



HERMISTON AGRICULTURAL RESEARCH & EXTENSION CENTER

Pivotal Moments

A Quarterly Newsletter for
Friends of HAREC



SUMMER 2017

From the Director

Philip B. Hamm, Director
Professor Emeritus, Plant
Pathology

Welcome to Volume 1, Issue 1 of "Pivotal Moments", what will become a quarterly newsletter from the Hermiston Agricultural Research and Extension Center (HAREC). In each issue, we will include a snap shot of SOME of what we do here to support our local community. Along with updates by some of the faculty, we will provide other important information such as upcoming meetings. We also will provide through the newsletter additional recognition for those who have substantially supported this facility over the last couple of years. Many of you have heard me say that HAREC is OSU's

"best" experiment station. The reason I believe this is that we have the best supporters and the best staff!

Speaking of supporters and the literally hundreds of thousands of dollars they have provided in recent years, either as cash (mostly) or in kind services, these contributions have allowed us substantial upgrades in facilities and infrastructure. **Without a doubt, we would not have the capacities we have today without this generous support.** Read over HAREC's support list elsewhere in the newsletter. If you want to be included, give me a call and we can make that happen.

I also want to acknowledge and recognize those who serve on the Station's Advisory Committee. See the list of those on this

committee. These folks come once or twice yearly. In particular, I want to recognize Bryan Wolfe who chairs that committee, and has done so for many years. He has been a great "advisor" and friend.

The faculty and staff at HAREC are here to make a difference, from breeding new plants with reduced water and fertilizer needs, or disease and insect management, to biofortification (adding nutrition to new plant lines), how to grow healthier plants with increased yield and quality, to understanding the ecology of riparian areas, to helping with youth and nutrition education, and much much more.

If you ever have questions about what HAREC staff are doing, or want to see the facility, please let me know.

Horticulture Program Reinvigorated

By Scott Lukas, PhD
Assistant Professor



After a long & cold winter, summertime is officially in full swing and the HAREC Horticulture program is gearing up for an exciting season. This is the first summer that the program has been active since the retirement of Dr. George Clough in 2012. With that historical note, this is an important season both for the horticulture program and for the regions stakeholders. I joined HAREC in September 2016 and oversee the horticulture program. I currently have two employees assisting with seasonal projects.

The horticulture program is looking forward to working with the regions irrigated specialty crops. This is a broad scope ranging from annual row crops such as onion, to perennial small fruits such as blueberry.

Current projects for the first summer are diverse in nature to

establish a wide range of crop production skills and facilitate grower interactions.

Projects underway this season include:

- 1) A weed management trial to evaluate new chemical technologies with reduced rate active ingredients to control difficult broadleaf weed species in direct seeded onion crops.
- 2) Sweet corn seed treatment evaluation aimed at improving stand establishment as a result of pest and pathogen pressures.
- 3) A study to evaluate the feasibility of decreasing soil borne pathogen pressure on watermelon through applications of an organically approved drip injected oxidization product.
- 4) Evaluation aimed at reducing abiotic heat stress in the form of sunburn damage to blueberry fruit by applying a novel biofilm.

The general theme of the current research is based directly off grower needs to help facilitate crop productivity while fostering methods of environmental stewardship.

Please feel free to stop by HAREC to say hello to the Horticulture team!

Invertebrate Ecology Laboratory

By David Wooster, Ph.D.,
Associate Professor

Sandra DeBano, Ph.D.
Associate Professor

Research in our laboratory focuses on the ecology of aquatic, riparian, and grassland **invertebrates** (animals without backbones) in agroecosystems.

Sandy and her students are currently focused on how agricultural management, ungulate grazing, and riparian restoration impact beneficial invertebrates – especially native bees, spiders, and predatory beetles. David Wooster heads aquatic work in the laboratory, with current projects on the behavior and morphology of invasive crayfish, wetland food webs, and bio-assessment of stream restoration projects.

We focus on invertebrates that are significant providers of **ecosystem services**, such as ecological functions that humans value, or are indicators of environmental condition. Sandy DeBano leads studies on terrestrial invertebrates.

This summer we welcome three new graduate students and two undergraduate interns to our laboratory.



Starting out small...see page 4 to see if you correctly identified this plant.

Biofortification

**By Aymeric Goyer, PhD
Associate Professor, Plant
Biologist**

Over two billion people worldwide suffer from micronutrient deficiencies, most often because of an insufficient intake from the diet.

Although it mostly affects people in developing countries, it may come as a surprise that many people in industrial countries like the U.S., where food is plentiful, also suffer micronutrient deficiencies. This is called the hidden hunger.

I have lived in Hermiston since 2005, have been working at HAREC since 2008. I am an associate professor in the department of Botany and Plant Pathology, have a background in plant biochemistry and molecular biology and my program mainly focuses on food crop biofortification. This means I am trying to make food crops produce more of those essential nutrients that we need to be healthy.

Currently, I am working on vitamin B₉ biofortification of potato. For this, I am using wild relatives of potatoes from South America, Central America, and the southwest of the U.S. to bring back high micronutrient traits



into modern commercial varieties.

I have also been working on vitamin B₁ biofortification of rice for a few years. White rice is a very poor source of this vitamin, and many people suffer from vitamin B₁ deficiency.

This year, I am growing rice at HAREC; this will be the first time this crop will be grown at the station.

Although it is often thought that rice needs to be flooded to be grown, it can actually be grown under alternate wetting and drying (well, not too dry) periods.

If I am successful at taking rice to yield, I will plant as many as 300 different rice varieties next year as part of a collaborative project with UC-Davis and European collaborators.

In addition to my projects on biofortification, I have been investigating the molecular mechanisms of potato resistance to potato virus Y. This virus has been a major issue for the potato industry, and new control methods are needed. I have hired a Master's student to work on this project who will start in the fall.



Irrigated Plant Pathology Program 2017

By Kenneth Frost, Ph.D.
Assistant Professor, Extension Plant Pathologist

HAREC has historically had a strong applied plant pathology program, but I only recently took over the program in 2015. As the Extension Plant Pathologist at HAREC, my program supports growers by providing research-based advice and recommendations for controlling plant diseases during production and in storage.

My research is focused on the ecology, epidemiology (i.e., spread), and management of plant pathogens.

The primary goal of my research program is to develop practical, economical, and environmentally sound disease management programs that will minimize disease outbreaks and enhance the profitability and efficiency of crop production in Oregon.

This research directly feeds into my extension work allowing me to deliver management advice to growers and producers.

In terms of crops, the program focuses primarily on potatoes and other vegetable crops (i.e. onions, carrot), but we have responsibility for all irrigated crops and often

see grass grown for seed, corn, beans, peas, canola, and wheat.

In addition to my research and extension programs, I oversee the **Plant Pathology Diagnostics Clinic at HAREC, which provides plant disease diagnostic services to the agricultural community and industry** primarily in the Pacific Northwest, however, it is common for us to receive diagnostic samples from all over the United States.

Each summer there is variety of laboratory and field experiments happening and competent, dedicated, and professional individuals associated with my program support the day-to-day activities.



Dr. Ken Frost at HAREC Wheat Field Day.



Plant Pathology Diagnostic Laboratory Services at HAREC

Robert Cating, Ph.D.
Laboratory Manager

Victoria Skillman, M.S.
Faculty Research Assistant

The Plant Pathology Laboratory is dedicated to providing plant disease diagnostic services to the agricultural industry. Traditional diagnostic techniques as well as modern technologies are used to diagnose diseases of crops being grown in the Pacific Northwest.

The laboratory is equipped to test for plant pathogens including viruses, fungi, and bacteria. Various specialty-testing services for plant pathogens are offered.

<http://oregonstate.edu/dept/hermiston/plant-pathology-plant-lab-testing>



Page 2 Answer

It is hard to believe, but these small plants will be yielding big results...watermelons.

Fuel Up with Food Hero

By Angie Treadwell, RD, LD
SNAP-Ed Program Coordinator



As the SNAP-Ed Program Coordinator, I **focus on nutrition and healthy lifestyle education in Umatilla & Morrow County.**

Thanks to a Fuel Up to Play 60 grant from the Oregon Dairy Council, OSU Extension SNAP-Ed staff and the Armand Larive Middle School Television Club teamed up to produce time lapse recipe videos for 11 Food Hero recipes this winter and spring.

Currently very popular on social media sites such as Facebook, these videos feature close up shots of hands preparing a recipe. Developed and tested on the Oregon State University campus, the Food Hero recipes featured in the videos are healthy, budget friendly and easy to prepare. Food Hero staff on the OSU

campus secured additional funding to finalize the videos for possible national distribution in the Food Hero campaign. We are keeping our fingers crossed!

The Fuel Up to Play 60 grant funds also allowed for four of the recipes to be offered for tasting to all Armand Larive students during lunch. We received great feedback on all the recipes, but the Popeye Power Smoothie was especially popular. Check out the recipe below:

Popeye Power Smoothie

1 cup orange juice
½ cup pineapple juice
½ cup low-fat plain or vanilla yogurt
1 banana, peeled & sliced
2 cups fresh spinach leaves
Crushed ice

Combine all ingredients in a blender. Puree until completely smooth. Serve immediately. Refrigerate leftovers within 2 hours.

Available at:
<https://www.foodhero.org/recipes/popeye-power-smoothie>



Let the sampling begin. Serving up smoothies at Armand Larive Middle School in Hermiston.

FOOD SAFETY & PRESERVATION

Hotline

1-800-354-7319
Open July 10-October 13
Monday – Friday
9 AM – 4 PM

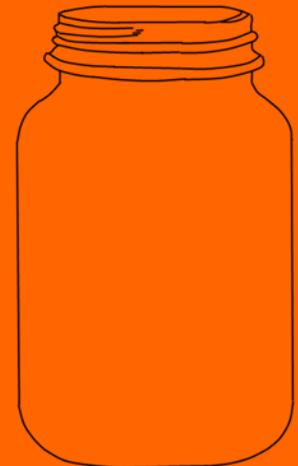
Food Preservation

Instructions:

<http://extension.oregonstate.edu/fch/food-preservation>

New canning app now available:

<https://catalog.extension.oregonstate.edu/pnw68g>



Six NIFA Fellows Selected for Integrative Biosciences Food & Ag Systems

By Aymeric Goyer, PhD
Associate Professor, Plant Biologist

This fall, HAREC will welcome six new Master graduate students who will do research on various issues related to food, agriculture and natural resources.

These students are funded by a grant that HAREC faculty obtained through the competitive National Need Graduate and Postgraduate Fellowship Grants Program (NNF) from the USDA National Institute of Food and Agriculture (NIFA).

This program aims at increasing the number of trained students and future leaders in integrative biosciences for sustainable food and agricultural systems.

Fellows will receive hands-on experience in research and extension, and have close interactions with local producers and natural resources managers. They will be mentored by both an advisory committee made of academic scientists and a professional mentoring committee made of stakeholders from the region.

In addition to technical skills, fellows will improve their skills by organizing meetings and extension activities, and by supervising undergraduate students who will assist them during the summer months.

Welcome to the Irrigated Agricultural Entomology Program (IAEP) 2017

By Silvia Rondon, PhD
Professor - Entomology

Thank you for supporting our program for the last 11 years! My program started back in 2006 to **develop pest management strategies to control key pests that affect irrigated crops.**

Although my program is most notable for our potato work, we also focused on other crops such corn, onions, beans, etc.

I invite you to visit our website to see all the cool stuff that we do year-around:
<http://oregonstate.edu/dept/hermiston/ipm-insect-ecology-biological-control>

I have been lucky to have a great group of enthusiastic people working for me through the years. We have had people from all around the world!!!



The Integrated Agricultural Entomology Program at HAREC in action under the guidance of Dr. Rondon.

HAREC Supporters

AgriNorthwest
 Anderson Geographics
 Blue Mountain Potato Grower
 City of Hermiston
 Crop Production Services
 Dexter Fortson Associates, Inc
 Dupont
 Elmer's Irrigation & Supply, Inc
 Frederickson Farming
 G2 Farming
 Industrial Ventilation, Inc.
 Inland Plumbing
 Irrigation Specialists
 IRZ Consulting
 Morrow County
 Nelson Irrigation
 Northwest Farm Credit Services
 Oregon Potato Commission
 Oregon Wheat Commission
 Port of Umatilla
 Portland General Electric
 R.D. Offutt Company
 RDO Equipment Co
 River Point Farms
 Ross-Brandt Electric, Inc
 Syngenta Crop Protection
 Threemile Canyon Farms
 Umatilla County
 Umatilla Electric Cooperative
 Washington Potato Commission
 Zimatic / Lindsay Corp

HAREC Advisory Board

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 Heidi Sipe, Umatilla School District
 Byron Smith, City of Hermiston
 Herb Stahl, Stahl Farms
 Bryan Wolfe, W. Bryan Wolfe Ranch
 Jared Wolfley, AgriNorthwest



Wheat Field Day 2017

HAREC Faculty & Staff

Moises Aguilar, Potato Breeding Project Asst.
 Javier Almaguer, Bio Science Tech III, Plant Pathology
 Josephine Antwi, Postdoc Scholar, Entomology
 Sudeep Bag, Postdoc Scholar, Plant Pathology/Entomology
 Sapinder Bali, Postdoc Scholar, Potato Breeding & Genetics
 Anna Browne, Latino Outreach & Open Campus Coordinator Umatilla & Morrow Counties
 Peggy Carr, Administration Assistant, Office Manager
 Robert Cating, Ph.D., Faculty Research Assistant, Plant Pathology Lab Manager
 Dan Childs, Bio Science Tech III, Farming
 Sandy DeBano, Ph.D., Associate Professor, Riparian & Terrestrial Ecologist
 Ken Frost, Ph.D., Assistant Professor, Extension Plant Pathologist
 Aymeric Goyer, Ph.D., Assistant Professor, Plant Biochemistry & Metabolism
 Ryan Graebner, Crop Scientist, Potato Breeding & Genetics
 Philip Hamm, HAREC Director, Professor Emeritus, Plant Pathology
 Mat Kolding, Emeritus, Cereals Specialist
 Stan Li, Faculty Research Assistant, Potato Breeding & Genetics
 Scott Lukas, Ph.D., Assistant Professor, Horticulturist
 Ray Qin, Ph.D., Assistant Professor, Extension Agronomist
 Larissa Ritzer, Office Specialist II
 Silvia Rondon, Ph.D., Professor, Extension Entomologist
 Sagar Sathuvalli, Ph.D., Assistant Professor, Potato Breeding & Genetics
 Lora Sharkey, Extension Administrative Assistant
 Victoria Skillman, M.S., Faculty Research Assistant, Vegetable Pathology
 Ira Thompson, B.S., Bio Science Research Tech III, Entomology
 Angie Treadwell, RD, LD, Snap-Ed Program Coordinator Umatilla & Morrow Counties
 Tim Weinke, B.S., Farm Operations Coordinator
 David Wooster, Ph.D., Associate Professor, Aquatic Ecologist
 Cory Zita, B.S., Bio Science Research Tech II, Irrigation

**Need answers?
We have great online resources available.**

Ask an Expert: <http://extension.oregonstate.edu/extension-ask-an-expert>
 OSU Extension Publications: <https://catalog.extension.oregonstate.edu/>
 Please visit & like our Facebook™ site for up-to-date events, pictures and stories:
<https://www.facebook.com/OSU.HAREC/>
Contact our office to receive e-mails for field days & other events of interest.



Upcoming Events

JULY
 10th Food Safety & Preservation Hotline Opens *See Pg5 for details
 27th BMCC Precision Irrigated Agriculture Center Ribbon Cutting

AUGUST
 5th Umatilla County Fair Parade 6:30 PM
 6th Umatilla County Fair Static Entries 3 PM – 6 PM (EOTEC)
 7th-12th Umatilla County Fair (EOTEC)
 28th Hermiston School District 1st day of School

SEPTEMBER
 4th Labor Day – Office Closed
 20th OSU Fall Term Begins
 25th BMCC Fall Semester Begins
 23rd Family Health & Fitness day
 9 AM – 2 PM
 Free health & wellness event for all ages.
 Location: Hermiston High School.
 Contact: angie.treadwell@oregonstate.edu

JULY											
25	26	27	28	29	30	1					
2	3	4	5	6	7	8					
9	10	11	12	13	14	15					
16	17	18	19	20	21	22					
23	24	25	26	27	28	29					
30	31	1	2	3	4	5					

AUGUST											
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27	28	29	30	31	1	2					
3	4	5	6	7	8	9					

SEPTEMBER											
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1	2	3	4	5	6	7					

Pivotal Moments

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<http://oregonstate.edu/dept/hermiston/>*

**Hermiston Agricultural Research & Extension Center
 Mission Statement**

To advance scientific knowledge in agriculture, natural resources and biofortified crops, and support and educate our diverse local clientele and community in the areas of irrigated agriculture, plant breeding, natural resources, human health and youth development.



Oregon State University
 Hermiston Agricultural
 Research and Extension Center

Become a HAREC Supporter!

Contact our office to find out how you can contribute to the research, programs and growth of HAREC.