

# USDA's Pesticide Data Program

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# What IS the PESTICIDE DATA PROGRAM (PDP)?

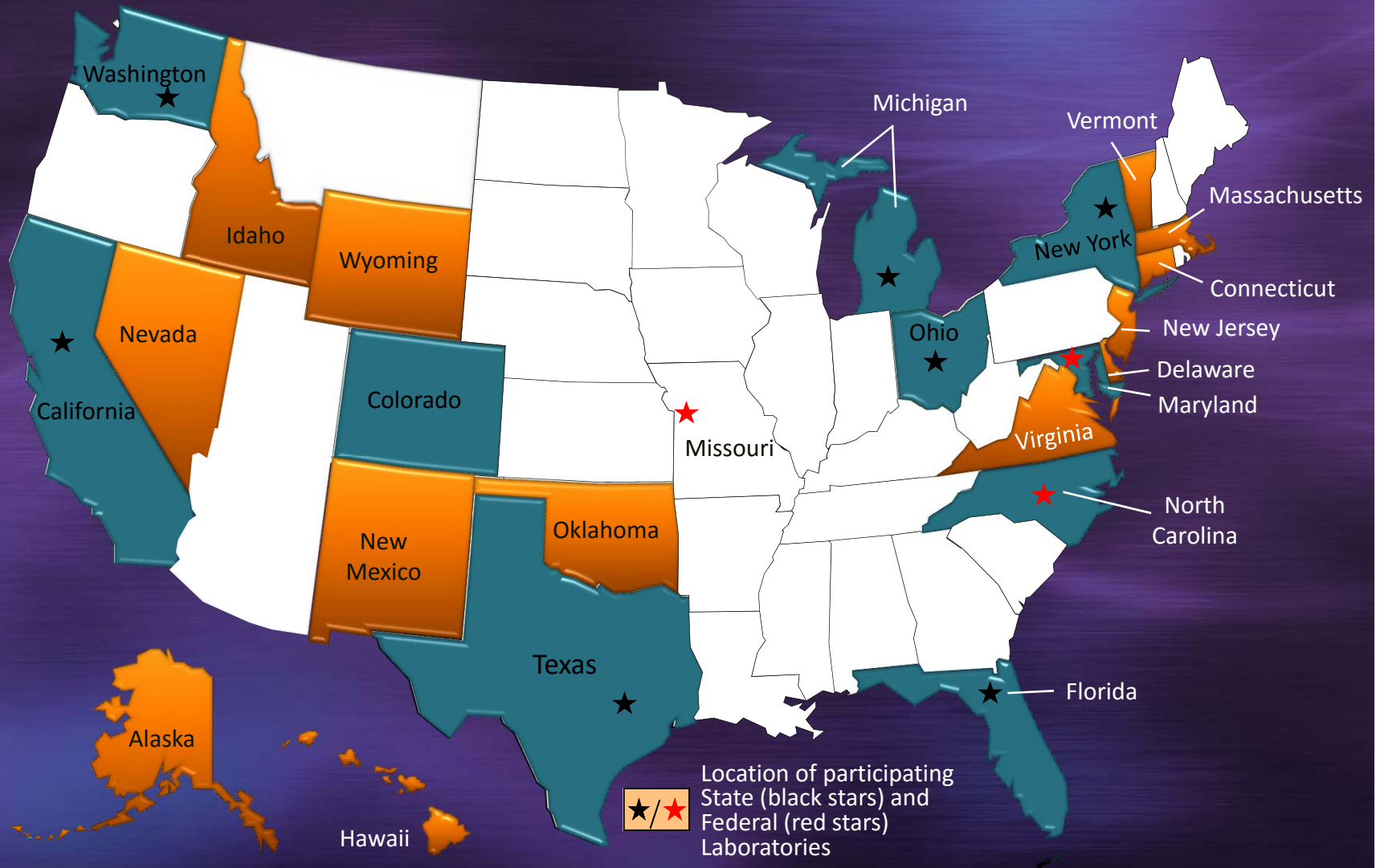
- National Pesticide Residue Program
- PDP samples and tests highly consumed foods with emphasis on the diets of infants and children for pesticide residues
- Sampling and testing performed by State Department of Agriculture cooperators
- Funded through Cooperative Agreements with the States



# Why was the Pesticide data program Created

- Created in 1991 to collect pesticide residue data in fresh produce in support of the Food Quality Protection Act of 1996
- Provides data for dietary risk assessments and pesticide reregistration decisions to the Environmental Protection Agency (EPA)

# PDP Participants



States participating in PDP

States where produce is directly marketed from participating States

Location of participating State (black stars) and Federal (red stars) Laboratories

# Commodity and Analyte Selection

- Commodity and pesticide selection: AMS and EPA/HED
- Foods tested are usually high consumption commodities
- Analytes tested are based on registrations



# Data Collection Process



Sampling schedule generated



Participating States collect samples



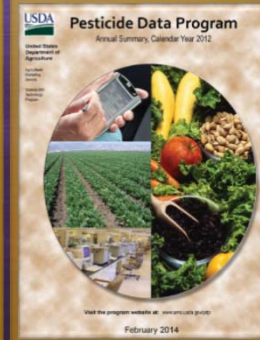
Samples sent to assigned labs for analysis



Lab results entered into Remote Data Entry (RDE) system



Results approved by Chemist at MPD to be entered into database



All results compiled into Annual Summary



# Commodities Tested



Commodity Type	Number of Commodities
Fresh Fruit and Vegetables	48
Processed Fruit and Vegetables	36
Grains	8
Meat/Poultry/Fish	9
Dairy	4
Nuts	2
Water	4
Infant Formula	2
<b>Total Number of Commodities Tested</b>	<b>113</b>

Total Commodities from 1991-2015

# Special Projects

- Residues in Baby Food (2012-2013)
- Residues in Infant Formula (2013-2014)
- Bifenthrin Use for Stinkbugs (2012)
  - Control Brown Marmorated Stink Bug
  - Section 18 Emergency Use granted based on PDP data



# Calendar Year 2016



- ▣ Apple
- ▣ Pears
- ▣ Potatoes
- ▣ Spinach
- ▣ Strawberries
- ▣ Sweet potato
- ▣ Tomatoes
- ▣ Oranges
- ▣ Cherries
- ▣ Cucumbers
- ▣ Grapefruit
- ▣ Grapes
- ▣ Green beans
- ▣ Lettuce
- ▣ Milk
- ▣ Egg



# Sampling Timeframe

- Commodities in program for up to 2 years
- Rotation of high consumption items every 5 years
- New commodities based on data needs requested by EPA
- Sampling rates/timeframes adjusted to reflect seasonality



# Sampling Framework

- NASS designs the sampling framework based on probability-proportional-to-size
- Represents U.S. population and therefore reflects consumption
- Random sampling: includes domestic & imported, organic & traditionally-grown foods
- Fruit and vegetable sites at major food distribution centers and terminal markets



# Sample Collection

- Number of samples collected is apportioned according to population
- 63 total samples per commodity per month
- Equates to 756 total samples targeted per commodity per year



California	13	New York	9
Colorado	2	N. Carolina	4
Florida	7	Ohio	6
Maryland	4	Texas	8
Michigan	6	Washington	4

# Sample Preparation and Extraction



QuEChERS

**Q**uick

**E**asy

**C**heap

**E**ffective

**R**ugged

**S**afe

# Laboratory Analysis

- Test for over 400 pesticides/metabolites/ isomers using Multiresidue Methods (MRMs)
- Lists of required compounds are commodity-specific
- GC/MS-MS and LC/MS-MS Instrumentation



# Pesticides Tested

## ➤ Pesticide Classes:

- Carbamates
- Chloroacetanilides (alachlor, acetochlor, etc.)
- Imidazolinones (imazapyr, imazaquin, etc.)
- Neonicotinyls (acetamiprid, clothianidin, etc.)
- Organochlorines
- Organophosphates
- Phenoxy acids (2,4,5-T; 2,4-D, etc.)
- Pyrethroids (allethrin, bifenthrin, etc.)
- Strobilurins (azoxystrobin, kresoxim-methyl, etc.)
- Sulfonyl ureas (bensulfuron methyl, halosulfuron, etc.)
- Triazines (atrazine, simazine, etc.)
- Triazoles (difenoconazole, hexaconazole, etc.)

# QC/QA

- Method validation is required for each new commodity and pesticide.
- Blanks, spikes, and process controls are run with each sample set.
- Limits of detection (LODs) and limits of quantitation (LOQs) are determined experimentally.
- Participation in National and International Proficiency Testing is required.
- International accreditation is required (ISO 17025) for all laboratories.



# Remote Data Entry

Custom built software that feeds Data to PDP Database

- Two Major Components

- RDE electronic Sample Information Form (e-SIF) System
  - Used by State Sample Collectors to enter and submit e-SIFs
  
- Web-based RDE System
  - Used by PDP Labs to enter and submit complete data sets
  - Software and database reside on USDA-AMS servers
  
- All data is collected and compiled into an Annual Summary.

# Presumptive Tolerance Violations

- In 2014, a total of 10,619 samples were tested
  - Pesticides exceeding the tolerance were detected in 38 samples (0.36%)
    - 19 of these 38 samples were imported
  - Pesticides with no tolerance established were detected in 281 samples (2.6%)
    - 140 of these 281 samples were imported
- PDP is not an enforcement program
- Presumptive Tolerance Violation information is passed to FDA and EPA for potential follow-up

# How Are PDP Data Used

- Pesticide tolerances evaluated by EPA using PDP data
- Pesticide re-registration or cancellation based on outcome of tolerance evaluations
- Monitor compliance with U.S. EPA tolerances (MRLs)
- Tolerance violations reported to FDA for surveillance
- Work with grower groups to improve agricultural practices
- PDP data used by Foreign Agricultural Service to resolve trade disputes

# Access To PDP Data

- Annual Summary
  - Website
  - Hard Copy
- Downloadable Database
  - Data for specific commodity and pesticides
- <http://www.ams.usda.gov/AMSV1.0/pdp>

Thank You!

