

Update on DPR's Ground Water Protection Program

John Troiano, PhD
Research Scientist III
Department of Pesticide Regulation, California EPA

DPR GW Regulations Revised May 2004

1. Use modified for known contaminant (6800(a) list)
In GWPA - CAC issues permits
 - > Leaching, coarse soils - 5 options
 - > Runoff, hardpan soils - 9 options
Statewide
 - > Canals, ditch banks, and recharge areas - 2 options
 - > Rights of way - 11 options
 - > Issuance of Storm Water Permit is an option
2. Well head protection for rural wells

DPR GW Regulations Revised May 2004

Leaching - 5 options

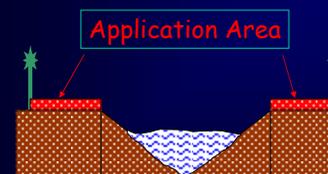
1. Do not irrigate for 6 months after application



DPR GW Regulations Revised May 2004

Leaching - 5 options

1. Do not irrigate for 6 months after application
2. Irrigation water does not contact treated area for 6 months (application to berms)



DPR GW Regulations Revised May 2004

Leaching - 5 options

1. Do not irrigate for 6 months after application
2. Irrigation water does not contact treated area for 6 months (application to berms)
3. Irrigate Efficiently for 6 months after application



DPR GW Regulations Revised May 2004

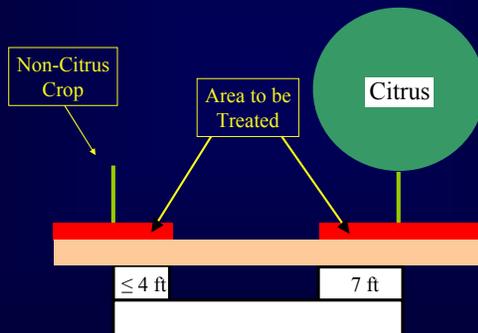
Leaching - 5 options

1. Do not irrigate for 6 months after application
2. Irrigation water does not contact treated area for 6 months (application to berms)
3. Irrigate Efficiently for 6 months after application
4. Scientific-based alternative approved by the Director
5. If none are feasible, 3-year use with approved protocol for testing alternative new method

DPR GW Regulations Revised May 2004

Runoff - 9 options

1. Apply in a band not to exceed 33% of distance between crop rows - modified re citrus request to dripline of tree skirts

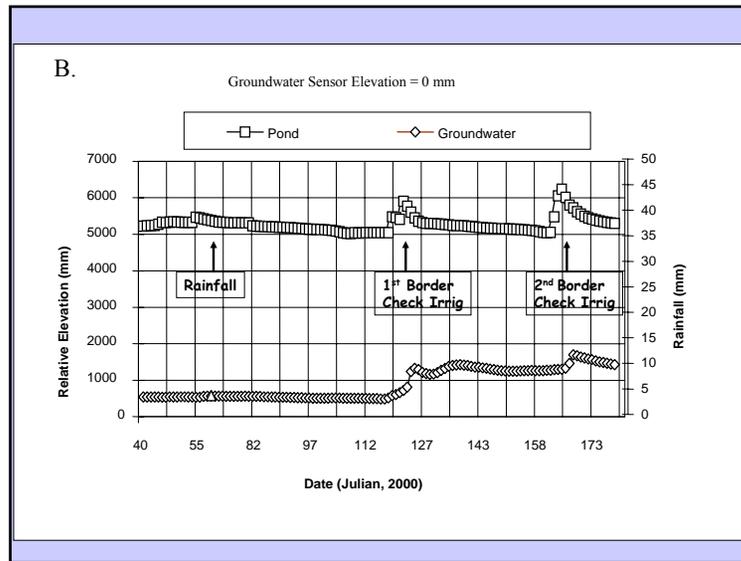


Other Processes?

Cracking-clay Soils with Water Table

- Atrazine, Diuron, Hexazinone detections near Tracy
- Rotation of alfalfa with row crops and corn
- Hexazinone only used on alfalfa
- Soils are a cracking-clay but most fields with small ponds
- Cooperative study with San Joaquin Farm Advisors, grower, and CAC

Leaching or runoff ?



Other Management Options

Chemigation

Application from single site

Water activates weeds

Less applied/more frequent?

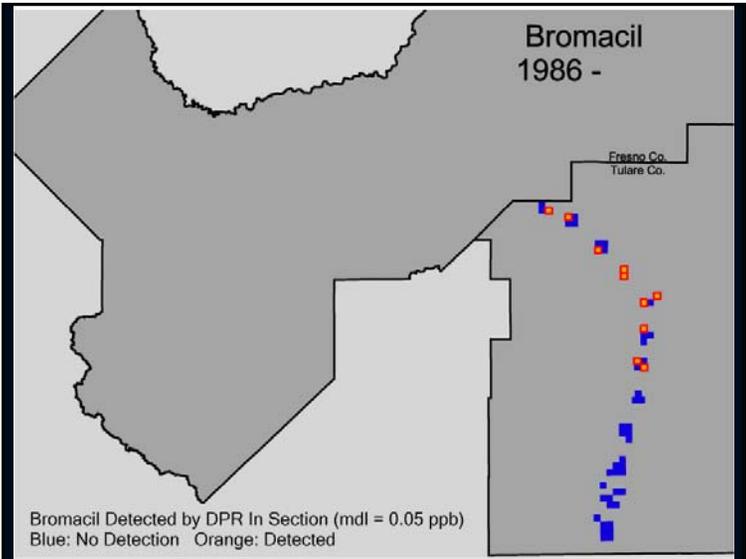
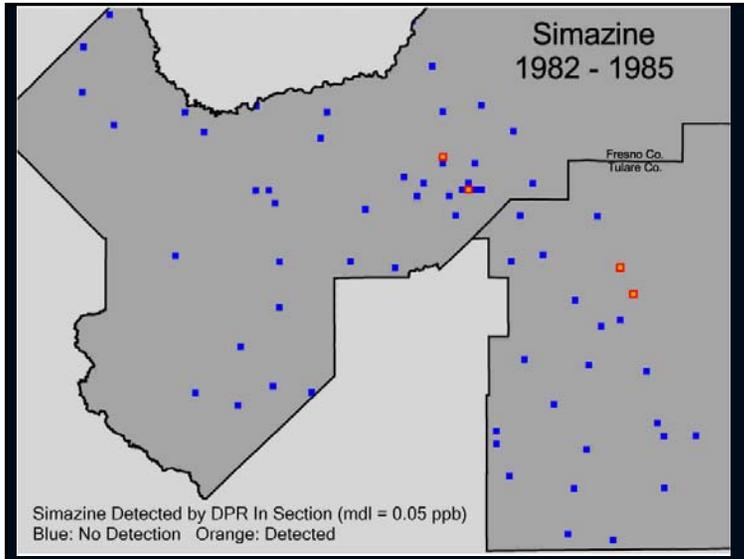
Many pre-emergence herbicides
not labeled for low volume
chemigation





Measuring Trends in Pesticide Concentration in Domestic Wells (Studies 182 & 228)

John Troiano, Alfredo Da Silva, Cindy Garretson, Joe Marade



Study 182: Domestic Monitoring Wells

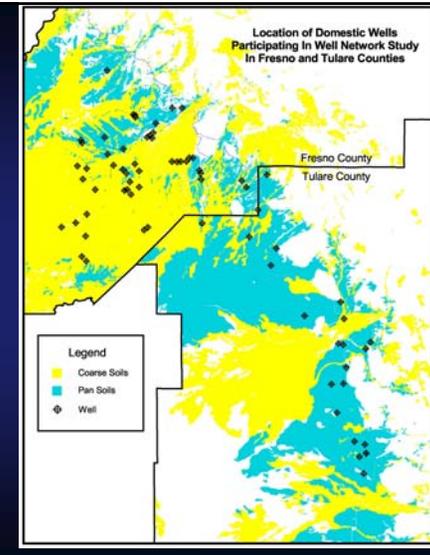
Objective

Use trends in pesticide concentration as indication of effectiveness of regulations enacted in May 2004

Sampling Design

1. Identify domestic wells with previous detection
2. Find cooperating well owners in leaching and runoff GWPAs in Fresno and Tulare Counties.
3. Initial sampling in Fall and Spring of each year. First sampling was in Fall of 1999. In 2003 sampling reduced to Spring of each year.

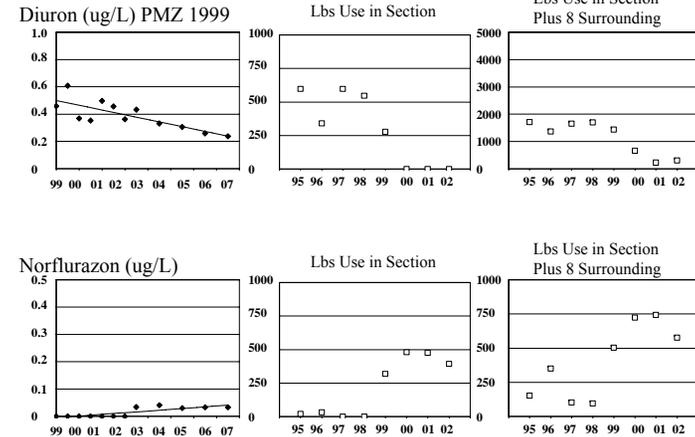
Location of wells with respect to leaching and runoff GWPAs in Fresno and Tulare Counties

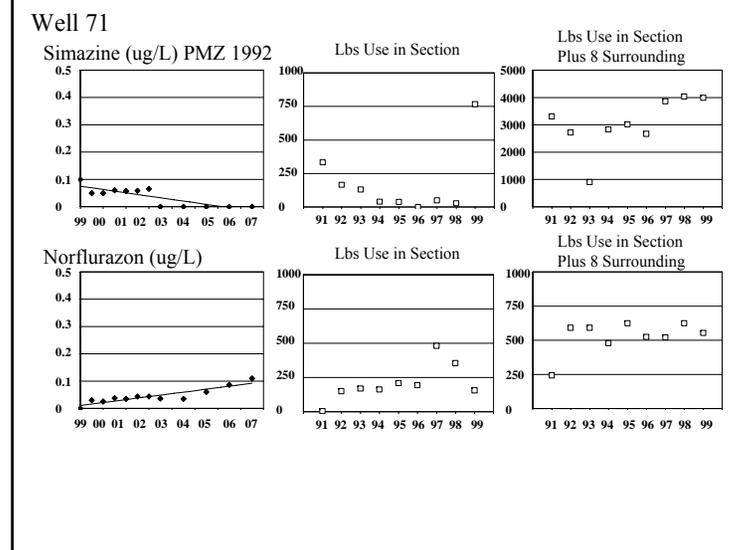


Trends in Pesticide Concentration: 1999-2007

	No Change (<0)	Decreasing	Increasing	Total
Leaching GWPA				
Simazine (Princep)	21	8	1	30
Diuron (Karmex)	10	6	0	16
Bromacil (Hyvar)	2	3	1	6
Norflurazon (Soilicam)	10	1	3	14
Runoff GWPA				
Simazine (Princep)	28	8	1	37
Diuron (Karmex)	18	12	4	34
Bromacil (Hyvar)	16	9	2	27
Norflurazon (Soilicam)	11	2	5	18

Well 2





- ## Background Monitoring Results
1. Some wells indicate trends in concentration.
 2. Some decreasing trends due to previous PMZ regulation where choice was to stop use and switch
 3. Increase in norflurazon detection was due to the switch!
 4. Indication of regulations working
 - 4.1 Use rates continue at high rate with decrease decrease in concentrations
 - 4.2 Use is re-instated such as for simazine with decrease in concentrations
 - 4.3 Number of permits given with a management option

