California Environmental Protection Agency
Department of Pesticide Regulation

Pesticide Air Monitoring Network: Monitoring Plan Changes for 2014?

August 16, 2013

Pesticide Registration and Evaluation Committee

Email during meeting: preccomments@cdpr.ca.gov

Current objectives

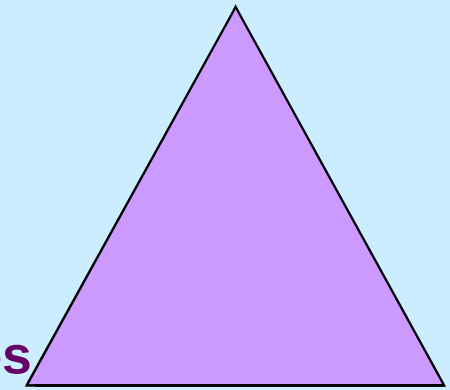
- Identify common pesticides in air and determine seasonal, annual, and multiple-year concentrations
- Compare concentrations to subchronic and chronic health screening levels
- Estimate cumulative exposure to multiple pesticides with common modes of action
- Track trends in air concentrations over time
- Attempt to correlate concentrations with use and weather patterns

Continue air monitoring network?

- Will have 3 years of data by end of 2013
- Air network takes almost all of DPR's air monitoring resources
- Likely have sufficient data to complete most objectives
- Likely have insufficient data to correlate concentrations with use and weather patterns
- Should air network be changed if continued?

Key technical issues

How many samples?
How often should we sample?

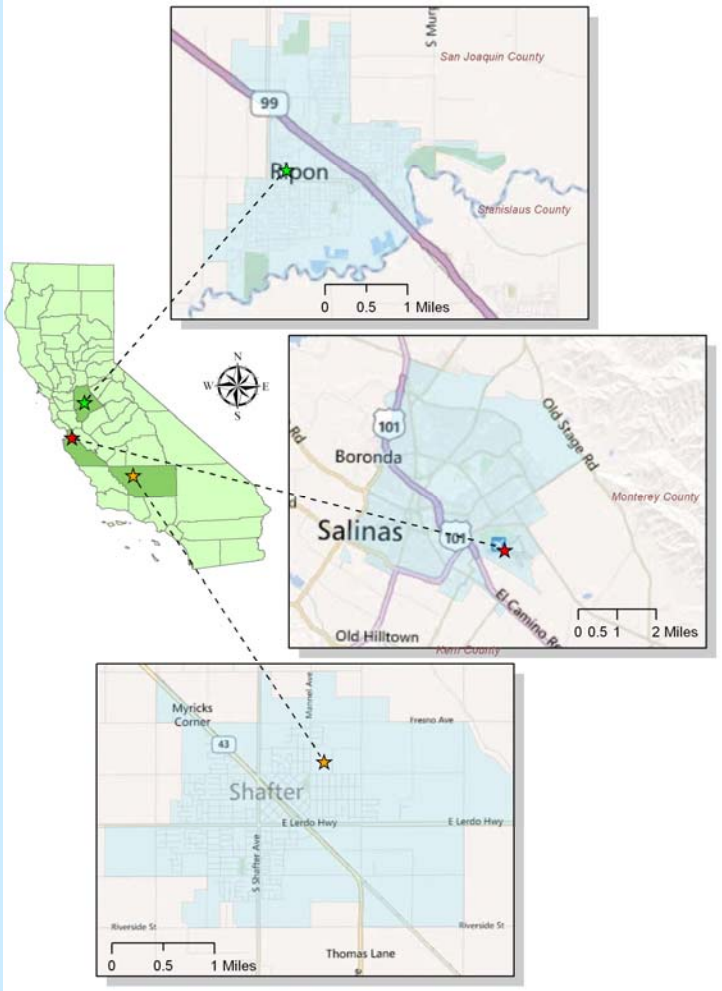


Which communities should we monitor?

Which pesticides should we monitor?

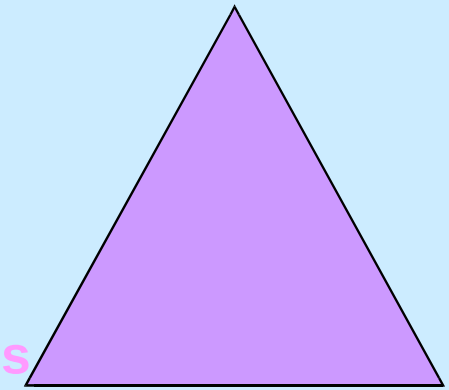
Current number samples and frequency of sampling

- One monitoring site in each selected community
- Collect one set of 24-hour samples each week, each site



Key technical issues

How many samples?
How often should we sample?



Which communities should we monitor?

Which pesticides should we monitor?

Current pesticide selection criteria

- Evaluated top 100 pesticides during 2006-8 used in 5 high-use areas, except inorganics, oils, antimicrobials
- Prioritized pesticides based on
  - **Use**: indicator of exposure, rated 0 – 4
  - **Volatility**: indicator of exposure, rated 1 – 4
  - **DPR risk assessment priority**: indicator of toxicity, rated 1 – 4
  - Total rating 2 – 12
  - Feasibility of including several pesticides in single method

dpr

4 samples collected for each set

- Multi-residue sample for 27 pesticides
- VOC sample for 3 pesticides
- Chloropicrin
- MITC

27 pesticides and 4 breakdown products in multi-residue sample

- Acephate-**rating score** 10
- Bensulide-10
- Chlorothalonil-11
- Chlorpyrifos + OA-11
- Cypermethrin-9
- Diazinon + OA-11
- Dicofol (Kelthane)-9
- Dimethoate + OA-10
- Diuron-10
- Endosulfan-9
- EPTC-11
- Iprodione-10
- Malathion + OA-11
- Methidathion-10
- Naled as dichlorvos-10
- Norflurazon-7
- Oryzalin-9
- Oxydemeton-methyl-11
- Oxyfluorfen-9
- Permethrin-9
- Phosmet-10
- Propargite-11
- S,S,S-tributyl phosphorotrithioate-8
- Simazine-9
- S-metolachlor-8
- Trifluralin-10

dpr

Fumigant samples

- 3 pesticides in VOC sample
  - 1,3-dichloropropene (Telone, Inline)-**rating score** 12
  - Methyl bromide-12
  - Sodium tetrathiocarbonate (Enzone) as carbon disulfide breakdown product-12
  - Acrolein and methyl iodide dropped
- Chloropicrin sample-12
- MITC sample-12

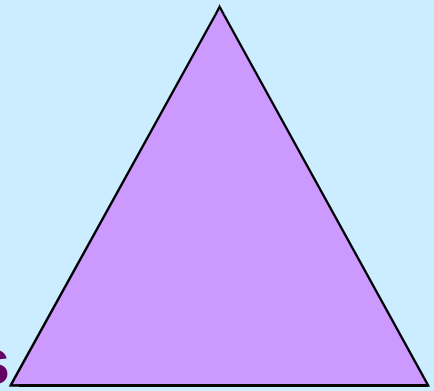
Current high rated pesticides not included

The following pesticides cannot be included with the monitoring methods

- Sulfuryl fluoride-**rating score** 11
- Propylene oxide-10
- 2,4-D - 10
- Paraquat-10
- Maneb-10
- Captan-10
- Ziram-10
- Mancozeb-10
- Dicloran-10
- Aldicarb-10
- Chlorthal-dimethyl-10
- Methomyl-10
- Thiram-10
- Propyzamide-10
- Aluminum phosphide-10

Key technical issues

How many samples?
How often should we sample?



Which communities should we monitor?

Which pesticides should we monitor?

Current community selection criteria

- Evaluated 226 communities within
  - North Central Coast air basin (48 communities)
  - San Joaquin Valley (161 communities)
  - Ventura County (17 communities)
- Selected 3 communities for monitoring based on
  - Use of 34 pesticides included in monitoring
  - Demographic factors
  - Other criteria

Current factors for selecting communities – pesticide use

- 2006-8 average use of 34 pesticides
  - Use within community (community zone)
  - Use between border to 1 mile of community (local zone)
  - Use between 1 to 5 miles of community (regional zone)
- Ranked communities for 102 (34 pesticides x 3 zones) use subcategories
- Determined quartile (1 – 4) rating
- Averaged 102 quartile ratings for each community

Current factors for selecting communities – demographic factors

- Selected groups considered in risk assessments
  - People less than 18 yrs old
  - People greater than 65 years old
  - People greater than 5 yrs old with disabilities
  - People employed in farming, fishing, forestry (indicator of farmworkers)
- Ranked communities for each demographic subcategory (2000 census data)
- Determined quartile (1 – 4) rating
- Averaged 4 quartile ratings for each community

dpr

Current weighting of community factors

- Communities selected based primarily on pesticide use ratings, due to higher expected exposure
- Demographic or other factors sometimes used when two or more communities in close proximity had similar pesticide use

Communities with the highest use ratings of 34 pesticides (2006-8 data)

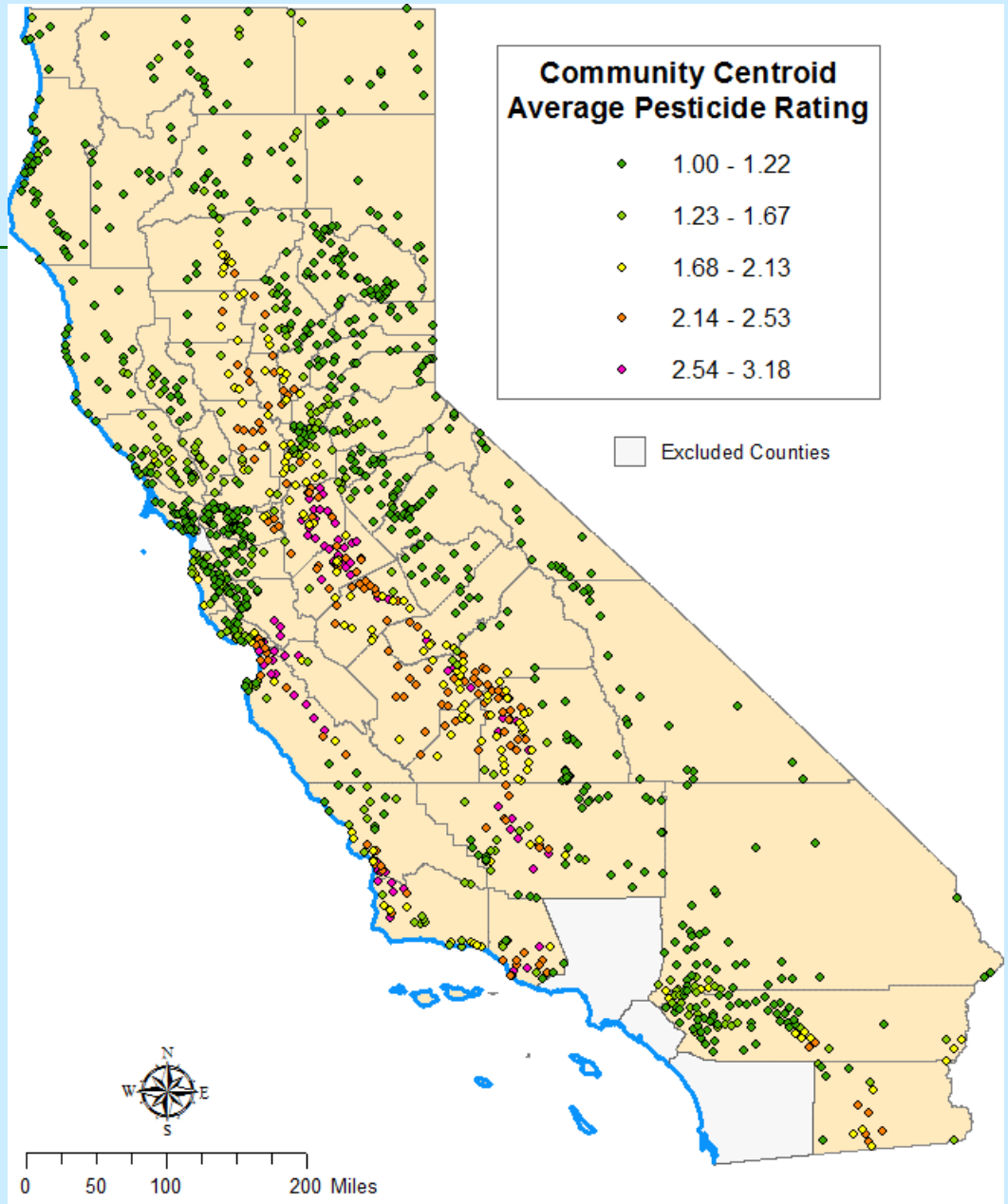
Communities	County	Rating
Linden, Ripon, Salida, Escalon, Manteca, Del Rio, Riverdale Park, Lathrop, Modesto, **Stockton**, Hickman	San Joaquin Stanislaus	3.23-2.71
Shafter, Wasco, Arvin, Rosedale, Mettler	Kern	3.01-2.77
Greenfield, Soledad, **Salinas**, **Gonzales**, King City, **Castroville**	Monterey	2.96-2.62
Patterson, Westley	Stanislaus	2.93
Camarillo, **Oxnard**	Ventura	2.89-2.86
Cantua Creek, **Huron**, **Mendota**	Fresno	2.85-2.71
Reedley, **Parlier**	Fresno	2.77-2.62

Communities in red indicate other desirable characteristics, such as monitoring station.
Communities in **bold** indicate highly rated in demographic factors.

dpr

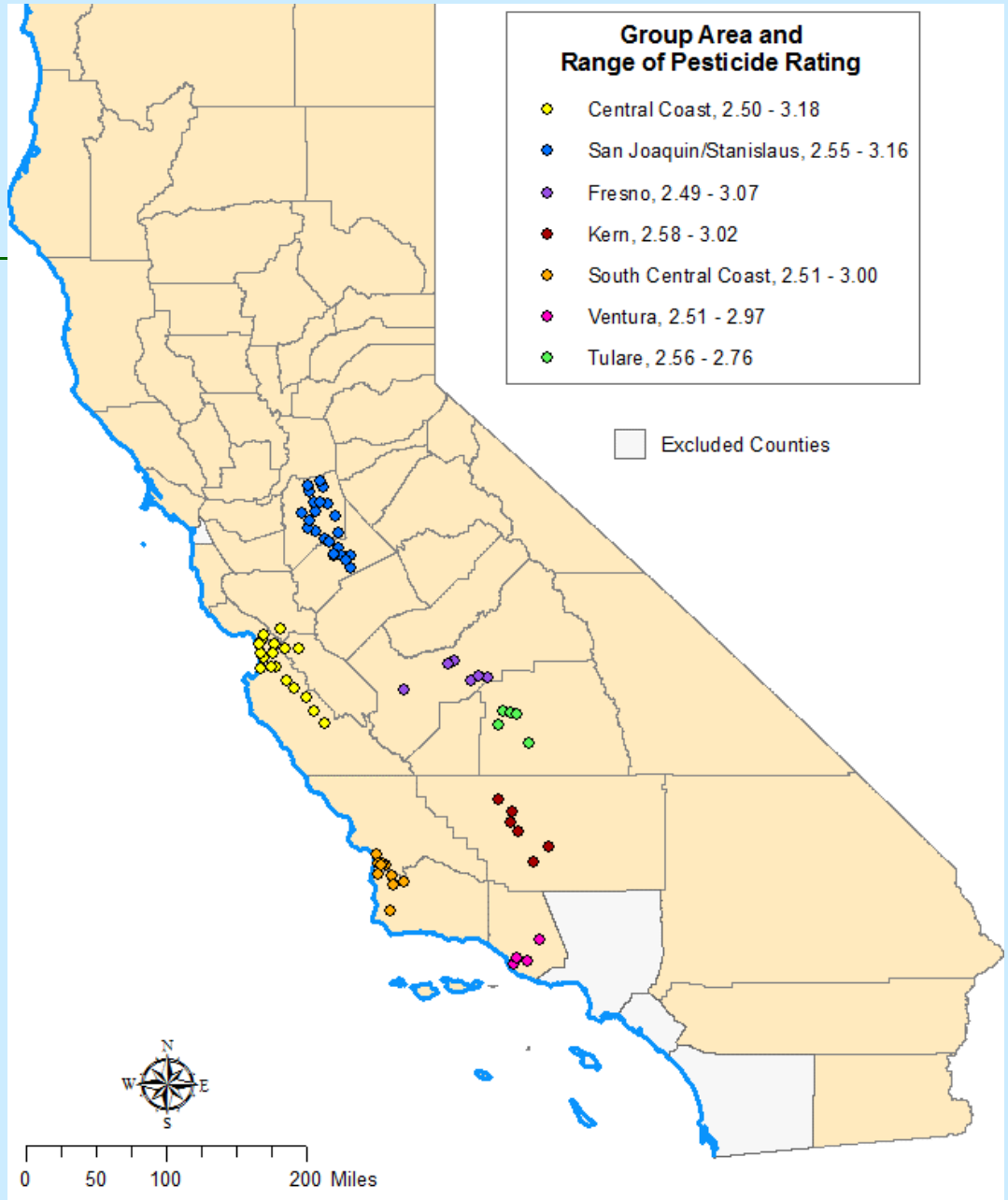
New community pesticide ratings

- Compiled 2011 use data for 32 pesticides
- 1,267 communities rated, all except
  - Los Angeles County
  - Orange County
  - San Diego County
  - San Francisco



New community pesticide ratings

- Top groups are in Central Coast and San Joaquin Valley
- Will rerun analysis when 2012 use data is available



Communities with the highest use ratings of 32 pesticides (2011 data)

Communities	County	Rating
Gilroy, Prunedale, Hollister, San Martin, Salinas (2.81), King City	Santa Clara Monterey San Benito	3.18-2.77
Modesto, Stockton, Salida, Ripon (3.08), Lathrop, Manteca, Lodi, Keyes, Ceres, Turlock, Linden	San Joaquin Stanislaus	3.16-2.78
Fresno, Selma	Fresno	3.07-2.63
Shafter (3.02), Bakersfield	Kern	3.02-2.77
Nipomo, Santa Maria	San Luis Obispo Santa Barbara	3.00-2.77
Camarillo, Oxnard	Ventura	2.97-2.94

*Communities in pink were not rated or lower rated using 2006-8 data

Key issues

- Continue or end air monitoring network?
- Change sampling plan of one site per community and one set of samples per week?
- Change pesticides or selection criteria?
  - Monitor only fumigants and organophosphates?
- Change communities or selection criteria?
  - Which years of pesticide use data?
  - Update demographic ratings based on 2010 census data

Questions, comments, additional information

- Comments due by next PREC meeting, September 20

- Lead staff

Pam Wofford	Randy Segawa
(916) 324-4297	(916) 324-4137
pwofford@cdpr.ca.gov	rsegawa@cdpr.ca.gov

- DPR web site: www.cdpr.ca.gov
  - Select “Air” under Quick Finder
  - Select “Air Monitoring Network”