



Sally Schneider
Agricultural Research Service

Outline



Grape Workshop Objectives & Agenda



ARS structure & process



ARS grape resources and impact



Workshop Plan

Purpose of the Workshop



Present an update on changes in industry needs and priorities



Present an update on ARS accomplishments in Grape/Wine research



Build collaborative relationships for integrated research projects that span disciplines, locations and sectors



Develop a strategy for future research.

Expected Outcomes



New or expanding collaborative research projects across disciplines, locations, and sectors



Strengthened professional and interpersonal relationships with other meeting participants and



Knowledge, understanding, and contacts that will lead to increased research productivity.

TUESDAY

❖ PRESENTATIONS

❖ Exciting ARS research efforts on crops other than grape

❖ How can these research resources benefit the grape industry?

❖ In Plenary and Break-out sessions

❖ Grape Industry Panel

Posters

- ❖ Update on ARS grape research efforts since the 2007 workshop
- ❖ Each project leader will get 5 minutes to hit the highlights
- ❖ Followed by coffee break or lunch to allow participants to visit posters relevant to their interests

Breakout Sessions

- ❖ The heart of the workshop
- ❖ 5 Topic Areas
- ❖ Industry identified needs
- ❖ Begin or continue to build teams – build strength on strength

Tuesday Evening

❖ Reception

- ❖ Opportunity to continue informal discussions while sampling grapes and grape products
- ❖ Many thanks to the Grape Industry for donating the wine for tonight's reception

Wednesday

- ❖ More posters
- ❖ Report from the breakout sessions
- ❖ Funding Opportunities
- ❖ Lively Discussion
- ❖ Identify next steps

Overview



How does ARS work?



How can industry provide input into ARS research priorities?



How can we tell if industry input has made a difference?



Where do the resources go? What does the grape industry get for the \$15 M/year in ARS research?

ARS Profile

- Intramural science research arm of USDA
- Farm-to-table research scope
- Information and technology transfer
- Administration and stakeholder priority setting process
- National Programs
- 1,200+ projects
- 2,500+ scientists and post docs
- 6,500+ other employees
- 100+ laboratories
- \$1.1 billion annual budget
- Partnerships with universities and industry
- International collaborations

ARS Mission

- ARS conducts research to develop and transfer solutions to agricultural problems of high national priority and provide information access and dissemination to:
 - · ensure high-quality, safe food, and other agricultural products
 - · assess the nutritional needs of Americans
 - · sustain a competitive agricultural economy
 - · enhance the natural resource base and the environment, and
 - · provide economic opportunities for rural citizens, communities, and society as a whole.



ARS National Programs

Animal Production

Food Animal
Production

Animal Health

Arthropod Pests of
Animals and Humans

Aquaculture

Natural Resources

Water Availability &
Watershed
Management

Soil Resource
Management

Climate Change,
Soils, & Emissions

Pasture, Forage and
Range Land
Systems

Agricultural and
Industrial
Byproducts

Agricultural
Systems
Competitiveness &
Sustainability

Bioenergy

Crop Production

Genetic Resources,
Genomics and
Genetic
Improvement

Plant Diseases

Crop Protection &
Quarantine

Crop Production

Methyl Bromide
Alternatives

Human Nutrition

Human Nutrition

Food Safety
(Animal & Plant
Products)

New Uses,
Quality &
Marketability of
Plant & Animal
Products



USDA- ARS Input

Executive and
Legislative Branch



Customers,
Partners & Stakeholders →

**ARS
Program &
Budgeting
Priorities**

← Agency
Scientists &
Managers



Scientific Communities

USDA/REE Priorities

- ❖ **Climate Change**
- ❖ **Food Safety**
- ❖ **Children's Nutrition / Health**
- ❖ **International Food Security**
- ❖ **Bioenergy**

Implementation

Administrator

OFFICE OF
NATIONAL
PROGRAMS

National planning
and coordination
to meet
Congressional
directives

AREA DIRECTOR

Managing funds,
personnel, facilities

OFFICE OF
TECHNOLOGY
TRANSFER

Managing
intellectual
property

Research Leader
Lab Director

Scientist

Implementation

OFFICE OF NATIONAL PROGRAMS

Judy St. John – Assoc. Admin

Molly Kretsch – Dep. Admin

Steve Shafer - Dep. Admin

Sally Schneider – Acting Dep. Admin

Peter Bretting - NPL

Kevin Hackett - NPL

Deb Fravel - NPL

Ken Vick - NPL

John Finley - NPL

Dave Klurfeld - NPL

Frank Flora - NPL

Charlie Walthall - NPL

Mike Shannon - NPL

AREA DIRECTORS

Andy Hammond – Pacific West

Dariusz Swietlik – North Atlantic

Will Blackburn – Northern Plains

Dan Upchurch – Southern Plains

Larry Chandler – Midwest

Ed King – Mid-South

Deborah Brennan – South Atlantic

Joe Spence - Beltsville



How does ARS work?



How can industry provide input into ARS research priorities?



How can we tell if industry input has made a difference?



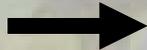
Where do the resources go? What does the grape industry get for the \$15 M/year in ARS research?

USDA- ARS Input

Executive and
Legislative Branch



Customers,
Partners & Stakeholders
(workshops)



**ARS
Program &
Budgeting
Priorities**



Agency
Scientists &
Managers



Scientific Communities



Spring Visit

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Frank Flora - NPL

Charlie Walthall - NPL

Mike Shannon - NPL

Other ARS

Ed Knipling – Administrator

Caird Rexroad – Assoc. Admin

Michael Arnold – Budget Director

USDA REE

Catherine Wotecki, UnderSecretary



How does ARS work?



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Where do the resources go? What does the grape industry get for the \$15 M/year in ARS research?

5-Year National Program Cycle

-  National Program Leaders (NPLs) & scientists develop objectives for next 5 years
-  Since 2005 Grape Workshop, all projects have gone through the cycle
-  Check the objectives shown in the research summaries and continue to provide input
 -  Plant Disease developing new objectives now
 -  Breeding and Genetics will develop new objectives in about a year

Additional Resources

Headquarters funded Post-docs

-  Scientists propose

-  NPLs and Area Directors Rank

End of Year funds

-  2007 nearly \$1 million allocated to fund a 2-year grape genotyping project

President's Budget

 **FY11 Budget includes \$2 million in research relevant to the grape industry**

 **Germplasm collections**

 **Breeding & genetics**

 **Climate Change**

Gaps Identified at 2007 Workshop (selected examples)

Human Feeding Studies

-  Dietary modulation of immune function & oxidative stress – Zunino

Develop Cultivars with Enhanced Health Benefits

-  New raisin grape selections – Ramming & McHugh

Disease & Pest Resistance

-  Rootknot nematode resistant rootstocks – Cousins
-  Powdery mildew resistance – Ramming

Alternatives to Chemical Control

-  RNAi to increase leafhopper mortality – Hunter
-  Biocontrol of vine mealybug - Sforza

Gaps (con't)

-  **Predictive Forecast Models**
 -  Powdery mildew – inoculum detection, weather forecast, and fungicide timing - Mahaffee
-  **Sap Flow Sensors to Understand Grape Water Demand**
 -  Heat pulse technique to track water use - McElrone
-  **Influence of Production Practices on Berry Quality**
 -  Reduced N increased berry quality , but . . . - Schreiner, Lee
-  **Irrigation Management, Salinity**
 -  Sustainable water management in wine, table, raisin, and juice grape production - research set to begin!! – Ayars, McElrone



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How can industry provide input into ARS research priorities?

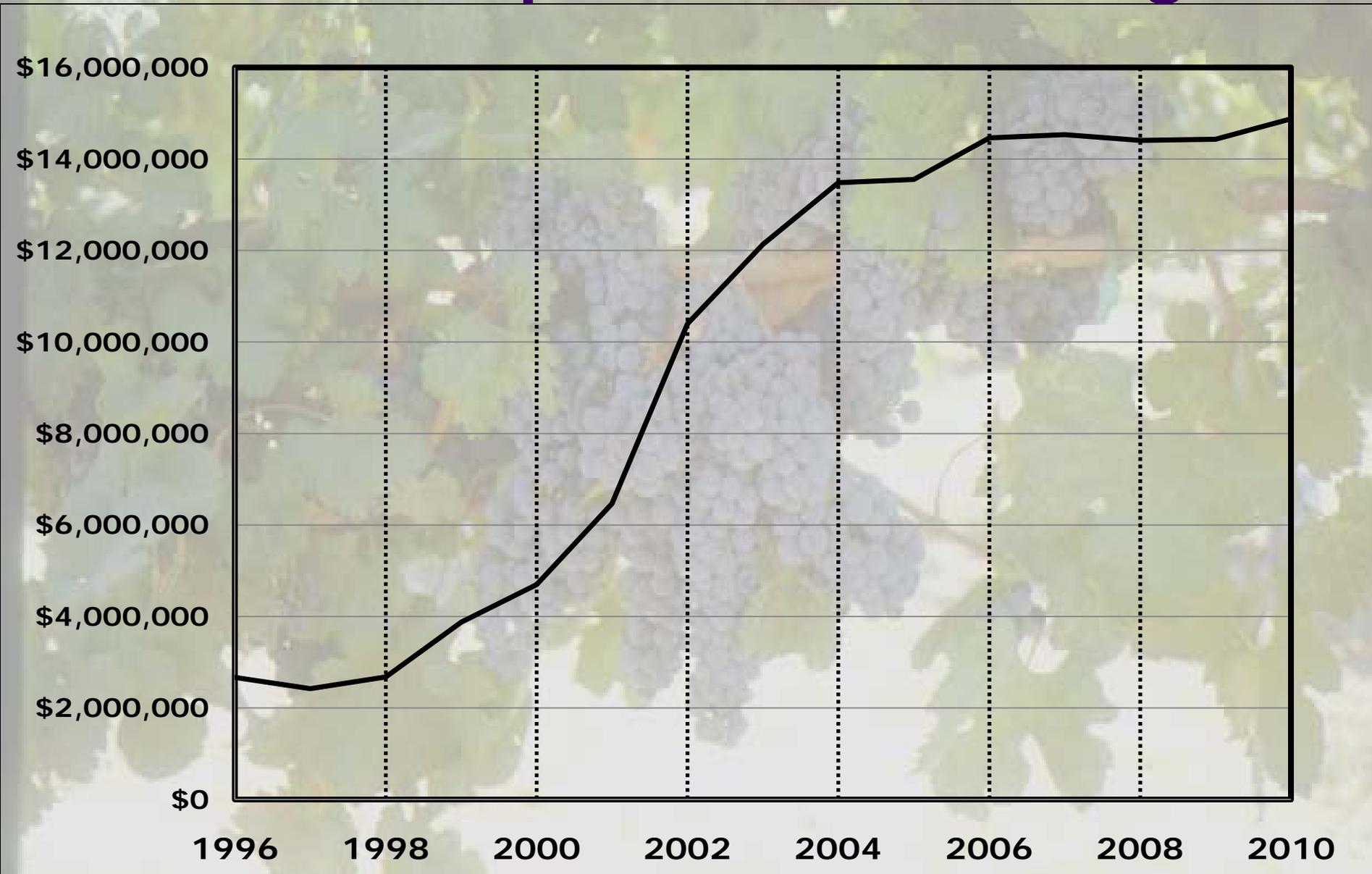


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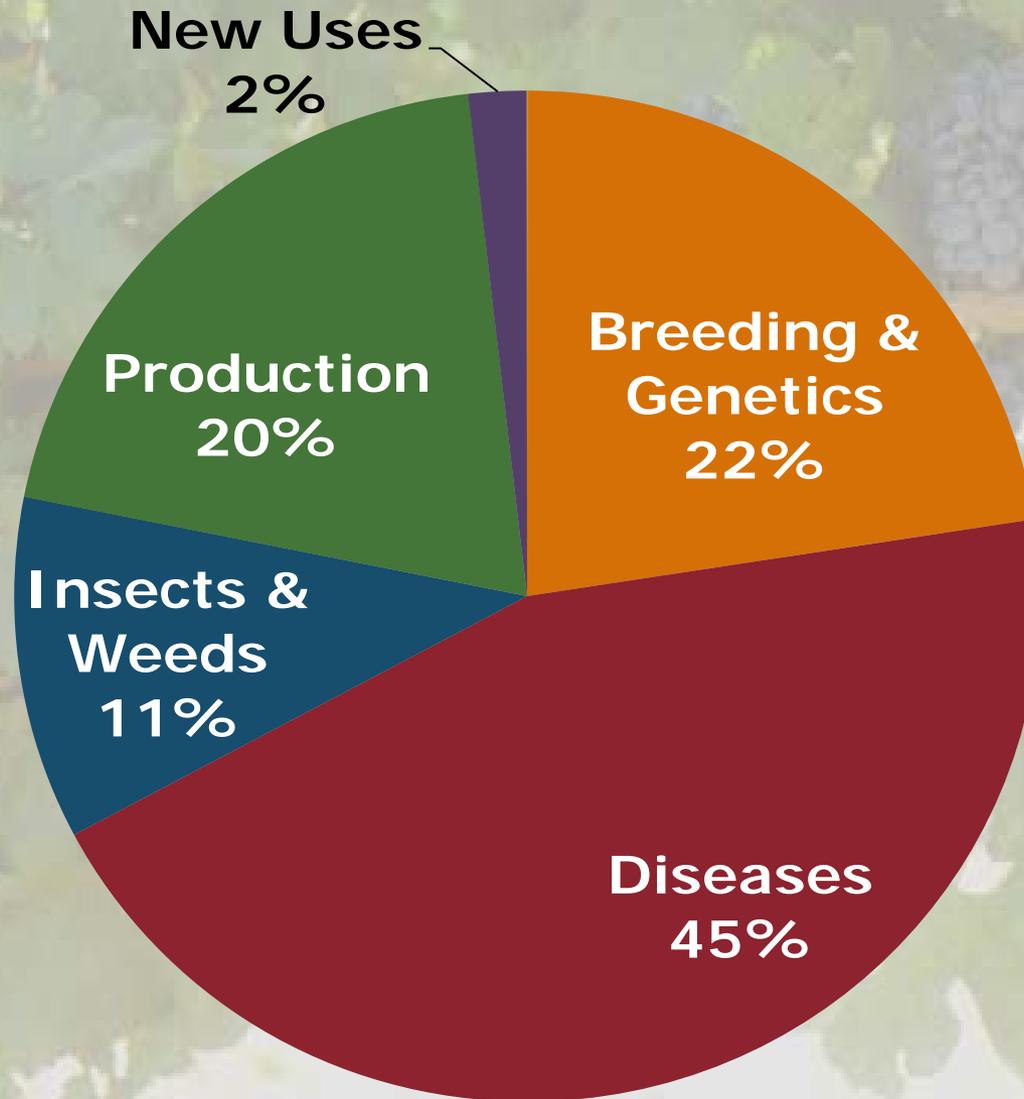


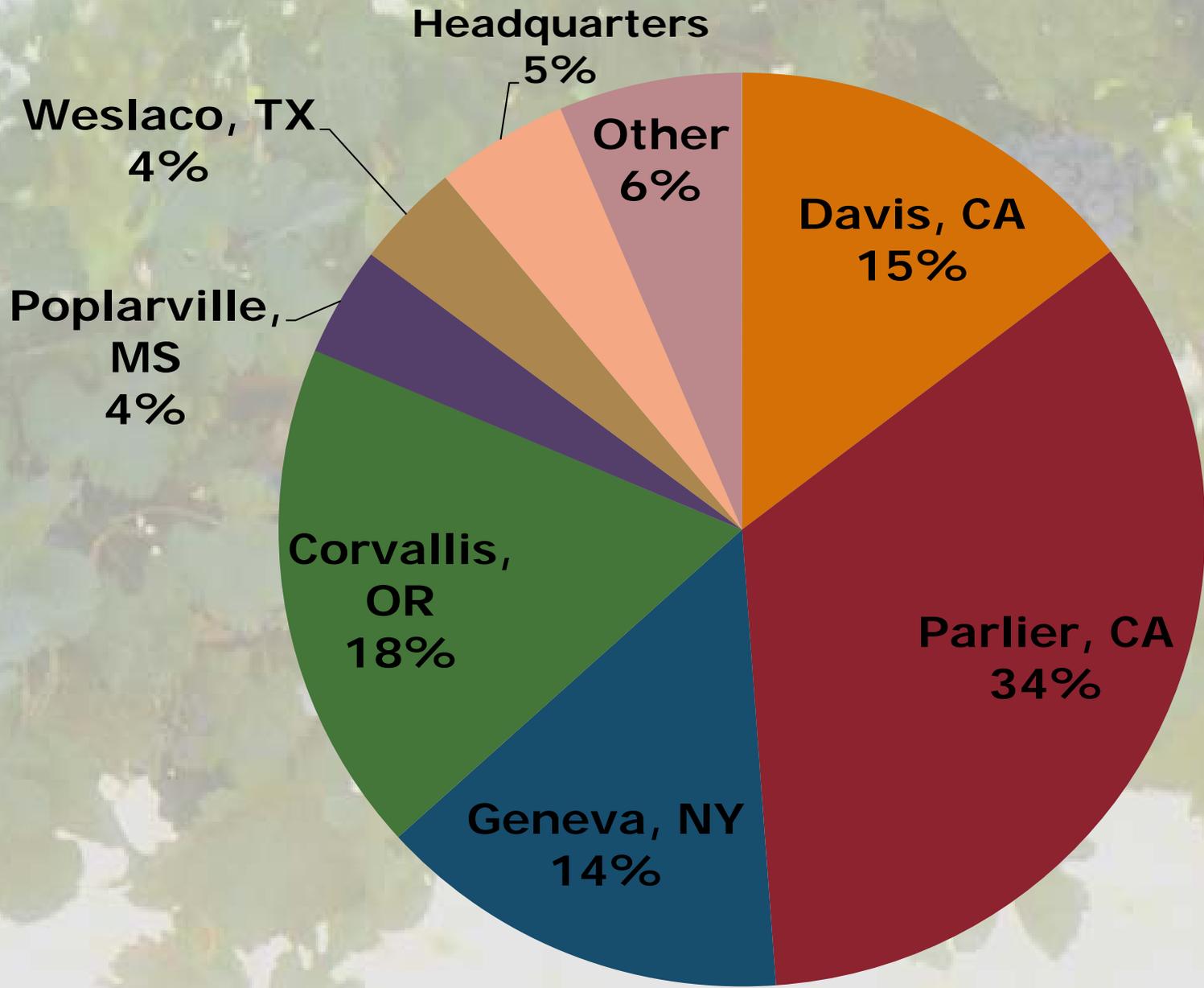
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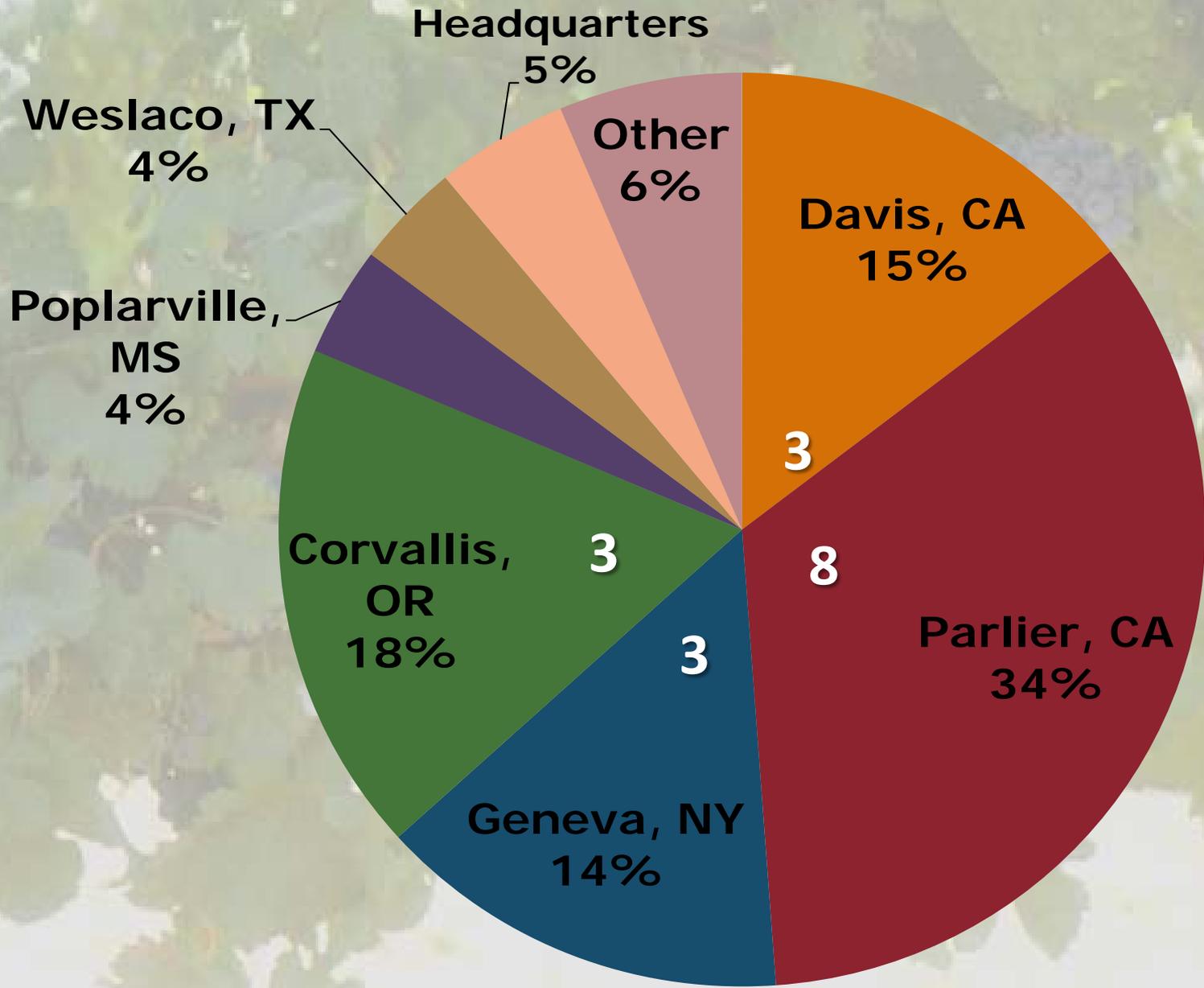
ARS Grape Research Funding



~ \$15 Million







What does industry get?

-  **A cadre of productive scientists**
 -  Base-funded and temporary funding
 -  Focused on grape and other crops
-  **National Program Leaders**
 -  Eager to consider industry input to manage their NPs
-  **Senior Leadership**
 -  Responsive to customer needs within the framework of Administration priorities
-  **A coordinated national research program**
 -  Geneva, Parlier, Weslaco
-  **Flexibility to respond quickly to urgent needs**
 -  Pierce's Disease, Spotted-winged Drosophila

Impact of ARS Research (examples)

 **Spotted-winged Drosophila/ Australian market - Walse**

 **Market is worth \$54 million / year**

 **Ozone for remediation of pesticide residues on table grape to meet Max Residue Levels for the European Market – Walse, Smilanick**

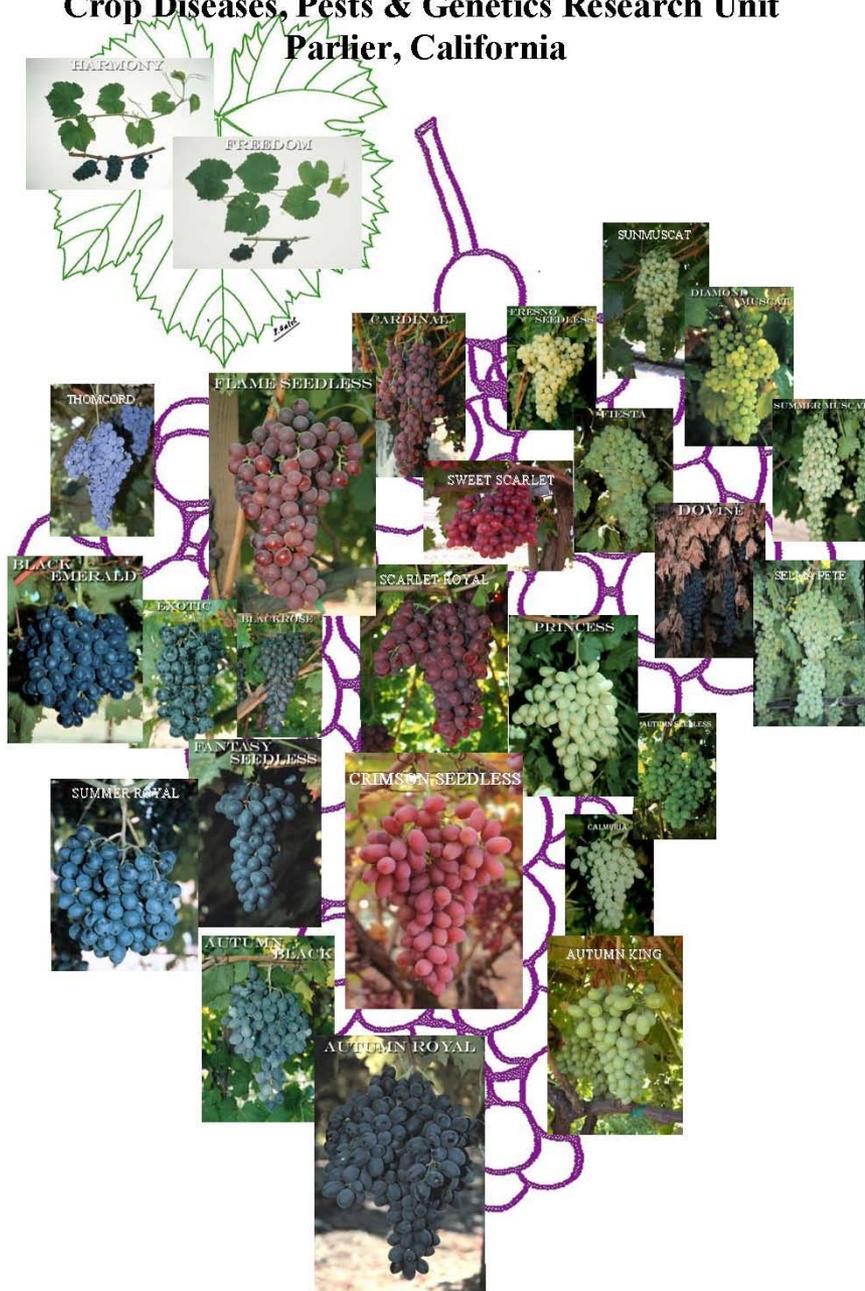
 **Market is worth \$24 million/ year**

 **Oregon Powdery Mildew Spray Timing - Mahaffee**

 **Save 2.4 sprays/ year * \$50/acre = \$120/acre**

 **If all 20,000 OR acres used this model, savings would be \$2.4 million/ year**

USDA/ARS GRAPE VARIETIES 1946 - 2007
Crop Diseases, Pests & Genetics Research Unit
Parlier, California

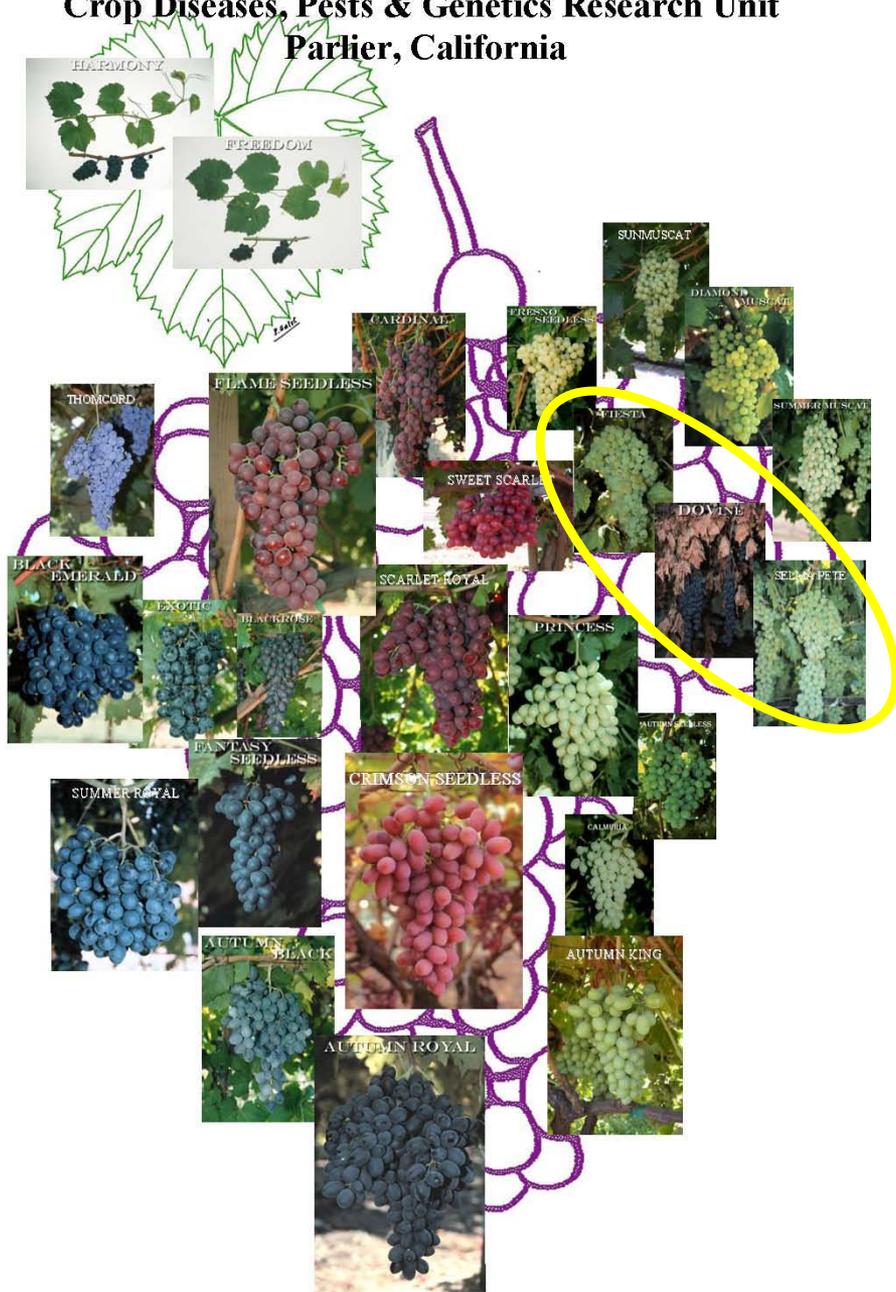


Top Varieties by Volume - 2009

	Variety	Value
1	Crimson Seedless	\$304.5 M
2	Flame Seedless	\$226.9 M
3	Thomp. Seedless	
4	Red Globe	
5	Autumn Royal	?
6	Sugraone	
7	Princess	\$ 56.2 M
8	Scarlet Royal	\$ 43.2 M
9	Summer Royal	\$ 15.8 M
10	Autumn King	?

ARS Varieties
> \$646.6 M / year

USDA/ARS GRAPE VARIETIES 1946 - 2007
Crop Diseases, Pests & Genetics Research Unit
Parlier, California



Raisin Varieties on Overhead Trellis-2009

Variety	% OH Trellis
DOVine	45 %
Fiesta	53%
Selma Pete	39%
Thompson Seedless	6%

Estimated Production Cost Savings - \$1.2 M / year

- ↑ Mechanical Harvest
- ↓ Hand Labor

Estimated Value*

Automated Yield Monitoring – such as Trellis Tension Monitor - Tarara

 For harvest/delivery scheduling - \$10 million / year

 For dynamic pricing & contract decisions – up to \$100 M

Canopy Management - Tarara

 Industry is spending \$9 million/ year less on canopy management for sunscald than before ARS research

 If prevention of quality deterioration due to sunscald is valued at \$0.10 for every \$7-10 bottle of chardonnay, then 3 million cases = \$4 M saved

Not Yet Quantified

Virus Disaster Avoided- Martin

 Increased awareness of grapevine leafroll virus in Oregon led to increased testing of scion wood prior to topworking

Weed Control- Baumgartner, McElrone, Steenworth

 Demonstrated that under certain management scenarios, # of tractor passes can be reduced without changes in yield – saves fuel, labor, wear on equipment, carbon emissions

Not Yet Quantified

-  **Pierces Disease/ GWSS – multiple groups**
-  **Nematode Resistance - Cousins**
 -  **Rootknot nematode resistant rootstocks released**
-  **Genetics & Genomics – Geneva Team**
 -  **Research is still relatively new – Stay Tuned!**



What Industry Needs
(Solutions to problems)

**Communication
and Partnership**

What ARS Wants
**(Researchable questions
to solve important
problems)**





On to the Presentations!



