1. What are the top 3-5 grape related accomplishments of ARS during the past 3 years? What priorities of industry have been met?

No current ARS research program on grapes

Related programs

Effects of chemistry on infiltration

Infiltration-rain irrigation interactions,

Mapping salinity (remote sensing} for field scale management,

Initiating salinity field evaluation of food process waste water

- 2. What major gaps still exist between ARS' research focus and the needs of industry?

- Significant gaps exist between industry and current ARS needs.,
- 1)Ethanol emissions from wastewater,
- 2) By product utilization(value added), pomace(seeds, stems, lees filter. aids, tartrate,
- 3)Process wastewater
- i(internal operation
- a)reformulation of cleaning compounds, water conservation, alternative choices for cleaning compounds
- ii external
- 1)new strategies or validation of existing strategies for BOD, nitrogen treatment etc
- 2)assessment tools
- 3)matrix development for crop selection based on waste material and soil type.
- 4)more sustainable practices, growing, processing, packaging, delivery
- 5) carbon footprint modeling

- 3. What are the future research projects – how could we address these gaps?

- 1)Analysis of impact of ethanol on air quality/white paper.
- 2) By product utilization pomace biofuels, neuticeutical, oils
- 3)less biofuels
- 4)filter aids soil conditioners, alternative disposal options
- 5)tartrates cost effective recovery Process waste water

- Internal Identifying and developing ....
- Water conservation
- Assessment of conservation opportunities
- Reuse and recycle, alternative cleaning technology,new technology for cleaning, evaluate range of options and look at other industries
- External
- Develop region- specific guidelines to address BOD nitrate..etc.
- Asssesment tools –see above
- Matrix/model for assessment of management options, crop selection etc
- More sustainable practices ...evaluate long term impact of management practices for energy, manufacturing, land application, Ion exchange alternatives for pH adjustment.
- Carbon footprint modeling-evaluate impact systems analysis, packaging, Carbon sequestration relative to vineyards, total carbon mass balance (at the vine level), biogenic effect from fermentation-CO2 emissions

- 4. Which teams of scientists (ARS, university, and industry), that currently exist or that could be created, are in the best position to address the research gaps?

- Ethanol
- Pomice biofuels -University
- Neutriceuticals- Industry, Universityand ARS (human nutrition centers)
- Filter aids use for soil conditioners, greenhouse pots -industry (Nursery) tartrate recovery (Industry)
- Process water (ARS,University, product manufacturers, water conservation (ARS Fresno State, Iindustry)
- New techology choices for cleaning product (ARS, University), cleaning of tanks (University)
- New strategies for BOD treatment (Industry, ARS University)
- Matrix (ARS Industry partnership)

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

- No existing resources

6. How will research results be extended to end users through an outreach plan? What is that outreach plan?

- Through a partnership among ARS, industry and cooperative extension
- Talks at grower meetings,
- Extension-type publications
- Tech transfer workshops.
- SBIR and CRADA agreements for internal and waste product utilization. Develop self assessment tool.
- Put improvements under EQUIP