

Approve Pilot Incentive Program to Deploy and Evaluate Low-Dust Nut Harvesting Equipment in the San Joaquin Valley

San Joaquin Valley Air Pollution Control District
Governing Board Meeting
November 15, 2018

Reasons for Recommendations

- Significant increase in acreage devoted to nut crops in the San Joaquin Valley over past decade
 - Can generate highly visible and localized particulate emissions during harvest
- Agricultural community, USDA-NRCS and District have partnered to develop best practices and new technologies for reducing emissions
- Research/modeling indicates reducing nut harvesting emissions does not significantly impact Valley's peak urban PM2.5 locations
- Board direction has been to seek additional cost-effective measures to reduce particulate emissions and localized community impacts
- Today's recommendation builds on efforts by ag community to develop and promote new cleaner harvest technologies that reduce air pollution

Efforts to Reduce Emissions from Nut Harvesting

- New practices developed to reduce particulate emissions include:
 - Changes to harvest sweeping and pick-up equipment
 - Sweeper head height modifications
 - Reducing the number of blower passes
 - Reducing pickup machine speeds
- Harvest equipment manufacturers have continued to develop new equipment that significantly reduce emissions
 - Both pull-behind and self-propelled applications
- Cost varies based on size, configuration and application
 - Pull-behind: Range from \$80,000 to \$100,000
 - Self-propelled: Range from \$180,000 to \$300,000
- Typically 15% to 20% higher cost than conventional equipment

Efforts to Reduce Emissions from Nut Harvesting (cont'd)

- District has partnered with agricultural stakeholders to pursue several studies to evaluate the effectiveness of emerging low-dust technology
 - Studies have demonstrated low-dust technology can be effective at reducing localized particulates associated with harvesting activities
 - Most recent study (2017) indicates low-dust technology can reduce particulates by more than 40% and in some cases, up to nearly 80%
- Scientific survey concluded significant portion of nut crop growers and custom harvesters would be interested in low-dust equipment if provided with meaningful incentives
- District supported development of new USDA-NRCS program providing incentives to growers that utilize low-dust harvesting operations
 - NRCS program does not provide funding to growers for purchasing new, low-dust technology

Proposed Pilot Incentive Program

- New program would promote deployment and evaluation of low-dust technology on broader scale
- Results will inform continued research and determine if program model can be used to cost-effectively reduce localized community impacts
 - Could also assist NRCS with potential refinements to their program
- District will evaluate all currently-available and new low-dust technologies
- Evaluations will include efficacy in reducing emissions as well as commercial and practical viability
- Will be conducted in partnership with ag stakeholders through review of available technical information and conducting additional studies/on-site evaluations as feasible

Proposed Pilot Program Guidelines

- **Program Funding:** \$1,000,000
- **Funding Allocation:** First-come, first-served, based on submittal of complete applications
- **Eligible Entities:** Growers, custom harvesters
- **Eligible Equipment:** Low-dust harvesting equipment achieving at least 40% reduction in PM emissions as demonstrated by available peer-reviewed information and/or District-approved methodology including
 - Pull-behind Harvesters (pick-up)
 - Self-propelled harvesters (pick-up)
 - Shaker/Sweeper replacement technology
 - Non self-propelled (must be utilized in combination with tractor equipped with at least a tier 3 engine)

Proposed Pilot Program Guidelines (cont'd)

- **Engine Technology:**
 - Self-propelled: combustion engines must be the latest engine tier available
 - Pull-behind: tractor providing the motive power must be equipped with at least a tier 3 engine
- **Incentive Amount:**
 - 50% of eligible equipment costs
 - Initially limited to 1 piece of new equipment per participant
- **Old Equipment Disposition:**
 - Participants must agree to destroy or render existing old equipment permanently inoperable in accordance with established District criteria.
- **Project Life:**
 - Participants must commit to utilize equipment for a minimum of five years/harvest seasons.
- **Reporting/Inspections:**
 - Participants will be required to report on equipment usage, harvest information, and other relevant activity data throughout project life
 - District will inspect and document existing equipment, new equipment, and in-use activities at any time during project life to collect data on efficiency, PM emissions, and other relevant operating characteristics

Recommendations

1. Approve and allocate up to \$1,000,000 for new District pilot incentive program to deploy and evaluate low-dust nut harvesting equipment in the San Joaquin Valley
2. Authorize the Executive Director/APCO to make administrative changes to the program as necessary

Next Steps

- Approval by your Board will authorize the Executive Director/APCO to launch this new pilot program and work closely with Valley agricultural stakeholders to conduct outreach throughout the Valley
- Results will inform continued research and determine if program model can be used to cost-effectively reduce localized community impacts
- The Executive Director/APCO will return to the Board at a future date with an evaluation of the pilot program and any recommendations for continued implementation of the program