

Public Workshop to Discuss In-Use Off-Road Mobile Agricultural Equipment Rule



September 6, 2012 - Fresno
September 18, 2012 - Sacramento
TBD – Northern California

California Environmental Protection Agency
 **Air Resources Board**

Workshop Overview

- Need for Emission Reductions
- Understanding the Industry
- Emissions Inventories
- Economic Analysis
- Potential Applicability
- Next Steps
- Open Discussion



Additional Reductions from Ag are Needed

- Ambient air quality standards
- 2007 State Strategy commitment
 - Transition fleet to cleanest technologies
 - Regulation for Board consideration in 2013
- Upcoming ozone and PM SIPs
- Black carbon emissions impacts
- Limit exposure to toxic emissions



Health Impacts from Diesel Pollution

- Diesel engines emit toxic particulate matter (PM) and oxides of nitrogen (NO_x).
- Public health impacts from PM and NO_x
 - Premature death
 - Hospitalization for respiratory & cardiovascular disease
 - Asthmatic symptoms



Good Progress Made with Incentives

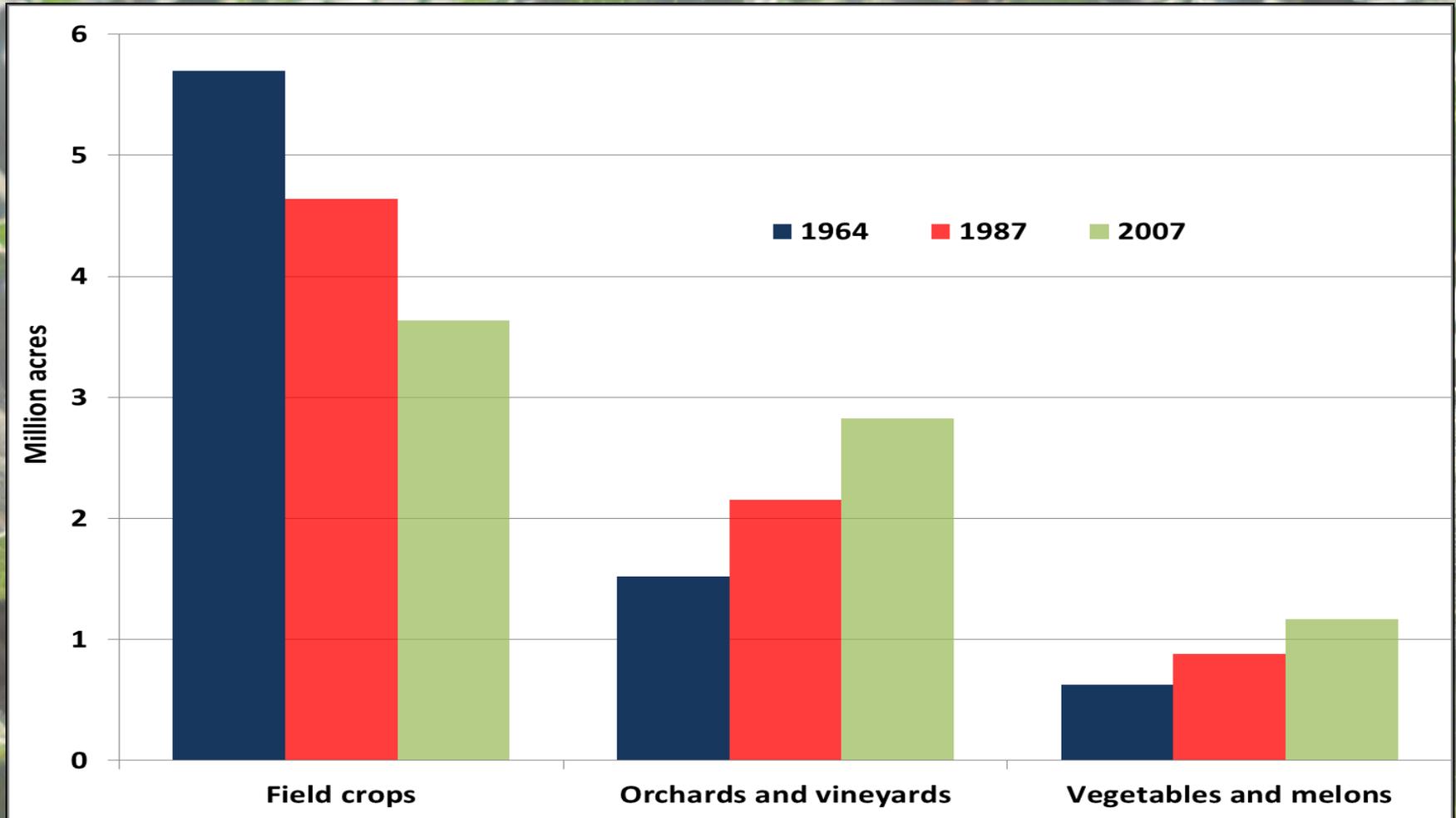
- Tractor replacement: ~\$64M spent to date
 - 853 new engines (2009-2012)
- Continued local and federal funding
- Funded projects and emission reductions will be recognized
- Incentive projects will continue to play critical role in achieving our goals



Understanding the Agricultural Industry

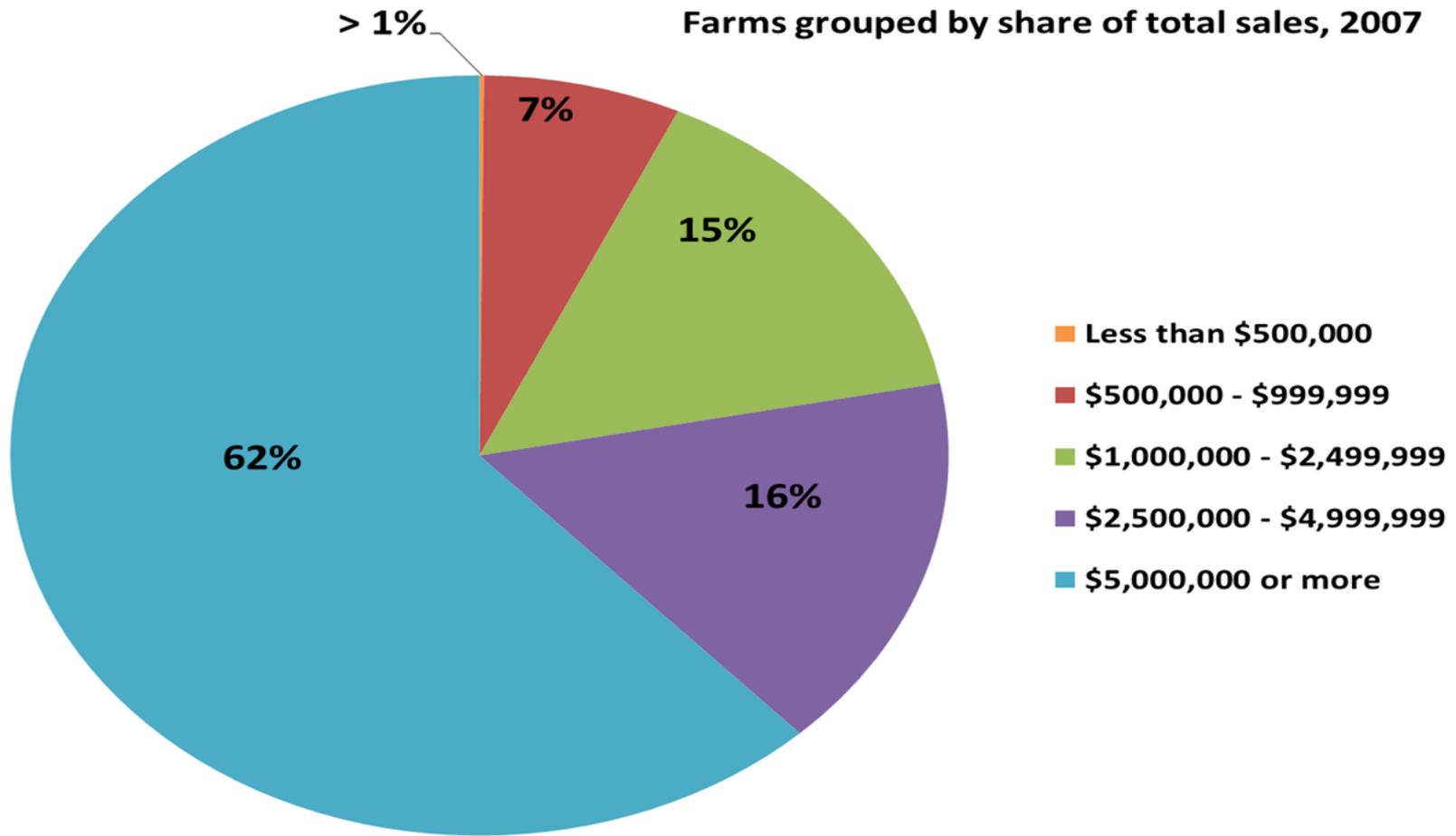
- California is the top agricultural state
- 81,000 farms grow/produce over 400 different commodities
- Diversity is a key to California's agriculture
- Equipment and usage may vary considerably among commodities
- Seasonal in Nature

Land has Shifted from Field Crops to Fruits, Nuts, and Vegetables



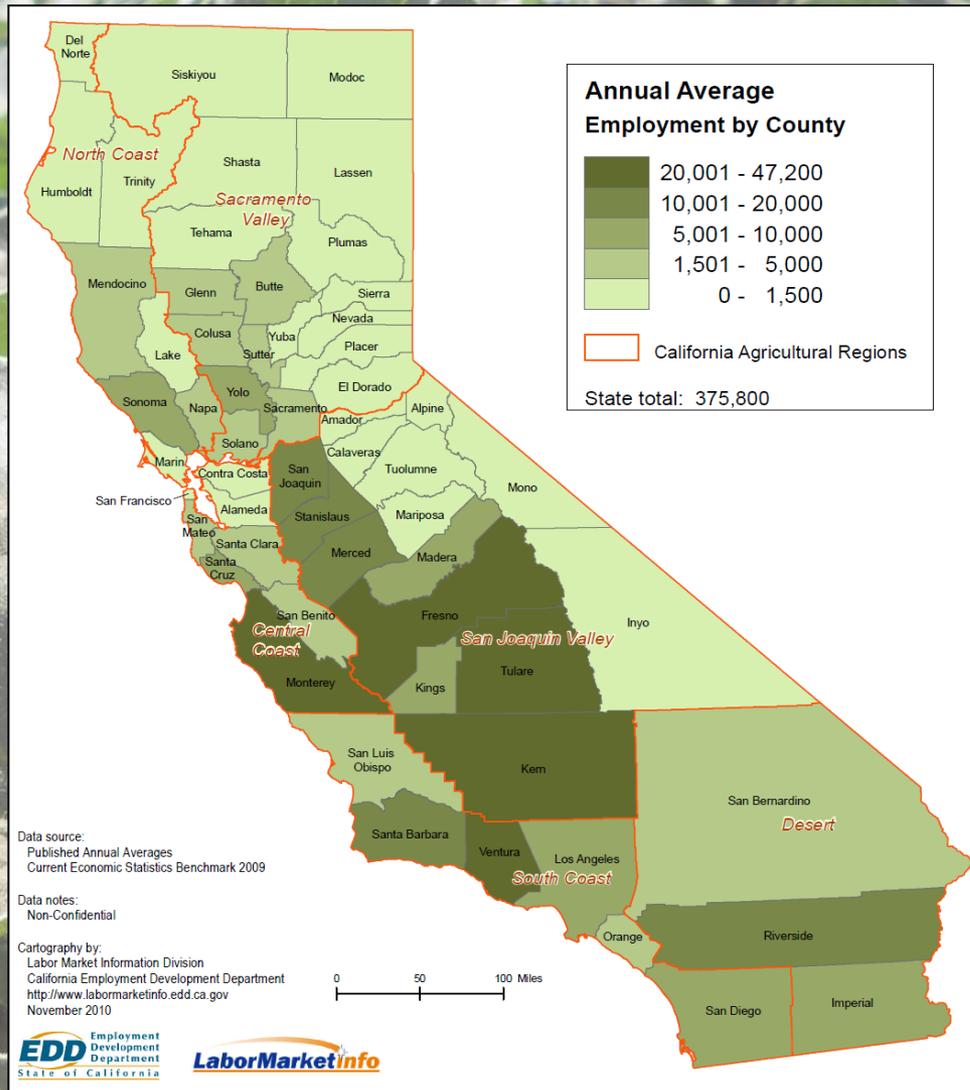
Source: NASS. USDA. 2009. *2007 Census of Agriculture*

Over 60% of Sales Come from about 2% of Farms

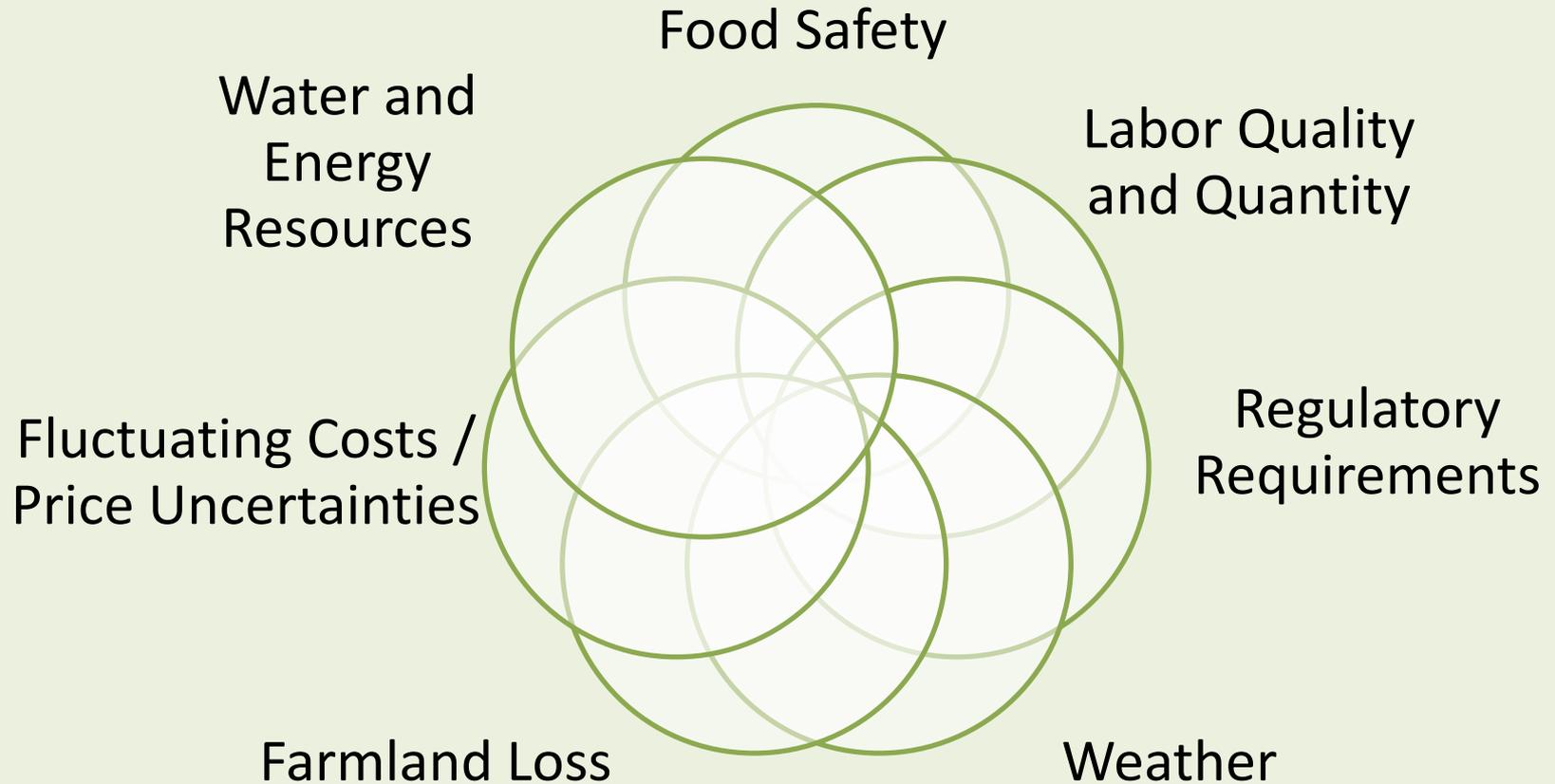


Source: NASS. USDA. 2009. 2007 Census of Agriculture.

Agriculture Important Employment Source



Agriculture Balances Many Variables



Emissions Inventories

- As one part of understanding the ag industry, ARB gathers all available information on ag equipment
 - Population: How many pieces of equipment in CA?
 - Horsepower: How large are the engines?
 - Activity: How much are they used and when?
 - Load: How hard are they run?
- Together, this information allows ARB to characterize emissions from Ag equipment in California

Development of Inventories

- Working directly with ag stakeholders to better understand industry and equipment usage
 - Conducted survey of producers, custom operators, dealers, processing facilities and forestry
 - Ag Tours
- Compare farm level survey information with other data sources on California Ag
- Use the inventory to determine where emissions are coming from (what farm size, what equipment, etc.) to help inform regulatory development

Data Sources for Inventories

Population, Age, and/or Activity

- 2009/2010 California Survey
- USDA Ag Census
- Incentive Programs (Carl Moyer Program and NRCS)
- Eastern Research Group (ERG)

Data Sources for Inventories (cont.)

Equipment Sales

- Equipment Data Associates (EDA)
- Ag Flash Reports

Fuel Sales

- California State Board of Equalization (BOE)
- Energy Information Administration (EIA)

The Role of Inventories

- Inventories reflect emissions based on how, when, and where agricultural equipment is used
 - Entity: farm size, commodity, custom operator, first processors, rental, forestry
 - Equipment: type, horsepower, age
- This information is part of the basis for regulatory assessment and air quality planning
- Economics and technology assessments just as critical

Economic Analysis

- As one part of understanding the economics of agriculture, ARB is gathering the following financial information:
 - Farms: Who is affected?
 - Industry: What are the overall industry effects?
 - Market: What are the market effects in CA and USA?
 - Community: What are wider social benefits and costs?
 - Cost shift: What is the incremental cost ?
What is the extent of cost pass-through?
How will practices/crop mix change?
What is the impact on competitiveness?

Economic Analysis (Continued)

- Consumer/producer sensitivities: How will they react to price changes?
- Inputs: How will the market for inputs change?
- Financing: How is investment financed?
- Investment: What are the effects of increased investment?
- Ability to pay: Which producers have capacity for repayment?
- The economic analysis is a framework regulatory agencies use to estimate the likely costs and benefits of a rule.

Economic Analysis Data Sources

Production, Price, and Cost Data

- CA Department of Food and Agriculture
- CA Agricultural Commissioners' Reports
- UC Farm Cost Return Studies
- USDA Ag Census - NASS California Report
- Economic Research Service Baseline and Forecasts

Economic Analysis Data Sources (cont.)

Trade Data

- USDA Foreign Agricultural Service
- Exchange Rate Data
- CDFA/Agricultural Issues Center: California Exports

Financial Data

- USDA Agricultural Resource Management Survey
- USDA NASS – California Ag Land Values
- ERS Farm Income Forecasts
- ASFMRA Trends in AG Land & Lease Values

Economic Data Needs

- We have industry-level data for an economic assessment
- Averages provide a limited picture
- We need farm-level economic data

Potential Applicability

- Off-road, self-propelled diesel equipment used in agricultural or forestry operations
 - more than 50% of the time
- Who may be affected?
 - Growers and Producers
 - Forest Operators
 - Custom Harvesters
 - First Processors
 - Rental Companies

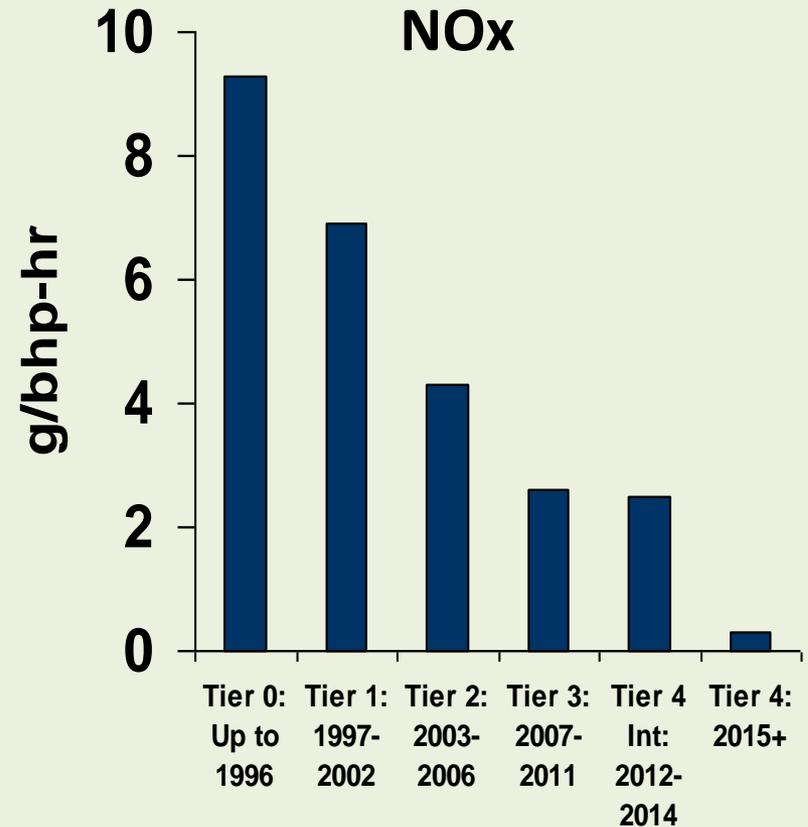
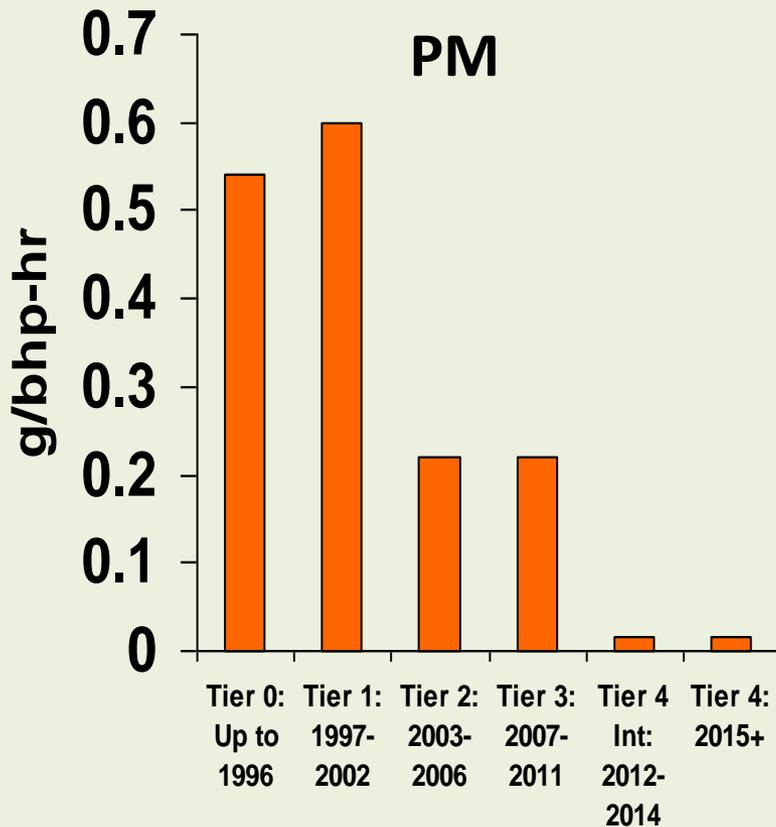


Types of Equipment that May Be Included

- Agricultural Tractors
- Combines
- Harvesters
- Fellers/Bunchers
- Balers
- Bail Wagons
- Sprayers
- Scrapers
- Skid Steers
- Forklifts
- ATVs
- Swathers/Windrower
- Cotton Pickers



New Engine Standards Make New Engines Cleaner (100-174 hp)



Comparing NOx Emissions: Tier 0 vs. Tier 4 final

1 Tier-0 tractor



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31 Tier-4f tractors



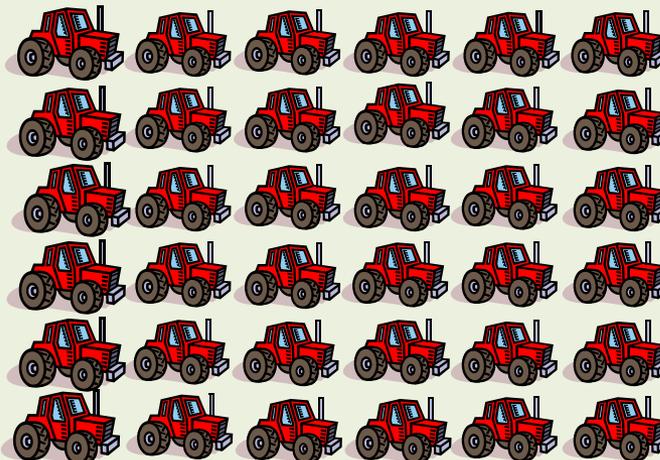
Comparing PM Emissions: Tier 0 vs. Tier 4 final

1 Tier-0 tractor

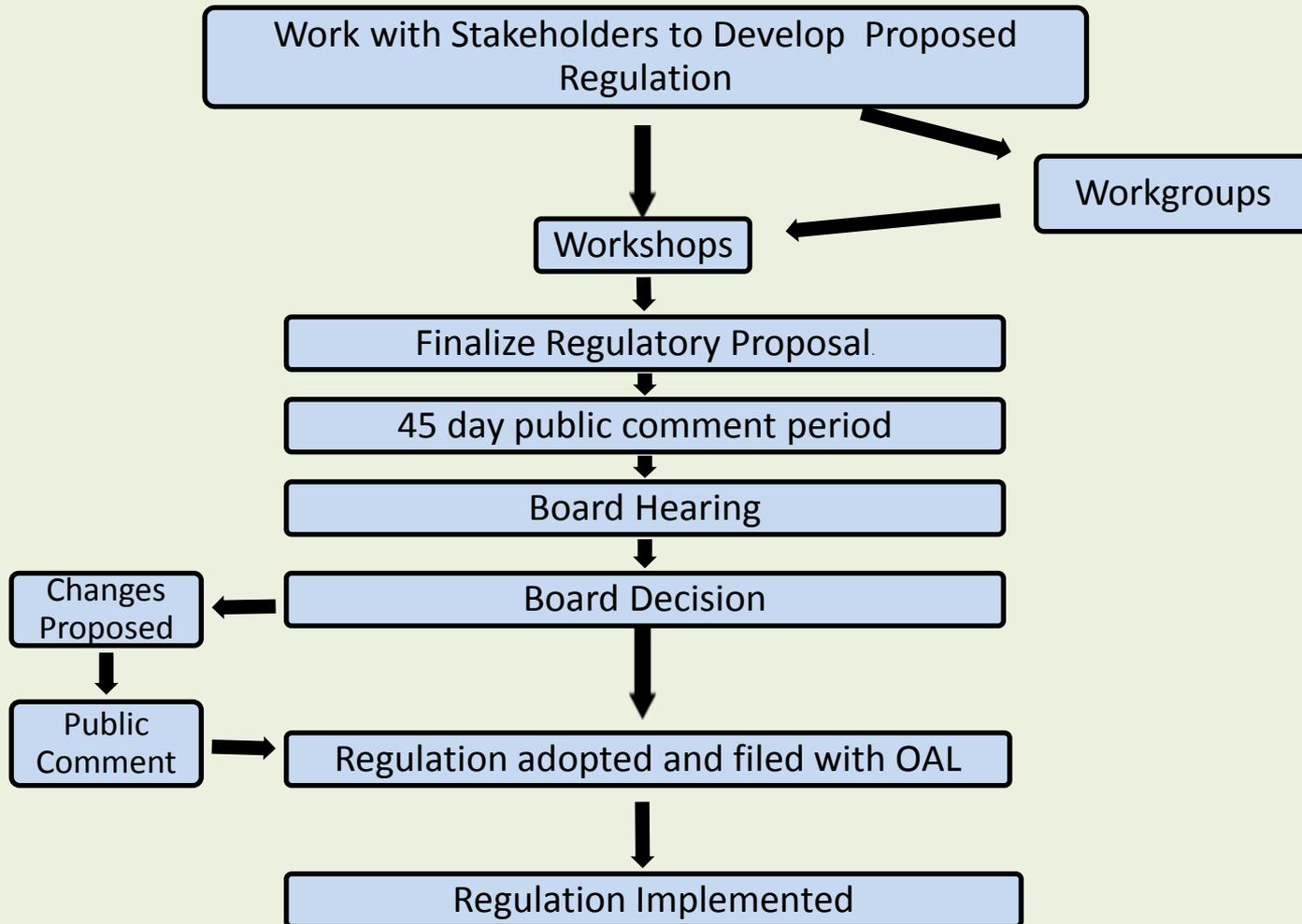


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36 Tier-4f tractors



ARB's Rulemaking Process



Participating in the Regulatory Process

- Input on data sources
- Provide feedback on rule development
- Participate in workgroup(s) and other meetings
- Help identify other stakeholders & methods for outreach

Next Steps

- Meet with Stakeholders Continuing
- Second Workshop Early 2013
- Final Workshop Late Spring 2013
- Regulation Posted October 2013
- Board Hearing December 2013

Contact Information

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- **Mobile Ag Regulation Website:**

<http://www.arb.ca.gov/ag/agtractor/agtractor.htm>

Questions and Comments

