



Exploring Agricultural Pesticide Use in California with the Pesticide Mapping Tool

Daniel S. Madrigal

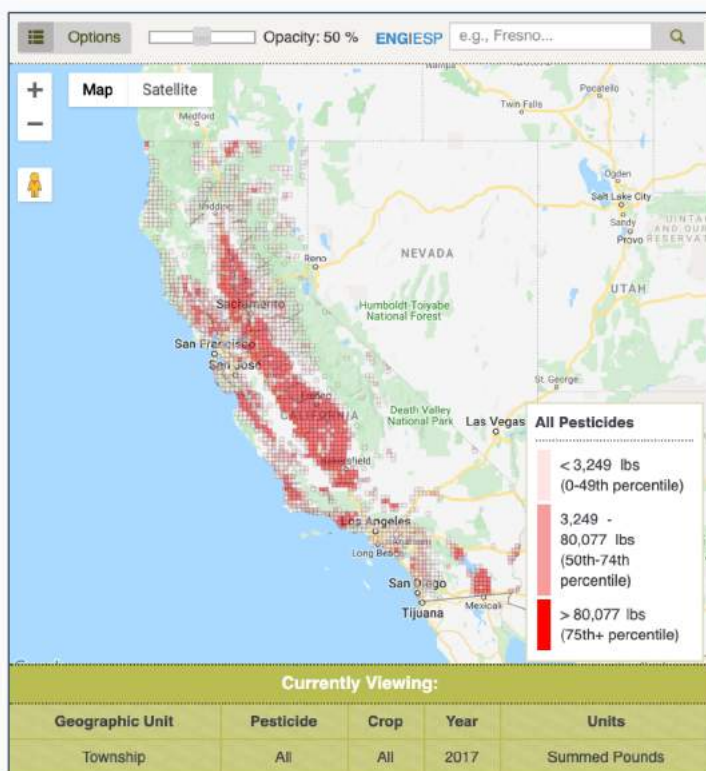
December 10th, 2019



TRACKING  CALIFORNIA
INFORMING ACTION FOR HEALTHIER COMMUNITIES



Learn to use the Pesticide Mapping Tool to answer questions like...



What pesticides are used nearby?

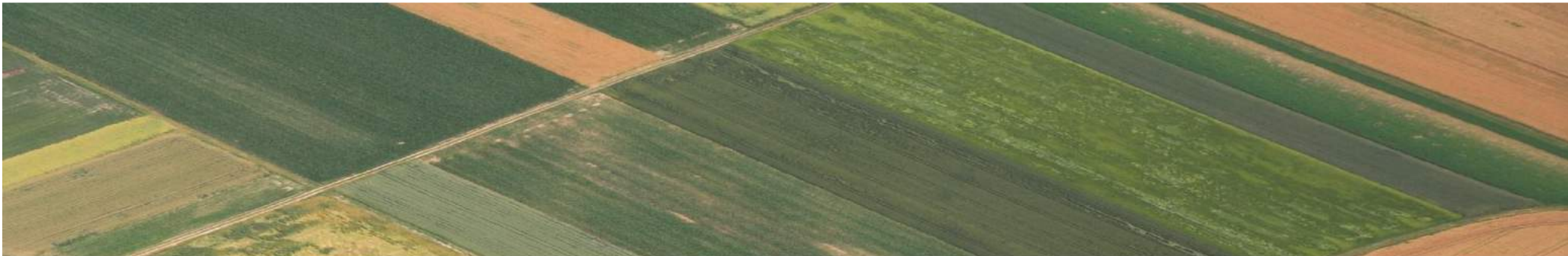
What are the geographical patterns of pesticide use?

What are the time trends of pesticide use?



Pesticide Use in California

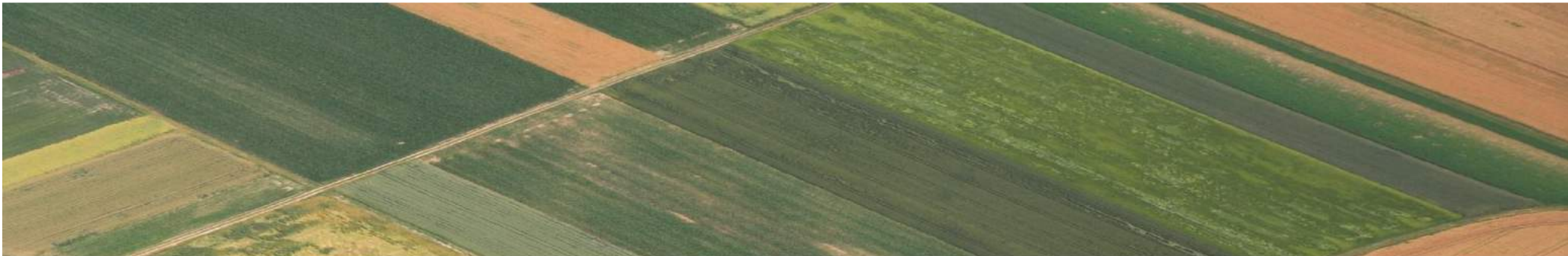
- California produces $\frac{1}{3}$ of the vegetables and $\frac{2}{3}$ of the fruits and nuts in the United States
- In 2017, 204.7 million pounds of pesticides were applied in California





Pesticides and Health

- Pesticides don't always stay in the fields where they are applied
- Acute exposure concerns for incidents of pesticide poisoning
- Chronic exposure concerns for health effects related to lower-dose long-term exposures





Pesticides in the News

Sonoma County restricts use of Roundup, other synthetic pesticides



SLIDE 1 OF 3

From left, Juanita Tehuitzo plays instruments with her daughters Ilyanna, 5, and Mercedes, 7, at Andy's Unity Park in southwest Santa Rosa on Wednesday. The Board of Supervisors banned the use of insecticides in county playgrounds, plazas and parks. (photo by John Burgess/The Press Democrat)

Glyphosate

ENVIRONMENT

California Bans Popular Pesticide Linked To Brain Damage In Children

October 9, 2019 - 10:47 PM ET

RICHARD GONZALES



California is banning a pesticide often used by growers of grapes, olives, almonds and other crops. Sales of chlorpyrifos will be outlawed in the state as of Feb. 8.

Eric Rasmussen

Chlorpyrifos

BUSINESS & REAL ESTATE

California almond industry moves to protect vital bee colonies

By Edward Ortiz
eortiz@sacbee.com

OCTOBER 16, 2014 10:18 PM

Listen to this story now
05:22



Almond trees bloom and bees pollinate the crop in and around Modesto in February.

ANDY ALFARO/MODESTO BEE FILE

Neonicotinoids

KQED NEWS

Firms Fined for Pesticide Incident That Sickened 92 in Bakersfield

By Ted Goldberg | Dec 18, 2017

THE CALIFORNIA REPORT

The Kern County agricultural commissioner has imposed nearly \$50,000 in fines against five companies after investigating a pesticide incident that sickened 92 farmworkers harvesting garlic on the outskirts of Bakersfield last summer.

The fines involve two separate pesticide applications: one that sickened a harvest crew and a second nearby that, although it

A garlic field where 92 farmworkers were sickened after being exposed to pesticide, drifting from a nearby site in August 2017. Kern County Department of Agriculture

Fumigants

NEWS

Supervisors to hear Rio Mesa High School pesticide findings today



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Contra Valley	Port Vancouver
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Business	Politics
County	Crime
National News	WCS Features
Health	WCS Columns
	Reader Comments

More News

Fumigants



Pesticide Regulations

**U.S. Environmental
Protection
Agency**

**California
Department
of Pesticide
Regulation**

**County
Agricultural
Commissioner**



Pesticide Use Reports (PUR)

PUR maintained by California Department of Pesticide Regulation (CDPR)

- Detailed reporting of all agricultural pesticide applications
- Data available from 1991 to 2017
- Most comprehensive system in the world

Detailed records for each pesticide application includes:

- Pesticide/product (pounds applied)
- Crop/commodity
- Method of application (ground vs aerial)
- Time and date of application
- Location (by county, zip code, or 'section')
- Acreage of application



Agricultural Pesticide Use Near Public Schools in California

California Environmental
Health Tracking Program

April 2014





Pesticide Use Reports (PUR) Query

The image displays a series of overlapping screenshots from the CALIPIP (California Pesticide Information Portal) website, illustrating the steps to query Pesticide Use Reports (PUR). The interface is organized into several sections:

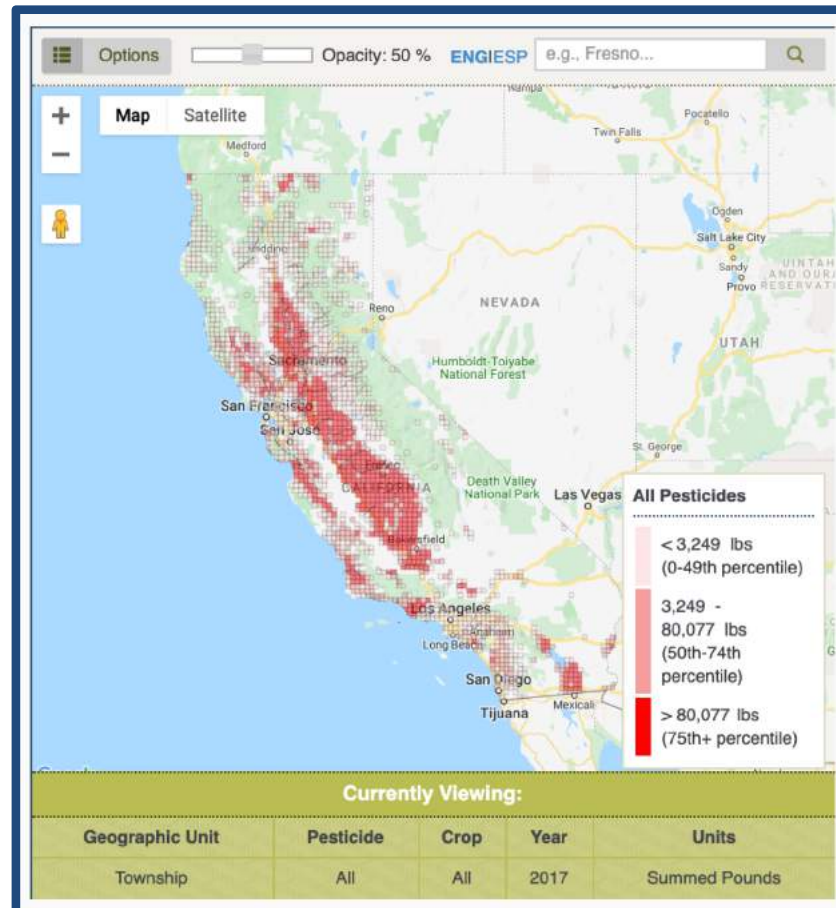
- Navigation:** Includes links for "CaPIP Home", "My Selections", and "Pesticide Use Report".
- Query Selection:** Users can select a county from a list of available counties (e.g., Alameda, Alpine, Amador) or search by site/crop/chemical/product.
- Search Parameters:** Fields for "Date" (Year), "Location" (County), "Site/Crop", "Product", and "Chemical" are provided.
- Output Configuration:** A section titled "Format Output" allows users to select columns for the report. It includes "Available Data Columns" (YEAR, APPLICATION_MONTH, MONTH_RL_YEAR, DATE, COUNTY_NAME) and "Output Columns Selected" (YEAR, DATE, COUNTY_NAME, COMTRS, SITE_NAME). A "Summarize the Data" checkbox is also present.
- Sorting Options:** A "Columns to Sort by" section allows users to choose sorting criteria (YEAR, DATE, COUNTY_NAME, COMTRS, SITE_NAME) and a "Sort-By Columns Selected" section for the final output order.
- File Format:** A "Select Output File Format/Type" section offers options for "Tab-delimited text (default)" and "HTML table".
- Final Actions:** Buttons for "Reset Page", "Start Over", "My Selections", and "Submit Query" are located at the bottom.

Additional text on the screenshots includes instructions such as "Please review your email address for unable to notify you when your data" and "Click on another category in the navigation bar to the left to continue."



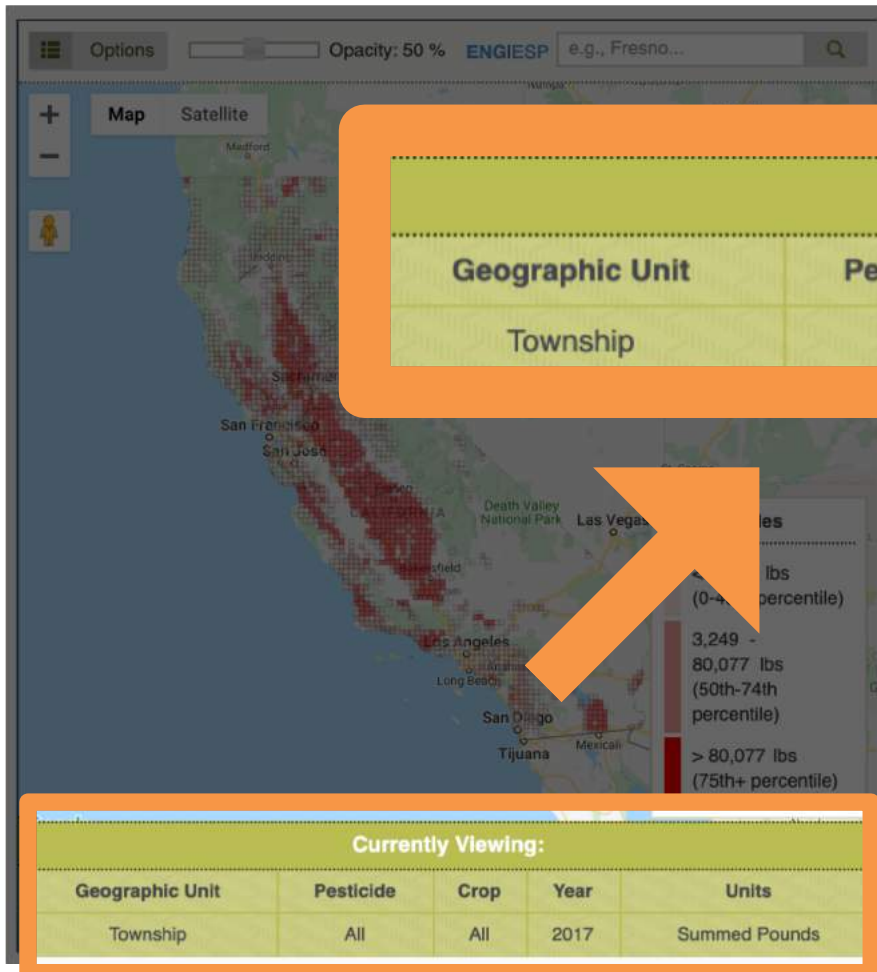
Tracking California's Pesticide Mapping Tool

www.trackingcalifornia.org/pesticidetool





Current Information Displayed





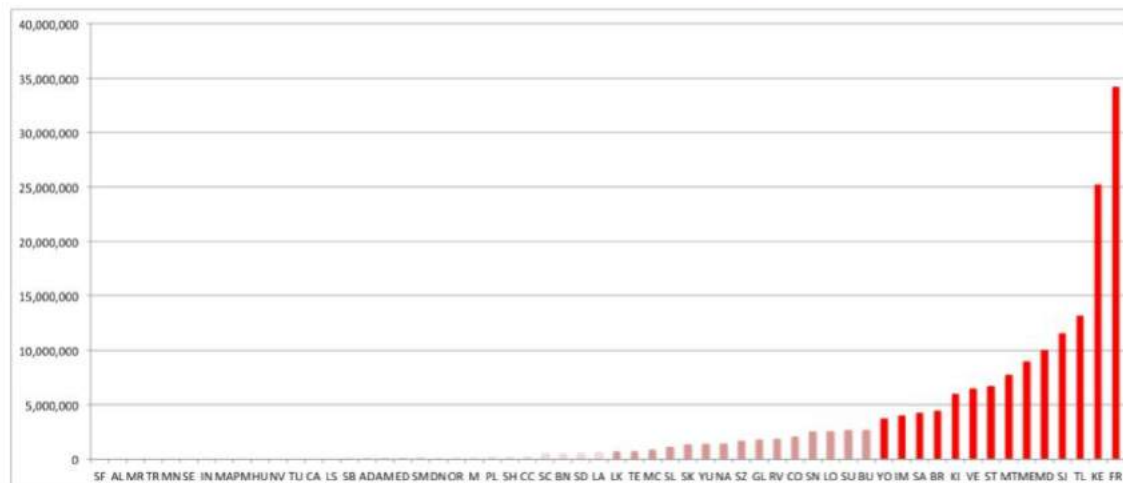
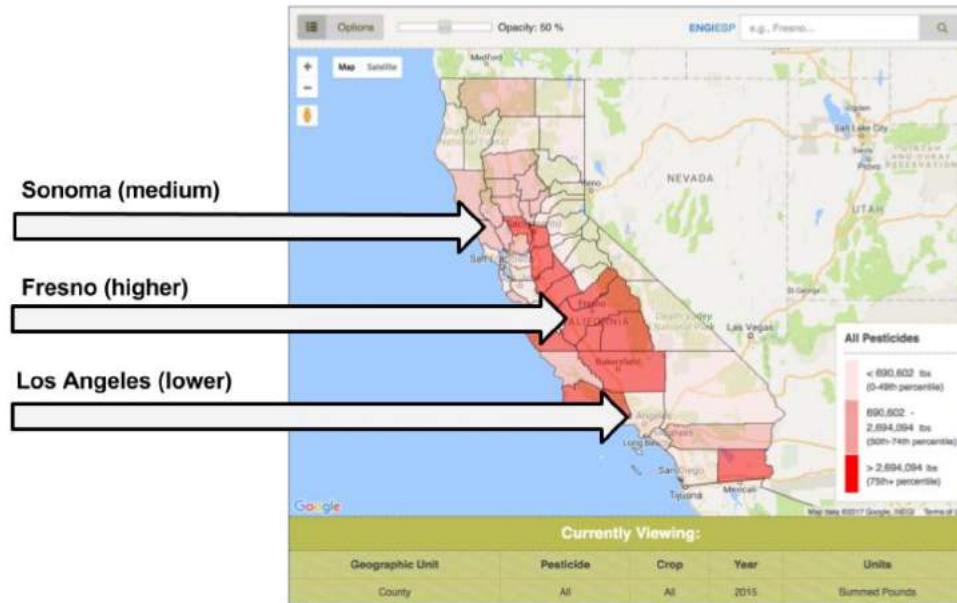
Search for a Location

The screenshot displays a web application interface for pesticide usage. At the top, there is a search bar containing the text "e.g., Fresno...". Below the search bar is a map of the western United States, showing states like Nevada and Utah. A large orange arrow points from the search bar to the map. To the right of the map is a legend titled "All Pesticides" with four color-coded categories: light pink for "< 3,249 lbs (0-49th percentile)", medium pink for "3,249 - 80,077 lbs (50th-74th percentile)", dark pink for "> 80,077 lbs (75th+ percentile)", and red for "> 80,077 lbs (75th+ percentile)". At the bottom of the map, there is a table with columns for "Township", "Crop", "Year", and "Units". The table shows "Township" as "All", "Crop" as "All", "Year" as "2017", and "Units" as "Summed Pounds".

Township	Crop	Year	Units
All	All	2017	Summed Pounds

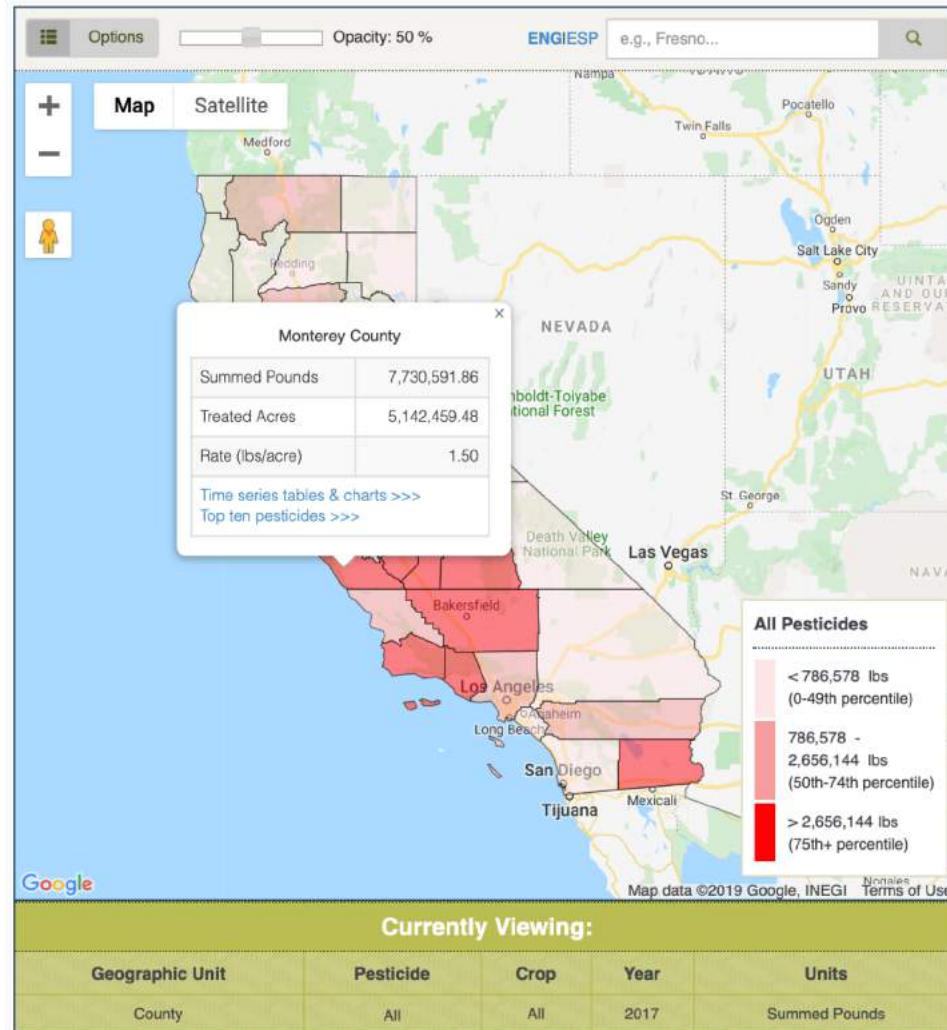


Legend



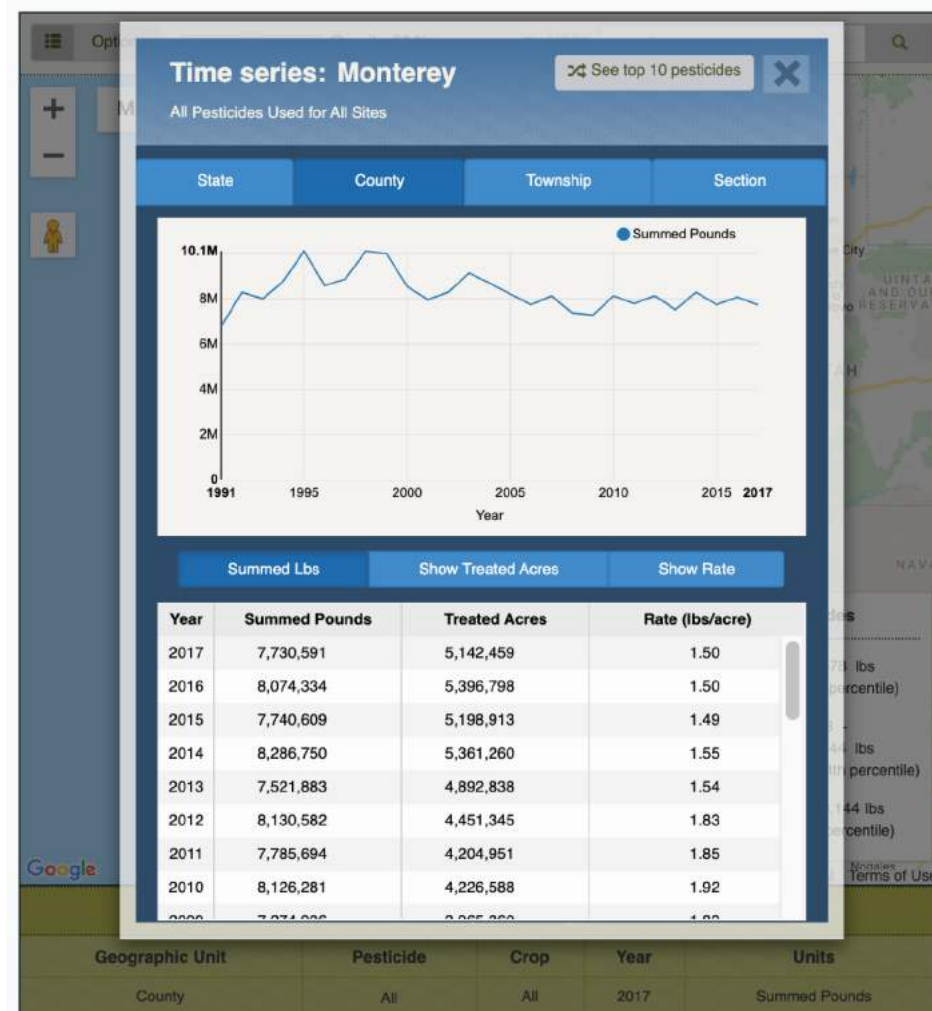


Pesticide Use in an Area



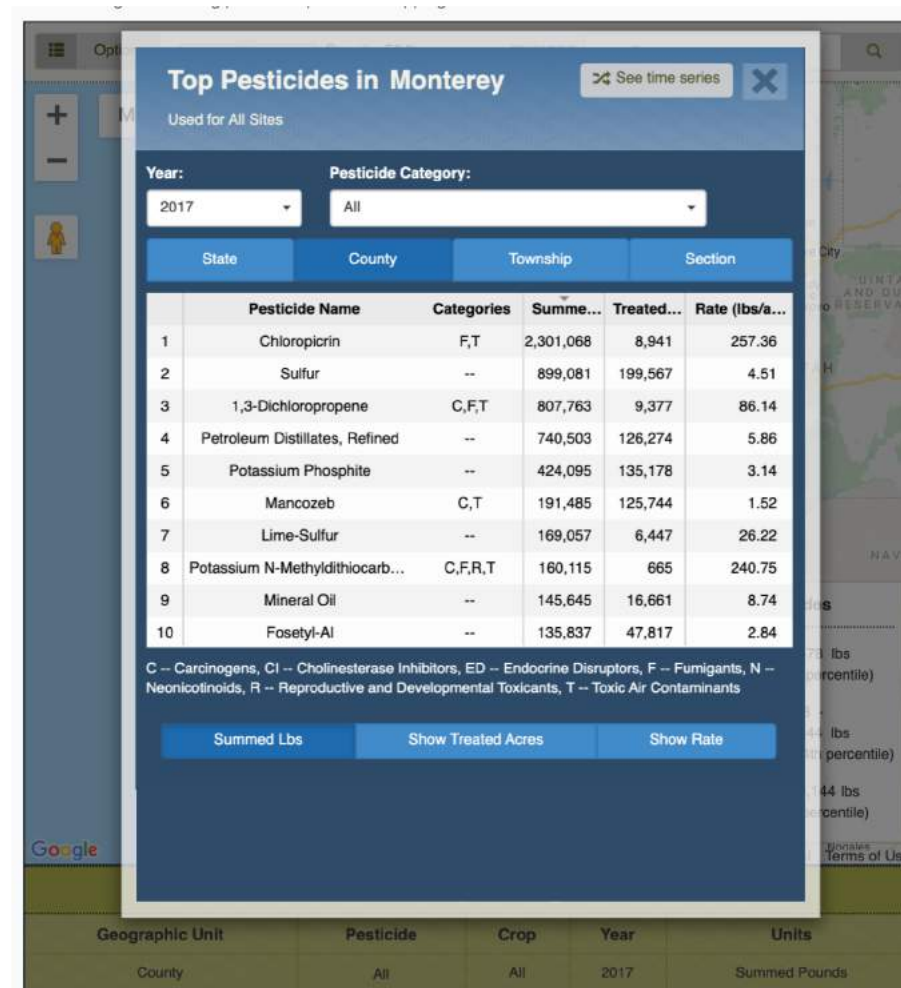


Time Trends





Top Ten Pesticides





Pesticide Selection Options

Options Opacity: 50% ENGIESP e.g., Fresno...

Map Satellite

Currently Viewing:

Geographic Unit	Pesticide	Crop	Year
Township	All	All	2017



Pesticide Selection Options Window

Pesticide Selection Options

Year: 2017 Geographic Unit: County Unit of measure: Summed Pounds

Select category or pesticide (or search for a pesticide)
All

Select crop/site (or search for a crop/site)
All

*individual pesticides and crops/sites are listed in the drop down in order of pesticide use, from highest to lowest

Reset Options OK Cancel

All Pesticides

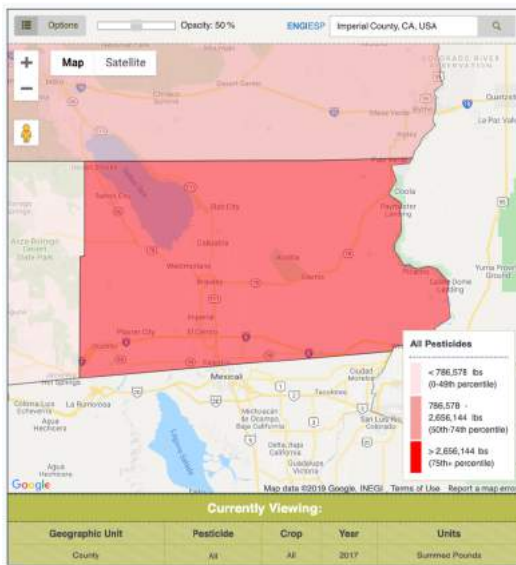
- < 786,578 lbs (0-49th percentile)
- 786,578 - 2,656,144 lbs (50th-74th percentile)
- > 2,656,144 lbs (75th+ percentile)

Currently Viewing:

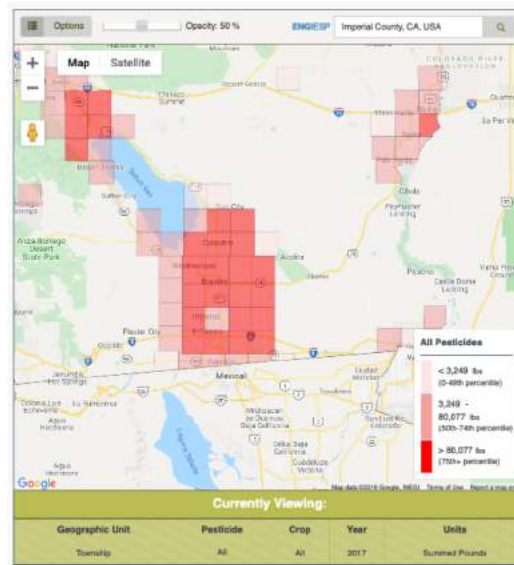
Geographic Unit	Pesticide	Crop	Year	Units
County	All	All	2017	Summed Pounds



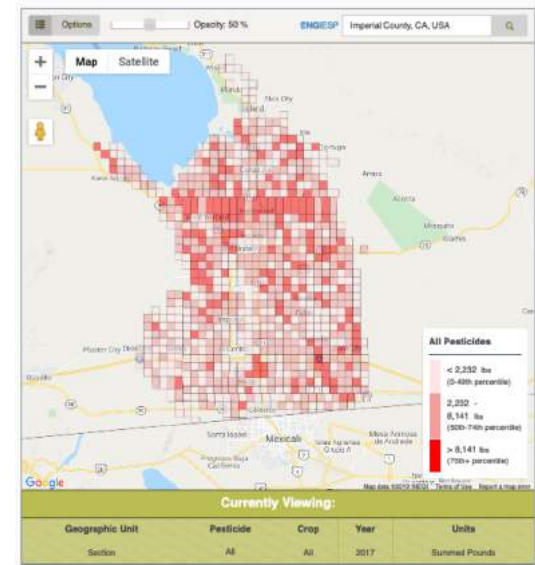
Select a Geographical Area



County View



Township View



Section View

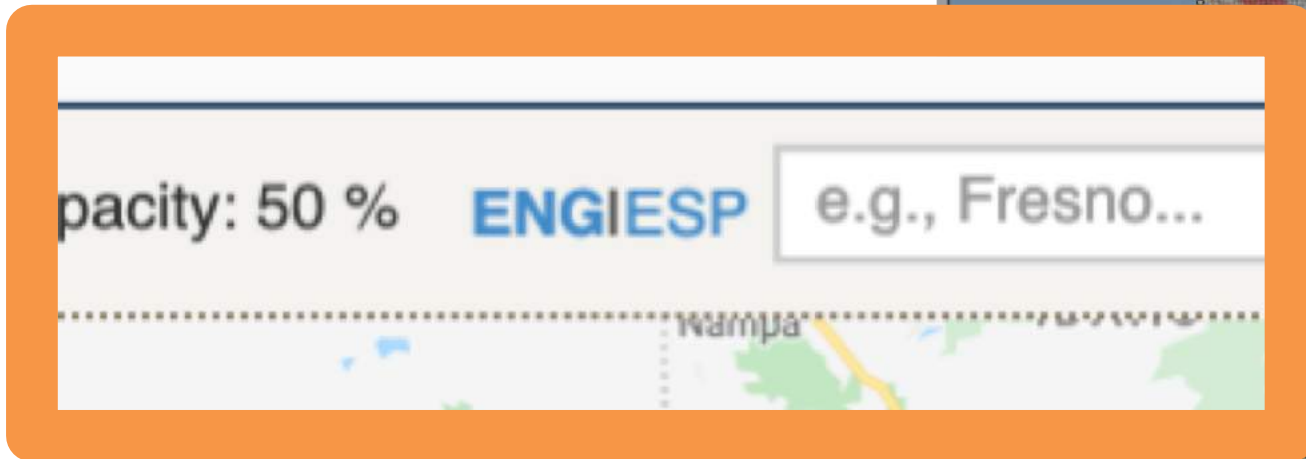
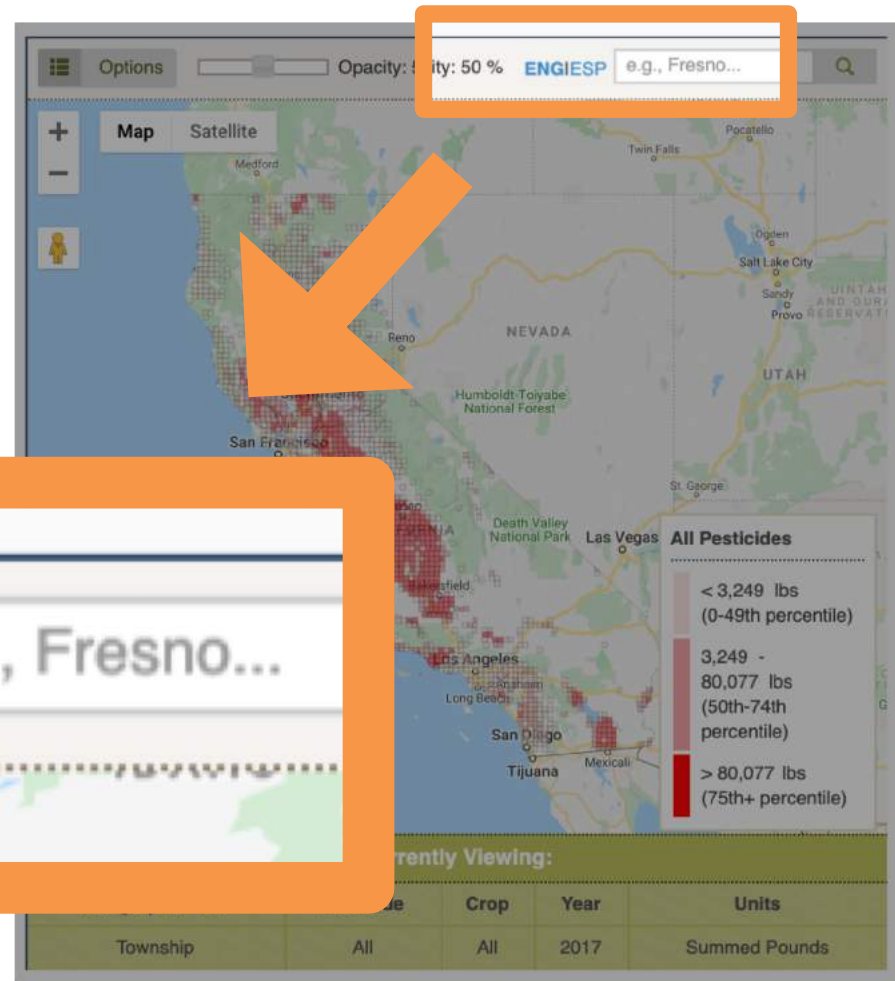


Pesticide Selection: All, Individual, or Category

- All
- Individual
- Categories:
 - (1) Carcinogens
 - (2) Cholinesterase Inhibitors
 - (3) Endocrine Disruptors
 - (4) Fumigants
 - (5) Neonicotinoids
 - (6) Reproductive and Developmental Toxicants
 - (7) Toxic Air Contaminants



Explore the tool in Spanish





Considerations

1. Variability within color categories
2. Map shows pesticide use, not pesticide exposure
3. Each pesticide has different characteristics of how they move through the environment and how they impact human health
4. Most recent data are from 2017



Bees & Neonicotinoids

Scenario:

You are a beekeeper in Fresno County and are concerned about neonicotinoid pesticide applications.

Question:


Where are neonicotinoid pesticides applied in Fresno County?





BUSINESS & REAL ESTATE


California almond industry moves to protect vital bee colonies

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Almond trees bloom and bees pollinate the crop in and around Modesto in February.
ANDY ALFARO. MODESTO BEE FILE



Round-Up in the Water

Scenario:

You are a researcher investigating the presence of glyphosate (the active ingredient in Round-Up) in Sonoma County waterways and would like to know of a few good places to sample.



Question:

Where is glyphosate applied in Sonoma County?



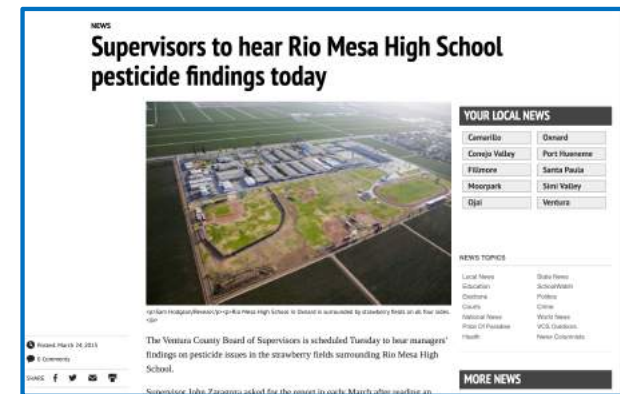
Pesticides Near Schools

Scenario:

You are a teacher at Rio Mesa High School and read about the fumigants that were applied near your school. You want to know if fumigants are still being used nearby.

Question:

Are fumigants being applied near Rio Mesa High School? Is use going up or down?





Pesticide Mapping Tool Support

- User guides and more at www.trackingcalifornia.org/pesticidetool
- Contact info@trackingcalifornia.org for questions or presentation inquiries



More Pesticide Information

- US Environmental Protection Agency Pesticides Page
<https://www.epa.gov/pesticides>
- California Department of Pesticide Regulation
<https://www.cdpr.ca.gov/>
- Listing of CA County Agricultural Commissioners
<http://www.cdfa.ca.gov/exec/county/countymap/>
- National Pesticide Information Center
<http://npic.orst.edu/>



Questions?

