

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

**Principle Investigators:**

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**COOPERATORS:**

Heather Stoven, Research Assistant, Oregon State University, Aurora, OR E-mail: heather.stoven@oregonstate.edu  
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**Funding period:** January 1, 2014 to December 31, 2014

**Amount requested:** \$17,336

**Oregon Department of Agriculture and Oregon Association of Nurseries Nursery  
Research 2014 Project**

**Date: December 28, 2014**

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

**Final Project Report**

In 2014 one intern was hired, Ryan Hill, George Fox University, Biology major. Ryan assisted the nursery and Christmas tree faculty with a number of tasks including:

- Smart Sprayer- assisting with data collection and sprayer efficacy evaluations
- Forage Islands for Bees and other Pollinators- assisting with planting and maintenance
- Plant pathology laboratory assistance- learning protocols, preparing samples, pathogen isolation and culture maintenance.
- Christmas tree progeny tests and evaluations, maintenance on Christmas tree seed orchards. He also worked on a grant "Evaluating the Use of Beneficial Insects for Aphid Control in Christmas trees".
- Ornamental IR-4 trials- data collections/evaluations

Ryan's assistance in these areas included duties such as plot maintenance, data collection and data organization. This time spent on research projects helped Ryan gain skills in the use of scientific methodology, organization skills, use of equipment such as tractors, as well as experience in growing plant material. In the plant pathology lab he became familiar with the use of laboratory equipment such as the autoclave and biosafety hood, and he collaborated on a small project isolating fungi from Christmas tree samples.

He also helped at wide range of events at NWREC including workshops and an open house.

Nursery and Christmas tree farm visits through on-site research was encouraged allowing Ryan to see a variety of production systems as well as meet members of the nursery and Christmas tree industries. Site visits included: Hans Nelson and Sons, J. Frank Schmidt and Son, Bailey Nurseries, Smith Gardens, Holiday Tree Farms, Green Acres, Parson Farms, Norby Christmas Tree Farm, Silver Mountain Christmas Trees, Kirk Company and Norlain Acres.

In addition to assisting nursery and Christmas tree faculty research, Ryan spent time each week working on a focused project- Evaluating the Use of Beneficial Insects for Aphid Control in Christmas trees. A copy of an article Ryan help write is attached. On this project he worked independently in scouting at Christmas tree grower fields for beneficial insects, aphids, and other pests. He collected and identified specimens while collecting data for analysis, analyzed research [reports](#), assisted other researches and analyzed data.

**Benefit To The Nursery Industry**

The following is feedback written by Ryan as a result of his internship experience at NWREC: "Working as the Nursery Program's intern at the North Willamette Research and Extension Center for the summer of 2014 has been a positive and diverse experience. As a biology student with a wide range of interests, this position has turned out to be an unexpectedly good fit. With Judy I have been able to learn more about horticulture as I have assisted with caring for plants in the IR-4 project and helped her plant an insectary for her pollinator project. In the plant pathology lab, Luisa has been very accommodating of my lack of experience in microbiology and taken the time to equip me so I could be

involved in several interesting projects related to pathogenic fungus in Christmas trees. Chal's beneficial insect project was the big surprise though, as I did not expect to learn so much about entomology during my time helping him (extra thanks to Robin Rosetta and Jana Lee for their help with that project). Overall the experience was very positive and I learned a lot more than I expected to. I am especially thankful for the faculty here that contributed and consistently put in the time and effort that allowed this program to work.”  
-Ryan Hill



Ryan is graduating from George Fox in December 2104.

