



June 25

**Small Grains Field Day
3-6pm**

Join us to tour our research fields and discuss the production of small grains in Western Washington



July 9

**WSU Mount Vernon
Field Day
3:30pm Field Tour
6pm Chicken Barbecue**



August 20-22

Grain Gathering

[The Bread Lab](#)



WSU Mount Vernon Newsletter

Northwestern Washington Research and Extension Center

Summer 2015

Message from the Interim Director



Exciting changes are underway at WSU Mount Vernon NWREC! So, we decided it was time for the next newsletter. To begin, we are pleased to announce that Chad Kruger has been appointed as the Center's new Director, beginning August 16. We know Chad will provide solid and strategic leadership, and we look forward to working with him. I will be serving in the role of Interim Director until Chad arrives.

Next, we are pleased to announce the expansion of the new Bread Lab at the Port of Skagit, and the full-time role of Steve Jones as its Director.

We have a new small fruit pathology research and extension contingency at the Center. You can read about the new pathologists (Tobin Peever, Dalphy Harteveld, Frank Caruso) and their programs below. We are proud to announce that the first undergraduate course developed at WSU Mount Vernon (HORT/AFS 350; Food Systems in WWA) will be taught by horticulturist Lisa DeVetter at the WSU Everett campus in Fall 2015. Finally, our R&E Center graduated four M.S. students this spring and we currently are training 16 graduate

students for either MS or Ph.D degrees. Our research, extension and education programs continue to be dynamic, and serve many different audiences. All of our faculty, staff and students are dedicated to making this Center a model R&E Center, and doing the very best work that they can. To give you a better idea of what we have achieved, only since January 2015, [this link](#) will lead you to a snapshot of recent faculty and graduate student accomplishments. Thank you for your continued support and interest and I hope you enjoy our Summer newsletter.

--Debbie Inglis



Research Center welcomes new Small Fruit Pathologists

The WSU Berry Pathology Team -- led by WSU Associate Professor of Plant Pathology Tobin Peever -- focuses its research efforts on the biology, epidemiology and control of fungal diseases of small fruit (berries). The team is based at both WSU Pullman and WSU Mount Vernon. It includes Post-doctoral Research Associate Dalphy Harteveld, Ph.D student Olga Kozhar and Technical Assistant Amreen Toor. David Dutton, technical assistant who has worked in WSU biology and chemistry labs for 26 years, also works in the WSU Pullman Plant Pathology lab with Tobin. Originally from Ontario, Canada, Tobin completed his Ph.D research more than 20 years ago at Cornell University. Before starting berry pathology research here in 2014, he worked primarily on the epidemiology and population biology of legume diseases (primarily

chickpea) in the Palouse. Dalphy started working as a post-doctoral scientist at WSU Mount Vernon in September 2014. Originally from the Netherlands, she earned her Ph.D in plant pathology in May 2014 from the University of Queensland in Australia.

Olga is from Kyiv, Ukraine, and earned her MS degree in plant biotechnology in 2009 from the National University of Life and Environmental Sciences in Ukraine. In Fall 2014, she started her Ph.D research in the WSU Plant Pathology Department in Pullman.

Amreen grew up in Punjab, India, and at age 12 moved to Bellingham, Washington. She completed her BS degree in molecular and cell biology and math at Western Washington University in 2014 and joined the WSU Mount Vernon Berry Pathology Team in April 2015.



"This season, the team's research is focused on Botrytis fruit rot of raspberry, blueberry and strawberry as well as on mummyberry disease affecting blueberry in Whatcom and Skagit counties and British Columbia's Fraser Valley. Major research is geared toward pathogen ecology and epidemiology, disease modeling, population biology and fungicide resistance. Dalphy's research focuses on mummyberry disease of blueberry. Her research goals are to identify environmental factors that contribute to spore release by the pathogen in the spring in order to relate the timing to plant developmental stage and infection by the fungus.

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Skagit County Master Gardeners Know & Grow Workshops:

August 18, 1pm

**Verticillium Wilt on
Tomato and Using
Tomato Grafting to
Control** presented by MS in
Ag student Alexandra
Swidergal



Fall Know & Grow
workshops will be held on:
September 15
October 13
November 17

Check the
[Master Gardener's](#)
website for topics

All workshops are held in
the Sakuma Auditorium
from 1-2:30pm.

Brown Bag Seminars at WSU Mount Vernon

July 29 - "Fungal Culprits in
Rotted Cranberries in Wash-
ington and British Columbia -
the First Two Years", present-
ed by Dr. Frank Caruso

All seminars begin at 12pm
and are held in the Sakuma
Auditorium. You are wel-
come to bring your lunch.
Check our website for other
upcoming seminars.
[WSU Mount Vernon](#)

Small Fruit Pathology Programs *continued from page 1*

Dalphy will use data from spore traps and weather data loggers during the production season to develop a predictive model of spore release which will help growers improve the timing of disease-control measures, reduce fungicide use and increase the profitability of growing blueberries.

Olga's research focuses on the ecology and fungal flora of raspberry flowers and the infection process of raspberry fruit and flowers by *B. cinerea*, causal agent of gray mold. Her research is designed to provide a better understanding of the site of infection and identify the environmental conditions controlling infection so that more effective disease control and a reduction in fungicide use can be achieved.

Tobin's and Dave's research in Pullman is focused on the resistance of *B. cinerea* to fungicides used to control gray mold on blueberry, raspberry and strawberry. The goal of this research is to identify fungicide resistance problems and to develop a resistance management plan for growers that will reduce selection for resistant types, slow the development of resistance and preserve the useful life of these key disease management tools.

The Berry Pathology Team collaborates on several projects with the WSU Small Fruit Horticulture Team, led by Lisa Wasko DeVetter, and with Alan Schreiber and Tom Walters, respectively of the Ag



Development Group and Walters Ag Research. Cooperative projects are also under way on a regional basis with Oregon State University and Corvallis-based USDA scientists Jay Pscheidt, Lisa Jones and Nik Grunwald and with Mark Sweeney and Siva Sabaratnam of the British Columbia Ministry of Agriculture.

Plant Pathologist helps Pacific Northwest growers battle cranberry fruit rot

For nearly two years now, WSU Mount Vernon Adjunct Plant Pathology Professor Frank Caruso has been helping Pacific Northwest cranberry growers deal with the increasing problem of fruit rot. The fungal causal agents of fruit rot are largely unknown, and was last investigated more than 10 years ago.

Fungi have been isolated from six beds in Washington (2013-14), three beds in British Columbia (2014) and three Oregon beds, and further isolations will be performed in 2015 to elucidate the primary causal agents. Thus far, *Allantophomopsis*, *Coleophoma*, *Colletotrichum* and *Physalospora* have been identified as the main causes of infection in both field and storage.



Through these findings, fungicide recommendations can be made to growers to manage fruit rot in subsequent growing seasons. Presentations of this research were made at winter meetings in February 2015 in both states and the Canadian province.

A native of New Jersey, Frank has degrees in biology (BA from Gettysburg College) and plant pathology (MS from the University of Massachusetts and Ph.D from the University of Kentucky). For six years, he was an assistant professor in the Department of Botany and Plant Pathology at the University of Maine, where he taught plant

pathology courses, conducted research on apple and lowbush blueberry diseases and started the Plant Disease Clinic.

Following his work in Maine, Frank spent 28 years as an Extension associate professor at the University of Massachusetts Cranberry Station, where he interacted with cranberry growers, ran a small fruit diagnostic clinic, conducted research on cranberry diseases and was acting director on two separate occasions. He retired in June 2013 and shortly thereafter moved to Edmonds to be near his two children and two grandsons. As an adjunct faculty member at WSU Mount Vernon, Frank continues to conduct research on cranberry fruit rot.





Program Updates

Here's a glimpse of some current research projects:

Dairy and Livestock

Dr. Susan Kerr is the WSU NW Regional Livestock and Dairy Extension Specialist. She has spent the last year collecting data from selected area dairy farms as part of the National Animal Health Monitoring System's Dairy study. She writes educational articles for six different ag-related newsletters and peer-reviewed publications on livestock topics. Dr. Kerr is frequently asked to give workshops on parasite control in small ruminants. This summer, she will serve on two USDA review panels, assist with the Western Sustainable Agriculture Research and Education (SARE) program tour, oversee a birdsfoot trefoil/timothy demonstration plot, and measure improvements in a local horse pasture serving as a best practices demonstration site. Dr. Kerr is also engaged in a \$7.5M USDA grant focusing on biosecurity and will develop the youth curriculum component of the project. She attended a SARE Fellows sustainable agriculture tour in Arkansas in June, will attend the annual meeting of the National Association of County Agriculture Agents, is organizing the NWREC Annual Field Day, and is planning a pastured pork workshop for the fall.



Entomology

Dr. Lynell Tanigoshi heads an energetic team including entomologist Dr. Bev Gerdeman and technician, Dr. Hollis Spitler. Their diverse focus includes pests of small fruit and seed crops. Developing novel methods such as ground applications to control Spotted Wing Drosophila (SWD) in caneberries and participating in a multi-state blueberry project, provide critical insecticide residue decline curves assisting growers in determining optimum pre-harvest intervals for fruit destined for Pacific Rim markets. Introducing new monitoring tools such as the D-vac 122 gives growers with a method to collect real-time data on SWD field populations. Four years of cabbage root maggot research have reduced use of organophosphates such as diazinon in seed production. The research program also provides growers with information on efficacious registered pesticides and needed Special Local Need (SLN) labels, including their 2014 spider mite research in spinach and beets which led to two new 24(c) labels for the 2015 season.



Plant Breeding

The Plant Breeding program continues to concentrate on developing and identifying improved lines of wheat, barley, oats, rye, buckwheat and perennial wheat for the 19 Washington counties west of the Cascades. Improved yield, disease resistance, flavor and functionality are targets. Novel traits such as improved nutritional value, unique colors and suitability for livestock feed are also being captured. An official variety release committee has been formed in order to get new varieties to growers in a rapid and efficient manner. The program is directed by Dr. Stephen Jones with assistance by Senior Scientific Assistant Steve Lyon.



Small Fruit Horticulture

Summer is a busy time for the Small Fruit Horticulture (SFH) program, which is led by faculty advisor, Dr. Lisa Wasko DeVetter. Strawberries, raspberries, and the first crop of blueberries are currently or just about to be harvested, meaning everyone in the program is busy embracing the harvest season! Sean Watkinson, the SFH technician, has been busy supporting field research activities and often finds himself collecting data in commercial fields located in Whatcom and Skagit counties. Rachel Rudolph, PhD student focusing on alternatives to chemical soil fumigation in red raspberry, just completed her first year in the program and has been busy collecting both soil and yield data from two separate field trials located on grower farms in Whatcom County. Matt Arrington is another Ph.D student in the program studying techniques to improve fruit set and yield in blueberry grown in western Washington. Like Rachel, Matt is busy collecting yield data during a year in which the blueberry season is particularly advanced. Lastly, Curtis Faustich is a new MS student studying biodegradable mulches in day-neutral strawberry production. Curtis just established his research plots and has been focusing on plot maintenance and learning more about the application of biodegradable mulches in small fruit production.





Program Updates

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Vegetable Horticulture

Three new graduate students have joined the Vegetable Horticulture program under Carol Miles' leadership: Sahar Dabirian, MS student, working on vegetable grafting; Shuresh Ghimire, Ph.D student, working on biodegradable mulches in vegetable cropping systems; and, Travis Alexander Ph.D student who will work with Carol on post-harvest implications related to mechanical harvesting of cider apples. Carol also advises Fairuz Buajaila, who works on tomato production in high tunnels, and recently graduated three MS students: Kelly Atterberry, Charlene Grahn, and Jesse Wimer.



Vegetable Pathology

Abby Beissinger and Amy Salamone are employed this summer in the Vegetable Pathology program with Debbie Inglis and Babette Gundersen. Abby is working toward her MS degree on a WSDA Specialty Crop Research Block grant involving *Potato virus Y*, and Amy just completed her MS degree on a project with The Nature Conservancy on temporary field flooding rotations. Debbie also has SCRI projects this year with Carol Miles on biodegradable plastic mulch films and vegetable grafting for Verticillium wilt control.



Vegetable Seed Pathology

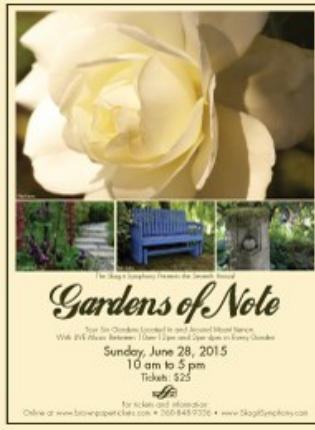
The Vegetable Seed Pathology (VSP) program expanded this spring with two new graduate students. Shannon Carmody started an MS degree in January after having worked in organic seed and agriculture for the previous six years. Her MS thesis project is on management of the seedborne phase of light leaf spot (*Cylindrosporium concentricum*) and white leaf spot (*Pseudocercospora capsellae*) in brassica crops. John Weber began an MS project in April 2015; he has worked summers with vegetable and grass seed producers and seed companies in Oregon. His MS thesis project is on management of white mold (*Sclerotinia sclerotiorum*) in sunflower seed crops in the Columbia Basin of central Washington. The VSP program is internationally recognized and is involved in numerous spinach, beet, brassica, Swiss chard, onion, and carrot research and extension projects.



Weed Science

Doctoral student Yushan "Sherry" Duan, in the Weed Science program at NWREC, has been testing the response of tulip to rotationally-grown green manure crops on a Specialty Crop Block Grant funded by the Washington State Department of Agriculture. Results from these tests indicate that cereal rye/green pea or mustard cover crops restrict weed growth prior to planting tulips, do not negatively affect tulip bulb or flower production, and help to lessen the incidence of tulip fire (*Botrytis tulipae*) in the tulip crop. These results should encourage ornamental bulb producers to experiment with cover crops in their own tulip rotations, as a means of building soil tilth, reducing weed seed production prior to planting bulbs, and aiding in disease management in the tulip crop.

For a complete listing of the Center's Research and Extension accomplishments since January 2015, see: [Semi-Annual Report](#)



We are pleased to have The Discovery Gardens as part of Skagit Symphony's **Gardens of Note** tour this year!



Gardens are maintained by:

- Skagit County Master Gardeners
- Native Plant Society
- Western WA Fruit Research Foundation

Open to the public everyday from dusk to dawn.



World Class. Face to Face.

Restoring a tribute to WWI Veterans Skagit County Master Gardeners, WSU Mount Vernon launch volunteer project to replant historic elm trees along Memorial Highway

A living tribute to Skagit County service members who gave their lives in World War I is being replanted, thanks to WSU Skagit County master gardeners, WSU Mount Vernon and other community members leading the volunteer effort to replace 50 elm trees - each representing a fallen local U.S. service member -- which once lined Memorial Highway (State Route 536).

The first five trees, donated by the WSU Mount Vernon Research Center, were planted in April and dedicated in a public commemoration May 26 in conjunction with the Memorial Day holiday. Al Call, president of the WSU Skagit County Master Gardener Foundation and a 22-year Army veteran who is spearheading the elm tree initiative, served as master of ceremonies for the event, which was held at the planting site just north of the Volunteer Display Gardens at WSU Mount Vernon.

Nearly 100 people listened solemnly as Call described the fallen soldiers and sailors -- one as young as 16 -- whose names were read by four attending guest U.S. Navy and Air Force veterans. The reading of each name was accompanied by drummer Emma Sundance of Mount Vernon's Immaculate Conception Regional School.



Mount Vernon Mayor Jill Boudreau recites the WWI-inspired war poem, "In Flanders Fields".

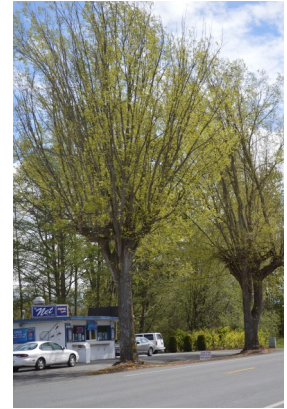
"Not much is known about these WWI veterans from Skagit County who gave their lives in the service of our country," Call said. "Some were farm boys who tilled the fields of the valley; others were lumbermen who cut timber from the foothills of the Cascades. Remembrance is tough."

In tribute to the fallen veterans, Mount Vernon Mayor Jill Boudreau recited "In Flanders Fields," a war poem in the form of a rondeau written in 1915 by Canadian physician Lieutenant Colonel John McCrae. He was inspired after presiding over the funeral of friend and fellow soldier Alexis Helmer, who died in the Second Battle of Ypres, and whose grave was abloom in the red poppies that thrived throughout the war-torn soil.

The ceremony concluded with a flyover of vintage U.S. Navy and Army Air Corps aircraft, piloted by Lieutenant Colonel John Hubner, U.S. Marine Corps, Retired; and Heritage Flight Museum Director of Operations Alan Anders, who made several passes over the newly planted elms.

"Very few people know about these trees or even why the road is called Memorial Highway," Call said. "We are doing something, however, about Memorial Highway and the elms, so they are not forgotten."

When Memorial Highway was first dedicated in 1931, both sides of the roadway were adorned with 180 elm trees in remembrance of local WWI veterans. Today, only a few of the original trees remain. Two of them still stand along Memo-



Two of the original elms planted as part of the 1931 Memorial Highway dedication.

rial Highway in front of the Net Drive-In, at 18037 State Route 536, according to Call.

After two years of planning, the project began in earnest when the five new "Princeton" elm trees (*Ulmus americana* 'Princeton') were purchased by the Research Center and planted on WSU property on the south side of Memorial Highway.

Call said he hopes this planting dedication ceremony will inspire other community members and property owners along Memorial Highway to get involved and help complete the project, on behalf of the local WWI veterans. The first phase is aimed at planting trees along the less-densely developed western portion of Memorial Highway, between Avon-Allen Road and the intersection of State Route 536 and Highway 20. "We started with the WSU Mount Vernon Research Center as a launch pad for this restorative, elm-tree-planting project," he added. "Perhaps once people see these trees in the ground, we'll get some momentum going."