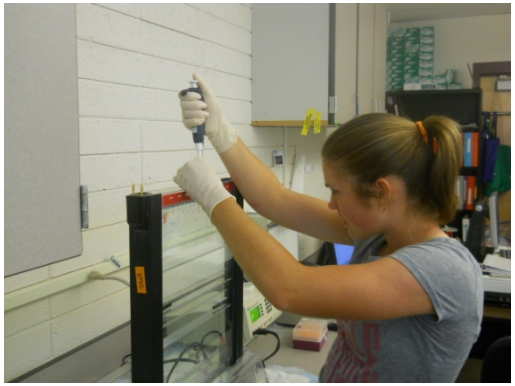
BeanCAP
Education Activities
CO-MI-ND-NE



Annual Meeting

San Diego – January 2013

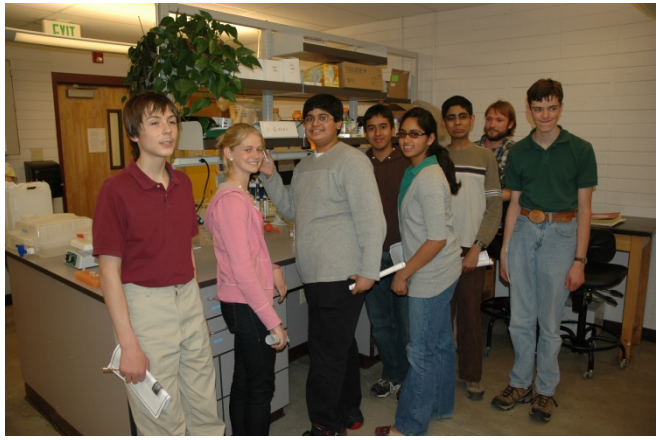
USDA

United States Department of Agriculture
National Institute of Food and Agriculture

Section/Objective III

- **BeanCAP Education Program: Engaging Students to Broaden the Human Resource Base for the Plant Breeding Industry.**
- Specific objectives:
  - Early exposure of high school students to encourage them to pursue of careers in plant breeding.
  - Hands-on training of undergraduate students at the interface of plant breeding, genetics, and genomics.

Activities



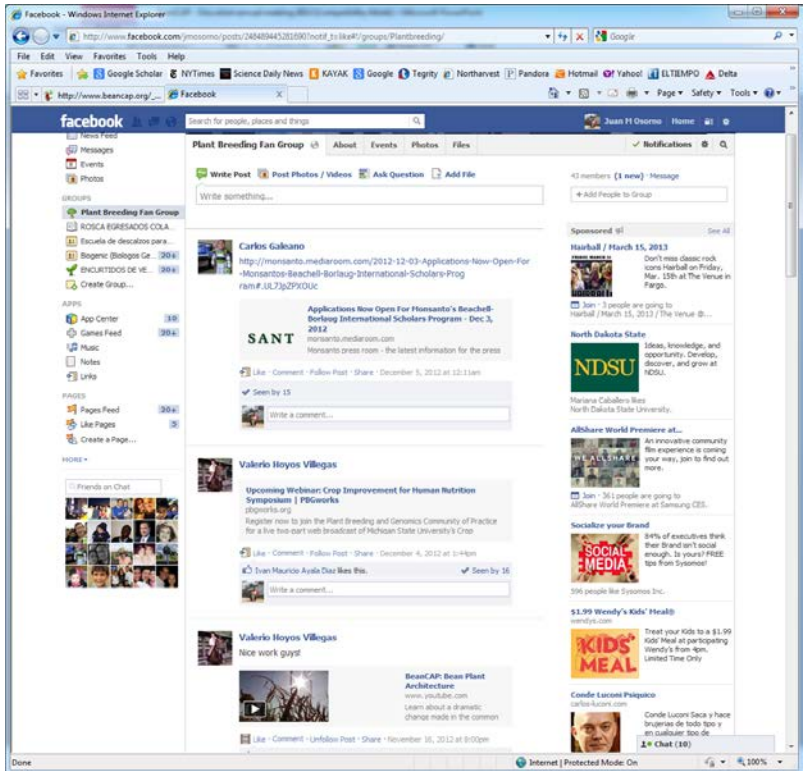
1. Hands-on experiences (Internships):
   - The most successful activity
     - Undergraduate (full-year and summer)
     - High School (summer)
     - More than 50 students in total
2. High School Visits:
   - Variable results across institutions mainly due to one-to-one contacts with K-12 faculty.
   - Visits and presentations in local/regional high schools at each location per year
   - Reverse visits from high schools to breeding programs at each university (NE and CO)
   - ND more successful at pre-school, elementary, and middle schools (Julie Garden-Robinson)

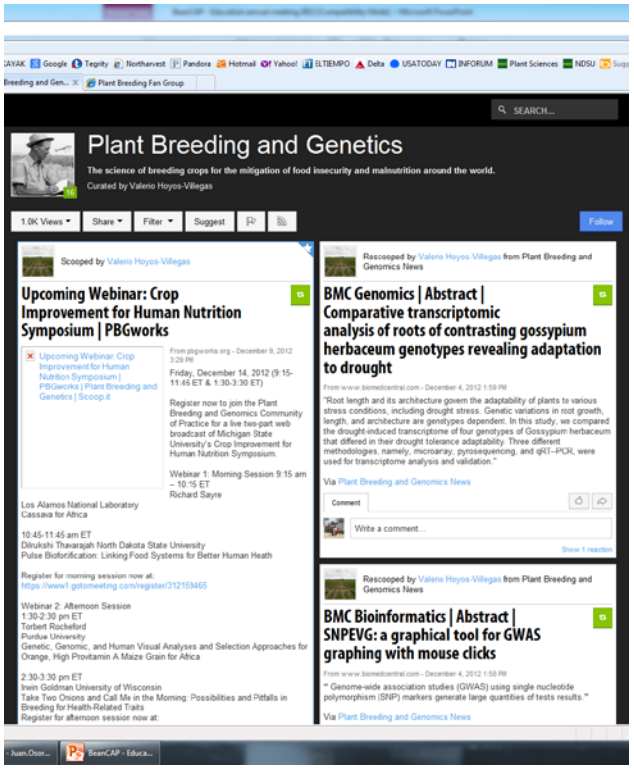
3- Promotional/Recruitment Materials

- Main topics:
  - 1) What does a plant breeder do on a daily basis?
  - 2) What are the goals of plant breeding?
  - 3) How are genetic concepts applied to solving several production problems?
  - 4) What roles have famous plant breeders and geneticists played in solving society problems?
- Multimedia
  - Videos and animations
- Brochures
  - Looking for the next generation of plant breeders
  - The story of bean breeding in U.S.
  - What is Plant Breeding? (in process)
- Online Presence

3.1- Online Presence

- www.beancap.org
- Facebook: Plant Breeding Fan Group (Juan M. Osorno)
  - http://www.facebook.com/groups/Plantbreeding/
- Scoop.it: Plant Breeding and Genetics (Valerio Hoyos-MSU)
  - http://www.scoop.it/t/plant-breeding-and-genetics





4- Creating Awareness at National/Regional meetings

- Several presentations about the educational activities at:
  - National Association of Plant Breeders (NAPB)
  - American Society of Agronomy (ASA)
  - Crop Science Society of America (CSSA)
  - Minorities in Agriculture, Natural Resources, and Related Sciences (MANRRS)

Impact Across Years and Locations

- Up today, more than 40 students have been part of the internships at the 4 locations.
- More than 500 high school students have been exposed to plant breeding through visits and presentations.
- Additional outreach at BeanCAP website, Facebook, promotional materials, conferences, and other recruiting activities.

5- Assessment and Tracking of Participant's Accomplishments

- The most important impact of the educational activities is in the human resource.
- Former interns whom are graduate students in plant breeding today:
  - Hanna Walters at WSU
  - Bradley Bisek at NDSU
  - Chiti Agarwal at NDSU
  - Mitchell Bauske at NDSU
  - Randy DeGreeff at KSU
  - Scout Wilson at UNL?
  - Mariah Smith (high school intern and now a Biology major)

Explorer

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Posted: Friday, July 27, 2012 10:58 AM

Researchers look to answer quinoa questions

By MATTHEW WEAVER

Capital Press

PULLMAN, Wash. -- Scientists from the U.S. and Mexico see promise in quinoa but say that many questions remain about growing it on a large scale.

Eulogio de la Cruz Torres of Mexico is interested in seeing the crop grown more in his country because of its drought-tolerance and ability to thrive in poor soil conditions.

"This will be a crop of the future," he said of the grain-like seed crop that has long been grown in parts of South America. "Quinoa has no need of many inputs -- it doesn't require a lot of fertilization or chemicals, so it can help to develop sustainable agriculture."

He was among the researchers on hand Thursday at Washington State University's organic farm field day in Pullman, Wash.

Brigham Young University professor Jeff Maughan is interested in improving quinoa for Latin American growers, and is working with WSU assistant research professor Kevin Murphy, who hopes to introduce the crop into the U.S. on a larger scale.

"Right now it's the unknown, it's the mysterious box," Maughan said of bringing quinoa to the U.S.

There's a high level of interest in using quinoa in products like cereals and pasta, he said, but no reliable supply large enough to meet that demand.

"The grain is great, but growing it on a large scale is a scary proposition just yet -- I wouldn't want to put all my acreage into quinoa," he said. "Try it, don't bet on it."

Stephen Machado, dryland cropping systems agronomist at Oregon State University, will examine quinoa to determine the best planting date, seed depth, row spacing and fertilizer recommendations.

"Our duty is to generate the information so when (farmers) need it, it's there," he said.

Machado said part of his program is to examine alternative crops.

"I think if you put it in your rotation, it might help with some weeding and disease issues," he said, also noting quinoa is high in protein and gluten-free.

Quinoa seeds are similar in size to canola and camelina, so farmers' equipment could easily be adapted to it, Machado said.

Murphy said WSU will conduct a survey in the fall to determine the number of growers interested, the demand for the product and likely price.

"There's no information, basically," he said.

Murphy recommends quinoa varieties from Wild Garden Seed in Philomath, Ore., and lining up a market before planting any substantial amount. Quinoa is still grown in the region on a small scale, but more farmers are trying it, he said, estimating a dozen farmers each have made an attempt in Washington and Oregon.

"(They're) just trying it out, which is really the best way to start, even for the large-scale growers," he said. "There's so many unanswered questions; just proceed cautiously."

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Matthew Weaver/Capital Press

Luz Gomez Pando of Peru, Eulogio de la Cruz Torres of Mexico and Washington State University masters student Hannah Walters discuss the status of the quinoa varieties planted on the Washington State University organic farm July 26 during the organic farm field day.

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Dry beans take area student on educational journeys

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Photo by Sandra Hansen

Scout Wilson, a sophomore at Western Nebraska Community College, enjoys a few minutes in the sunshine during Thanksgiving break from school. Wilson spent most of the summer at Delaware State University as a result of his studies in the BeanCAP program, which is available at the UNL Panhandle Research and Extension Center in Scottsbluff.

Posted: Monday, November 26, 2012 12:21 pm

By SANDRA HANSEN Ag Editor | 0 comments

When Scout Wilson decided to study plant science in college, he really didn't expect to learn so much about one plant, nor did he anticipate the many adventures he would have because of the common dry edible bean.

Wilson, a 19-year-old sophomore at Western Nebraska Community College, enrolled in the BeanCAP program three years ago to learn more about plant science, his chosen field for college study. While still a student at Scottsbluff High School, Wilson took advantage of the educational opportunity being offered by Dr. Carlos Urrea, plant breeder at the UNL Panhandle Research and Extension Center in Scottsbluff. Urrea had originated the Bean Coordinated Agricultural Project (BeanCAP) program idea as a way to get more young people interested in plant breeding and beans in general.

Wilson signed up in part because he was interested in what makes plants do their thing. Why are some disease resistant while others are not? Why are some varieties more drought tolerant, while others are not. Although he didn't expect to apply what he learned while working with Urrea to his own home garden and greenhouse, he did believe that he would gain some very important knowledge that would be useful in his future.

Well, the future is here, and Wilson said he is amazed at all of the things he has learned, the knowledgeable people he has met and had an opportunity to work with, and the educational opportunities that keep coming his way.

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These are Challenging 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

“Lessons Learned”

- Before teaching, you need to engage students.
- Create incentives besides the money.
- Get K-12 and other education personnel directly involved in the activities.
- Tap into organizations already working in agriculture (e.g. 4-H, Plant Breeding Club).
- Expose potential students to the scientific groups (regional/national meetings).
- Have realistic expectations.

Pending Activities - 2013

- Last year of internships
  - High school
  - Undergraduate
- Brochures and other printed material
- Additional mirror sites for online tools
- Second survey (NDSU and UNL/TCAP)
- Update and finalize student database

Thanks for the Support!

Photo by Sandra Hansen

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 Schnittger, 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