

Research Final Report entitled  
**Oregon State University North Willamette Research and Extension Center Nursery  
Production Internship**  
for  
**OREGON DEPARTMENT OF AGRICULTURE  
NURSERY RESEARCH AND REGULATORY COMMITTEE**

**Principle Investigators:**

Chal Landgren  
Christmas Tree Specialist  
North Willamette Res & Ext. Center  
Oregon State University

15210 NE Miley Rd  
Aurora, OR 97002  
Voice: 503-678-1264 ext 142  
Fax: 503-678-5986  
E-mail: chal.landgren@oregonstate.edu

Robin Rosetta  
Nursery Crops Extension  
North Willamette Res & Ext. Center  
Oregon State University

15210 NE Miley Rd  
Aurora, OR 97002  
Voice: 503-678-1264 ext 133  
Fax: 503-678-5986  
E-mail: robin.rosetta@oregonstate.edu

Luisa Santamaria  
Nursery Crops Ext. Plant Pathologist  
North Willamette Res & Ext. Center  
Oregon State University

15210 NE Miley Rd  
Aurora, OR 97002  
Voice: 503-678-1264 ext 112  
Fax: 503-678-5986  
E-mail: luisa.santamaria@oregonstate.edu

**COOPERATORS:**

Heather Stoven, Research Assistant, Oregon State University, Aurora, OR  
Voice: 503-678-1264; E-mail: heather.stoven@oregonstate.edu

Judy Kowalski, Research Technician, Oregon State University, Aurora, OR  
Voice: 503-678-1264; E-mail: judy.kowalski@oregonstate.edu

Nick Andrews, Regional Small Farms Agent, OSU, Aurora, OR.  
Voice: 503-678-1264 ext 149; E-mail: nick.andrews@oregonstate.edu

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**Amount requested:** \$18,797

**Oregon Department of Agriculture and Oregon Association of Nurseries  
Nursery Research 2012 Project Pre-Proposal**

**Date:** October 3, 2013

**Title: Oregon State University North Willamette Research  
and Extension Center Nursery Production  
Internship**



**Background**

The North Willamette Research and Extension Center internship is an ongoing educational program that immerses undergraduate and post-baccalaureate students into a multitude of nursery related projects and experiences. Interns have been from local (community colleges), regional (California, Washington, Oregon), national (Rhode Island, Minnesota, Illinois) and international (Europe, Asia, South America) locations.

Internships allow the North Willamette Research and Extension Center to obtain skilled personnel necessary to execute detailed and labor intensive nursery and Christmas tree research projects. The students gain aptitude in nursery related tasks as well as in research skills that include oral presenting, writing, data collection, entry and analysis, as well as writing, and critical thinking. In turn, the internship program allows the North Willamette to obtain skilled personnel during the prime research season. Interns will also gain experience and knowledge that can help place them in nurseries or related industries in the Pacific Northwest.

We remain dedicated to exposing students to the Oregon nursery, greenhouse and Christmas tree industries as well as the horticultural and natural wonders of the Pacific Northwest. The opportunity to tour nursery facilities as well as assist with on-site nursery research and extension gives the students a chance to interact with industry members and view different organizations, giving them a better understanding of nursery and Christmas tree production.

During the course of the internship, each student will develop and carry out an independent research/extension project allowing them to focus on a specific topic of interest. This project allows them to gain insight into challenges facing nurseries as well as gain aptitude in research protocol. If possible, the students will also demonstrate their projects to the industry at Nursery Research and Extension Faire as well as other venues, ensuring their research is disseminated while giving them experience presenting to groups.

Recent interns have lead or participated in the following projects:

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|--|---|
| ·Liming agents and sulfur affect on pH | Christmas tree crop health                              |
| ·Organic floriculture production       | ·Using insect biocontrol agents                         |
| ·Wireless irrigation monitoring        | ·Control of rooting out in pot-in-pot production        |
| ·Shade tree soil fertility             | ·Collecting plant germplasm for breeding and evaluation |
| ·Nursery tailwater bioremediation      |   |
| ·Evaluating technology to monitor      |   |

For 2012, existing and potential projects may include:

- Evaluating aerial inventory technology
- Using composted food-waste as a substrate component

- Evaluating copper-treated textile mats for slug repellency
- Assessment of baits for amber snail management efficacy (plant shipment contaminants)
- Development of boxwood spider mite sampling protocol
- Culturing and isolating soilborne pathogens
- Best management practices and insect control efficacy for plant exports
- Sprayer technology
- Christmas tree progeny evaluations for Nordmann and noble Fir
- Bud break timing evaluations
- Using technology for ground-based inventory

For this internship we are seeking students who are studying horticulture or plant science and are from universities and colleges across the U.S. and Canada. Students will be hired on OAN/ODA grant funds and work full-time for 3 to 4 months in 2012. Preference is given to students with course work in horticulture and/or those considering a career in the nursery or related industries.

### Project Objectives

1. To further the nursery research efforts at Oregon State University.
2. Provide students with plant science education and training related to nursery research.

### Results

During the summer of 2012 two interns were employed, Kara Woodward and David Gosser. Both students spent time assisting NWREC faculty and technicians by helping with shade tree and Christmas tree inventory, ornamental IR-4, Christmas tree progeny testing, pathogen laboratory evaluations and snail and slug management evaluations for nursery and Christmas trees. Assistance in these areas included duties such as plot maintenance, data collection and experiment initiation. This time spent on research projects helped the students gain skills in the use of scientific methodology, organization skills, use of equipment such as pH, EC meters and calipers as well as experience in growing plant material. In addition, both students were asked to help with our Extension workshops and tours, such as Bugs in the System.



Nursery and Christmas tree farm visits through on-site research was encouraged, allowing students to see a variety of production systems as well as meet members of the nursery and Christmas tree industries. Site visits include: Fessler Nursery, J. Frank Schmidt and Son, Barney Douglas Seed Orchard, Heirloom Roses, Hupp Seed Orchard, Hostetler Seed Orchard, Stone Mountain, McNeil Tree Farm, Monrovia, the Food Innovation Center, the Far West Show, and Woodburn Nursery and Azaleas.

Beyond ensuring the success of nursery and Christmas tree faculty research, the interns spent time each week working on their own projects.

- Kara Woodward – Portland Community College, Landscape Technology and Design
  - Kara's research project used Texel copper treated mats as a means to deter slugs, a plant shipment contaminant pest in Christmas trees and direct pest in nursery production.
  - Kara helped design, monitor and interpret her project

- Kara's research showed some repellency of the Texel mats to smaller-sized slugs but did not deter larger slugs. She determined further evaluations with a higher rate of copper should be considered in the future.
- David Gosser – Clackamas Community College, Horticulture
  - Used plant growth regulators to evaluate leader control in Christmas trees and height control in field grown shade trees
  - David helped design, applied treatments, evaluated results and helped interpret his project
  - An article on the research entitled "Putting the grower in control" was published for the OAN Digger Magazine's OSU Growing Knowledge Series in March 2013.



Due to the funding award cycle, the funding from 2012 also funded part of Adriana Escobedo-Land's (from Reed College) internship in summer 2013. Results from her internship will be detailed in the 2013 grant report.

### **Benefit to Nursery Industry**

Nursery interns at the North Willamette Research and Extension Center are essential in allowing nursery research to be performed in a timely and efficient manner. This research, in turn, will be disseminated to the industry benefiting growers and stakeholders. Interns will also gain experience and education benefiting the industry when they join the workforce.