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### **Mentoring Future Plant Scientists**



Carolee Bull, ARS plant pathologist, and Jose Jimenez, a student intern in her lab. Photo: Bob Johnson.

*Research Plant Pathologist **Carolee Bull**, with the ARS Crop Improvement and Protection Research Unit in Salinas, California, was the subject of an article in "AgAlert," a publication of the California Farm Bureau Federation. The article focused on her mentoring of the next generation of*

*plant scientists as she works to diagnose important vegetable crop diseases. Following are excerpts of the article:*

For more than 15 years, [Carolee] Bull has worked to identify hidden differences among strains of the *Pseudomonas* bacteria.

As she worked to unravel the mysteries of this destructive vegetable crop disease, Bull has also mentored dozens of young students taking their first steps in learning the modern tools and techniques of plant pathology.

"I've had over 30 students, and most of them went on to 4-year colleges," Bull said. "The students come from minorities who are under-represented in sciences. At least two-thirds of the interns here were the first generation of their family to go to college, and more than half had at least one parent who worked in the fields."

The latest intern at the research station from the [Alisal] neighborhood is Jose Jimenez, an Alisal High School graduate whose early interest in plants began as he helped his dad trim trees.

"I did my first PCR analyses," said Jimenez, a sophomore in genetics and plant biology at the University of California, Berkeley, who hopes to develop a career as a laboratory researcher. "The risk of contamination is so high I had to be meticulous in my techniques. I also hadn't used the gel imaging system; it allows us to see different strains of the bacteria."

He gives Bull the highest marks as his mentor during the summer internship at the USDA station.

"She was amazing; she was patient and generous with her time," Jimenez said of Bull.

[Bull] is quick to point out that she partners in the mentoring with **Polly Goldman**, who works as a research technician at the Salinas station. Bull generally handles the more theoretical aspects of the research, while Goldman shares the technical training.

Two of the students to intern at the Salinas station have won three-year, \$90,000 fellowships from the National Science Foundation for graduate work in plant pathology.

"Right now, we have five students in plant pathology graduate programs," Bull said.

*Written by Bob Johnson. Reprinted with permission from the California Farm Bureau Federation. ❖*

## Your Two Cents (Y2C)



[www.ars.usda.gov/yourtwocents](http://www.ars.usda.gov/yourtwocents)

Frosty greetings from the Your Two Cents team! It's been a little quiet on Y2C this month, but don't worry, we know why. It's a busy time of year no matter what your research program.

Exciting things are coming to Y2C in 2015; keep an eye on your inbox for announcements about new initiatives and team members.

Wishing you a happy 2015 and lots of good data! ❖

## Axon – the ARS Intranet



Have you read the words of encouragement and thanks shared on StARS recently? Take a look at some of

the grateful shout-outs that your coworkers across the nation have been saying about each other and consider nominating someone on [StARS](#). You can give a Shout-Out to an individual or to a team with a Constellation.

To send pictures and short captions for the Photo of the Month or questions about Axon, contact [axon@ars.usda.gov](mailto:axon@ars.usda.gov). We would love to highlight your research or the people who support it.

New pages and content are added daily, so check out the home page for "What's New on Axon" and Announcements!

Axon URL: <https://axon.ars.usda.gov>

Username: arsnet\firstname.lastname

Password: (same password as email)

Wishing you peace, joy, and handy information at your fingertips during this holiday season. ❖

## Around ARS

### Botulism Meeting

Supervisory Microbiologist **Vijay K. Juneja** served as Program Chair for the 51st Interagency Botulism Research Coordinating Committee (IBRCC) Meeting, held October 26-29, 2014, in Philadelphia, PA. The IBRCC is a consortium of government agencies with the purpose of protecting U.S. citizens from botulinum toxin and the disease it causes, botulism. The annual meeting is an international forum for presenting state-of-the-art research. Responsibility for organizing the meeting rotates among the primary agencies. Juneja is with ARS's Eastern Regional Research Center (ERRC). He and ERRC colleagues **Andy Hwang**, **Angie Osoria**, and **Stacy Raleigh** served as the Hosting Committee for the 2014 meeting. ❖

### Innovation Festival Exhibit

The ARS Office of Technology Transfer (OTT), in Beltsville, MD, was an exhibitor at the "[Innovation Festival](#)," sponsored by the U.S. Patent and Trademark Office and the Smithsonian. The event took place November 1-2, 2014, at the National Air and Space Museum in Washington,

D.C. OTT's **Rob Griesbach** gave a talk, "Thanking USDA for Thanksgiving Dinner," which highlighted USDA patented and unpatented innovations. Research Plant Pathologists **Ramon Jordan** and **John Hammond**, with the ARS Floral and Nursery Plants Research Unit, U.S. National Arboretum, demonstrated patented and licensed plant virus detection technologies for exhibit visitors. OTT's **Cathy Cohn** and **Mojdeh Bahar** also provided general information on ARS's research programs and technology-transfer activities. See [Photo Corner](#) for more. ❖



Rob Griesbach (left) and Ramon Jordan at the ARS booth at the Innovation Festival.

## Most Cited Paper

A review paper entitled “Natural Products in Crop Production,” by ARS scientists **Franck Dayan**, **Charles Cantrell**, and **Stephen Duke** of the Natural Products Utilization Research Unit in Oxford, MS, was recently announced as the [most cited paper](#) since 2009 in the journal *Bioorganic and Medicinal Chemistry*. It has been cited 347 times, according to Google Scholar. ❖

## Insect Lab Tour



Eighth-grade students take part in hands-on demonstrations in the lab at SIMRU.

The ARS Southern Insect Management Research Unit (SIMRU), in Stoneville, MS, hosted a tour and “hands-on” demonstrations on November 14, 2014, for 30 local 8th grade students from 2 middle schools. Assisted by **Cathy Warren**, **Yolanda Harvey**, and **Nathan Little**, Research Leader **Randy Luttrell** welcomed the visitors to the lab and explained the work done there. Students filled out a survey of what they like about science and how they would define science. Students then rotated among several different demonstrations on economically important insects and the damage they cause to crops. The following SIMRU entomologists and technicians organized and presented the demonstrations: **Larry Adams**, **Clint Allen**, **Kenya Dixon**, **Chris Johnson**, **Tabatha Nelson**, **Arnell Patterson**, **O.P. Perera**, **Calvin Pierce**, **Maribel Portilla**, **Cavisha Roberson**, **Jasmine Warren**, **Essanya Winder**, and **Henry Winters**. ❖

## Technologies Licensed in 2014

In celebration of [Global Entrepreneurship Week 2014](#), the ARS Office of Technology Transfer recognizes the ARS inventors whose technologies were licensed in FY2014. USDA executed 28 new licenses in FY2014:

Hans T. Alborn  
 Elaine A. Backus  
 Andrew B. Bigley, Jr.  
 Paul P. Bregitzer  
 Diane E. Chan  
 Kuanglin Chao  
 Weidong Chen  
 Yud Ren Chen  
 Luisa W. Cheng  
 Arlen Draper  
 Mark K. Ehlenfeldt  
 John P. Fellers  
 David J. Geveke  
 Gregory M. Glenn  
 Xiaohua He  
 Robert M. Hnasko  
 Syed H. Imam  
 Moon S. Kim  
 Bryan K. Kindiger  
 Craig A. Ledbetter  
 Lucy F. Lee  
 Amanda Lindholm-Perry  
 Andrew McElrone  
 Rebecca J. McGee  
 Kevin E. McPhee  
 Dolores W. Mornhinweg  
 Frederick J. Muehlbauer  
 David A. Schisler  
 Craig B. Skinner  
 Larry H. Stanker  
 Fumiomi Takeda  
 Richard M. Thallman  
 George J. Vandemark  
 Chun-Chieh Yang  
 Qingzhong Yu



# Notable Awards



# Photo Corner



**DAIRY INDUSTRY PERSON OF THE YEAR**

Curtis P. Van Tassell, DVM  
 USDA–Agricultural Research Service,  
 Bovine Functional Genomics Laboratory  
 Beltsville, Md.

Research Geneticist **Curtis P. Van Tassell**, of the Bovine Functional Genomics Laboratory, in Beltsville, MD, received the “Dairy Industry Person of the Year” award at the 2014 World Dairy Expo, held in October 2014 in Madison, Wisconsin. Nominated by industry peers, Van

Tassell and three other honorees were selected for their outstanding contributions to the dairy industry. [World Dairy Expo](#) is a major international event. This year, more than 77,000 dairy producers and industry experts from 94 countries attended. ❖



SIMRU entomologist Larry Adams does a presentation for local middle-schoolers about insects that damage sweetpotatoes. See story in [Around ARS](#).

Research Geneticist **Gongshe Hu** and Biological Science Technician **Chris Evans** of the Small Grains and Potato Germplasm Research Unit in Aberdeen, ID, received the Idaho Barley Commission’s 2014 Industry Service Award at the Tri-State Grain Growers Convention, held November 12-15, 2014, in Stevenson, WA. The award recognized their dedication in food barley development using the CM1 ultra-high beta-glucan barley mutation and their outstanding effort to secure seed increase for both the food and malting industries. See [Photo Corner](#) for more. ❖



Chris Evans, Pat Purdy of the Idaho Barley Commission, and Gongshe Hu.



Research Plant Pathologist Ramon Jordan explains plant virus research to visitors at the ARS booth at the Innovation Festival at the National Air and Space Museum. See story in [Around ARS](#).



Biological Science Technician Chris Evans (left) and Research Geneticist Gongshe Hu (center) show malting barley lines to industry collaborator Chris Swersey. See story in [Notable Awards](#).

## Did You Know?



Poinsettias have their wonderfully full and conveniently sized stature thanks to Agricultural Research Service scientists.

Poinsettias are America's number-one holiday plant, with more than 80 million sold during the 6-week season.

In its native Mexico, the poinsettia grows up to 8 feet tall. In the 1990s, scientists at the ARS Beltsville Agricultural Research Center found that a phytoplasma—a bacterial-like organism—acts as a dwarfing agent, allowing the common holiday plant to stay at a comparatively dainty 18 inches. This phytoplasma triggers a hormonal imbalance that instructs the plant to grow outward, rather than up like a tree. This “free-branching” phenomenon also produces more of the brilliant-red, leaflike bracts favored by many consumers.

ARS research also targeted the plant's natural propensity to keep its leaves and color for only a few days. The scientists found some poinsettias that were genetically disposed to last longer and used those plants to develop several species that had staying power.

The poinsettia, a contemporary symbol of Christmas in many parts of the world, was introduced to the United States and named after Joel Robert Poinsett in 1825.

Poinsett was serving as the first U.S. ambassador to Mexico when he saw the plant growing in the hillsides of Taxco, a small town in southern Mexico, where the plant is native.

Taxco was called “Cuetlaxochitl” by the Aztecs, who prized poinsettias and considered them a symbol of purity because of their brilliant red color.

The Aztecs made a reddish-purple dye from the colored “flowers,” which are actually modified leaves called “bracts.” They also made a medicine against fevers from the latex sap of the plant.

In the 1600s, Franciscan priests came to Taxco and began using poinsettias in the Fiesta of Santa Pesebre, which is a nativity procession. The appearance of the red bracts coincided with the time of the procession.

Written by **Sharon Durham**, ARS Information Staff.

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