

Sunflower Research Unit  
USDA-ARS



# Sunflower Research Unit



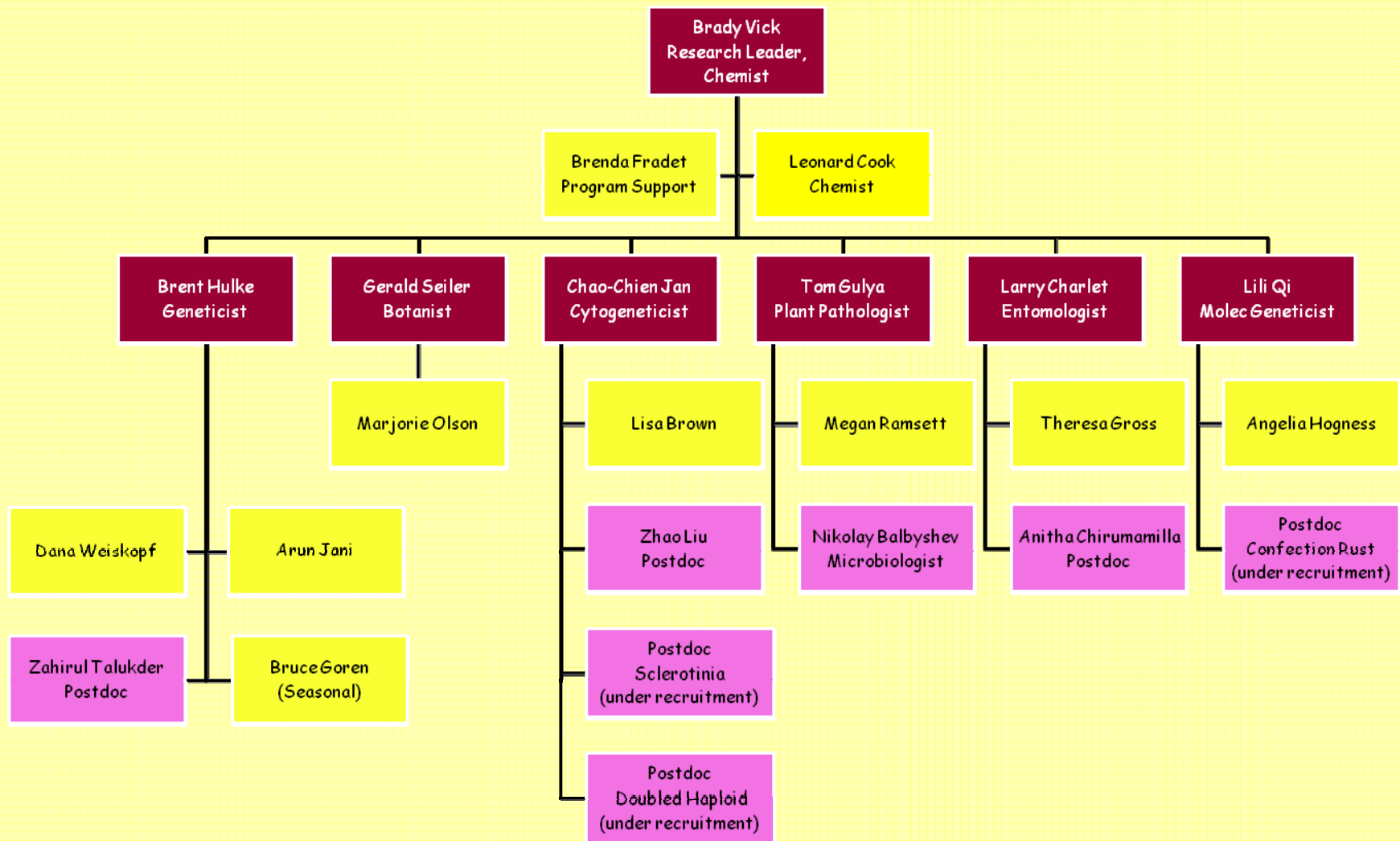
## Mission

Develop new knowledge and technology that benefit the sunflower industry and consumers.

- Develop a diverse germplasm base
- Develop methods to transfer useful genes between species
- Management of insects and diseases



# Sunflower Research Unit



## Some Sunflower Research Unit Accomplishments: 2009

- Conducted wild sunflower species exploration to KS, MO, AR, OK to collect 51 accessions of 6 species (Seiler)
- Evaluated experimental germplasm in KS, SD, and ND for insect resistance (Charlet):
  - Banded sunflower moth
  - Red sunflower seed weevil
  - Sunflower stem weevil
  - Longhorned beetle
  - Sunflower moth
- Confirmed new sources of resistance to Sclerotinia stalk rot (Jan)
- Expanded agronomic evaluations to western growing regions (Hulke)
- Initiated introgression of rust resistance into confection sunflower (Qi)
- Surveyed rust race incidence across northern Plains (Gulya)

## Major effort - Enhanced Sclerotinia Tolerance



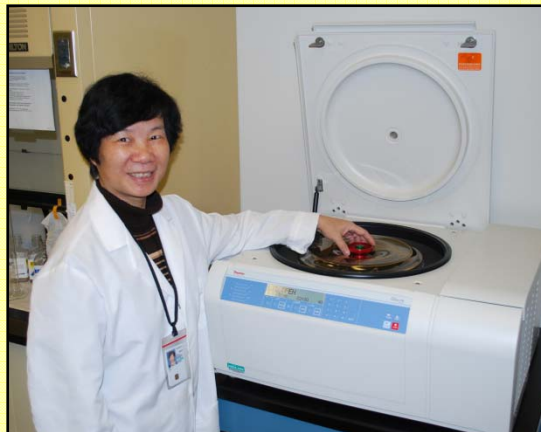
**Stalk Rot**



**Head Rot**

- 5 scientists working on Sclerotinia disease
- Identified resistance to stalk rot in both annual and perennial species
- Many genes required for complete resistance

# New Equipment and Resources - 2009





## NSA funding in 2009:

- 2 technicians \$117,500
- 2 Postdocs (NDSU) \$ 83,000
- Rust surveys \$ 6,100

Total        \$206,600

# Five new additions to Sunflower Fleet (free!)

AMERICAN RECOVERY AND REINVESTMENT *ACT (ARRA)*



HHR



Caravan



HHR



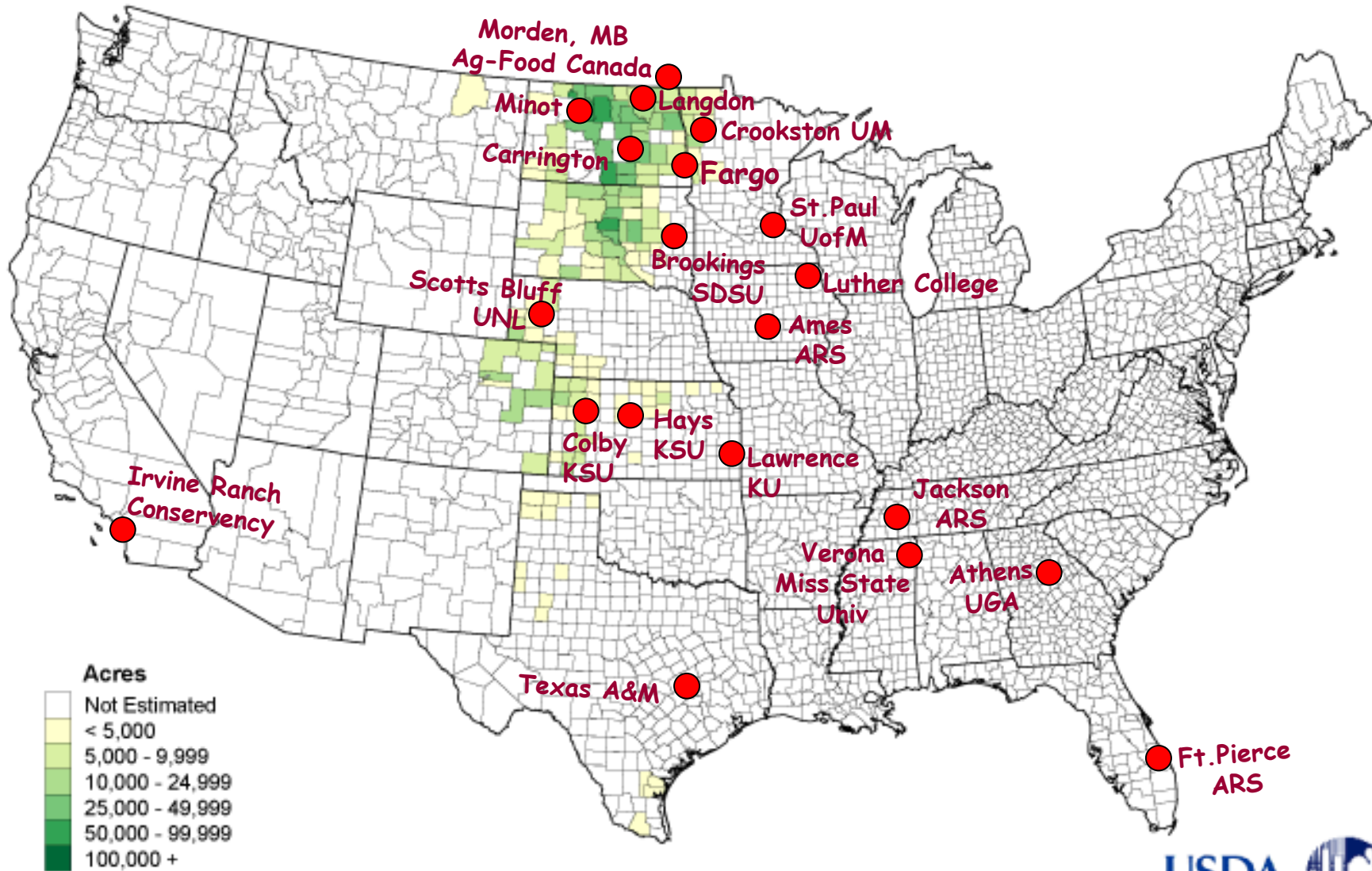
HHR



HHR



# Public Cooperators



# Framework for a NIFA Grant Request



Research, Education, and  
Economics  
REE

Agricultural Research  
Service  
ARS

National Institute of Food and Agriculture  
NIFA  
(formerly CSREES)

Economic Research Service  
ERS

National Agricultural  
Statistics Service  
NASS

Competitive Funding

Formula Funding

Congressional Line  
Items

Agriculture and Food Research Initiative  
AFRI

- Global Food Security & Hunger
- Climate Change
- Sustainable Energy
- Childhood Obesity
- Food Safety

FY 2009 AFRI appropriation	\$201M
FY 2010 AFRI appropriation	<u>\$262M</u>
Increase	+\$61M



## Proposed AFRI Grant Request Insect Resistance



- 4 states (5 universities and ARS)
- Host plant resistance to insects (SF moth, banded SF moth, red SF seed weevil, SF stem weevil, long-horned beetle)
- 4 Postdoctoral Research Associates (2 NDSU, 1 SDSU, 1 KSU)
- 2 Graduate students (NDSU)
- 2 Technicians (ARS, SDSU)
- Undergraduate students (Texas A&M)



Proposed Budget:  $\sim \$600,000/\text{yr} \times 5 \text{ yr} = \sim \$3,000,000$

# NIFA AFRI Grant Proposal

