Update:
Parlier Environmental Justice Pilot Project and Pest Management Assessment

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Update Presentation Overview

- DPR's Environmental Justice Pilot Project, Parlier
- Project component:
  Pest Management Assessment

DPR’s EJ Pilot Project

Cal/EPA Environmental Justice Action Plan

- Action plan includes:
  - Working definitions for cumulative impact and precautionary approach
  - Several pilot projects, DPR conducting one
- All pilot projects share common goals
  - Reduce environmental risk to children
  - Estimate cumulative impact from multiple pollutants
  - Evaluate precautionary approach
  - Encourage public participation

DPR EJ Pilot Project

- **Focus:** Monitor air in a Central Valley community
- To select the community, DPR evaluated 83 communities in San Joaquin Valley (region of highest pesticide use)
- Each community evaluated for 14 criteria
  - 4 criteria based on EJ
  - 2 criteria based on availability of cumulative impact data
  - 8 criteria based on pesticide use

Highest Overall Ratings

Community	Rating (max of 12)
Parlier (Fresno County)	10.0
Arvin (Kern County)	8.4
Visalia (Tulare County)	8.4
Orange Cove (Fresno County)	8.1
London (Tulare County)	8.0

Development of Project Protocol

- Formed Local Advisory Group (LAG)
- Formed Technical Advisory Group (TAG)
- Developed monitoring plan with LAG and TAG
  - Identify specific project objectives
  - Select pesticides for monitoring
  - Select monitoring locations
  - Determine monitoring frequency

Project Objectives

- Are residents of the community exposed to pesticides in air?
- Which pesticides are people exposed to and in what amounts?
- Do measured air levels exceed levels of concern to human health, particularly children?

- Inform the community of project, including forums
- Reduce risk from pesticides
- Conduct follow-up actions (education, regulation)
- Evaluate pesticide risk relative to other pollutants

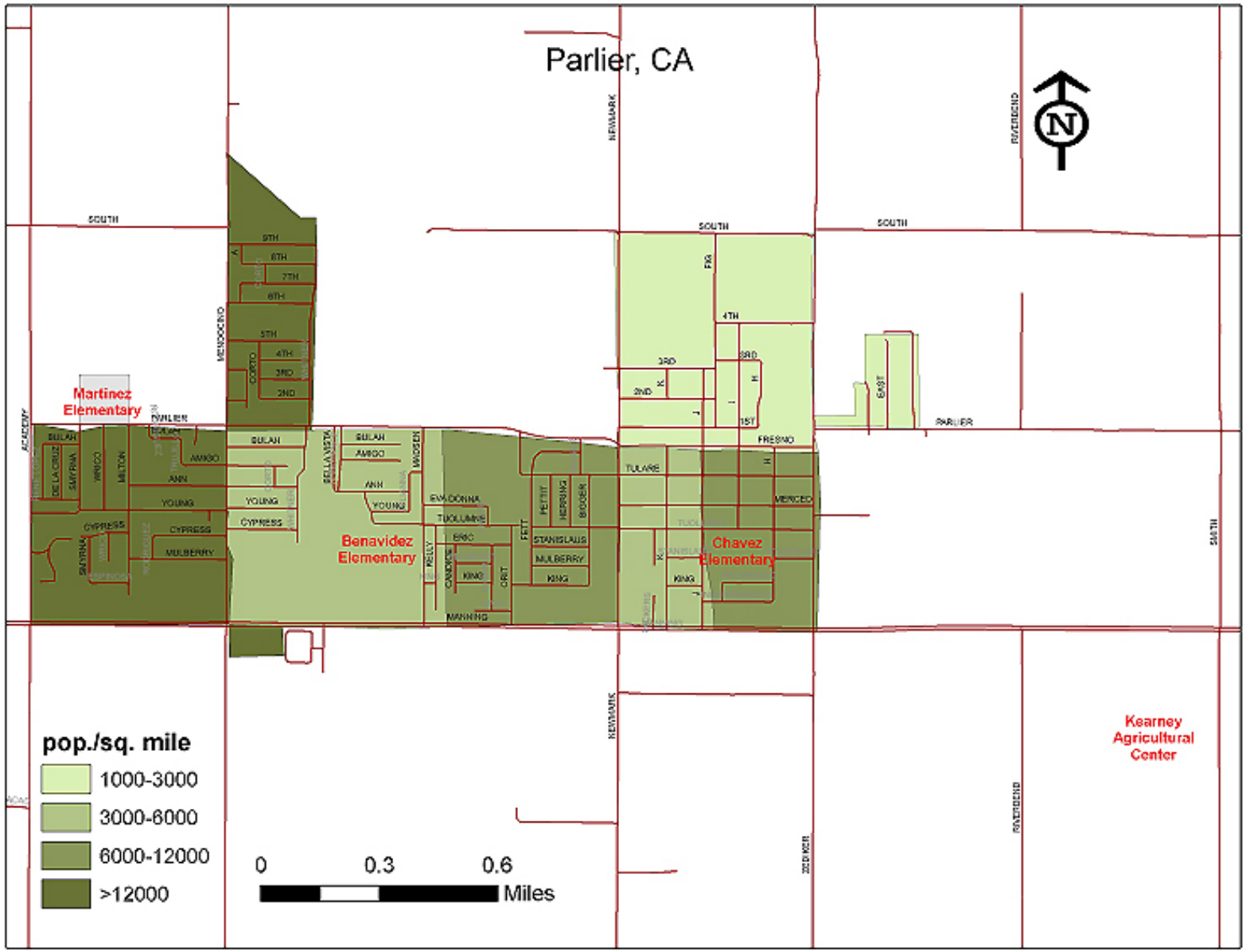
Pesticides Monitored

- Pesticides selected based on:
  - High use in Parlier area
  - High volatility
  - High toxicity
  - Ability to include in a single multi-residue method
- DPR working closely with the Air Resources Board (ARB), which will also monitor
  - DPR for 26 pesticides + 5 breakdown products
  - ARB for 9 pesticides

Pesticide air monitoring plan

- Department of Pesticide Regulation
  - Monitor 3 schools: Martinez, Benavidez, Chavez
  - Collect 24-hr samples, 3 days/week, for 1 yr
  - Collect 2 samples:
    - Methyl isothiocyanate, MITC (1 pesticide)
    - Multi-pesticide (25 pesticides, 5 breakdown products)
- Air Resources Board
  - Monitor 1 school: Benavidez
  - Collect 24-hr samples, once every 6 days, for 1 yr
  - Collect 2 samples:
    - Volatile organic compounds (23 chemicals; 6 pesticides)
    - Metal/elements (33 chemicals; 3 pesticides)

Air monitoring locations



Monitoring for other pollutants

- Department of Pesticide Regulation
  - Drinking water monitoring for 12 pesticides and breakdown products
- Air Resources Board (at Benavidez School)
  - Volatile organic compounds
  - Metals/elements
  - Particulate matter (PM 2.5)
- Air Pollution Control District (at Kearney Ag Center)
  - Ozone
  - Nitrogen dioxide
  - Hydrocarbons (during summer)

Air sampling station

Pesticide air sampling tubes

Charcoal tube for MITC

XAD tube for
30 pesticides

Data Evaluation

- DPR will:
  - Compare pesticide levels detected to *health screening levels* (concentrations that indicate a need for further evaluation)
  - Evaluate individual pesticides and multiple pesticides combined
- DPR and other agencies will evaluate pesticides combined with other pollutants

DPR Preliminary Results

- Air sampling January 3 – December 28, 2006
- DPR Results:
  - **Diazinon** exceeded its screening level on one day (172 ng/m^3 detected, 130 ng/m^3 screening level)
  - **Methyl isothiocyanate (MITC)** detected most frequently due to pesticidal uses, in 84% of the samples
  - **Chlorpyrifos** was detected in 64% of the samples

Preliminary results continued

- ARB results through June 28, 2007
  - 19 of the 23 VOCs monitored by ARB were detected in Parlier
  - **Formaldehyde** had the highest concentration measured
  - **Acrolein** exceeded its screening level due to non-pesticidal sources
  - Copper and Sulfur were detected in all of the samples collected.
  - **Acetone** had the highest concentration detected

Preliminary Results Continued

DPR and ARB

- 23 pesticides detected in one or more samples
- 20 of the monitored pesticides were applied within 5 mi of Parlier; 16 detected + 3 breakdown products
- 5 other pesticides detected, but not reported applied within 5 mi of Parlier; 4 likely due to non-pesticidal sources
- As many as 11 pesticides detected on a given day and location

Preliminary Results – Highest Concentrations

Pesticide	Highest 1-Day Concentration (ng/m^3)	Acute Screening Level (ng/m^3)
1,3-dichloropropene	1,640	160,000
Acrolein	2,690	190
Arsenic	3	30
Carbon disulfide	3,050	1,550,000
Chlorpyrifos	150	1,200
Chlorpyrifos OA	28	1,200
Copper	210	100,000
Diazinon	172	130
Diazinon OA	71	130
Formaldehyde	9,250	19,000
Malathion	21	40,000
Malathion OA	16	40,000
Methyl bromide	950	820,000
MITC	5,010	66,000
Phosmet	42	77,000
Sulfur	1,800	Not determined
Xylene	4,200	900,000

Preliminary Results – Frequency of Detection

Pesticide	Numbers of Samples Collected	Percent of Samples with Detection
Carbon disulfide	33	100
Copper	31	100
Formaldehyde	30	100
Sulfur	31	100
MITC	468	84
Acrolein	33	76
Chlorpyrifos	468	64
Diazinon	468	32

Future and Related Activities

- Monitoring
  - Last day of monitoring was Dec 28th
  - Final report in Fall 2007
- Risk Reduction
  - DPR is evaluating how local growers fight pests and identifying alternative solutions to pest problems
- Public Participation/Outreach
  - Community forum at start of monitoring (included vaccinations, bug coloring contest)
  - School presentations
  - Community forum for final presention

Project component:
Pest Management Assessment

Pest Management Assessment –

DPR’s Pest Management Analysis and Planning program is studying local pest management practices and lower-risk alternatives, and will highlight gaps in knowledge, research, and outreach that could be addressed under follow-on projects.

Background

- DPR Mission: Protect human health and the environment by regulating pesticide sales and use and fostering reduced-risk pest management
- The study is being coordinated with work already ongoing in the Parlier area, such as DPR's EPA-funded stone fruit IPM program and UC Kearney research and extension.

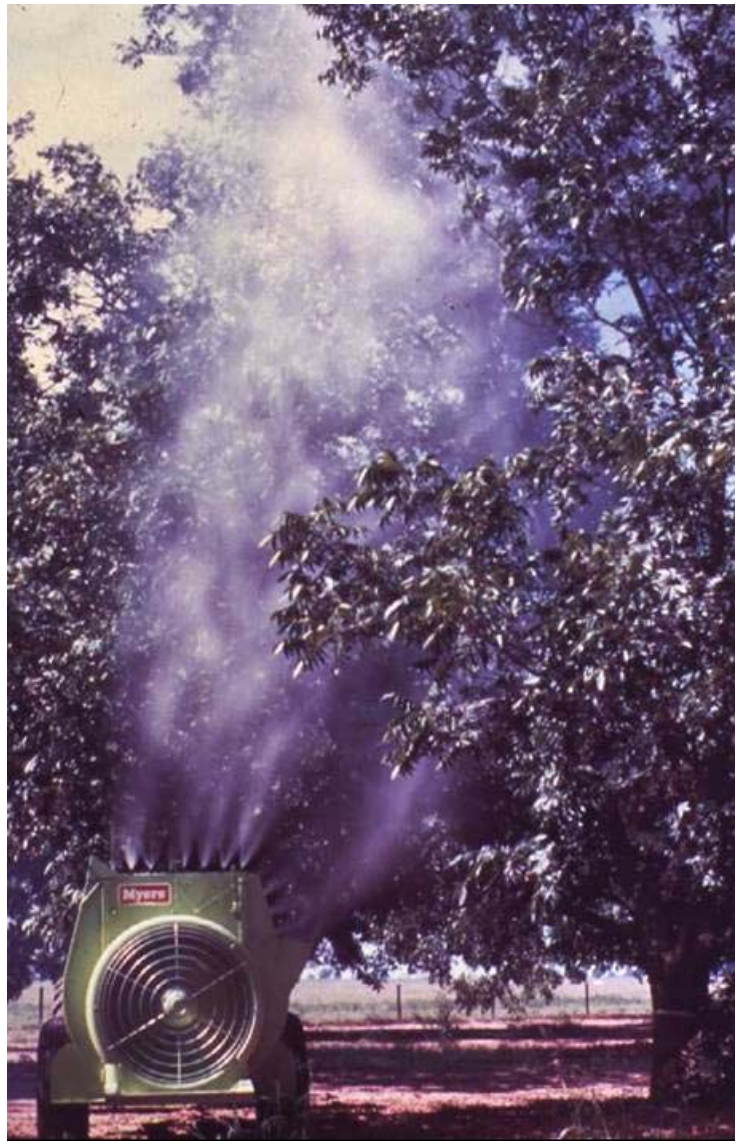
Goal and Objectives

- Goal: Study and describe pest management in the Parlier area, including key crops, pests, associated pesticide use, and potential alternative pest management practices
- Objectives
  - Help interpret air monitoring findings
  - Better inform the community about local pest management needs and practices
  - Lay the foundation for strengthening DPR assistance to Parlier area pest managers

Priority Pesticides

- Organophosphate insecticides

- Soil fumigants



Crops

- Table, raisin and wine grapes
- Citrus
- Stone fruit

(peaches, plums, nectarines)

Vine mealybug (VMB)
Planococcus ficus

Citricola scale
Coccus pseudomagnoliarum
UC Statewide IPM Project
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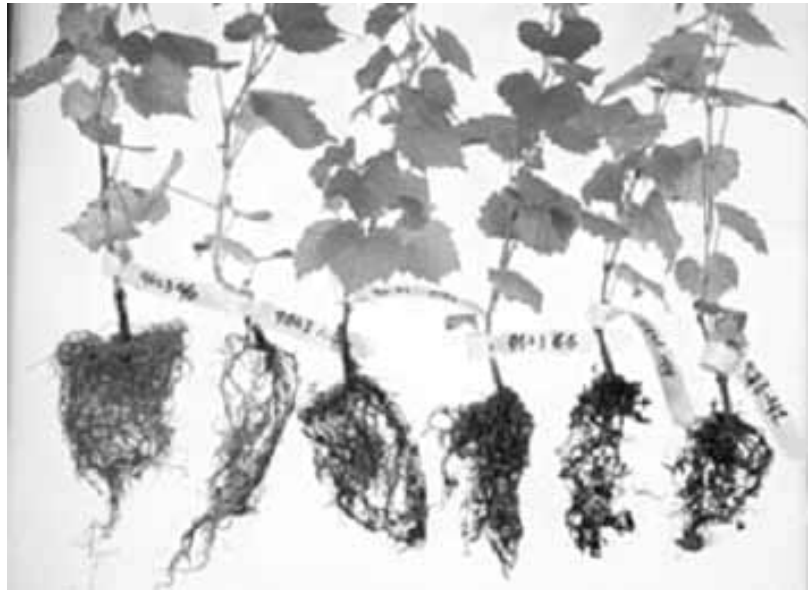
“Replant disorder”

Nematode-resistant grape rootstocks



Reporting

- Oral progress reports to Advisory Committees April/May 2007
- Final report September 2007
- Presentation to EJ Pilot Project public forum in Parlier, fall/winter 2007

Initiative: VMB IPM research – novel insecticides

- Efficacy testing in the laboratory
- Field tests in combination with mating disruption and biological control

Initiative: Smart sprayer partnership with USDA-NRCS

2007 IPM Innovator Awards

http://www.cdpr.ca.gov/docs/ipminov/innovatr.htm

DPR is accepting nominations until

April 30, 2007!

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