

California Pesticide Residue Monitoring Program

Presentation at the Agricultural Pest Control Advisory
Committee Meeting

13 August 2013

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Outline

1. DPR's Sampling Work Plan
2. Samples Analyzed at CDFA Laboratories
3. What Are Pesticide Residues and Tolerances?
4. DPR Pesticide Residue Monitoring Data
5. California Registered Labels are the "Law"
6. Consequences of Illegal Pesticide Residues
7. Recent Cases of Illegal Pesticide Residues in California Grown Produce

DPR's Sampling Work Plan

Sampling Work Plan

- Work plan created each fiscal year
- 16 Target Commodities in FY 2013 / 2014
- Focus on commodities:
 - In children's diets
 - Treated with priority pesticides
 - With history of illegal residues
 - In ethnic diets
 - For which residue data is needed

Sampling Work Plan

Fiscal Year 2013 / 2014

- 3600 Total Samples
- >1500 Target Commodity Samples
- > 2000 Discretionary Samples
- 30 Follow-up Samples

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Headquarters Location
Regional Office Location
www.cdpr.ca.gov
(Rev. 7/2013)

SAMPLING LOCATIONS

Samples collected “throughout the channels of trade”:

- Wholesale and retail outlets
- Distribution centers of chain supermarkets
- Farmers’ markets



Sampling in 2012

- 3,501 samples
- > 160 kinds of commodities
 - Derived from plants (no animal products – U.S.D.A.)
 - **Raw** (not processed – CA Dept. of Public Health and FDA)



DPR samples Domestic and Imported Commodities

Targets for Fiscal Year 2013 / 2014:

	<u>% of all samples</u>
U.S. produce	70%
Imported produce	30%
Mexico	15%
China	5%
Other countries	10%

Samples Analyzed at CDFA Laboratories

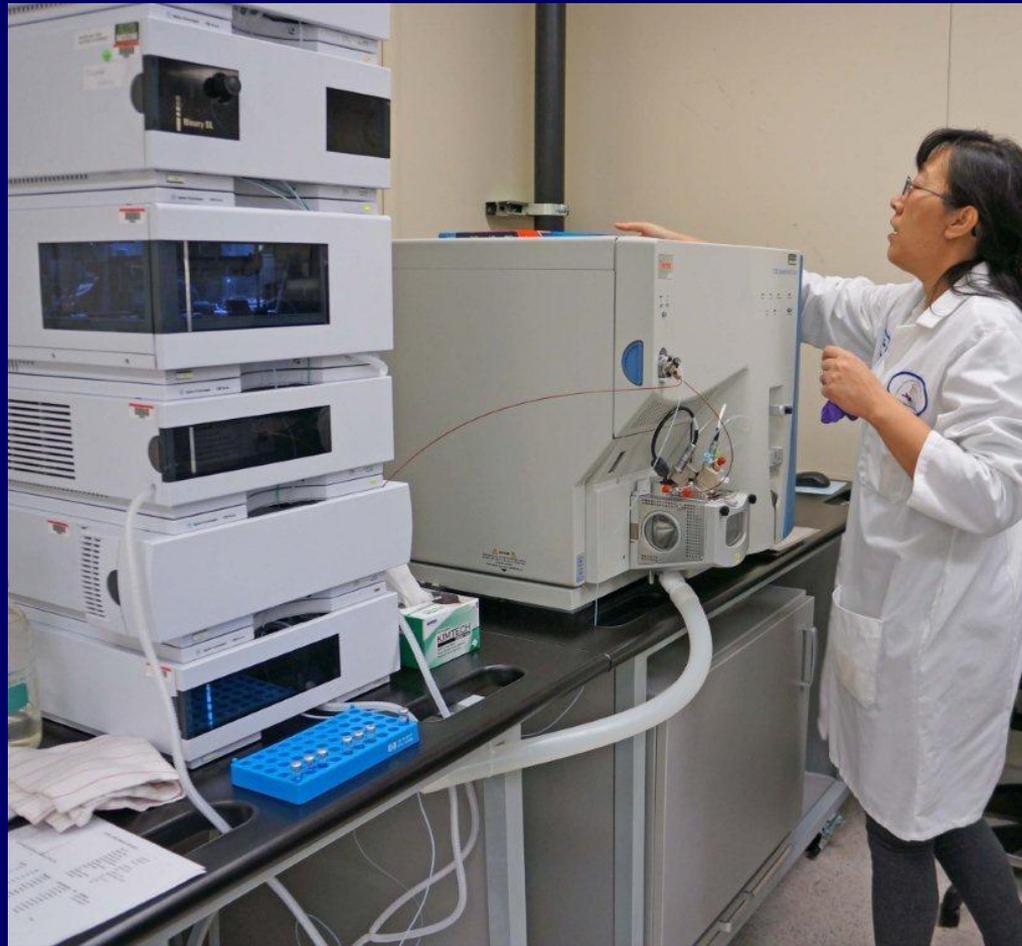
DPR Staff Deliver Samples to CDFA Lab



Samples are Prepared For Analysis



Samples are Analyzed



CDFA Multi-Residue Screens

“Old ” Detect > 200 Pesticide Residues	OP (Organophosphate)	CH (Chlorinated Hydrocarbon)	N-Methyl Carbamate
“New” Detect > 300 Pesticide Residues	LC/MS (Liquid Chromatograph/ Mass Spectrometer)	GC/MS (Gas Chromatograph/ Mass Spectrometer)	---

CDFA Multi-Residue Screens

- For most pesticides detected with LC/MS and GC/MS Screens:
- Minimum Detection Limit = 0.01 ppm

What are pesticide
residues and tolerances?

“Residues” and “Tolerances”

- **Residue** = actual amount of pesticide residue detected
- **Tolerance** = maximum amount allowed (most countries call “**MRL**”)

Example: Tolerance for acephate on Brussels sprouts is 3 ppm

- Tolerances are set by U.S. EPA and published in Code of Federal Regulations (title 40, part 180)
- U.S. EPA establishes a tolerance for a particular pesticide on a particular food crop before California approves the use of that pesticide on that crop.

Two situations when a residue is illegal

For a particular pesticide on a particular commodity:

1. There is an U.S. EPA established tolerance, but the amount of residue is over that tolerance. (an “over tolerance” (OT) violation).

Example: tolerance for malathion on apples is 8 ppm

What amount of malathion residue on apples would be illegal ?

Answer: Any residue of malathion that is over 8 ppm



Yes, that does include 8.01 ppm !

Two situations when a residue is illegal:

For a particular pesticide on a particular commodity:

2. There is no U.S. EPA established tolerance on this commodity (a “No Tolerance Established” (NTE) violation).

Example: There is no U.S. EPA established tolerance for residues of methomyl on strawberries

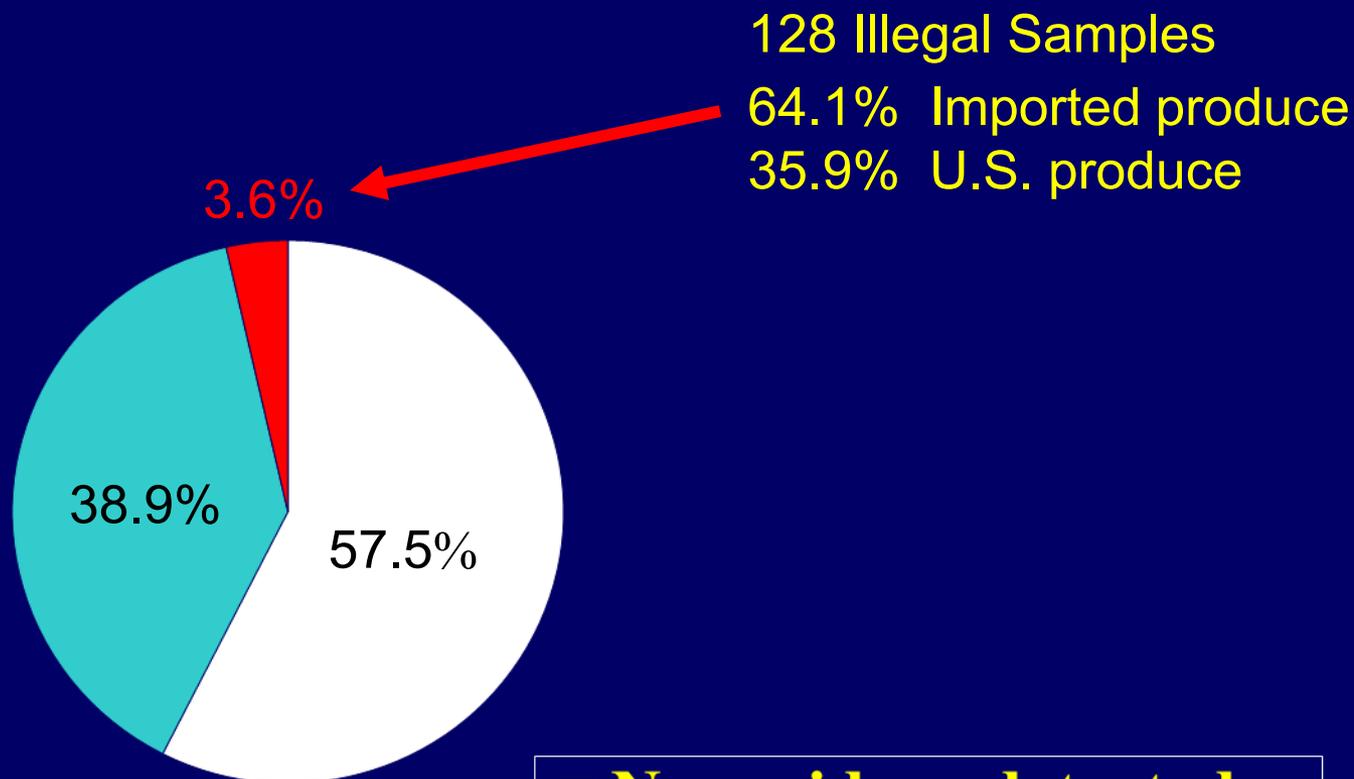
What amount of methomyl residue on strawberries would be illegal ?

Answer: Any detectable amount of methomyl residue

DPR Pesticide Residue Monitoring Data

Results: DPR residue sampling, 2012

(n = 3,501 samples)



- **No residues detected**
- **Within legal tolerances**
- **Illegal residues**

California's reliable produce is attractive to buyers

DPR results from 2012:

CA-grown samples	1,210
Illegal pesticide residues	23 (1.9%)

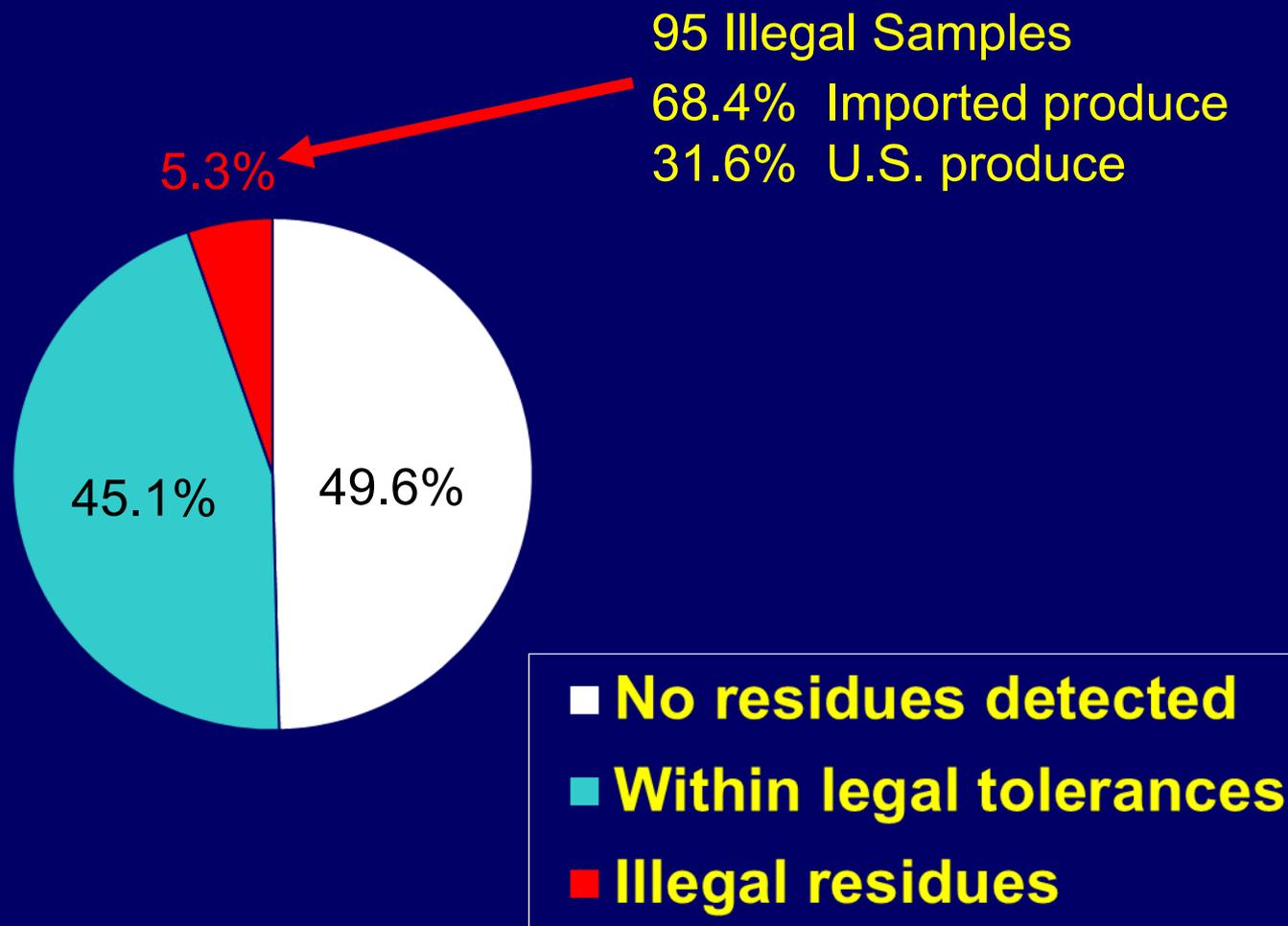
98.1% of California-grown samples
complied with U.S. tolerances

2012 Comparison of Multi-Residue Screens

Screens Used	CDFA Laboratory	Proportion of Samples with Pesticide Residues (%)	Proportion of Samples with Illegal Pesticide Residues (%)
“Old ”	Anaheim	23.1 % (428 of 1850 samples)	2.2 % (41 of 1850 samples)
“New”	Sacramento	64.3 % (1061 of 1651 samples)	5.27 % (87 of 1651 samples)

Results: DPR residue sampling, 1st Half 2013

(n = 1,777 samples)



DPR results, 2011-12

Commodities from certain geographical locations with a higher proportion of samples with illegal residues:

<u>Commodity and Origin</u>	<u>% of Samples with Illegal Residues (2011 and 2012 combined)</u>
Yardlong beans grown in Mexico	20.0 % (14 of 70 samples)
Cilantro grown in United States	16.9 % (11 of 65 samples)
Snow Peas grown in Guatemala	12.3 % (7 of 57 samples)
Chili peppers grown in Mexico	9.4 % (13 of 138 samples)
Tomatillos grown in Mexico	9.2 % (20 of 218 samples)
Limes grown in Mexico	7.5 % (15 of 201 samples)
Ginger grown in China	6.5 % (7 of 104 samples)
Spinach grown in United States	6.2 % (16 of 260 samples)

Results available at: <http://www.cdpr.ca.gov>
Click on "A-Z Index", then go to "Residue"

California Registered
Pesticide Label
is the “Law”

The Pesticide Label is the “Law”

- Before you treat or make a recommendation to treat a food crop with a pesticide product:
 1. Make sure the product is registered in California
 2. Make sure the product label includes use directions for the crop you are treating
- When treating the crop, follow the use directions for that crop carefully
- If you don't follow these rules – there is a possibility that the treated crop will have illegal pesticide residues at harvest and in the channels of trade

Use Directions Example

Loveland Product, Inc.

PERMETHRIN 3.2 EC EPA REG. NO. 279-3014-34704

Broccoli; Chinese Broccoli (gai lon, white flowering broccoli); Brussels Sprouts; Cauliflower; Cavalo broccolo; Kohlrabi (1 day phi)

Insects Controlled	Rate of Application	Method of Application
Armyworm spp., Cabbage Looper, Diamondback Moth, Imported Cabbage- worm, Plant Bugs, Thrips	2 to 4 ounces (0.05 to 0.1 pound active) per acre	Apply with ground equipment in a minimum of 10 gallons of finished spray per acre or in a minimum of 2 gallons per acre by aircraft. Apply as needed.

Do not apply more than 0.8 pound active ingredient per acre per season.

California Food and Agricultural Code

- Section 12671 – “It is unlawful to pack, ship, or sell any produce that carries pesticide residue in excess of the permissible tolerance...”
- Section 12971 – “No recommendation shall be in conflict with the registered labeling for the product being recommended.”
- Section 12973 – The use of any pesticide shall not conflict with labeling registered pursuant to this chapter which is delivered with the pesticide or with any limitations applicable to the conditions of any permit issued by the director or commissioner.

Consequences of Illegal Pesticide Residues

“Penalties” when DPR detects illegal pesticide residues:

- 1. Stop sale of the contaminated lot in CA**
(loss of the value of that lot)
- 2. Publish results annually on DPR website**
(potential loss of customers)
- 3. Civil penalties against repeat offenders**
(Separate \$10,000 fines to two CA-based importers in August 2010 and May 2011)

Grown in CA

- DPR Contacts the Agricultural Commissioner's Office in County where commodity grown and provides any information it knows about the source of the commodity.
- County will investigate to determine whether residue the result of a misapplication or drift.
- Could result in destruction of crop, stop harvest of crop remaining in the field and/or civil penalties.

Recent Cases of Illegal
Pesticide Residues in
California Grown
Produce

Propargite on Peaches

- August and September 2010
- Illegal (NTE) propargite residues were detected on three peach samples.
- Propargite is Restricted Material - Use requires a permit - Not registered for use on peaches
- Traced to San Joaquin Valley growers
- 2.4 Millions lbs. of peaches with estimated value of \$1.1 million dollars were destroyed
- 2 pesticide dealers fined a total of \$105,000 for selling restricted material for unregistered use.

Propargite on Peaches



Phosmet on Tejocotes

- December 2011
- Illegal (NTE) phosmet residues were detected on tejocote samples – native to Mexico and Guatemala
- Traced to San Diego County grower
- Imidan 70-W applied – No tejocote use directions
- County issued Hold /Stop Harvest Order for fruit in storage and not yet harvested
- Grower destroyed remaining fruit - value > \$300,000
- Applicator fined \$700
- PCA fined \$1400

Phosmet on Tejocotes



Methomyl on Strawberries

- May 2013
- Illegal (NTE) methomyl residue detected on a strawberry sample collected at a retail market.
- Traced to Santa Cruz County grower
- Methomyl is Restricted Material – Use requires a permit - Not registered for use on strawberries
- 1093 cartons of strawberries destroyed
- DPR ordered the grower to destroy 10 acres of strawberries – Value > \$200,000
- Grower fined \$15,000 by DPR

Methomyl on Strawberries



Any questions ?



Results available at: <http://www.cdpr.ca.gov>

Click on “A-Z Index”, then go to “Residue”

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