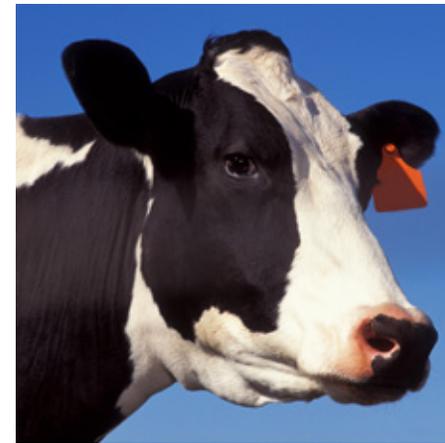
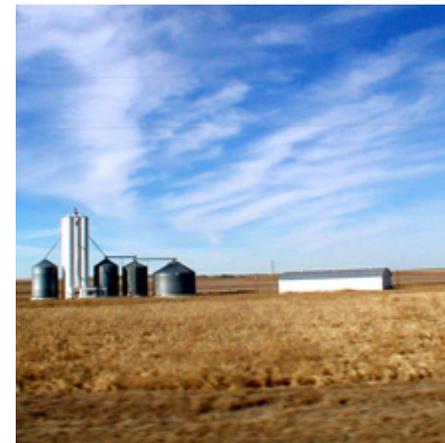




# Small Business Innovation Research Programs of Interest



Grantsmanship  
Workshop











# Features of the USDA SBIR Program



Award Grants Only

US Independently Owned Business,  
<500 Employees

12 Topic Areas

Ideas are Investigator-Initiated



# Features of the USDA SBIR Program

A decorative banner at the top of the slide features a field of vibrant yellow sunflowers with dark brown centers, set against a clear blue sky. The banner has a dark blue background on the left side where the title is located.

Proposals reviewed by confidential peer review using outside experts from non-profit organizations

All applicants receive verbatim copies of reviews awards based on scientific and technical merit



# Features of the USDA SBIR Program

Funds allocated to topic areas in proportion to number of proposals received

Phase I Grants = 8 Months/\$80,000

Phase II Grants = 2 Years/\$350,000

12 month no-cost extension available





# Horticulture-Relevant Topic Areas

Forests & Related Resources

**Plant Production & Protection - Biology**

**Plant Production & Protection - Engineering**

Animal Production & Protection

**Soil & Water Resources**

Food Science & Nutrition





# Horticulture-Relevant Topic Areas

Rural & Community Development

Aquaculture

Biofuels & Biobased Products

**Marketing & Trade**

Animal Manure Management

**Small & Mid-Size Farms**



# History of USDA - SBIR Funding

Year	Budget <i>MM</i>	Phase I	Phase II
1999	13.30	84/425	32/56
2000	15.56	89/480	36/59
2001	16.25	90/480	37/63
2002	15.70	86/449	39/68
2003	17.74	88/656	38/67
2004	18.18	99/582	38/65
2005	19.20	93/557	40/79
2006	19.17	101/650	33/61
2007	18.13	81/510	38/70

# University Involvement in USDA SBIR

Strongly encouraged

Faculty may serve as consultants or receive subcontract and continue to work full time at university

Limited to no more than 1/3 of Phase I award budget or 1/2 of Phase II award budget

# University Involvement in USDA SBIR

Faculty may serve as principal investigator on the grant by:

- reducing university employment to 49% for duration of grant and
- conducting SBIR research off-site (i.e., other than university research lab)

Usually not acceptable for faculty to serve as consultants and have all the research done in their lab

A vibrant field of sunflowers with bright yellow petals and dark brown centers, set against a clear blue sky.

# Plant Production and Protection

Two Separate Topic Areas

Plant Biology

Agricultural/Horticultural Engineering

2002-2007

130 Grants to Companies in 35 States

Over 15.7 Million Dollars for R & D

Emphasis on Specialty Crops!

A rural landscape featuring several tall, cylindrical farm silos in the background, partially obscured by a field of golden-brown crops in the foreground under a clear sky.

# Plant Production & Protection - Biology



Improved crop quality and yield utilizing innovative applications of plant breeding, molecular biology, genomics, and cell and tissue biology

Development of new crops as sources of food, fiber, or industrial products



# Plant Production & Protection - Biology



Development of new ornamental crops

Crop protection from insects, disease, and abiotic stress

Improvement of crop pollination and the protection and health of pollinators



# Success Stories: AVACHEM Joint Venture

## Innovation:

Developed a new class of pesticides that:

Are less toxic than conventional pesticides

Degrade rapidly

Do not harm wildlife or other non-target organisms

Are able to effectively control Varroa mites on Honey Bees



# Current Research: PhytoMyco Research

Evaluating Oosporein and its analogs from the Mycoparasite, *Aphanocladium album*, for managing rust diseases

## Impact:

Potential to effectively control important rust diseases of crop plants, including the emerging soybean rust threat



# *Current Research:* CEA Systems

Biomolecular farming system for industrial pharmaceutical and other non-food products

Optimizing protein production with environmental control



# Plant Production & Protection - Engineering

Improved crop quality and yield in both field and controlled environment systems

Improved crop protection from insects, disease, and abiotic stress



# Plant Production & Protection - Engineering



Reduction of manual labor and energy usage

Improved post-harvest handling and storage

Reduction of production costs for improved global competitiveness



# *Success Stories:* Capstan Ag Systems, Inc.

## Innovation:

Proof that highly accurate metering of agricultural liquids through pulsing solenoid valves is feasible, economic, and desirable for users



# Success Stories: Capstan Ag Systems, Inc.

## Impact:

Over 20 million acres are being sprayed annually with Capstan designed systems.



Superior in:

Suppressing exposure to pesticide drift

Aligning application rates with variable needs within fields

Economizing material

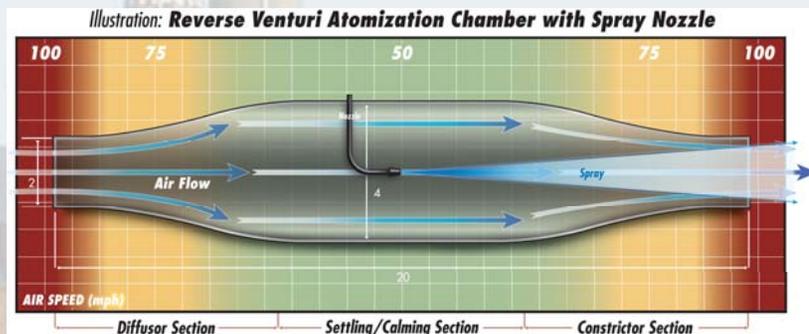
Lessening the probability of excess nitrogen moving into the water table

# Current Research: NA Pesticide Management

## Reverse Venturi Atomization Chamber

### Potential Impact:

Dramatically reduce  
pesticide spray drift  
from aerial applications



# Small and Mid-Size Farms



Risk management products for improving agriculture economics and environmental impacts

Determining the commercialization potential for OSHA (*Ligusticum porteri*)

Establishing a viable organic goldenseal production system for small family farms



# Small and Mid-Size Farms

A red Case IH combine harvester is shown in a field, partially obscured by a blue banner at the top of the slide. The harvester is a large piece of agricultural machinery used for harvesting grain crops.

Increasing rural impact and sustainability of farmstead soap production

A new vanilla industry as a community development engine

Developing a *cacao* industry in Hawaii

A photograph of a farm with three tall, cylindrical silos and a small red barn in the background. The foreground is a large, flat field of dry, golden-brown crops, likely corn, under a clear sky.

# *Success Stories:* Sleepy Hollow Farm

## Innovation:

Development of a  
USDA National  
Organic Program  
Certified production  
and processing  
system for  
*Hydrastis*  
*canadensis*  
(goldenseal)



# *Success Stories:* Sleepy Hollow Farm

## **Innovation:**

Identification of high quality goldenseal germplasm through DNA fingerprinting.

Patent-pending process for producing high quality goldenseal products standardized to not only chemical markers but also to biological activity.

Establishment of a network of more than 40 small farms producing USDA National Organic Program Certified goldenseal and other medicinal plants.

# *Success Stories:* Sleepy Hollow Farm

## **Commercialization:**

Development of research grade goldenseal products suitable for use in NIH sponsored clinical studies in partnership with the Institute for Nutraceutical Research at Clemson University.

Development of oral care products from goldenseal in partnership with the University of Illinois, Chicago, College of Dentistry.

Commitment for additional funding in excess of \$700,000 obtained from Symphony Resource Group, LLC, Branson, MO.

# *Success Stories:* Sleepy Hollow Farm

## **Commercialization:**

More than 40 small farms are actively producing medicinal plants as a direct result of this work. Income from production and processing of this material is projected to exceed \$1 million per year by the 2007-2008 harvest.

Development of sustainable production systems for medicinal plants which results in a reduction of the need for wild collected plants to meet market demand.

# *Success Stories:* Sleepy Hollow Farm

## Commercialization:

Goldenseal products produced by the system developed by this work are certifiable for export under Convention on International Trade in Endangered Species (CITES).

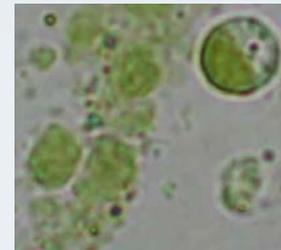
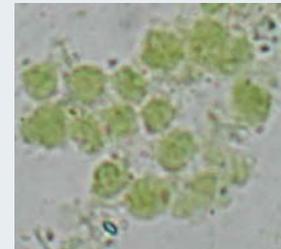
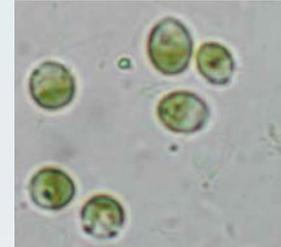


# *Current Research:* Kuehnle Agrosystems, Co.

Enabling Transplastomic  
*Dunaliella* as Green  
Biofactories

## Potential Impact:

Developing transgenic  
algae grown in  
bioreactors to produce a  
wide-range of high-  
value chemicals



# Advice for Phase I Applicants

Give us a vision of where you want to be at the end of Phase II

Focus Phase I research on critical enabling factor(s)

Sell the importance of your project



# Advice for Phase I Applicants

Provide detailed experimental plan

Provide insight into commercial potential

Show connectivity with the communities you are intending to serve



# Solicitation/Proposal Schedule: FY 2007/2008

- FY 2008 Solicitation Released 7/3/07
- Phase I Proposal Deadline Date will be 9/5/07
- Panels Meet in January & February of 2008
- Award Decisions Made by 3/1/08
- Phase I Grant Period will be from 5/1/08 to 12/31/08
- FY 2008 Phase II Deadline Date will be 2/1/08



# USDA SBIR Homepage:

[www.csrees.usda.gov/funding/sbir/sbir](http://www.csrees.usda.gov/funding/sbir/sbir)

- Program Information
  - Solicitation (Request for Applications)
  - Technical Abstracts
  - Link to SBA and Other SBIR Programs
  - Upcoming SBIR Conferences
  - Find the Expert (CRIS & ARS)
  - PowerPoint Presentation
  - Success Stories
- 

# Bottom Line

SBIR is potentially the final applied aspect of many projects beginning with CSREES fundamental research and integrated program funding



# Bottom Line

A close-up photograph of a field of sunflowers with bright yellow petals and dark brown centers, set against a clear blue sky.

SBIR projects are effective technology transfer mechanisms moving publicly developed technology into private sector applications that benefit different aspects of American agriculture and rural America

Royalties and licensing revenues from many SBIR projects accrue to our university partners and other public technology developers (e.g., ARS)

A photograph of a farm with several tall, cylindrical metal silos in the background, set against a clear sky. The foreground is a field of golden-brown crops, likely corn, ready for harvest.