BeanCAP - Education
Early Recruitment Efforts

Annual Meeting

San Diego – January 2011

USDA

United States Department of Agriculture
National Institute of Food and Agriculture

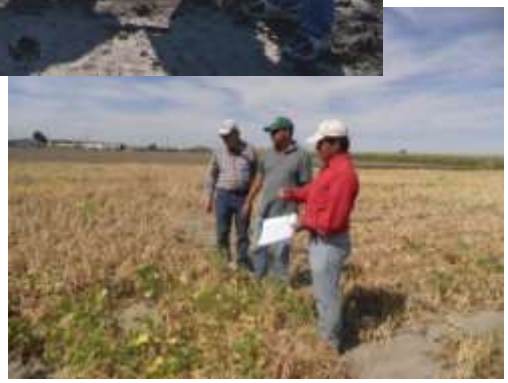
BeanCAP Mission Statements

The **BeanCAP** will **broaden** the **plant breeding applicant pool** by initiating a **training program** focusing on **early career recruitment** and practical breeding/genomics training.

Objective 5: Initiate a modern plant breeding training program that focuses on early career recruitment and provides practical training that illustrates how the integration of genomic and phenotypic data can be used to improve nutritional traits in plants.

BeanCAP Education Team

- NDSU: Juan M. Osorno, Phil McClean, Julie Garden-Robinson, Stacy Halvorson, Christina Johnson, Shane Reetz.
- CSU: Mark Brick
- MSU: Jim Kelly
- UNL: Carlos Urrea



2010 Activities

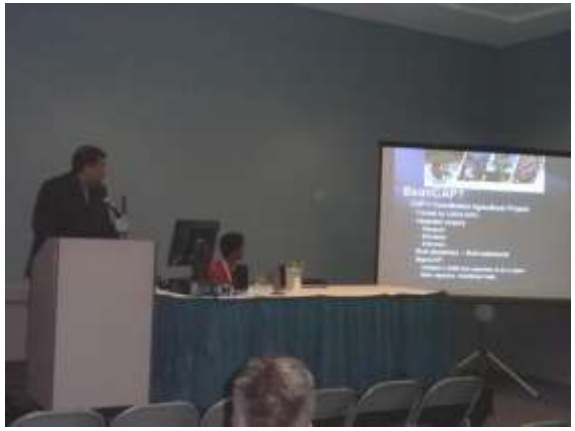
1. Hands-on experiences (Internships):
   - The most successful activity
     - Undergraduate (full-year and summer)
     - High School (summer)
2. High School Visits:
   - Visits and presentations in local/regional high schools at each location per year
   - Reverse visits from high schools to breeding programs at each university
   - Working well at NE and CO
   - More challenging in MI and ND

2010 Activities

3. Plant Breeding Educational Materials:
   - Integration with the Extension component to develop videos and animations.
   - Flyers, brochures, banners, posters, etc.
   - Leveraged in part by using some of the materials previously developed by other projects.
   - Available at website: www.beancap.org
   - Facebook site: “Plant Breeding Fan Group”

2010 Activities

4. Recruiting Efforts and Creating Awareness at National/Regional meetings:
   - MANRRS national meeting
   - PBCC/NAPB
   - ASA-CSSA-SSSA
   - Graduate School fair at NDSU



2010 Impact

- A total of 18 students (high school and undergraduate) across the four locations participated in the internships.
- ~200 high school students were exposed to plant breeding (visits).
- Education materials are available for public use.
- Additional outreach at website, Facebook, meetings, conferences, and other recruiting activities.

100% recruitment success would be unrealistic, but…

- There is a lot if indirect impact:
  - We are informing the public and creating awareness
  - Young students will become voters in the future
    - They will be better informed
    - Some of them will be leaders making final decisions
  - Will create more consciousness about the food chain

Challenges Found So Far

- Lack of interest in some high schools and/or regions (MI and ND):
  - Teachers are already busy with extensive academic curriculums
  - No rewards/incentives for teachers
  - Recruitment is mainly on a personal basis
  - Successful only when at least one school teacher is highly interested
- Finding the right spaces and meetings to share information
  - Close collaboration with 4-H in ND
  - Higher interest from rural schools with ag programs
- Uniform training across all four institutions

Department of Soil & Crop Sciences

DRY BEAN RESEARCH INVOLVES UNDERGRADUATE AND HIGH SCHOOL STUDENTS

Written by Sarah Dornsick, Student, Soil & Crop Sciences

Three high school students, two undergraduates, and an array of researchers sounds like an unlikely team, however this group has come together to work on the Dry Bean Coordinated Agricultural Project (Bean CAP), a four year multi-institutional project.

The Bean CAP is a collaborative venture between researchers at Colorado State University, five other universities, and five USDA scientists from around the nation. The Bean CAP is designed to improve the nutritional qualities and health benefits of dry beans using plant breeding techniques and DNA/genomics research. The project at CSU is lead by Mark Brick, a dry bean breeder in the Department of Soil and Crop Sciences and Dr. Henry Thompson, the Director of the Cancer Prevention Laboratory. The project will evaluate fiber content, antioxidant capacity, and phenolic content of over 400 different varieties of beans. Collaborating universities will evaluate various other health aspects of dry beans such as protein, iron, zinc, minerals, phytate content, and human nutrition. The team of scientist in the Bean CAP will also identify molecular markers in the bean genome that are linked to genes that control the health beneficial traits so breeders can enhance the health benefits of dry

Hands-on experiences fill lives of WNCC students

Pride II: Agriculture

By: SANDRA HANSEN
Ag Editor

What do two volleyball players, one from Kearney and the other from Puerto Rico, have in common besides being roommates and teammates? Give up? It's beans! Lots of beans! All sizes, colors and shapes!

Tana Torres and Emily Hoehne play volleyball at Western Nebraska Community College. They both are biology majors, but Torres is looking at a career as a surgery cardiologist, while Hoehne can't decide if she wants to go into the natural sciences, or into animal science. She decided this job with Dr. Carlos Urrea, learning all about bean breeding, might help her decide. Torres thinks the hands-on experience will enhance the information she gets in the classroom.

In less than two months, the young ladies have learned a lot about dry edible beans. They of course have planted them, inoculated plants with diseases, collected leaves for DNA testing, and are now artificially pollinating plants in trials that will help develop new beneficial traits.

The internship with Urrea allows them to work in the greenhouse, in the lab where they sort and clean harvested beans that will be planted this spring in local plots, and to gather leaves from greenhouse plants that will be subjected to DNA testing, another system used to find new traits and physical characteristics.

Dr. Carlos Urrea explains the day's assignments to his summer staff of local students. From left to right are Doug Valvade, a freshman at Western Nebraska Community College; Scout Wilson, a high school senior; Nicole Schnitiger, majoring in pre-med at WNCC; Urrea; Misty Griffitts, a biology major at WNCC; and Fred Ortiz, regular summer employee in Urrea's projects.

Summer is the best time to learn

By SANDRA HANSEN
Ag Editor

What do you do on summer vacation from school? Of course, you find a summer job where you can study

DNA project.

This summer, his regular summer assistant, Fred Ortiz, was joined by Doug Valade, who entered his freshman year at WNCC last week, and Scout Wilson, a high school senior

work, injecting green house plants with a variety of diseases and then testing them for results.

Urrea's projects include 41 pinto lines and 50 Great Northern lines. They are being studied for bacterial

Summer 2010

“Participating in this internship has been a pleasure, and I have learned a great deal about the processes and procedures involved in breeding. Thank you again for admitting me for this experience.”

Mariah Smith (Moorhead High – 2010)

Spring 2011

Hello Mr. Osorno,

Hopefully you had a wonderful holiday. I was just wondering when I can start my internship with you which you offered to me in the middle of Fall semester. The internship is for Dry Bean Plant Breeding.

Thanks,

Nicole Dallman

Dr. Osorno,

I would like to remind you that I am still very interested in the position. I would be more than happy to meet with you and discuss the opportunity, and learn some more of the details. Please let me know what would work best for you. Thanks.

Sincerely,

Bradley Bisek

Questions/Feedback