



FROM THE DIRECTOR:

Welcome to the first issue of the Plant Breeding Center Newsletter! Since I began as Director of the Center on April 1, I've had the opportunity to work with an incredibly capable group of faculty, staff, and students, and interact with a wide diversity of external groups - from industry breeders to commodity commissions to farmers. I grew up in central Pennsylvania on a diversified crop, livestock, and vegetable farm. Since then, I have had the opportunity to live and work in Iowa, Georgia, and Oklahoma before moving to UC Davis. I have much to learn about California agriculture, but this is the most exciting agricultural system I've encountered so far.

The Plant Breeding Center has a mission to lead the world in plant breeding education and training, and in the development of new cultivars and improved breeding technologies. UC Davis has a long history as a leader and innovator in plant breeding and plant improvement; the Center's role will be to nucleate plant breeding activities across campus, raising their profile and developing synergies among programs.

Our first order of business is to develop a core graduate curriculum that serves as the basis for a Graduate Academic Certificate in Plant Breeding. Currently, students in plant breeding are enrolled in different graduate groups; a GAC will provide a structured set of classes and activities for these students. Pulling the plant breeding students together will help form a graduate program identity and

serve to increase interaction among faculty and staff. Through the curriculum review process, we will develop new courses and revamp several existing courses to provide students with a coherent and comprehensive plant breeding foundation.

The Plant Breeding Center is sponsoring a graduate student seminar and social event at 4 pm on the third Thursday of each month. The program, developed by students, will include guest speakers - including faculty, staff, and invited guests - as well as field visits to UC Davis faculty programs and other relevant breeding oriented programs. Suggestions for speakers are always welcome.

A key part of successful plant breeding education includes hands-on training in the design and execution of field-based breeding. Some students in plant breeding have projects that enable them to get fully trained in these aspects; others do not. The Plant Breeding Center at UC Davis is currently working on several solutions to this problem. Over the next several years, we will be hiring new faculty who will be expected to have a field-based breeding component to their programs and who will be training students. Our revised curriculum will include a field methods course that will ensure every student has experience with basic field design and exposure to a diversity of programs in different crops. We are developing an internship program that will provide students with an opportunity to work in the breeding industry for a three-month period during their graduate program.

Our breeding programs should not only educate the next generation of breeders - it should also be producing cultivars that have value to growers and consumers in California or beyond. Many crops have little to no commercial breeding activity, and niche markets for major crops are often not addressed by the industry. Those are areas where we, in the public sector, can target our breeding programs to have the most impact. We can develop germplasm and breeding technologies that are of interest to the seed and nursery industries directly. These developments in the program can work in sync with continuing research on and application of genomics, biotechnology, advanced phenotyping, and other technologies.

The demand for plant breeders is large and the need for new cultivars by growers and consumers is increasing daily. A vibrant plant breeding community at UC Davis will train plant breeders for the future to tackle increasingly important problems like drought, reduced irrigation water, and salinity while maintaining, if not increasing, productivity, nutritional quality, and other important traits. We see a great future at UC Davis, and invite you to become part of our team.

- **Charlie Brummer**



MEET AMANDA:

Amanda Pietras is a Program Representative for the Plant Breeding Center and the Seed Biotechnology Center. For the Plant Breeding Center, she focuses on strategic planning, which includes working with faculty and graduate students to develop the Plant Breeding program.

Currently she is working with Charles Brummer, graduate students, current plant breeding faculty and emeriti to develop the core curriculum for the program and build a strong cohort structure for incoming students. Additional areas of responsibility include organizing the plant breeding community at UC Davis and in the surrounding areas, as well as building relationships with industry partners. She will also focus on redesigning the digital presence for the Plant Breeding Center. Future plans involve greater outreach and establishing the Plant Breeding Center at UC Davis as a destination for life-long learning opportunities.

Amanda's work for the Seed Biotechnology Center includes the design of promotional materials, administration of the website, management of Center databases, establishing a social media presence, and continued outreach to industry members.

Amanda is from Massachusetts and earned a B.A. in English Literature from the University of Massachusetts, Amherst. Amanda's background includes graphic design, and copy editing grant proposals and journal publications. She is the proud parent of a miniature dachshund named Cosmo, who will be training for the Doxie Derby on Picnic Day.

She will be designing the newsletter and organizing outgoing communications. She is actively seeking interesting content for the website and the newsletter. Contact her if you have upcoming events, news, or information about pertinent research by faculty, students, or external affiliates that you would like to see in the newsletter or sent to a Plant Breeding listserv.

Contact Amanda:
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Opinion: The Planet Needs More Plant Scientists THE SCIENTIST

Academia is not producing sufficient PhDs in the plant sciences to solve the crop production challenges facing a rapidly growing population.

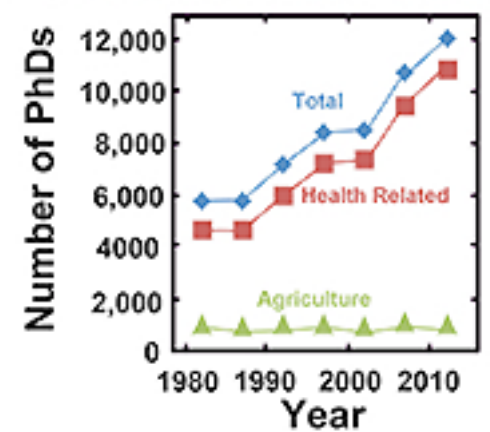
While the message is not new, the declaration of the flaws of the US biomedical research system by four prominent life scientists this spring captured everyone's attention.

Bruce Alberts, Marc Kirschner, Shirley Tilghman, and Harold Varmus wrote in PNAS of how "demands for research dollars grew much faster than the supply . . . [due to] perverse incentives [that] encourage

grantee institutions to grow without making sufficient investments in their faculty and facilities." Rather than devote money to faculty salaries, universities built infrastructure to house more self-paid researchers able to bring in more money via research grants, of which a large fraction was used as revenue (overhead) for the university. More labs required more students to fill them, leading to a dramatic rise of PhDs in the biomedical sciences, which then produced more researchers competing for dwindling grant dollars.

[>>>read more](#)

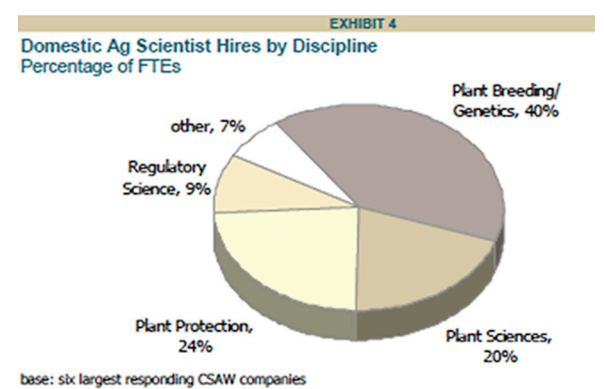
Growth of the Life Sciences



U.S. Ag Scientists Hiring Needs Outlined for Top Six Largest Life Science Companies Coalition for a Sustainable Agricultural Workforce

In 2013, CSAW conducted (through a third party research firm) a confidential survey among CSAW member companies to better understand their projected, near-term needs for hiring domestic agricultural scientists.

Answers from the six largest responding CSAW life science companies show they expect to hire more than 1,000 domestic scientist-level FTEs between now and 2015, representing 13% of their current agricultural scientist workforce. The largest numbers of ag scientists to hire (84% of the total) in the life-science focused identified disciplines were: plant sciences, plant breeding/genetics, and plant protection.



Nearly half (46%) will need to hold doctoral degrees.

[>>>read more](#)

UPCOMING EVENTS:

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

The goal of the TPBI is to offer state-of-the-art instruction and training in modern plant breeding tools such as statistics, molecular breeding, and computation.

While plant breeding is among humankind's oldest and most important endeavors, it remains a highly dynamic field. There is a constant flux of new technologies for plant improvement, such as advances in genomics, bioinformatics, high throughput phenotyping, and new statistical approaches for selection, gene mapping, and GxE interactions. The TPBI offers breeders state-of-the-art training in these modern tools. By offering modules on different topics, the Institute allows a breeder to choose courses that best fit their specific needs. The mission of the institute is to transfer current technologies to a wide audience of users, be they commercial breeders or academics interested in plant science improvement.

For more information:

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

Contact: jbwalsh@u.arizona.edu



THIRD THURSDAY SEMINARS NOVEMBER 20TH PES 2005 PLANT BREEDING CENTER UC DAVIS

Following the success of our first meeting on October 23rd, the Plant Breeding Center will be hosting the next Third Thursday seminar on November 20th, 2014. The November seminar will meet at PES 2005 at 4:00PM. We are seeking a guest speaker so please share your suggestions. We will be serving beverages and light hors d'oeuvres.

The goal of these seminars is to bring together the plant breeding community in Davis, to encourage the sharing of knowledge and resources, and to build a platform to advocate for curriculum development, investment in infrastructure, and resources.

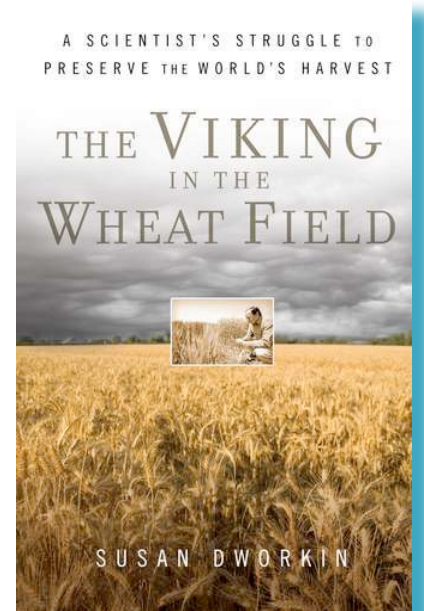
For more information:

Website: <http://plantbreeding.ucdavis.edu/>

Contact: [Amanda Pietras](#)

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 in PES 3001. For information, contact [Amanda Pietras](#). She 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](#).



ABOUT THE BOOK: Early stints at the US Department of Agriculture and as a journalist covering international aid projects left Susan with a fascination for all things farming. Her book, THE VIKING IN THE WHEAT FIELD, a consumer-friendly guide to agricultural politics, is about the crusading seed banker, Dr. Bent Skovmand, and the future of world food security.

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 December newsletter will be accepted up to **Thursday, November 28th**.

If you have information you'd like featured in the newsletter, send an email to [Amanda Pietras](#).

The Plant Breeding Center is currently building an email database of faculty, staff, researchers, students and post-docs who are interested in receiving regular communications from the Plant Breeding Center. If you wish to be on the mailing list, or want the members of your lab or office included on the mailing list, please email [Amanda Pietras](#) with the names and email addresses of interested parties.

Regular communications include:

- Internship opportunities
- Educational opportunities
- Events related to plant breeding
- Job openings
- Monthly newsletters

To view the Center's calendar and updates, visit our website at <http://plantbreeding.ucdavis.edu>.