One sixth of the plants were randomly selected to test for the presence of *N. fuckeliana* using both isolation and molecular identification with real-time PCR.

Development of necrotic cankers, extensive top whorl dieback, or production of fruiting bodies of the fungus, like we observe outdoors, did not occur within the timeframe of the experiment. The lesion lengths were generally minor. However, host tissue was infected since *N. fuckeliana* was re-isolated and detected using real-time PCR from both dormant and actively growing plants.

The weak reaction observed, where *N. fuckeliana* lived more or less asymptotically in the host tissue for 9 months, is in line with older studies describing *N. fuckeliana* as an endophyte or a weak pathogen. This contra-dicts the increase in top-dieback of younger trees and the large canker wounds on older trees that have recently been observed in Scandinavia. However, we believe that our field observations of increased necrotic canker damages may be associated with recent climatic changes. Furthermore, the fungus is mainly spread by ascospores under natural conditions, a spore stage known to cause epidemics for several closely related *Neonectria* spp.