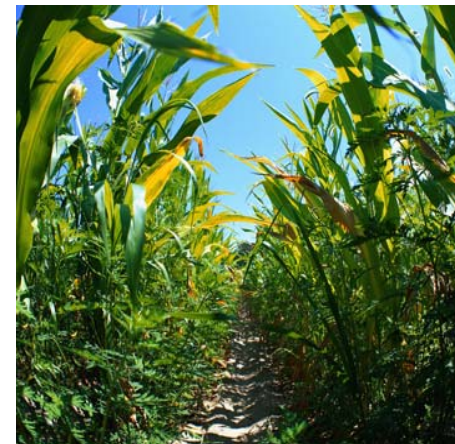
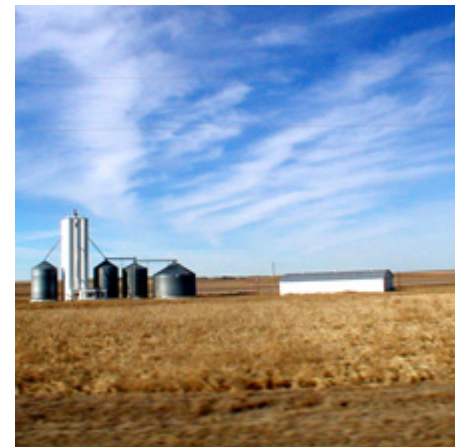




NRI Plant Programs of Interest



Grantsmanship
Workshop



National Research Initiative

NRI Program Clusters

- Agricultural Genomics and Biosecurity
- Agricultural Production and Value-Added Processing
- Nutrition, Food Safety and Quality
- Agroecosystems and Rural Prosperity



Agricultural Production and Value-Added Processing Cluster (\$16.1 M)

Plant Biology Program

- **Gene Expression and Genetic Diversity** (research & integrated)

Contact: Liang-Shiou Lin, lilin@csrees.usda.gov

- **Environmental Stress** (research & integrated)

Contact: Gail McLean, gmclean@csrees.usda.gov



Agricultural Production and Value-Added Processing Cluster (\$16.1 M)

Plant Biology Program (cont.)

- Biochemistry (research)

Contact: Gail McLean, gmclean@csrees.usda.gov

- Growth and Development (research)

Contact: Liang-Shiou Lin, lilin@csrees.usda.gov

- Program requires Letters of Intent
- Variable due dates for individual Program Elements

Agricultural Production and Value-Added Processing Cluster (\$16.1 M)

Integrated Priority in Plant Biology Program

Emphasis is on research and education

Goal is to educate scientists in principles and techniques of plant breeding



Agricultural Production and Value-Added Processing Cluster (\$16.1 M)

Integrated Priority in Plant Biology Program

Plant Biology (A): Gene Expression and Genetic Diversity

Education in plant breeding and germplasm enhancement with research emphasis on increasing plant genetic diversity

Plant Biology (B): Environmental Stress

Education in plant breeding and germplasm enhancement with research emphasis on development of drought tolerant agricultural plants

Agricultural Production and Value-Added Processing Cluster (\$16.1 M)

Research Priorities in Plant Biology (A): Gene Expression & Genetic Program

Functional studies of agricultural important genes and gene products including disease/pest resistance genes

Regulatory mechanisms of gene expression; systems level studies encouraged

Agricultural Production and Value-Added Processing Cluster (\$16.1 M)

Research Priorities in Plant Biology (B): Environmental Stress

Identify and characterize genes, proteins, and pathways contributing to abiotic stress tolerance in areas of:

- Water stress
- Global change
- Nutrient stress (solicited on odd-numbered fiscal years)
- Temperature stress (solicited on even-numbered fiscal years)

Agricultural Production and Value-Added Processing Cluster (\$16.1 M)

Research Priorities in Plant Biology (C): Biochemistry

Identify and characterize genes, proteins, and regulatory mechanisms involved in plant biochemical pathways for:

- Primary and secondary metabolism
- Cell wall synthesis and degradation
- Photosynthesis and respiration (even numbered FY)
- Nitrogen fixation (odd numbered FY)

Agricultural Production and Value-Added Processing Cluster (\$16.1 M)

Research Priorities in Plant Biology (D): Growth & Development

Developmental pathways leading to the formation of vegetative or reproductive structures

Hormonal regulation of growth and development

Characterization of cellular structures and processes crucial for plant development

Agricultural Production and Value-Added Processing Cluster (\$16.1 M)

Plant Biology - Program Statistics 2007

	Gene Expression & Genetic Diversity	Environmental Stress	Biochemistry	Growth & Development
Submissions	80	62	71	79
Awards	15	14	16	14
% Success (std prop)	13% res 25% integ	22% res 20% integ	18%	16%
Average Award Size (\$)	360K res 500K integ	330K res 450K integ	378K	370K

Agricultural Production and Value-Added Processing Cluster (\$16.1 M)

Plant Biology: Use of model species

For Plant Biology program elements (A), (B), and (D):

- Beginning in FY 2008, applications solely using non-agricultural model species will not be accepted
- Studies using model systems may be submitted only if the knowledge gained is applied to systems of economic or societal importance within the submitted application

Agricultural Production and Value-Added Processing Cluster (\$16.1 M)

Plant Biology: Use of model species

For Plant Biology program element (C):

- Use of non-agricultural model systems is still acceptable if tools are not yet available in the agricultural species of interest



Agricultural Production and Value-Added Processing Cluster (\$5.4 M)

Biobased Products and Bioenergy Production Research - Research

- Cost effective biocatalysts to hydrolyze agricultural & forestry lignocellulosic biomass for lower cost feedstocks for production of industrial biobased products & biofuels;
- Improved production/processing technologies for biological modification of agricultural & forestry biomass to aid production of high-value biobased products & biofuels.

Agricultural Production and Value-Added Processing Cluster (\$5.4 M)

Biobased Products and Bioenergy Production Research - Research

- Innovative non-food uses for agricultural and forestry residuals & under-utilized co-products for sustainable production of value-added industrial products

Contact: Chavonda Jacobs-Young, cjacobs@csrees.usda.gov

➤ Program requires Letters of Intent

Agricultural Production and Value-Added Processing Cluster (\$5.4 M)

Biobased Products and Bioenergy - Program Statistics 2007

	Biobased Products and Bioenergy Production Research
Submissions	77
Awards	15
% Success (std prop)	19%
Average Award Size (\$)	\$405K

Agricultural Genomics and Biosecurity Cluster (\$9.0 M)

Plant Genome Program

- Tools, Resources, and Bioinformatics (research)
- Functional Genomics (research)
- Genome Structure and Organization (research)
- Applied Genomics CAP (integrated)

Contact: Ed Kaleikau, ekaleikau@csrees.usda.gov

Agricultural Genomics and Biosecurity Cluster (\$9.0 M)

Research Priorities in Plant Genome (A): Tools, Resources, & Bioinformatics

Research in economically significant specialty fruit, vegetable, and ornamental plants in Solanaceae focused on

- Genome-wide approaches for mapping & identification of important genes and comparative genomics.
 - Plant bioinformatics & database needs to enable cross-species comparisons and to link genomic data to agronomic and quality traits
- For FY 2008, the program anticipates focusing on the specialty plants in Rosaceae and Compositae

Agricultural Genomics and Biosecurity Cluster (\$9.0 M)

Research Priorities in Plant Genome (B): Functional Genomics

Research in economically significant specialty fruit, vegetable, and ornamental plants in Solanaceae focused on

- Increasing the understanding of the biological role of genomic sequence, including coding, regulatory and repeated sequences, and linking these sequences to physiological functions or agricultural and food processes.
- For FY 2008, the program anticipates focusing on the specialty plants in Rosaceae and Compositae

Agricultural Genomics and Biosecurity Cluster (\$9.0 M)

Priorities in Plant Genome (D): Applied Plant Genomics CAP

- Application and translation of genome discoveries and technology for U.S. crop or forestry improvement. This priority is open to all applicants and is NOT plant species specific.
- Must include research, education, and extension/outreach objectives

➤ Program Element requires Letters of Intent

Agricultural Genomics and Biosecurity Cluster (\$9.0 M)

Plant Genome - Program Statistics 2007

	Genome Tools, Resources & Bioinformatics And Functional Genomics	Applied Genomics CAP
Submissions	38	4
Awards	19	1
% Success (std prop)	35% (res)	25%
Average Award Award Size (\$)	389K	Not yet available

Agricultural Genomics and Biosecurity Cluster (\$4.0 M)

Plant Biosecurity Program - Integrated

- Mitigation of diseases caused by *Phytophthora*, *Ralstonia*, *Xyella*, or *Liberobacter asiaticum* through extension/education programs to implement strategies resulting from, or developed in conjunction with, etiological and epidemiological investigations
- Utilization & implementation of emerging technologies for field-based detection/diagnostic tools, and real time monitoring/diagnosis to facilitate mitigation of the establishment and spread of high consequence diseases.

Contacts: Liang-Shiou Lin, llin@csrees.usda.gov

John Sherwood, jsherwood@csrees.usda.gov



Agricultural Genomics and Biosecurity Cluster (\$5.4M)

Microbial Biology (B): Biology of Plant-Microbe Associations - Research

- Elucidation of molecular mechanisms of disease and resistance interactions between microbial plant pathogens and their host plants.
- Molecular mechanisms of communication among plant-associated microorganisms and their plant hosts.
- Mechanisms by which plant pathogens spread over short distances within a plant host or between neighboring plants



Contact: Ann Lichens-Park, apark@csrees.usda.gov

Agricultural Genomics and Biosecurity Cluster (\$9.4M)

Program Statistics 2007

	Plant Biosecurity (2006)	Biology of Plant- Microbe Assoc.
Submissions	12	65
Awards	3	16
% Success (std prop)	25%	26%
Average Award Size (\$)	1.3M	397K

Agroecosystems and Rural Prosperity (\$4.5 M)

Managed Ecosystems - Research & Integrated

Research Priorities:

- Agroecosystem functions – Identify & evaluate mechanisms & biogeochemical processes to improve agricultural productivity and environmental quality
- Multifunctional management systems – Create, quantify, & verify adaptive management systems that concurrently provide for agricultural productivity & ecosystem services.
- Monitoring systems quality – Develop interdisciplinary approaches & processes to monitor agroecosystems to quantify improvements in production quality & environmental quality or ecosystem changes


Contact: Diana Jerkins, djerkins@csrees.usda.gov

Agroecosystems and Rural Prosperity (\$4.5 M)

Managed Ecosystems - Research & Integrated

Integrated Priority:

- Development and use of multifunctional management strategies with emphasis on information dissemination and training on management methods as well as development of curricula on systems research procedures and/or ecological systems functions.
 - Integrated project proposals must include research, education, and extension/outreach objectives (at least two of three)
- Program requires Letters of Intent for both Research and Integrated proposals




Agroecosystems and Rural Prosperity (\$4.5 M)

Biology of Weedy & Invasive Species in Agroecosystems - Research & Integrated

Research Priority:

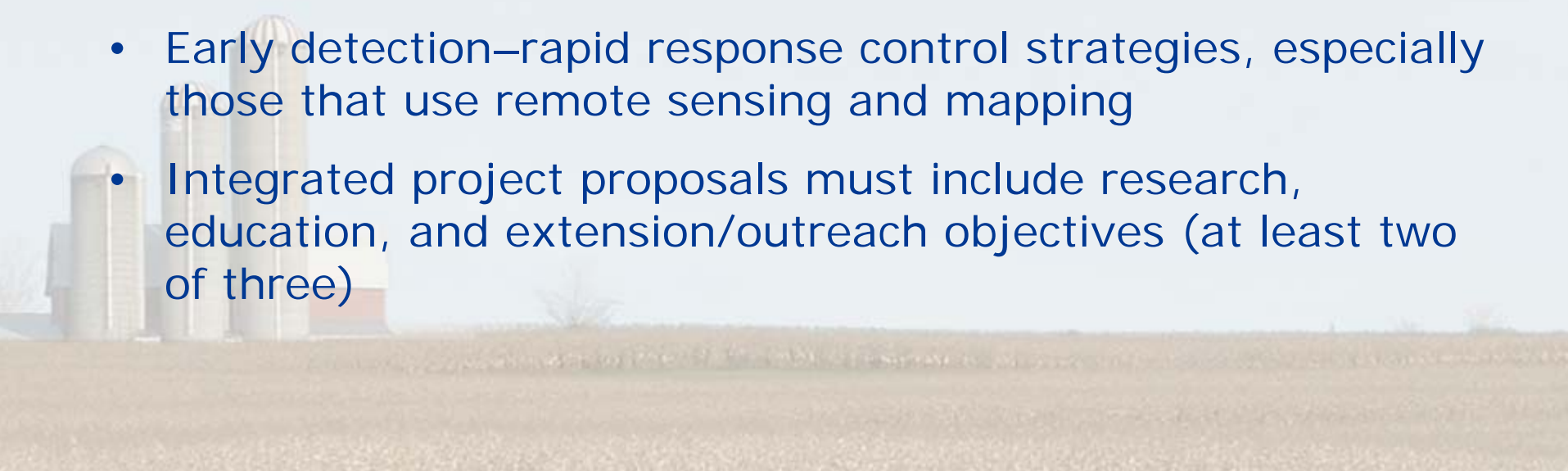
- Studies that establish mechanisms determining the abundance and distribution of weedy and invasive species
 - cause and effect relationships between the abundance of weedy and invasive species and different cultivation and nutrient management regimes/practices, past and current land use, disturbance and other landscape features and/or processes
 - basic ecological and evolutionary processes that have clear links to management
- 




Agroecosystems and Rural Prosperity (\$4.5 M)

Biology of Weedy & Invasive Species in Agroecosystems - Research & Integrated

Integrated Priorities:

- Development, delivery and implementation of ecologically-based, invasive species management programs and/or strategies
 - Early detection–rapid response control strategies, especially those that use remote sensing and mapping
 - Integrated project proposals must include research, education, and extension/outreach objectives (at least two of three)
- 



Agroecosystems and Rural Prosperity (\$4.5 M)

Biology of Weedy & Invasive Species in Agroecosystems - Research & Integrated

Contact: Michael Bowers, mbowers@csrees.usda.gov

- Program requires Letters of Intent for both Research and Integrated proposals



Agroecosystems and Rural Prosperity (\$9 M)

Program Statistics 2007

	Managed Ecosystems	Biology of Weedy & Invasive Species
Submissions	67	61
Awards	12	17
% Success (std prop)	15% res 11% integ	22% res 36% integ
Average Award Size (\$)	382K res 498K integ	321K res 453K integ



Nutrition, Food Safety and Quality (\$4.6 M)

Bioactive Food Components for Optimal Health - Research & Integrated

Research Priorities

- Mechanistic studies of the bioavailability, function, efficacy and safety of bioactive dietary components at levels which would be expected to be consumed in the diet;
- Interrelationships among bioactive dietary components and/or nutrients in promoting health; and
- Novel studies of the functions and mechanisms of regulation of vitamins and minerals.



Contact: Etta Saltos, esaltos@csrees.usda.gov

Nutrition, Food Safety and Quality (\$4.6 M)

Bioactive Food Components for Optimal Health - Research & Integrated

Integrated Priority:

- Identification, processing, and tailoring of functional foods to promote energy balance, with an emphasis on efficacy and safety.
 - Integrated project proposals must include research, education, and extension/outreach objectives (at least two of three).
 - Shared priority with Improving Food Quality and Value program
- Program requires Letters of Intent for both Research and Integrated proposals

Nutrition, Food Safety and Quality (\$6.2 M)

Improving Food Quality and Value - Research & Integrated

Research Priorities

- Basic mechanisms involved in the interaction of micro- and macromolecules in the food matrix in controlling structure, texture, stability, and flavor delivery in foods.
- Advanced, innovative processing, engineering, & technologies that enhance food quality attributes, and development & applications of analytical characterization techniques (physical, chemical, biological, & sensory)
- Chemistry and fates of proven bioactive compounds in foods and food ingredients during processing, packaging, storage, distribution and delivery.

Contacts: Ram Rao, rrao@csrees.usda.gov

Hongda Chen, hchen@csrees.usda.gov

Nutrition, Food Safety and Quality (\$4.6 M)

Improving Food Quality and Value - Research & Integrated

Integrated Priority:

- Identification, processing, & tailoring of functional foods to promote energy balance, with emphasis on efficacy & safety.
 - Integrated project proposals must include research, education, and extension/outreach objectives (at least two of three).
 - Shared priority with Bioactive Food Components for Optimal Health program
- Program requires Letters of Intent for both Research and Integrated proposals

Nutrition, Food Safety and Quality (\$10.8 M)


Program Statistics 2007

	Bioactive Food Components for Optimal Health	Improving Food Quality and Value
Submissions	67	124
Awards	15	23
% Success (std prop)	25% res	18% res 10% integ
Average Award Size (\$)	452K res 750K integ	329K res 362K integ

National Research Initiative



Interagency programs of interest:

- Plant Feedstock Genomics for Bioenergy (DOE)
 - Maize Genome Program (NSF, DOE)
 - Metabolic Engineering (NSF, NIH, DOE, NASA, etc.)
 - Climate Change Science (DOE, NASA, NSF, others)
- 

National Research Initiative



FY2008 RFA expected to be released in late August

Earliest anticipated proposal due date for plant programs: December 2007

Earliest anticipated date Letters of Intent: October 2007

Electronic proposal submission required through grants.gov

For the RFA and more info on the NRI or other CSREES funding opportunities, please see our website at www.csrees.usda.gov

