

How can vegetable seed companies work together with the U.S. and State Governments to address the critical future needs for plant breeders, breeding assistants, agricultural technicians, pathologist, etc.?

Plant Breeding Coordinating Committee/National Association of Plant Breeders

A multi-state coordinating committee that provides a forum for leadership on issues and opportunities of strategic importance to national core competency in plant breeding research and education

Allen Van Deynze

<http://passel.unl.edu/communities/pbcc>

http://lgu.umd.edu/lgu_v2

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DEFINE: Plant Breeding

a product-oriented discipline of sciences rooted in breeding, quantitative genetics and statistics for crop improvement that encompasses an increasing number of support technologies to sustain society.

Plant breeding has Measurable and Tangible Outcomes and Impacts.

Recruiting, Training and Communication

“Career decisions are made from hands-on experiences” David Douches, MSU

USDA/NIFA Plant Breeding and Education program UC Davis

- 2000 students from K-6 introduced to plant breeding
- 100 High School students and >100 freshman undergraduates introduced to plant breeding in the field
- 40 videos (sbc.ucdavis.edu) and National Association of Plant Breeders (plantbreeding.org)
- 5 Graduate students and interns

USDA/NIFA Coordinated Agricultural Projects

- Education and Extension components (1/3rd budget)
- Triticeae CAP – Plant Breeding Training Network
 - 85 graduate students (65 at TCAP institutions, 20 outside grant)
 - 73 undergraduates (38 at TCAP institutions, 35 at MSIs)
 - 4 films (<http://passel.unl.edu/communities/pbtn>)



Plant Breeding Education

Develop an interactive, hands-on education program for breeding and genetic diversity of peppers for undergraduates and K-12





2014: \$308,000,000
Available for us: \$20M



2015 Ask: \$363,000,000



National Science Foundation
WHERE DISCOVERIES BEGIN



National Institutes of Health
Turning Discovery Into Health

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Specialty Crops Research Initiative

State block grants-
Mostly extension
\$52M

Federal: \$76 M
Matching required

- Research in plant breeding, genetics, genomics,
- address threats from pests and diseases,
- Efforts to improve production efficiency, handling and processing, productivity, and profitability over the long term
- new innovations and technology, including improved mechanization and technologies that delay or inhibit ripening;
- methods to prevent, detect, monitor, control, and respond to potential food safety hazards

Funding mechanisms

- Competitive grants
- Long-term operational funds- Capacity funds
- Infrastructure and equipment funds
- Emergency funds



Emergency funds must be timely

Citrus Greening

Florida industry- \$1.54 B

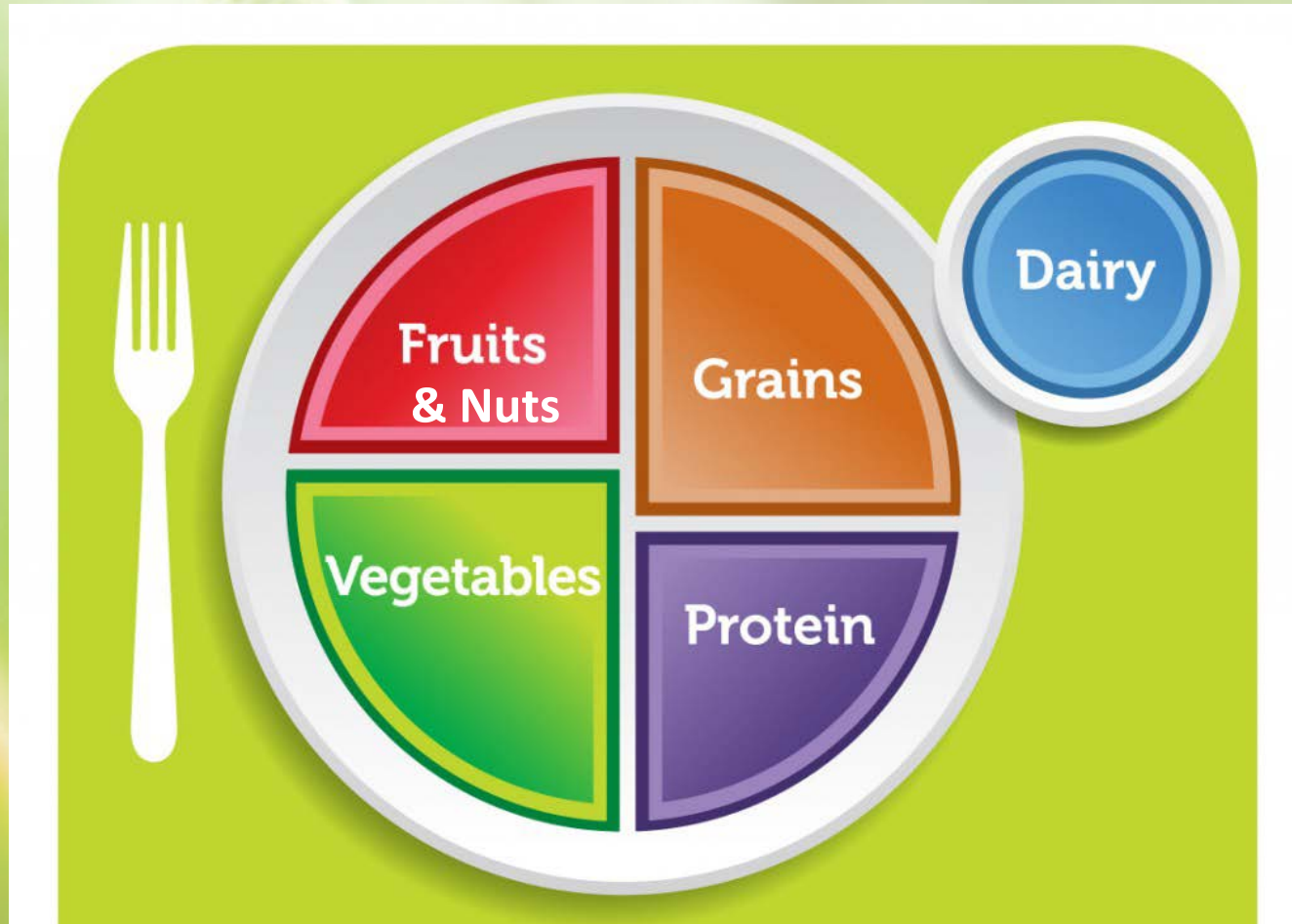
US - \$2.34 B

2005 - industry begins research

2008 USDA funding



Priorities: Fund the Whole Plate



Public and Private Funding

- Public funding is essential for basic research and long-term research in plant breeding in all crops
- Public funding and infrastructure are essential to train field based plant breeding and agriculture
- Although private invests heavily in major commodity and vegetable crops, not all regions or crops are addressed for variety development and germplasm release

Glenna, L., W. Lacy, R. Welsh, D. Biscotti. 2007. "Industry perceptions of university-industry relationships related to agricultural biotechnology research." Rural Sociology. 72(4): 608-631.

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Goals and priorities

2008 Summit 40 experts, Miller et al. 2010

- **Decipher the genetic basis of plant environmental responses – G x E**
- **Conserve, characterize and utilize novel germplasm.**
- Manage complex traits, including quantitative traits
- Develop efficient, high-throughput analysis systems
- Create knowledge from information
- Understand basic genetic mechanisms.
- Increase plant efficiency and quality
- Improve seed health, quality and performance
- Develop cost-efficient risk analysis systems for products of new technologies

Surveys-2009 NAPB, ASTA Seed Summit, 2011

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Educational Goals- UC Davis Delphi Study

- Knowledge, Experiential,
- Experimental design, statistics
- Quantitative genetics
- Field experience
- Soft Skills:
 - Global seed business
 - Management
 - People skills



Tracking Outcomes: USDA/ARS Carrot breeding program Phillip Simon, Madison, WI

Carrot Nutritional Value

Year	Carotene content	Per capita availability	Est. % of total vitamin A available
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1975	90	3.7 kg	14 %
2005	130	5.6 kg	21 %



One square meter of U.S. carrot production (one crop) is adequate to fulfill vitamin A needs for one adult for one year.

Funding: USDA/ARS, USDA-IFAFS, USDA/NIFA, USDA-SCRI, USDA_OREI, Commodity Board, Grower support, Private

See <http://passel.unl.edu/communities/pbcc>

NAPB Advocacy goals

- Long term funding streams
- Longer term AFRI grants
- Fair IP rules
- Funding for cultivar development

NAPB Principles and concepts

- Press releases
- Trouble shooting teams (overlap with communications and education committees?)
- Get advocates in the right place to advocate
- White papers
- Activist groups

Common messages with associations

- ASTA
- California Seed Association
- Crop Science Society
- AFRI coalition
- National C-FAR
 - National Coalition for Food and Agricultural Research
- Crop –specific lobbies
- Eucarpia
- SOAR
- FFAR

What are Vegetable Crop Needs?

- Automated Harvests?
- Quality
- Standards:
 - Quality
 - Food safety
- Marketing
- Value not area



*Plant Breeding
Coordinating Committee*

**4th Annual Meeting of the National Association of
Plant Breeders, and the
8th Annual Meeting of the Plant Breeding
Coordinating Committee**

“Breeding for Water Stress”

Minneapolis, MN August 5-8, 2014

Early Bird discount May 30, 2014

PlantBreeding.org

Abstract submission deadline June 2, 2014

Nominations for 2014 Plant Breeding awards

deadline June 16, 2014

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