



HERMISTON AGRICULTURAL RESEARCH & EXTENSION CENTER

Pivotal Moments

A Quarterly Newsletter for Friends of HAREC



SPRING 2019

From the Director

By Philip B. Hamm

Welcome to Spring....finally!

As with most of the farming community, the staff at HAREC are working overtime to get crops planted, but in our case to establish potato, sweet corn, grass seed, carrot, onion, and other research plots, to support the research effort in these and other crops this season.

For those of you who like numbers....and maybe history, here are a few facts about HAREC.

How long has this experiment station been in Hermiston? Since 1909. First located on Theater Lane, but moved to the present location in 1931. We are one of the oldest organizations in Hermiston.

How many acres do we farm, or more accurately conduct research trials? OSU owns 262 acres, but we currently rent another 28 from our neighbor.

How many center pivot irrigation systems do we operate? 15; all of various dimensions, sized to support our research efforts. By the way, all are controlled, turned on or off, by a cell phone.

What is the most significant aspect of this research and extension facility? In addition to the new information provided each year to our stakeholders, it's our great staff and huge support received from the agriculture community. Both are second to none!

Because of that support, we have great facilities, including 7 modern laboratories, 6 green houses, 2 screen houses, and so much more.

All to support the extension and research needs of our stakeholders.

We also have faculty whose research and outreach activities may take place off station. One works on native bees, another works on aquatic invasive species, and two extension faculty work with Latino youth and the SNAP-Ed program respectively.

See the articles this month from our faculty & research staff and get to know some of the people that make up our station. We have about 30 year round staff, swelling to around 55-60 in the summer.

If you haven't visited the station yet and would like a tour, please give me a call. However, remember my last day working for OSU is August 31st....so call before then!



Molecular Biologist Researching CRKN Resistance in Potatoes

**By Vidyasagar Sathuvalli
Potato Breeding & Genetics**

Sapinder Bali is a postdoctoral scholar working with Sagar Sathuvalli at the Hermiston Station. Sapinder comes to us from India, and holds a PhD in molecular biology from the University of Delhi.



Sapinder Bali, Postdoctoral Scholar

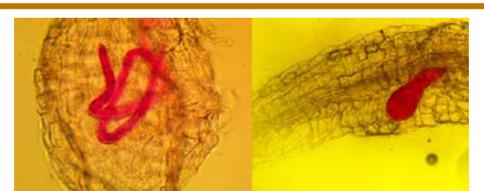
In October 2015, Sapinder arrived in Hermiston where she works on breeding for resistance to Columbia root knot nematode (CRKN) in potato. At this time there are no potato varieties with resistance to this nematode.

Breeding for resistance to problems such as CRKN is important because the current best controls are expensive fumigants and nematicides which pose potential threats to the environment and to human health.

One of the goals of the potato breeding program at HAREC is to develop potato varieties with genetic resistance to nematodes and to combat the damage caused by CRKN.

Sapinder's contribution to this goal is to study the molecular basis of the mechanism by which potato plants resist CRKN infection.

Her work has determined that resistant potatoes inhibit the growth and development of CRKN when they start feeding on the roots.



The Columbia root-knot nematode male (left) female (right) inside potato roots as seen under the microscope (10X power).

Photo Credit: Sapinder Bali

Differential gene expression study performed by Sapinder reveals that resistant plants express an immune response when the juvenile nematode enters the root system. The infection can occur, but the nematode cannot complete its lifecycle; it will either leave the potato or die.

This study is the first ever report of differential gene expression during CRKN and potato interaction. It will lay the foundation for breeding nematode resistant potato varieties. We look forward to more results from this exciting line of work that addresses a very serious threat to the sustainability of potato production in the Pacific Northwest.

Great Job Sapinder!

Food Heroes Partner Up with Local Schools

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



A partnership between SNAP-Ed, HAREC potato breeder Sagar Sathuvalli and the fabulous food service staff in the Umatilla School District exposes their students to fun locally grown veggies like purple mashed potatoes. #BeAFoodHero



**May 22nd – Grass Field Day
June 10th – Irrigated Wheat Field Day
June 26th – HAREC Potato Field Day**

News from the Agricultural Entomology Group

By **Silvia I. Rondon**
Professor & Extension Entomologist Specialist

The Irrigated Agricultural Entomology Program (IAEP) has two new scientists on board: Dr. Govinda Shrestha, and Dr. Tiziana Oppedisano. Both come with a wealth of new expertise & are full of energy to start the 2019 season. Govinda joined my program in January and Tiziana in March. Here a brief summary of who they are and what they will be doing in the Pacific Northwest.

"Hi everyone, my name is Govinda Shrestha, born and raised in Nepal. My higher academic trainings come from Denmark, where I obtained a MSc & PhD in Agrobiological and Agricultural Entomology, respectively; both degrees from University of Aarhus.



Postdoc Scholar Govinda Shrestha

I joined Dr. Silvia Rondon's program working on Lygus bug

movement. I am very excited to learn & research insect movement ecology using diverse tools including Flight Mills, Mark-Recapture, and GIS technology.

I worked as a Postdoctoral Research Associate at Montana State University, Western Triangle Agricultural Research Center, Conrad, Montana, (2016-2018) in Integrated Pest Management Programs for wheat, alfalfa and field peas.

My main research interest and expertise are biological control, pest monitoring, and bio pesticide application aimed at developing practical, economical, and environmentally sound pest management programs for agriculture producers.

In my spare time, I love to spend time with my family, wife Binita and daughter Eva, gardening, playing guitar, and exploring the history & culture of Hermiston with local people."

"I'm Tiziana! I was born and raised in Italy. Since I was a little kid, I have been fascinated by nature and the biology of living things. This passion led me to pursue a career as a biologist.

During my postdoctoral appointment at HAREC, I will focus my research on studying the emerging vector-borne phytoplasma diseases in irrigated crops. I am going to explore the relationship between three-way

system interactions; plant-insect-pathogen, from the entomological perspective. This study will provide new insights for the development of new tools and effective control strategies.



Postdoc Scholar Tiziana Oppedisano

Before joining Dr. Rondon's program, I obtained a PhD in Sustainable Plant Production and Protection from the University of Molise/Fondazione Edmund Mach in Italy. My research focused on the apple proliferation phytoplasma, one of the most severe vector-borne diseases affecting European apple orchards. I also earned a Master's degree in Biodiversity and Evolutionary Biology from the University of Milan in Italy."

I hope you will have the time to meet Govinda, Tiziana & other members of the IAEP program that are conducting innovative work. Our ultimate goal is to serve our clientele. As we get ready to start our field season, we are here to listen and take note of those needs and challenges to incorporate them in our program.

New Faces for the HAREC Plant Pathology Program

The Plant Pathology Program and Diagnostic Clinic has a newly remodeled lab space and would like to welcome new and returning faces.



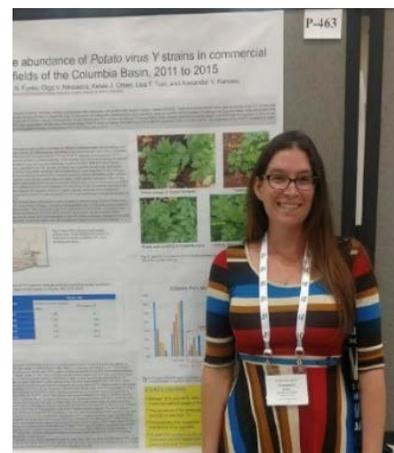
Hannah Rivedal comes to us originally from Wisconsin. Completing her Ph.D. in Botany and Plant Pathology from Oregon State University, she joined the clinic in April. She's excited to get to know everyone and to get her hands dirty at the clinic. "You can't

be in a bad mood when you are holding a bunch of Petunias!" – Hannah



Victoria Skillman is a transplant from Virginia. She received her master's degree in Horticulture from Oregon State University in March 2017 and started working with the plant pathology program in June of that year.

She is often found around the station's fields either collecting samples or headed out for a five-mile run.



Cassandra Funke is a familiar face around HAREC. She worked at the clinic in 2014, and after completing her master's degree in Plant Science from the University of Idaho in 2017, she returned in May 2018. Her young daughter has already found a love for soil samples.

Send or bring soil & plant samples or insects for identification to:
 OSU Ext. Plant Pathology Lab or
 OSU Entomology Lab
 HAREC, 2121 South First Street
 Hermiston OR 97838

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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

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