



U.S. DEPARTMENT OF AGRICULTURE

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Climate Resilience: Insights for PNW Nursery Crop Growers

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Recent research by Carolyn Scagel (Horticultural Crops Production and Genetics Research Unit), Lloyd Nackley, and Sadie Keller (Horticulture, Oregon State University, OSU) at the North Willamette Research and Extension Center in Aurora, OR, has revealed information with the potential to reshape agricultural practices in response to a changing climate.

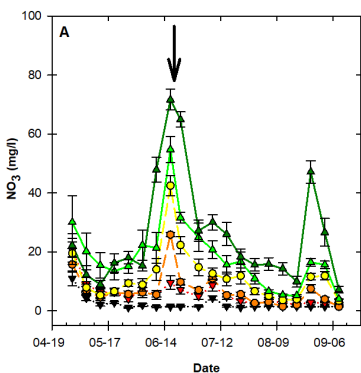
Hot Mess: Heatwaves Challenge CRF Fertilizers

A recent heat-dome in the PNW has provided insight on how controlled-release fertilizers (CRF), essential for efficient nutrient management, are vulnerable to heatwaves. Traditionally designed for gradual nutrient release over months, CRF released excess mineral salts during early summer heatwaves. This discovery underscores the urgency for growers to adapt to climate-induced temperature fluctuations. Effective CRF management is pivotal to ensure crops receive essential nutrients



Run-off pad at the NWREC

Insights into Nursery Crop Water Management



Spikes of nitrate release from CRFs

Another study delved into the PNW nursery industry's struggle with inefficient water use. Growers, facing more frequent heatwaves and droughts, must optimize irrigation practices. Focusing on two popular shade tree species, Red Maple and Red Oak, the research revealed, Red Maples are very responsiveness to shifting water availability to prevent hydraulic failure during drought. In contrast, Red Oaks did not have the same flexibility, thus revealing ways of optimizing irrigation management of these two species. The study also assessed tree vulnerability to drought-induced embolism which can be used to identify thresholds of drought susceptibility and inform nursery irrigation management.

These results bridge science and practical agriculture, empowering growers to thrive amidst climate change. while fostering environmental responsibility. Stay tuned for more developments in these vital areas of agricultural research.

For more information about the Horticultural Crops Production and Genetic Improvement Research Unit, and the NWREC visit (Carolyn Scagel is now part of the National Clonal Germplasm Repository):

[Horticultural Crops Production and Genetic Improvement Research Unit : USDA ARS](#)

[North Willamette Research and Extension Center | OSU Extension Service \(oregonstate.edu\)](#)

[National Clonal Germplasm Repository : USDA ARS \(Carolyn Scagel\)](#)