

# Plant Breeding Education is a Group Effort



Ryan Hayes – USDA/ARS, Salinas, CA – discusses lettuce breeding with the Plant Breeding Academy.

Dollars are beginning to flow in, but training modern plant breeders requires more teamwork, exposure to breeding a wide array of crops and a lot more attention.

**T**HE LOW NUMBER OF PLANT BREEDERS being trained, despite a high global demand, is creating significant attention in both private and public sectors. Private industry has committed more than \$20 million to graduate student support in key U.S. universities making university administrators and legislators take note.

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## Organization is Key

At the American Seed Summit held in September 2008, 40 seed industry leaders listed “co-ordinate and engage industry stakeholders to support stable funding for seed and breeding education, research and development” as a major goal. With reduced capacity in number of public plant breeders and public breeding training programs, a coalition of public plant breeders sought the United States Department of Agriculture’s support to organize the industry to tackle the problem.

The Plant Breeding Co-ordinating Committee, formed in 2007, provides a forum for discussion, organization and leadership on matters affecting long-term U.S. plant breeding capacities, including research and education and their relevance to current and future national needs. Now over 750 members strong, the PBCC has managed to make legislators and university administrators aware of the problem and begin to strengthen public funding in plant breeding. A survey of its membership this year helped identify top priorities for training and funding, including:

- germplasm characterization
- molecular mapping of key traits
- germplasm collection and exchange
- user-friendly centralized databases to enable sharing of field performance data

## Developing a New Integrated Curriculum

A shift from public breeding to predominantly private breeding programs also requires a shift in what and how breeders are trained. Supported by private donors, the American Seed Trade Association and the Global Partnership Initiative for Plant Breeding Capacity Building, UC Davis is leading an interactive

survey to identify and prioritize the education requirements for future plant breeders. Including representatives from public and private plant breeders from developed and developing countries, as well as recent graduates, their opinions will help develop and refine integrated education programs for future plant breeders.

## Making it Happen

In 2009, the USDA will invest \$6.5 million in integrated plant breeding research and education programs. Examples of projects include integrating distance learning and breeding for nitrogen use efficiency; two-week hands-on courses on breeding for drought tolerance for graduate students; second level plant breeding courses that present challenges and strategies aligned with the various roles of plant breeders in current industrial settings; and incorporating bioinformatics modules in breeding courses.

Universities are already revising curricula and developing plant breeding centers to enhance graduate training by offering access to breeders across a diverse set of crops and a collaborative team-based environment, essential for breeding today. Here at UC Davis, the Plant Breeding Academy offers a program modeled after a MBA for executives to train personnel in the seed industry to become professional plant breeders. An integrated and multi-faceted approach is key to training the next generation of plant breeders. **Allen Van Deynze**