



## GRADUATE STUDENT SPOTLIGHT

### RANDI JIMENEZ

When I was seven, I told my mom that I wanted to be a florist, so I have always known I would wind up working with plants. I am a Ph.D. candidate in the Horticulture and Agronomy Graduate Group researching geminivirus resistance in hot peppers, and when I graduate in 2016, my goal is to enter the seed industry as a plant breeder.

I have earned my B.Sc. in Plant Biotechnology and M.Sc. in Horticulture and Agronomy from UC Davis. In that time I have worked with several crops, beginning as an undergraduate lab assistant working in strawberries, lettuce, and Monterey Pine in the Plant Pathology Department and continuing into my master's work cloning transcription factors from *Arabidopsis*, tomatoes, and tomato wild relatives with [Diane Beckles](#) in the [Plant Sciences Department](#). For my dissertation research I am working under [Allen Van Deynze](#) with hot peppers and wild pepper accessions in the [Seed Biotechnology Center](#).

Geminiviruses are plant viruses that cause significant crop damage and severe economic losses worldwide. In California, vegetable production is impacted by a geminivirus called

Beet Curly Top virus. My research focus is to identify different wild pepper accessions that are resistant to Curly Top with methods novel to pepper and then move that resistance into a cultivated hot pepper background.

Working with the wild accessions is one of my favorite parts of the project. The diversity in plant structure, fruit shapes and colors is incredible, and some of the flowers are gorgeous. As an undergrad, I thought the only way any progress in crop

improvement was possible would be through biotechnology. Now, in working with wild accessions and seeing the diversity of germplasm available, my attitude and

approach to crop improvement has shifted from creating the traits I want in a lab to going back to the germplasm and finding it.

I have interned in the seed industry, first at HM.Clause and then at Driscoll's Strawberry Inc., and I enjoyed that every day presented new challenges. It was my internship at Driscoll's that got me interested in organics and involved with the Student Organic Seed Symposia. They have provided great opportunities to meet plant breeders and fellow plant breeding students from across the nation, and see how agriculture and breeding priorities are different in other parts of the country.

UC Davis is an amazing place to be a plant scientist, with over 70 faculty working in plant research. Davis is a hub for the seed industry, with over 100 companies in the region. These resources offer innumerable opportunities to explore different areas for students who are torn between academia and industry, or those who do not know exactly where in the industry they will fit best. Being involved in Seed Central has helped me get a more complete view of what the seed industry and plant breeding are all about.





## SCIENTISTS TO DEVELOP NEW DROUGHT TOLERANT WHEAT SEEDQUEST

Food security is recognised as one of the major global challenges of the 21st century. For wheat growers internationally, particularly in India, one of the key issues is drought. Farms cannot always guarantee a good harvest with major implications for the livelihoods and household food security of small-holder farmers and the wider community.



### Genetic variation

Professor Anthony Hall, from the University's Institute of Integrative Biology, said: "Our project will build on our new understanding of the wheat genome. We have developed new methods to rapidly uncover the genetic variation in wheat.

"By combining an understanding of genetic variation with a careful study of performance under drought conditions it becomes possible to associate genetic variation with improved drought tolerance."

[>>> read more](#)

## CAL QUALSET RECEIVES CSSA PRESIDENTIAL AWARD UC DAVIS

At the Crop Science Society of America annual meeting November 2-5, UC Davis Professor Emeritus Cal Qualset was given the Presidential Award for his long dedication to wheat research.



[>>> read more](#)

## HOT CROPS UC DAVIS

Researchers at UC Davis and around the world are scrambling to develop new varieties of food and fiber crops that will produce abundant yields despite drought and other effects of climate change. They're also exploring more water-efficient ways to grow existing crops.



It's estimated that 38 percent of the world and 70 percent of its agricultural output are already impacted by drought — numbers that will likely rise as climate change intensifies. To make matters worse, global population is spiraling upward, expected to soar past 9 billion by the year 2050.

In short, we're headed toward a future that will have billions of more mouths to feed with much less water, higher temperatures and no room to expand the global farm.

[>>> read more](#)

## SALT-LOVING PLANTS MAY BE KEY TO GLOBAL EFFORTS FOR SUSTAINABLE FOOD PRODUCTION CELL PRESS

Soil salinity is claiming about 3 hectares, or 7.4 acres, of usable land from conventional crop farming every minute. This costs the agricultural sector many billions of dollars each year and jeopardizes the ability to meet the target of feeding 9.3 billion people by 2050. Unfortunately, decades of plant breeding for salinity tolerance have not resulted in a major breakthrough that might allow us to resolve this issue.



[>>> read more](#)

## NEWS AND EVENTS:

2015 TUCSON PLANT BREEDING INSTITUTE  
JANUARY 5-9, 2015  
UNIVERSITY OF ARIZONA

For more information:

Website: <http://www.plantbreedinginstitute.bio5.org>

Contact: [jbwalsh@email.arizona.edu](mailto:jbwalsh@email.arizona.edu)



2015 ANNUAL MEETING  
NATIONAL ASSOCIATION OF PLANT BREEDERS  
JULY 27-30, 2015  
PULLMAN, WA

Planning is underway for the next NAPB/PBCC annual meeting. A pre-conference tour of the ARS Central Ferry location and the WSU/ARS Prosser location will provide an opportunity to view breeding programs and production activities for a range of cereal, oilseed, legume, forage and specialty crops. Organizational business sessions, technical presentations, graduate student functions and workshops will be held on the Washington State University Pullman campus. A local campus tour will feature cereal and cool season food legume breeding programs. Venue and lodging details are currently being finalized.

### SEED CENTRAL STUDENT INTERNSHIP PROGRAM

The Seed Central advisory board will transition from one Grand Prize Internship each year to a broader "Seed Central Student Internship Program," designed to encourage and facilitate having more than one annual internship to allow for participation by more UC Davis undergraduate and graduate students.

Seed Central is now ready to disseminate and promote internship offers to a wide range of students using the [UC Davis Internship and Career Center website](#).

### CURRENT INTERNSHIPS

To be eligible, students must have attended Seed Central sanctioned activities in the past and be active participants in the Seed Central Student program.

**Seed Central's Grand Prize Internship Program**  
Sponsored by HM.CLAUSE

**DEADLINE:** December 9th, 2014 - [click](#) for more info.

**Seed Central 2015 Grand Prize**  
**Vegetable Breeding Technology Intern at Monsanto**

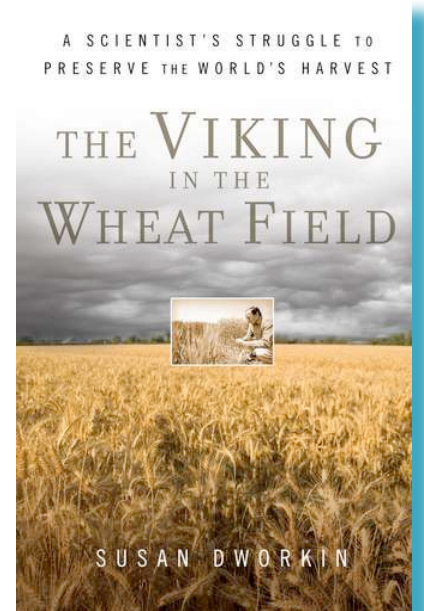
**DEADLINE:** January 5th, 2015 - [click](#) for more info.

For questions, contact:

[Kathy Bess-Esparza](#)

SUSAN DWORKIN,  
AUTHOR OF THE VIKING  
IN THE WHEAT FIELD

The Plant Breeding Center will be hosting Susan Dworkin on Tuesday, December 9th 2014. She will be on UC Davis campus leading a seminar at 4PM immediately followed by a social event at 5:30 in PES 3001. For information, contact [Amanda Pietras](#). Dworkin will also be leading a luncheon followed by a talk with post-docs and grad students about her new book, the Viking in the Wheat Field, at 12PM. For information on the post-doc and grad student events, contact [Kaisa Kajala](#).



**Register here.**

THIRD THURSDAY HOLIDAY PARTY  
DECEMBER 18TH  
PES 2005

The PBC thanks Alan Tenscher, assistant grape breeder in the Viticulture and Enology Department, for an entertaining and informative talk at the November seminar. We had excellent attendance and engaging conversation between faculty, researchers, and students. We will be hosting the Third Thursday Holiday Party on December 18th, 2014. We will meet at PES 2005 at 4:00PM and beverages and light hors d'oeuvres will be served. Come ready to share future planting or research plans with colleagues.

For Winter quarter we are planning a community screening of the documentary [Seeds of Time](#) on campus. Keep checking the [PBC website](#) for updates.

We're looking for Third Thursday seminar speakers for Winter quarter, so send in your suggestions or requests!

### ABOUT THE NEWSLETTER

The Plant Breeding Center newsletter will be produced monthly for internal audiences, and quarterly for external audiences and industry partners. Newsletters will be distributed on the first Monday of every month. Submissions for the January newsletter will be accepted up to **Friday, January 2nd**.

If you wish to be on the PBC mailing list please email [Amanda Pietras](#) with the names and email addresses of interested parties.

If you have information you'd like featured in the newsletter, send an email to:

[Amanda Pietras - ampietras@ucdavis.edu](mailto:ampietras@ucdavis.edu)

Program Representative

Plant Breeding Center

<http://plantbreeding.ucdavis.edu>