Pest management first session

FIRST QUESTION: What are the top 3-5 grape related accomplishments of ARS during the past three years.

PD/GWSS
Ramming/walker – PD resistance transferred into grape derived from Vitis arizonica.

Hong Lin -looking at differential gene expression in PD resistance/susceptible selections. Candidate genes identified by microarrays that are upregulated or downregulated.

Wayne Hunter-Viruses of the sharpshooter identified that may be potential control agents.

Xylella detection from freeze dried tissue (JC CHEN)

LEAFROLL/GTAGENTS

POWDERY MILDEW:
Inroads into disease resistance (mapping)
Accession screening for PMI resistance/susceptibility, ID genotype w/o maturity date resistance

OPTIMIZING SPRAY APPLICATIONS (PMI, BOTRYTIS
MITES

EUTYPA/CANKER DISEASES

NEMATODES
Basic surveys for nematodes (REGIONAL). Ring nematode very common. May be a replant problem. Xinphenema very common.
Screening of rootstocks for nematode resistance

DOWNY MILDEW
Screening of accessions for resistance

BLACK ROT

GRAPE BERRY MOTH

PHYLOXERA

VMB

SECOND QUESTION: What major gaps exist between ARS research focus and needs of the industry?

PD/GWSS: artificial diet for rearing GWSS and parasitoids.
Genetic modification of GWSS and/or XF TO CONTROL DISEASE

Improved spray technologies for PMI, botrytis, other airborne fungi,
Optimizing efficacy for sprays (timing and dosage of sulfur applications) Modeling??
Validation and adaptation to different regions and different diseases. Limit effects on non target organisms. System management approach for pest management.

MITES: No ARS research on mites.

Nematode biology lacking in ARS.

EUTYPA/CANKER:
DISEASES NO ARS PEOPLE WORKING ON EUTYPA/other cankers.

FOCUS ON BASIC GENETIC/PHYSIOLOGY MECHANISMS OF DISEASE RESISTANCE

Quality weather data for models/prediction a major gap

Better alliances with researchers and growers on the ground level –n this increases confidence.

ARS people not rewarded for extension work

WHAT ARE THE FUTURE RESEARCH PROJECTS COULD ADDRESS THESE GAPS?

Canker diseases- epidemiology and control of canker diseases. Nursery infection issues

Modeling – development of predictive forecast methods. Incorporate inoculum loads into models. Modern diagnostic means to monitor inoculum loads. Include real time pathogen detection networks to provide more data Top pests/pathogens: powdery mildew, downy mildew, berry rots, mealy bug.

Nematode – virus/vector/host relationships. Economic thresholds for nematode populations.

WHICH ARS TEAMS OF SCIENTISTS THAT EXIST or could be CREATED are in best positions to address

Nematodes - McKenry
Redirect nematologists
Fort Pierce
Sally Schneider's old positron
WSU, Parlier, Davis (locations)
Cankers – Doug Gubler exists.

Kendra Baumgartner
Someone at Penn State
Kearneysville?
Trinchero

GWSS artificial diet – Tom Coudron
USHRL in Florida

Modeling – numerous groups – soybean rust project at Penn State, Zedex
Mark Gleason, Forest Nutter t ISU
Weathersystem work group on west coast
Wayne Wilcox

How can the progress and impact of ARS research on grapes be increased with existing resources?

Refill Jerry Yuemoto, Sally Schneider's positions.

Early integration of extension and growers into the research.

Increase interaction among researchers/industry/extension.

6. **How will research results be extended to end users through an outreach plan –**

Accurate real time weather data to actually make good decisions based on models – without good weather data (which is expensive for individual growers) reliance on models is limited.

Reinvent extension – it is broke.