National Plant Germplasm Coordinating Committee, NPGCC

Members: ARS and NIFA, USDA; ESCOP Regional Associations State Ag. Exp't. Stations (SAES).
Representatives: Chair Jim Moyer (WAAESD); Executive Vice-Chair Eric Young (SAAESD); Reps: USDA: Gan-Yuan Zhong (ARS); Peter Bretting (ARS); Larry Chandler (Director, new ARS Plains Area); Ann Marie Thro (NIFA); _(pending)_ (NIFA); SAES: Joe Colletti (NCRA); Susan Brown (NERA); _(pending)_ (SAAESD);
Liaisons to NPGCC: AOSCA: Chet Boruff ; ASTA: Tim Cupka; NAPB: David Baltensperger .

The NPGCC promotes a stronger, more efficient, more widely-recognized, better utilized National Plant Germplasm System (NPGS).
Goals: to facilitate the **coordination of** ARS, NIFA and SAES **planning and assessment** mechanisms for NPGS policy, organization, operations and support;
promote **awareness and understanding** of the NPGS across ARS, NIFA, and SAES and more broadly to the scientific community; and
serve as a vehicle for improving **communications and discussions about issues** impacting the NPGS with ARS, SAES, and NIFA.
It will assess, develop and recommend to the SAES, ARS and NIFA **strategies for improved coordination** of NPGS activities;
develop and recommend a process for improved **communication of the value of the NPGS**;
initiate a strategic planning effort for the NPGS to better **define and communicate the vision, mission and short- and long-term goals**;
and to **evaluate the current funding models** for the NPGS and **report findings** to SAES directors, ARS and NIFA.

NPGCC 2015 Meeting: June 1-2, 2015, College Station, Texas

DRAFT May 27, 2015
Contact: Ann Marie Thro, annmarie.thro@osec.usda.gov 202 260 9242
Call-in report to NPGCC on Tues., June 2, 12:00 to 1:00 eastern (11-12 central), regarding:

- Update from NIFA rep. on NIFA activities relevant to NPGCC
- Update to NPGCC on USDA OCS Plant Breeding Working Group and Roadmap

I. Update from NIFA representative on NIFA programs relevant to NPGCC

Thanks to Mary M. Peet, Mathieu Ngouajio, Caroline Sherony, Ed Kaleikau, Tom Bewick, Pushpa Kathir and Megan O'Reilly for helping to assemble the NIFA report this year.

NIFA funding opportunities relevant to NPGCC are those that support, or may be used to support, characterization and use of NPGS materials and other plant germplasm in research, education, and extension. This update will cover proposals for relevant NIFA funding programs for FY 2016, and the current situation in FY2015.

NIFA funding for plant breeding, including characterization and use of plant germplasm

NIFA supports long-term capacity in public plant breeding through Hatch, Evans-Allen, and MacIntire- Stennis programs ("formula funds" programs). Together these sources represented about half of NIFA's plant breeding investments during the period 2008-2013. Some recent-historical averages for plant breeding, including competitive and special grant sources:

Average funding for plant breeding ***per year***, for the period 2008-13:
$ 8.4M capacity funding (Hatch, Evans-Allen, McIntire-Stennis)
$10.5M competitive awards (*);
$2M special grant awards.

(*) Included a few large awards for bioenergy plant breeding, plus the $25M *Triticeae* Coordinated Agricultural Project (T-CAP) in FY 2011.

Relevant new NIFA 2016 budget *initiatives* include :

- Proposed significant increase in AFRI Foundational programs
- Proposed new Competitive Capacity awards program for 1862 and 1890 institutions
  - for "critical food and agricultural challenges at regional and national scales".

Some figures (source: http://nifa.usda.gov/sites/default/files/resource/FY2016%20Budget.pdf)

Capacity funding, totals per entire program, FY 2015 and *proposed* FY 2016 (*multiply x $1000)*
(*Proposed* 2016 increases indicated in **bold**)

Hatch Act	243,701	256,201
Formula Grants	(243,701)	(243,701) (no proposed increase)
Competitive Capacity Awards Prog.	(0)	**(12,500)**

[NIFA funding for multistate projects e.g. NRSP-6 (potato genebank); NRSP-10 (new: "Database Resources for Crop Genomics, Genetics & Breeding Research"; and regional germplasm projects NC7, NE9, S9, W6, come from Hatch Formula Grants)]

Evans-Allen Program	52,485	60,500
Formula Grants	(52,485)	**(58,000)**
Competitive Capacity Awards Prog.	(0)	**(2,500)**

1890 Institution Extension	43,920	49,350
Formula Grants	(43,920)	**(48,350)**
Competitive Capacity Awards Prog.	(0)	**(1,000)**

McIntire-Stennis Cooperative Forestry	33,961	33,961	(no proposed increase)

(Note: the $ figures above are for *entire* programs, i.e., more inclusive than just plant breeding.)

Current NIFA competitive funding programs that include plant breeding (2015)

Recent NIFA competitive awards are mostly in the form of smaller, single investigator awards (which may build on earlier larger awards).

E.g., from 2011(**) to 2014, the AFRI Plant Breeding for Agric. Production Foundational area made 27 awards, including pre-breeding and germplasm enhancement as well as breeding, for a total of $12.3 million for 21 different crops (**first awards in 2013, including funds pending since 2011).

Agriculture and Food Research Initiative AFRI
http://nifa.usda.gov/sites/default/files/resource/FY2016%20Budget.pdf
(*Proposed* 2016 increases indicated in **bold**)
Total for all AFRI areas, FY 2015 and *proposed* FY 2016 (*multiply x $1000)*

AFRI (all programs, all topics and priorities) $325,000 **$450,000**

AFRI *Foundational Program* (within the above $ figures for AFRI) $116,000 **$183,261**

Plant Breeding for Agricultural Production (within the above $ figures for AFRI Foundational): A research-only program; *may employ* undergraduate, graduate and postgraduate students in plant breeding. Dollar amount available: tbd ($30 M for all plant prod/prot/products). Due date –this past April 8. NIFA contact Ed Kaleikau. Awards include participation at annual project director meetings, next one planned to be held at PAG 2016.
Has approved funding, student travel to NAPB 2015 (pending final admin. review)

AFRI Food Security *Challenge Area*

Funding for integrated research and education proposals. Topic varies over time; for FY 2015 the Food Security Challenge Area invited proposals that integrate research and education for plant breeding. A response to stakeholder comments re earlier NRI/AFRI Plant Breeding & Education Prog. (L-S. Lin).
Due date – June 4, 2015; NIFA contact for 2015: M. Ngouajio.

Other NIFA programs that can and do fund plant breeding:

Dollar figures from: http://nifa.usda.gov/sites/default/files/resource/FY2016%20Budget.pdf
Totals per program (i.e., all areas), FY 2015 and *proposed* FY 2016 (*multiply x $1000)*
(*Proposed* 2016 increases indicated in **bold**)

Organic Research and Extension Initiative (OREI) 18,540 **20,000**
From 2009-14, 17 plant breeding awards, total of $25.4 million
NIFA contact: Mat Ngouajio.

Specialty Crops Research and Extension Initiative (SCRI) 50,985 **55,000**
From 2009-14, 32 plant breeding awards, total of $56.5 million
(including a large CAP program renewal for the Rosaceae) (RosBREED).
NIFA contact: Tom Bewick

Biomass Research and Development initiative (BRDI) 2,781 **3,000**
"Proposals that include breeding or genetic improvement of feedstocks should reconcile this work with the Program's emphasis on near-term impacts." (-RFA)
NIFA contact: Daniel Cassidy

NIFA program, collaborative with another agency:

Plant Feedstock Genomics for Bioenergy (with Dept. of Energy)
http://genomicsgtl.energy.gov/research/DOEUSDA/
This program includes a long-term goal related to germplasm characterization and use: "develop understanding of key genes and processes responsible for superior feedstock plant performance under increasing pathogen pressure and with minimal impacts on the surrounding ecological landscape, and use results to inform breeding programs."
Eligible: perennial grasses, sorghum, energy cane, woody biomass, and oilseed crops.
Due Date: March 02, 2015 NIFA contact: Ed Kaleikau.

Education:

In 2015, NIFA programs that could support education of plant breeders include:

- Non-Land Grant Colleges of Agriculture Program (NLGCA). Due date June 26, 2015; $4,000,000; NIFA contact: S. Afele-Faamuli
- Higher Education Challenge Grants (HEC); Due date Mar 19, 2015 $4,770,000 +25% match; NIFA contact Victoria LeBeaux
- Multicultural Scholars Program; Due date Sept 30, 2014; $868,720; NIFA contact: Ray Ali
- National Needs Fellowships Prog. Due date Sept 30, 2014; $2,800,000; NIFA cont.: Ray Ali
- Women &Minorities in Science, Technology, Engineering & Mathematics (WAMS); Due date May 29, 2015; $400,000+100% match; NIFA contact: S. Afele-Faamuli
- AFRI Experiential Learning Initiative (ELI) (formerly AFRI Fellowships Grant Program**)** Undergraduate, doctoral, and postdoctoral students; research and extension experiential learning for undergraduates; opportunities to work with community colleges. Due date May 6, 2015; $16,900,000; NIFA contact: Ray Ali.

In the *FY 2016* President's Budget, NIFA's proposed funding for education reflects a proposed reorganization arising from the "*5-Year Federal Science, Technology, Engineering, and Mathematics (STEM) Education Strategic Plan"* https://www.whitehouse.gov/sites/default/files/microsites/ostp/stem_stratplan_2013.pdf. This STEM education plan was drafted in response to requirements of the America Competes Reauthorization Act of 2010, by "CoSTEM", a committee co-led by the White House Office of Science and Technology Policy (OSTP) and the National Science Foundation, with 14 members agencies including USDA. The Plan's goal: to " reach more students and more teachers, more effectively". Proposed: 6% increase in STEM-ed program investment (i.e., above 2012 appropriations); reduce number of programs across CoSTEM agencies from 226 to 110; redirect savings to programs in Dept. of Ed., NSF, and Smithsonian. As a result, NIFA's proposed FY 2016 budget reflects fewer funding programs for education.

For FY 2016, the AFRI Experiential Learning Initiative (ELI) is included in NIFA's proposed budget, with focus on fellowships for undergraduate, graduate, and postgraduate students, along with a new effort: programs for secondary school teachers . NIFA contact: Ray Ali.

Extension:

Dollar figures from: http://nifa.usda.gov/sites/default/files/resource/FY2016%20Budget.pdf
Totals per program (i.e., all areas), FY 2015 and *proposed* FY 2016 (*multiply x $1000)*
(*Proposed* 2016 increases indicated in **bold**)

Smith-Lever Formula Funds 3(b)&(c)	$300,000	$304,000
Formula Grants	(300,000)	(300,000)
Competitive Capacity Awards Prog.	(0)	**(4,000)**

Overall:

- NIFA feels it has made significant strides in providing competitive funding to advance plant breeding.
- NIFA recognizes that sustained investment is needed to address emerging issues and to train the next generation of plant breeders.

Upcoming NIFA presentation; opportunity for discussion and input re ideas:
Venue: ASHS (New Orleans, Aug):"**NIFA Investments in Plant Breeding: Strategies, Achievements & Impacts in Research, Education, and Extension"** (Mary Peet, NIFA Div. Dir., Plant Prod.; et al.)

~ End of Part I, NIFA update ~

NPGCC 2015 Meeting: June 1-2, 2015, College Station, Texas

Call-in report to NPGCC on Tues., June 2, 12:00 to 1:00 eastern (11-12 central), regarding:
DRAFT May 27, 2015

II. USDA Plant Breeding Working Group (PBWG) and Roadmap

A. Working Group

USDA's Plant Breeding Working Group (PBWG) members include USDA agencies that conduct or support plant breeding, For this purpose, plant breeding is defined as "human-aided development of new plant cultivars or germplasm with needed characteristics". "Support" may include analysis (ERS) or funding (NIFA). Presently there are five PBWG agencies:

from the Research, Education, and Economics (REE) mission area:
Agricultural Research Service (ARS),
Economic Research Service (ERS),
National Institute of Food and Agriculture (NIFA)

from the Natural Resources and Environment (NRE) mission area:
Forest Service (FS)
Natural Resources Conservation Service (NRCS).

PBWG activities to date:

Stakeholder Listening Session and subsequent Plant Breeding *Roadmap*:
Aug 2013: Listening Session (Federal Register-*announced*)
Mar 2014: USDA Chief Sci./UnderSecr.Woteki presents Roadmap assignment to PBWG
Feb 2015: Roadmap document posted on www.ocs.usda.gov
- Roadmap for USDA is described "by agency"
- Emergence of some items broader than USDA

Where do we go, from the Plant Breeding Roadmap?

A USDA Plant Breeding *Action Plan* (still in draft): What will it include?

- Agency-specific items correspond with *existing* USDA agency plans
  - This was apparent during stakeholder discussions that accompanied the Roadmap process
  - Points to robust existing agency planning processes
    - Genetic resources as highest priority (conserve, characterize)
    - Education of the next generation of plant breeders;
    - Plant breeding *per se* including allied research in genetics and genomics;
      - Esp. for public-good outcomes, incl. pioneering or complex situations

- Emerging during the "Roadmap process" : Items and issues that are broader than USDA:
  - Recruitment+education: Agreement re importance, concern re adequacy of efforts
  - IPR : Is it functioning well, for public benefits as intended?

- Public-private balance –What is optimal?
- Plant breeding funding models going forward

How can USDA PBWG contribute? (re those broader issues)

- NPGCC member input welcome !
- Service: USDA can help by convening stakeholders across ag. sectors , to look at issues of common concern
- Consensus from Roadmap process re desired outcome:
  - An enabling context for both public and private plant breeding, including insights regarding priorities for each sector

Considerations for getting started: How can USDA PBWG …

Become better -informed re existing efforts
Complement those efforts; avoid competing for attention or creating confusing messages
Respect other needs for everyone's limited time and resources
What would be optimal activities for the best "effort/results" balance?

What would be useful PBWG achievements…
Possible within current administration? Beyond?
Ideally based on Roadmap process, but not necessarily limited to that.

In the meantime, PBWG is working on :

<u>A charter</u>

Internal to USDA, to formalize existence, roles, modes of operations of PBWG
To be renewed every 2 yrs.
Helps build precedent for longevity w/in OCS, as issues ebb and flow

PBWG roles include:
Promote internal USDA inter-agency cooperation and collaboration (on plant breeding),
Recommend areas for plant breeding in support of USDA priorities;
Informational interaction with partners and stakeholders (incl. SAES and NPGCC) .
(e.g. NPGCC may wish to invite PBWG FS and NRCS reps to a future meeting)

Upcoming PBWG presentations:

Hoping for discussion and input re action ideas:
Venues: NAPB (July, Pullman WA) and at ASHS (New Orleans, Aug):
"USDA's Roadmap for Plant Breeding" (Thro et al.; Ngouajio et al.)

B. Possible collaborative activity:
USDA's Plant Breeding Working Group with the White House Office of Science & Technology Policy

Antecedents:
Summer 2014: David Baltensperger (Liaison to NPGCC from NAPB) discussed plant breeding with OSTP Assoc. Dir. for Science Dr. Jo Handelsman.

Winter/Spring 2015: PBWG opportunity to meet Dr. Handelsman; mentioned Baltensperger conversation; result: an invitation to present USDA's Plant Breeding Roadmap to OSTP (Mar 6); then invited to collaborate with OSTP in a *possible* activity on plant breeding *and* education.

Ongoing conversation re a *possible* USDA/OSTP activity on plant breeding
Focus will be on recruitment and education, for plant breeding OR across ag. science disciplines
Which effort would have most impact? best chance of success?
('Success' as in: National awareness, appreciation, and support)

Whatever the focus, the *initial steps* will probably include outreach
Outreach to all sectors of stakeholders,
To invite interest
To learn of any stakeholder plans for new programs or funding (even if small)

Rationale for starting with outreach:
New programs and/or funding would
Provide tangible, convicting evidence of two things:
the importance of the topic; and,
the extent of existing interest
Serve as spring board for a conversation within sectors of the federal government.

~ End of Part II, USDA OCS PBWG update. ~

[~ as of mid-May 2015. May have farther update by NPGCC meeting in early June ~]