WSU Mount Vernon
Northwestern Washington
Research & Extension Center
WASHINGTON STATE UNIVERSITY

NWREC PLANT GROWTH FACILITY

WSU Mount Vernon NWREC faculty carry out research and education programs that help solve problems and create new economic opportunities for area farmers and the agricultural community. Research conducted in the new NWREC Plant Growth Facility will lead to better understanding of how environmental factors impact crop growth and development, crop disease diagnosis, soil bioassays, soils and crop nutrient analyses, new crop varieties, new plant propagation methods, and other practical impacts for area farmers. For example, the annual *Spinach Soil Bioassay* identifies pathogen-infested fields, saving Skagit seed growers and companies hundreds of thousands of dollars per field each year. These critical outcomes are essential for keeping Skagit County farmers and agricultural businesses economically competitive and resilient in a rapidly changing and challenging local and global marketplace.

PHASE 1 | HEADHOUSE

PHASE 1 OF THE WSU MOUNT VERNON NWREC PLANT GROWTH FACILITY IS COMPLETE.

The *Ruth Wylie Headhouse* building includes a 900 square foot research office, a 610 square foot field laboratory, and an equipment room to operate the Phase 2 greenhouse. Phase 2 of the Plant Growth Facility will include a 4,000 square foot greenhouse. We have received a Skagit County Economic Development Grant of $250,000 toward Phase 2 and are seeking matching funds to enable us to construct the new Plant Growth Facility.

NEW GREENHOUSE AND GROWTH CHAMBER STUDIES

PLANT PHYSIOLOGY

- *Temperature effects on pollen and ovule development and impacts on pollination across blueberry cultivars. (DeVetter)*
- *Pollination requirements and cross pollination benefits in blueberry. (DeVetter)*
- *Characterize temperature and light effects on floral bed development across blueberry cultivars. (DeVetter)*
- *Developing new efficient and effective grafting methods for melon crops (Miles)*
- *Propagating tea cuttings to establish new nursery crop opportunities (Miles)*

PLANT DISEASE

- *Screening assays for evaluating cultivar resistance to potato diseases. (Mattupalli)*
- *Effect of edaphic factors on disease development by soilborne pathogens of potato and blueberry. (Mattupalli)*
- *Correlation between daylength and pathogen sensitivity for daylength-sensitive seed crops such as spinach. (du Toit)*
- *Evaluating pathogen control methods under day-length and temperature conditions representative of seasonal diversity. (du Toit)*
- *Perform research on plant pathogens that require quarantine or USDA APHIS PPQ [regulated/approved] containment. (du Toit)*

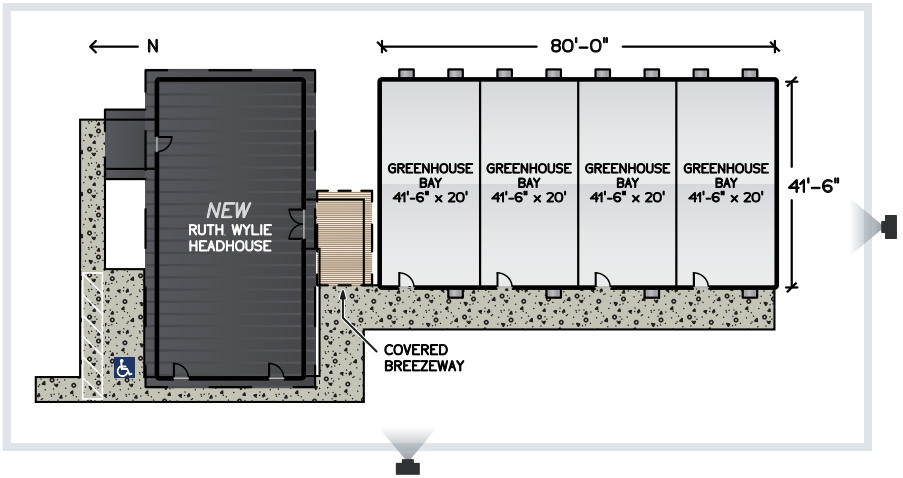
SOIL SCIENCE

- *Assessment of soil health, mineralizable carbon and nitrogen incubations across diverse cropping systems. (Griffin LaHue)*
- *Mineralization dynamics of common fertility amendments for organic blueberries. (LaHue)*
- *Determine nutrient release from organic matter amendments to predict potential benefits for diverse soil types and production systems. (Griffin LaHue)*
- *Predicting nitrogen release from soil organic matter for blueberry production. (LaHue)*

FOR MORE INFORMATION ABOUT THIS PROJECT OR TO DONATE...

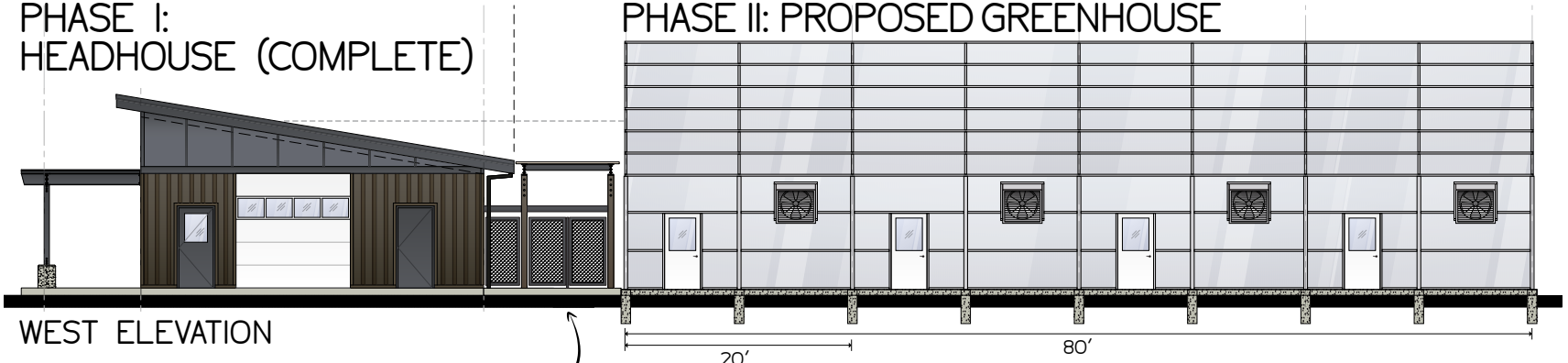
TATUM WEED, ASSOCIATE DIRECTOR NWREC | tatumweed@wsu.edu | 253-445-4554
SHEA SARALECOS, DIRECTOR OF DEVELOPMENT | shea.saralecos@wsu.edu | 509-335-3764

PHASE 2 | GREENHOUSE



PHASE I: HEADHOUSE (COMPLETE)

PHASE II: PROPOSED GREENHOUSE

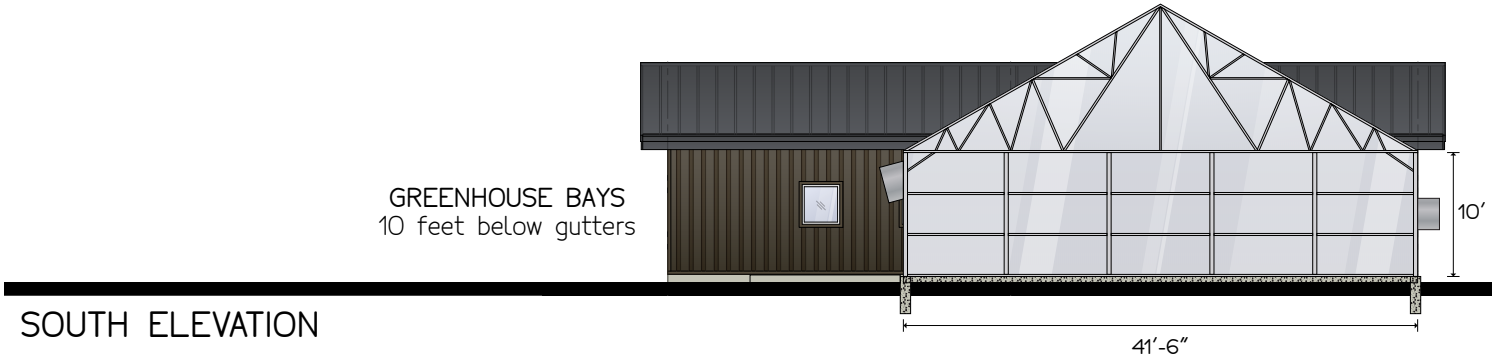


Conceptual rendering

WEST ELEVATION

Covered breezeway between headhouse and greenhouse.

Greenhouse contains four 20 ft x 41.5 ft bays.



GREENHOUSE BAYS
10 feet below gutters

SOUTH ELEVATION

WASHINGTON STATE UNIVERSITY
EVERETT

AGRICULTURAL & FOOD SYSTEMS (AFS)

Major in Organic & Sustainable Agriculture

Gain the knowledge and experience to become a professional in organic and sustainable food production.

Organic and sustainable food production systems integrate cultural and biological practices to promote ecological balance and conserve biodiversity. Becoming a professional in organic and sustainable agriculture emphasizes an understanding of **plant and environmental sciences** as well as **pest/disease management, marketing, and food science**. The growth of organic food production and marketing, especially in the U.S., Europe, and China, has created a need to train students to provide expertise, research, product development, and other services for farmers and the food industry at home and worldwide.

Students in the Organic and Sustainable Agriculture Major take a variety of courses in the natural, environmental, plant, soil, social, and economic sciences, as well as courses focused on organic and sustainable production practices.

Graduates will be prepared for careers in:

CROP CONSULTING • PEST MANAGEMENT • SOIL MANAGEMENT
ORGANIC CERTIFICATION • FARM POLICY & STEWARDSHIP
FOOD SCIENCE • ECONOMICS & MARKETING
ORGANIC PRODUCT PURCHASING • ORGANIC RANCHER[1]

Students in the Organic and Sustainable Agriculture Major have an opportunity to think critically about farming systems and learn from world-class researchers and agricultural professionals.

WASHINGTON STATE UNIVERSITY
College of Agricultural, Human, and Natural Resource Sciences

WSU Academic Advisor | Nannette McGrath, *nannette.mcgrath@wsu.edu*

Rev. 9/2022

WASHINGTON STATE UNIVERSITY
EVERETT

AGRICULTURAL & FOOD SYSTEMS (AFS)

Major in Organic & Sustainable Agriculture

WSU Everett is a transfer institution providing upper division courses to complete a Bachelor of Science degree in Organic and Sustainable Agriculture. You can fulfill the majority of WSU's general education (UCORE) and the pre-program acceptance requirements at any college (2 year or 4 year), then complete your Bachelor of Science in Organic and Sustainable Agriculture at WSU Everett.

We strongly recommend transfer students complete an Associate of Arts DTA or an Associate of Science DTA to satisfy WSU UCORE general education requirements. The Bachelor of Science in Organic and Sustainable Agriculture requires:

- 120 semester credit hours
- Completion of UCORE general education requirements
- A minimum cumulative (all college coursework) GPA of 2.0; *a transfer GPA above 2.5 strongly advised*
- Biology and Chemistry sequences with labs
- Upper division required coursework in Soil Science, Crop/Horticulture Science, Economics, Entomology, Plant Pathology, Agricultural and Food Systems (*see* **catalog.wsu.edu/Pullman/Academics/DegreeProgram/10099**)
- Internship/practicum experiences

Through the completion of your Associate DTA degree, focus on completion of the following courses:

WSU COURSE REQUIREMENTS
- UCORE general education requirements
- CHEM 101 & 102 or CHEM 105 & 106
- BIO 106 & 107
- STAT 212

WASHINGTON COMMUNITY COLLEGE TRANSFER EQUIVALENCY[2]
- DTA requirements
- CHEM& 161, 162, 163
- BIO& 221, 222, 223
- MATH& 146

[1] *Ranching focus will require additional coursework.*
[2] *Please contact a WSU academic advisor who can help you find equivalent courses at your current school.*

Select courses are taught by research faculty from the WSU Northwestern Washington Research and Extension Center.

- **SOIL_SCI 201** Soil: A Living System *(Dr. Gabriel LaHue)*
- **SOIL_SCI 303** Organic and Sustainable Agricultural Certifications: From Principle to Practice *(Dr. Gabriel LaHue)*
- **HORT 310** Pomology *(Dr. Lisa DeVetter)*
- **AFS 350** Food Systems in Western Washington *(Dr. Deirdre Griffin LaHue)*
- **AFS 401** Capstone *(Dr. Deirdre Griffin LaHue)*
- **PL_P 501** Biology & Control of Plant Diseases *(Dr. Chakradhar Mattupalli)*

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WASHINGTON STATE UNIVERSITY
Mount Vernon Northwestern Washington Research and Extension Center

WSU MOUNT VERNON NWREC

Molecular Laboratory & Teaching Facility

Agriculture is an important cornerstone of Washington's economy and is experiencing a renaissance with the advent and increasing availability of automation and digital agricultural technologies that allow for timely data-driven crop management. Harnessing and effectively utilizing these technologies and data, however, require a "gearing-up" of our workforce within the intersection of agriculture, technology, and data analytics. WSU Mount Vernon Northwestern Washington Research and Extension Center (NWREC) will address this need through our cross-disciplinary research and teaching team focused on production of high-value crops in an urbanized region. We will leverage emerging technologies that meet environmental resource management and economical crop production goals with global market impacts.

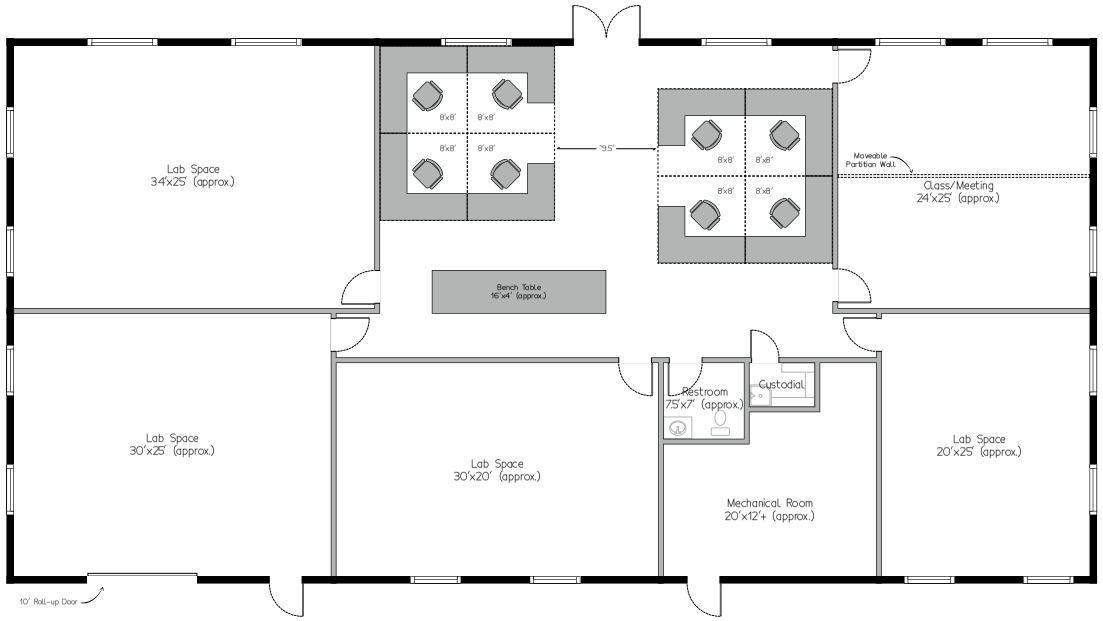
Faculty at NWREC work statewide and focus on high-value crop research, including horticulture, plant pathology, entomology, soil science, plant breeding and weed science aspects of diverse specialty crops ranging from vegetable seed to small fruit. WSU NWREC is located near Seattle and WSU Everett, which facilitates formation of strategic partnerships with private technology companies as well as the engineering and data analytics-based programs on the WSU Everett campus. Ecologically managing soil and water resources while controlling insect pests and diseases to maintain crop quality and profitability amid variable weather will require use of emerging technologies to develop real-time data collection and analytics to inform—or even predict—management opportunities.

A new state-of-the art laboratory and teaching building at NWREC with four laboratories, two classrooms and office space will house this cross-disciplinary team and their students. This will enable the team to address stakeholder needs, and strengthen and develop new collaborations with other CAHNRS subject matter centers such as AgWeatherNet, the Center for Sustaining Agriculture and Natural Resources (CSANR), WSU Everett, and the Honey Bee + Pollinators Program.

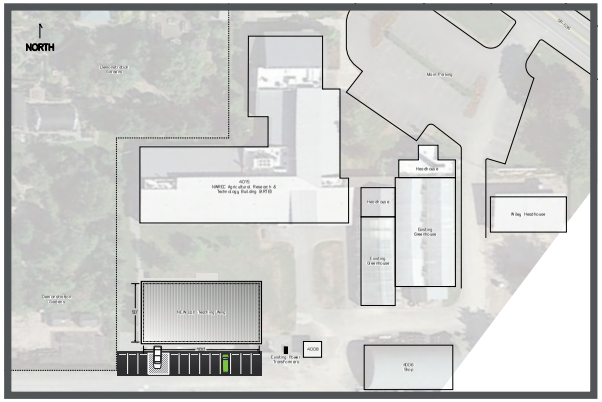
WSU Mount Vernon NWREC was constructed to house six faculty and 12 graduate students, but currently hosts eight faculty, 22 graduate students and 40 seasonal staff, with two additional faculty positions expected to be added within the next year. This new building will provide adequate facilities for faculty, students and staff, and will serve a foundational role in preparing undergraduate and graduate students for the workplace that is technology based and driven.

WSU MOUNT VERNON NWREC

Molecular Laboratory & Teaching Facility

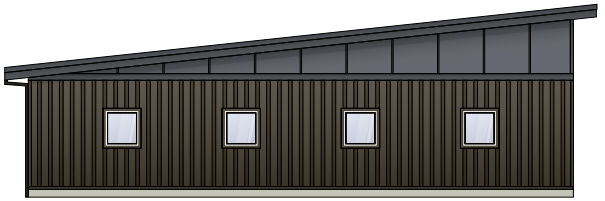


Artist's concept. *Actual building design may differ based upon available funding, engineering, and permitting requirements at time of construction.*

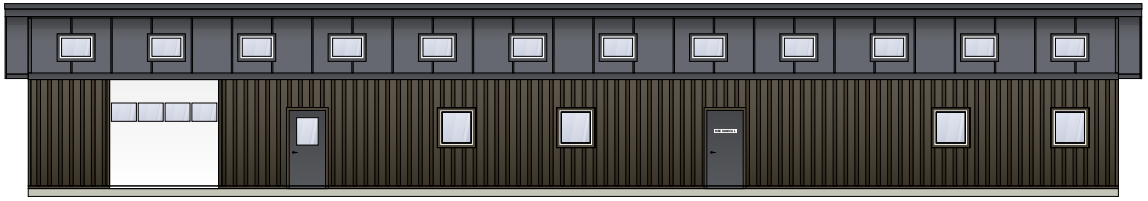


Concept drawings; scale is approximate.

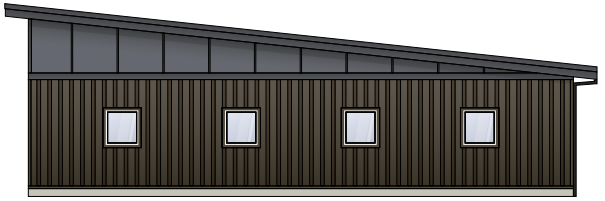
NORTH



WEST



SOUTH



EAST