



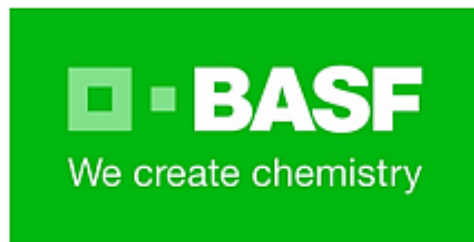
Community Session

It is the mission of the Maize Genetics Executive Committee (MGEC) to identify both the needs and the opportunities for maize genetics, and to communicate this information to the broadest possible life science community. This community includes scientists, funding sources for scientists, and the end users for the accomplishments of maize genetics, from farmers to consumers.



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Genetics Society of America



We thank these contributors for their generosity!



Karen Cone
Program Director (MCB)



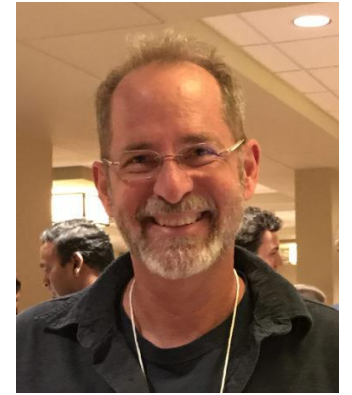
Ann Sylvester
Program Director (PGRP)



Diane Okamuro
Science Advisor (IOS)



Cliff Weil
Program Director (PGRP)



Kelly Dawe
Program Director (PGRP)



Jack Okamuro
Natl. Program Leader



Peter K Bretting
Natl. Program Leader



Jose Costa
Natl. Program Leader



Ed Kaleikau
Natl. Program Leader



Robyn Allscheid
NCGA

Funding Agency Updates



Research Coordination Network (RCN) Overview



RCN

Functional Genomic Tools and Resources
2018 Mid-year Meeting



RCN

Data Management, Analysis, and Accessibility



RCN

Discovery to Product



RCN

Education and Community Breadth



RCN Maize Genetic Community Survey

Demographics

Sector:

- Academia: 244
- Public: 28
- Private: 27
- Government: 23
- other: 3

Role:

- Head of lab: 120
- Research scientist: 59
- Graduate Student: 58
- Postdoc: 47
- Educator: 14
- other: 13

Location

- USA: 218
- Europe: 31
- Asia: 29
- Non-US Americas: 7
- Australia: 1
- other: 1
- Africa: 1



RCN Maize Genetic Community Survey Funding Sources

Are you or have you been associated with a lab that has had funding from the following agencies in the past 5 years?



180



125



49



RCN Maize Genetic Community Survey

Functional Genomic Tools and Resources

- (4.11) Mutant collections (via transposons, genome editing, EMS, etc.) which can be accessed by gene-of-interest searches are critical to my research.
- (4.01) Engaging the broader plant biology community in maize research requires comprehensive mutant collections which are easy to access and use.
- (3.91) Targeted high-quality assembled genomes are a more important public resource than many low-coverage sequenced genomes.
- (3.90) Access to cost and time-efficient maize transformation and genome editing facilities is important to my research.
- (3.66) We need more inbred genomes sequenced and available to the public.

1 = strongly disagree, 5 = strongly agree



RCN Maize Genetic Community Survey

Functional Genomic Tools and Resources

- (3.54) Centralized access to state-of-the-art -omics and imaging resources would enhance my research.
- (3.52) New germplasm including elite inbred lines, diverse unselected inbred lines, and mapping populations is important to advancing my research.
- (3.44) Centralized phenotyping resources would enhance my research.
- (3.27) Access to in-season and off-season regulated trial field sites would enable my research program.
- (3.22) Training to enable my lab and/or organization to do maize transformation and gene-editing would advance my research.

1 = strongly disagree, 5 = strongly agree



RCN Maize Genetic Community Survey

Genetic Stock and Germplasm Centers

- (4.24) The Maize Genetics Stock Center is important in supporting my research.
- (3.37) I am able to easily access all of the germplasm that I need for my research.
- (3.16) The North Central Regional Plant Introduction Research Station (NC7) is important in supporting my research.

1 = strongly disagree, 5 = strongly agree



RCN Maize Genetic Community Survey

Data acquisition, management, and accessibility

- (3.94) An integrated pan-genome with consistent and useful annotation is a high-priority to enable my research.
- (3.80) Tools and databases to support cross-species data integration are useful.
- (3.70) Database projects are under-funded given the amount of data and needs of researchers.
- (3.45) Centralized access to well-annotated and curated data is more important to me than data that have been consolidated and analyzed. That is, I generally do my own big data analysis versus I need simplified web tools to access integrated -omics data.
- (3.25) Databases projects are advancing on priorities most important to me.
- (3.18) The current available databases meet the majority of my research needs.

1 = strongly disagree, 5 = strongly agree



RCN Maize Genetic Community Survey

Enhancing and Broadening Maize Genetics Community

- (4.12) The Maize Genetics Community should broaden by continuing the **MaGNET** (Maize Genetics Network Enhancement via Travel) Awards program and **PUI** (Primarily Undergraduate Institution) Awards program and exploring additional ways to increase participation from under-represented groups and primarily undergraduate institutions
- (4.01) The Maize Genetics Community should broaden by engaging researchers from developing countries.
- (4.00) The Maize Genetics Community is a broad and inclusive community.
- (3.97) Connection between the Maize Genetics Community and other species and disciplinary communities is best achieved by strategic alliances rather than changing the focus of the current community.

1 = strongly disagree, 5 = strongly agree



RCN Maize Genetic Community Survey

Enhancing and Broadening Maize Genetics Community

- (3.57) The Maize Genetics Community appropriately balances research and education.
- (3.54) The Maize Genetics Community should broaden by including disciplinary breadth.
- (3.47) The Maize Genetics Community has sufficient inclusion of industry and focus on translational research.
- (2.63) The Maize Genetics Community should broaden by including more species.

1 = strongly disagree, 5 = strongly agree



RCN Maize Genetic Community Survey

Maize Genetics Conference

- (4.32) The Maize Genetics Conference is a safe and supportive environment for all participants
- (4.07) I like the current structure and size of the Maize Genetics Conference.
- (3.87) Engagement of international researchers would benefit by allowing remote access freely, or for targeted scientists, to the Maize Genetics Conference. I support allowing remote participation.

1 = strongly disagree, 5 = strongly agree



Maize Genetics Executive Committee (2019 – 2020)

Chair: Natalia de Leon (2020), **Vice Chair:** Dave Jackson (2021), Kathy Newton (2019), Jianming Yu (2019), Karen Koch (2020), Marilyn Warburton (2022), Ed Buckler (2022), David Braun (2023), and Ruth Wagner (2023)

Appointed Members:

Sylvia Morais de Sousa (Latin and South American Representative, 2021)

Rongrui Wu (Asian Representative, 2021)

Sebastien Praud (European Representative, 2022)

Irina Makarevitch (Small College/University Representative, 2020)

Ex-officio: Carson Andorf (MaizeGDB), Shawn Kaeppler (RCN)



National Science Foundation

Karen Cone

Anne Sylvester

Diane Jofuku Okamuro

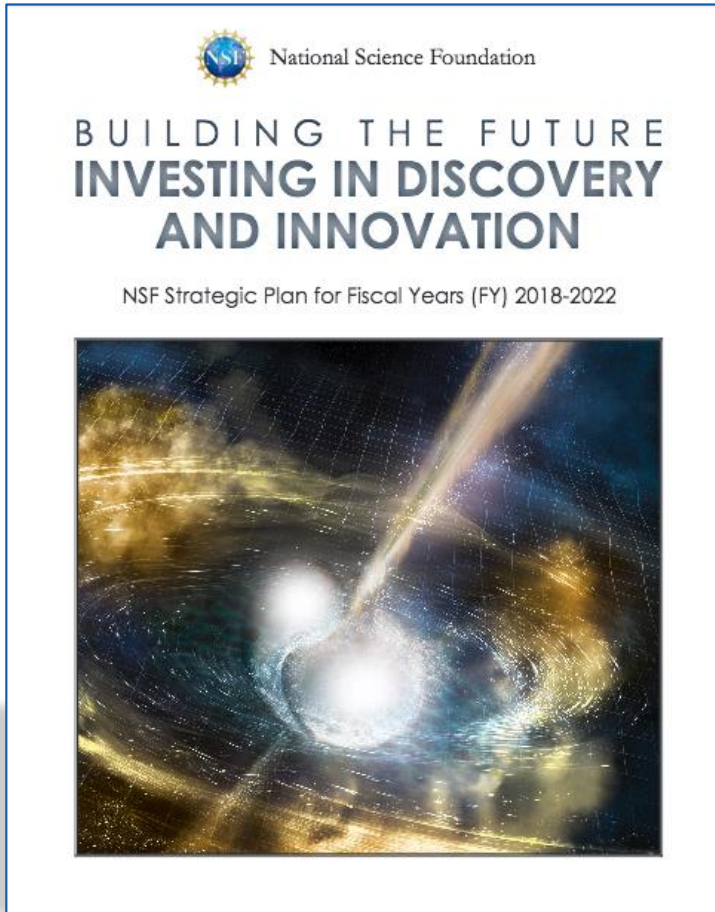
Cliff Weil

R. Kelly Dawe

Annual Maize Genetics Conference, March 2019



National Science Foundation



NSF Strategic Plan 2018 - 2022

NSF's Ten Big Ideas (pp 14-16)



National Science Foundation

NSF's Ten Big Ideas

RESEARCH IDEAS

- Harnessing the Data Revolution**
Mathematical, Statistical, Computational Foundations, Analytics, Education Workforce, Data Science
- Work at the Human-Technology Frontier: Shaping the Future**
- Windows on the Universe: The Era of Multi-messenger Astrophysics**
- The Quantum Leap: Loading the Next Quantum Revolution**
- Harnessing Data for 21st Century Science and Engineering**
- Navigating the New Arctic**
- Understanding the Rules of Life: Predicting Phenotype**

PROCESS IDEAS

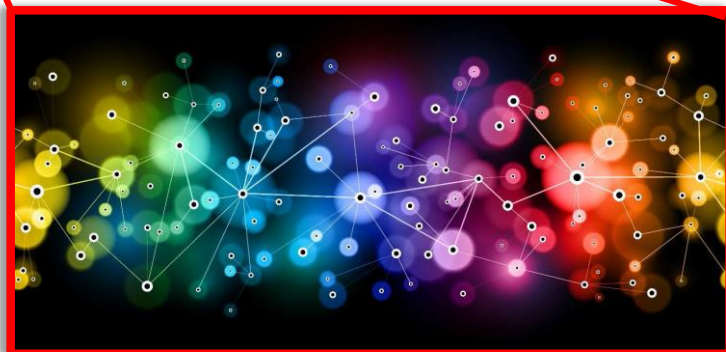
- Mid-scale Research Infrastructure**
- NSF 2050**
- Growing Convergent Research at NSF**
- NSF INCLUDES: Enhancing STEM through Diversity and Inclusion**



Understanding the Rules of Life



Harnessing the Data Revolution



Convergent Research

NSF 19-549
Institutes for Data-Intensive Research



Funding Opportunities

BIO Core Program Solicitations

- [NSF 18-579](#): Plant Genome Research Program
- [NSF 18-586](#): Integrative Organismal Systems
- [NSF 18-585](#): Molecular & Cellular Biosciences

BIO Core Programs
NO Deadlines
NO Submission Limits



Submit
Any time Any day...
soon



Other Funding Opportunities

Early Career Programs

Deadlines apply

- Post-doc Fellowships, [NSF 15-501](#) (new solicitation coming soon)
- Faculty Early Career Development (CAREER), [NSF 17-537](#)



More Information: Contact Us

kcone@nsf.gov
asylvest@nsf.gov
dokamuro@nsf.gov
cweil@nsf.gov
rdawe@nsf.gov

NSF alerts



MCBBLOG
DIVISION OF MOLECULAR AND CELLULAR BIOSCIENCES

IOS in Focus

DEBrief

Blog of the Division of Environmental Biology, NSF



Rules of Life: Interdisciplinary Projects

RoL Rules of Life (across BIO)	URoL Understanding Rules of Life
A track for submissions to the BIO directorate	One of NSF's Ten Big Ideas
Crosses BIO divisions	Crosses NSF directorates
Projects integrate approaches across biological scales	Projects integrate approaches from more than one discipline
Topics up to you	Solicitations on specific topics
No deadlines	Deadlines apply



Funding Opportunities: Deadline

Submit any day, any time.....soon



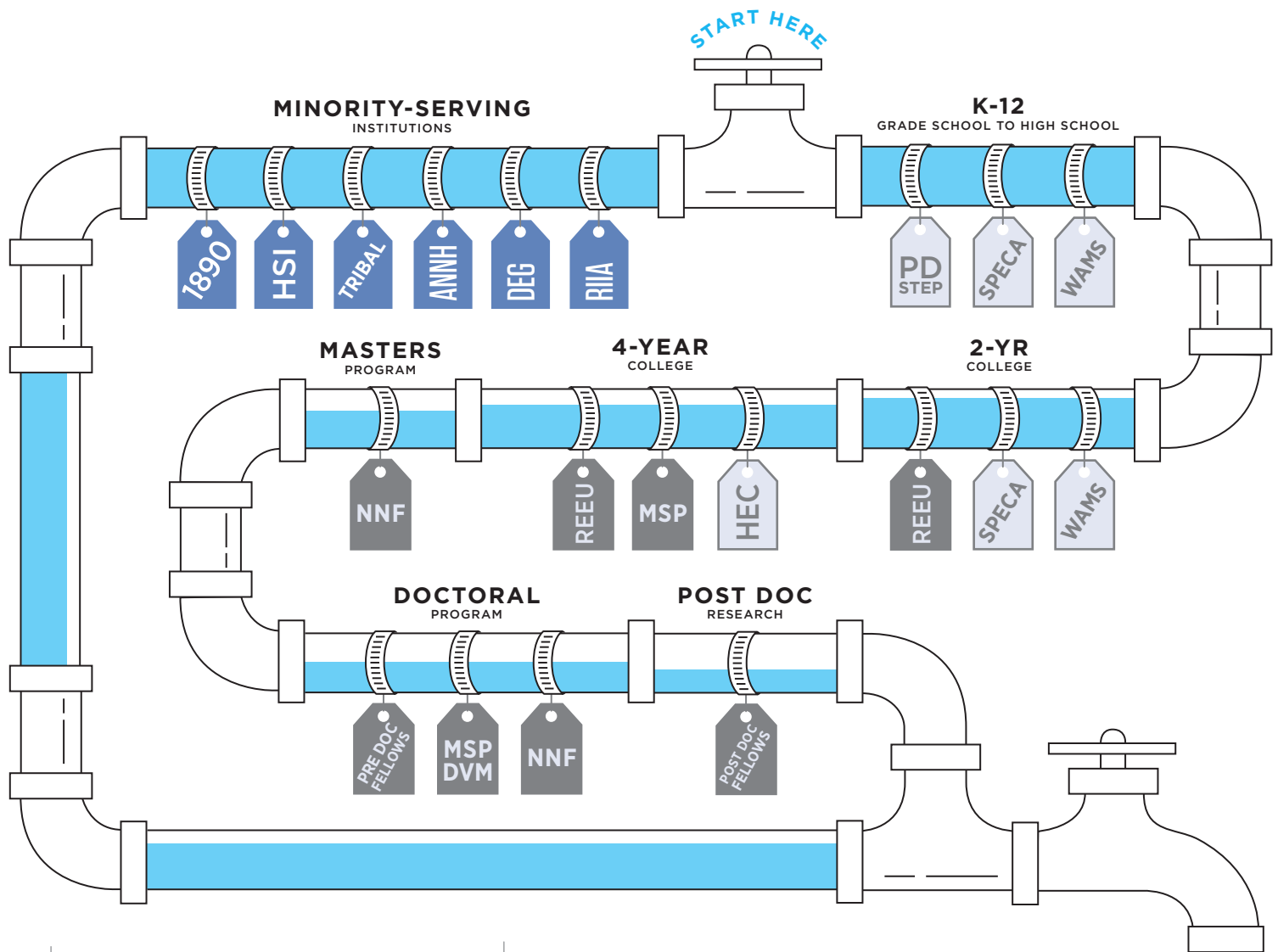
United States
Department of
Agriculture

National Institute
of Food
and Agriculture

www.nifa.usda.gov
@USDA_NIFA

NIFA Reinforces the Agricultural Education Pipeline

Agricultural science, technology, engineering, and mathematics (STEM) education has been described as a “leaky pipeline,” as fewer students remain as they progress through advanced study. USDA’s National Institute of Food and Agriculture (NIFA) education programs are designed to enhance the pipeline through programs that support agricultural workforce development, increase student recruitment and retention, and build capacity.



- KEY**
-  supports teachers & faculty
 -  supports students & postdocs
 -  builds capacity

please see page two for program descriptions

SUPPORTING THE NEXT GENERATION OF AG SCIENTISTS



INFOGRAPHIC: NIFA REINFORCES THE AGRICULTURAL EDUCATION PIPELINE (CONTINUED)

WORKFORCE DEVELOPMENT

NIFA supports agricultural **workforce development** by offering fellowship and experiential learning opportunities that prepare students and researchers for a variety of careers in the STEM agricultural pipeline.

The Agriculture and Food Research Initiative's Education and Literacy Initiative (AFRI ELI) provides funding to support multiple training opportunities:

- **The Research and Extension Experiences for Undergraduates (REEU) Program** provides practical experience for undergraduates in agricultural research, education, or extension.
- **The Predoctoral and Postdoctoral Fellowships** program provides stipends and research funds to Ph.D. candidates and postdoctoral researchers to complete agricultural research, education, or extension projects. Doctoral candidates and postdoctoral researchers are eligible to apply directly for these grants.

The Higher Education Multicultural Scholars Program (MSP) provides funding to institutions for awarding scholarships to undergraduate or Doctor of Veterinary Medicine (D.V.M.) students from groups of traditionally underrepresented individuals in the food and agricultural sciences.

The National Needs Graduate and Postgraduate Fellowship (NNF) Program provides funding for institutions to award scholarships to individuals pursuing master's or doctoral degrees in targeted expertise shortage areas within food, agriculture, natural resource, or human sciences.

LEARNING AND ENGAGEMENT

NIFA aims to increase the recruitment and retention of students in the pipeline through programs that promote **learning and engagement**. Many of these programs fund projects that develop curriculum and instructional materials and support teacher training that will ultimately strengthen students' critical thinking, communication, and leadership skills. NIFA also offers professional development opportunities to secondary school teachers so they may incorporate agricultural STEM education into their classrooms.

Professional Development Opportunities for Secondary School Teachers (PD STEP) in AFRI ELI provides program support for K-14 educators and enhances research, education, or extension training in an academic, industry, or other field environment.

Capacity Building Grants for Non-land-grant colleges of agriculture (NLGCA) provides funding to develop curricula, conduct research, participate in outreach activities, and enhance agricultural related programs outside of the land-grant university system.

The Secondary Education, Two-Year Postsecondary Education, and Agriculture in the K-12 Classroom Challenge Grants Program (SPECAC) funds agricultural projects that enable innovative curriculum development and teacher training at K-12 levels and community colleges.

The Women and Minorities in Science, Technology, Engineering, and Mathematics Fields Program (WAMS) funds projects that focus on women and other underrepresented minorities from rural areas in STEM agricultural fields.

The Higher Education Challenge (HEC) Grants Program funds projects that develop non-traditional agricultural education methodologies. Many of these projects leverage resources and enhance educational quality by bridging the gap among the university science, education, and private sector communities.

CAPACITY BUILDING

NIFA broadens representation within the agricultural pipeline through its **capacity building** programs. These programs facilitate access to higher education and support research, teaching, and extension activities at minority-serving institutions and institutions outside of the land-grant university system.

The Hispanic-Serving Institution Education Grants Program (HSI) supports innovative teaching or education proposals that increase enrollment and graduation rates in the agricultural sciences.

1890s Grants Programs build institutional capacities of historically black institutions by funding research, education, extension, and facilities projects at the 1890 land-grant institutions.

1994 Education, Extension, and Research Programs promote sovereignty and self-sufficiency by providing resources for higher education institutions, tribal communities, and native students of resource-poor Indian reservations.

The Alaska Native-Serving and Native Hawaiian-Serving Institutions Education Competitive Grants Program (ANNH) and insular area programs support projects that enhance educational equity and strengthens institutional educational capacities.

Distance Education Grants for Institutions of Higher Education in Insular Areas (DEG) strengthen the capacity of Institutions of Higher Education in Insular Areas to carry out resident instruction, curriculum, and teaching programs through distance education technology.

Resident Instruction Grants Program for Institutions of Higher Education in Insular Areas (RIIA) promotes and strengthens the ability of Insular Area Institutions to carry out teaching and education program by strengthening institutional educational capacities in instruction and curriculum, and enhancing the quality of teaching and learning.

National Institute of Food and Agriculture

<https://nifa.usda.gov>

Plant-Related Competitive Funding Programs (FY 2019) **subject to change**

Agriculture and Food Research Initiative (AFRI)

<http://nifa.usda.gov/funding/rfas/afri.html>

1) AFRI Foundational & Applied Science Program (FAS)

- **Foundational Knowledge of Agricultural Production Systems**

Contacts: Mathieu Ngouajio, mngouajio@nifa.usda.gov & Robert Nowierski, rnowerski@nifa.usda.gov
Application deadline: TBD

- **Pests and Beneficial Species in Agricultural Production Systems**

Contacts: Mary Purcell-Miramontes, mpurcell@nifa.usda.gov & Rubella Goswami, Rubella.Goswami@nifa.usda.gov
Application deadline: TBD

- **Physiology of Agricultural Plants**

Contacts: Liang-Shiou Lin, lilin@nifa.usda.gov & Shing Kwok, skwok@nifa.usda.gov
Application deadline: TBD

- **Plant Breeding for Agricultural Production**

Contacts: Ed Kaleikau, ekaleikau@nifa.usda.gov & Liang-Shiou Lin, lilin@nifa.usda.gov
Application deadline: TBD

- **Pollinator Health: Research and Applications** Contact:

Mary Purcell-Miramontes, mpurcell@nifa.usda.gov
Application deadline: TBD

- **Agricultural Microbiomes in Plant Systems and Natural Resources**

Contact: Rachel Melnick, rmelnick@nifa.usda.gov & Ann Lichens-Park, apark@nifa.usda.gov
Letter of Intent deadline: TBD
Application deadline: TBD

- **Agricultural Biosecurity Coordination Network** Contact:

Rubella Goswami, rubella.goswami@nifa.usda.gov & Peter Johnson, pjohnson@nifa.usda.gov
Letter of Intent deadline: TBD
Proposal deadline: TBD

- **Critical Agricultural Research and Extension (CARE)**

Contacts: James Dobrowolski, jdobrowolski@nifa.usda.gov & Charlotte Kirk Baer, cbaer@nifa.usda.gov
Letter of Intent deadline: TBD
Application deadline: TBD

2) AFRI Education and Workforce Development (EWD) Programs

- **Professional Development for Secondary School Teachers and Educational Professionals**

Contact: Victoria LeBeaux, victoria.s.lebeaux@nifa.usda.gov
Application deadline: TBD

- **Research and Extension Experiences for Undergraduates**

Contact: Ariela Zycherman, Ariela.Zycherman@nifa.usda.gov
Application deadline: TBD

- **NIFA Pre-doctoral & Post-Doctoral Fellowships**

Contact: Ray Ali, rali@nifa.usda.gov
Application deadline: TBD

3) AFRI Sustainable Agricultural Systems. Contacts:

Mathieu Ngouajio, mngouajio@nifa.usda.gov
Application deadline: TBD

4) Food and Agriculture Cyberinformatics Tools (FACT)

Contact: Charlotte Baer, cbaer@nifa.usda.gov, Ed Kaleikau, ekaleikau@nifa.usda.gov

AFRI Interagency Programs

<http://nifa.usda.gov/funding/rfas/afri.html>

- 1) **NSF-NIFA Plant Biotic Interactions (with NSF)** Contact: Ann Lichens-park, apark@nifa.usda.gov Application deadline: TBD

Other Competitive Programs

1) Biotechnology Risk Assessment Grants Program (BRAG)

Contact: Shing Kwok, skwok@nifa.usda.gov

LOI Deadline: December 12, 2018

Application deadline: February 27, 2019

2) Crop Protection and Pest Management Program

- Applied Research and Development Area (ARDP)
- Extension Implementation Area (EIP)
- Regional Coordination Area (RCP)

Contacts: Herbert Bolton, hbolton@nifa.usda.gov & Rubella Goswami, Rubella.Goswami@nifa.usda.gov

Application deadline: TBD

3) Methyl Bromide Transition (MBT) Program Contact:

Tesfamariam Mengistu, Tesfamariam.Mengistu@nifa.usda.gov

Application Deadline: April 15, 2019

4) Organic Agriculture Research and Extension Initiative (OREI) and Organic Transitions Program (ORG) Contacts: Mathieu Ngouajio, mngouajio@nifa.usda.gov & Steve Smith, sismith@nifa.usda.gov

Application deadline: TBD (OREI)

Application deadline: TBD (ORG)

5) Small Business Innovation Research (SBIR) - 10 research areas; Phase I and II

Plant Related Research areas;

- Forests and Related resources
- Plant Production and Protection—Biology
- Plant Production and Protection—Engineering
- Biofuels and Biobased Products

Contact: Scott Dockum, sdockum@nifa.usda.gov

Phase I: October 25, 2018

Phase II: March 14, 2019

6) Specialty Crop Research Initiative (SCRI)

Contact: Tom Bewick, tbewick@nifa.usda.gov;

Pre-Application deadline: December 10, 2018

- **Specialty Crop Research Initiative (SCRI)**

Citrus Disease Program (HLB) – Research and Extension

Contact: Tom Bewick, tbewick@nifa.usda.gov

Application deadline: TBD

7) Supplemental and Alternative Crops (SACC) Program

Contact: Ann Marie Thro, athro@nifa.usda.gov

Application deadline: TBD

8) Potato Breeding Research Program

Contact: Ann Marie Thro, athro@nifa.usda.gov

Application deadline: TBD

9) Alfalfa and Forage Research Program

Contact: Ann Marie Thro, athro@nifa.usda.gov

Application deadline: TBD

HOME RESEARCH AREAS FUNDING AWARDS DOCUMENT LIBRARY NEWS ABOUT NSF

Awards

Award Abstract #1748978

RCN: Broadening and Energizing the Maize Genetics Research Community

NSF Org: [IOS](#)
[Division Of Integrative Organismal Systems](#)

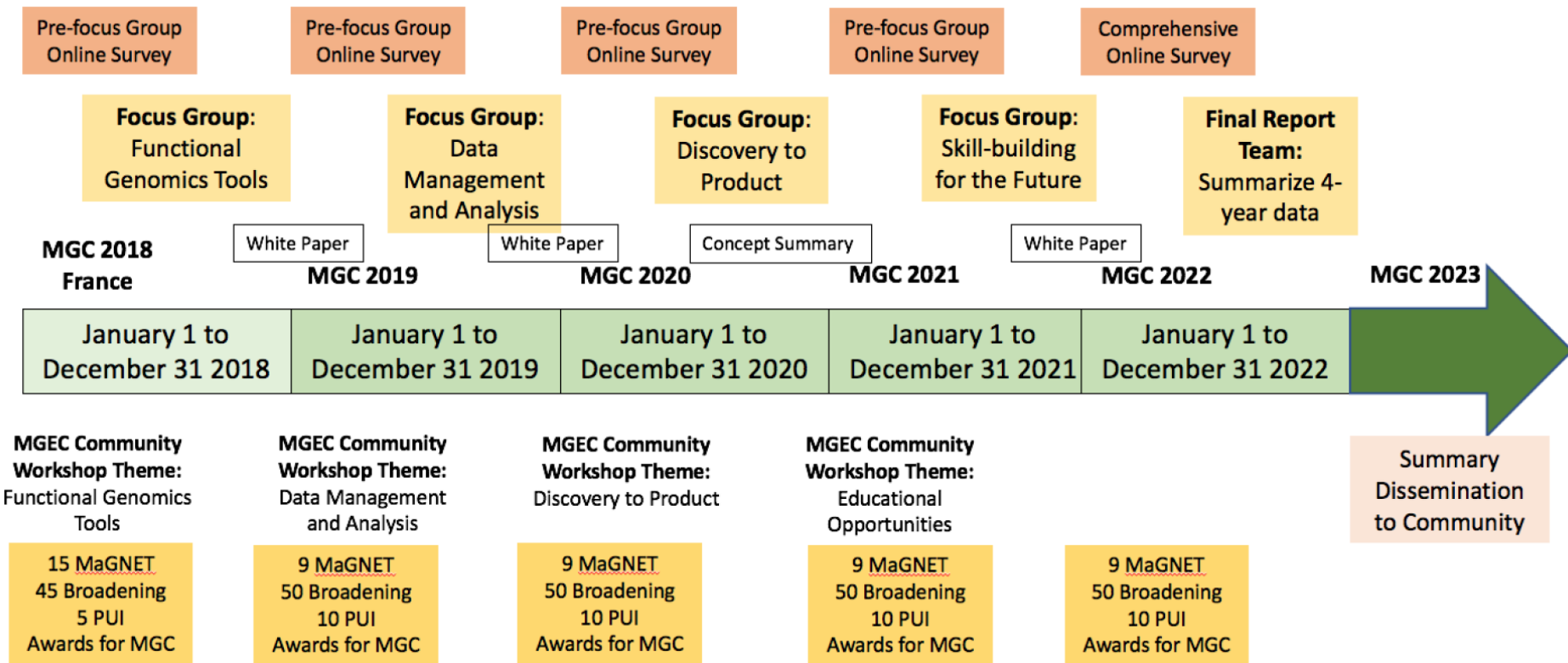
[Search Awards](#)

RCN= Research Communication Network

The goal of the RCN program is to **advance a field** or **create new directions** in research or education by supporting groups of investigators to communicate and coordinate their research, training and educational activities across disciplinary, organizational, geographic and international boundaries. The RCN program provides opportunities to foster new collaborations, including international partnerships, and address interdisciplinary topics.

RCN awards also **do not support primary research**. Rather, the **RCN program supports the means by which investigators can share information and ideas, coordinate ongoing or planned research activities, foster synthesis and new collaborations, develop community standards**, and in other ways advance science and education through communication and sharing of ideas.

The goal of this Research Coordination Network is to accelerate maize research into the next decade by systematic planning and prioritization activities, and by encouraging community growth and synergistic interaction. Community input has identified **four areas** meriting specific attention by the RCN: **development of novel functional genomic technologies**, big data acquisition and utilization, discovery to product, and importantly, recruiting and training the next generation of researchers.





Maize Functional Genomics Tools and Resources.

NSF RCN meeting
Madison, WI.
Sept 19-21, 2018.

Organizers: Dave Jackson , Karen Koch, Shawn Kaeppler, Natalia De Leon





Maize Functional Genomics Tools and Resources. NSF RCN meeting goals.

- Identify maize community needs in functional genomics
- Identify resources that can be shared, and ones that need to be developed
- communication between academia, industry and funding agencies
- Summarize findings in a white paper

[https://www.maizegdb.org/docs/2018 RC� MGEC.pdf](https://www.maizegdb.org/docs/2018_RC�_MGEC.pdf)

Maize Functional Genomics discussion areas

applications

Maize Transformation

Utilizing Natural Variation

Gene Editing

Maize Breeding and Quantitative Genetics

Free DNA transformation
and RNP/Nanoparticles

Stock centers, databases and data
management

Epigenomics

Single Cell Methods

Omics and Networks

20 years ago.....

1997 - Nokia 6110



What is our community vision for next 20 years?

Features:

- Three games: Memory, Snake, Logic
- Calculator, clock and calendar
- Currency converter
- Works as a pager
- Profile settings
- 4 colours

What is possible?



1001 Genomes

[News](#) [Data Providers](#) [Accessions](#) [Tools](#) [Software](#) [Data Center](#) [About](#) [Help desk](#)

1001 Genomes

A Catalog of *Arabidopsis thaliana* Genetic Variation.



Cell

Volume 166, Issue 2, 14 July 2016, Pages 481-491

Resource

1,135 Genomes Reveal the Global Pattern of Polymorphism in *Arabidopsis thaliana*

The 1001 Genomes Consortium ¹



Cell

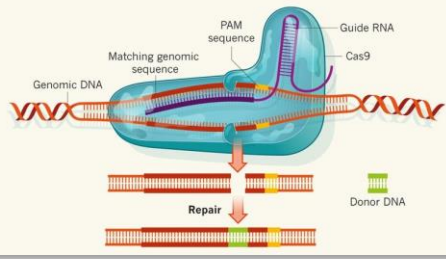
Volume 166, Issue 2, 14 July 2016, Pages 492-505

Resource

Epigenomic Diversity in a Global Collection of *Arabidopsis thaliana* Accessions

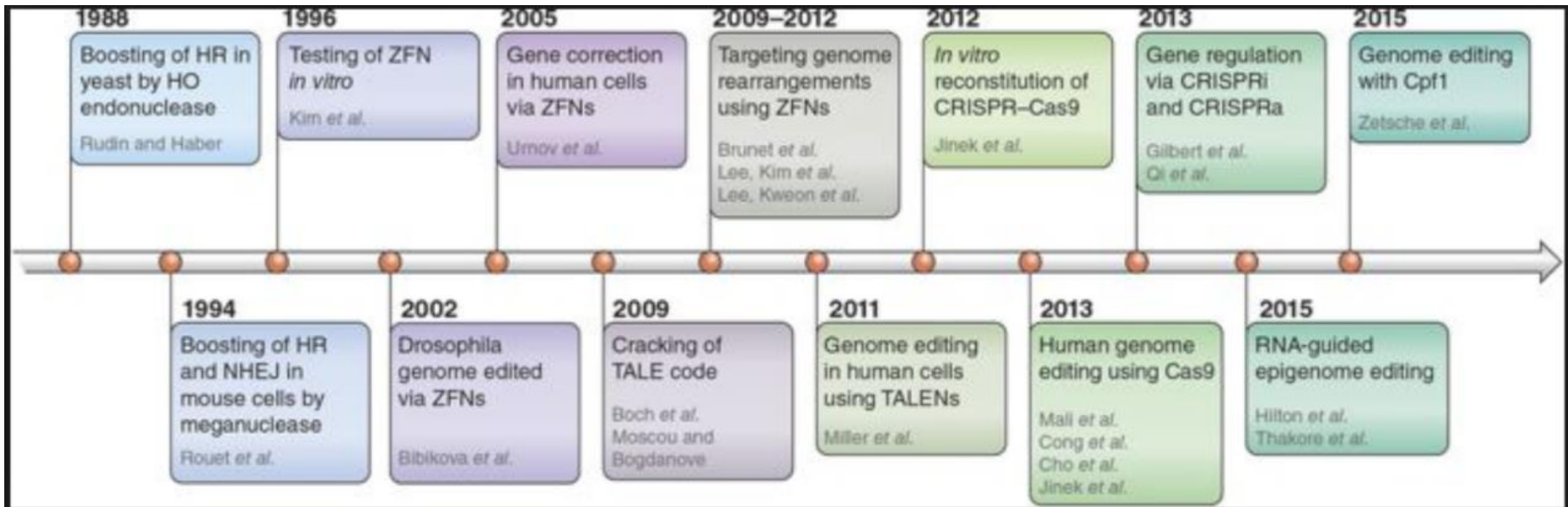
Taiji Kawakatsu ^{1, 2, 4, 10}, Shao-shan Carol Huang ^{1, 2, 10}, Florian Jupe ^{1, 2, 10}, Eriko Sasaki ^{6, 10}, Robert J. Schmitz ^{2, 5}, Mark A. Urich ², Rosa Castanon ², Joseph R. Nery ², Cesar Barragan ², Yupeng He ², Huaming Chen ², Manu Dubin ⁶, Cheng-Ruei Lee ⁶, Congmao Wang ^{7, 8}, Felix Bemm ⁷, Claude Becker ⁷, Ryan O'Neil ², Ronan C. O'Malley ² ... Joseph R. Ecker ^{1, 2, 3}





Genome editing revolution.

Charpentier and Doudna,
Nature 2013



Kim, Nature Protocols, 2016

Please read white paper:

https://www.maizegdb.org/docs/2018_RCN_MGEC.pdf

Informatics RCN Committee



Candy Hirsch



Ed Buckler



James Schnable



Carson Andorf

Committee Goals

- Identify and articulate informatics issues in the community
- Develop a vision to prioritize solving these issues
- Currently developing an agenda

Focus Areas

Focus Area 1: Comparisons and annotations of many genomes

Focus Area 2: Collection, curation, and availability of phenomics data

“DISCOVERY TO PRODUCT” RCN SUBCOMMITTEE

- Subcommittee members: Paul Chomet, Ruth Wagner, Wes Bruce

Overall Goal

Build an integrated community inclusive of Industry, non-profit, academia

- Build a maize community where diverse careers are integrated and valued
- Establish and maintain network and relationships across career paths
- Foster shared goals community wide- includes academia, non-profits, and for profits

2019 MAIZE GENETICS CONFERENCE EVENT CAREER OPPORTUNITIES BEYOND ACADEMIA WORKSHOP

- 5 hour event including **Bayer Research tour** , **R. Martienssen talk**, **Career panel discussion**
 - >50 students, Postdocs, PI attendees
 - 16 Universities, 5 companies, 5 research institutes
 - Sponsored by BASF, Bayer and NRGene companies



nrgene

 **BASF**

Panel Members



Dr. R. Wagner
Genome &
Marker
Design lead
Bayer



Dr. M. Lewis
Venture
Capital Fellow
BioGenerator



Dr. P. Chomet
Senior Tech
Specialist
NRGene



Dr. Z. Goodwin
Genomics Data
Scientist
Bayer



Dr. J. Mach
Editor &
cofounder
Plant Editors,
Periodot



Mr. D. Lanzotti
Senior Corp.
Council, IP
Bayer



Dr. W. Bruce
Research Fellow
BASF

2019 Careers beyond Academia Workshop Participants



FUTURE PLANNING

Ideas include:

Career mentoring

- Throughout year, industry scientific career talks by maize community/associated scientists
- Throughout year, Mentoring opportunities for connections with non-academic scientific mentors
- At MGC- key Mentor-mentee meeting, Continue research institute site visits
 - Topics: Entrepreneurship, effective communication of science, cross functional teamwork, project management talks

Across community shared goals

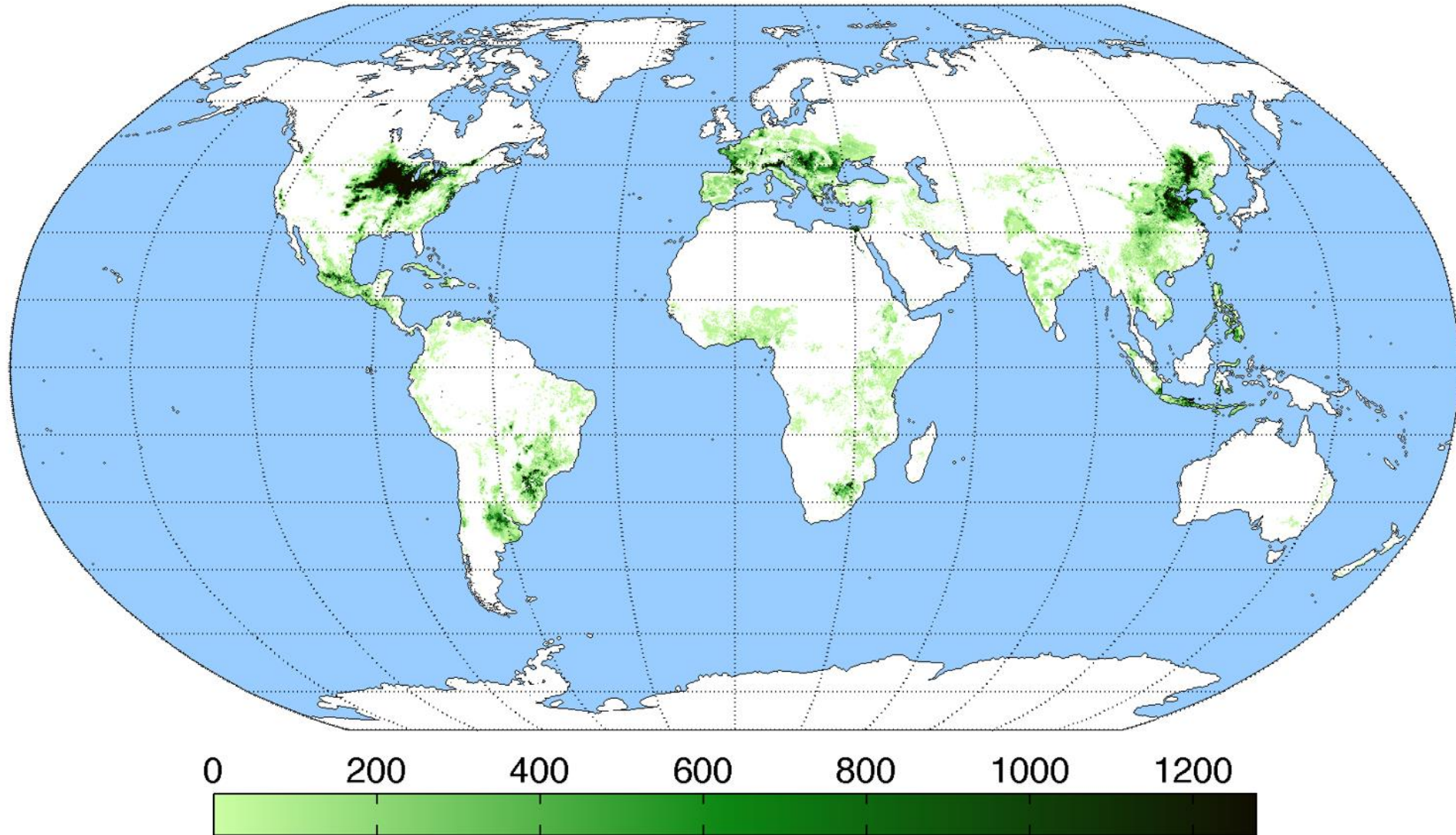
- Build upon relationships to drive project based information sharing

Education and Community Breadth Committee

- ▶ Tessa Durham Brooks - Doane University
- ▶ Erin Doyle - Doane University
- ▶ Mark Lubkowitz - Saint Michael's College
- ▶ Irina Makarevitch - Hamline University
- ▶ Marilyn Warburton - USDA ARS
- ▶ Sylvia Morais de Sousa - Embrapa Brazil, MGEC - Latin and South American Rep
- ▶ Silvio Salvi - University of Bologna, Italy, MGEC-European Rep
- ▶ Yongrui Wu - Shanghai Institutes for Biological Sciences, Shanghai China, MGEC - Asian Rep
- ▶ David Braun - University of Missouri
- ▶ Karen Koch - University of Florida

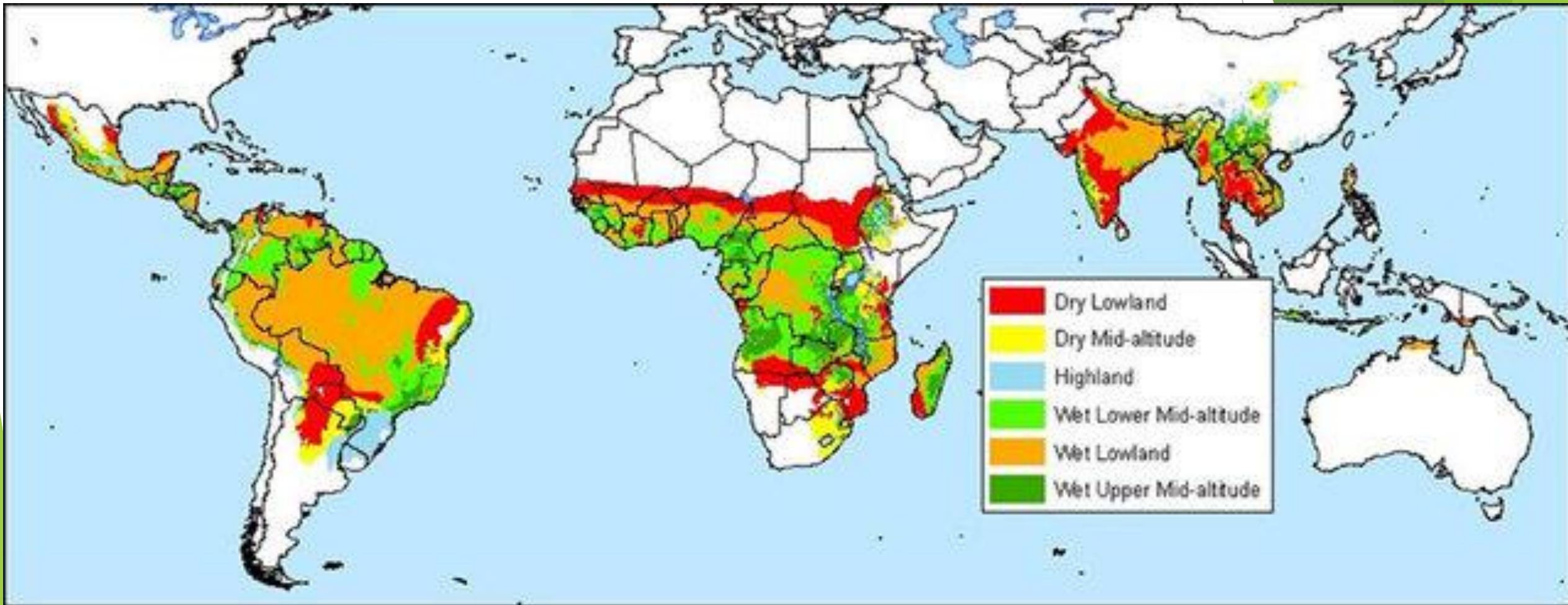
Education sub-
committee

Global maize growing areas



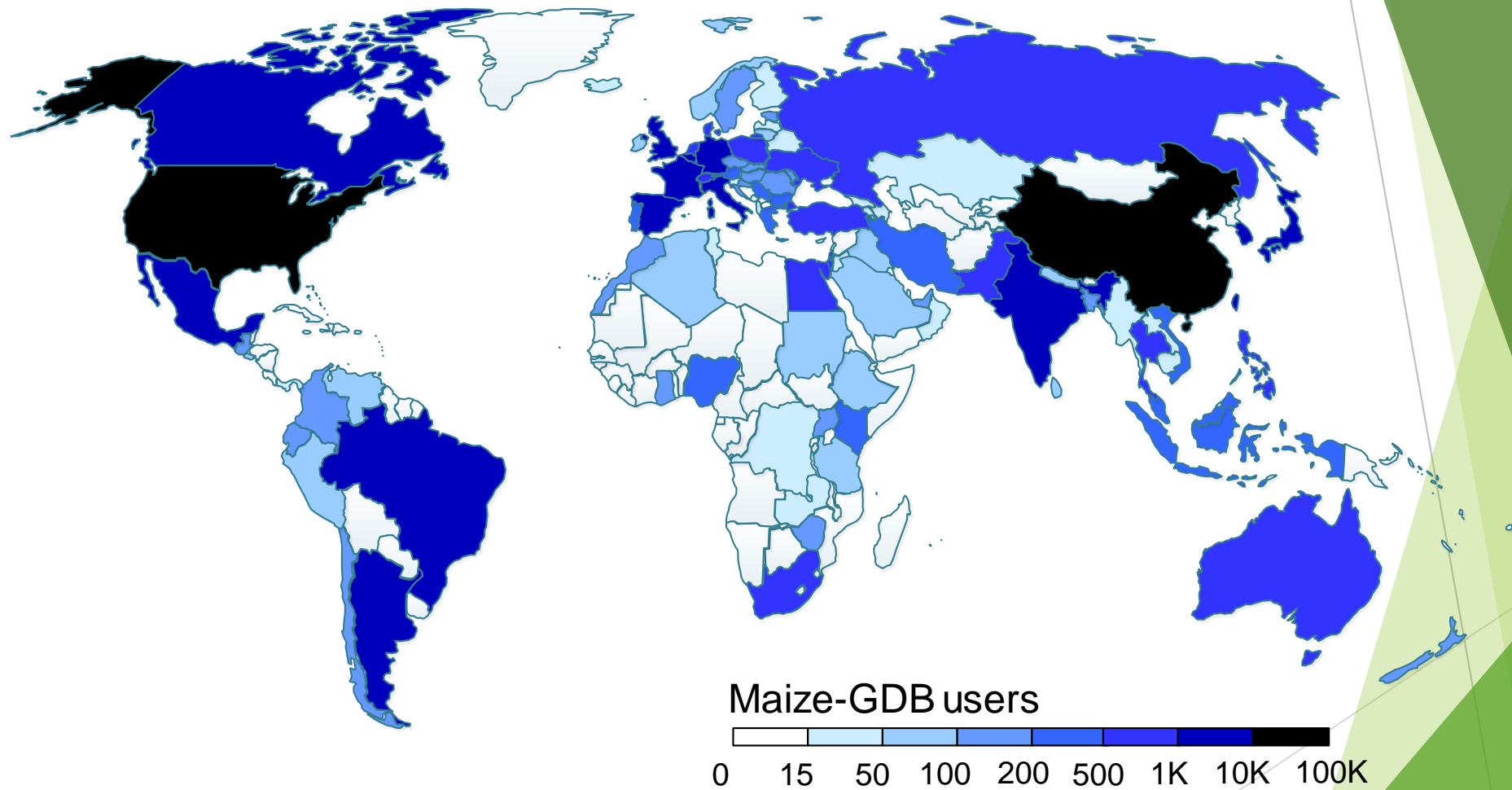
Average regional maize output (kg/ha)

Tropical maize distribution

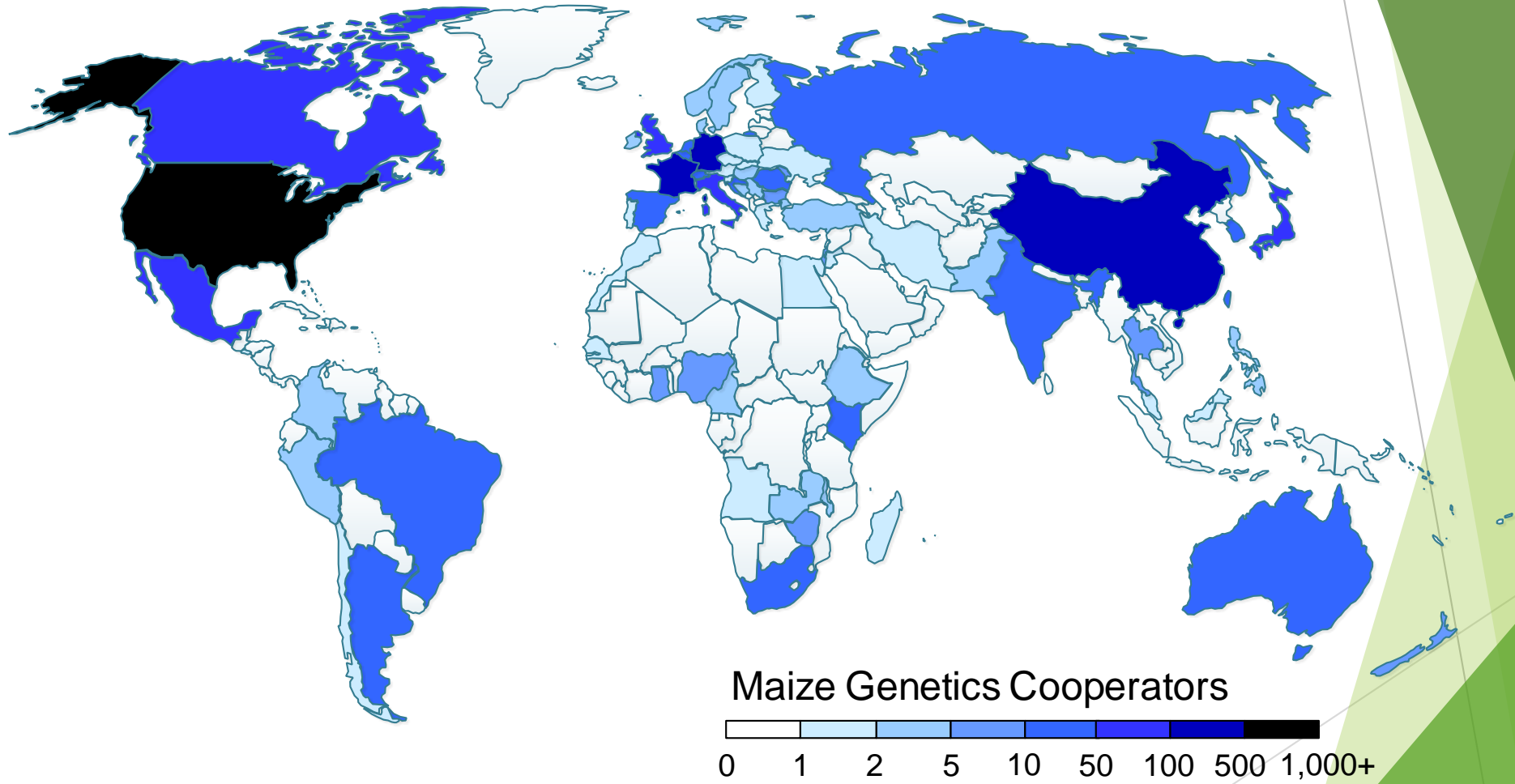


Hyman, Glenn & Hodson, Dave & Jones, Peter. (2013). Spatial analysis to support geographic targeting of genotypes to environments. *Frontiers in physiology*. 4. 40. [10.3389/fphys.2013.00040](https://doi.org/10.3389/fphys.2013.00040).

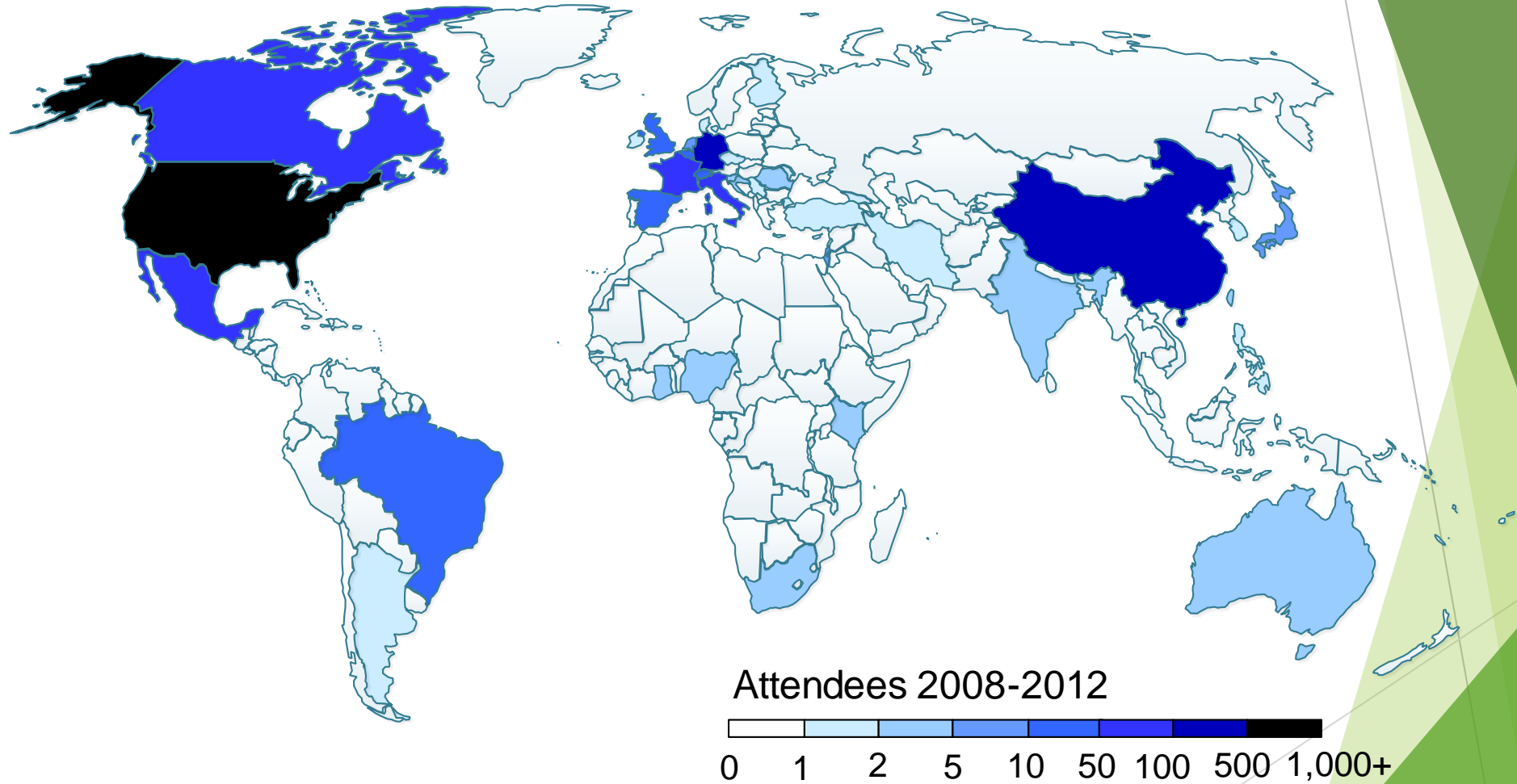
Maize-GDB Users: Where are they?



Maize-Genetics Cooperators: Where are they?



Maize-meetings in US: Global attendees 2008-2017



Goals of the Outreach Committee

- ▶ To broaden participation of underrepresented groups and expertise beyond the current core group of scientists and enhance vitality of the community.
- ▶ Funding from NSF will bring students, postdocs and young faculty, as well as researchers from outside the maize community.
- ▶ *But... what exactly will they participate in? The maize meetings? New collaborations? The MGEC? Maize genetics in general? Surveys sent out by the MGEC about needs of the maize genetics community? All of the above?*

Primary goal in RNC proposal: Build long-term program for outreach and broadening participation

- ▶ Increase PUI participation
 - ▶ Reviewed travel grants to MGC: 12 awarded (faculty and students)
 - ▶ Organized networking luncheon for PUI attendees (students, PIs, Industry and Academia PIs, and Program Officers)
- ▶ Broaden domestic student participation
 - ▶ Students included in PUI luncheon
 - ▶ Marquee added to undergraduate authors in program to highlight their participation
 - ▶ *Crop Sciences* series
- ▶ Expand underrepresented groups participation
 - ▶ Reviewed MaGNET travel awards: 11 awarded
- ▶ Broaden Participation
 - ▶ Reviewed and awarded Broadening Participation: 3 awarded

Moving Forward: MGC as a key destination for professional networking and development

- ▶ Assess luncheon/ make changes (implement other ideas?)
- ▶ Create Turn the Table event
 - ▶ PIs from PUIs highlight their Broader Impact potential for building collaborations
- Create student-centered networking opportunities
 - ▶ Mini-poster session of undergraduate researchers
 - ▶ Session consisting of 3 minute chalk-talks
 - ▶ Student mixer
 - ▶ Graduate school recruitment table at lunch
- ▶ ALANA recruitment
 - ▶ Workshop for PIs on recruitment and retention
 - ▶ Involve MaGNET recipients
 - ▶ Consider creating peer mentoring program
 - ▶ Role and opportunity for PUIs

Expanding community breadth: Proposed mode of action (immediate steps)

- ▶ Working through the international representatives (Asia, Latin America, Europe and eventually Africa) to expand participation in the RCN and at the maize meetings.
- ▶ Work with USAID and NSF programs: Partnerships for Enhanced Engagement in Research (PEER); Feed the Future; Agriculture and Food Research Initiative (AFRI); others? To provide travel and collaboration opportunities.

Virtual attendance

- ▶ We would like to promote virtual attendance at the Maize Genetics Conference and at the RCN working meetings
 - ▶ International travel is expensive and prevents individuals from attending the Maize Meeting and even more the RCN meetings
 - ▶ Visas are often difficult to obtain in time to make travel plans (or at all).
 - ▶ Can we allow individuals to register for virtual attendance? Not to replace attending the meeting, which has other benefits (e.g. networking and community building) but rather for those individuals who can't attend.
 - ▶ These participants could still listen to the talks and shape their work as a result. A lower registration fee may be applied in these cases.
 - ▶ Mechanisms to ensure in-person attendance does not suffer can be put in place.