Research Proposal

OREGON DEPARTMENT OF AGRICULTURE
OAN NURSERY RESEARCH COMMITTEE

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Principal Investigator:
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Title: Oregon State University North Willamette Research and Extension Center Plant Pathology Internship

BACKGROUND

Hands-on experience is a critical component to success in any career field. Unfortunately, the COVID-19 pandemic decimated many opportunities for students to receive experience in laboratories or even in the field. While there has been some recovery, students lost at least one year of in-person classes and laboratory activities. At the North Willamette Research and Extension Center, the Healthy Plants and Bilingual Education program is immersed in multiple areas including plant diagnosis and disease management, pesticide efficacy trials, nursery pond recycling water ecology and cyanobacteria isolation and characterization. This multifaceted program is well-suited to provide an intern with a rich and diverse in-person experience.

During the summer of 2022, we launched our pilot Plant Pathology Internship program, which was a great success! Through a competitive application process, we hired two interns, Manon and Katie. Manon did not have significant experience in plant pathology concepts, but enthusiastically immersed herself in the daily activities of our lab. She was trained in aseptic technique, media preparation, pathogen conidial suspension preparation, inoculation, and data collection. She and the second intern, Katie, were instrumental in supporting the Healthy Plants and Bilingual Education program at OSU's very first summer STEAM day. The team presented "Marvelous Microbes" to groups of students in grades 5-8, assisting the university with their outreach to underserved communities in Oregon. After establishing a foundation in plant pathology techniques and concepts, Manon began working on an independent project investigating the effect of cyanobacteria metabolites on the growth of plant pathogens.

The second intern, Katie, was busy as well. She worked on the extraction of high value pigments from cyanobacteria and the role that different light conditions play in their production. Katie will be continuing this research to determine how significant the complementary chromatic adaptability of cyanobacteria is in their production of these pigments. She also recorded a thrilling promotional video for our program, as well as developed a template for the creation of factsheets on ornamental plant diseases.

Both interns developed key laboratory and greenhouse skills, as well as formed valuable connections with professionals in the field. We seek funds to support the continuation of this internship in 2023. This internship program will again involve a competitive application process, where students should demonstrate a commitment to agriculture and a desire to gain new skills, such as critical

thinking, experimental design, data collection, data entry and analysis, and report writing. We will ask applicants to describe an idea they have for an independent study in the area of plant health.

The intern's project can be conducted at NWREC or in collaboration with other faculty on the Oregon State University main campus. The independent research/extension project will be a key skill-building part of the internship. Interns will be able to focus on a specific topic of interest while receiving guidance and mentorship from the PIs and collaborators. We firmly believe that by taking charge of their own project, interns will gain a more thorough understanding of the scientific process, from the inception of an idea through the data analysis and report writing. At the conclusion of the internship, we will request that the intern write a summary of the project and results. In addition, to provide public speaking practice, the intern will also present a summary at a NWREC faculty and staff meeting. The stories and projects of previous interns at NWREC have even been featured in the *Digger Magazine*!

In addition, during the internship period, the intern will interact with both faculty and industry professionals. To accomplish this, we are proposing to include field tours and visits in the internship program. We would first like to visit other OSU Extension centers throughout the state that have strong plant pathology programs. This will expand the intern's horizon and demonstrate the various applications within our exciting field! Additionally, we would like to visit at least one production nursery. This will allow the intern to catch a glimpse into the daily day-to-day life of nursery employees. Through all these visits, interns will learn how various areas in horticulture blend together to form an extremely successful nursery industry in Oregon.

For this internship, we will continue to seek a top-achieving motivated student who is studying horticulture, plant science, or plant pathology and is from a university or college in the United States. The intern hired on OAN/ODA grant funds will work for 3 to 4 months during the summer of 2023.

OBJECTIVES

1. To provide a student with plant science education and laboratory training that will help prepare them for a career in the nursery industry and beyond.
2. To further the plant pathology research efforts at Oregon State University.

METHODS AND TIMELINE

Fall/Winter 2022. Develop position announcement and distribute to universities and colleges throughout North America that have horticulture/plant science programs.

Spring 2023. Screen applicants and conduct interviews. Select candidate.

Summer 2023. Schedule will reflect the following division of work hours:

- 60% Assist in research projects including set up, plant maintenance, and data collection.
- 40% Pursuit of student research/extension project. Select a project of interest and work with NWREC or Corvallis- based faculty to establish a study.

Fall/Winter 2023. Program review and accomplishment reporting.

BENEFIT TO NURSERY INDUSTRY

Students who engage in research at the North Willamette Research and Extension Center are essential in allowing studies 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 hands-on experience and education benefiting the industry when they join the workforce.

Budget summary

Intern(s) -approx. 3 months full-time at $15/hr.	$7,800
Other Payroll Expenses (Intern)	$780
Salary- FRA, Maria Marlin – Supervisor (0.25 FTE)	$7,162
Other Payroll Expenses (OPE)	$5,372
Materials and supplies	$500
Travel for field visits (1 trip to Madras, 1 trip to Corvallis, 1 trip to a local nursery)	$293
Total	$21,907