

# Researcher bridges U.S., Mexico potato industries

**Arturo Quintero Ferrer works on the battle against PVY in potatoes**

By **JOHN O'CONNELL**  
Capital Press

MOSCOW, Idaho — University of Idaho potato virologist Alexander Karasev has high hopes for Ph.D. student Arturo Quintero Ferrer, both as a scientist and a potential potato industry diplomat.

Ferrer, a 29-year-old researcher from Jalisco, Mexico, has been helping Karasev to better understand the complex interaction between rapidly evolving potato virus Y strains and specific potato varieties.

Ferrer's ties have also opened doors in Karasev's efforts to access PVY-positive plant samples from Mexican fields for comparison with U.S. strains.

Karasev hopes Ferrer will continue researching potatoes when he returns home and helps to build a better relationship between the U.S. and Mexican potato industries.

U.S. growers have long been restricted to selling their fresh potatoes within 16 miles of the U.S.-Mexican border but were briefly granted ac-



Arturo Quintero Ferrer, a Ph.D. student at University of Idaho in Moscow studying potato virus Y, tours R & G Potato Co. in American Falls, Idaho.

John O'Connell/Capital Press

cess to the entire country last summer, until the Mexican potato growers association blocked the expanded access in court. Those cases are still pending in the Mexican legal system.

"I realized there's a great divide between Mexico and the U.S.," Karasev said. "That's my expectation, that

perhaps he may be the person who may help bridge this gap between the Mexican and U.S. potato industry."

Ferrer explained Idaho and Jalisco are considered sister states and have an agreement to share technology. While attending the University of Guadalajara, he agreed to participate in a new exchange

program with UI. Though he was initially interested in studying human genetics, a course Ferrer took at UI made him aware of opportunities in plant genetics. He joined Karasev and began working in PVY in 2008, and was scheduled to graduate with his Ph.D. in December.

Ferrer, who has a full

**Arturo Quintero Ferrer**

**Age:** 29  
**Home town:** Originally from Jalisco, Mexico, but now residing in Moscow, Idaho  
**Occupation:** Ph.D. student under UI virologist Alex Karasev studying potato virus Y  
**Family:** Mother, Claudia; father, Arturo; sister, Monica

scholarship from the Mexican government, has been working to map the genes of nine newly discovered PVY strains.

"It's very important to know your enemy," Ferrer said. "We need to understand how PVY evolves and where it is going."

PVY, spread by aphids, reduces potato yields, and there's been a shift toward strains that also cause tuber necrosis.

For research purposes, UI maintains a collection of more than 30 PVY isolates, supported in tobacco seedlings that must be replaced with freshly inoculated plants every few months.

Since he first set to work in PVY, Ferrer said several new strains of the disease have surfaced — including four genetically unique strains he personally cataloged from Jalisco field samples.

One of his discoveries from Mexico, PVY M3, is similar to a common U.S. strain, PVY NTN, but displays a distur-

ing characteristic. In tobacco plants, PVY M3 shows no visual symptoms. Ferrer believes the trait shows how easily new PVY strains could evolve that are undetectable in potatoes, making it difficult for growers to remove infected plants from fields and potentially resulting in broader infections.

Certain potato varieties, such as Russet Norkotah, are already known to show little to no symptoms of some PVY strains.

Karasev said potato breeders have targeted PVY O, responsible for 26 percent of infections in 2010, and reduced its prevalence to 6 percent of infections in 2014.

Strains that cause tuber necrosis now represent a quarter of infections. Karasev said PVY N Wilga, which doesn't cause tuber rot but is tough to detect in many varieties, now causes 70 percent of infections and should be a priority for potato breeders.

*This story first appeared June 26, 2015.*

## Researcher studies potato storage

**Yi Wang goes from trials to studying physiological mechanisms**

By **JOHN O'CONNELL**  
Capital Press

KIMBERLY, Idaho — Yi Wang aims to help the Idaho potato industry better understand the physiological mechanisms responsible for problems that may take place in potatoes during storage.

Wang, 29, who started March 20 as the University of Idaho's new potato storage physiologist in Kimberly, holds a Payette Russet. She has overseen the agronomic trials that evaluated the new line, developed through a multi-state breeding effort to find potatoes low in acrylamide, which may be linked to cancer.

Finally, she intends to evaluate lines from the Aberdeen UI and USDA potato breeding programs for tuber-end defects, with the goal of pinpointing the mechanisms that cause them.

Wang's arrival will free UI Extension potato specialist Nora Olsen to spend more time in the field and to focus greater attention on variety-specific storage management techniques. Olsen, who will work closely with Wang in Kimberly, explained Wang's position has been mostly vacant since Gale Kleinkopf retired in 2003, with another scientist filling in for a few years in the interim. Wang will be in charge of the unique potato storage



John O'Connell/Capital Press  
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**Yi Wang**

**Age:** 29  
**Job:** Incoming potato storage physiologist with the University of Idaho's Kimberly Research & Extension Center  
**Education:** Bachelor's degree in biology from Nanjing Agricultural University in China; Ph.D. in potato physiology from University of Wisconsin-Madison, in potato physiology; post-doctoral researcher with UW

**Family:** Her mother, Minsang Zhang, and father, Hongpeng Wang, live in Central China, and her uncle, Renyi Zhang, is an atmospheric scientist at Texas A&M.

**Hometown:** Twin Falls, Idaho.


research facility in Kimberly.

"What she's figuring out will help us make a lot of recommendations to growers," Olsen said. "We see the (storage) responses. We need to understand at a more minute depth what are some of the mechanisms going on and why we see those responses."


Wang believes working in Idaho's famous potato industry will open up grant opportunities, as well as the potential for her research to have a big impact on a large number of growers.

"Idaho is the center of potato production in this country, and I'm really glad I can be near to those crucial growers and processors," Wang said. "I'm very sure I will learn a lot from them."

*This story first appeared Feb. 6, 2015.*



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