

Navigating the New Landscape of Federal Funding

WSSA 2017, Tucson AZ

WSSA Research and Competitive Grants Committee

Audience questions and comments, along with speaker and panelist responses are inserted as appropriate (in blue font). All comments are paraphrased and edited for clarity and brevity.

Navigating the New Landscape of Federal Funding

10:00 Federal Support of Weed Science Research and Extension.

Mathieu Ngouajio (USDA NIFA; National Program Leader for Plant Systems-Production)

10:20 Open Discussion: WSSA Member Input on Key Problems that Need Federal Support for Research & Extension Projects.

Jim Westwood (Virginia Tech; WSSA Research and Competitive Grants Committee)

10:40 Mini Workshop to Provide Tips & Tricks for Being Successful in Obtaining NIFA Funding.

Mathieu Ngouajio (USDA NIFA; National Program Leader for Plant Systems-Production)

11:10 Lessons and Impressions from the 2016 Competition.

David Mortensen (Pennsylvania State University; 2016 Rotating Manager, NIFA Pests and Beneficial Species)

11:30 Panel Discussion: How to Enhance Weed Science Participation in the Federal Grants Process.

Donn Shilling (University of Georgia; WSSA NIFA liaison)



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NIFA Support for Weed Science Research & Extension

Mat Ngouajio*
Mike Fitzner
Andrew Clark

National Institute of Food and Agriculture

USDA NIFA

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WSSA February 7, 2017

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FOOD PRODUCTION
AND SUSTAINABILITY

BIOENERGY, CLIMATE,
AND ENVIRONMENT

YOUTH, FAMILY,
AND COMMUNITY

FOOD SAFETY
AND NUTRITION

INTERNATIONAL
PROGRAMS



NIFA Support for Weed Science Research & Extension

- NIFA recognizes that weed management is one of the biggest impediments to sustainable food production & food security
 - More than \$20 million/year invested in weed science efforts with capacity & competitive funds
- Major topics addressed by funded projects are herbicide resistance, weed genetics, & weed ecology
 - Also invasive species management, IPM, organic management, conservation tillage, physical control & precision technology (robotic weeders, etc.)
- The most frequent subjects of investigation are cheat grass, cogon grass, common buckthorn, hydrilla, Johnson grass, medusa head & salt cedar



Recent changes to the AFRI Foundational Program

Program area priorities in FY 2015		Program area priorities in FY 2016
<input type="checkbox"/> Plant Breeding for Agricultural Production		<input type="checkbox"/> Plant Breeding for Agricultural Production
<input type="checkbox"/> Growth and Development, Composition and Stress Tolerance		<input type="checkbox"/> Physiology of Agricultural Plants
<input type="checkbox"/> Photosynthesis and Nutrient Use in Agricultural Plants		
<input type="checkbox"/> Controlling Weedy and Invasive Plants		<input type="checkbox"/> Pests and Beneficial Species in Agricultural Systems
<input type="checkbox"/> Plant-Associated Insects and Nematodes		
<input type="checkbox"/> Plant-Associated Microbes and Plant-Microbe Interactions		<input type="checkbox"/> Joint program with NSF: Plant Biotic Interactions (http://www.nsf.gov/pubs/2016/nsf16551/nsf16551.htm)
<input type="checkbox"/>		<input type="checkbox"/> Foundational Knowledge of Agricultural Production Systems (new)



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Rationale for Program Restructuring in 2016

- Offer funding through broader results-oriented priorities rather than narrow discipline-based priorities
 - funding projects with the best potential to fill knowledge gaps and address stakeholder needs
- Promote interdisciplinary opportunities in foundational research
 - multi-trophic interactions, systems approaches, and agronomic practices
- Be more responsive to high priority areas of research
 - plant microbiome, pollinator health, and impacts of pesticide resistance on plant/animal/microbial systems



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NIFA Support for Weed Science Research & Extension

- At least 14 grant programs are potential sources of funding
 - AFRI Foundational Programs (7 program areas)
 - Biotechnology Risk Assessment
 - Crop Protection & Pest Management (3 program areas)
 - Organic Research & Extension Initiative
 - Specialty Crop Research Initiative
 - Sustainable Agriculture Research & Education

- Number of weed science proposals submitted increased 92% in FY 2016 (from 27 to 52)
 - Complete data on number of proposals funded & funding amount are not yet available

- NIFA would like your help in identifying key priorities for future investments in weed science research, extension & education



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Quick Review of NIFA Grants Programs to Consider for Your Weed Science Research or Extension Proposal

For more information go to
www.nifa.usda.gov
or
wssa.net/society/funding-and-grants



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AFRI Foundational Program:
**Foundational Knowledge
of Agricultural Production Systems**
(weed-focused priorities in **red**) (FY **2016** RFA)

RFA = Request
For Applications

- How multiple management components in ag production systems can be integrated to enhance plant resilience to various stressors and improve product quality and/or productivity
- How ag production can alter the **plant microbiome**; how alterations affect plant resilience to various stressors and/or affect product quality and/or productivity
- How changes in production system management or biodiversity affect soil health
- Synthesis and meta-analysis of existing data to derive general principles about the function and properties of ag production systems



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AFRI Foundational Program: **Foundational Knowledge of Agricultural Production Systems**

Supports research that advances our understanding of crop, managed forest, and rangeland production systems

Research should address critical or process-limiting dynamics that occur among and within the various management components of the production system

Projects addressing weeds funded in FY 2016

Number: 2 (6 submitted)

Success Rate: 33% (23% for all proposals)

FY 2017

Application Deadline: Summer-Fall 2017

Funding (Est.): \$30 million shared by four program areas

Maximum Project Size: \$500,000



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AFRI Foundational Program:
Pests & Beneficial Species
in Agricultural Production Systems
(weed-focused priorities in red) (FY 2016 RFA)

- Interactions of pests or beneficial species with plant compounds, genes or stressors
- Effects of communication, attractants and/or defense signaling systems on pests or beneficial species
- Understanding movement or dispersal dynamics of pests or beneficial organisms, including pests that vector plant diseases
- Mechanisms of resistance to pesticides and/or strategies to mitigate resistance
- Elucidation of individual or interacting factors that affect pollinator populations that will lead to the development of novel tools and technologies to mitigate their losses



AFRI Foundational Program: **Pests & Beneficial Species in Agricultural Production Systems**

Supports research that identifies the fundamental ecological, molecular, biological and/or chemical processes affecting the abundance and spread of plant-associated pests (insects, nematodes, pathogens & **weeds**) and healthy populations of beneficial species in agricultural production systems

Increase our understanding of multi-tropic interactions between plants, pests and/or beneficial species

Projects addressing weeds funded in FY 2016

Number: 4

Success Rate: 18% (11% for all proposals)

FY 2017

Application Deadline: Summer-Fall 2017

Funding (Est.): \$30 million shared by four program areas

Maximum Project Size: \$500,000



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AFRI Foundational Program:
Physiology of Agricultural Plants
(weed-focused priorities in red) (FY 2016 RFA)

- Understanding plant growth and developmental processes
- Mechanisms of plant response to abiotic stresses
- Photosynthetic efficiency, carbon assimilation and/or source-sink relationship
- **Primary and secondary metabolism in agriculturally-important plants and associated weeds**, with particular relevance to nutritional quality of food and feed and economically-important traits including **traits with potential benefits in weed control**
- Nutrient uptake (macronutrients and/or micronutrients), assimilation, accumulation and/or utilization.



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AFRI Foundational Program: **Physiology of Agricultural Plants**

Supports research that uses molecular, biochemical, whole-plant, agronomic or eco-physiological approaches to improve plant productivity or performance

Projects addressing weeds funded in FY 2016

Number: 0

Success Rate: 0% (____% for all proposals)

FY 2017

Application Deadline: Summer-Fall 2017

Funding (Est.): \$30 million shared by four program areas

Maximum Project Size: \$500,000



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AFRI Foundational Program: **Plant Biotic Interactions** (weed-focused priorities in red) (FY 2016 RFA)

- Genetic, genomic, biochemical, metabolic and imaging-based approaches at molecular, cellular, organismal, population and community levels
- Synergies between modeling & experimental approaches and between exploration of fundamental principles & the deployment of insights gained by these approaches in agricultural settings
- Inquiries into genetic and genomic responses, cellular signaling & effects on nutritional, metabolic and developmental processes
- Recognition and signaling between pathogenic plants and their hosts
- Complex **symbioses** such as multipartite interactions between viruses, bacteria, fungi and/or host plants, as well as community level processes



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AFRI Foundational Program: **Plant Biotic Interactions**

Supports research on the mechanisms and principles that mediate the interaction of plants with their biotic partners. All types of symbiosis are considered, including pathogenic, commensal and mutualistic relationships

This joint NSF-NIFA program supports projects focused on current and emerging model and non-model systems and agriculturally relevant plants

Projects addressing weeds funded in FY 2016

Number: 0

Success Rate: 0% (____% for all proposals)

FY 2017

Application Deadline: Summer-Fall 2017

Funding (Est.): \$7 million

Maximum Project Size: \$500,000



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AFRI Foundational Program:
Critical Agriculture Research & Extension
(weed-focused priorities in red) (FY 2016 RFA)

- **Plant** health and **production** and plant products
- Animal health and production and animal products
- Food safety, nutrition, and health
- Bioenergy, **natural resources, and environment**
- **Agriculture systems and technology**
- Agriculture economics and rural communities



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AFRI Foundational Program: **Critical Agriculture Research & Extension**

Supports research and extension efforts that will quickly yield solutions or practices for critical problems that to impede the efficient production & protection of agriculturally-important plants and animals and that can be rapidly implemented by producers

Projects addressing weeds funded in FY 2016

Number: 0

Success Rate: 0% (46% for all proposals)

FY 2017

Application Deadline: Summer-Fall 2017

Funding (Est.): \$3 million

Maximum Project Size: \$300,000



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AFRI Foundational Program: **Exploratory Research** (weed-focused priorities in red) (FY 2016 RFA)

- Extraordinarily novel or innovative ideas that have high potential impact
- Application of new knowledge or new approaches to unsolved challenges that may result in dramatic improvements
- Tools required to have a paradigm shift in the field
- Rapid response to natural disasters and unanticipated events affecting agriculture



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AFRI Foundational Program: **Exploratory Research**

Supports research that demonstrates extraordinary novelty with potential to position U.S. agriculture at the global forefront. It is hoped that the ideas generated by this research will provide quantum leaps in our knowledge and capabilities in agriculture and food production

Projects addressing weeds funded in FY 2016

Number: ?

Success Rate: ? % (% for all proposals)

FY 2017

Application Deadline: Summer-Fall 2017

Funding (Est.): \$2 million

Maximum Project Size: \$200,000



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AFRI Foundational Program: **Agricultural Engineering** (weed-focused priorities in red) (FY 2016 RFA)

- Enable engineering, computing, modeling, automation, and information systems for forestry and natural resources, **plant and animal production and protection**, and post-harvest inspection, handling, and distribution
- **Develop tools and precision technologies for monitoring, measurement, and detection in agricultural systems**
- Improve efficiency of energy and water use
- Develop and test risk assessment and mitigation measures applicable to agriculture (in particular, reduce hazards to agricultural workers)
- Refine the sustainability of agricultural and forestry systems that balance productivity along with economic, environmental, and social outcomes



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AFRI Foundational Program: **Agricultural Engineering**

Supports research that develops engineered devices, technologies, and tools to improve agriculturally relevant plant, animal, forestry, and natural resource systems

Projects addressing weeds funded in FY 2016

Number: ?

Success Rate: ? % (% for all proposals)

FY 2017

Application Deadline: Summer-Fall 2017

Funding: \$11 million shared by three program areas

Maximum Project Size: \$500,000



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Biotechnology Risk Assessment Program (weed-focused priorities in red)

- Management practices to minimize environmental risk of GE organisms
- Methods to monitor and understand the dispersal of GE organisms
- Gene transfer to domesticated and wild relatives
- Environmental impacts of GE relative to non-GE organisms in the context of production systems, including comparative assessments of environmental impacts of agricultural production systems using organic and/or conventional methods with those involving plant, animal, or microbial biotechnology. Metrics could include the **prevalence and distribution of weeds**



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Biotechnology Risk Assessment Program

Supports the generation of new information that will assist Federal regulatory agencies in making science-based decisions about the effects of introducing into the environment genetically engineered organisms, including **plants**, microorganisms, arthropods, fish, birds, mammals and other animals excluding humans.

Projects addressing weeds funded in FY 2016

Number: 0

Success Rate: 0% (23% for all proposals)

FY 2017

Application Deadline: March 30, 2017

Funding (Est.): \$4 million

Maximum Project Size: \$500,000



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Crop Protection & Pest Management Program: Applied Research & Development Program Area (weed-focused priorities in red) (subset of priorities shown)

- Developing an effective strategy or tactic for a pest problem that currently limits production efficiency in a plant or animal production system, and is recognized by the user community as a key priority
- Addressing multiple cycles of pests (arthropods, nematodes, vertebrates, pathogens, or weeds) over seasons, and/or multiple species and complexes at the landscape or ecosystem level (agricultural production, urban, or natural systems) with consideration of the interactions of the entire system
- Developing effective pest management tactics for invasive pests (arthropods, nematodes, vertebrates, pathogens, or weeds) in cropping systems and natural and urban areas
- Providing IPM outreach and training to individuals involved with the production, processing, storage, transporting, and marketing of food and agricultural commodities



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Crop Protection & Pest Management Program: Applied Research & Development Program Area

Supports research & extension to develop effective, affordable, and environmentally sound IPM practices and strategies for high priority issues related to pests (including insects, nematodes, pathogens, **weeds**, and other pests)

Projects addressing weeds funded in FY 2016

Number: 1

Success Rate: ?% (20% for all proposals)

FY 2017

Application Deadline: Summer-Fall 2017

Funding (Est.): \$4 million

Maximum Project Size: \$325,000



Organic Agriculture Research & Extension Initiative (weed-focused priorities in red) (subset of priorities shown)

- Conduct advanced on-farm crop, livestock, or integrated livestock-crop research and development
- Develop and demonstrate educational tools for Cooperative Extension personnel and other agricultural professionals who advise producers on organic practices
- Strengthen organic crop seed systems, including seed and transplant production and protection, and plant breeding for organic production, with an emphasis on publically available releases (e.g., disease, weed, and pest resistance)
- Develop, improve and evaluate systems-based IPM programs to address pest and pest-related problems for organically grown crops. Proposals addressing organic management of diseases, nematodes, weeds, and insect pests in the Southern Region are especially encouraged
- Develop new undergraduate and/or graduate curriculum in organic agriculture



Organic Agriculture Research & Extension Initiative

Supports research, education and outreach that will enhance the ability of producers and processors who have already adopted organic standards to grow and market high quality organic agricultural products

Projects addressing weeds funded in FY 2016

Number: 0 (out of 6)

Success Rate: 0% (18% for all proposals)

FY 2018

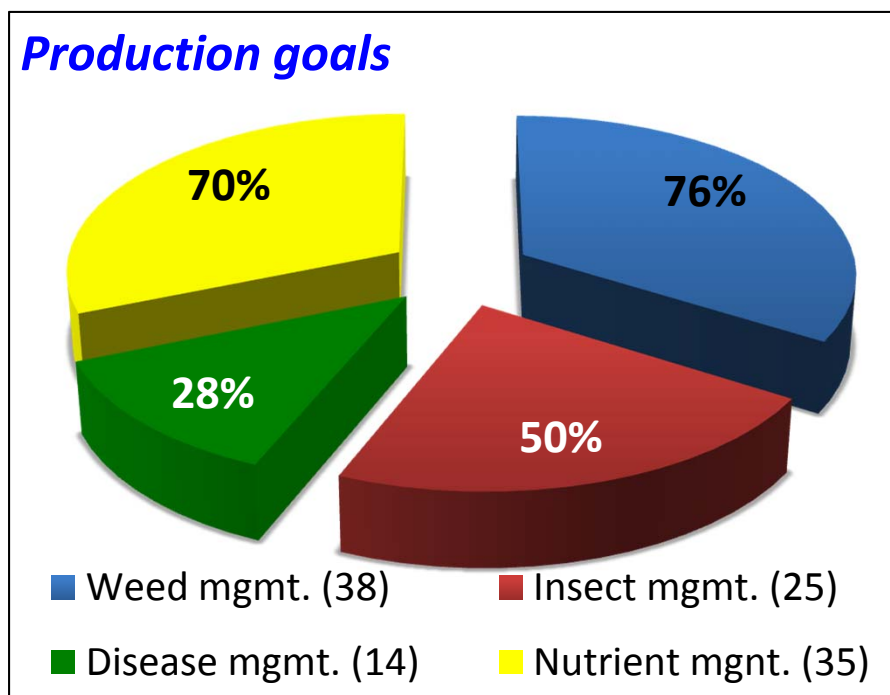
Application Deadline: Winter 2018

Funding (Est.): \$17 million

Maximum Project Size: \$2 million



Organic projects focusing on crop production and pest management



* More than one goal/service for some projects ** Total may be more than 100%

- Weed (76%) and nutrient (70%) mgmt. main goals



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Small Business Innovation Research Program: **Plant Production and Protection**

Supports the development of new technologies to boost food production

Allows small businesses to explore their technological potential & provides an incentive to commercialize innovative ideas

Projects addressing weeds funded in FY 2016

Number: 0

Success Rate: 0% (16% for all proposals)

FY 2017

Application Deadline: Summer-Fall 2017

Funding (Est.): \$8 million

Maximum Project Size: \$100,000



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Specialty Crop Research Initiative (weed-focused priorities in red)

- Plant breeding, genetics, and genomics to improve crop characteristics
- Identification and addressing threats from pests and diseases, including threats to specialty crop pollinators
- Improvement of production efficiency, 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 in production and processing of specialty crops



Specialty Crop Research Initiative

Supports research and extension that takes a systems-based, trans-disciplinary approach to solving critical United States specialty crop issues, priorities, or problems

Projects addressing weeds funded in FY 2016

Number: 1

Success Rate: ?% (43% for all proposals)

FY 2018

Application Deadline (Est.): Fall 2017

Funding (Est.): \$48 million

Project Size: \$227,000-\$6 million (\$1.8 million avg.)



Sustainable Agriculture Research & Education Program

Supports research & education that results in farmers gaining knowledge and skills they can apply to make verifiable changes that lead to greater sustainability

RFAs are issued regionally:

North Central, Northeastern, Southern, Western

Projects addressing weeds funded in FY 2016

Number: ?

Success Rate: ___?___% (_____% for all proposals)

FY 2018

Application Deadline: Varies by region

Funding: Varies by region

Maximum Project Size: Varies by region



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Other NIFA Grant Programs to Consider for Your Weed Science Proposal

- Crop Protection & Pest Management Program
 - Extension Implementation program area
 - Regional IPM Centers
- Organic Transition Program (1 weed out of 8 awards in 2016)
- Aquaculture Program
- 1890 Institution Teaching, Research & Extension Capacity Building Grants Program
- Hispanic-Serving Institutions Education Grants Program
- Food & Agricultural Sciences National Needs Graduate & Postgraduate Fellowship Grants Program



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NIFA Contacts Grant Program Leaders

- Agricultural Engineering (AFRI Foundational)
Steven Thomson
- Applied Research & Development Program Area (CPPM)
Herb Bolton & Rubella Goswami
- Biotechnology Risk Assessment Program
Shing Kwok & Lakshmi Matukumalli
- Critical Agriculture Research & Extension (AFRI Foundational)
Charlotte Kirk-Baer
- Exploratory Research (AFRI Foundational)
Charlotte Kirk-Baer & Liang-Shiou Lin
- Foundational Knowledge of Agricultural Production Systems (AFRI Foundational)
Mathieu Ngouajio & Robert Nowierski



NIFA Contacts Grant Program Leaders

- Organic Agriculture Research & Extension Initiative
Mat Ngouajio & Steve Smith
- Pests and Beneficial Species in Agricultural Production Systems
(AFRI Foundational)
Mary Purcell-Miramontes & Jeffrey Steiner
- Physiology of Agricultural Plants (AFRI Foundational)
Liang-Shiou Lin & Shing Kwok
- Plant Biotic Interactions
Ann Lichens-Park
- Plant Production and Protection (SBIR)
Bob Nowierski
- Specialty Crop Research Initiative
Tom Bewick
- Sustainable Agriculture Research & Education Program
Rob Hedberg

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WSSA Member Input on Key Problems that Need Federal Support for Research & Extension Projects.

- NIFA wants input from Stakeholders
- We have a voice in shaping NIFA priorities

Recent WSSA recommendations to NIFA

2014

Research should lead to **sustainable weed management** through:

Weed biology and ecology

- Reproductive and genetic mechanisms that drive weed evolution, especially that of multiple herbicide resistance
- Weed interactions with other organisms
- Mechanisms of weed persistence and spread

Weed-environment interactions

- Weed response to crop management and the environment (including climate change)
- Impact of weed management on the environment

Integrated weed management systems

- Innovations that expand the number of control strategies used in a given crop
- New approaches to disrupt evolution of herbicide resistance

Recent WSSA recommendations to NIFA

2016

Herbicides

- Understand the evolution of herbicide resistance in weeds
- New herbicides (including bioherbicides) with different mechanisms of action

Precision agriculture and robotics technologies

- Develop and optimize systems for automated recognition of
- Develop and optimize effective precision weed control techniques

Crop-weed interactions

- Understand mechanisms of interspecific and intraspecific competition in plants.
- Demonstrate approaches to improve crop competition with weeds

Biological control

- Understand pathogen virulence and specificity related to diseases of weeds
- Develop technologies that facilitate use of organisms as bioherbicides

Extension/Education/Economics

- Data management systems and delivery
- Research that illuminates the grower/manager decision making processes

Training needs: Need students with training in all of the above

WSSA Member Input on Key Problems that Need Federal Support for Research & Extension Projects.

- NIFA wants input from Stakeholders
- We have a voice in shaping NIFA priorities
- What research topics are missing from the NIFA programs?
- NIFA can't fund everything... What other research is needed?

Audience comments/questions

- Currently we have a narrow industrial base practicing weed science. We need more diversity. For example, we need more SBIR type mechanisms to enable innovation in approaches to weed control.
- Question (and much subsequent discussion) about conflict of interest in the proposal review process. There is a problem when grant applicants from the relatively small and collaborative discipline of Weed Science have to list many people as conflicts of interest, thus eliminating them from the review process. This leads to fewer ad-hoc reviewers and fewer panel members being able to review a given proposal. Also, it leads to less knowledgeable reviews (from non-weed science experts), which are not useful.
- Public-private partnerships in funding research.
- Need for more funds; \$500,000 cap in funding for NIFA awards is not enough to support a collaborative project.
- If WSSA members have more ideas about what type of research should be funded, several avenues exist for input: Contact NIFA National Program Leaders (NPLs); contact the WSSA NIFA liaison (Donn Shilling); contact the WSSA Research and Competitive Grants committee.

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Tips and Tricks for Success



Mat Ngouajio*
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Tips and Tricks for Success



- *This is not a presentation on how to become a scientist*
- *Most of you are already experts in your respective fields*
- *This is about teaching an old dog new tricks in grant writing*



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Funding challenge

- ***Grantsmanship is a tough game***
- ***The success rate for most NIFA programs is 5-25%***
- ***Good preparation can make a difference***



http://images.paraorkut.com/img/funnypics/images/s/sumo_wrestling_fight-13078.bmp





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10 Tips and tricks before the RFA





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Step 1. Do not procrastinate

- Get started immediately
- Don't wait for an RFA to publish before looking for research ideas





Step 2. Adequate Planning is Key

Need a long range plan that may take many years

Particularly important for new faculty or those redirecting their activities



<https://www.tecmidwest.com/2015/02/long-range-planning-still-relevant/>



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Step 3. Stakeholders

Connect with the beneficiaries of your work.



- ◆ Who are they?
- ◆ What challenges do they face?
- ◆ What are their ideas for improvement?





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Don't Let the Review Panel Say This About **STAKEHOLDER INVOLVEMENT** in YOUR Proposal!

"I don't get the impression that this project will be participatory in nature; the PD will conduct the studies and tell farmers the results."

"There is not evidence that there will be direct interactions with growers - this makes it difficult to transfer new technology!"



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Step 4. Find Partners

Find others who complement your skills.



- ◆ Disciplines/technical knowledge areas
- ◆ Science functions: research, education, extension/outreach
- ◆ Community/stakeholder organizations



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Keep in mind



Don't try to eat the whole elephant alone!



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Step 5. Focus on Outcomes



Begin with the end in mind.

- ◆ What conditions do you (and your stakeholders and partners) hope to change?
- ◆ What actions – by whom – are needed to bring about that change?
- ◆ What knowledge is needed for those actions?



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Step 6. Do your Homework



Find out what's been done, and is being done.

- ◆ Search the literature (academic and "gray")
- ◆ Search CRIS/REEport for work in progress

<https://portal.nifa.usda.gov>



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Step 7. Systems



Use a systems approach ... in "chunks."

- ◆ What chunks are important to outcomes?
- ◆ What chunks are most do-able?
- ◆ What chunks are logically first in a program?



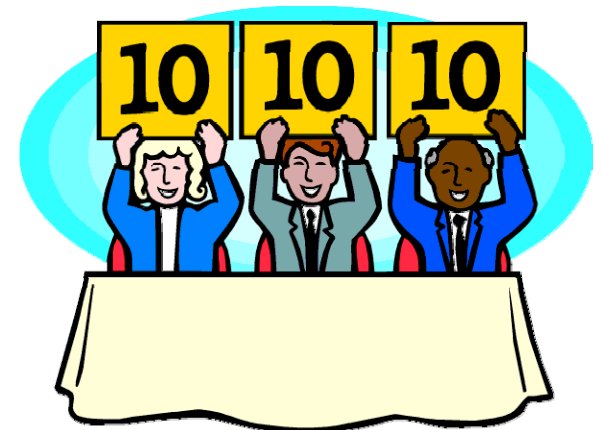
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8. Learn About the Review Process

- Best way is by experience – serving on panels
 - ◆ review RFAs to identify programs for which you have expertise
 - ◆ contact the NPL directly to volunteer – provide a very brief description of your expertise and CV
 - ◆ repeat annually, as needed





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9. Funding

Explore funding sources for key chunks

- ◆ Funding Opportunities (last RFA, Abstracts)
- ◆ Contact the NPLs for Details or Clarifications
- ◆ The Devil Might be in the Details





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10. Now you're :

- Ready for the RFA when it is released
- Then....
- Follow the following 12 grant writing tips





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12 Tips and tricks after RFA release



1. Find the right program for you and your idea

- ◆ Main purpose of program (funding priorities) – does idea fit in mainstream or on the fringe?
- ◆ Don't waste time applying to the wrong program... square pegs don't fit in round holes!
- ◆ Eligibility restrictions?





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2. Become a “student” of the RFA

- ◆ Understand the main goals of the program
- ◆ Understand the instructions outlined in the RFA on how to assemble the proposal
- ◆ Don't rely on previous year RFA: there are always changes
- ◆ Read the RFA, Read the RFA, !!!





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3. Convene a team meeting

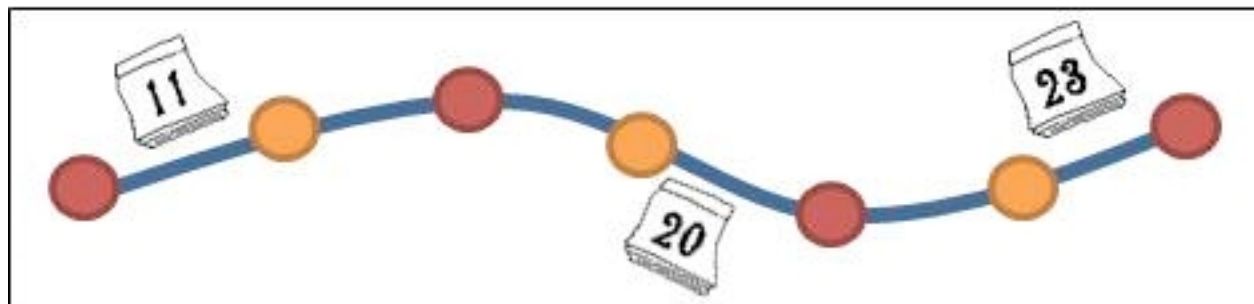
- ◆ In person or virtual
- ◆ Make sure team members understand their roles and responsibilities
 - ◆ Writing responsibilities
 - ◆ Budget implications
 - ◆ Etc.





4. Develop a timeline for proposal preparation

- ◆ Develop timeline that allows for completion of proposal 4 weeks before submission deadline
- ◆ If you rush preparation of the proposal, it will show – reviewers will notice and not be kind





5. Understand criteria for evaluating proposals

- ◆ RFA normally contains the criteria that will be used by reviewers to evaluate your proposal
- ◆ Understand these criteria BEFORE you begin preparing your proposal - provides better understanding of where to put greatest efforts during proposal preparation

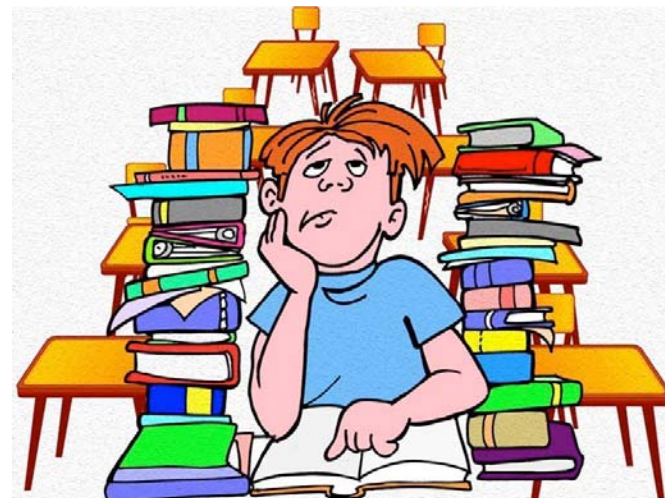
Learn the rules of the game





6. Understand the review process and reviewers

- ◆ Reviewer may be assigned 10 to 20 proposals
- ◆ Following directions in RFA helps reviewers; not following directions makes them work hard
- ◆ Preparing proposal logically and clearly helps reviewers; not doing so makes them work hard





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7. Write the proposal logically and clearly

- ◆ Organize proposal according to outline in RFA or evaluation criteria, whichever is most logical
- ◆ Following the prescribed format makes reviewers happy and more generous
- ◆ Making reviewers work hard hurts you



8. Prepare budget with a strong justification

- ◆ Unreasonable budgets hurt proposals – create skeptics within reviewer ranks (credibility)
- ◆ Keep budgets within guidelines in the RFA – they are judged on the degree of reasonableness
- ◆ Balanced budget
 - ◆ Not too big not too little





Don't Let the Review Panel Say This About the **BUDGET** in YOUR Proposal!

"Budget may be too modest to accomplish what is proposed."

"I question the need for one post-doc, two grad students and a full-time technician given their duties as described in the proposal."

"The need for a full-time secretary is unclear - in my view should be considered part of overhead costs."



9. If Applicable Use Rejection Constructively

- Do not fight reviewer comments
- Use review comments to strengthen proposal
- Address criticisms & concerns in your Response to Previous Review section
- You are not required to modify the proposal, but you should explain your position relative to review comments.
- The panel reviewing your resubmission represents a new set of eyes, a new chance to win them over!



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10. Obtain critical input from experienced and successful colleagues. Someone who....

- ◆ Talks frankly, bluntly and clearly
– don't want someone who beats around the bush
- ◆ Has little sympathy for your ego
- ◆ Has been successful in obtaining grants





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10. Pay attention to Grants.gov Forms

- Use forms from the current year application package (not previous years)
- Fill out forms completely and correctly



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12. Allow time for intramural administrative requirements – submit on time

- ◆ A deadline is a deadline is a deadline!
- ◆ A Deadline of 5:00 PM is 5:00PM
- ◆ At 5:01 PM the application is rejected



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One Final Thought

A proposal is not a mystery novel !!!

Get to the point....

quickly, clearly, concisely, logically



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Don't Let the Review Panel Say This About the **TECHNICAL QUALITY** of YOUR Proposal!

Goals are extremely vague, thus the need for the proposed work & the value of possible impacts cannot be evaluated."

"The first objective is difficult, expensive, time consuming, risky and probably unnecessary."

"Objective two seems to be a fishing expedition."

"Success is based on too many "ifs" that are not likely to happen."

"Hasn't this been done before?"

"An 800 number and a web page do not meet my definition of Extension outreach."



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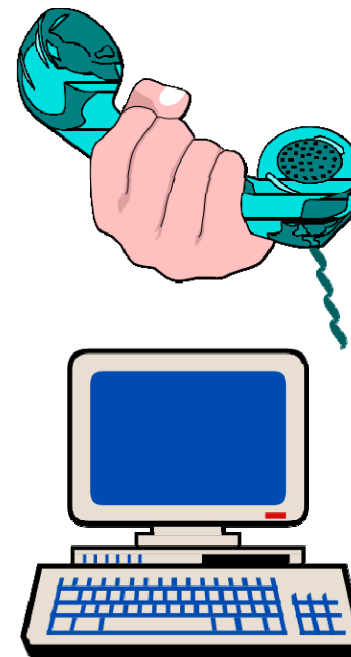
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What to Do if You Have Questions?



Contact the
Program Staff!!!





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ACKNOWLEDGEMENTS

- Jill Auburn
- Mark Mirando
- Many NIFA Staff

Audience comments/questions

- A comment: Always have good preliminary data.
- Question: What if I get my proposal in on time, but then have a breakthrough in preliminary data? Can I share this with the panel manager?
 - Answer: Contact the program staff. Some programs will accept up to two documents related to the research proposal. Others will not accept any supplements.
- Question: Does preliminary data need to be unpublished data? Can it be published?
 - Answer: It could be both. It doesn't even have to be research from the proposal author, but could be a new publication by another research group that substantially affects the importance or feasibility of the proposed research. But it is more powerful if it comes from your program and shows that you can do the work.
- Question: But if I have a lot of preliminary data, the panel may just decide that I've already done the work and don't need to be funded!
 - Answer: Preliminary data should serve to move you to the next step of your research (not just repeat the work in the preliminary data). It should be a great advantage for you. For all awards, AFRI has to make sure that the work has not been done before, so that awardees are not "double dipping".

Navigating the New Landscape of Federal Funding

10:00 Federal Support of Weed Science Research and Extension.

Mathieu Ngouajio (USDA NIFA; National Program Leader for Plant Systems-Production)

10:20 Open Discussion: WSSA Member Input on Key Problems that Need Federal Support for Research & Extension Projects.

Jim Westwood (Virginia Tech; WSSA Research and Competitive Grants Committee)

10:40 Mini Workshop to Provide Tips & Tricks for Being Successful in Obtaining NIFA Funding.

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11:10 Lessons and Impressions from the 2016 Competition.

David Mortensen (Pennsylvania State University; 2016 Rotating Manager, NIFA Pests and Beneficial Species)

11:30 Panel Discussion: How to Enhance Weed Science Participation in the Federal Grants Process.

Donn Shilling (University of Georgia; WSSA NIFA liaison)



Dave Mortensen, Professor, Penn State University and Chair of the Pest and Beneficial Species Panel

Mary Purcell-Miramontes, National Program Leader, Pest and Beneficial Species in Managed Agroecosystems, USDA-NIFA

PEST AND BENEFICIAL SPECIES IN
MANAGED AGROECOSYSTEMS:

THE FIRST TIME ROUND

How they morphed

To allow holistic projects on critical problems in plant production systems and in response to comments from stakeholders, a few changes were made in the organization of the Plant Health and Production and Plant Products program area priority in FY 2016. Two program area priorities offered in FY 2015 (Plant-Associated Insects and Nematodes; and Weedy and Invasive Species) were combined in a single program area priority in FY 2016, titled “Pests and Beneficial Species in Agricultural Production Systems”. Two other program area priorities offered in FY 2015 (Growth and Development, Composition and Stress Tolerance; and Photosynthesis and Nutrient Use in Agricultural Plants) have been combined in a single program area priority in FY 2016, titled “Physiology of Agricultural Plants”. Lastly, another program area priority offered in FY 2015 (Plant-Associated Microbes and Plant-Microbe Interactions) is being offered as a joint program with the National Science Foundation (NSF) titled “Plant Biotic Interactions”.

How they morphed

Two program area priorities offered in FY 2015 (Plant-Associated Insects and Nematodes; and Weedy and Invasive Species) were combined in a single program area priority in FY 2016, titled “Pests and Beneficial Species in Agricultural Production Systems”.

Why this was done

- The nature of the problems confronting society are often complex and require inter and transdisciplinary solutions. Therefore it made sense to encourage PI's to work across disciplines.

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- Synergy would arise across disciplines as scientists learn from each other's disciplinary approaches
- Declining submissions by Weed Scientists made it difficult to justify unique programs and associated overhead.

How it went.....

- The Pest and Beneficial Species panel received 152 proposals and it was decided because of the large number of proposals, two sub-panels would be established, one to review proposals addressing molecular to sub-organismal level proposals (68) and the other addressing organismal to ecosystem level studies (84).

How it went.....

- The Pest and Beneficial Species panel received 152 proposals and it was decided because of the large number of proposals, two would be established, one to review proposals addressing molecular to sub-organismal level proposals (68) and the other addressing organismal to ecosystem level studies (84).
- Two “sub-panel” chairs were appointed and two panels were formed. We worked to establish disciplinary balance on the panel reflecting the content of the proposal pool. For the ecosystems panel, a seventeen member panel was formed, four were strong weed scientists with another two panelists who had conducted systems studies that included weed science research.

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- The fund-rate for the panel as a whole was 10.7% (9 of 84 proposals) with 18% of the “weed related” proposals being funded (3 of 17) however at least another 3 funded projects involved the flora of the field edge.

How it went.....

- We had several proposals in the “Outstanding” category and an additional 16 proposals in the “High Quality” ranking that we would have liked to fund however the program budget wouldn’t allow us to go deeper.

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- We had several proposals in the “Outstanding” category and an additional 16 proposals in the “High Quality” ranking that we would have liked to fund however the program budget wouldn’t allow us to go deeper.
- To a panelist, we would have liked to see more money in this program budget.

Reflections.....

At the end of the week, panelists lingered to reflect on the process, what follows is the essence of that 1.5 hour discussion

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- The group felt competitive programs still lacks a mechanism for funding long-term, place-based studies and that data management and storage protocols are needed to insure data preservation and sharing.

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- The interdisciplinary nature of the program will encourage the formation of interdisciplinary teams
- The group felt competitive programs still lacks a mechanism for funding long-term, place-based studies and that data management and storage protocols are needed to insure data preservation and sharing.
- We were also concerned about “locking young faculty” out of the process, particularly when more senior recognized teams are more likely to build teams and have compelling preliminary data.

Audience comments/questions

- Question: How much did the cross-discipline evaluation count in the review process?
 - Answer: Less than expected; perhaps not at all this time. The panel considered this carefully, but was reminded that cross-discipline work was not a required element in this program. Perhaps this will change to be a more important requirement in future RFAs.

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Panel discussion

The panel: Donn Shilling, Moderator

- Donn Shilling, Chair of WSSA Science Policy Committee, NIFA Fellow
- Dave Mortensen, NIFA rotating panel manager
- Jim Westwood, WSSA Research Committee, NIFA and NSF awardee
- Muthu Bagavathiannan, Successful NIFA awardee
- Mat Ngouajio – NIFA
- Alison Snow, Successful NIFA awardee
- Andrew Clark – NIFA

In the following Q&A, panel members are indicated by initials.

- Question: Did the program meet the objective of synergizing collaborations between weed scientists, entomologists and plant pathologists? And is this the right way to go? (I work with geneticists, soil scientists, and other disciplines that form equally valuable synergies)
 - DM: The breadth of programs that have been described here should encompass most areas of research collaboration and offer great potential for funding. It's good to embrace the distributed nature of the new NIFA organization. My view is that weed scientists are not serving agriculture by keeping within traditional weed science, but rather that interdisciplinary approaches are required. Look for ways to work more in a systems context.

Panel discussion

- Question: Glad to hear about implications of reorganization on young weed scientists. Previous reorganizations caused me to spend years doing herbicide trials to fund my program. We should be sure that the current (and any) reorganization does not have the unintended side effect of favoring senior researchers at the expense of new faculty.
 - DS: As a Department Head, am very sensitive to this issue. We should recommend to NIFA that they have a young faculty category.
 - MN: We don't have a category for young scientists right now, but a lot of NPLs consider this when making awards. I see colleagues raising up new scientists to fund them when their proposals might be a few spots below the funding cutoff.

Panel discussion

- Question: I'm a young faculty and want to understand what the panels are looking for. I have submitted proposals addressing herbicide resistance for three years and each time get one comment to the effect of, "This proposal is on herbicides, so should be funded by industry". I know proposals on herbicides are getting funded. So how does a comment like that play in the review process and how do I address this criticism?
 - DS: Recommends that junior faculty volunteer to be a reviewer or serve on a panel to see what the panels look for and how things unfold (see the good, the bad and the ugly).
 - MB: I'm fortunate to have had a foundational proposal funded in 2015. For a new faculty it is hard to find the time to write a good proposal during those early years of building a program. I appreciate the idea of a funding mechanism for new faculty. In 2014 I had an opportunity to serve on a panel and that really helped, but still I'm not sure exactly what makes a strong proposal – I have the same feeling for proposals that are well received and those that score poorly. When you look at reviews you get surprises. One time a proposal may be highly ranked but not funded, and then the next time it's lowly ranked. Submitted to BRAG for multiple years and reviews go up and down in an apparently random way. Can NIFA help PIs to understand what we're missing in the process?
 - DM: There are strategies you can use. It is a process. If your stuff is not funded in a given year, that's typical. But if you are submitting for 3-4 years and reviews are not getting better or you are receiving mixed messages, then something is wrong. There should be consistency. AFRI is now putting the previous year's reviews in front of the panel to give panelists insight into how the PI is responding to previous criticism, and this should provide some continuity.

Panel discussion

- Comment: We are in a transition. Weed science has been funded by industry for many years, but this is changing as we run out of herbicide modes of action. Potential for weed control failure in certain crops in the next 3-5 years. We are in a technology change and a funding change. We need new funding and new technology. Universities don't have funding and will need federal funding, largely from NIFA, to solve weed control problems.
- Question: I'm a grad student. Looking for advice. The bias of the system against young investigators is troubling. Should I be working with a PI based on who they are rather than what they do?
 - DM: That upsets me. I don't want to foster cynicism. You have to go where your passion lies and you have to sell it. The reviewers have to read your proposal and feel your passion. You need to win them over with good science, well argued and good colleagues. When we get good people in there and the NPLs care, then the system works. I am excited to see the new arrangement of NIFA and hope to see more sessions at WSSA on how we can hit on proposals, see which teams are succeeding, and learn from each other.
 - DS: If you are a new faculty member, don't just spend time writing proposals. Engage in the process, volunteer to serve on panels, review grants, get in with a successful grant team. All of these things will help.
 - Audience member: Just to follow up on that, for we as established PIs, its part of our mentoring duty to reach out to new faculty members and include them on proposal teams.

Panel discussion

- Comment. The discussions have been focused on research but the first talk included extension, which is where my involvement is. PIs need to think carefully about outreach components of proposals. It's not enough to just hold a field day, but has to be well thought out. In the extension focused funding area, most seem to be one year programs, and it's really hard to conduct an extension program and do an assessment of it all in one year. Those programs need to be expanded.
- Question: How are the reviewers selected for the foundational program?
 - MN: They recruit a panel manager who knows the field (like Dave Mortensen last year) and have them help identify panelists who are the best in the field. However when you have the entire community applying to that program, it makes for a very difficult job of finding qualified panelists who don't have a conflict of interest. By using an outside expert to help manage the panel, it also keeps the permanent NIFA staff out of the process, which keeps them impartial and the process more fair.

Panel discussion

Closing comments:

AC: To the extension comment, look at the CARE program (Critical Agricultural Research and Extension). It's three years. The key point is that it must be 50% research and 50% extension. Often it's clear that the extension was a last minute consideration. That will always sink you. NIFA does want research to reach the farmers.

AS: As a faculty member whose had a lot of funding, just keep at it. Don't give up. There are a lot of programs to try. Think of other sources of funding. Seed proposals. Older faculty really want to help out their more junior colleagues.

JW: Thinking about the session, and the challenge of increasing funding in weed science. One way is to increase our society membership to include those who are successful. Looking back at funding from 2015, of 10 funded proposals only 5 were led by WSSA members. We should extend the umbrella of our society to make those people welcome. Favor expanding the scope of our society more toward the basic science end.

MB: Emphasize the inclusion of young scientists in the process. NSF has CAREER awards and EAGER awards that are specifically geared toward early career researchers.

DM: Echo Alison. You must be resilient. To the question of putting the panel together, they look at discipline balance and identify individuals who can address the science, but also look for regional, gender, and ethnic diversity. Try to get a rich, bright, focused, hard working panel. Each of us can be a panelist.

END OF SESSION