

UP3 Project



Estimated Urban Use of UP3 Project Priority Pesticides

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Urban Pesticides Pollution Prevention Project



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Acknowledgements

■ Peer Review Team

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■ Project Management & Editing

- Athena Honore, SFEP



Methodology

Same as Previous UP3 Reports

- Pesticides selected by via literature review
 - All Pesticides on UP3 Priority Pesticides List
- Urban use estimates for California
- Focus on pyrethroids
 - Urban High-Use Pyrethroids
 - Broadcast outdoor use / used indoors
 - Bifenthrin, cyfluthrin, beta-cyfluthrin, cypermethrin, deltamethrin, esfenvalerate, gamma-cyhalothrin, lambda-cyhalothrin, permethrin, tralomethrin
 - Other Urban Pyrethroids
 - Limited outdoor use / used indoors
 - Cyphenothrin, etofenprox, resmethrin, sumithrin, tetramethrin



Quantitative Estimates Based on DPR Data

- Professional Use
 - California Pesticide Use Reporting (PUR)
- Sales
 - DPR Pounds of Pesticides Sold Reports
<http://www.cdpr.ca.gov/dprdatabase.htm>

Most recent data from 2008

DPR data have significant uncertainties



Approach to Estimating Urban Pesticide Use with DPR Data

$$\text{Urban Use} = \text{Reported Urban Use} + \text{Over-the-Counter (OTC) Sales}$$

Assumption:

- *OTC Sales = Urban use that does not require reporting (i.e., residential) (overestimate)*



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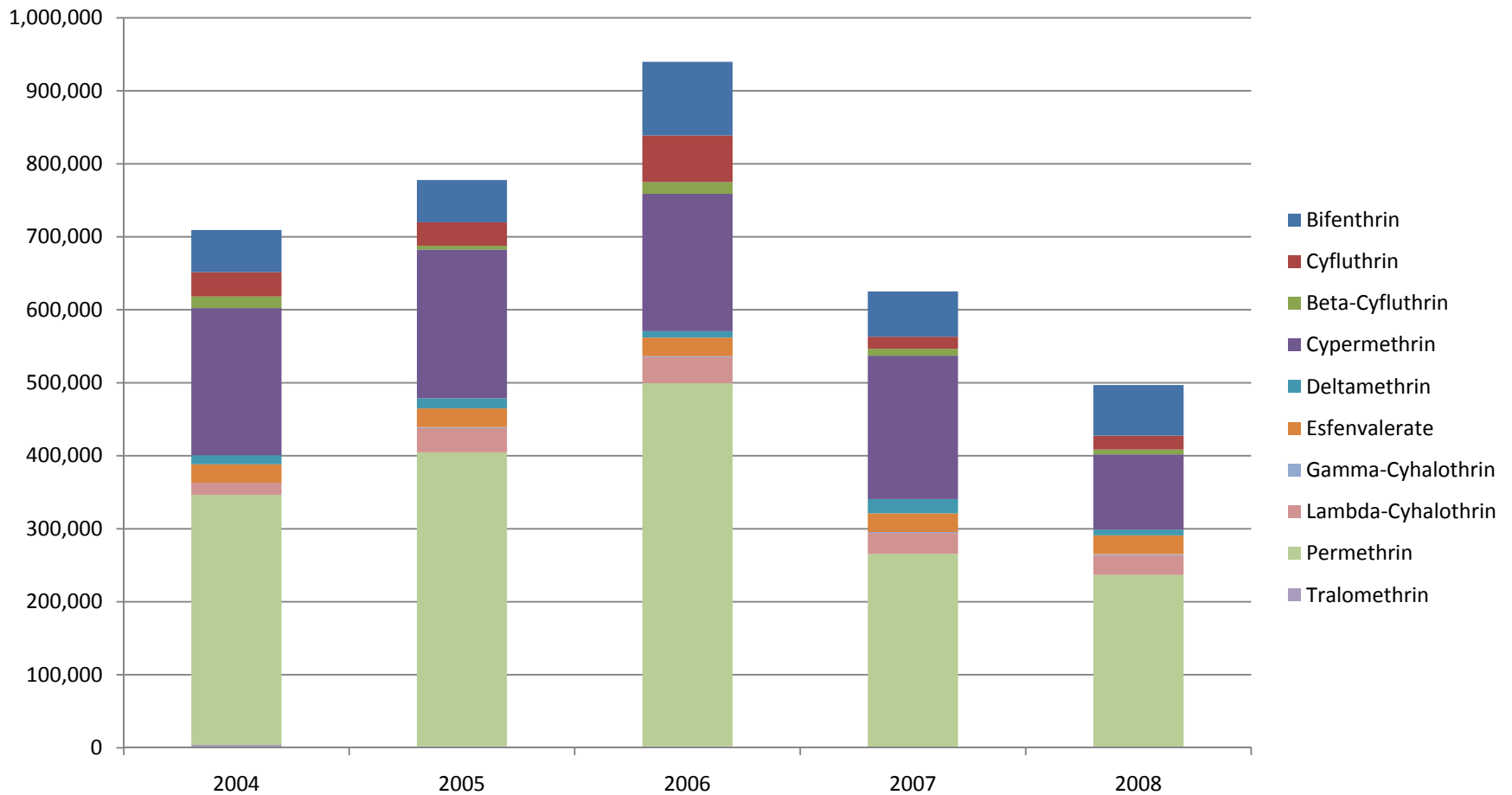
$$\text{Statewide OTC Sales} = \text{Statewide Sales} - \text{Statewide Reported Use}$$

Reality check:

- *Estimated OTC sales of bifenthrin 2004/05 = 13,000 lb ai*
- *Scotts actual OTC sales of bifenthrin 04/05 = 11,000 lb ai*

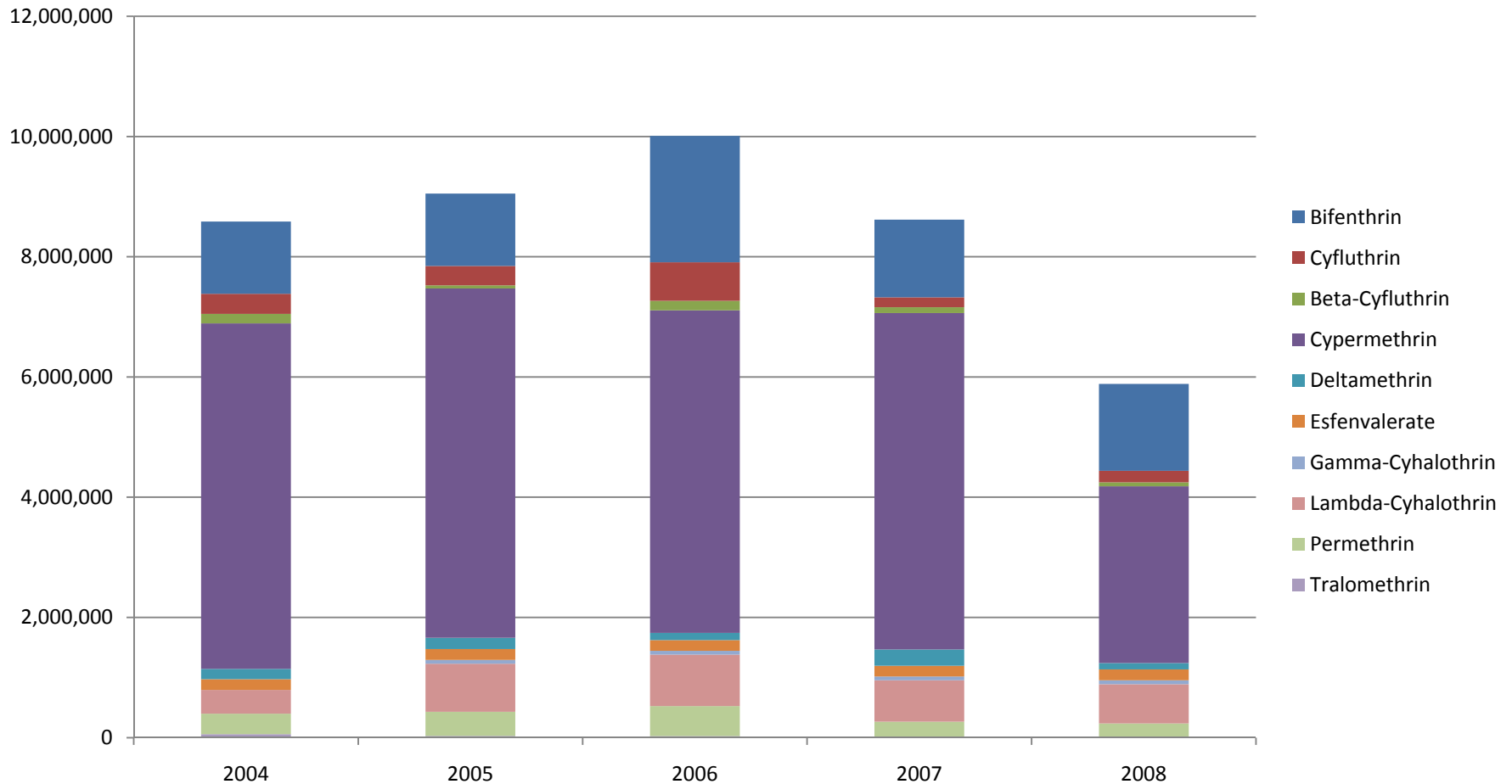
Urban Pyrethroid Use on the Decline?

California Urban High-Use Pyrethroids Estimated Urban Use 2004-2008
(Pounds of Pesticide Active Ingredient)



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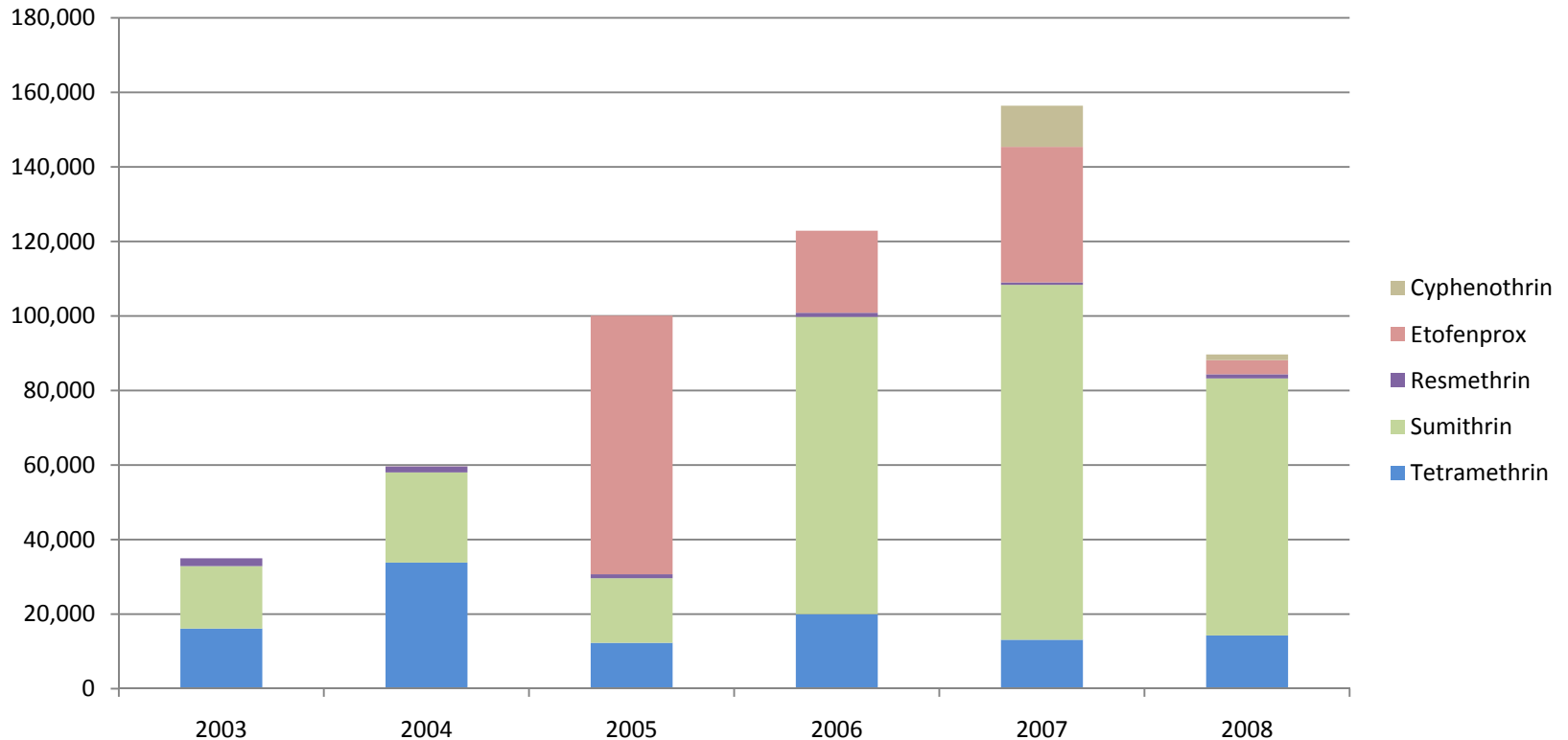
California Urban High-Use Pyrethroids Estimated Urban Use 2004-2008
(Expressed in Terms of Toxicity Using *Permethrin Equivalents*)



Source: California DPR Pesticide sales data, DPR pesticide use reports, and mathematical calculations conversion to permethrin equivalents based on aquatic toxicity (see report).

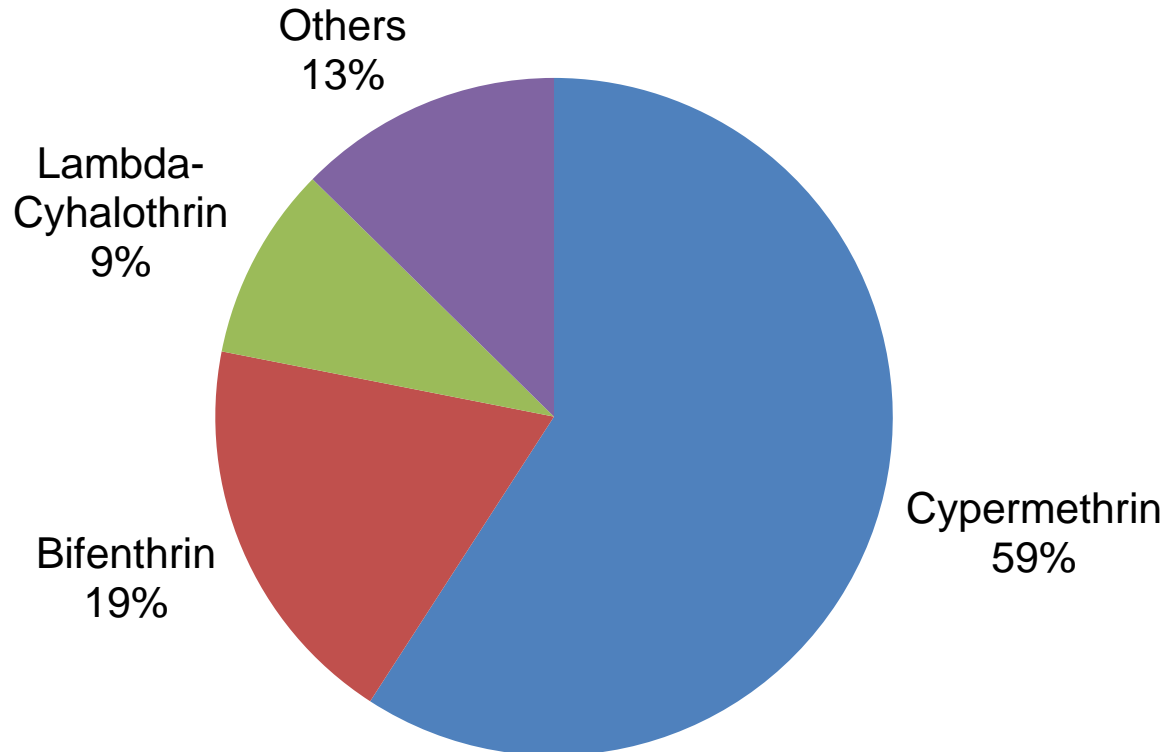
Sumithrin Most Used of Other Urban Pyrethroids

California Other Urban Pyrethroids Sales 2003-2008 – Very Little Ag. Use
(Pounds of Pesticide Active Ingredient)



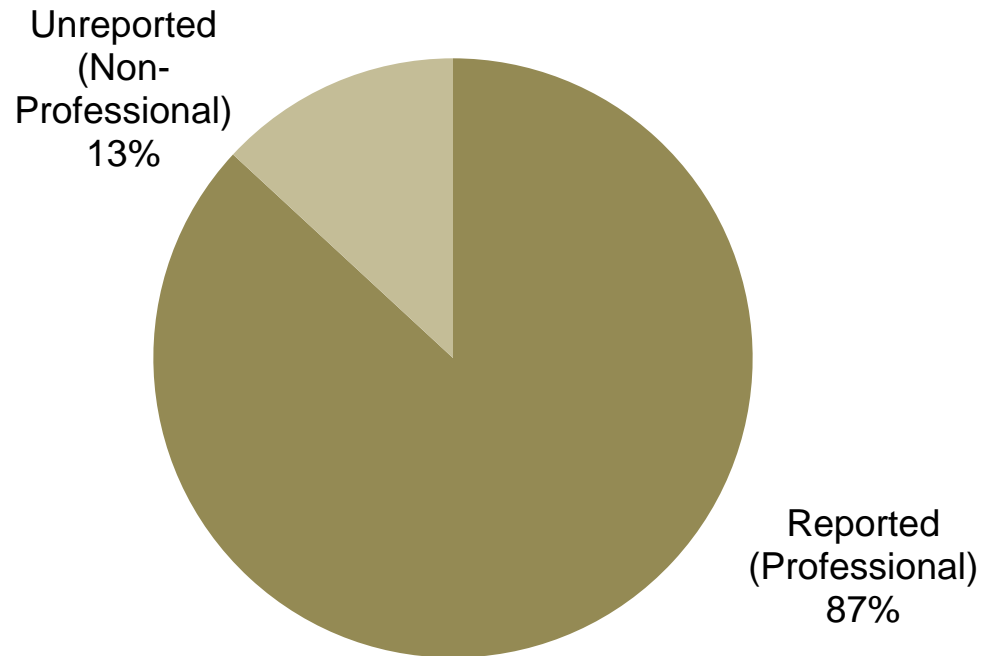
Top 2 Pyrethroids Used in Terms of Toxicity: Bifenthrin & Cypermethrin

California Urban High-Use Pyrethroids Estimated Urban Use
2007-2008 2-Year Average (*Permethrin Equivalents*)



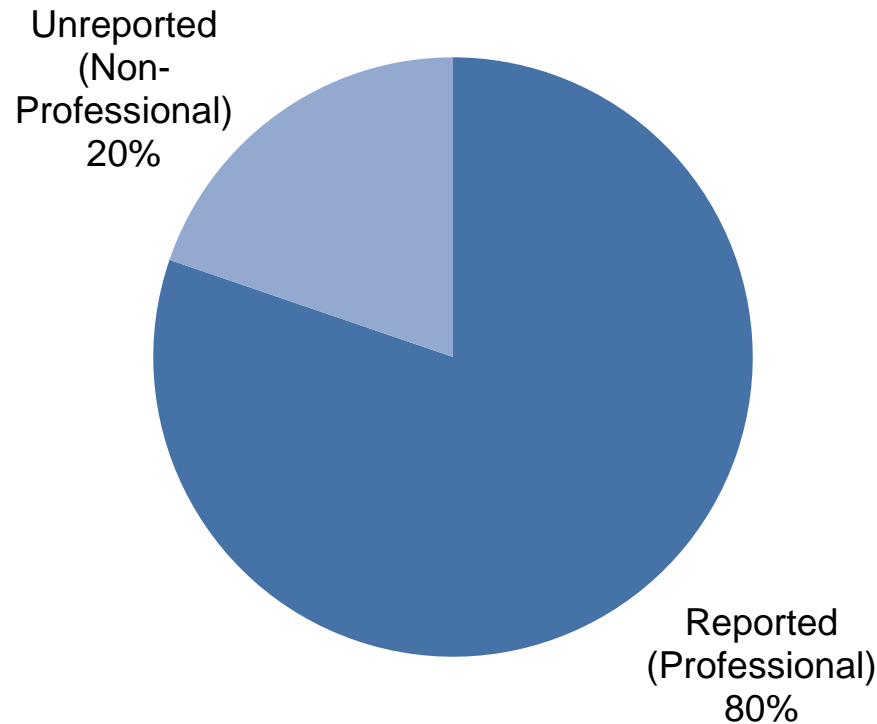
Most Urban Pyrethroid Use is by Professional Applicators

California Urban High-Use Pyrethroids Estimated Urban Use
2007-2008 2-Year Average (*Permethrin Equivalents*)



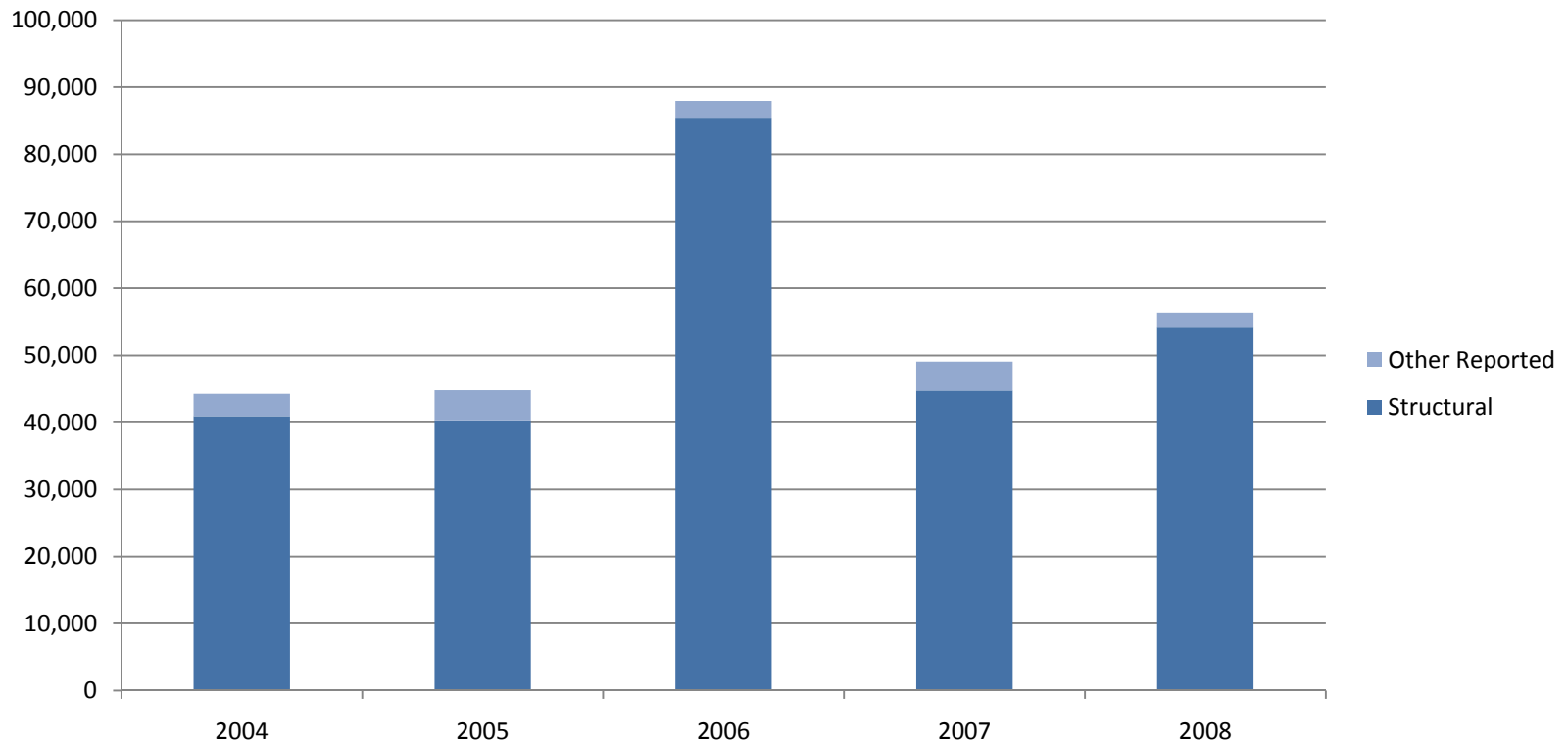
Most Urban Bifenthrin Use is by Professional Applicators

California Bifenthrin Estimated Urban Use, 2007-2008 2-Year Average
(Pounds of Active Ingredient)



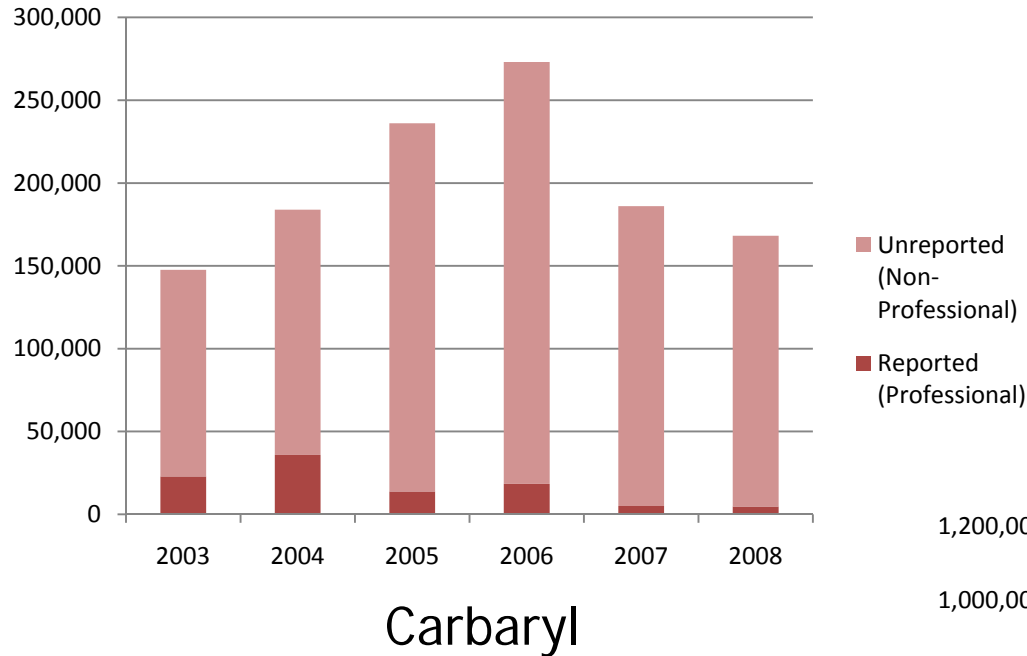
>90% of Professional Urban Bifenthrin Use is for Structural Pest Control

California Bifenthrin Reported (Professional) Urban Use, 2004-2008
(Pounds of Active Ingredient)

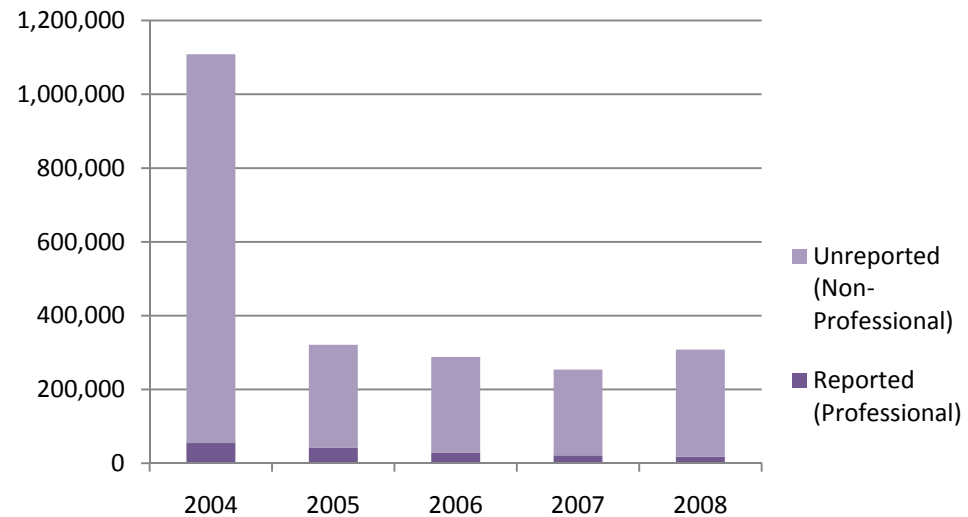


Carbaryl and Malathion Use Decreasing

California Estimated Urban Use 2003-2008
(Pounds of Pesticide Active Ingredient)

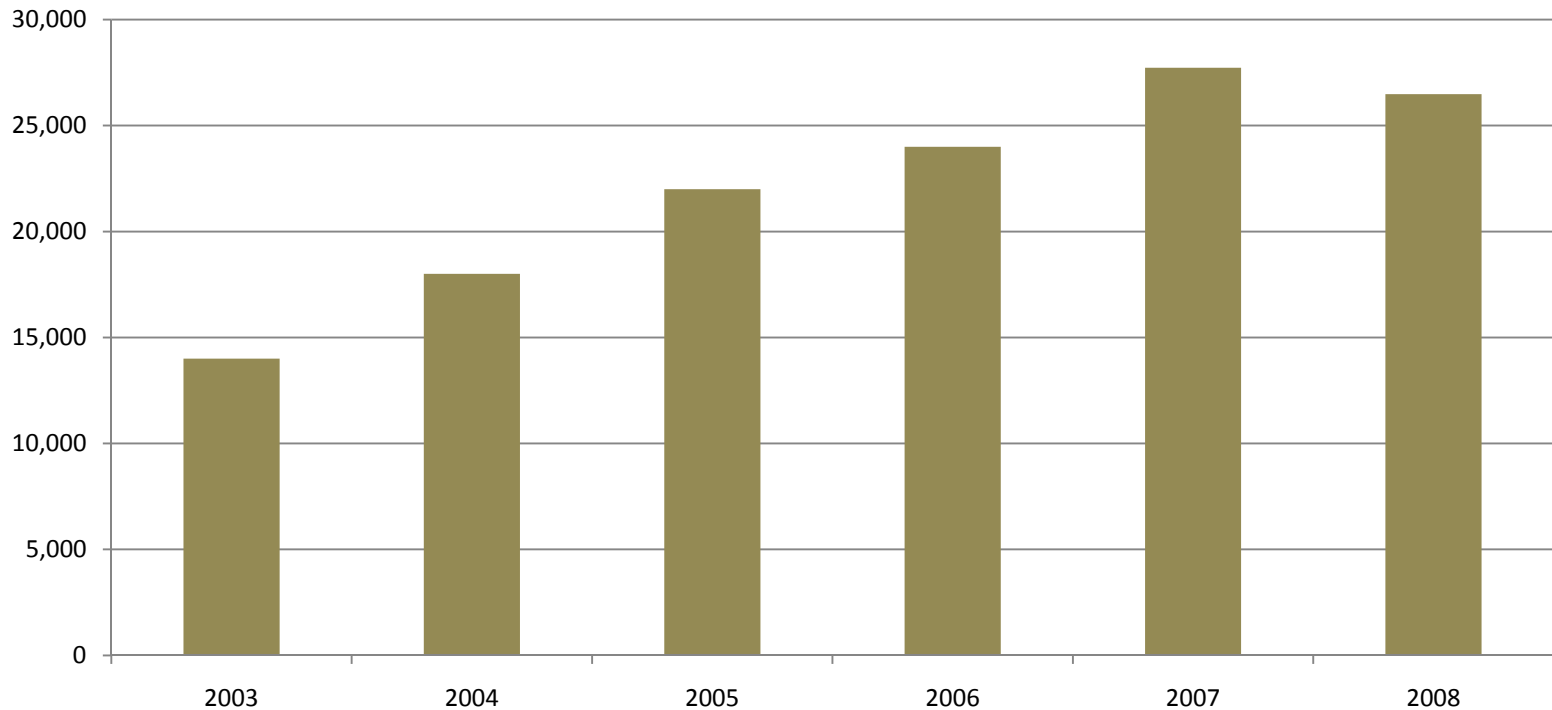


Malathion



Urban Fipronil Use Doubled Between 2003 and 2008

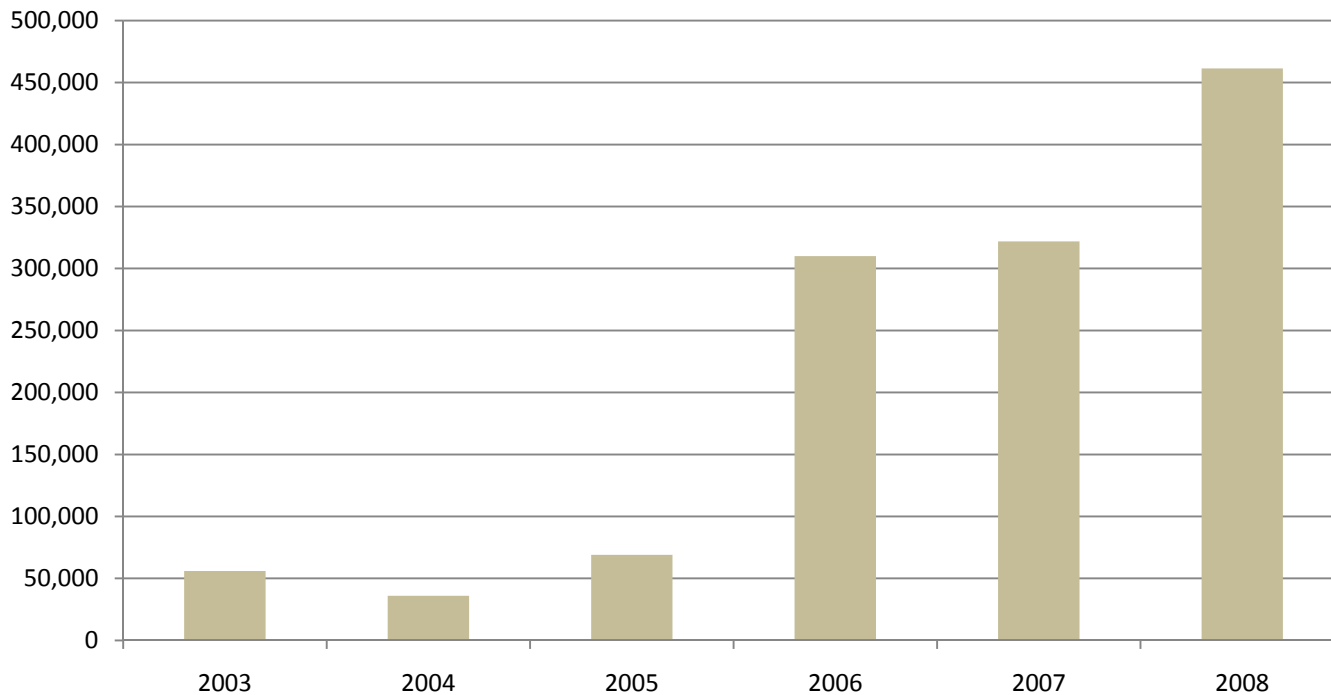
California Fipronil Sales 2003-2008 – Only Urban Products
(Pounds of Pesticide Active Ingredient)



Urban PHMB Use Grew 8-Fold Between 2003 and 2008

Swimming Pool Biocide

California PHMB Sales 2003-2008 – Very Little Ag. Use
(Pounds of Pesticide Active Ingredient)





Conclusions - Pyrethroids

- Pyrethroids the most commonly applied insecticides in California urban areas
- Is pyrethroid use on the decline? Maybe
- Cypermethrin and bifenthrin account for almost 80% of the pyrethroid-related aquatic “toxicity equivalents” estimated used in California urban areas



Conclusions - Pyrethroids

- Reported professional use nearly 90% of urban pyrethroid use
- Structural pest control >95% professional urban pyrethroid use
- Urban professionals apply nearly all cyfluthrin, beta-cyfluthrin, cypermethrin, deltamethrin, and permethrin and 80% of bifenthrin used in urban areas
 - These pyrethroids most often found at toxic levels in California urban creek sediments



Conclusions – Pyrethroids Indoors

- Other urban pyrethroids that have not been monitored—particularly Sumithrin—are used indoors and could potentially contribute to POTWs
- Insufficient data to identify whether professional applications indoors could significantly contribute to POTWs



Conclusions – Other Pesticides

- Fipronil use almost doubled from 2003-2008
- Carbaryl and malathion on the decline
 - Reported urban use of carbaryl dropped nearly 80% between 2004 and 2008
- PHMB sales grew 8 times from 2003-2008
 - Chlorine alternative
- Major sales increases for two marine antifouling biocides—Irgarol 1051 and zinc pyrithione

UP3 Project



For all the details see the full report

[http://www.up3project.org/documents/
UP3Use2010_Final.pdf](http://www.up3project.org/documents/UP3Use2010_Final.pdf)