



## Graduate Student Spotlight Mengyuan Xiao

When people ask me why I work with crops, my answer always make them laugh – I like biology, but I am afraid of animals, so I chose plants. This is the true reason. However, after spending six years studying crop sciences, that has become only a small part of why I'd like to stay in this field.

I am a third-year Ph.D. student in the Horticulture & Agronomy graduate group. Before I came to UC Davis, I did my undergraduate study at the China Agricultural University. Although my college major was called "Agronomy," I got the chance to explore a broad range of agriculture-related disciplines, from soil science and agroecology, to genetics and molecular biology, etc. Among them, I found myself most interested in crop genetics and breeding, which combines my original enthusiasm for biological mechanisms with my wish to help find solutions to global issues like food security.

To further pursue my interests, I came to UC Davis for graduate studies, not only because it is one of the best agricultural universities in the world, but also because of the abundance of local resources, considering that California is the largest vegetable, fruit, and nut provider within the U.S. and the world.

I have been working with Dr. Jan Dvorak on wheat evolution and genetics for the past 2 years. I am focusing on the discovery of genetic loci related to the wheat domestication syndrome.

Results will be interpreted in the context of wheat domestication and subsequent evolution. I am also going to test the ability to apply associated molecular markers on wheat breeding. I hope this project will help to clarify wheat domestication history and species relationship within the Triticeae, and facilitate wheat variety improvement involving wild germplasm by utilizing associated markers to remove the unfavorable wild alleles.

Another program that I am involved in is the Student Collaborative Organic Plant Breeding Education (SCOPE) project with the UC Davis Plant Breeding Center. I am part of the SCOPE pepper breeding team. The breeding goals are: improvement of organic bell pepper sunscald

tolerance; and developing organic jalapeno popper varieties. This is my first field experience in breeding. In addition to the experience of crossing, phenotyping and data analysis, it is also a good chance for me to learn about teamwork and breeding project management. At UC Davis, I appreciate being able to access so many plant-sciences-related resources, as well as numerous opportunities to explore my interests and future career. From these classes, workshops, tours of local agriculture companies, and my own research programs, I've noticed that my career options are much more diverse than I previously thought. Two researchers may both call themselves "geneticists," but their work might be very different, and the same goes for breeders. I still remember how surprised I was when I heard a seed company representative introduce herself as a "pre-breeder," and tell me that even among breeders, job titles may vary based on the step in the breeding pipeline a person is taking charge of. Although my general career goal is to be a scientist in plant genetics and breeding, I am still trying to get experience in various areas with different emphases and find out the specific job I want to pursue in the future.

For incoming students or students early in their programs, I suggest paying attention to the resources on campus. Sometimes, at the beginning, it may be just a simple promotional email that you may not even bother to take a glance at. However, in the end, it may turn into an opportunity that will have a significant impact on your graduate studies or future career.



## UC DAVIS NEWS

### CHICKPEA WILD RELATIVES: USING SCIENCE TO CHANGE THE WORLD

- CROP WILD RELATIVES

Whenever I mention working with chickpeas, the almost universal response I get is “Oh yeah, hummus!” What most people don’t realize is that chickpea provides primary protein to over 1 billion people globally, with India (1.2 billion), Pakistan (180 million), and Ethiopia (95 million) among the biggest consumers. What’s more, due to its capacity to fix nitrogen from the air, chickpea enriches our soils. This is especially important for the developing world, where a large percentage of the population is plagued by malnutrition, and thousands of subsistence farmers work in marginal soils. I cannot think of a better crop than chickpea to address these combined challenges. Chickpea is in fact the world’s third ranking food legume in production (acreage and yield), and one of the most important crops for food security.

[>>>read more from Susan Moenga](#)

## WORLD NEWS

### WITH THE FAMILIAR CAVENDISH BANANA IN DANGER, CAN SCIENCE HELP IT SURVIVE?

- THE CONVERSATION

Virtually all the bananas sold across the Western world belong to the so-called Cavendish sub-group of the species and are genetically nearly identical. These bananas are sterile and dependent on propagation via cloning, either by using suckers and cuttings taken from the underground stem or through modern tissue culture.



[...]But the Cavendish unfortunately has its own weaknesses – most prominently susceptibility to a disease called Black Sigatoka. The fungus *Pseudocercospora fijiensis* attacks the plants’ leaves, causing cell death that affects photosynthesis and leads to a reduction in fruit production and quality. If Black Sigatoka is left uncontrolled, banana yields can decline by 35 to 50 percent.

[>>>read more](#)

## OPPORTUNITIES AND EVENTS

### SCOPE PROJECT INTERNSHIPS FOR UNDERGRADUATE STUDENTS

The SCOPE Project is a student-led collaborative of student and faculty plant breeders working on improving crop varieties for organic farming systems. Using traditional plant breeding methods, we are developing new cultivars on certified organic land at the UCD Student Farm. These breeding projects were funded at just under \$1 million by the Organic Research and Extension Initiative of the U.S. Department of Agriculture. This project is currently offering internship credits for undergraduate students. To join the project, contact Amanda Saichaie. Find more information on the project [here](#).

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### 2017 UC DAVIS PLANT BREEDING SYMPOSIUM MONDAY, APRIL 24TH

More info coming soon!

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### STUDENT ORGANIC SEED SYMPOSIUM UC DAVIS

AUGUST 11-14TH

More info coming soon!

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### NATIONAL ASSOCIATION OF PLANT BREEDERS 2017 ANNUAL MEETING

AUGUST 7-10 2017

UC DAVIS CONFERENCE CENTER

More information coming soon!

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### PLANT BREEDING CENTER:

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[UC Davis Plant Breeding Center](#)



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