

Using Pesticide Use Report Data

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Topics of Discussion

- # How to get the data
 - # How to get information from the data
 - # Using SAS
 - # Using MySQL, an open source database
 - # Using Excel's pivot tables
 - # Conclusion
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How to Get PUR Data

- DPR's PUR Annual Report
(www.cdpr.ca.gov/docs/pur/purmain.htm)
 - CDROM of entire database: 3.5 million records/year, 30 data fields, in 58 county text files
 - California Pesticide Information Portal (Cal/PIP)
(calpip.cdpr.ca.gov/cfdocs/calpip/prod/main.cfm)
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How to Get PUR Data

The screenshot shows the California Pesticide Information Portal in Mozilla Firefox. The browser title is "California Pesticide Information Portal - Mozilla Firefox". The page header includes "Department of Pesticide Regulation" and "California Pesticide Information Portal". A search bar is located in the top right corner with a "Search" button and radio buttons for "My CA" and "DPR". Below the search bar are links for "Search Help" and "Advanced Search".

The main content area is titled "Query Pesticide Use Report". It features a "Select Years" section with a list of "Available Years (16)" from 2005 to 2000. A "Select" button is positioned below the list. Below this is a "Years Selected (1)" section with a list containing "2005" and "Unselect" and "Unselect All" buttons. A note states: "Defaults to most recent data year (2005) unless otherwise specified."

The sidebar on the left contains navigation links: "DPR Home", "CalPIP Home", "My Selections", "Data Source: PUR", "Pesticide Use Report", "Search by Data Category: Date", "Year", "Location", "County", "MTRS", "Zip Code", "Site/Crop", "Name Search", "Product", "Name Search", "Chemical", "Name Search", "Other Criteria", "Ag/NonAg", "Advanced", "Map Viewer", "Format Output", "Help", and "Contact CalPIP".

At the bottom of the page, there is a "To continue selecting query criteria, click on another category in the navigation bar to the left." instruction, with "My Selections" and "Start Over" buttons. The version information "Version 2006.11 (2005 PUR Data Update)" is displayed at the bottom center.

How to Get PUR Data

California Pesticide Information Portal - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

Department of Pesticide Regulation
California Pesticide Information Portal

Search
My CA DPR
Search Help Advanced Search

Query Pesticide Use Report

Format Output

Data Source: PUR
Pesticide Use Report

Search by Data Category:
Date
Year
Location
County
MTRS
Zip Code
Site/Crop
Name Search
Product
Name Search
Chemical
Name Search
Other Criteria
Ag/NonAg
Advanced
Map Viewer
Format Output
Help
Contact CalPIP

Available Data Columns:
YEAR
APPLICATION_MONTH
MONTH_IN_YEAR
DATE
COUNTY_NAME
COUNTY_CODE

Output Columns Selected:
YEAR
APPLICATION_MONTH
DATE
COUNTY_NAME
COMTRS
SITE_NAME

Arrange the data columns in the order you want the output to appear.

Summarize the Data
Checking this box will format your results as a summary report based on the columns in the Output Columns Selected box (above). Totals for all summable data columns are computed based on the level of detail determined by the non-summable columns. See known issues.

Columns to Sort By:
UNIT_TREATED
AG_NONAG
SITE_LOCATION_ID
GROWER_ID
LICENSE_NUMBER
USE_NUMBER

Sort-By Columns Selected:
SITE_NAME
CHEMICAL_NAME
USE_NUMBER

Arrange the columns by sorting priority. Sort by...then by...
With each column data will be sorted in ascending order.

Select Output File Format/Type:
 Tab-delimited text (default) HTML table

Reset Page Start Over My Selections Submit Query

Click on another category in the navigation bar to the left to continue.

Version 2006.11 (2005 PUR Data Update)

How to Get PUR Data

- Getting data from Cal/PIP is preferable to the CDROM:
 - You get one large tab-delimited text file per year rather than 58 comma delimited files
 - You can get just the subset of the data you need
 - You can get the variables you want, denormalized
 - You get the latest, corrected data
 - However, not all fields are available
-

How to Get PUR Data

- # UCIPM web site
(www.ipm.ucdavis.edu/PUSE/puse1.html)
 - # Pesticide Action Network (PAN)
(www.pesticideinfo.org/Search_Use.jsp)
 - # Department of Health Services (www.ehib.org)
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How to Get PUR Data

California Pesticide Use Summaries Database--UC IPM - Microsoft Internet Explorer

File Edit View Favorites Tools Help

University of California • Agriculture and Natural Resources
UC IPM Online
STATEWIDE INTEGRATED PEST MANAGEMENT PROGRAM

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[Search](#)

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[Home & garden Agriculture](#)
[Weather data & products](#)
[Degree-days](#)
[Interactive tools & models](#)

Educational Resources
[Publications & more](#)
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[PCA exam helper](#)
[Pesticide use and safety](#)

Research and IPM
[Grants programs](#)
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• [Help](#)
• [Acknowledgments](#)
• [UC ANR: more topics](#)

Research and IPM
Research Tools: California Pesticide Use Summaries

The information in this database was provided by the California Environmental Protection Agency, Department of Pesticide Regulation. The database includes summaries of pesticide use by site, pesticide, county, and month for 1990 through 2000 only. No other information about a pesticide or its label is available in this database.

This form allows you to submit database requests to the UC IPM computer for processing and generation of a report or data file. You request dates, counties, sites, and pesticides and specify report or data file formats.

| [About the database](#) | [Overview](#) | [Terminology](#) | [Variables](#) | [Interpretation](#) |

CAUTION: Specify only the criteria you need. Large requests increase file size and retrieval time.

Pesticide use period:

2000

From: January Through: December

How to Get PUR Data

PAN Pesticides Database: Pesticide Use in California - Microsoft Internet Explorer

File Edit View Favorites Tools Help

← Back → Stop Home Search Favorites Media Print Mail

Address http://www.pesticideinfo.org/Search_Use.jsp Go

PAN Pesticides Database - California Pesticide Use

Home > Pesticide Use [Help](#) | [Feedback](#)

Pesticide Use in California

California pesticide use data show that between 1991 and 2000 almost 2 billion pounds of active ingredients were applied in California alone. After a massive increase in pesticide use in the early to mid-1990's, reported use has stabilized at about 200 million pounds of active ingredients each year. This figure only includes farm use and professional pesticide use. Not included are consumer and much institutional pesticide use. Also not included in this figure are so-called 'inert' ingredients. U.S. pesticide use is about 1.2 billion pounds each year, and worldwide pesticide use is about 5 billion pounds each year. For detailed information on pesticide use in the U.S. overall and in the California, New York or Oregon pesticide use reporting systems, please see our [Pesticide Use](#) pages.

Search CA Pesticide Use Search California pesticide use data for any combination of chemical, crop, or county. Includes data from 1991 through 2004.

CA Crop Use Find pesticide use information on over 250 crops and sites in California for 2004. Crops are organized into the following groups:

Vegetables and Melons	Forests
Fruits and Nuts	Livestock
Field Crops	Other Agriculture
Spices and Herbs	Non-Agricultural
Nursery Products	

CA County Use Find pesticide use information for 58 California counties for 2004.

Additional Resources Links to additional information on pesticide use in California, other states, the U.S. and Europe.

Done Internet

How to Get PUR Data

Pesticide Use in California 1991-2004 - Microsoft Internet Explorer

File Edit View Favorites Tools Help

PAN Pesticides Database - California Pesticide Use

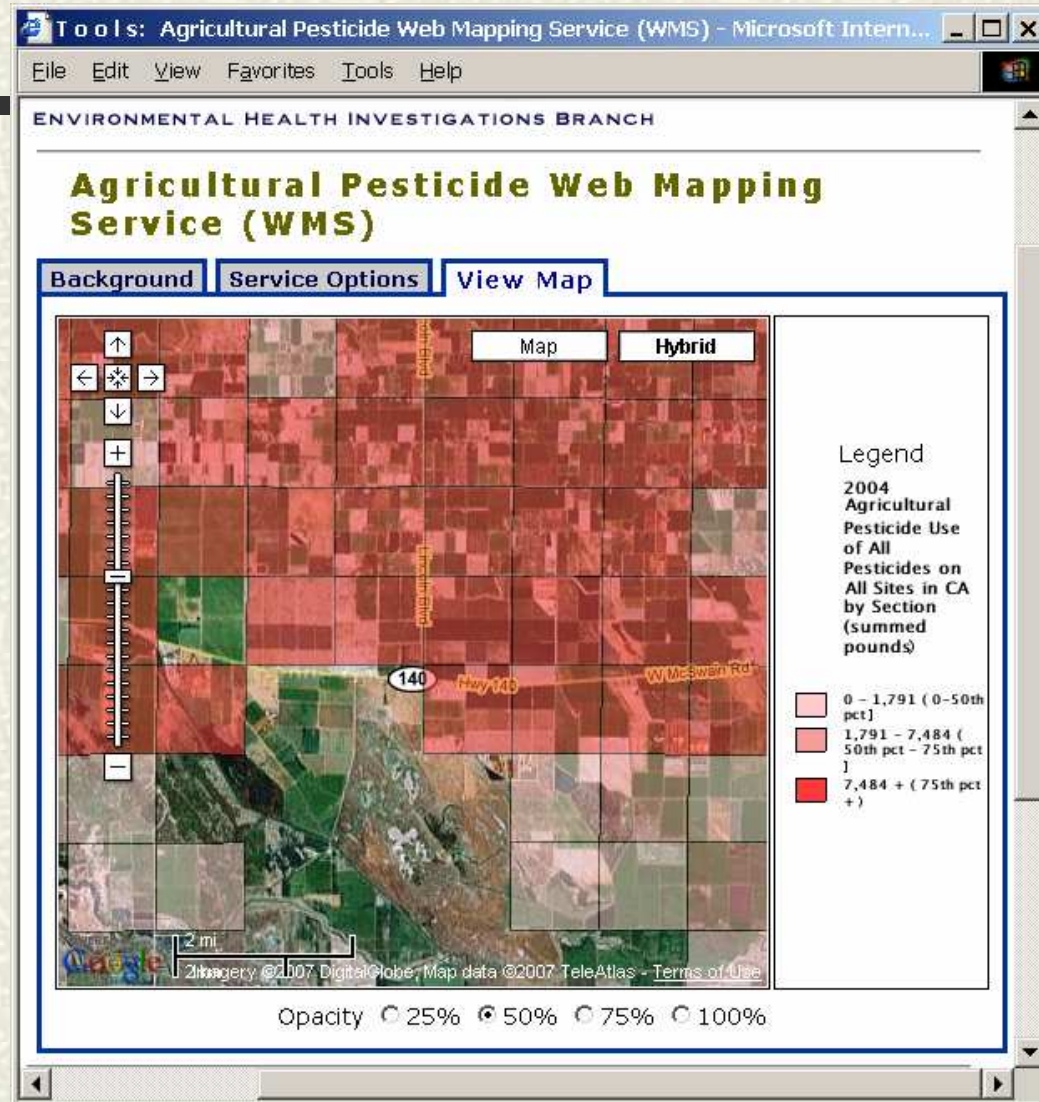
Home > Pesticide Use [Help](#) | [Feedback](#)

Pesticide Use in California

Note: See [Working with the Information on this Page](#) section below for important notes about this data.

Description	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001 *	2002	2003	2004
All Chemicals (Chem Code: 00, All) used on Figs (Site Code: 6005) in California . (County Code: 00) Acres planted estimated by PUR data for figs appear to be fairly accurate. Low acreage in 1992 is probably incorrect due to errors in the original data. Note! Data for All Chemicals summarizes data from 2 or more chem codes and may not agree with DPR summaries which total data for each chem code.														
Gross Pounds:	43,919	33,831	54,234	36,906	26,664	28,428	49,064	38,668	31,981	34,768	83,591	45,377	40,689	34,341
Appl Count:	640	528	526	723	752	503	555	617	449	488	592	560	497	465
Field Count:	1	90	101	120	114	98	118	136	113	109	109	99	92	96
Acres Plant:	120.0	8,850	10,420	9,833	10,452	10,113	11,148	12,664	11,166	12,189	11,003	10,431	9,526	9,990
Acres Treat:	46,943	56,096	35,822	49,463	54,041	48,246	42,272	43,240	27,747	39,842	32,551	45,692	26,173	26,712
Appl Rate:	0.50	0.37	0.90	0.52	0.36	0.40	0.92	0.65	0.78	0.64	2.06	0.68	1.22	0.92

How to Get PUR Data



How to Get PUR Data

- # Special request to DPR
 - # Reasons for special request:
 - You need data on variables not available in web interfaces (num apps, formulation, reg no, CAS number)
 - You need special formatting of some values (such as dates or NULLS)
 - You need more complex or unusual kinds of queries and do not have database skills
 - # Ask for the data in the appropriate format for your needs
-

An Example: Subtropical Fruit

- # Get PUR data for subtropical fruits from 1992 to 2005: avocado, banana, date, fig, kiwi, mango, persimmon, pomegranate
 - # Data on year, crops, application date, application_type, AI, pesticide product, registration number, formulation, crop, pounds AI, acres treated, acres planted, county, MTRS, grower_id, site_loc_id
-

An Example: Subtropical Fruit

- # For the demonstration, I created a data file using Oracle SQL
 - # The result is a tab delimited text file where
 - The first line is a list of the variable names
 - It contains data from years 1992 to 2005
 - It has almost 280,000 records
-

How to Get Information from the Data

- # What do you do with such a large data file?
- # Excel is limited to 65,000 records (Excel 2007 to 1 million records)
 - If file is not too large you can split it into several files
- # Importing into a database is a better option

Databases

■ Microsoft Access

- Relatively inexpensive
- Many people familiar with it
- However, cannot gracefully handle very large files

■ Major databases: powerful but expensive

- Oracle
 - Microsoft SQL Server
 - IBM's DB2
-

Databases

- ❏ Statistical packages: e.g. SAS
 - ❏ Open source databases: powerful and cheap
 - MySQL
 - PostgreSQL
 - ❏ All these databases use the SQL database language
 - ❏ But you can use ODBC to view the data in other programs
-

Using SAS

SAS advantages

- Can handle very large files
 - Runs fast
 - Has many tools for analyzing data, including both SQL statements and SAS procedures
 - The main advantage is its set of statistical procedures
-

Using SAS

Importing data into SAS

- SAS import procedure
 - Easier to use
 - May not import some data correctly
 - Use default parameter values, except may need to set `QUESSINGROWS = 30000`
 - SAS datastep
 - More difficult to use
 - Allows you to specify data type
-

Using SAS

- # Finding the total pounds of AI on all subtropical fruits each year from 1992 to 2005
 - # This query is done both with a SQL script and a SAS procedure
 - # You can also send the results to an Excel file
-

Using SAS

- # Now calculate a series of statistical measures for rates of use by each year, crop, and AI.
 - # Finally, graph the frequency distribution of the log rate of use for glyphosate on avocados.
-

Using an Open Source Database

- Two important databases are MySQL and PostgreSQL
 - These are free and have all the power most people need
 - To get MySQL go to dev.mysql.com/downloads/
 - To get PostgreSQL go to www.postgresql.org/download/
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Using an Open Source Database

- # I will use MySQL in this demo
 - # See PUR training docs at agis.ucdavis.edu/pur for installing MySQL
 - # Access MySQL data using a command line interface
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Using Open Source Database

- # To import tab delimited text file replace NULLs with “\N”, dates in ANSI format “YYYY-MM-DD”
 - # To import data, first create a database, then create a table, then import data into the table.
 - # If you know SQL you are ready to go
 - # Otherwise set up the MySQL ODBC driver
-

Viewing MySQL data from Excel

- # Access the MySQL data using the ODBC connection from the menu “New Database Query...”
 - # To see data in easier format use pivot tables
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Using Excel Pivot Tables

- # Pivot tables are interactive crosstabs
 - # They allow you to easily summarize the data in many different ways
 - # But watch out!
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More about the PUR

- # PUR workgroup web site:
<http://agis.ucdavis.edu/pur>
 - # This site will have my presentation today plus a Word file with scripts and further explanations.
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Conclusions

- # There are many different software tools that can be used to more easily get the information you want
 - # Software demonstrated today included SAS, MySQL, ODBC, and Excel
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