



# CAES

The Connecticut Agricultural Experiment Station

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## CAES SEMINAR SERIES

### **“Accounting for Decay and Carbon Loss in Living Trees: A Novel and Nondestructive Approach Using Tomography”**

**Dr. Robert Marra**

Dept. of Plant Pathology and Ecology, CAES

**Wednesday, January 18, 2017**

12:00 noon to 1:00 p.m.

Food and coffee will be available at 11:45 a.m.

Jones Auditorium

The Connecticut Agricultural Experiment Station

123 Huntington Street, New Haven, CT

Because of their vast capacity for uptake and storage of atmospheric carbon, forests are critical to global warming mitigation efforts. Forest carbon-cycle studies, management strategies, and land-use policies require accurate estimates of carbon density, yet current allometric methods used in estimating the amount of stored carbon do not account for the widespread but largely ignored phenomenon of internal decay, a countervailing force to carbon sequestration. Sonic and electrical resistance tomography constitute a nondestructive means by which the volume of decay and cavities is inferred from cross-sectional images depicting variation in wood density and moisture. This talk will cover the development and validation of a methodology, using sonic and electrical resistance tomography, that accounts for internal decay and cavities in estimating the amount of carbon stored in the lower boles of trees. Applied to large-scale forest studies, this novel methodology has the potential to provide heretofore unprecedented levels of accuracy in forest carbon accounting.