United States Department of Agriculture
Agricultural Marketing Service
Science & Technology

Pesticide Data Program

Annual Summary Calendar Year 1996

Contents

Figures and Tables

Figures

Tables

Preface

In 1991 the United States Department of Agriculture (USDA) was charged with implementing a program to collect data on pesticide residues in food. USDA's Agricultural Marketing Service (AMS) was appointed to undertake the creation and implementation of such a program, currently known as the Pesticide Data Program (PDP). PDP has been in operation since May 1991 and has published its findings for calendar years 1991 through 1995. This is the summary for calendar year 1996.

PDP's data on pesticides in selected commodities strengthens the Government's ability to respond to food safety and marketing concerns, to protect public health, and to provide the Environmental Protection Agency (EPA) with data needed to assess the actual dietary risk posed by pesticides.

EPA registers pesticides under a statutory standard that requires any food tolerance to be based on a reasonable certainty of no harm. In making risk estimates, EPA generally uses a step-wise approach to minimize resource expenditures. As an initial worst case assessment, EPA assumes that all acres of all crops are treated with all pesticides for which they have a registered use. EPA also assumes that residues in treated crops are present at the maximum allowable level. A theoretical assessment of risk based on these worst case assumptions may significantly exceed the actual risk of pesticide residues in the food supply and jeopardize the registration of pesticides important to American agriculture. Further refinements to the risk assessment are done if needed. These refinements include the percent of crop treated with a pesticide; statistical analyses of field data; considerations of the effects of washing, cooking, processing, and storage; and use of monitoring data, if available and reliable. This is where PDP data are pivotal. PDP's sampling procedures were designed to capture actual residues in the food supply as close as possible to the time of consumption, thereby significantly upgrading the statistical reliability and extent of information available for risk assessment.

PDP continues to focus on the National Academy of Sciences' conclusions as shown in the 1993 report *"Pesticides in the Diets of Infants and Children."* In this report, the Academy recommends that pesticide residue monitoring programs target foods most consumed by children, and that analytical testing methods used be standardized, validated, and subject to strict quality control and quality assurance programs. The Food Quality Protection Act of 1996, Title III Sec. 301 (c) states: "*The Secretary of Agriculture shall ensure that the residue data collection activities conducted by the Department of Agriculture in cooperation with the Environmental Protection Agency and the Department of Health and Human Services, provide for the improved data collection of pesticide residues, including guidelines for the use of comparable analytical and standardized reporting methods, and increased sampling of foods most likely consumed by infants and children."*

The States participating in PDP deserve special recognition for their contributions to the program. Sample collectors' vigilance and dedication allow AMS to adjust sampling protocols to respond to changing trends in commodity distribution. Laboratory staffs were helpful in formulating recommendations to increase productivity and improve methodologies. PDP also thanks the EPA; the Food and Drug Administration (FDA); AMS' Eastern Laboratory; and USDA's National Agricultural Statistics Service (NASS), Animal and Plant Health Inspection Service (APHIS), and the Grain Inspection, Packers and Stockyards Administration (GIPSA) for providing their support to the program.

We welcome any comments on the Summary's presentation. A form for submitting comments is provided at the end of the Summary.

Data presented in this summary were collected and processed through the efforts of the following:

U.S. Department of Agriculture

Agricultural Marketing Service
Science and Technology
14th and Independence Avenue, S.W.
Room 3507, South Building, Mail Stop 0222
Post Office Box 96456
Washington, DC 20090-6456

Deputy Administrator: William J. Franks, Jr.
Phone: (202) 720-5231 Fax: (202) 720-6496
Associate Deputy Administrator: Robert L. Epstein
Phone: (202) 720-2158 Fax: (202) 720-1484
Pesticide Data Program Staff
Phone: (703) 330-2300 Fax: (703) 369-0678

INTERNET HOME PAGE

http://www.ams.usda.gov/science/pdp/index.htm

Participating State Agencies

California Department of Food and Agriculture
California Department of Pesticide Regulation
Colorado Department of Agriculture
Florida Department of Agriculture and Consumer Services
Michigan Department of Agriculture
New York Department of Agriculture and Markets
North Carolina Department of Agriculture
Ohio Department of Agriculture
Texas Department of Agriculture
Washington State Department of Agriculture
Wisconsin Department of Agriculture, Trade, and Consumer Protection

Participating State Laboratories

California Department of Food and Agriculture
Division of Inspection Services
Center for Analytical Chemistry
3292 Meadowview Road
Sacramento, CA 95832

Florida Department of Agriculture and Consumer Services
Chemical Residue Laboratory, Building #3
3125 Conner Boulevard
Tallahassee, FL 32399-1650

Florida Department of Agriculture and Consumer Services
Chemical Residue Laboratory
500 3rd Street, Northwest
Winter Haven, FL 33880

Michigan Department of Agriculture
Laboratory Division
1615 South Harrison Road
East Lansing, MI 48823-5224

New York Department of Agriculture and Markets
Food Laboratory
State Campus, Building #7
Albany, NY 12235

North Carolina Department of Agriculture
Food and Drug Protection Division
Constable Laboratory
4000 Reedy Creek Road
Raleigh, NC 27607

Ohio Department of Agriculture
Consumer Analytical Laboratory
8995 East Main Street
Reynoldsburg, OH 43068

Texas Department of Agriculture
Brenham Pesticide Laboratory
200 East Horton Street
Brenham, TX 77834

Washington State Department of Agriculture
Chemical and Hop Laboratory
2017 South First Street
Yakima, WA 98903

Participating Federal Laboratories

United States Department of Agriculture
Animal and Plant Health Inspection Service
National Monitoring and Residue Analysis Laboratory
3505 25th Avenue, Building 9
Gulfport, MS 39501

United States Department of Agriculture
Grain Inspection, Packers and Stockyards Administration
Grain Inspection Service
Technical Services Division
10383 North Executive Hills Blvd.
Kansas City, MO 64153

United States Department of Agriculture
Agricultural Marketing Service
Science and Technology, Eastern Laboratory
645 Cox Road
Gastonia, NC 28054

Executive Summary

The Pesticide Data Program (PDP) was implemented by the United States Department of Agriculture (USDA) in May 1991 to collect data on pesticide residues in foods. The data are used by the Environmental Protection Agency (EPA), Food and Drug Administration (FDA), Economic Research Service (ERS), Foreign Agricultural Service (FAS), and various groups within the private sector. EPA uses PDP data for its dietary risk assessment and pesticide registration processes. FDA uses PDP data to refine sampling or in order to more effectively enforce tolerances. ERS evaluates pesticide alternatives utilizing PDP data. PDP data are also used by the government and agricultural community to examine residue issues which may affect good agricultural practices relating to integrated pest management objectives. FAS references PDP data in support of U.S. export commodities in a competitive global market. Multiple private sector groups use PDP data in addressing food safety issues.

Pesticides monitored by PDP in 1996 included insecticides, herbicides, fungicides, and growth regulators in fresh and processed fruits and vegetables, whole milk, and wheat. Pesticides and commodities were chosen for inclusion in the program based on the EPA's data needs and USDA's food consumption surveys. PDP planning and policy are coordinated through an Executive Steering Committee consisting of representatives from USDA, EPA, and FDA. The USDA representatives to the committee include: Agricultural Marketing Service (AMS), National Agricultural Statistics Service (NASS), ERS, and the Agricultural Research Service (ARS). The last Executive Steering Committee meeting was held in February 1997. PDP's day-to-day administrative, sampling, technical, and database activities are the responsibility of the AMS Science and Technology program.

PDP sampling and analysis operations from January through September 1996 were managed through AMS-issued cooperative agreements. PDP did not collect samples from September through November 1996, because of funding uncertainties. Program functions in fiscal year 1997 were funded through EPA contractual arrangements, except for North Carolina which withdrew from the program in October. The sampling hiatus impacted PDP's ability to make a 1996 national estimate regarding residue occurrences for highly seasonal commodities. This will have minimal impact on dietary risk assessment evaluations, since the affected commodities were in the testing system for at least 2 years.

Eight participating States (California, Florida, Michigan, New York, North Carolina, Ohio, Texas, and Washington) collected and analyzed samples from January through part of September 1996, and for December 1996. Colorado and Wisconsin performed PDP sampling activities only. Colorado shipped samples to other participating laboratories for analysis. Wisconsin collected milk samples only and transshipped them to the New York laboratory for analysis. Together, the 10 States collecting samples represent about 50 percent of the Nation's population and all regions of the country.

PDP was designed to provide information on pesticide residues in food in order to improve the quality of data that EPA uses to determine the residue levels in foods and estimate exposure to consumers. Without actual residue data, initial risk assessments are based on tolerance levels which do not accurately reflect actual residues likely to be found in ready-to-eat foods. A theoretical risk based on worst-case assumptions may exceed the actual risk of pesticide residues in the food supply and jeopardize the registration of pesticides important to American agriculture. Where needed, EPA conducts further refinements to the risk assessment by using additional information that includes residue monitoring data, if available and reliable. This is where PDP data are pivotal. The data, which are collected as close to the point of consumption as possible, are based on statistically reliable sampling protocols, thereby upgrading their usefulness for risk assessment.

The number of samples to be collected is apportioned according to State population and the samples are randomly chosen without regard for commodity origin or variety. Samples reflect what is typically available to the consumer throughout the year. PDP's sampling protocol takes into account the different volumes of produce distributed annually from each sampling site, thus removing a potential source of bias in estimating residue exposure from PDP-selected commodities.

Samples from 14 different commodities were collected by PDP in 1996. The eight fresh fruit and vegetable commodities collected were apples, carrots, grapes, oranges, peaches, spinach, sweet potatoes, and tomatoes. PDP also collected samples from four processed fruit and vegetables, including apple juice (both ready to serve and concentrated), canned and frozen green beans, sweet corn, and sweet peas. The remaining samples collected were from wheat and whole milk.

PDP collected and analyzed a total of 5,771 samples in 1996. Samples collected originated from 35 States and 10 foreign countries. Of the 4,856 fruit and vegetable samples collected and analyzed, 593 (12.2%) were imported. Grapes and peaches accounted for most of the imports. In addition, 575 whole milk and 340 wheat samples were collected.

Overall, 71.8 percent of the 4,856 fruit and vegetable samples analyzed by the PDP participating laboratories contained at least 1 pesticide residue. In breaking down fruit and vegetable samples analyzed into fresh and processed, 83 percent of the fresh produce and 39 percent of the processed products contained at least 1 pesticide residue per sample. Also, 18 percent of the 575 whole milk samples and 91 percent of the 340 wheat samples had at least 1 pesticide residue. About 21 percent of the residue detections were due to post-harvest uses.

In 1996 there were 243 presumptive violations in 198 samples (196 fruit and vegetables, 1 wheat, and 1 milk). A tolerance is defined under Section 408 of the Federal Food, Drug, and Cosmetic Act as the maximum quantity of a pesticide residue allowable on a raw agricultural commodity. A violation occurs when a residue is found which exceeds the tolerance level or when a residue is found for which there is no tolerance for that particular crop. Many presumptive violations, where there is no EPA tolerance, may be due to spray drift or crop rotations. Nine presumptive violations were for pesticide residues where the EPA tolerance was exceeded, and 234 were violations with no established tolerance for the pesticide/commodity pair.

Vinclozolin was detected in 20 percent of canned/frozen green bean samples tested ranging from 0.005 to 0.14 ppm. A 3 ppm Section 18 Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) exemption for vinclozolin/ green beans expired on September 30, 1995, and was reestablished at 2 ppm July 10, 1997.

All 9,217 pesticide residue detections, except 9, were below tolerance levels established by EPA. The limits of detection for each pesticide/commodity pair in the testing system for PDP are analytically defined at levels low enough to conduct realistic dietary risk assessments. This enables scientists using PDP data to take into account nondetected findings for each pesticide/commodity combination when performing assessments.

PDP continuously strives to improve methodologies for the collection, testing, and reporting of data. PDP data are available to EPA and other Federal and State agencies charged with regulating and setting policies on the use of pesticides.

Pesticide Data Program (PDP) Annual Summary, Calendar Year 1996

This summary consists of the following sections: (I.) Introduction, (II.) Sampling Protocol, (III.) Laboratory Operations, and (IV.) Sample Results and Discussion.

I. Introduction

To implement the Pesticide Data Program (PDP), the United States Department of Agriculture (USDA) utilized the expertise available in four of its agencies: the Agricultural Marketing Service (AMS), the National Agricultural Statistics Service (NASS), the Economic Research Service (ERS), and the Agricultural Research Service (ARS). NASS provides statistically reliable data on chemical usage at the State level and collects economic input data that link chemical usage with economic characteristics. ERS analyzes AMS and NASS data to understand producer behavior and to determine the impact various production practices and policies might have on the Nation's agricultural production, food supply, and consumers. ARS conducts nationwide surveys of individual food intake and household use and is developing a Food Grouping System to translate data on foods as consumed into forms that can be linked with pesticide residue data. AMS selected its Science and Technology program to oversee PDP's policy planning and program direction with the participating State and Federal facilities.

Figure 1, Overview of PDP Management and Operations, describes the program's three major components--sample collection, laboratory analysis, and database management. In 1996, PDP sampling and/or analytical operations were performed by 10 States (California, Colorado, Florida, Michigan, New York, North Carolina, Ohio, Texas, Washington, and Wisconsin) through agreements with their respective State agencies.

Figure 2 shows the States participating in the program for collection of fresh and processed fruit and vegetable and milk samples, which together represent about 50 percent of the Nation's population. Also shown are nine other States (Alaska, Connecticut, Hawaii, Massachusetts, Nevada, New Jersey, New Mexico, Vermont, and Wyoming) where a significant amount of produce is directly marketed from the participating States. Figure 3 shows the distribution of commodities by origin, domestic versus imported. Figure 4 is a map showing the distribution by State of wheat samples collected in 1996.

AMS works closely with EPA to select the commodities and pesticides to be placed in PDP. Commodities chosen for inclusion are those most often consumed by the American public, with emphasis on those consumed by infants and children. Fourteen commodities (apples, apple juice, carrots, grapes, canned/frozen green beans, milk, oranges, peaches, spinach, canned/frozen sweet peas, canned/frozen sweet corn, sweet potatoes, tomatoes, and wheat) were sampled and analyzed during 1996. The pesticides EPA suggests for monitoring consist mainly of those whose toxicities and estimated dietary exposures indicate the need for more refined exposure estimates. The list is revised periodically to address EPA's data needs. Table 1 is a list of pesticides in the 1996 PDP testing profile for fruit and vegetables, milk, and wheat.

PDP is now a critical component of the Food Quality Protection Act (FQPA) of 1996, which directs the Secretary of Agriculture to collect pesticide residue data in a uniform manner on commodities highly consumed by infants and children. EPA continues to be an important recipient of PDP data to implement the provisions of FQPA. Other government agencies (including the Foreign Agricultural Service (FAS)) and industry have used PDP data to promote the export of American commodities in international markets. Customized queries of USDA's PDP database were requested from various sources to support their risk assessment and pesticide information priorities.

Figure 1. Overview of PDP Management and Operations

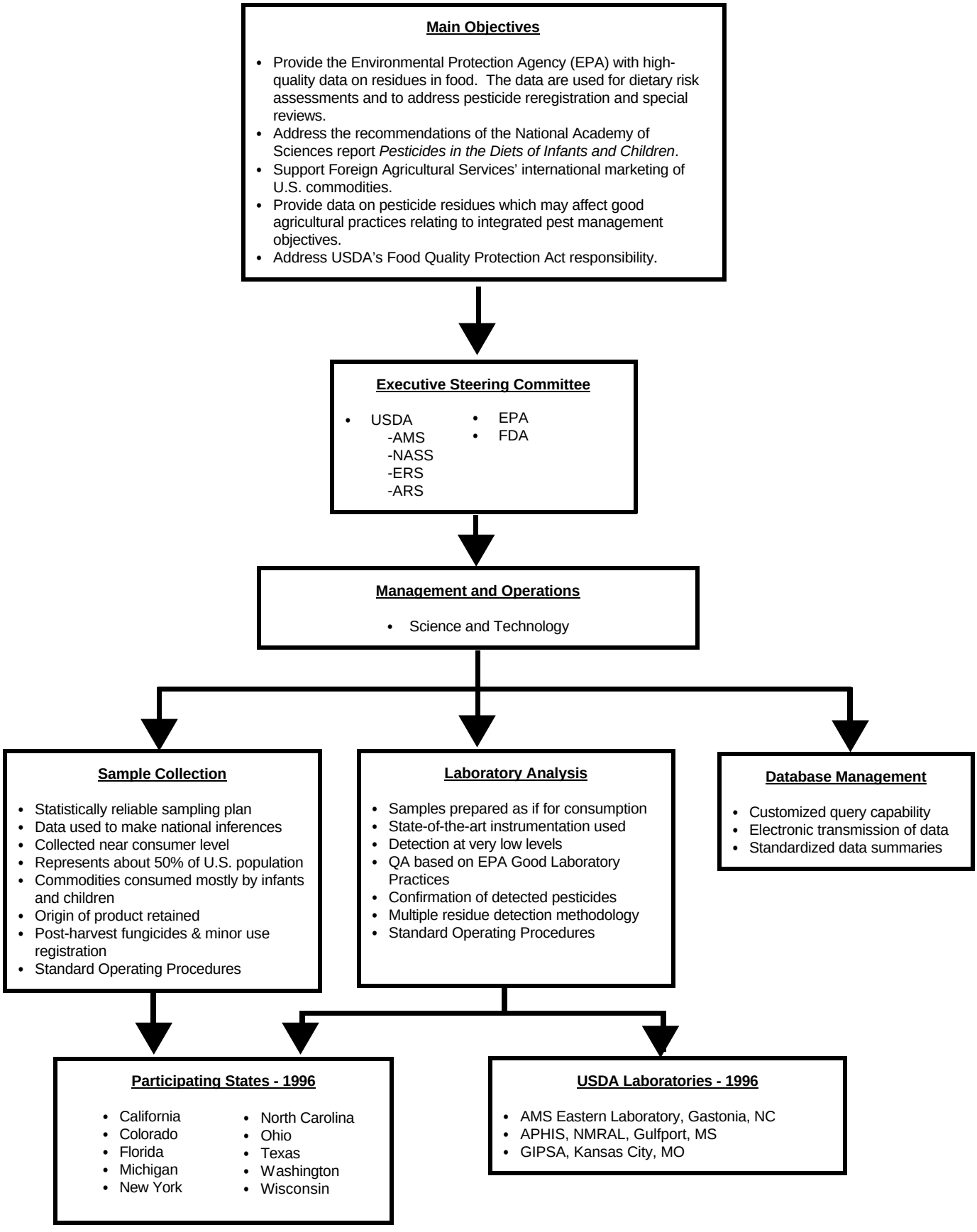
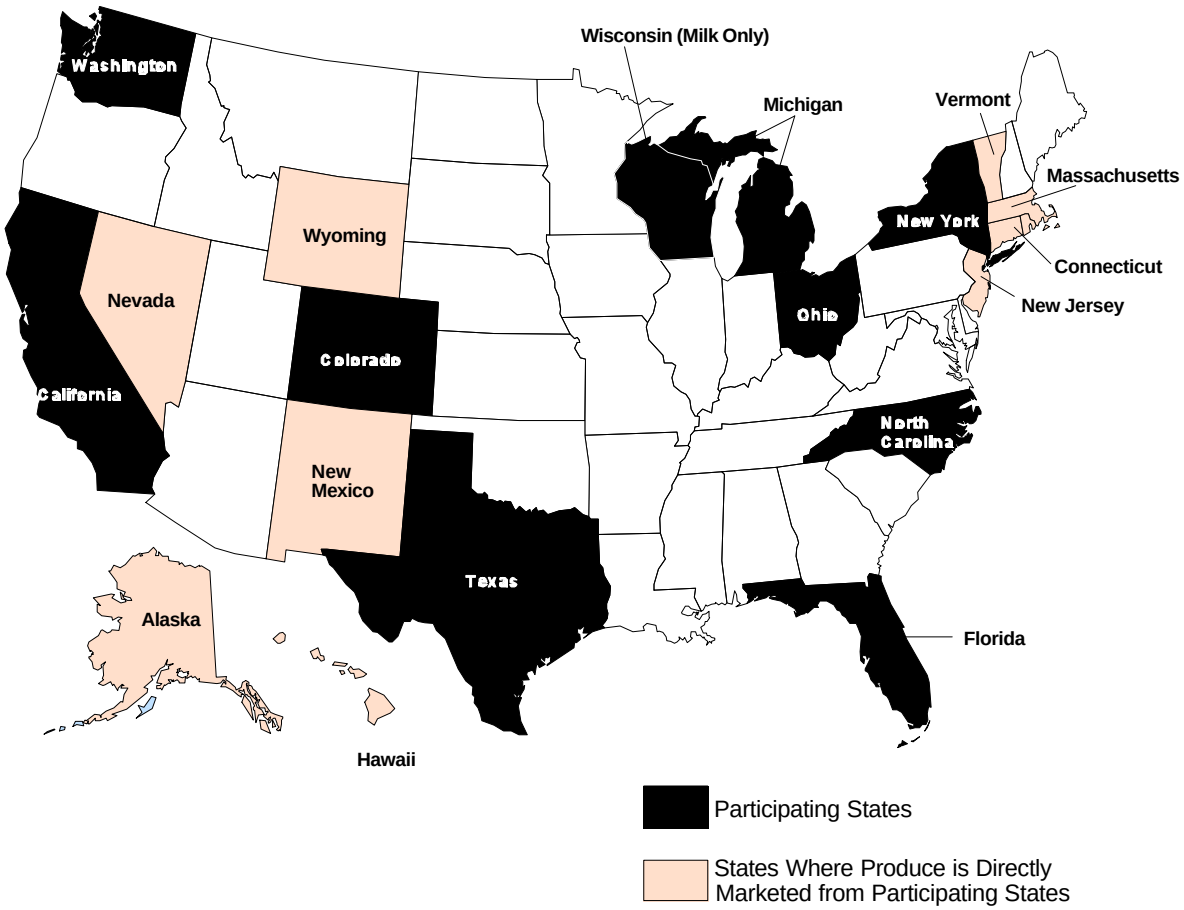


Figure 2. Participating States and Their Geographical Distribution Areas



PDP has also provided information to the Codex Alimentarius Commission and the World Health Organization, both of which operate under the auspices of the United Nations. The information provided was on extraneous residues in foods (environmental contaminants such as DDT and metabolites), pesticide residue stability data, and PDP's Proficiency Check Sample Program.

To obtain pesticide residue data on fruit and vegetable commodities as close to the point of consumption as possible, samples are collected at distribution points just before release to supermarkets and grocery stores. Sampling at these locations allows for residue measurements that include fungicides and growth regulators, and takes into account degradation of pesticides while in storage. Participation as a PDP sampling site is voluntary, which sets it apart from State and Federal enforcement programs. There are about 900 sampling sites granting access and providing information to sample collectors. Their cooperation makes it possible to adjust sampling protocols in response to fluctuations in food distribution.

PDP differs markedly from regulatory monitoring programs (tolerance enforcement) which require quick turnaround time for analysis of enforcement samples. Under tolerance enforcement, the sampled commodity may be detained at the distribution facility while awaiting sample results. PDP places emphasis on searching for residues at the lowest detectable levels, rather than on quick sample turnaround; therefore, analysis of PDP samples may take more than a month, and does not affect commodity distribution. Appendix A is a chronological history of the 28 commodities in PDP from program inception through 1997.

Table 1. Pesticides in Pesticide Data Program, 1996

PART IA. Fresh and Processed Fruits and Vegetables (F&V) (Quality Assurance Program)

51 Pesticides +26 Metabolites/Degradates/Isomers

Acephate
Aldicarb
  Aldicarb sulfoxide
  Aldicarb sulfone
Atrazine
Azinphos methyl
Benomyl (analyzed as carbendazim)
Captan
Carbaryl
Carbofuran
  3-Hydroxycarbofuran
Chlorothalonil
Chlorpropham
Chlorpyrifos
DCPA
DDT
  DDD
  DDE
Diazinon
Dichlorvos (DDVP)
Dicloran
Dicofol (analyzed as dichlorobenzophenone p,p')
Dimethoate
Diphenylamine
Disulfoton
  Disulfoton sulfone
Endosulfans
  Endosulfan I
  Endosulfan II
  Endosulfan sulfate
Esfenvalerate
Ethion
Fenamiphos
  Fenamiphos sulfoxide
  Fenamiphos sulfone
Fenbutatin oxide (hexakis) + 2 metabolites
Fenvalerate
Imazalil
Iprodione
Lindane (BHC gamma)
Malathion
Methamidophos
Methidathion
Methomyl
Methoxychlor
Mevinphos
Myclobutanil
Naled (analyzed as dichlorvos)
Omethoate
Oxamyl
Parathion
Parathion methyl
Permethrin (cis/trans)
Phorate
  Phorate sulfoxide
  Phorate sulfone
  Phorate O-analog
  Phorate O-analog sulfone
Phosphamidon
Propargite
Quintozene (PCNB)
  Hexachlorobenzene (HCB)
  Pentachloroaniline (PCA)
  Pentachlorobenzene (PCB)
Terbufos
  Terbufos sulfone
  Terbufos O-analog sulfone
Thiabendazole
Thiodicarb (analyzed as methomyl)
Trifluralin
Vinclozolin

(No Commodity/Pesticide Pair Requirement in 1996)

3 Pesticides +1 Metabolite/Degradate / Isomer

2,4-D
Abamectin (avermectin b1a & delta 8,9 isomer)
Formetanate

PART IB. Other Pesticides/Metabolites Analyzed in F&V (Capability from 1991-1996)

37 Pesticides + 10 Metabolites/Degradates/IIsomers

Allethrin
Anilazine
Azinphos ethyl
Benfluralin
BHC alpha
BHC beta
BHC delta
Carbophenothion
Chlordanes
  Oxychlordane
Chlorfenvinphos (E/Z)
Chlorpyrifos methyl
Cyfluthrin
Cyhalothrin lambda + isomer
Cypermethrins
Demeton-S
  Demeton-S sulfone
Dieldrin
Diuron
Ethalfluralin
Ethoprop
Fenthion
  4-Hydroxydiphenylamine metabolite
Heptachlor
  Heptachlor epoxide
Linuron
MCPA (m-chlorophenoxyacetic acid)
Metalaxyl
Methiocarb (analyzed as sulfoxide)
  1-Napthol (carbaryl metabolite)
Ovex
  Oxydemeton methyl sulfone metabolite
Oxyfluorfen
o-Phenylphenol
Phosalone
Phosmet
Piperonyl butoxide
Simazine
Sulprofos
Tecnazine
Tetrachlorvinphos
  Tetrahydrophthalimide (THPA) (captan met.)
Toxaphene
Triadimefon

PART II. Wheat (Quality Assurance Program)

Analyzed by Multiresidue Methods (MRMs)

30 Pesticides + 6 Metabolites/Degradates/Isomers

Aldicarb
  Aldicarb sulfone
Atrazine
Azinphos methyl
Carbaryl
Carbofuran
  3 -Hydroxycarbofuran
Chlorpyrifos
Chlorpyrifos methyl
Demeton-S
Diazinon
Dichlorvos (DDVP)
Diclofop methyl
Dimethoate
Disulfoton
  Disulfoton sulfone
Endosulfans
  Endosulfan I
  Endosulfan II
  Endosulfan sulfate
Imazalil
Linuron
Malathion
Methiocarb (analyzed as sulfoxide)
Methomyl
Methoxychlor p,p'
Naled (analyzed as dichlorvos)
Omethoate
Oxamyl
Parathion
Parathion methyl
Phorate
  Phorate sulfone
Thiabendazole
Thiodicarb (analyzed as methomyl)
Triallate
Trifluralin

PART IIIA. Milk (Quality Assurance Program)

48 Compounds of Primary Concern + 23 Metabolites/Degradates/Isomers

2,4-D
Abamectin (avermectin b1a and delta 8,9 isomer)
Acephate
Aldicarb
  Aldicarb sulfoxide
  Aldicarb sulfone
Atrazine
Azinphos methyl
BHC alpha
BHC beta
BHC delta
Benomyl (analyzed as carbendazim)
Carbaryl
Carbofuran
  3-Hydroxycarbofuran
Carbophenothion
Chlordanes (metabolize to oxychlordane)
  Oxychlordane
Chlorfenvinphos (alpha/beta)
Chlorpropham
Chlorpyrifos
Chlorpyrifos methyl
DDT
  DDD
  DDE
Dichlorvos (DDVP)
Dieldrin
Dimethoate
Diphenylamine
  4-Hydroxydiphenylamine metabolite
Doramectin
Disulfoton
  Disulfoton sulfone
Endosulfans
  Endosulfan I
  Endosulfan II
  Endosulfan sulfate
Esfenvalerate
Ethalfluralin
Fenamiphos
  Fenamiphos sulfoxide
  Fenamiphos sulfone
Fenthion
Fenvalerate
Heptachlor
  Heptachlor epoxide
Iprodione
Ivermectin
Lindane (BHC gamma)
Malathion
Methidathion
Naled (analyzed as dichlorvos)
Omethoate
Oxyfluorfen
Permethrin (cis/trans)
Phorate
  Phorate sulfoxide
  Phorate sulfone
Propargite
Quintozene (PCNB)
Simazine
Sulprofos
Tetrachlorvinphos
Thiabendazole
  5-Hydroxythiabendazole sulfate

PART IIIB. Milk

Other Pesticides/Metabolites Analyzed in Milk

40 Pesticides + 9 Metabolites/Degradates/Isomers

2,4-DB
Aldrin (analyzed as dieldrin)
Captan
Chlorothalonil
Cyfluthrin
Cypermethrins
DCPA
Dalapon
  Demeton-S sulfone (metabolite)
Diazinon
Dicamba
Dicloran
Dicofol (analyzed as dichlorobenzophenone p,p')
Diuron
Ethion
Imazalil
Linuron
MCPA (m-chlorophenoxyacetic acid)
Metalaxyl
Methamidophos
Methiocarb (analyzed as sulfoxide)
Methomyl
Methoxychlor p,p'
Mevinphos (E/Z)
Myclobutanil
Oxamyl
  Oxydemeton methyl sulfone metabolite
Parathion
Parathion methyl
Pentachlorophenolo-Phenylphenol
Phorate O-analog
  Phorate O-analog sulfone
Phosalone
Phosmet
Phosphamidon
Picloram
Piperonyl butoxide
Quintozene impurities or metabolites
  Hexachlorobenzene (HCB)
  Pentachloroaniline (PCA)
  Pentachlorobenzene (PCB)
Tecnazine
Terbufos
  Terbufos sulfone
Triclopyr
Trifluralin
Vinclozolin

II. Sampling Protocol

Fruit and Vegetables Sampling Plan

PDP's statistically reliable sampling protocol for fresh and processed fruit and vegetables allows for making nearly unbiased estimates of pesticide residues for commodities collected in the participating States and makes it possible to quantify the accuracy of the estimates for the Nation as a whole. The protocol also reflects the relative proportion of imported versus domestic produce available to the consumer. This has been corroborated by comparing the composition of PDP samples with import data compiled by the Economic Analysis Branch, AMS Fruit and Vegetable Division.

Sampling Procedures

Participating States are responsible for compiling and maintaining lists of sites used for sample collection. Since PDP strives to collect samples as close to the consumer as possible, while maintaining sample origin, most of the sites for fresh fruit and vegetables are either terminal markets or large chain store distribution centers. Both of these locations serve as the last stopover before produce reaches retailers and, ultimately, consumers. This provides a better picture of actual dietary exposure to pesticide residues by taking into account pesticide degradation that occurs during transit and storage. Sampling at these locations also provides information on post-harvest application of fungicides and growth regulators.

Processed commodity samples are collected at distribution centers or large warehouses. To provide PDP with data on both canned and frozen sweet corn and peas, collection of the two types of processed commodity was alternated monthly. Apple juice was collected on an alternate basis--2 months liquid and 1 month frozen.

After establishing their site lists, States are required to provide AMS and NASS with annual volume information for each site (quantity of commodity distributed in 1 year). This information is used to "weight" the site to determine the probability for selection. For example, a site that distributes 100,000 pounds of produce annually might be given a weight of "10," and a site that distributes 10,000 pounds might be weighted "1." The probability-proportionate-to-size method of site selection would then result in the larger site (distributing 100,000 pounds) being 10 times more likely to be selected for sampling than the smaller site (distributing 10,000 pounds). Participating States are required to work with NASS to develop their statistical procedures for site weighting and selection. States are also given the option of having NASS perform their quarterly site selection for them. The number of sampling sites and the volume of produce distributed by the sites vary greatly from State to State. Sample size was approximately 5 pounds for fresh product, 3 pounds for canned and frozen product, and 1 quart for liquid juice for each applicable testing facility.

State population figures are used to assign the number of fruit and vegetable samples scheduled for collection per commodity each month. For 1996, these numbers were: California-14, Colorado-2, Florida-7, Michigan-6, New York-9, North Carolina-4, Ohio-6, Texas-8, and Washington-4; for an annual total of 720 samples per commodity.

Sampling plans, which were prepared by the States on a quarterly basis, included sampling dates, sites, and fruit and vegetable commodities for collection during each month of the quarter. Although sites could only be sampled once per month for the same commodity, States were allowed to collect two different commodities at the same site on the same date. This "pairing" of commodities reduced the number of sampling dates and cost of sample collection. States were also instructed to collect all samples of the same commodity on one sampling date, or, if needed, within two consecutive dates. Collection of commodities was randomly assigned to various weeks of the month, prior to selecting specific sampling dates within the week. Since sampling sites were selected for the entire quarter, States were allowed to assign the sites to particular months based on geographic location.

In 1996, seven of the participating States formed transshipment pools whereby samples of fruit and vegetable commodities collected by the paired States were combined into one set for analytical testing in one State laboratory. This arrangement created larger sample sets, increased proficiency and productivity, and substantially reduced the mandatory quality assurance costs. These paired States are: Colorado, Michigan, and Washington; Florida and Texas; and North Carolina and Ohio.

Chain-of-custody for PDP samples is documented through the use of "Sample Information Forms." These forms are used by the sample collectors to record all pertinent sample information, such as: (1) the State where the sample was collected; (2) the date of collection; (3) the 4-digit code for the sampling site; and (4) the commodity code. These four pieces of information are combined to form a unique "sample identification number" for recording in the PDP database. Additional information includes: (1) whether the sample is domestic or imported and, if imported, the country of origin; (2) the name of the sampling site, grower, packer, or distributor; and (3) a list of potential or known post-harvest applications. The Sample Information Forms are also used to keep track of any missing samples that are not collected, lost in transit, or damaged and unable to be analyzed when received at the laboratory.

The participating States have been given Standard Operating Procedures (SOPs) to provide uniform guidance for commodity sampling among the States. These SOPs are updated as needed and serve as a reference in conducting program sampling reviews.

Synopsis of Sample Collection (Fruit and Vegetables)

A total of 4,856 samples of fresh and processed fruits and vegetables were collected during 1996. As shown in Table 2, the number of samples collected per State was: California - 1,123, Colorado - 163, Florida - 565, Michigan - 510, New York - 756, North Carolina - 298, Ohio - 500, Texas - 622, and Washington - 319. No samples were collected from September 9 through November 30, 1996, due to funding uncertainty. The total number of samples collected is less than the assigned number to be sampled due to the unavailability of product at either the original or alternate sampling site. This is often due to the commodity growing season.

Figure 3 shows the total number of samples per commodity and the percentage of each that were either domestic, imported, or of unknown origin.

Table 2. Samples Collected and Analyzed per Commodity by Each Participating State

State	AJ	AP	CR	CS	GB	GR	OG	PC	PS	SP	SW	TO	Total	*MK*
California	39	123	125	40	118	116	119	79	82	128	114	40	1123	*127*
Colorado	7	18	16	6	20	16	18	10	12	18	16	6	163	*18*
Florida	18	63	54	17	58	59	64	38	40	59	69	26	565	*50*
Michigan	24	54	48	18	60	54	54	36	36	54	54	18	510	*54*
New York	27	89	72	27	81	89	80	53	54	80	77	27	756	*90*
N. Carolina	8	32	36	12	32	32	32	18	24	35	29	8	298	*27*
Ohio	18	52	54	18	53	54	54	33	36	58	52	18	500	*45*
Texas	22	63	63	23	70	70	64	45	47	61	70	24	622	*53*
Washington	16	36	32	12	39	35	34	17	24	32	30	12	319	*40*
Wisconsin	--	--	--	--	--	--	--	--	--	--	--	--	--	*71*
Total	179	530	500	173	531	525	519	329	355	525	511	179	4856	*575*

Total = 5431

Commodities

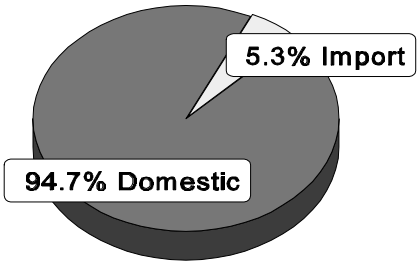
AJ - Apple Juice - L/F (July-Dec)
AP - Apples
CR - Carrots (Jan-Sep)
CS - Sweet Corn - C/F (Jan-Mar)
GB - Green Beans - C/F
GR - Grapes
MK - Milk
OG - Oranges
PC - Peaches (Jan-Dec)
PS - Sweet Peas - C/F (Jan-Jun)
SP - Spinach
SW - Sweet Potatoes
TO - Tomatoes (Jul-Dec)

No Sample collections September 9 - November 30, 1996

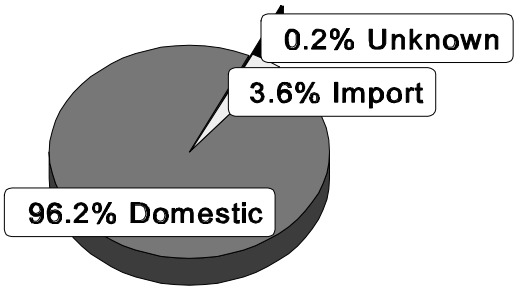
L/F = Liquid / Frozen C/F = Canned / Frozen

Figure 3. Commodity Origin (Percentage Domestic vs. Imported)

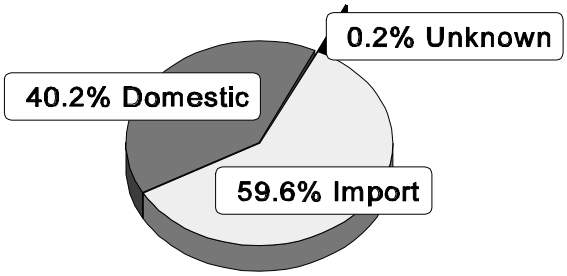
A. Fresh Commodities



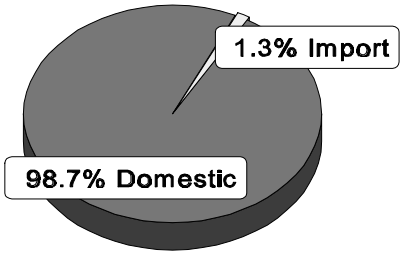
Apples
(530 Samples)



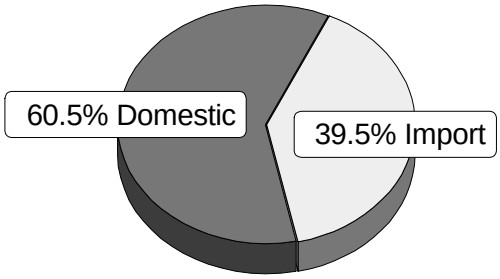
Carrots
(500 Samples)



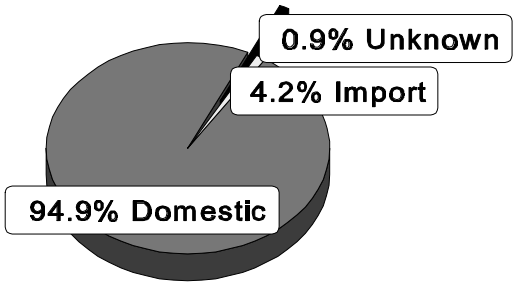
Grapes
(525 Samples)



Oranges
(519 Samples)

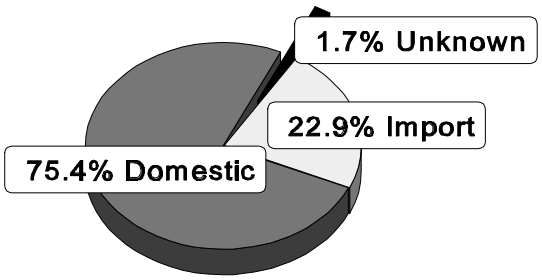


Peaches
(329 Samples)



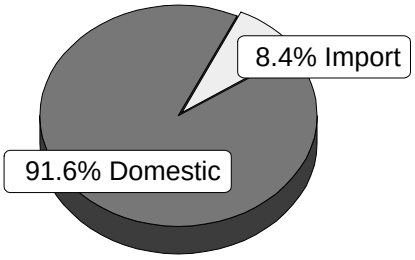
Spinach
(525 Samples)

Sweet Potatoes
(511 Samples)

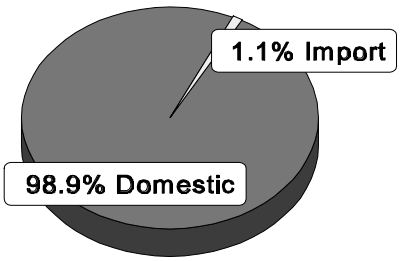


Tomatoes
(179 Samples)

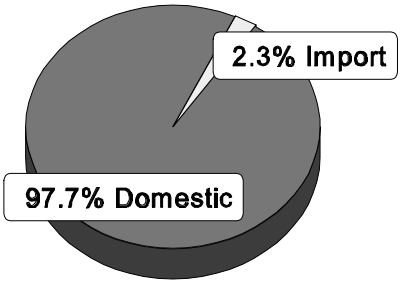
B. Processed Commodities*



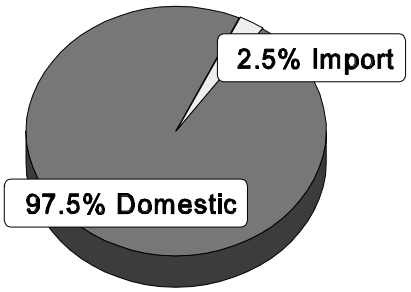
Apple Juice
(179 Samples)



Green Beans
(531 Samples)



Sweet Corn
(173 Samples)



Sweet Peas
(355 Samples)

* For processed commodities, percentages were mainly derived from packer and/or distributor information.

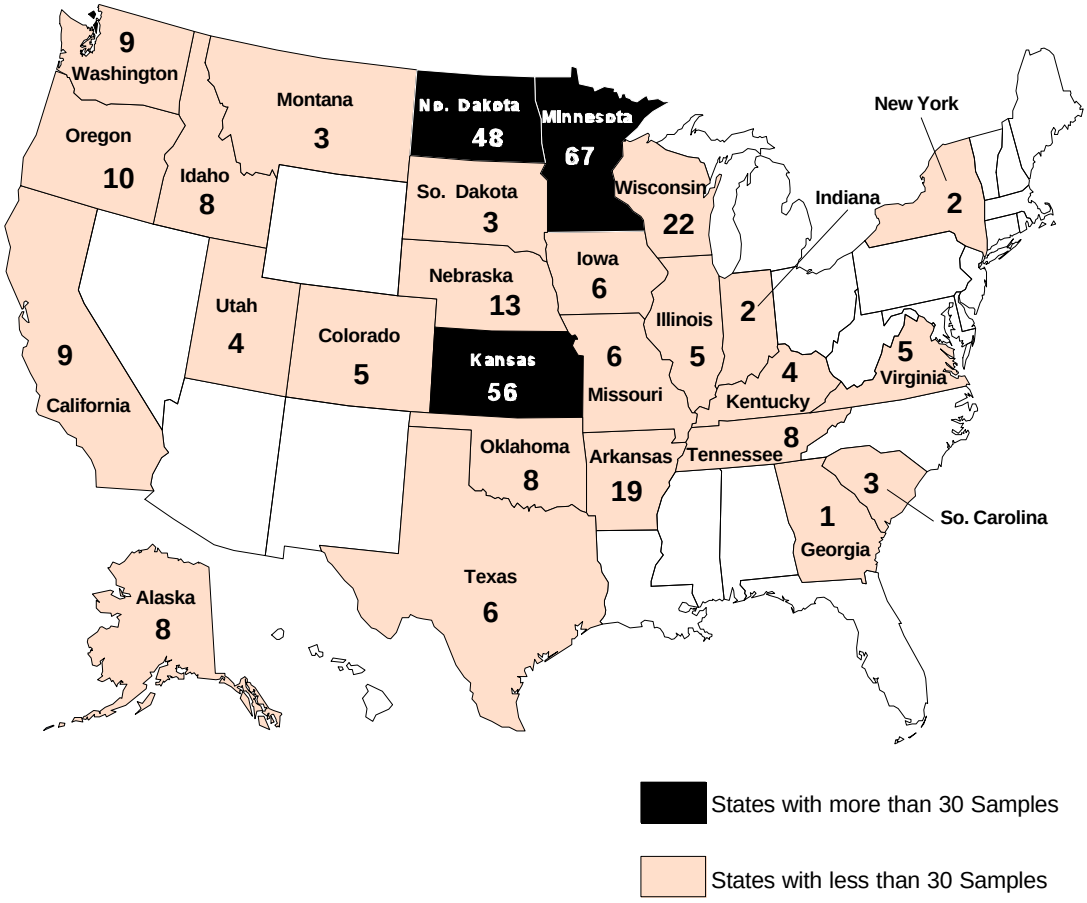
Appendix B provides a more detailed breakdown of sample origin by State or country. As indicated, samples collected during 1996 originated from 35 States and 10 foreign countries.

Wheat Sampling Program

The Grain Inspection, Packers and Stockyards Administration (GIPSA) collected 340 wheat samples in 1996. Samples were collected from available "file" samples received from grain elevators and other storage facilities, but excluded wheat already segregated for export. Sample selection was done randomly based on a predetermined algorithm of 1 in 16 samples in GIPSA's 13 regional offices. Numbers of samples collected were based on product availability on a national basis by State and month, encompassing all 7 varieties of wheat. Figure 4 is a map of the United States showing the distribution of wheat samples by State.

A wheat sample required minimum of 500 to 1,000 grams. All wheat samples were forwarded for pesticide analysis to GIPSA's Technical Services Division laboratory in Kansas City, MO. Chain-of-custody procedures were the same as for fruit and vegetable samples.

Figure 4. Distribution of Wheat Samples (340 Samples)



Milk Sampling Program

Sampling of whole milk was based on consumption in the 10 participating States. These states represented 56 percent of the national milk production and 47 percent of the fluid milk (i.e., whole, 2%, 1%, and skim) available on the U.S. market in 1994/1995. Milk samples have a relatively short production/distribution life, spanning about 2-3 weeks from the manufacturer to the consumer. Consequently, the product is not warehoused but distributed directly to supermarkets. PDP sampling was therefore directed at the 200 fluid milk plants and at approved supermarket surrogates which marketed the plants' product directly.

Sampling was apportioned by relative State share of the national production and the fraction of total milk (expressed as a decimal) processed as liquid product to yield a maximum of 63 samples/month as follows--California 16.3%- 0.27, Colorado 1.0%-0.45, Florida 1.7%-0.81, Michigan 3.6%-0.50, New York 7.4%-0.42, North Carolina 1.0%-0.78, Ohio 3.40%-0.50, Texas 4.0%-0.48, Washington 3.4%-0.33, and Wisconsin 14.6%-0.17. As a result, monthly sampling quotas using a minimum of 2 samples were as follows: California-14, Colorado-2, Florida-5, Michigan-6, New York-10, North Carolina-3, Ohio-5, Texas-6, Washington-4, and Wisconsin-8.

All 575 samples collected originated in the participating States except for 1 sample each from New Jersey and Massachusetts. A list of sample collections by State is found in Table 2 and distribution by origin in Appendix B. If the fluid milk production for the given site

exceeded 1 divided by the State's sample quota, allowance was made for the possible collection of a second sample for the month.

Three State laboratories--California, New York and Florida--were designated to receive and analyze milk samples. The AMS Eastern Laboratory provided services for specific residue analyses for abamectin, benomyl, and thiabendazole. The California laboratory serviced California and Colorado; the Florida-Winter Haven laboratory received samples from Florida, Michigan, North Carolina, Texas, and Washington; and the New York laboratory received samples from New York, Ohio, and Wisconsin.

III. Laboratory Operations

Twelve laboratories (nine State and three Federal) performed analyses for PDP during 1996. These laboratories are equipped with advanced technical instrumentation capable of detecting residues at very low levels. The laboratory staff receives intensive training and must demonstrate analytical proficiency on an ongoing basis. Scientists continuously test new technologies and develop new techniques to improve the levels of detection. Major changes in methodology are evaluated, and their soundness demonstrated and documented in accordance with PDP SOPs.

PDP participating laboratories analyzing fruits and vegetables monitored 49 pesticides plus 24 metabolites, degradates, and isomers using multiresidue methods (MRMs) and 2 pesticides plus 2 metabolites by single or selective residue methods (SRMs). PDP participating laboratories analyzing milk monitored 42 pesticides plus 17 metabolites, degradates, and isomers using multiresidue methods (MRMs) and 6 pesticides plus 6 metabolites by single or selective residue methods (SRMs). Since SRMs are resource intensive, this type of analysis was performed only at selected laboratories for specific commodities as indicated below:

Laboratories Performing SRMs

1. APHIS, NMRAL, Gulfport, MS

Pesticide: Benomyl
Commodities: Apple Juice (Jul-Dec), Peaches, Spinach, Sweet Corn (Jan-Mar), Sweet Potatoes, and Tomatoes (Jul-Dec)

2. APHIS, NMRAL, Gulfport, MS, and the Washington State Laboratory, Yakima, WA

Pesticide: Fenbutatin Oxide (Hexakis) and metabolites
Commodities: Apples (Jan-Jun), Grapes (Jan-Jun), Oranges (Jan-Jun), and Peaches (Jan-Sep)

3. AMS Eastern Laboratory, Gastonia, NC

Pesticide: Abamectin
Pesticide: Benomyl
Pesticide: Thiabendazole and 5-hydroxythiabendazole sulfate
Commodity: Milk (Jan.-Sept.)

4. Selected State Laboratories

Pesticide: 2,4-D
Commodity: Milk

Quality Assurance Program

The main objectives of the quality assurance/quality control (QA/QC) program are to ensure the reliability of PDP data and the performance equivalency of the participating laboratories. Direction for PDP's QA program is provided through SOPs based on EPA's Good Laboratory Practices (GLPs). For day-to-day quality assurance oversight, PDP relies on the Quality Assurance Unit (QAU) at each participating facility. As required under EPA's GLPs, the QAU operates independently from their laboratory staff. Preliminary QA/QC review procedures are performed on-site by each laboratory's QAU. Final review procedures are performed by PDP staff, who are responsible for collating and reviewing data for conformance with SOPs. Additionally, PDP staff also monitor the participants' performance through proficiency samples, QAU quarterly internal reviews, and on-site visits. Additional information on PDP's QA program is provided in Appendix C.

Sample Preparation

Laboratories are permitted to refrigerate fresh incoming fruit and vegetable samples of the same commodity for up to 72 hours and milk samples up to 240 hours, to allow for different sample arrival times from the collection sites. Frozen and canned commodities can be held in storage (freezer or shelf) until the entire sample set is ready to be homogenized.

Upon arrival at the testing facility, samples are visually examined for acceptability and discarded if determined to be inedible (decayed, extensively bruised, spoiled). Accepted samples are then prepared emulating the practices of the average consumer, to more closely represent actual exposure to residues. Fresh samples are prepared as follows: (1) apples and peaches are washed and cored; (2) oranges are peeled; (3) carrots and sweet potatoes are washed; (4) grapes, spinach, and tomatoes are washed with inedibles removed; (5) fresh and reconstituted apple juice and milk are mixed until homogeneous; (6) apple juice frozen concentrate is diluted according to label directions and mixed until homogeneous; and (7) wheat is ground and then analyzed. For canned and frozen fruit and vegetable commodities, the entire contents of the sample is homogenized--including any liquid present.

Samples, except apple juice and milk, are homogenized using choppers and/or blenders and separated into analytical portions (aliquots) for analysis. If testing cannot be performed immediately, the entire analytical set (sample set plus all quality control samples) is frozen at -40° C, or lower, according to PDP's QA/QC requirements. Surplus aliquots, not used for the initial testing, are retained frozen in the event that replication of analysis or verification testing is needed.

Sample Analysis

For analysis of fruit and vegetables, variations of the Luke I and II extraction procedures developed by FDA were used by Florida, Michigan, New York, North Carolina, Ohio, and Texas. California and Washington used the multiresidue method developed by the California Department of Food and Agriculture. These two methods were determined to produce equivalent data for PDP analytical purposes. Residues are extracted from samples using organic solvents followed by various cleanup procedures. Selective residue methods, when employed for 2,4-D, abamectin, benomyl, fenbutatin oxide (hexakis), and thiabendazole, were independently validated by the laboratory(ies) performing analysis.

Various types of chromatography are used for the initial identification and quantitation of pesticides. Confirmation is accomplished by mass spectrometry or by alternate detection systems, depending on the concentration reported. Limits of detection for various selective detectors are lower than those achieved by mass spectrometry detectors. Confirmation is deemed necessary due to the complexity of commodity matrices and the low concentration levels of detected residues. The confirmatory analysis provides an extra measure of confidence in the identification of both the pesticide residue and its concentration.

Analysis of wheat samples was performed by the GIPSA laboratory for 30 pesticides and 6 metabolites/isomers in PDP. Extraction was accomplished using supercritical fluid extraction (a solventless system) coupled with mass spectrometry detection or post-column high-performance liquid chromatography detection.

IV. Sample Results and Discussion

Sample Results

For 1996, most pesticide residue detections were below tolerance levels established by EPA. A tolerance is the maximum allowable quantity of a pesticide residue for a particular commodity. In PDP, the limits of detection for each pesticide/commodity pair in the testing system are analytically defined at levels low enough to conduct realistic dietary risk assessments. This enables scientists using PDP data to take into account non-detected residue findings for each pesticide/commodity combination when performing risk assessments. This is illustrated in Appendices D, E, F, G, and H.

Appendix D shows the distribution for detected and nondetected residues in fruits and vegetables for each pesticide by commodity. Shown in Appendix D are: percent of samples with residue detections and any noted violations by pesticide/commodity combination, agricultural use, minimum and maximum concentrations detected, and tolerances. Appendixes E and F depict similar pesticide information for the wheat and milk samples. Tables 3A and 3B represent summaries of pesticide residue detections by commodity class and specific commodities tested, including and excluding information on post-harvest residue findings.

Appendix G focuses on the 59 pesticide/commodity pairs with detectable residues in at least 10 percent of the samples tested. A range of values for the sample mean (average) residue concentration for each pair is provided. The lower value for the range was determined by treating a sample without detectable residues as if it had a residue concentration equal to zero. The upper value for the range was determined by treating such a sample as if it had a residue concentration equal to the limit of detection.

Appendix G also provides calculations for the 50th, 75th, and 90th percentiles for each of the pairs. The ratio of the 90th percentile to the tolerance, as a normalization factor, is also shown. This demonstrates that, in most cases, the levels of detected residues are a small fraction of the tolerances for the listed pesticide/commodity pairs. Also, the residue detection percentiles for the three processed commodities--apple juice, green beans, and sweet peas-- in Appendix G were weighted to reflect availability of product type (utilization) in 1996, canned, liquid, and frozen versus monthly sample collection for each product type.

The 1996 pesticide residue data will permit the first comparison between a processed and fresh product, specifically green beans, representing different agricultural commodities. The following differences are noted. For canned/frozen green beans, endosulfans were detected in only 4 samples (less than 1%) and for chlorothalonil there were no detections. Residue data in the 1992-95 Summaries show endosulfans detected in 24 to 40 percent of the samples and chlorothalonil in at least 7 percent of the fresh green bean samples. From 1992 through 1995, acephate and its methamidophos metabolite were consistently detected in approximately 20-25 percent of the samples, compared to one-third of processed green bean samples in 1996. Carbaryl occurred in less than 5 percent of the 1992-95 fresh green bean samples tested, and in 1996 it was found in more than 10 percent of the frozen green bean samples. Parathion methyl was detected in approximately 6 percent of the frozen green bean samples, compared to 2 samples with parathion methyl in 2,274 samples of fresh green beans tested over 4 years.

National Estimates

From September through November 1996, PDP sampling was discontinued, because of funding uncertainties. This hiatus impacted the ability to calculate a 1996 national estimate for highly seasonal commodities, such as grapes, peaches, and wheat. For other commodities, where seasonal adjustments are less significant, percentiles depicted in Appendix G approximate national estimates. This will have minimal impact on dietary risk assessment evaluations, since the affected commodities were in the testing systems for at least 2 years.

Appendix H displays the estimated distributions of eight representative pesticide/commodity pairs in graphical form and the range of values for the sample mean. These pesticide/commodity pairs are azinphos methyl/apples, acephate and its methamidophos metabolite/green beans (canned/frozen), imazalil/oranges, DDE and permethrins/spinach, dicloran/sweet potatoes, and chlorpyrifos methyl/wheat. These graphs visually demonstrate that the overwhelming majority of pesticide testing results and the respective means (average values) are at low concentrations.

Post-harvest Applications

Before PDP began collecting data, most available information on pesticide use in the United States was limited to pesticides applied to sustain agricultural production (pre-harvest applications). Little was known about pesticides applied to preserve the fruit and vegetable products after harvest (post-harvest applications). PDP's database has since become one of the most comprehensive sources of post-harvest pesticide use patterns, because samples are collected at points where such uses have already taken place. Most post-harvest applications are confined to fungicides (to control mold and fungus) and growth regulators (to prevent sprouting). PDP compounds with mostly post-harvest applications are the fungicides diphenylamine, o-phenylphenol, and thiabendazole. Other compounds with post-harvest uses on selected commodities are the fungicides dicloran (carrots and peaches) and imazalil (citrus). Consequently, residues from these pesticides can be assumed to result from post-harvest applications. To illustrate the impact of post-harvest uses, detections including and excluding residues of these compounds are listed in Tables 3A and 3B, respectively. Significant differences in the number of residue detections as a result of post-harvest uses are in apples, apple juice, oranges, and peaches. As these tables indicate, these five fungicides accounted for 1,779 detections (21% of the number of residue detections in fruit and vegetables). Thiabendazole was the most frequently found pesticide, primarily occurring in fruit with 671 detections (8% of total residues). Wheat data presented in Appendix E indicates that the most frequently found pesticides were chlorpyrifos, chlorpyrifos methyl, and malathion. These three pesticides with pre- and post-harvest uses accounted for 537 (90%) of the 593 residue detections in the 340 wheat samples tested.

Table 3A. Number of Samples and Residues Detected, by Commodity (Includes Post-Harvest Applications)

	Total Samples Analyzed	Samples with Residues Detected	% of Samples with Residues Detected	Different Residues Detected	Total Residue Detections
Fresh Fruit and Vegetables:					
Apples	530	521	98	39	1,958
Carrots	500	388	78	17	822
Grapes	525	420	80	29	1,070
Oranges	519	438	84	19	791
Peaches	329	316	96	27	1,038
Spinach	525	464	88	39	1,135
Sweet Potatoes	511	343	67	20	495
Tomatoes	179	115	64	23	269
TOTAL	3,618	3,005	83	66	7,578
Processed Fruit and Vegetables:					
Apple Juice	179	119	66	14	212
Green Beans	531	286	54	24	623
Sweet Corn	173	0	0	0	0
Sweet Peas	355	75	21	13	106
TOTAL	1,238	480	39	35	941
Fruit and Vegetables:					
Number of Samples Analyzed = 4,856					
Number of Samples with Residues Detected = 3,485					
Percent with Residue Detections = 71.8%					
Total Number of Different Residues = 67					
Total Number of Residue Detections = 8,519					
Grain:*					
Wheat	340	309	91	16	593
Dairy:					
Milk	575	105	18	4	105
All Commodities:					
Number of Samples Analyzed = 5,771					
Number of Samples with Residues Detected = 3,899					
Percent with Residue Detections = 67.6%					
Total Number of Different Residues = 72					
Total Number of Residue Detections = 9,217					

***** *Includes pre- and post-harvest uses for chlorpyrifos, chlorpyrifos methyl and malathion*

Table 3B. Number of Samples and Residues Detected, by Commodity (Excludes Post-harvest Applications)*

	Total Samples Analyzed	Samples with Residues Detected	% of Samples with Residues Detected	Different Residues Detected	Total Residue Detections
Fresh Fruit and Vegetables:					
Apples	530	467	88	35	1,028
Carrots	500	388	78	17	821
Grapes	525	420	80	29	1,070
Oranges	519	158	30	15	195
Peaches	329	315	96	24	923
Spinach	525	464	88	38	1,132
Sweet Potatoes	511	341	67	17	488
Tomatoes	179	109	61	22	252
TOTAL	3,618	2,662	74	62	5,909
Processed Fruit and Vegetables:					
Apples Juice	179	86	48	11	120
Green Beans	531	286	54	23	614
Sweet Corn	173	0	0	0	0
Sweet Peas	355	66	19	12	97
TOTAL	1,238	438	35	32	831
Fruit and Vegetables:					
Number of Samples Analyzed = 4,856					
Number of Samples with Residues Detected = 3,100					
Percent with Residue Detections = 63.8%					
Total Number of Different Residues = 63					
Total Number of Residue Detections = 6,740					

**** Dicloran (carrots and peaches), Diphenylamine, 4-Hydroxydiphenylamine, Imazalil (citrus), o-Phenylphenol, and Thiabendazole***

Environmental Contaminants

DDT, DDD, and DDE

A total of 4,831 fruit and vegetable samples were screened for DDE, a metabolite of DDT. Use of DDT has been prohibited in the United States since 1972. However, due to the persistence of this chemical in the environment, residues of the DDE metabolite were detected in approximately 11 percent of all samples tested. In some samples, the parent DDT and the DDD metabolite were also reported. Residues were found primarily in carrots (43.0%) and spinach (58.2%). DDE in milk was detected in 17.4 percent of the 570 milk samples tested. No samples had residues above the allowable levels established by FDA. DDE was not in the testing profile for wheat.

Single/Selective Residue Analyses

2,4-D and 2,4-DB

A total of 570 milk samples were tested for 2,4-D and 202 samples for 2,4-DB with no residues detected.

BENOMYL

A total of 1,851 samples of apple juice, peaches, spinach, sweet corn, sweet potatoes, and tomatoes were tested for benomyl, as the carbendazim metabolite. Carbendazim residues were detected in 4.8 percent of the fruit and vegetable samples tested. These residues were found primarily in peaches (23.1%), with scattered detections in apple juice, spinach, and tomatoes. All detections were at levels below the established tolerances. There were no benomyl residue detections in the 501 milk samples tested.

FENBUTATIN OXIDE (HEXAKIS)

A total of 1,270 samples of apples, grapes, oranges, and peaches were tested for fenbutatin oxide, and its metabolites, SD 31723 and/or 33608. Residues were detected in 5 percent of the samples tested. None were above EPA established tolerances.

Non-detected Residues

Non-detected residues could happen because a pesticide was not applied, because it dissipates rapidly, or for various other reasons. Approximately 28 percent of the fruit and vegetable samples analyzed had no detectable pesticide residues (see Table 1 for list of pesticides in the testing system). If post-harvest pesticide detections are excluded, the percentage of samples with nondetected residues increases to about 36. No pesticide residues were detected in 9 percent of the wheat and 82 percent of the milk samples.

Three pesticides and their metabolites and analogs in the 1996 QA testing profile had no detectable residues in fruit and vegetables. They were: disulfoton, phorate, and terbufos. There were only a few approved uses for these chemicals in the commodities tested. In wheat, a number of pesticides had no residue detections due to either no approved uses or possible rapid dissipation in the environment. Most of the residues anticipated in milk are based on environmental incidence in dairy cattle and transfer to milk. Hence, very few pesticide commodity pairs had any residue detections. There were only 4 different pesticide residues detected in milk out of the 71 required pesticides/metabolites in the testing system.

Multiple Residues Detections

The PDP database provides information that can be used by EPA in evaluating the incidence of multiple residues. Multiple residues may derive from various sources, such as applications of more than one pesticide on a crop during a growing season, spray drift, or persistent environmental residues. The multiple residue information is particularly useful in responding to the 1993 National Academy of Sciences report, *Pesticides in the Diets of Infants and Children*, which recommended that coordinated recording of multiple residue scans would make possible more accurate evaluation of exposure distributions for multiple chemicals.

This became a key concept in the Food Quality Protection Act of 1996. The distribution of multiple residues in PDP's database is included as Appendix I. These data indicate that approximately 45 percent of the samples tested contained more than one residue. Any exposure assessment of individual or multiple residues depends on the actual levels of the residues detected. PDP's 1996 data show that the total pesticide level in a sample is independent of the number of residues detected. Furthermore, there is no relationship between the number of residues and presumptive tolerance violations.

Presumptive Tolerance Violations

A tolerance is defined under Section 408 of the Federal Food, Drug, and Cosmetic Act as the maximum quantity of a pesticide residue allowable on a raw agricultural commodity. Tolerances are established by EPA for pesticides used on food crops. A violation occurs when a residue is found which exceeds the tolerance level or when a residue is found for which there is no tolerance for that particular crop. With the exception of meat, poultry, and egg products, for which USDA is responsible, tolerances for all other foods are enforced by FDA. When agencies with regulatory enforcement authority collect samples for tolerance enforcement purposes, they must adhere to a quick turnaround time and chain-of-custody protocols which allow them to detain the sampled lot until results are available. PDP is not an enforcement program. Consequently, sample analysis does not have to be completed quickly (emphasis is placed on searching for residues at the lowest detectable levels--not on quick turnaround time) and sample collection does not interfere with commodity distribution. Therefore, when samples are reported to have residues, for which there is no tolerance established or which exceed the tolerance, they are designated as "presumptive tolerance violations" and reported as such to FDA regional and headquarters offices. This is done in accordance with a Memorandum of Understanding between USDA and FDA for the purpose of pinpointing areas where closer surveillance may be needed. FDA enforcement action on PDP samples

generally is not a viable option due to the time lag from sample collection to data reporting. Presumptive tolerance violations for 1996 data are indicated in Appendices D, E, and F. Appendix J is a complete compilation of all presumptive violations by commodity/pesticide pair.

Synopsis

In 1996, a total of 4,832 fruit and vegetable samples, 340 wheat samples, and 570 milk samples were analyzed for multiresidue classes of pesticides, including organochlorines, organophosphates, organosulfurs, organonitrogens, and N-methyl carbamates. Analysis using SRMs was performed for specific commodities only. Accordingly, 570 samples were tested for 2,4-D; 2,352 samples were tested for benomyl; and 1,270 samples for fenbutatin oxide. There was a difference of 24 samples out of the 4,856 samples analyzed which were not tested for both multiresidue methods and SRMs. Five of these samples were in milk. Pesticides detected included insecticides, herbicides, fungicides, and growth regulators. Also detected were DDT and its metabolites, although their presence is almost certainly due to environmental contamination, and not the result of prohibited crop application. Approximately 89 percent of samples tested were domestic and 11 percent were imported (0.2% were of unknown origin). Of all fruit and vegetable samples tested, 196 (4.0%) were reported as presumptive tolerance violations, although most of these were for residues where no tolerance was established. There was one presumptive violative milk sample and one presumptive wheat sample violation.

Vinclozolin was detected in 20 percent of canned/frozen green bean samples tested ranging from 0.005 to 0.14 ppm. A 3 ppm Section 18 Federal Insecticide, Fungicide, and Rodenticide Act exemption for vinclozolin/green beans expired on September 30, 1995, and was reestablished at 2 ppm July 10, 1997.

For fruit and vegetables, 72 percent of the samples (83% fresh and 39% processed) contained at least one residue, whereas 91 percent of the 340 wheat samples and 18 percent of the milk samples contained at least one residue. It was also observed that, for certain commodities, post-harvest applications contribute significantly to the number of residues detected. Overall, levels of residues detected were below tolerances.

For more information on the Pesticide Data Program, contact William J. Franks, Jr., Deputy Administrator for Science and Technology at AMS: (202) 720-5231, facsimile: (202) 720-6496, electronic-mail: William_J_Franks@usda.gov; or Robert L. Epstein, Associate Deputy Administrator: (202) 720-2158, facsimile: (202) 720-1484, and electronic-mail: Robert_L_Epstein@usda.gov.

The U.S. Department of Agriculture (USDA) prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, and marital or familial status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint, write the Secretary of Agriculture, U.S. Department of Agriculture, Washington, DC 20250, or call (800) 245-6340 (voice) or (202) 720-1127 (TDD). USDA is an equal employment opportunity employer.

Appendix A

Commodity History
(A Chronological Listing)

Appendix A shows a chronological listing of all commodities sampled since the inception of the program through December 1997.

APPENDIX A. Commodity History (A Chronological Listing)

Start Date	End Date	Commodity	Type
May 91	Dec 96	Grapes	Fresh
May 91	Dec 94	Lettuce	Fresh
May 91	Dec 95	Potatoes	Fresh
Aug 91	Dec 93	Grapefruit	Fresh
Aug 91	Dec 96	Oranges	Fresh
Sep 91	Dec 96	Apples	Fresh
Sep 91	Sep 95	Bananas	Fresh
Feb 92	Mar 94	Celery	Fresh
Feb 92	Dec 95	Green Beans	Fresh
Feb 92	Sep 96	Peaches	Fresh
Oct 92	Dec 94	Broccoli	Fresh
Oct 92	Sep 96	Carrots	Fresh
Apr 94	Mar 96	Sweet Corn	Canned/Frozen
Apr 94	Jun 96	Peas	Canned/Frozen
Jan 95	Sep 97	Spinach	Fresh
Feb 95		Wheat	Grain
Jan 96		Milk	Dairy
Jan 96		Green Beans	Canned/Frozen
Jan 96		Sweet Potatoes	Fresh
Jul 96		Tomatoes	Fresh
Jul 96		Apple Juice	Processed
Sep 96		Soy Beans	Grain
Dec 96		Peaches	Canned
Jan 97		Orange Juice	Processed
Jan 97		Pears	Fresh
Jan 97		Winter Squash	Fresh
Apr 97		Winter Squash	Frozen
Oct 97		Spinach	Canned

Appendix B

Sample Origin by Grower, Packer, or Distributor

Appendix B gives the number of samples per State or country of origin and the number of samples of unknown origin. Where available, origin of fresh commodities is determined by grower or packer information. For processed commodities, origin is determined primarily by packer or distributor.

As shown in Appendix B, samples collected and analyzed during 1996 originated from 35 States and 10 foreign countries.

APPENDIX B. SAMPLE ORIGIN BY GROWER, PACKER, OR DISTRIBUTOR
(Number of Samples per State/Country)

Part1.	AJ	AP	CR	CS	GB	GR	MK	OG	PC	PS	SP	SW	TO	No. of Domestic	% of Total
States = 35	Domestic Samples														
Alabama												6	1	7	0.1
Arizona			17		1	7		2			11			38	0.7
Arkansas					1									1	<0.1
California	28	26	363	43	161	200	129	409	180	98	347	165	49	2198	40.5
Colorado		1	17	1			14		4	1	16	1	4	59	1.1
Connecticut	12													12	0.2
Delaware					3									3	0.1
Florida	9	1	28	4	17		51	90		8	11		42	261	4.8
Georgia	1			1	9					3	1	2	1	18	0.3
Idaho	3	4	3	9	21				1	15				56	1
Illinois	7			7	28					18				60	1.1
Kentucky													1	1	<0.1
Louisiana												99		99	1.8
Maine		1		1	4					4				10	0.2
Maryland		1			1					1			1	4	0.1
Massachusetts	3	7					1				8			19	0.3
Michigan	11	44	19	5	14	2	54	4	1	11	30	5	6	206	3.8
Minnesota	2			24	34					42		1		103	1.9
Mississippi	1											3		4	0.1
Missouri		1												1	<0.1
New Jersey			2	1	6		1		8	1	8	2	2	31	0.6
New York	26	44	1	7	37		88		1	21	5	3		233	4.3
North Carolina	2	6	2	3	6		27	1		3	2	180	9	241	4.4
Ohio	5	8	1	2	9		47	1		4	4	2	1	84	1.5
Oklahoma	3			7	19					11				40	0.7
Oregon	8	1		10	33					18	1		1	72	1.3
Pennsylvania	7	3		6	10	1			1	4	11			43	0.8
South Carolina				1	3					2	3	1	4	14	0.3
Tennessee				5	20					11	1	1	7	45	0.8
Texas	12	1	18	9	36	1	52	5		22	27	40	2	225	4.1
Utah		1												1	<0.1
Vermont		4												4	0.1
Virginia	10	1		2	4					2	6		4	29	0.5
Washington	14	347	10	3	7		40		3	6	6			436	8
Wisconsin				18	41		71			40				170	3.1
No. of Domestics	164	502	481	169	525	211	575	512	199	346	498	511	135	4828	
% of Total (nearest %)	92	95	96	98	99	40	100	99	60	97	95	100	75		88.9

Part 2.	AJ	AP	CR	CS	GB	GR	MK	OG	PC	PS	SP	SW	TO	No. of Import	% of Total
Countries = 10	Imported Samples														
Argentina	11													11	0.2
Australia								5						5	0.1
Canada	1	4	10	4	5					6			5	35	0.6
Chile	1	3				279			130					413	7.6
Germany	1													1	<0.1
Italy										1				1	<0.1
Mexico	1		8			24		2		2	22		34	93	1.7
Netherlands													1	1	<0.1
New Zealand		15												15	0.3
South Africa		6				10								16	0.3
Unknown Country					1								1	2	<0.1
No. of Import	15	28	18	4	6	313	0	7	130	9	22	0	41	593	
% of Total (nearest %)	8	5	4	2	1	60	0	1	40	3	4	0	23		10.9

Part 3.	AJ	AP	CR	CS	GB	GR	MK	OG	PC	PS	SP	SW	TO	No. of Unknown	% of Total
No. of Unknown Origin			1			1					5		3	10	
% of Total (nearest %)	0	0	<1	0	0	<1	0	0	0	0	1	0	2		0.2
GRAND TOTALS =	**179**	**530**	**500**	**173**	**531**	**525**	**575**	**519**	**329**	**355**	**525**	**511**	**179**	**5431**	

COMMODITIES
AJ = Apple Juice
AP = Apples
CR = Carrots
CS = Sweet Corn
GB = Green Beans
GR = Grapes
MK = Milk
OG =Oranges
PC = Peaches
PS = Sweet Peas
SP = Spinach
SW = Sweet Potatoes
TO = Tomatoes

Appendix C

Quality Assurance Program Elements

PDP's Quality Assurance (QA) program covers all aspects of data gathering, from sample collection to data reporting. QA protocols for sampling are designed to protect sample integrity from the time of collection to the time of delivery to the testing facilities. QA protocols for testing comprise all laboratory operations from the time of sample receipt to the time data are reported to PDP's central database. As described in this appendix, the QA program has five elements: 1) Standard Operating Procedures; 2) On-site reviews; 3) Proficiency Check Samples; 4) Quality Control Procedures; and 5) Method Performance and Confirmation Procedures.

APPENDIX C. QUALITY ASSURANCE PROGRAM ELEMENTS

1. Standard Operating Procedures - Written SOPs are in place to provide uniform administrative, sampling, and laboratory procedures. SOPs are revised annually to accommodate changes in the program. Before submission, data are reviewed by each Quality Assurance Unit for completeness and adherence to PDP requirements.

2. On-site Reviews - On-site reviews are performed to determine compliance with SOPs. Improvements in sampling, chain of custody, recordkeeping, and laboratory procedures are made as a result of on-site reviews.

3. Proficiency Check Samples - All facilities are required to participate in PDP's Check Sample Program. Check samples are issued to laboratories performing analysis with multiresidue methods and/or single/selective residue methods. Periodically, one to four prepared commodities, containing pesticide(s) of known quantities, are sent to the participating laboratories and tested under the same conditions as routine samples. The resulting data are used to determine performance equivalency among the testing laboratories, and to evaluate individual laboratory performance. During 1996, PDP laboratories received 3 proficiency sample sets consisting of 9 fruit and vegetable samples for multiresidue screening, 3 sets for single/selective residue screening, a wheat multiresidue set, and a milk multiresidue set. For fruit and vegetable multiresidue screening, a total of 81 samples covering 8 commodities were fortified with 36 compounds at levels approximately 1-3 times the overall limit of quantitation (LOQ). Results yield an overall mean Percent Coefficient of Variation (%C.V.) of 22%. Nine incurred residues were present in these sets at levels generally less than 0.1 ppm, with reported results having an overall mean C.V. of 26%. For milk multiresidue screening, a total of 9 samples were fortified with 10 compounds, with results yielding an overall mean C.V. of 18%.

4. Quality Control Procedures - PDP operating procedures for quality control (QC) are intended to assess method and analyst performance during sample preparation, clean-up, extraction, and, where applicable, derivatization. To maximize sample output and decrease the QC/sample ratio, samples are analyzed in analytical sets, which include the sample set and the following components.

a. Reagent Blank: An amount of distilled water, equivalent to the natural moisture content of the commodity, is run through the entire analytical process to determine glassware cleanliness and system integrity.

b. Matrix Blank: A previously analyzed sample of the same commodity, which contains either very low concentrations of known residues or no detectable residues, is divided into two portions. The first portion is used to give background information on naturally occurring chemicals, and the second one is used to prepare a matrix spike.

c. Matrix Spike(s): Prior to extraction, a portion(s) of matrix blank is spiked with marker pesticides to determine the accuracy of the analyst and instrument performance. Marker pesticides are compounds selected from different pesticide classes (organochlorines, organophosphates, carbamates), which have physical and chemical characteristics similar to those in the class they represent. The use of marker pesticides to monitor recoveries is a modification of PDP's previous requirements that called for spiking with all pesticides. Because of the large number of pesticides in the program, spiking with all compounds required several spike mixtures (to avert coelution problems), which, in turn, resulted in lengthy run times. During 1996, PDP laboratories quantitated a total of 19,557 matrix spikes on samples, with an overall mean recovery of 95% and overall standard deviation of 19%.

d. Process Control Spike: A compound of physical and chemical characteristics, similar to those of the pesticides being tested, is used to evaluate the analytical process on a sample-by-sample basis. Each of the analytical set components, except the reagent and matrix blanks, is spiked with process controls. During 1996, PDP laboratories quantitated a total of 28,273 process controls on 5,764 samples, with an overall mean recovery of 97% and overall standard deviation of 18% .

5. Method Performance and Confirmation Procedures - Laboratories are required to determine the limits of detection (LOD) and limits of quantitation (LOQ) for each commodity/pesticide pair. LODs depend on matrix, analyte, and detector used, and range from 0.001 to 0.34 ppm. (*Information on specific LODs and LOQs is available upon request.*) Confirmation by mass spectrometry, or a suitable alternate detection system, is required for all initial determinations. If a detected residue exceeds the established tolerance, the sample is reanalyzed in duplicate from the frozen homogenate, along with the appropriate blanks and a spike of the residue at the suspected level.

Appendix D

Distribution of Residues by Pesticide in Fruit and Vegetables

Appendix D shows residue detections for all fruit and vegetable pesticide/ commodity pairs tested, including minimum and maximum concentrations reported, Limits of Detection (LODs), and whether a tolerance is established for each pair. *Residue detections are highlighted in italics.*

In 1996, 4,856 samples were analyzed. A total of 196 samples (4.0%) were reported as presumptive violations. Eight samples (0.2%) contained residues that exceeded the established EPA tolerance for the pesticide/commodity pair and 188 samples (3.9%) were reported for which no EPA tolerance was established

Of the presumptive violation samples, domestic commodities accounted for 167 samples; imported commodities accounted for 24 samples, and unknown origin commodities accounted for 5 samples. ***(See Appendix J for additional information concerning presumptive tolerance violations).***

In some cases, a tolerance may or may not apply, depending on whether certain conditions are met. For example, residues of methamidophos in green beans are covered by a tolerance only if residues of acephate are also present. Of the 171 green bean samples found to contain residues of methamidophos, 168 were found in combination with acephate. Only three samples had methamidophos residues where acephate was not present and were reported as presumptive violations.

APPENDIX D. DISTRIBUTION OF RESIDUES BY PESTICIDE IN FRUIT AND VEGETABLES

	Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
1	**Acephate (insecticide)**							
	Apple Juice (V-1)	177	1	0.6	0.004	0.004	0.002 - 0.008	NT
	Apples	530	0				0.002 - 0.024	NT
	Carrots (V-2)	500	2	0.4	0.004	0.010	0.002 - 0.006	NT
	Grapes	525	0				0.002 - 0.006	NT
	Green Beans	531	178	33.5	0.006	1.2	0.002 - 0.006	3
	Oranges	518	0				0.002 - 0.024	NT
	Peaches	324	0				0.002 - 0.024	NT
	Spinach (V-16)	517	16	3.1	0.004	0.12	0.002 - 0.024	NT
	Sweet Corn	173	0				0.003 - 0.005	NT
	Sweet Peas	355	0				0.003 - 0.005	NT
	Sweet Potatoes (V-2)	507	2	0.4	0.007	0.008	0.002 - 0.005	NT
	Tomatoes (V-1)	174	1	0.6	0.007	0.007	0.002 - 0.006	NT
	Total	**4831**	**200**					
2	**Aldicarb (insecticide)**							
	Apple Juice	138	0				0.008 - 0.021	NT
	Apples	404	0				0.008 - 0.036	NT
	Carrots	383	0				0.008 - 0.021	NT
	Grapes	396	0				0.008 - 0.021	NT
	Green Beans	403	0				0.004 - 0.021	NT
	Oranges	518	0				0.008 - 0.036	0.3
	Peaches	325	0				0.008 - 0.036	NT
	Spinach	517	0				0.008 - 0.036	NT
	Sweet Corn	173	0				0.008 - 0.020	NT
	Sweet Peas	268	0				0.004 - 0.012	NT
	Sweet Potatoes	372	0				0.008 - 0.012	0.1
	Tomatoes	174	0				0.008 - 0.021	NT
	Total	**4071**	**0**					
	Aldicarb sulfoxide							
	Apple Juice	177	0				0.010 - 0.076	NT
	Apples	530	0				0.010 - 0.076	NT
	Carrots	500	0				0.010 - 0.076	NT
	Grapes	525	0				0.010 - 0.076	NT
	Green Beans	531	0				0.007 - 0.076	NT
	Oranges	518	2	0.4	0.017	0.017	0.010 - 0.060	0.3
	Peaches	325	0				0.010 - 0.060	NT
	Spinach	517	0				0.010 - 0.060	NT
	Sweet Corn	173	0				0.010 - 0.027	NT
	Sweet Peas	355	0				0.007 - 0.076	NT
	Sweet Potatoes	507	5	1.0	0.015	0.13	0.010 - 0.076	0.1
	Tomatoes	174	0				0.010 - 0.036	NT
	Total	**4832**	**7**					
	Aldicarb sulfone							
	Apple Juice	138	0				0.010 - 0.041	NT
	Apples	404	0				0.010 - 0.052	NT
	Carrots	383	0				0.010 - 0.041	NT
	Grapes	396	0				0.010 - 0.041	NT
	Green Beans	403	0				0.007 - 0.041	NT
	Oranges	518	0				0.010 - 0.052	0.3
	Peaches	325	0				0.010 - 0.052	NT
	Spinach	517	0				0.010 - 0.052	NT
	Sweet Corn	173	0				0.010 - 0.021	NT

	Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
	Sweet Peas	268	0				0.007 - 0.021	NT
	Sweet Potatoes	372	2	0.5	0.017	0.048	0.010 - 0.021	0.1
	Tomatoes	174	0				0.010 - 0.041	NT
	Total	**4071**	**2**					
3	**Anilazine (fungicide)**							
	Apples	108	0				0.018 - 0.037	NT
	Oranges	106	0				0.018 - 0.037	NT
	Peaches	62	0				0.018 - 0.037	NT
	Spinach	104	0				0.018 - 0.037	NT
	Total	**380**	**0**					
4	**Atrazine (herbicide)**							
	Apple Juice	177	0				0.008 - 0.028	NT
	Apples	530	0				0.008 - 0.024	NT
	Carrots	500	0				0.019 - 0.028	NT
	Grapes	525	0				0.019 - 0.028	NT
	Green Beans	531	0				0.014 - 0.028	NT
	Oranges	512	0				0.003 - 0.020	NT
	Peaches	324	0				0.003 - 0.020	NT
	Spinach (V-2)	517	2	0.4	0.033	0.033	0.003 - 0.020	NT
	Sweet Corn	173	0				0.003 - 0.028	0.25
	Sweet Peas	355	0				0.014 - 0.028	NT
	Sweet Potatoes	507	0				0.018 - 0.028	NT
	Tomatoes	174	0				0.003 - 0.028	NT
	Total	**4825**	**2**					
5	**Azinphos (insecticide)**							
	Apple Juice	39	0				0.006 ^	2
	Apples	123	0				0.006 - 0.020	2
	Carrots	125	0				0.006 - 0.020	NT
	Grapes	116	0				0.006 - 0.020	5
	Green Beans	118	0				0.006 - 0.020	2
	Oranges	119	0				0.006 - 0.020	2
	Peaches	78	0				0.006 - 0.020	2
	Spinach	124	0				0.006 - 0.020	2
	Sweet Corn	52	0				0.020 ^	2
	Sweet Peas	106	0				0.020 ^	NT
	Sweet Potatoes	143	0				0.006 - 0.020	NT
	Tomatoes	39	0				0.006 ^	2
	Total	**1182**	**0**					
6	**Azinphos methyl (insecticide)**							
	Apple Juice	177	9	5.1	0.010	0.013	0.006 - 0.038	2
	Apples	530	289	54.5	0.010	0.44	0.006 - 0.038	2
	Carrots	500	0				0.006 - 0.029	NT
	Grapes	525	16	3.0	0.010	0.048	0.006 - 0.029	5
	Green Beans	531	0				0.006 - 0.029	2
	Oranges	518	1	0.2	0.020	0.020	0.006 - 0.038	2
	Peaches	324	108	33.3	0.010	0.41	0.006 - 0.032	2
	Spinach	517	4	0.8	0.017	0.40	0.006 - 0.038	2
	Sweet Corn	173	0				0.006 - 0.030	NT
	Sweet Peas	355	0				0.006 - 0.029	NT
	Sweet Potatoes	507	0				0.006 - 0.029	NT
	Tomatoes	174	8	4.6	0.010	0.051	0.006 - 0.030	2
	Total	**4831**	**435**					

	Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
7	**Benfluralin (herbicide)**							
	Carrots	125	0				0.010 ^	
	Total	**125**	**0**					
8	**Benomyl - analyzed as carbendazim (fungicide)**							
	Apple Juice	177	6	3.4	0.083	0.18	0.050 ^	7
	Peaches	329	76	23.1	0.083	2.6	0.050 ^	15
	Spinach	507	1	0.2	0.12	0.12	0.050 ^	0.2
	Sweet Corn	170	0				0.050 ^	0.2
	Sweet Potatoes	510	0				0.050 ^	0.2
	Tomatoes	158	6	3.8	0.083	0.17	0.050 ^	5
	Total	**1851**	**89**					
9	**BHCs (insecticide)**							
	BHC, alpha							
	Apple Juice	26	0				0.003 ^	0.05
	Apples	89	0				0.002 - 0.003	0.05
	Carrots	72	0				0.003 ^	0.3
	Grapes	89	0				0.003 ^	NT
	Green Beans	81	0				0.003 ^	0.05
	Oranges	79	0				0.002 - 0.003	0.05
	Peaches	52	0				0.002 - 0.003	0.05
	Spinach	79	0				0.003 ^	0.05
	Sweet Corn	45	0				0.002 - 0.003	0.05
	Sweet Peas	90	0				0.002 - 0.003	0.05
	Sweet Potatoes	129	0				0.002 - 0.003	0.05
	Tomatoes	27	0				0.003 ^	0.05
	Total	**858**	**0**					
	BHC, beta							
	Apple Juice	26	0				0.003 ^	0.05
	Apples	89	0				0.002 - 0.003	0.05
	Carrots	72	0				0.003 ^	0.3
	Grapes	89	0				0.003 ^	NT
	Green Beans	81	0				0.003 ^	0.05
	Oranges	79	0				0.002 - 0.003	0.05
	Peaches	52	0				0.002 - 0.003	0.05
	Spinach	79	0				0.003 ^	0.05
	Sweet Corn	45	0				0.002 - 0.003	0.05
	Sweet Peas	90	0				0.002 - 0.003	0.05
	Sweet Potatoes	129	0				0.002 - 0.003	0.05
	Tomatoes	27	0				0.003 ^	0.05
	Total	**858**	**0**					
	BHC, delta							
	Apple Juice	26	0				0.003 ^	0.05
	Apples	89	0				0.002 - 0.003	0.05
	Carrots	72	0				0.003 ^	0.3
	Grapes	89	0				0.003 ^	NT
	Green Beans	81	0				0.003 ^	0.05
	Oranges	79	0				0.002 - 0.003	0.05
	Peaches	52	0				0.002 - 0.003	0.05
	Spinach	79	0				0.003 ^	0.05
	Sweet Corn	45	0				0.002 - 0.003	0.05
	Sweet Peas	90	0				0.002 - 0.003	0.05
	Sweet Potatoes	129	0				0.002 - 0.003	0.05
	Tomatoes	27	0				0.003 ^	0.05
	Total	**858**	**0**					

	Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
10	**Captan (fungicide)**							
	Apple Juice	143	7	4.9	0.010	0.068	0.006 - 0.017	25
	Apples	530	81	15.3	0.010	2.2	0.006 - 0.017	25
	Carrots	404	0				0.006 - 0.017	2
	Grapes	524	218	41.6	0.010	1.0	0.006 - 0.017	50
	Green Beans	343	0				0.006 - 0.017	25
	Oranges	518	0				0.006 - 0.017	NT
	Peaches	324	23	7.1	0.010	1.3	0.006 - 0.017	50
	Spinach	511	7	1.4	0.018	0.10	0.006 - 0.014	100
	Sweet Corn	137	0				0.006 - 0.008	2
	Sweet Peas	283	0				0.006 - 0.016	2
	Sweet Potatoes	407	0				0.006 - 0.012	NT
	Tomatoes	138	0				0.006 - 0.017	25
	Total	**4262**	**336**					
	Tetrahydrophthalimide							
	Apple Juice	13	13		0.017	0.28	0.010 ^	25
	Grapes	2	2		0.064	0.14	0.010 ^	50
	Peaches	2	2		0.50	0.50	0.30 ^	50
	Total	**17**	**17**					
11	**Carbaryl (insecticide)**							
	Apple Juice	177	57	32.2	0.010	0.099	0.006 - 0.025	10
	Apples	530	65	12.3	0.010	0.74	0.006 - 0.076	10
	Carrots	500	0				0.006 - 0.076	10
	Grapes	525	34	6.5	0.010	0.94	0.006 - 0.076	10
	Green Beans	531	63	11.9	0.007	0.70	0.004 - 0.076	10
	Oranges	518	61	11.8	0.010	0.13	0.006 - 0.025	10
	Peaches	325	52	16.0	0.010	1.7	0.006 - 0.025	10
	Spinach	517	2	0.4	0.039	0.077	0.006 - 0.025	12
	Sweet Corn	173	0				0.006 - 0.020	5
	Sweet Peas	355	7	2.0	0.042	0.13	0.004 - 0.076	10
	Sweet Potatoes (X-1)	507	1	0.2	0.67	0.67	0.006 - 0.076	0.2
	Tomatoes	174	0				0.006 - 0.020	10
	Total	**4832**	**342**					
	1-Napthol							
	Apple Juice	47	0				0.055 ^	10
	Carrots	96	0				0.055 ^	10
	Grapes	105	0				0.055 ^	10
	Green Beans	119	4	3.4	0.090	0.20	0.034 - 0.055	10
	Sweet Corn	36	0				0.055 ^	5
	Sweet Peas	72	0				0.034 - 0.055	10
	Sweet Potatoes	100	0				0.055 ^	0.2
	Tomatoes	36	0				0.055 ^	10
	Total	**611**	**4**					
12	**Carbofuran (insecticide)**							
	Apple Juice	177	0				0.010 - 0.026	NT
	Apples	530	0				0.010 - 0.076	NT
	Carrots	500	0				0.010 - 0.076	NT
	Grapes	524	0				0.010 - 0.076	0.2
	Green Beans	531	0				0.006 - 0.076	NT
	Oranges	518	0				0.010 - 0.049	2.5
	Peaches	325	0				0.010 - 0.049	NT
	Spinach	517	0				0.010 - 0.049	NT

	Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
	Sweet Corn	173	0				0.010 - 0.020	0.2
	Sweet Peas	355	0				0.006 - 0.076	NT
	Sweet Potatoes	507	0				0.010 - 0.076	NT
	Tomatoes	174	0				0.010 - 0.020	NT
	Total	**4831**	**0**					
	3-Hydroxycarbofuran							
	Apple Juice	177	0				0.010 - 0.076	NT
	Apples	530	0				0.010 - 0.076	NT
	Carrots	500	0				0.010 - 0.076	NT
	Grapes (X-1)	525	4	0.80	0.024	0.30	0.010 - 0.076	0.2
	Green Beans	531	0				0.009 - 0.076	NT
	Oranges	518	0				0.010 - 0.070	2.5
	Peaches	325	0				0.010 - 0.070	NT
	Spinach (V-1)	517	1	0.20	0.033	0.033	0.010 - 0.070	NT
	Sweet Corn	173	0				0.010 - 0.020	0.2
	Sweet Peas	355	0				0.009 - 0.076	NT
	Sweet Potatoes	507	0				0.010 - 0.076	NT
	Tomatoes (V-1)	174	1	0.6	0.024	0.024	0.010 - 0.020	NT
	Total	**4832**	**6**					
13	**Carbophenothion (insecticide)**							
	Apple Juice	26	0				0.003 ^	NT
	Apples	89	0				0.002 - 0.003	NT
	Carrots	72	0				0.003 ^	NT
	Grapes	89	0				0.003 ^	NT
	Green Beans	81	0				0.003 ^	NT
	Oranges	79	0				0.002 - 0.003	NT
	Peaches	52	0				0.002 - 0.003	NT
	Spinach	79	0				0.003 ^	NT
	Sweet Corn	45	0				0.002 - 0.003	NT
	Sweet Peas	90	0				0.002 - 0.003	NT
	Sweet Potatoes	129	0				0.002 - 0.003	NT
	Tomatoes	27	0				0.003 ^	NT
	Total	**858**	**0**					
14	**Chlordanes (insecticide)**							
	Apple Juice	26	0				0.001 ^	0.1 #
	Apples	89	0				0.001 ^	0.1 #
	Carrots	72	0				0.001 ^	0.1 #
	Grapes	89	0				0.001 ^	NT
	Green Beans	81	0				0.001 ^	0.1 #
	Oranges	79	0				0.001 ^	0.1 #
	Peaches	52	0				0.001 ^	0.1 #
	Spinach	79	0				0.001 ^	0.1 #
	Sweet Corn	45	0				0.001 ^	0.1 #
	Sweet Peas	90	0				0.001 ^	0.1 #
	Sweet Potatoes	129	0				0.001 ^	0.1 #
	Tomatoes	27	0				0.001 ^	0.1 #
	Total	**858**	**0**					
	Oxychlordane							
	Apple Juice	26	0				0.002 ^	0.1 #
	Apples	89	0				0.002 ^	0.1 #
	Carrots	72	0				0.002 ^	0.1 #
	Grapes	89	0				0.002 ^	NT
	Green Beans	81	0				0.002 ^	0.1 #
	Oranges	79	0				0.002 ^	0.1 #

	Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
	Peaches	46	0				0.002 ^	0.1 #
	Spinach	70	0				0.002 ^	0.1 #
	Sweet Corn	45	0				0.002 ^	0.1 #
	Sweet Peas	90	0				0.002 ^	0.1 #
	Sweet Potatoes	129	0				0.002 ^	0.1 #
	Tomatoes	27	0				0.002 ^	0.1 #
	Total	**843**	**0**					
15	**Chlorfenvinphos (insecticide)**							
	Apple Juice	26	0				0.003 ^	NT
	Apples	89	0				0.002 - 0.003	NT
	Carrots	72	0				0.003 ^	NT
	Grapes	89	0				0.003 ^	NT
	Green Beans	81	0				0.003 ^	NT
	Oranges	79	0				0.002 - 0.003	NT
	Peaches	52	0				0.002 - 0.003	NT
	Spinach	79	0				0.003 ^	NT
	Sweet Corn	45	0				0.002 - 0.003	NT
	Sweet Peas	90	0				0.002 - 0.003	NT
	Sweet Potatoes	129	0				0.002 - 0.003	NT
	Tomatoes	27	0				0.003 ^	NT
	Total	**858**	**0**					
16	**Chlorothalonil (fungicide)**							
	Apple Juice	130	0				0.006 - 0.018	NT
	Apples (V-4)	530	4	0.8	0.030	0.030	0.004 - 0.018	NT
	Carrots	404	0				0.006 - 0.008	1
	Grapes (V-1)	420	1	0.2	0.012	0.012	0.006 - 0.008	NT
	Green Beans	424	0				0.006 - 0.030	5
	Oranges	518	0				0.003 - 0.018	NT
	Peaches	324	1	0.3	0.012	0.012	0.003 - 0.008	0.5
	Spinach (V-4)	517	4	0.8	0.007	0.88	0.003 - 0.018	NT
	Sweet Corn	137	0				0.003 - 0.008	1
	Sweet Peas	283	0				0.006 - 0.008	NT
	Sweet Potatoes	407	0				0.006 - 0.008	NT
	Tomatoes	174	20	11.5	0.005	2.4	0.003 - 0.031	5
	Total	**4268**	**30**					
17	**Chlorpropham (herbicide, growth regulator)**							
	Apple Juice	177	0				0.008 - 0.020	NT
	Apples (V-2)	530	2	0.4	0.013	0.020	0.006 - 0.031	NT
	Carrots	500	0				0.006 - 0.020	0.1
	Grapes (V-1)	525	1	0.2	0.020	0.020	0.006 - 0.020	NT
	Green Beans	531	0				0.006 - 0.020	0.3
	Oranges	518	0				0.006 - 0.031	NT
	Peaches	324	0				0.006 - 0.031	NT
	Spinach	517	1	0.2	0.014	0.014	0.006 - 0.031	0.3
	Sweet Corn	173	0				0.006 - 0.020	NT
	Sweet Peas	355	0				0.006 - 0.020	0.3
	Sweet Potatoes (V-1)	507	1	0.2	0.013	0.013	0.006 - 0.020	NT
	Tomatoes	174	0				0.008 - 0.020	0.1
	Total	**4831**	**5**					
18	**Chlorpyrifos (insecticide)**							
	Apple Juice	177	0				0.002 - 0.011	1.5
	Apples	530	140	26.4	0.003	0.23	0.002 - 0.009	1.5
	Carrots (V-7)	500	7	1.4	0.005	0.074	0.003 - 0.011	NT
	Grapes (V-13)	525	72	13.7	0.005	0.44	0.003 - 0.011	0.5 R

	Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
	Green Beans	531	0				0.003 - 0.011	0.05
	Oranges	518	62	12.0	0.003	0.028	0.002 - 0.009	1
	Peaches	324	55	17.0	0.005	0.035	0.003 - 0.009	0.05
	Spinach (V-26)	517	26	5.0	0.003	0.030	0.002 - 0.009	NT
	Sweet Corn	173	0				0.003 - 0.011	0.1
	Sweet Peas	355	1	0.3	0.005	0.005	0.003 - 0.011	0.1
	Sweet Potatoes (X-2)	507	53	10.5	0.005	0.086	0.003 - 0.011	0.05
	Tomatoes	174	17	9.8	0.005	0.11	0.003 - 0.011	0.5
	Total	**4831**	**433**					
19	**Chlorpyrifos methyl (insecticide)**							
	Apple Juice	26	0				0.003 ^	NT
	Apples	89	0				0.003 ^	NT
	Carrots	72	0				0.003 ^	NT
	Grapes	89	0				0.003 ^	NT
	Green Beans	81	0				0.003 ^	NT
	Oranges	79	0				0.003 ^	NT
	Peaches	52	0				0.003 ^	NT
	Spinach	79	0				0.003 ^	NT
	Sweet Corn	45	0				0.003 ^	NT
	Sweet Peas	90	0				0.003 ^	NT
	Sweet Potatoes	129	0				0.003 ^	NT
	Tomatoes	27	0				0.003 ^	NT
	Total	**858**	**0**					
20	**Cyfluthrin (insecticide)**							
	Apple Juice	26	0				0.050 ^	NT
	Apples	89	0				0.050 - 0.060	NT
	Carrots	72	0				0.050 ^	0.2
	Grapes	89	0				0.050 ^	NT
	Green Beans	81	0				0.050 ^	NT
	Oranges	79	0				0.050 - 0.060	0.2
	Peaches	52	0				0.050 - 0.060	NT
	Spinach	79	0				0.050 ^	NT
	Sweet Corn	45	0				0.050 - 0.060	0.05
	Sweet Peas	90	0				0.050 - 0.060	NT
	Sweet Potatoes	129	0				0.050 - 0.060	NT
	Tomatoes	27	0				0.050 ^	0.2
	Total	**858**	**0**					
21	**Cypermethrins (insecticide)**							
	Apple Juice	26	0				0.025 ^	NT
	Apples	197	0				0.025 - 0.050	NT
	Carrots	72	0				0.025 ^	NT
	Grapes	89	0				0.025 ^	NT
	Green Beans	81	0				0.025 ^	NT
	Oranges	313	0				0.020 - 0.050	NT
	Peaches	195	0				0.020 - 0.050	NT
	Spinach (V-3)	302	3	1.0	0.033	0.42	0.020 - 0.046	NT
	Sweet Corn	85	0				0.020 - 0.050	NT
	Sweet Peas	90	0				0.025 - 0.050	NT
	Sweet Potatoes	129	0				0.025 - 0.050	NT
	Tomatoes	74	0				0.020 - 0.025	NT
	Total	**1653**	**3**					

	Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
22	**DCPA (herbicide)**							
	Apple Juice	177	0				0.003 - 0.020	NT
	Apples	530	0				0.002 - 0.020	NT
	Carrots	500	0				0.003 - 0.008	NT
	Grapes	525	0				0.003 - 0.008	NT
	Green Beans	531	0				0.003 - 0.008	2
	Oranges	518	0				0.002 - 0.020	NT
	Peaches (V-1)	324	1	0.3	0.013	0.013	0.002 - 0.008	NT
	Spinach (V-16)	517	16	3.1	0.005	0.030	0.003 - 0.020	NT
	Sweet Corn	173	0				0.002 - 0.008	0.05
	Sweet Peas	355	0				0.002 - 0.008	NT
	Sweet Potatoes	507	0				0.002 - 0.008	2
	Tomatoes	174	0				0.003 - 0.008	1
	Total	**4831**	**17**					
23	**DDT (insecticide)**							
	Apple Juice	65	0				0.003 - 0.008	0.1 #
	Apples	320	2	0.6	0.010	0.010	0.003 - 0.008	0.1 #
	Carrots	197	18	9.1	0.005	0.026	0.003 - 0.008	3 #
	Grapes	205	0				0.003 - 0.008	0.05 #
	Green Beans	199	1	0.5	0.010	0.010	0.003 - 0.008	0.2 #
	Oranges	432	0				0.003 - 0.008	0.1 #
	Peaches	273	0				0.003 - 0.008	0.2 #
	Spinach	425	53	12.5	0.002	0.12	0.001 - 0.008	0.5 #
	Sweet Corn	137	0				0.003 - 0.008	0.1 #
	Sweet Peas	196	0				0.006 - 0.008	0.2 #
	Sweet Potatoes	272	14	5.1	0.005	0.010	0.003 - 0.008	1.0 #
	Tomatoes	113	0				0.003 - 0.008	0.05 #
	Total	**2834**	**88**					
	DDD							
	Apple Juice	65	0				0.003 - 0.008	0.1 #
	Apples	320	0				0.003 - 0.013	0.1 #
	Carrots	197	1	0.5	0.005	0.005	0.003 - 0.008	3 #
	Grapes	205	0				0.003 - 0.008	0.05 #
	Green Beans	199	0				0.003 - 0.008	0.2 #
	Oranges	432	0				0.003 - 0.013	0.1 #
	Peaches	273	0				0.003 - 0.013	0.2 #
	Spinach	425	1	0.2	0.014	0.014	0.003 - 0.013	0.5 #
	Sweet Corn	137	0				0.003 - 0.008	0.1 #
	Sweet Peas	196	0				0.003 - 0.008	0.2 #
	Sweet Potatoes	272	0				0.003 - 0.008	1.0 #
	Tomatoes	113	0				0.003 - 0.008	0.05 #
	Total	**2834**	**2**					
	DDE							
	Apple Juice	177	0				0.003 - 0.008	0.1 #
	Apples	530	1	0.2	0.005	0.005	0.003 - 0.008	0.1 #
	Carrots	500	215	43.0	0.004	0.37	0.003 - 0.008	3 #
	Grapes	525	7	1.3	0.004	0.008	0.003 - 0.008	0.05 #
	Green Beans	531	4	0.8	0.005	0.013	0.003 - 0.008	0.2 #
	Oranges	518	0				0.003 - 0.008	0.1 #
	Peaches	324	0				0.003 - 0.008	0.2 #
	Spinach	517	301	58.2	0.004	0.088	0.003 - 0.008	0.5 #
	Sweet Corn	173	0				0.003 - 0.008	0.1 #
	Sweet Peas	355	0				0.003 - 0.008	0.2 #
	Sweet Potatoes	507	24	4.7	0.004	0.032	0.003 - 0.008	1 #
	Tomatoes	174	2	1.1	0.014	0.014	0.003 - 0.008	0.05 #
	Total	**4831**	**554**					

	Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
24	**Demeton S (insecticide)**							
	Apples	108	0				0.019 - 0.034	NT
	Oranges	106	0				0.019 - 0.034	NT
	Peaches	62	0				0.019 - 0.034	NT
	Spinach	104	0				0.019 - 0.034	NT
	Total	**380**	**0**					
25	**Demeton S sulfone (insecticide)**							
	Apple Juice	26	0				0.003 - 0.006	NT
	Apples	89	0				0.003 - 0.006	NT
	Carrots	72	0				0.003 - 0.006	NT
	Grapes	89	0				0.003 - 0.006	NT
	Green Beans (V-11)	81	11	13.6	0.005	0.010	0.003 - 0.006	NT
	Oranges	79	0				0.003 - 0.006	NT
	Peaches	52	0				0.003 - 0.006	NT
	Spinach (V-1)	79	1	1.3	0.013	0.013	0.003 - 0.006	NT
	Sweet Corn	45	0				0.006 ^	NT
	Sweet Peas	90	0				0.006 ^	NT
	Sweet Potatoes	129	0				0.003 - 0.006	NT
	Tomatoes	27	0				0.003 - 0.006	NT
	Total	**858**	**12**					
26	**Diazinon (insecticide)**							
	Apple Juice	177	0				0.002 - 0.011	0.5
	Apples	530	1	0.2	0.022	0.022	0.002 - 0.014	0.5
	Carrots	500	8	1.6	0.003	0.011	0.002 - 0.011	0.75
	Grapes	525	10	1.9	0.005	0.060	0.002 - 0.011	0.75
	Green Beans	531	4	0.8	0.005	0.019	0.002 - 0.011	0.5
	Oranges	518	0				0.002 - 0.014	0.7
	Peaches	324	12	3.7	0.003	0.038	0.002 - 0.014	0.7
	Spinach	517	14	2.7	0.003	0.13	0.002 - 0.014	0.7
	Sweet Corn	173	0				0.003 - 0.005	0.7
	Sweet Peas	355	2	0.6	0.005	0.005	0.003 - 0.007	0.5
	Sweet Potatoes	507	0				0.002 - 0.007	0.1
	Tomatoes	174	0				0.002 - 0.011	0.75
	Total	**4831**	**51**					
27	**Dichlorvos (insecticide)**							
	Apple Juice	177	0				0.002 - 0.004	0.5
	Apples	530	0				0.002 - 0.014	0.5
	Carrots	500	0				0.002 - 0.004	0.5
	Grapes	525	1	0.2	0.003	0.003	0.002 - 0.004	0.5
	Green Beans	531	0				0.002 - 0.007	0.5
	Oranges	518	0				0.002 - 0.014	3
	Peaches	324	0				0.002 - 0.014	0.5
	Spinach	517	0				0.002 - 0.014	3
	Sweet Corn	173	0				0.002 - 0.013	0.5
	Sweet Peas	355	0				0.002 - 0.007	0.5
	Sweet Potatoes	507	0				0.002 - 0.004	0.5
	Tomatoes	174	0				0.002 - 0.013	0.5
	Total	**4831**	**1**					
28	**Dicloran (fungicide)**							
	Apple Juice	177	0				0.006 - 0.016	NT
	Apples (V-1)	530	1	0.2	0.019	0.019	0.001 - 0.016	NT
	Carrots	500	1	0.2	0.040	0.040	0.006 - 0.010	10
	Grapes	525	12	2.3	0.010	0.72	0.006 - 0.010	10
	Green Beans	531	0				0.006 - 0.010	20

Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
Oranges	518	0				0.001 - 0.016	NT
Peaches	324	108	33.3	0.002	3.7	0.001 - 0.008	20
Spinach (V-17)	516	17	3.3	0.002	0.051	0.001 - 0.016	NT
Sweet Corn	173	0				0.006 - 0.008	NT
Sweet Peas	355	0				0.006 - 0.010	NT
Sweet Potatoes	497	316	63.6	0.010	4.1	0.006 - 0.010	10
Tomatoes	174	0				0.006 - 0.008	5
Total	**4820**	**455**					
29 Dicofol (insecticide)							
Apple Juice	177	0				0.005 - 0.020	5
Apples	530	14	2.6	0.008	1.1	0.005 - 0.028	5
Carrots	500	0				0.005 - 0.020	NT
Grapes	525	17	3.2	0.008	2.5	0.005 - 0.020	5
Green Beans	531	1	0.2	0.030	0.030	0.005 - 0.020	5
Oranges	518	3	0.6	0.023	0.024	0.005 - 0.028	10
Peaches	324	7	2.2	0.047	0.43	0.005 - 0.028	10
Spinach	517	0				0.005 - 0.028	NT
Sweet Corn	173	0				0.005 - 0.020	NT
Sweet Peas	355	0				0.005 - 0.020	NT
Sweet Potatoes	507	0				0.005 - 0.020	NT
Tomatoes	171	6	3.5	0.033	0.17	0.005 - 0.020	5
Total	**4828**	**48**					
30 Dieldrin (insecticide)							
Apple Juice	26	0				0.002 ^	NT
Apples	197	0				0.002 - 0.003	NT
Carrots	72	0				0.002 ^	0.1 #
Grapes	89	0				0.002 ^	NT
Green Beans	81	0				0.002 ^	0.05 #
Oranges	185	0				0.002 - 0.003	0.05 #
Peaches	114	0				0.002 - 0.003	0.03 #
Spinach	185	6	3.2	0.003	0.008	0.002 - 0.003	0.05 #
Sweet Corn	45	0				0.002 ^	0.02 #
Sweet Peas	90	0				0.002 ^	0.05 #
Sweet Potatoes	129	1	0.8	0.003	0.003	0.002 ^	0.1 #
Tomatoes	27	0				0.002 ^	0.05 #
Total	**1240**	**7**					
31 Dimethoate (insecticide)							
Apple Juice	177	16	9.0	0.003	0.11	0.002 - 0.009	2
Apples	530	15	2.8	0.003	0.20	0.002 - 0.015	2
Carrots	500	0				0.002 - 0.009	NT
Grapes	525	87	16.6	0.003	0.66	0.002 - 0.009	1
Green Beans	531	15	2.8	0.005	0.10	0.002 - 0.009	2
Oranges	518	2	0.4	0.005	0.008	0.002 - 0.015	2
Peaches	324	0				0.002 - 0.015	NT
Spinach (X-1)	517	38	7.4	0.003	4.6	0.002 - 0.015	2
Sweet Corn	173	0				0.002 - 0.011	NT
Sweet Peas	355	49	13.8	0.004	0.12	0.002 - 0.007	2
Sweet Potatoes	507	0				0.002 - 0.007	NT
Tomatoes	174	0				0.002 - 0.011	2
Total	**4831**	**222**					

	Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
	Omethoate (dimethoate metabolite)							
	Apple Juice	157	4	2.5	0.014	0.018	0.004 - 0.018	2
	Apples	452	10	2.2	0.005	0.050	0.003 - 0.064	2
	Carrots	410	0				0.003 - 0.018	NT
	Grapes	445	86	19.3	0.005	0.23	0.002 - 0.018	1
	Green Beans	452	13	2.9	0.005	0.030	0.003 - 0.018	2
	Oranges	438	2	0.5	0.007	0.008	0.003 - 0.064	2
	Peaches	273	0				0.003 - 0.064	NT
	Spinach	431	74	17.2	0.005	0.43	0.003 - 0.064	2
	Sweet Corn	173	0				0.003 - 0.013	NT
	Sweet Peas	355	24	6.8	0.005	0.023	0.003 - 0.018	2
	Sweet Potatoes	507	0				0.003 - 0.018	NT
	Tomatoes	155	7	4.5	0.007	0.022	0.004 - 0.014	2
	Total	**4248**	**220**					
32	**Diphenylamine (fungicide)**							
	Apple Juice	171	17	9.9	0.014	0.16	0.008 - 0.027	10
	Apples	524	452	86.3	0.014	4.7	0.008 - 0.027	10
	Carrots	500	0				0.008 - 0.030	NT
	Grapes	519	0				0.008 - 0.030	NT
	Green Beans	525	0				0.008 - 0.030	NT
	Oranges (V-1)	454	1	0.2	0.086	0.086	0.010 - 0.027	NT
	Peaches (V-5)	280	5	1.8	0.017	0.16	0.010 - 0.030	NT
	Spinach	441	0				0.010 - 0.027	NT
	Sweet Corn	173	0				0.010 - 0.015	NT
	Sweet Peas	355	0				0.008 - 0.015	NT
	Sweet Potatoes (V-1)	507	1	0.2	0.015	0.015	0.008 - 0.015	NT
	Tomatoes	168	0				0.010 - 0.030	NT
	Total	**4617**	**476**					
	4-Hydroxydiphenylamine							
	Apple Juice	26	0				0.015 ^	10
	Apples	89	59	66.3	0.025	0.48	0.015 ^	10
	Carrots	72	0				0.015 ^	NT
	Grapes	89	0				0.015 ^	NT
	Green Beans	81	0				0.015 ^	NT
	Oranges	79	0				0.015 ^	NT
	Peaches	52	0				0.015 ^	NT
	Spinach	79	0				0.015 ^	NT
	Sweet Corn	45	0				0.015 ^	NT
	Sweet Peas	90	0				0.015 ^	NT
	Sweet Potatoes	129	0				0.015 ^	NT
	Tomatoes	27	0				0.015 ^	NT
	Total	**858**	**59**					
33	**Disulfoton (insecticide)**							
	Apple Juice	177	0				0.003 - 0.020	NT
	Apples	530	0				0.003 - 0.020	NT
	Carrots	500	0				0.003 - 0.010	NT
	Grapes	525	0				0.003 - 0.010	NT
	Green Beans	531	0				0.003 - 0.010	0.75
	Oranges	518	0				0.003 - 0.020	NT
	Peaches	324	0				0.003 - 0.019	NT
	Spinach	517	0				0.003 - 0.020	0.75
	Sweet Corn	173	0				0.003 - 0.013	0.3
	Sweet Peas	355	0				0.003 - 0.008	0.75
	Sweet Potatoes	507	0				0.003 - 0.008	NT
	Tomatoes	174	0				0.003 - 0.013	0.75
	Total	**4831**	**0**					

	Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
	Disulfoton sulfone							
	Apple Juice	26	0				0.005 ^	NT
	Apples	197	0				0.005 - 0.043	NT
	Carrots	72	0				0.005 ^	NT
	Grapes	89	0				0.005 ^	NT
	Green Beans	81	0				0.005 ^	0.75
	Oranges	185	0				0.005 - 0.043	NT
	Peaches	114	0				0.005 - 0.043	NT
	Spinach	183	0				0.005 - 0.043	0.75
	Sweet Corn	45	0				0.005 ^	0.3
	Sweet Peas	90	0				0.005 ^	0.75
	Sweet Potatoes	129	0				0.005 ^	NT
	Tomatoes	27	0				0.005 ^	0.75
	Total	**1238**	**0**					
34	**Diuron (herbicide)**							
	Apple Juice	26	0				0.030 ^	1
	Apples	89	0				0.030 ^	1
	Carrots	72	0				0.030 ^	NT
	Grapes	89	0				0.030 ^	1
	Green Beans	81	0				0.030 ^	NT
	Oranges	79	0				0.030 ^	1
	Peaches	52	0				0.030 ^	0.1
	Spinach	79	0				0.030 ^	NT
	Sweet Corn	45	0				0.030 ^	1
	Sweet Peas	90	0				0.030 ^	1
	Sweet Potatoes	129	0				0.030 ^	NT
	Tomatoes	27	0				0.030 ^	NT
	Total	**858**	**0**					
35	**Endosulfans (insecticide)**							
	Endosulfan I							
	Apple Juice	177	0				0.001 - 0.007	2
	Apples	530	14	2.6	0.002	0.028	0.001 - 0.007	2
	Carrots	500	1	0.2	0.010	0.010	0.002 - 0.007	0.2
	Grapes	525	7	1.3	0.003	0.093	0.002 - 0.007	2
	Green Beans	531	3	0.6	0.003	0.007	0.002 - 0.007	2
	Oranges	518	0				0.001 - 0.005	NT
	Peaches	324	12	3.7	0.003	0.041	0.002 - 0.005	2
	Spinach	517	25	4.8	0.002	0.20	0.001 - 0.005	2
	Sweet Corn	173	0				0.002 - 0.006	0.2
	Sweet Peas	355	1	0.3	0.006	0.006	0.002 - 0.007	2
	Sweet Potatoes	507	2	0.4	0.003	0.006	0.002 - 0.007	0.2
	Tomatoes	174	22	12.6	0.003	0.063	0.002 - 0.006	2
	Total	**4831**	**87**					
	Endosulfan II							
	Apple Juice	177	0				0.002 - 0.007	2
	Apples	530	14	2.6	0.004	0.036	0.002 - 0.007	2
	Carrots	500	0				0.003 - 0.007	0.2
	Grapes	525	9	1.7	0.005	0.30	0.003 - 0.007	2
	Green Beans	531	1	0.2	0.005	0.005	0.003 - 0.007	2
	Oranges	518	0				0.002 - 0.005	NT
	Peaches	324	17	5.2	0.003	0.12	0.002 - 0.005	2
	Spinach	517	29	5.6	0.003	0.15	0.002 - 0.005	2
	Sweet Corn	173	0				0.002 - 0.006	0.2
	Sweet Peas	355	2	0.6	0.010	0.012	0.002 - 0.007	2

	Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
	Sweet Potatoes	507	5	1.0	0.005	0.005	0.002 - 0.007	0.2
	Tomatoes	174	29	16.7	0.005	0.053	0.003 - 0.006	2
	Total	**4831**	**106**					
	Endosulfan sulfate							
	Apple Juice	177	0				0.001 - 0.009	2
	Apples	530	21	4.0	0.005	0.037	0.001 - 0.010	2
	Carrots	500	10	2.0	0.005	0.016	0.003 - 0.009	0.2
	Grapes	525	8	1.5	0.008	0.041	0.003 - 0.009	2
	Green Beans	531	4	0.8	0.005	0.016	0.003 - 0.010	2
	Oranges (V-5)	518	5	1.0	0.005	0.005	0.001 - 0.010	NT
	Peaches	324	16	4.9	0.005	0.11	0.003 - 0.010	2
	Spinach (X-1)	517	71	13.7	0.002	2.4	0.001 - 0.010	2
	Sweet Corn	173	0				0.003 - 0.009	0.2
	Sweet Peas	355	4	1.1	0.012	0.015	0.003 - 0.010	2
	Sweet Potatoes	507	8	1.6	0.005	0.005	0.003 - 0.009	0.2
	Tomatoes	174	25	14.4	0.005	0.035	0.003 - 0.009	2
	Total	**4831**	**172**					
36	**Esfenvalerate (insecticide)**							
	Apple Juice	130	0				0.015 - 0.31	2
	Apples	422	10	2.4	0.025	0.075	0.012 - 0.31	2
	Carrots	404	0				0.015 - 0.085	0.5
	Grapes	420	0				0.015 - 0.085	NT
	Green Beans	412	14	3.4	0.020	0.042	0.015 - 0.085	2
	Oranges	284	0				0.012 - 0.31	NT
	Peaches	181	0				0.012 - 0.085	10
	Spinach (V-1)	269	1	0.4	0.042	0.042	0.015 - 0.31	NT
	Sweet Corn	97	0				0.012 - 0.050	0.1
	Sweet Peas	283	0				0.012 - 0.050	1
	Sweet Potatoes	407	0				0.012 - 0.050	NT
	Tomatoes	91	8	8.8	0.025	0.13	0.015 - 0.085	1
	Total	**3400**	**33**					
	Fenvalerate							
	Apple Juice	177	0				0.015 - 0.34	2
	Apples	530	3	0.6	0.025	0.044	0.007 - 0.29	2
	Carrots	500	0				0.015 - 0.34	0.5
	Grapes	525	0				0.015 - 0.34	NT
	Green Beans	531	9	1.7	0.025	0.070	0.015 - 0.34	2
	Oranges	518	0				0.007 - 0.29	NT
	Peaches	324	2	0.6	0.012	0.038	0.007 - 0.11	10
	Spinach (V-1)	491	1	0.2	0.050	0.050	0.007 - 0.29	NT
	Sweet Corn	173	0				0.012 - 0.34	0.1
	Sweet Peas	355	0				0.012 - 0.34	1
	Sweet Potatoes	507	0				0.012 - 0.34	NT
	Tomatoes	174	4	2.3	0.027	0.158	0.015 - 0.34	1
	Total	**4805**	**19**					
37	**Ethalfluralin (herbicide)**							
	Apple Juice	26	0				0.050 ^	NT
	Apples	89	0				0.050 ^	NT
	Carrots	72	0				0.050 ^	NT
	Grapes	89	0				0.050 ^	NT
	Green Beans	81	0				0.050 ^	NT
	Oranges	79	0				0.050 ^	NT
	Peaches	52	0				0.050 ^	NT
	Spinach	79	0				0.050 ^	NT

	Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
	Sweet Corn	45	0				0.050 ^	NT
	Sweet Peas	90	0				0.050 ^	NT
	Sweet Potatoes	129	0				0.050 ^	NT
	Tomatoes	27	0				0.050 ^	NT
	Total	**858**	**0**					
38	**Ethion (insecticide)**							
	Apple Juice	177	0				0.001 - 0.011	2
	Apples	530	3	0.6	0.002	0.39	0.001 - 0.011	2
	Carrots (V-4)	500	4	0.8	0.007	0.007	0.001 - 0.006	NT
	Grapes	525	0				0.001 - 0.006	2
	Green Beans	531	0				0.001 - 0.006	2
	Oranges	518	4	0.8	0.002	0.038	0.001 - 0.011	2
	Peaches	324	0				0.001 - 0.008	1
	Spinach	517	0				0.001 - 0.011	NT
	Sweet Corn	173	0				0.001 - 0.006	NT
	Sweet Peas	355	0				0.001 - 0.004	NT
	Sweet Potatoes	507	0				0.001 - 0.004	NT
	Tomatoes	174	1	0.6	0.004	0.004	0.001 - 0.006	2
	Total	**4831**	**12**					
39	**Ethoprop (insecticide)**							
	Apples	108	0				0.015 - 0.030	NT
	Oranges	106	0				0.015 - 0.030	NT
	Peaches	62	0				0.015 - 0.030	NT
	Spinach	104	0				0.015 - 0.030	NT
	Total	**380**	**0**					
40	**Fenamiphos (insecticide)**							
	Apple Juice	177	0				0.002 - 0.010	0.25
	Apples	530	0				0.002 - 0.013	0.25
	Carrots	500	0				0.002 - 0.009	NT
	Grapes	525	0				0.002 - 0.009	0.1
	Green Beans	531	0				0.002 - 0.009	NT
	Oranges	518	0				0.002 - 0.013	0.6
	Peaches	324	0				0.002 - 0.013	0.25
	Spinach	516	0				0.002 - 0.013	NT
	Sweet Corn	173	0				0.002 - 0.013	NT
	Sweet Peas	355	0				0.002 - 0.008	NT
	Sweet Potatoes	507	0				0.002 - 0.008	NT
	Tomatoes	174	0				0.002 - 0.013	NT
	Total	**4830**	**0**					
	Fenamiphos sulfoxide							
	Apple Juice	99	0				0.005 - 0.12	0.25
	Apples	281	0				0.005 - 0.12	0.25
	Carrots	258	0				0.005 - 0.009	NT
	Grapes	280	2	0.7	0.008	0.008	0.005 - 0.022	0.1
	Green Beans	285	0				0.005 - 0.022	NT
	Oranges	271	0				0.005 - 0.12	0.6
	Peaches	165	0				0.005 - 0.080	0.25
	Spinach	275	0				0.005 - 0.097	NT
	Sweet Corn	81	0				0.005 - 0.006	NT
	Sweet Peas	162	0				0.005 - 0.008	NT
	Sweet Potatoes	229	0				0.005 - 0.006	NT
	Tomatoes	88	0				0.005 - 0.022	NT
	Total	**2474**	**2**					

	Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
	Fenamiphos sulfone							
	Apple Juice	99	0				0.005 - 0.097	0.25
	Apples	281	0				0.005 - 0.097	0.25
	Carrots	258	0				0.005 - 0.020	NT
	Grapes	280	0				0.005 - 0.020	0.1
	Green Beans	285	0				0.005 - 0.020	NT
	Oranges	399	0				0.005 - 0.097	0.6
	Peaches	246	0				0.005 - 0.080	0.25
	Spinach	393	0				0.005 - 0.097	NT
	Sweet Corn	121	0				0.005 - 0.080	NT
	Sweet Peas	162	0				0.005 - 0.009	NT
	Sweet Potatoes	229	0				0.005 - 0.009	NT
	Tomatoes	135	0				0.005 - 0.080	NT
	Total	**2888**	**0**					
41	**Fenbutatin oxide (insecticide)**							
	Apples	333	5	1.5	0.005	0.27	0.003 ^	15
	Grapes	322	19	5.9	0.005	0.84	0.003 ^	5
	Oranges	342	3	0.9	0.005	0.005	0.003 ^	20
	Peaches	273	37	13.6	0.005	0.49	0.003 ^	10
	Total	**1270**	**64**					
42	**Fenthion (insecticide)**							
	Apple Juice	26	0				0.003 ^	NT
	Apples	89	0				0.003 ^	NT
	Carrots	72	0				0.003 ^	NT
	Grapes	89	0				0.003 ^	NT
	Green Beans	81	0				0.003 ^	NT
	Oranges	79	0				0.003 ^	NT
	Peaches	52	0				0.003 ^	NT
	Spinach	79	0				0.003 ^	NT
	Sweet Corn	45	0				0.003 ^	NT
	Sweet Peas	90	0				0.003 ^	NT
	Sweet Potatoes	129	0				0.003 ^	NT
	Tomatoes	27	0				0.003 ^	NT
	Total	**858**	**0**					
43	**Heptachlor (insecticide)**							
	Apple Juice	26	0				0.001 ^	0.1#
	Apples	89	0				0.001 ^	0.1#
	Carrots	72	0				0.001 ^	0.01#
	Grapes	89	0				0.001 ^	NT
	Green Beans	81	0				0.001 ^	0.01#
	Oranges	79	0				0.001 ^	0.01#
	Peaches	52	0				0.001 ^	0.01#
	Spinach	79	0				0.001 ^	0.01#
	Sweet Corn	45	0				0.001 ^	0.01#
	Sweet Peas	90	0				0.001 ^	0.01#
	Sweet Potatoes	129	0				0.001 ^	0.01#
	Tomatoes	27	0				0.001 ^	0.01#
	Total	**858**	**0**					
	Heptachlor epoxide							
	Apple Juice	26	0				0.001 ^	0.1#
	Apples	89	0				0.001 ^	0.1#
	Carrots	72	0				0.001 ^	0.01#
	Grapes	89	0				0.001 ^	NT
	Green Beans	81	0				0.001 ^	0.01#

	Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
	Oranges	79	0				0.001 ^	0.01#
	Peaches	52	0				0.001 ^	0.01#
	Spinach	79	0				0.001 ^	0.01#
	Sweet Corn	45	0				0.001 ^	0.01#
	Sweet Peas	90	0				0.001 ^	0.01#
	Sweet Potatoes	129	0				0.001 ^	0.01#
	Tomatoes	27	0				0.001 ^	0.01#
	Total	**858**	**0**					
44	**Imazalil (fungicide)**							
	Apple Juice	177	0				0.010 - 0.15	NT
	Apples (V-1)	530	1	0.2	0.092	0.092	0.009 - 0.15	NT
	Carrots	375	0				0.010 - 0.044	NT
	Grapes	525	0				0.010 - 0.044	NT
	Green Beans	531	0				0.010 - 0.070	NT
	Oranges	518	301	58.1	0.015	1.1	0.009 - 0.15	10
	Peaches (V-4)	324	4	1.2	0.017	0.017	0.009 - 0.055	NT
	Spinach	517	0				0.010 - 0.15	NT
	Sweet Corn	173	0				0.009 - 0.044	NT
	Sweet Peas	355	0				0.009 - 0.070	NT
	Sweet Potatoes	492	0				0.009 - 0.044	NT
	Tomatoes	174	0				0.010 - 0.044	NT
	Total	**4691**	**306**					
45	**Iprodione (fungicide)**							
	Apple Juice	177	0				0.008 - 0.090	NT
	Apples (V-3)	530	3	0.6	0.014	0.025	0.008 - 0.090	NT
	Carrots	500	186	37.2	0.014	0.19	0.008 - 0.060	5
	Grapes	525	238	45.3	0.014	2.4	0.008 - 0.060	60
	Green Beans	531	4	0.8	0.014	0.025	0.008 - 0.060	2
	Oranges	518	0				0.015 - 0.090	NT
	Peaches	324	256	79.0	0.025	19.0	0.015 - 0.040	20
	Spinach (V-2)	517	2	0.4	0.025	0.050	0.015 - 0.090	NT
	Sweet Corn	173	0				0.015 - 0.060	5
	Sweet Peas	355	0				0.008 - 0.060	NT
	Sweet Potatoes	507	0				0.008 - 0.060	NT
	Tomatoes (V-3)	174	3	1.7	0.10	0.14	0.015 - 0.060	NT
	Total	**4831**	**692**					
46	**Lindane (insecticide)**							
	Apple Juice	177	0				0.003 - 0.006	1
	Apples	530	4	0.8	0.005	0.031	0.003 - 0.006	1
	Carrots	500	0				0.003 - 0.006	0.5
	Grapes	525	0				0.003 - 0.006	1
	Green Beans	531	0				0.003 - 0.006	0.5
	Oranges	518	0				0.003 - 0.005	0.5
	Peaches	324	0				0.003 - 0.005	1
	Spinach	516	0				0.003 - 0.005	1
	Sweet Corn	173	0				0.003 - 0.005	0.5
	Sweet Peas	355	0				0.003 - 0.006	0.5
	Sweet Potatoes	507	0				0.003 - 0.006	0.5
	Tomatoes	174	0				0.003 - 0.005	3
	Total	**4830**	**4**					
47	**Linuron (herbicide)**							
	Apple Juice	26	0				0.003 ^	NT
	Apples	89	0				0.003 ^	NT
	Carrots	197	135	68.5	0.005	0.27	0.003 - 0.010	1

	Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
	Grapes	89	0				0.003 ^	NT
	Green Beans	81	0				0.003 ^	NT
	Oranges	79	0				0.003 ^	NT
	Peaches	52	0				0.003 ^	NT
	Spinach (V-1)	79	1	1.3	0.005	0.005	0.003 ^	NT
	Sweet Corn	45	0				0.003 ^	0.25
	Sweet Peas	90	0				0.003 ^	NT
	Sweet Potatoes	129	0				0.003 ^	NT
	Tomatoes	27	0				0.003 ^	NT
	Total	**983**	**136**					
48	**Malathion (insecticide)**							
	Apple Juice	177	1	0.6	0.017	0.017	0.002 - 0.018	8
	Apples	530	0				0.002 - 0.018	8
	Carrots	500	0				0.002 - 0.018	8
	Grapes	525	0				0.002 - 0.018	8
	Green Beans	531	0				0.002 - 0.018	8
	Oranges	518	4	0.8	0.003	0.028	0.002 - 0.018	8
	Peaches	324	0				0.002 - 0.018	8
	Spinach	517	1	0.2	0.003	0.003	0.002 - 0.018	8
	Sweet Corn	173	0				0.002 - 0.013	2
	Sweet Peas	355	0				0.002 - 0.010	8
	Sweet Potatoes	507	8	1.6	0.003	0.012	0.002 - 0.010	1
	Tomatoes	174	0				0.002 - 0.018	8
	Total	**4831**	**14**					
49	**Metalaxyl (fungicide)**							
	Apple Juice	46	0				0.003 - 0.18	0.2
	Apples	167	1	0.6	0.005	0.005	0.003 - 0.18	0.2
	Carrots	72	15	20.8	0.005	0.020	0.003 ^	0.5
	Grapes	89	0				0.003 ^	2
	Green Beans	81	5	6.2	0.005	0.005	0.003 ^	0.2
	Oranges	159	0				0.003 - 0.18	1
	Peaches	52	0				0.003 ^	1
	Spinach	165	11	6.7	0.005	0.38	0.003 - 0.18	10
	Sweet Corn	45	0				0.003 ^	NT
	Sweet Peas	90	0				0.003 ^	0.2
	Sweet Potatoes	129	0				0.003 ^	0.5
	Tomatoes	27	0				0.003 ^	NT
	Total	**1122**	**32**					
50	**Methamidophos (insecticide)**							
	Apple Juice (V-2)	177	2	1.1	0.006	0.006	0.001 - 0.006	NT
	Apples	530	0				0.001 - 0.019	NT
	Carrots	500	0				0.001 - 0.006	NT
	Grapes	525	0				0.001 - 0.006	NT
	Green Beans @ (V-3)	531	171	32.2	0.004	0.22	0.001 - 0.006	NT
	Oranges	518	0				0.001 - 0.019	NT
	Peaches (V-1)	324	1	0.3	0.005	0.005	0.001 - 0.019	NT
	Spinach (V-19)	517	19	3.7	0.002	0.031	0.001 - 0.019	NT
	Sweet Corn	173	0				0.002 - 0.005	NT
	Sweet Peas (V-1)	355	1	0.3	0.005	0.005	0.002 - 0.004	NT
	Sweet Potatoes (V-2)	507	2	0.4	0.005	0.006	0.001 - 0.004	NT
	Tomatoes	174	65	37.4	0.002	0.25	0.001 - 0.006	1
	Total	**4831**	**261**					

	Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
51	**Methidathion (insecticide)**							
	Apple Juice	177	0				0.003 - 0.014	0.05
	Apples	530	0				0.002 - 0.014	0.05
	Carrots	500	0				0.003 - 0.010	NT
	Grapes	525	0				0.003 - 0.010	NT
	Green Beans	531	0				0.003 - 0.010	NT
	Oranges	518	33	6.4	0.005	0.025	0.002 - 0.014	2
	Peaches	324	0				0.002 - 0.013	0.05
	Spinach	517	0				0.003 - 0.014	NT
	Sweet Corn	173	0				0.002 - 0.013	NT
	Sweet Peas	355	0				0.002 - 0.010	NT
	Sweet Potatoes	507	0				0.002 - 0.010	NT
	Tomatoes	174	0				0.003 - 0.013	NT
	Total	**4831**	**33**					
52	**Methiocarb- analyzed as sulfoxide (insecticide)**							
	Apple Juice	39	0				0.016 ^	NT
	Apples	231	0				0.016 - 0.064	NT
	Carrots	125	0				0.016 ^	NT
	Grapes	116	0				0.016 ^	NT
	Green Beans	118	0				0.016 ^	NT
	Oranges	353	0				0.016 - 0.064	0.02
	Peaches	222	0				0.016 - 0.064	15
	Spinach	345	0				0.016 - 0.064	NT
	Sweet Corn	92	0				0.016 - 0.020	0.03
	Sweet Peas	106	0				0.016 ^	NT
	Sweet Potatoes	143	0				0.016 ^	NT
	Tomatoes	86	0				0.016 - 0.020	NT
	Total	**1976**	**0**					
53	**Methomyl (insecticide)**							
	Apple Juice	177	0				0.008 - 0.032	1
	Apples	530	11	2.1	0.012	0.096	0.008 - 0.076	1
	Carrots	500	0				0.008 - 0.076	0.02
	Grapes	525	39	7.4	0.013	1.3	0.008 - 0.076	5
	Green Beans	531	5	0.9	0.013	0.053	0.007 - 0.076	2
	Oranges	518	0				0.008 - 0.056	2
	Peaches	325	4	1.2	0.093	0.22	0.008 - 0.056	5
	Spinach	517	62	12.0	0.012	5.4	0.008 - 0.056	6
	Sweet Corn	173	0				0.008 - 0.020	0.1
	Sweet Peas	355	0				0.007 - 0.076	5
	Sweet Potatoes	507	0				0.008 - 0.076	0.2
	Tomatoes	174	0				0.008 - 0.032	1
	Total	**4832**	**121**					
54	**Methoxychlor (insecticide)**							
	Apple Juice	177	0				0.006 - 0.026	14
	Apples	530	94	17.7	0.010	1.5	0.006 - 0.023	14
	Carrots	500	0				0.006 - 0.026	14
	Grapes	525	0				0.006 - 0.026	14
	Green Beans	531	0				0.006 - 0.026	14
	Oranges	518	0				0.006 - 0.023	NT
	Peaches	324	0				0.006 - 0.023	14
	Spinach	517	0				0.006 - 0.023	14
	Sweet Corn	173	0				0.006 - 0.026	14
	Sweet Peas	355	2	0.6	0.015	0.041	0.006 - 0.026	14
	Sweet Potatoes	507	0				0.006 - 0.026	7
	Tomatoes	174	0				0.006 - 0.026	14
	Total	**4831**	**96**					

	Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
55	**Mevinphos (insecticide)**							
	Apple Juice	177	0				0.002 - 0.019	0.5
	Apples	530	6	1.1	0.013	0.013	0.002 - 0.077	0.5
	Carrots	500	0				0.002 - 0.019	0.25
	Grapes	525	0				0.002 - 0.019	0.5
	Green Beans	531	0				0.002 - 0.019	0.25
	Oranges	518	0				0.002 - 0.077	0.2
	Peaches	324	0				0.002 - 0.077	1
	Spinach	517	1	0.2	0.007	0.007	0.002 - 0.077	1
	Sweet Corn	173	0				0.002 - 0.019	0.25
	Sweet Peas	355	0				0.002 - 0.019	0.25
	Sweet Potatoes	507	0				0.002 - 0.019	NT
	Tomatoes	174	0				0.002 - 0.019	0.2
	Total	**4831**	**7**					
56	**Myclobutanil (fungicide)**							
	Apple Juice	177	0				0.008 - 0.046	0.5
	Apples	530	10	1.9	0.014	0.025	0.008 - 0.057	0.5
	Carrots	458	0				0.008 - 0.046	NT
	Grapes	525	131	25.0	0.014	0.54	0.008 - 0.046	1
	Green Beans	531	0				0.008 - 0.046	NT
	Oranges	518	0				0.010 - 0.057	NT
	Peaches	324	20	6.2	0.017	0.095	0.010 - 0.057	2
	Spinach	516	0				0.010 - 0.057	NT
	Sweet Corn	173	0				0.010 - 0.046	NT
	Sweet Peas	355	0				0.008 - 0.046	NT
	Sweet Potatoes	507	0				0.008 - 0.046	NT
	Tomatoes (V-1)	174	1	0.6	0.025	0.025	0.010 - 0.046	NT
	Total	**4788**	**162**					
57	**Oxamyl (insecticide)**							
	Apple Juice	177	0				0.010 - 0.035	2
	Apples	530	18	3.4	0.015	0.043	0.010 - 0.076	2
	Carrots	500	0				0.010 - 0.076	0.1
	Grapes	525	0				0.010 - 0.076	NT
	Green Beans	531	0				0.009 - 0.076	NT
	Oranges	518	0				0.010 - 0.048	0.3
	Peaches	325	0				0.010 - 0.048	NT
	Spinach (V-2)	517	2	0.4	0.015	0.082	0.010 - 0.048	NT
	Sweet Corn	173	0				0.010 - 0.020	NT
	Sweet Peas	355	0				0.009 - 0.076	NT
	Sweet Potatoes	507	0				0.010 - 0.076	0.1
	Tomatoes	174	2	1.1	0.021	0.022	0.010 - 0.035	2
	Total	**4832**	**22**					
58	**Oxydemeton methyl (insecticide)**							
	Oxydemeton methyl sulfone							
	Apple Juice	18	0				0.003 ^	1
	Apples	27	0				0.003 ^	1
	Carrots	9	0				0.003 ^	NT
	Grapes	27	0				0.003 ^	0.1
	Green Beans	19	0				0.003 ^	0.5
	Oranges	18	0				0.003 ^	1
	Peaches	9	0				0.003 ^	NT
	Spinach	18	0				0.003 ^	NT
	Sweet Potatoes	29	0				0.003 ^	NT
	Tomatoes	18	0				0.003 ^	NT
	Total	**192**	**0**					

	Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
59	**Oxyfluorfen (herbicide)**							
	Apple Juice	26	0				0.010 ^	0.05
	Apples	89	0				0.009 - 0.010	0.05
	Carrots	72	0				0.010 ^	NT
	Grapes	89	0				0.010 ^	0.05
	Green Beans	81	0				0.010 ^	NT
	Oranges	79	0				0.009 - 0.010	NT
	Peaches	52	0				0.009 - 0.010	0.05
	Spinach	79	0				0.010 ^	NT
	Sweet Corn	45	0				0.009 - 0.010	NT
	Sweet Peas	90	0				0.009 - 0.010	NT
	Sweet Potatoes	129	0				0.009 - 0.010	NT
	Tomatoes	27	0				0.010 ^	NT
	Total	**858**	**0**					
60	**Parathion (insecticide)**							
	Apple Juice	151	0				0.002 - 0.006	1
	Apples	446	3	0.7	0.017	0.14	0.002 - 0.013	1
	Carrots	410	3	0.7	0.003	0.007	0.002 - 0.006	1
	Grapes	439	7	1.6	0.002	0.043	0.001 - 0.006	1
	Green Beans	446	0				0.002 - 0.006	1
	Oranges	432	1	0.2	0.003	0.003	0.002 - 0.013	1
	Peaches	273	0				0.002 - 0.013	1
	Spinach	425	0				0.002 - 0.013	1
	Sweet Corn	173	0				0.002 - 0.005	1
	Sweet Peas	355	0				0.002 - 0.006	1
	Sweet Potatoes	507	0				0.002 - 0.006	0.1
	Tomatoes	149	0				0.002 - 0.005	1
	Total	**4206**	**14**					
61	**Parathion methyl (insecticide)**							
	Apple Juice	177	0				0.002 - 0.013	1
	Apples	530	30	5.7	0.004	0.21	0.002 - 0.013	1
	Carrots	500	0				0.002 - 0.013	1
	Grapes	525	0				0.002 - 0.013	1
	Green Beans	531	18	3.4	0.003	0.079	0.002 - 0.013	1
	Oranges	518	0				0.002 - 0.013	1
	Peaches	324	82	25.3	0.004	0.50	0.002 - 0.013	1
	Spinach	516	0				0.002 - 0.013	1
	Sweet Corn	173	0				0.002 - 0.013	1
	Sweet Peas	355	3	0.8	0.004	0.007	0.002 - 0.006	1
	Sweet Potatoes	507	0				0.002 - 0.006	0.1
	Tomatoes	174	0				0.002 - 0.013	1
	Total	**4830**	**133**					
62	**Permethrins (insecticide)**							
	Apple Juice	177	0				0.005 - 0.040	0.05
	Apples	530	0				0.005 - 0.040	0.05
	Carrots	500	0				0.005 - 0.040	NT
	Grapes	545	0				0.005 - 0.050	NT
	Green Beans (V-2)	531	2	0.4	0.016	0.10	0.005 - 0.040	NT
	Oranges	518	0				0.005 - 0.025	NT
	Peaches	324	1	0.3	0.48	0.48	0.005 - 0.025	5
	Spinach	517	311	60.2	0.008	13.0	0.005 - 0.025	20
	Sweet Corn	173	0				0.005 - 0.030	0.1
	Sweet Peas	355	0				0.005 - 0.040	NT
	Sweet Potatoes	507	0				0.005 - 0.040	NT
	Tomatoes	174	19	10.9	0.021	0.30	0.005 - 0.030	2
	Total	**4851**	**333**					

Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
63 o-Phenylphenol (fungicide)							
Apple Juice	171	8	4.7	0.005	0.014	0.003 - 0.066	25
Apples	488	47	9.6	0.014	0.90	0.008 - 0.066	25
Carrots	410	0				0.003 - 0.065	20
Grapes	439	0				0.003 - 0.065	NT
Green Beans (V-9)	446	9	2.0	0.025	0.025	0.003 - 0.015	NT
Oranges	454	66	14.5	0.015	3.6	0.010 - 0.066	10
Peaches	229	0				0.010 - 0.021	20
Spinach (V-3)	441	3	0.7	0.016	0.016	0.010 - 0.066	NT
Sweet Corn	173	0				0.003 - 0.065	NT
Sweet Peas (V-9)	355	9	2.5	0.015	0.025	0.003 - 0.015	NT
Sweet Potatoes	507	4	0.8	0.025	0.025	0.003 - 0.065	15
Tomatoes	149	17	11.4	0.005	0.082	0.003 - 0.020	10
Total	**4262**	**163**					
64 Phorate (insecticide)							
Apple Juice	177	0				0.004 - 0.030	NT
Apples	530	0				0.004 - 0.040	NT
Carrots	500	0				0.004 - 0.030	NT
Grapes	525	0				0.004 - 0.030	NT
Green Beans	531	0				0.003 - 0.030	0.1
Oranges	518	0				0.004 - 0.040	NT
Peaches	324	0				0.004 - 0.040	NT
Spinach	517	0				0.004 - 0.040	NT
Sweet Corn	173	0				0.004 - 0.020	0.1
Sweet Peas	355	0				0.003 - 0.020	NT
Sweet Potatoes	507	0				0.004 - 0.030	NT
Tomatoes	174	0				0.004 - 0.030	0.1
Total	**4831**	**0**					
Phorate oxygen analog							
Apple Juice	26	0				0.003 ^	NT
Apples	89	0				0.002 - 0.003	NT
Carrots	72	0				0.003 ^	NT
Grapes	89	0				0.003 ^	NT
Green Beans	81	0				0.003 ^	0.1
Oranges	79	0				0.002 - 0.003	NT
Peaches	52	0				0.002 - 0.003	NT
Spinach	79	0				0.003 ^	NT
Sweet Corn	45	0				0.002 - 0.003	0.1
Sweet Peas	90	0				0.002 - 0.003	NT
Sweet Potatoes	129	0				0.002 - 0.003	NT
Tomatoes	27	0				0.003 ^	0.1
Total	**858**	**0**					
Phorate oxygen analog sulfone							
Apple Juice	26	0				0.003 ^	NT
Apples	89	0				0.003 ^	NT
Carrots	72	0				0.003 ^	NT
Grapes	89	0				0.003 ^	NT
Green Beans	81	0				0.003 ^	0.1
Oranges	79	0				0.003 ^	NT
Peaches	52	0				0.003 ^	NT
Spinach	79	0				0.003 ^	NT
Sweet Corn	45	0				0.003 ^	0.1
Sweet Peas	90	0				0.003 ^	NT
Sweet Potatoes	129	0				0.003 ^	NT
Tomatoes	27	0				0.003 ^	0.1
Total	**858**	**0**					

	Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
	Phorate sulfoxide							
	Apple Juice	79	0				0.004 - 0.11	NT
	Apples	203	0				0.004 - 0.13	NT
	Carrots	258	0				0.004 - 0.11	NT
	Grapes	280	0				0.004 - 0.11	NT
	Green Beans	285	0				0.004 - 0.11	0.1
	Oranges	191	0				0.004 - 0.13	NT
	Peaches	165	0				0.004 - 0.13	NT
	Spinach	189	0				0.004 - 0.13	NT
	Sweet Corn	81	0				0.004 - 0.11	0.1
	Sweet Peas	162	0				0.004 - 0.11	NT
	Sweet Potatoes	229	0				0.004 - 0.11	NT
	Tomatoes	88	0				0.004 - 0.11	0.1
	Total	**2210**	**0**					
	Phorate sulfone							
	Apple Juice	79	0				0.003 - 0.016	NT
	Apples	203	0				0.003 - 0.056	NT
	Carrots	258	0				0.003 - 0.016	NT
	Grapes	280	0				0.003 - 0.016	NT
	Green Beans	285	0				0.003 - 0.016	0.1
	Oranges	319	0				0.003 - 0.056	NT
	Peaches	246	0				0.003 - 0.056	NT
	Spinach	307	0				0.003 - 0.056	NT
	Sweet Corn	121	0				0.003 - 0.013	0.1
	Sweet Peas	162	0				0.003 ^	NT
	Sweet Potatoes	229	0				0.003 ^	NT
	Tomatoes	135	0				0.003 - 0.016	0.1
	Total	**2624**	**0**					
65	**Phosalone (insecticide)**							
	Apple Juice	65	0				0.006 ^	10
	Apples	320	1	0.3	0.017	0.017	0.006 - 0.064	10
	Carrots	197	0				0.006 - 0.020	NT
	Grapes	205	0				0.006 - 0.020	10
	Green Beans	199	0				0.006 - 0.020	NT
	Oranges	432	0				0.006 - 0.064	3
	Peaches	273	0				0.006 - 0.064	15
	Spinach	424	0				0.006 - 0.064	NT
	Sweet Corn	137	0				0.006 - 0.020	NT
	Sweet Peas	196	0				0.006 - 0.020	NT
	Sweet Potatoes	272	0				0.006 - 0.020	NT
	Tomatoes	113	0				0.006 - 0.012	NT
	Total	**2833**	**1**					
66	**Phosmet (insecticide)**							
	Apple Juice	151	4	2.6	0.010	0.010	0.005 - 0.024	10
	Apples	447	16	3.6	0.010	0.15	0.005 - 0.050	10
	Carrots	410	0				0.005 - 0.024	NT
	Grapes	439	12	2.7	0.010	0.50	0.002 - 0.024	10
	Green Beans	446	0				0.005 - 0.024	NT
	Oranges	432	0				0.005 - 0.030	5
	Peaches	273	75	27.5	0.009	1.7	0.005 - 0.030	10
	Spinach	425	0				0.005 - 0.030	NT
	Sweet Corn	173	0				0.006 - 0.030	0.5
	Sweet Peas	355	0				0.006 - 0.024	0.5
	Sweet Potatoes	507	30	5.9	0.010	0.42	0.005 - 0.024	10
	Tomatoes	149	0				0.005 - 0.030	2
	Total	**4207**	**137**					

Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
67 Phosphamidon (insecticide)							
Apple Juice	177	0				0.002 - 0.093	1
Apples	530	5	0.9	0.003	0.050	0.002 - 0.040	1
Carrots (V-1)	500	1	0.2	0.16	0.16	0.002 - 0.093	NT
Grapes	525	0				0.002 - 0.093	NT
Green Beans	531	0				0.002 - 0.093	NT
Oranges	518	0				0.002 - 0.080	0.75
Peaches	324	0				0.002 - 0.080	NT
Spinach	517	0				0.002 - 0.080	NT
Sweet Corn	173	0				0.002 - 0.093	NT
Sweet Peas	355	0				0.002 - 0.093	NT
Sweet Potatoes	507	0				0.002 - 0.093	NT
Tomatoes	174	0				0.002 - 0.093	0.1
Total	**4831**	**6**					
68 Piperonyl butoxide (synergist)							
Apple Juice	26	0				0.040 ^	8
Apples	89	0				0.036 - 0.040	8
Carrots	72	0				0.040 ^	NT
Grapes	89	0				0.040 ^	8
Green Beans	81	0				0.040 ^	NT
Oranges	79	0				0.036 - 0.040	8
Peaches	52	0				0.036 - 0.040	8
Spinach (V-1)	79	1	1.3	0.060	0.060	0.040 ^	NT
Sweet Corn	45	0				0.036 - 0.040	NT
Sweet Peas	90	1	1.1	0.060	0.060	0.036 - 0.040	8
Sweet Potatoes	129	14	10.9	0.060	0.067	0.036 - 0.040	0.25
Tomatoes	27	1	3.7	0.067	0.067	0.040 ^	8
Total	**858**	**17**					
69 Propargite (insecticide)							
Apple Juice	177	0				0.008 - 0.18	3
Apples	530	130	24.5	0.014	2.5	0.008 - 0.31	3
Carrots	500	0				0.008 - 0.045	NT
Grapes	525	9	1.7	0.014	0.73	0.008 - 0.045	10
Green Beans	531	0				0.008 - 0.045	20
Oranges	518	11	2.1	0.020	0.047	0.012 - 0.31	5
Peaches	324	59	18.2	0.030	1.0	0.012 - 0.15	7
Spinach	517	0				0.012 - 0.31	NT
Sweet Corn	173	0				0.020 - 0.15	0.1 R
Sweet Peas	355	0				0.008 - 0.045	NT
Sweet Potatoes	507	0				0.008 - 0.045	NT
Tomatoes	174	0				0.020 - 0.15	NT
Total	**4831**	**209**					
70 Quintozene - PCNB (fungicide)							
Apple Juice	177	0				0.002 - 0.006	NT
Apples	530	0				0.001 - 0.006	NT
Carrots	500	0				0.003 - 0.006	NT
Grapes	525	0				0.003 - 0.006	NT
Green Beans	531	1	0.2	0.005	0.005	0.003 - 0.006	0.1
Oranges	518	0				0.001 - 0.006	NT
Peaches	324	0				0.001 - 0.006	NT
Spinach (V-4)	517	4	0.8	0.002	0.015	0.001 - 0.006	NT
Sweet Corn	173	0				0.003 - 0.006	NT
Sweet Peas	355	0				0.003 - 0.006	NT
Sweet Potatoes	507	0				0.003 - 0.006	NT
Tomatoes	174	0				0.003 - 0.006	0.1
Total	**4831**	**5**					

	Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
	Hexachlorobenzene							
	Apple Juice	177	0				0.002 - 0.004	NT
	Apples	530	0				0.001 - 0.004	NT
	Carrots (V-1)	500	1	0.2	0.005	0.005	0.002 - 0.004	NT
	Grapes (V-1)	525	1	0.2	1.3	1.3	0.002 - 0.004	NT
	Green Beans	531	0				0.002 - 0.004	0.1
	Oranges	518	0				0.001 - 0.004	NT
	Peaches	324	0				0.001 - 0.004	NT
	Spinach	517	0				0.001 - 0.004	NT
	Sweet Corn	173	0				0.002 - 0.004	NT
	Sweet Peas	355	0				0.002 - 0.004	NT
	Sweet Potatoes	507	0				0.002 - 0.004	NT
	Tomatoes	174	0				0.002 - 0.004	0.1
	Total	**4831**	**2**					
	Pentachloroaniline							
	Apples	108	0				0.001 - 0.003	NT
	Oranges	106	0				0.001 - 0.003	NT
	Peaches	62	0				0.001 - 0.003	NT
	Spinach (V-2)	104	2	1.9	0.002	0.002	0.001 - 0.003	NT
	Total	**380**	**2**					
	Pentachlorobenzene							
	Apple Juice	177	0				0.002 - 0.004	NT
	Apples	530	0				0.002 - 0.004	NT
	Carrots	500	0				0.002 - 0.004	NT
	Grapes	525	0				0.002 - 0.004	NT
	Green Beans	531	0				0.002 - 0.004	0.1
	Oranges	518	0				0.002 - 0.004	NT
	Peaches	324	0				0.002 - 0.004	NT
	Spinach	517	0				0.002 - 0.004	NT
	Sweet Corn	173	0				0.002 - 0.004	NT
	Sweet Peas	355	0				0.002 - 0.004	NT
	Sweet Potatoes	507	0				0.002 - 0.004	NT
	Tomatoes	174	0				0.002 - 0.004	0.1
	Total	**4831**	**0**					
71	**Simazine (herbicide)**							
	Apple Juice	26	0				0.012 ^	0.25
	Apples	89	0				0.012 ^	0.25
	Carrots	72	0				0.012 ^	NT
	Grapes	89	0				0.012 ^	0.25
	Green Beans	81	0				0.012 ^	NT
	Oranges	79	1	1.3	0.020	0.020	0.012 ^	0.25
	Peaches	52	0				0.012 ^	0.25
	Spinach	79	0				0.012 ^	NT
	Sweet Corn	45	0				0.012 ^	0.25
	Sweet Peas	90	0				0.012 ^	NT
	Sweet Potatoes	129	0				0.012 ^	NT
	Tomatoes	27	0				0.012 ^	NT
	Total	**858**	**1**					
72	**Sulprofos (insecticide)**							
	Apple Juice	26	0				0.003 ^	NT
	Apples	89	0				0.003 ^	NT
	Carrots	72	0				0.003 ^	NT
	Grapes	89	0				0.003 ^	NT
	Green Beans	81	0				0.003 ^	NT

	Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
	Oranges	79	0				0.003 ^	NT
	Peaches	52	0				0.003 ^	NT
	Spinach	79	0				0.003 ^	NT
	Sweet Corn	45	0				0.003 ^	NT
	Sweet Peas	90	0				0.003 ^	NT
	Sweet Potatoes	129	0				0.003 ^	NT
	Tomatoes	27	0				0.003 ^	NT
	Total	**858**	**0**					
73	**Tecnazine (fungicide)**							
	Apple Juice	26	0				0.006 ^	NT
	Apples	89	0				0.006 - 0.010	NT
	Carrots	72	0				0.006 ^	NT
	Grapes	89	0				0.006 ^	NT
	Green Beans	81	0				0.006 ^	NT
	Oranges	79	0				0.006 - 0.010	NT
	Peaches	52	0				0.006 - 0.010	NT
	Spinach	79	0				0.006 ^	NT
	Sweet Corn	45	0				0.006 - 0.010	NT
	Sweet Peas	90	0				0.006 - 0.010	NT
	Sweet Potatoes	129	0				0.006 - 0.010	NT
	Tomatoes	27	0				0.006 ^	NT
	Total	**858**	**0**					
74	**Terbufos (insecticide)**							
	Apple Juice	177	0				0.002 - 0.025	NT
	Apples	530	0				0.002 - 0.030	NT
	Carrots	500	0				0.002 - 0.025	NT
	Grapes	525	0				0.002 - 0.025	NT
	Green Beans	531	0				0.002 - 0.025	NT
	Oranges	518	0				0.002 - 0.030	NT
	Peaches	324	0				0.002 - 0.030	NT
	Spinach	516	0				0.002 - 0.030	NT
	Sweet Corn	173	0				0.002 - 0.025	0.05
	Sweet Peas	355	0				0.002 - 0.025	NT
	Sweet Potatoes	507	0				0.002 - 0.025	NT
	Tomatoes	174	0				0.002 - 0.025	NT
	Total	**4830**	**0**					
	Terbufos oxygen analog sulfone							
	Apple Juice	20	0				0.006 ^	NT
	Apples	78	0				0.006 ^	NT
	Oranges	80	0				0.006 ^	NT
	Spinach	86	0				0.006 ^	NT
	Total	**264**	**0**					
	Terbufos sulfone							
	Apple Juice	79	0				0.003 - 0.006	NT
	Apples	203	0				0.002 - 0.006	NT
	Carrots	258	0				0.003 - 0.006	NT
	Grapes	280	0				0.003 - 0.006	NT
	Green Beans	285	0				0.003 - 0.006	NT
	Oranges	319	0				0.002 - 0.013	NT
	Peaches	246	0				0.002 - 0.013	NT
	Spinach	307	0				0.003 - 0.013	NT

	Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
	Sweet Corn	121	0				0.002 - 0.013	0.05
	Sweet Peas	162	0				0.002 - 0.003	NT
	Sweet Potatoes	229	0				0.002 - 0.003	NT
	Tomatoes	135	0				0.003 - 0.013	NT
	Total	**2624**	**0**					
75	**Tetrachlorvinphos (insecticide)**							
	Apple Juice	26	0				0.003 ^	10
	Apples	89	0				0.002 - 0.003	10
	Carrots	72	0				0.003 ^	NT
	Grapes	89	0				0.003 ^	NT
	Green Beans	81	0				0.003 ^	NT
	Oranges	79	0				0.002 - 0.003	NT
	Peaches	52	0				0.002 - 0.003	0.1
	Spinach	79	0				0.003 ^	NT
	Sweet Corn	45	0				0.002 - 0.003	10
	Sweet Peas	90	0				0.002 - 0.003	NT
	Sweet Potatoes	129	0				0.002 - 0.003	NT
	Tomatoes	27	0				0.003 ^	5
	Total	**858**	**0**					
76	**Thiabendazole (fungicide)**							
	Apple Juice	177	67	37.9	0.019	0.75	0.011 - 0.18	10
	Apples	530	372	70.2	0.045	5.4	0.030 - 0.18	10
	Carrots	500	0				0.011 - 0.045	10
	Grapes	525	0				0.011 - 0.045	10
	Green Beans	531	0				0.009 - 0.045	NT
	Oranges	518	228	44.0	0.050	1.1	0.030 - 0.18	10
	Peaches (V-2)	324	2	0.6	0.042	0.042	0.025 - 0.061	NT
	Spinach	517	0				0.030 - 0.18	NT
	Sweet Corn	173	0				0.011 - 0.040	NT
	Sweet Peas	355	0				0.009 - 0.045	NT
	Sweet Potatoes (X-2)	507	2	0.4	0.050	0.15	0.011 - 0.045	0.02
	Tomatoes	174	0				0.011 - 0.040	NT
	Total	**4831**	**671**					
77	**Triadimefon (fungicide)**							
	Grapes	1	1		0.008	0.008	0.002 ^	1
	Total	**1**	**1**					
78	**Trifluralin (herbicide)**							
	Apple Juice	130	0				0.008 - 0.090	NT
	Apples	530	0				0.002 - 0.090	NT
	Carrots	500	214	42.8	0.013	0.18	0.008 - 0.039	1
	Grapes	420	0				0.008 - 0.030	0.05
	Green Beans	412	0				0.008 - 0.030	0.05
	Oranges	518	0				0.002 - 0.090	0.05
	Peaches	324	0				0.002 - 0.030	0.05
	Spinach	517	0				0.002 - 0.090	0.05
	Sweet Corn	137	0				0.003 - 0.020	NT
	Sweet Peas	283	0				0.008 - 0.020	0.05
	Sweet Potatoes	407	0				0.008 - 0.020	0.05
	Tomatoes	138	0				0.003 - 0.030	0.05
	Total	**4316**	**214**					

Pesticide	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
79 Vinclozolin (fungicide)							
Apple Juice	130	0				0.005 - 0.014	NT
Apples	530	0				0.002 - 0.014	NT
Carrots	404	0				0.006 - 0.014	NT
Grapes	523	19	3.6	0.010	0.89	0.006 - 0.014	6
Green Beans	412	83	20.1	0.005	0.14	0.002 - 0.014	NT *
Oranges	518	0				0.002 - 0.010	NT
Peaches	324	0				0.002 - 0.010	25
Spinach	517	0				0.002 - 0.010	NT
Sweet Corn	137	0				0.004 - 0.010	NT
Sweet Peas	283	0				0.006 - 0.014	NT
Sweet Potatoes	407	0				0.006 - 0.014	NT
Tomatoes	138	4	2.9	0.010	0.058	0.004 - 0.010	NT **
Total	**4323**	**106**					

Total No. of Different Residues Detected: 67
Total No. of Samples Analyzed: 4,856
Total No. of Residues Detected: 3,485

^ Only one LOD reference for the pair. Either 1 laboratory reporting or more than one laboratory with the same LOD.
(V) Residue was found where no tolerance was established by EPA. Following V are the number of occurrences.
(X) Residue was found which exceeds EPA tolerance. Following X are the number of occurrences.
NT No tolerance level was set for that pesticide / commodity pair.
@ All other residues were detected in combination with acephate, for which a tolerance exists.
R Regional tolerance.
Numbers shown are Action Levels established by FDA.
* Vinclozolin in processed green beans may be subject to a previous Section 18 (expiration date 09/30/95)
** Stated tolerance applies to domestic product only. Imported tomatoes have a tolerance of 3.0 ppm for vinclozolin.

For those pesticide/commodity pairs where the minimum detected value is less than the limit of quantitation (3 times the limit of detection), the reported values are estimates. In a few cases, this may apply to the maximum detected value.

Appendix E

Distribution of Residues by Pesticide in Wheat

Appendix E shows residue detections for all wheat samples tested for pesticides, minimum and maximum concentrations reported, Limits of Detection (LOD), and whether a tolerance is established for each pesticide in wheat. *Residue detections are highlighted in italics.*

In 1996 the Pesticide Data Program analyzed 340 domestic wheat samples. A total of 309 samples (91%) were reported with residue detections. One sample was reported as a presumptive tolerance violation.

APPENDIX E. DISTRIBUTION OF RESIDUES BY PESTICIDE IN WHEAT

Pesticide*	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
Aldicarb					0.005	NT
Aldicarb sulfone					0.005	
Atrazine	13	3.8	0.003	0.008	0.002	0.25
Azinphos methyl	3	0.9	0.022	0.022	0.013	0.2
Carbaryl	1	0.3	0.013	0.013	0.003	3.0
Carbofuran					0.005	0.1
3-Hydroxycarbofuran					0.005	
Chlorpyrifos	49	14.4	0.010	0.042	0.006	0.5
Chlorpyrifos methyl	249	73.2	0.002	1.5	0.001	6.0
Demeton-S					0.006	NT
Diazinon	1	0.3	0.013	0.013	0.008	0.05
Dichlorvos (DDVP)					0.003	0.5**
Dicoflop methyl (herbicide)	1	0.3	0.010	0.010	0.006	0.1
Dimethoate					0.009	0.04
Omethoate					0.011	0.04
Disulfoton					0.003	0.3
Disulfoton sulfone	1	0.3	0.025	0.025	0.015	
Endosulfans						0.1
Endosulfan I					0.008	
Endosulfan II					0.010	
Endosulfan sulfate					0.003	
Imazalil	10	2.9	0.010	0.024	0.006	0.05
Linuron					0.010	0.25
Malathion	239	70.3	0.005	1.0	0.003	8.0
Methiocarb (analyzed as sulfoxide)					0.015	NT
Methomyl					0.005	1.0
Methoxychlor p,p'	16	4.7	0.012	0.064	0.007	2.0
Oxamyl					0.005	NT
Parathion	1	0.3	0.022	0.022	0.013	1.0
Parathion methyl	1	0.3	0.010	0.010	0.006	1.0

Pesticide*	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
Phorate					0.003	0.05
Phorate sulfone	2	0.6	0.008	0.008	0.005	
Thiabendazole	1	0.3	0.012	0.012	0.007	1.0
Triallate (herbicide)					0.010	0.05
Trifluralin (X-1)	5	1.5	0.012	0.16	0.007	0.05

* Uses for agricultural pesticides not listed in this appendix are in Appendix D.
** EPA Tolerance as of July 1996.
(X) - Residue was found which exceeds EPA tolerance. Following X are the number of occurences.

Where the minimum detected value is less than the limit of quantitation (3 times the limit of detection), the reported values are estimates. In a few cases, this may apply to the maximum detected value.

Appendix F

Distribution of Residues by Pesticide in Milk

Appendix F shows residue detections for all milk samples tested for pesticides, minimum and maximum concentrations reported, Limits of Detection (LODs), and whether a tolerance is established for each pesticide in milk. *Residue detections are highlighted in italics.*

In 1996 the Pesticide Data Program analyzed 575 domestic milk samples. A total of 105 samples (18%) were reported with residue detections. One sample was reported as a presumptive tolerance violation.

Milk is a uniquely marketed commodity in that most fluid milk is consumed in the State where it is produced. This was evident in the milk samples collected by the 10 participating States in 1996, where 568 of the 575 samples collected were marketed in the State of origin, and only 2 samples originated from non-participating PDP States.

Implementation of new methodology, developed by the California Department of Food and Agriculture to determine pesticide residues in whole milk, allowed detection of the DDE metabolite of DDT at 0.001 ppm, the lowest reportable level in the PDP system. Of the 99 milk samples with detectable DDE residues, 0.002-0.006 ppm (at or just above quantifiable limits), 84 originated in California, 8 in New York, and 7 in Texas.

APPENDIX F. DISTRIBUTION OF RESIDUES BY PESTICIDE IN MILK[@]

Pesticide*	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
2,4-D (herbicide)	570					0.005 - 0.010	0.1
2,4-DB (herbicide)	202					0.005	NT
Abamectin (insecticide)	501					0.001	0.005
Acephate	570					0.001 - 0.002	0.1
Aldicarb	570					0.003 - 0.005	0.002
Aldicarb sulfoxide	570					0.004 - 0.012	
Aldicarb sulfone	570					0.004 - 0.009	
Atrazine	570					0.001 - 0.012	0.02
Azinphos methyl	570					0.002 - 0.007	0.04
BHC							
BHC alpha	570					0.001	0.3 (F)
BHC beta	570					0.001	0.3 (F)
BHC delta	570					0.001	0.3 (F)
Benomyl (analyzed as carbendazim)	501					0.002	0.1
Captan	202					0.002 - 0.003	NT
Carbaryl	570					0.002 - 0.004	0.3
Carbofuran	570					0.004	0.02
3-Hydroxycarbofuran	570					0.004	
Carbophenothion	570					0.001 - 0.002	NT
Chlordanes							NT
Chlordane cis	570					0.001 - 0.002	
Chlordane trans	570					0.001	
Oxychlordane	346					0.001	
Chlorfenvinphos							NT
Chlorfenvinphos alpha	426					0.001 - 0.002	
Chlorfenvinphos beta	346					0.001	
Chlorothalonil	202					0.002 - 0.003	NT
Chlorpropham	570					0.001 - 0.005	0.05

Pesticide*	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
Chlorpyrifos	570					0.001 - 0.002	0.25 (F) 0 .01 (W)
Chlorpyrifos methyl	570					0.001 - 0.002	1.25 (F) 0 .05 (W)
Cyfluthrin	202					0.020 - 0.024	15.0 (F) 0 .5 (W)
Cypermethrin	202					0.010 - 0.020	0.05
DCPA	202					0.001	NT
DDT	570					0.001 - 0.006	1.25 (F)# NT(W)
DDD (TDE)	570					0.001 - 0.006	
DDE	570	99	17.4	0.002	0.006	0.001 - 0.003	
Dalapon (herbicide)	202					0.009 - 0.010	0.1
Demeton-S sulfone (metabolite)	202					0.001 - 0.003	NT
Diazinon	426					0.001 - 0.002	NT
Dicamba (herbicide)	439					0.004 - 0.008	0.3
Dichlorvos (DDVP)	570	1	0.2	0.003	0.003	0.001 - 0.002	0.02 (W)
Dicloran	202					0.002 - 0.003	NT
Dicofol p p (herbicide)	202					0.002 - 0.003	NT
Dieldrin	570					0.001 - 0.003	0.3 (F)#
Dimethoate	570					0.001	0.002
Omethoate	570					0.001 - 0.002	0.002
Diphenylamine	346					0.006 - 0.010	NT
4-Hydroxydiphenylamine	202					0.006	
Disulfoton	346					0.001	NT
Disulfoton sulfone	346					0.001 - 0.002	
Diuron	202					0.012	NT

Pesticide*	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
Endosulfans							0.5 (F) NT (W)
Endosulfan I	570					0.001	
Endosulfan II	570					0.001 - 0.002	
Endosulfan sulfate	570					0.001	
Esfenvalerate	570					0.004 - 0.013	7 (F) 0.3 (W)
Ethalfluralin	570					0.007 - 0.020	0.05
Ethion	570					0.001	0.5 (F) NT(W)
Fenamiphos	570					0.001 - 0.002	0.01
Fenamiphos sulfoxide	426					0.002 - 0.005	
Fenamiphos sulfone	570					0.002 - 0.005	
Fenthion	570					0.001	0.01
Fenvalerate	570					0.004 - 0.021	7 (F) 0.3 (W)
Heptachlor	570					0.001 - 0.001	0.1 (F)#
Heptachlor epoxide	570					0.001	
Hexachlorobenzene (HCB)	202					0.001	NT
Imazalil	202					0.004	0.01 (W)
Iprodione	570					0.004 - 0.006	0.05
Ivermectin (anthelmintic)	501					0.001	--
Lindane	570					0.001 - 0.006	0.3 (F)
Linuron	202					0.001	NT
MCPA (herbicide)	439					0.005 - 1.500	0.1
Malathion	570					0.001 - 0.002	0.5 (F)
Metalaxyl	90					0.001 - 0.006	0.02
Methamidophos	202					0.001	NT
Methidathion	570					0.001 - 0.002	0.03
Methiocarb (analyzed as sulfoxide)	368					0.004 - 0.005	NT

Pesticide*	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
Methomyl	570					0.003 - 0.006	NT
Methoxychlor	426					0.002 - 0.003	1.25 (F)
Mevinphos							NT
Mevinphos (E)	202					0.001	
Mevinphos (Z)	202					0.001	
Myclobutanil	202					0.006	0.2
o-Phenylphenol (V-1)	202	1	0.5	0.010	0.010	0.006	NT
Omethoate	570					0.001 - 0.002	0.002
Oxamyl	346					0.004 - 0.006	NT
Oxydemton methyl sulfone (metabolite)	43					0.001	0.01
Oxyfluorfen	570					0.003 - 0.006	0.05
Parathion	426					0.001 - 0.002	NT
Parathion methyl	426					0.001	NT
Pentachlorobenzene (PCB)	202					0.001	NT
Pentachlorophenol (molluscicide)**	202					0.005	NT
Permethrins	570					0.002 - 0.032	6.25 (F) 0.25 (W)
Phorate	570					0.001 - 0.020	0.02
Phorate sulfoxide	426					0.002 - 0.076	
Phorate sulfone	426					0.001 - 0.002	
Phorate oxygen analog	202					0.001	
Phorate oxygen analog sulfone	202					0.001	
Phosalone	202					0.002 - 0.003	NT
Phosmet	202					0.002 - 0.003	NT
Phosphamidon	202					0.001	NT
Picloram (herbicide)	202					0.007 - 0.008	0.05
Piperonyl butoxide	91					0.015	0.25 (F) NT (W)

Pesticide*	Total Samples Screened	Samples with Detections	% of Samples with Detections	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
Propargite	346					0.030 - 0.045	2 (F) 0.08 (W)
Quintozene (PCNB)	570					0.001	NT
Simazine	570					0.001 - 0.005	0.02
Sulprofos	570					0.001 - 0.004	0.01
Tecnazine (fungicide)	202					0.003 - 0.004	NT
Terbufos	202					0.001	NT
Terbufos sulfone	202					0.001	
Tetrachlorvinphos	570					0.001 - 0.005	0.5 (F) NT (W)
Thiabendazole	536	4	0.7	0.050	0.050	0.010 - 0.030	0.4
5-Hydroxythiabendazole	501					0.150	
Triclopyr (herbicide)	202					0.007 - 0.008	0.01
Trifluralin	202					0.006	NT
Vinclozolin	202					0.002 - 0.003	NT

(F) - Tolerance on Fat Basis

(W) - Tolerance for whole milk

(V) - Residue was found where no EPA tolerance was established. Following the V are the number of occurences.

All others are tolerances for whole milk.

* Uses for agricultural pesticides not listed in this appendix are in Appendix D.

** Pentachlorophenol is also listed as a wood preservative.

@ - A total of 570 samples were tested in three (3) State Laboratories and 501 samples in the AMS Eastern Laboratory - five (5) samples were not common to both testing systems; hence a total of 575 samples.

- Numbers shown are action levels established by FDA.

Where the minimum detected value is less than the limit of quantitation (3 times the limit of detection), the reported values are estimates. In a few cases, this may apply to the maximum detected value.

Appendix G

Concentration Percentiles in Selected Pesticide/Commodity Pairs

Appendix G shows 59 pesticide/commodity pairs with detections in at least 10 percent of the samples tested. Concentrations detected are arranged in percentiles. The 90th percentile is compared to the tolerance established for each pesticide/commodity pair.

The meaning of a percentile can be most easily explained through an example. For the imazalil/orange pair, the 50th percentile is estimated to be 0.055 ppm. This means that PDP estimates that at least 50 percent of oranges available to U.S. consumers had imazalil residues of 0.055 ppm or less, while at least 50 percent had residues of 0.055 ppm or more. Similarly, the 75th percentile (or the upper quartile) for this pair is estimated to be 0.155 ppm, which means that at least 75 percent of oranges had residues of 0.155 ppm or less, while at least 25 percent had residues of 0.155 ppm or more. Finally, the 90th percentile (or the last decile) is estimated to be 0.300 ppm, meaning that at least 90 percent of all oranges had imazalil residues of 0.300 ppm or less, while at least 10 percent had residues of 0.300 ppm or more.

For the three processed commodities--apple juice, green beans and sweet peas--the percentile concentrations were weighted to reflect marketplace availability (utilization) versus samples collected monthly.

Commodity	Collected	Utilization
AJ (Liquid:Frozen)	2:1	3:1
GB (Canned:Frozen)	4:5	2:1
PS (Canned:Frozen)	4:5	2:1

APPENDIX G. CONCENTRATION PERCENTILES IN SELECTED PESTICIDE/COMMODITY PAIRS (Pairs with Residue Detections in at Least 10 Percent of Samples)

	Commodity / Pesticide[1]	Months	% of Samples with Detections	Mean** Lower	Mean** Upper	Percentiles 50th	Percentiles 75th	Percentiles 90th	Ratio of 90th Percentile to Tolerance
1	**Apple Juice (W)**	**3+**							
	Carbaryl		32.2	0.009	0.019	*	0.012	0.032	0.003
	Thiabendazole		37.9	0.080	0.115	*	0.100	0.280	0.028
2	**Apples**	**9+**							
	Azinphos methyl		54.5	0.033	0.043	0.013	0.051	0.092	0.046
	Captan		15.3	0.022	0.030	*	*	0.030	0.001
	Carbaryl		12.3	0.018	0.034	*	*	0.029	0.003
	Chlorpyrifos		26.4	0.007	0.010	*	0.004	0.019	0.013
	Diphenylamine		86.3	0.717	0.719	0.610	1.100	1.600	0.160
	Methoxychlor		17.7	0.032	0.042	*	*	0.079	0.006
	Propargite		24.5	0.098	0.138	*	*	0.360	0.120
	Thiabendazole		70.2	0.589	0.605	0.370	0.780	1.600	0.160
3	**Carrots**	**8+**							
	DDE		43.0	0.017	0.020	*	0.019	0.049	0.016
	Iprodione		37.2	0.019	0.036	*	0.030	0.062	0.012
	Linuron		68.5	0.030	0.033	0.012	0.038	0.082	0.082
	Trifluralin		42.8	0.027	0.040	*	0.048	0.089	0.089
4	**Grapes**	**9+**							
	Captan		41.6	0.062	0.069	*	0.067	0.210	0.004
	Chlorpyrifos		13.7	0.006	0.011	*	*	0.008	0.150
	Dimethoate		16.6	0.012	0.016	*	*	0.015	0.015
	Iprodione		45.3	0.124	0.138	*	0.150	0.400	0.007
	Myclobutanil		25.0	0.026	0.045	*	*	0.083	0.083
	Omethoate		19.3	0.009	0.017	*	*	0.033	0.033
5	**Green Beans (C&F)(W)**	**9+**							
	Acephate		33.5	0.025	0.028	*	0.014	0.068	0.023
	Carbaryl		11.9	0.004	0.016	*	*	*	*
	Methamidophos		32.2	0.009	0.012	*	0.009	0.031	0.031
	Vinclozolin		20.1	0.004	0.013	*	*	0.015	***
6	**Milk**	**8+**							
	DDE		17.4	0.001	0.002	*	*	0.003	****
7	**Oranges**	**9**							
	Carbaryl		11.8	0.005	0.019	*	*	0.014	0.001
	Chlorpyrifos		12.0	0.001	0.004	*	*	0.004	0.004
	Imazalil		58.1	0.107	0.137	0.055	0.155	0.300	0.030
	o-Phenylphenol		14.5	0.034	0.055	*	*	0.028	0.003
	Thiabendazole		44.0	0.095	0.133	*	0.153	0.308	0.031

	Commodity / Pesticide[1]	Months	% of Samples with Detections	Mean** Lower	Mean** Upper	Percentiles 50th	Percentiles 75th	Percentiles 90th	Ratio of 90th Percentile to Tolerance
8	**Peaches**	**8**							
	Azinphos methyl		33.3	0.025	0.036	*	0.031	0.076	0.038
	Benomyl		23.1	0.118	0.156	*	*	0.430	0.029
	Carbaryl		16.0	0.044	0.056	*	*	0.036	0.004
	Chlorpyrifos		17.0	0.002	0.006	*	0.000	0.010	0.190
	Dicloran		33.3	0.140	0.144	*	0.040	0.470	0.024
	Fenbutatin oxide		13.6	0.018	0.020	*	*	0.016	0.002
	Iprodione		79.0	0.710	0.715	0.320	0.760	1.700	0.085
	Parathion methyl		25.3	0.015	0.021	*	0.004	0.046	0.046
	Phosmet		27.5	0.052	0.063	*	0.012	0.160	0.016
	Propargite		18.2	0.067	0.115	*	*	0.290	0.041
9	**Spinach**	**9+**							
	DDE		58.2	0.010	0.012	0.006	0.015	0.028	0.056
	DDT		12.5	0.003	0.007	*	*	0.009	0.018
	Endosulfan sulfate		13.7	0.019	0.023	*	*	0.008	0.004
	Methomyl		12.0	0.059	0.072	*	*	0.031	0.005
	Omethoate		17.2	0.010	0.020	*	*	0.030	0.015
	Permethrins		60.2	0.969	0.974	0.088	1.250	3.300	0.165
10	**Sweet Peas (C&F)(W)**	**6**							
	Dimethoate		13.8	0.003	0.007	*	*	0.009	0.005
11	**Sweet Potatoes**	**9+**							
	Chlorpyrifos		10.5	0.001	0.006	*	*	0.004	0.070
	Dicloran		63.6	0.239	0.242	0.082	0.340	0.650	0.065
12	**Tomatoes**	**3+**							
	Chlorothalonil		11.5	0.024	0.035	*	*	0.008	0.002
	Endosulfan I		12.6	0.002	0.005	*	*	0.004	0.002
	Endosulfan II		16.7	0.003	0.006	*	*	0.008	0.004
	Endosulfan sulfate		14.4	0.002	0.006	*	*	0.006	0.003
	Methamidophos		37.4	0.012	0.014	*	0.012	0.033	0.033
	o-Phenylphenol		11.4	0.004	0.015	*	*	0.011	0.001
	Permethrins		10.9	0.012	0.027	*	*	0.027	0.013
13	**Wheat**	**-**							
	Chlorpyrifos		14.4	0.002	0.007	*	*	0.011	0.220
	Chlorpyrifos methyl		73.2	0.068	0.068	0.004	0.029	0.184	0.031
	Malathion		70.3	0.050	0.051	0.008	0.033	0.112	0.014

(1) No sampling of fruit and vegetables and milk from September 9th to November 30th (scattered sampling for wheat).

* The percentile value is estimated to be below the Limit of Detection (LOD).

** The mean is estimated with a range of values. The lower bound is calculated with non-detections valued at zero. The upper bound is calculated using the LOD.

*** FIFRA Section 18 exemption expired September 30, 1995.

**** No established tolerance in whole milk - tolerance only in fat (1.25 ppm).

(W) - Weighted for utilization.

(C&F) - Canned & Frozen Samples

Appendix H

Cumulative Distributions of Residues for Selected Pesticide/Commodity Pairs

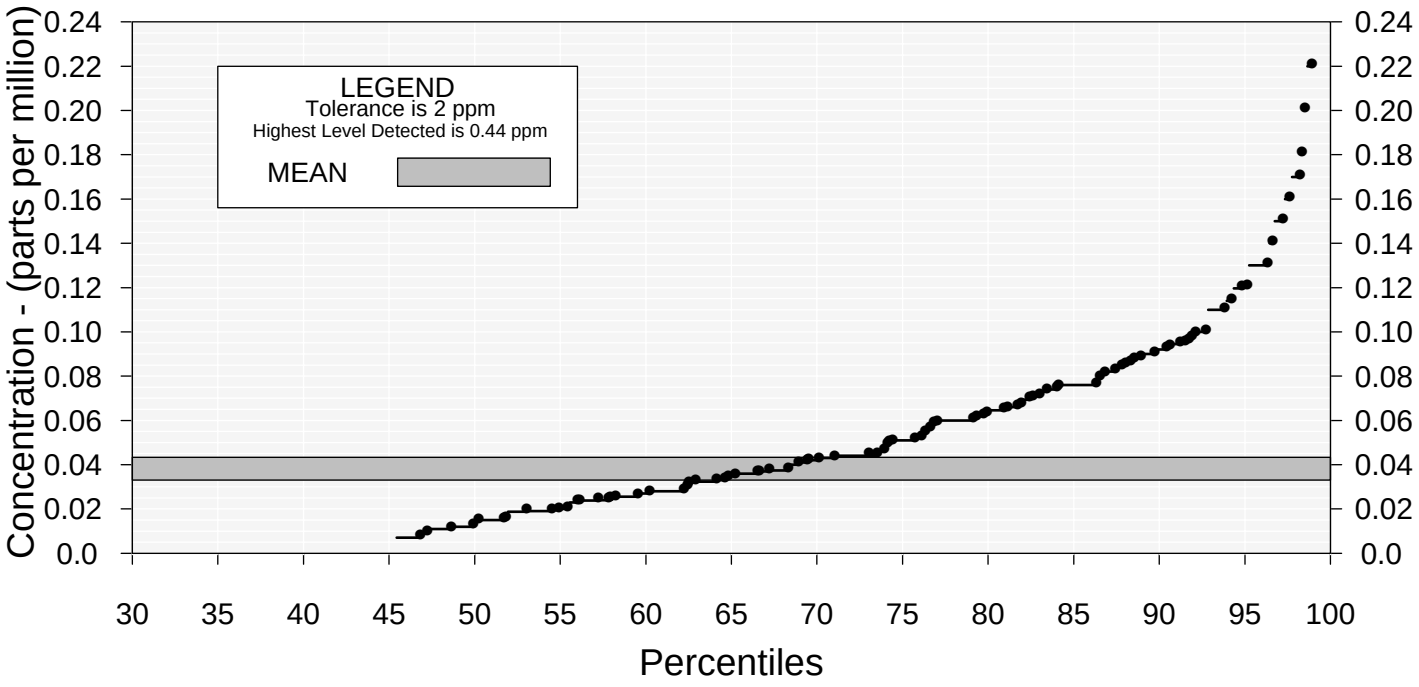
In Appendix H the concentrations detected (in parts per million) are plotted versus the calculated percentiles for the following eight pesticide/commodity pairs:

Azinphos methyl/Apples
Imazalil/Oranges
Acephate/Green Beans (Canned & Frozen)
Methamidophos/Green Beans (Canned & Frozen)
DDE/Spinach
Permethrins/Spinach
Dicloran/Sweet Potatoes
Chlorpyrifos methyl/Wheat

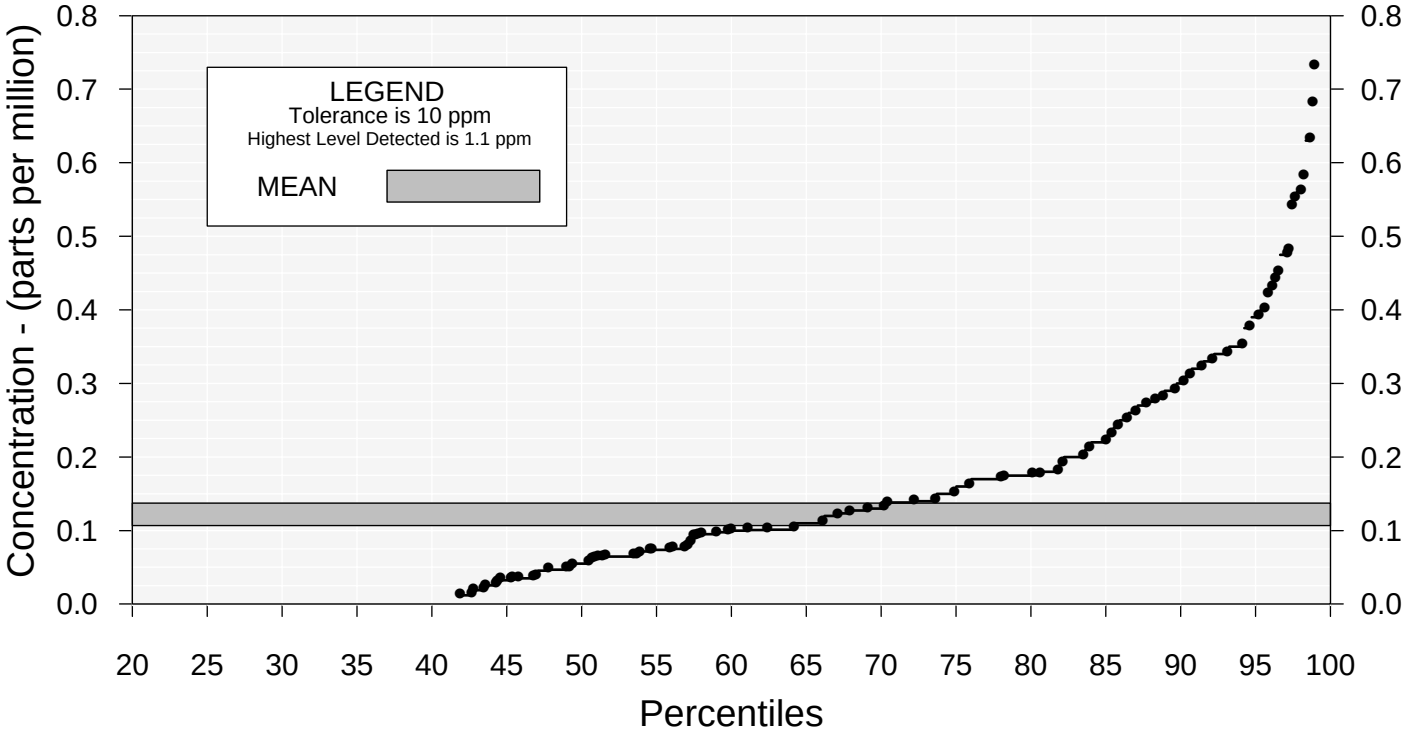
The distribution of residues for all the PDP pesticide/commodity pairs has the same curved shape. The highest percentile graphed in the appendix is the 99th, which in each case is lower than the highest concentration detected in the sample (refer to the value shown in each graph's legend). Inclusion of the highest concentration would cause graph distortion, which would obscure concentrations in the low ranges. The tolerance for the pesticide/commodity pair is also indicated in the legend of each graph. The large dots show the percentage of the commodity at or below a given level of residue concentration. For example, an estimated 75 percent of oranges available to U.S. consumers in 1996 had imazalil residue concentrations of 0.155 ppm or less. The solid lines, tailing the large dots, depict percentage values. The lowest value of these solid lines indicates the estimated percentage of the commodity available to U.S. consumers with no detectable residues. For imazalil in oranges, this is 42 percent. The shaded bar denotes the range of values estimated for the mean. For imazalil/oranges the mean range is 0.107 - 0.137 ppm, corresponding to the 65th through 73rd percentile.

Appendix H. Cumulative Distributions of Residues for Selected Pesticide/Commodity Pairs

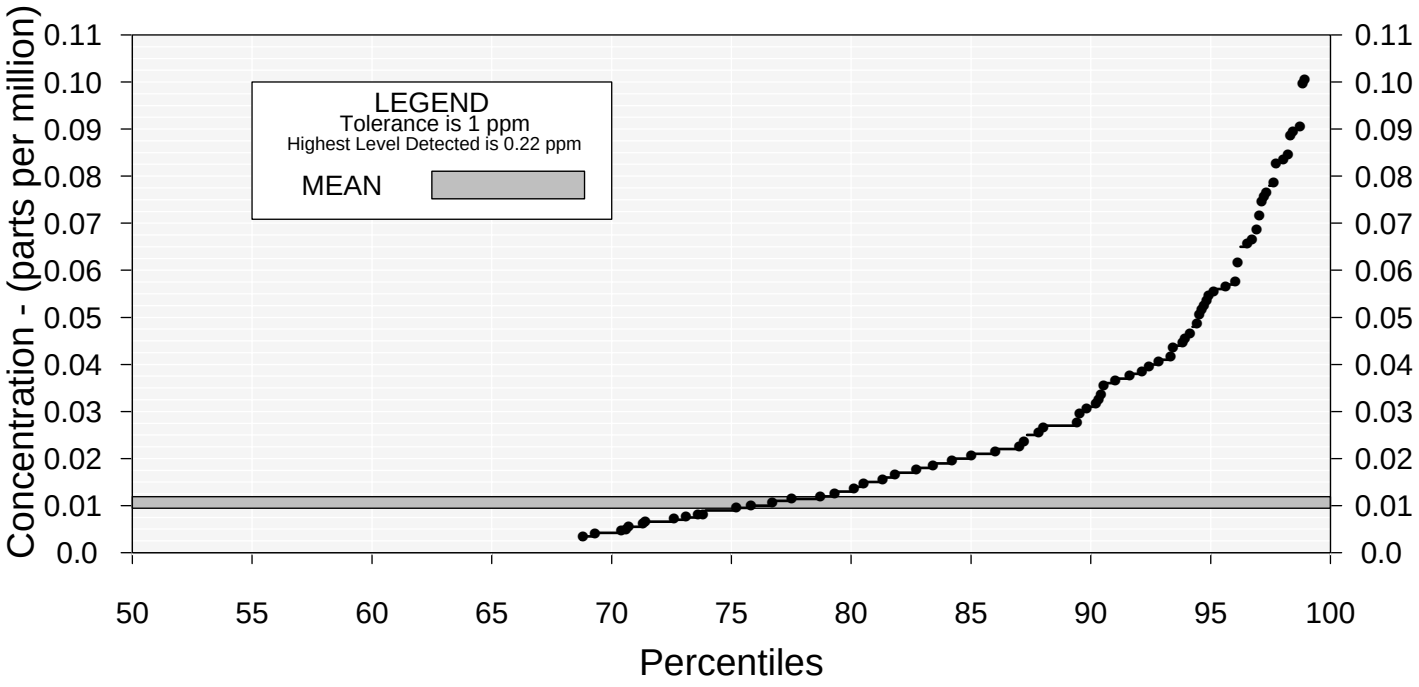
Azinphos methyl / Apples



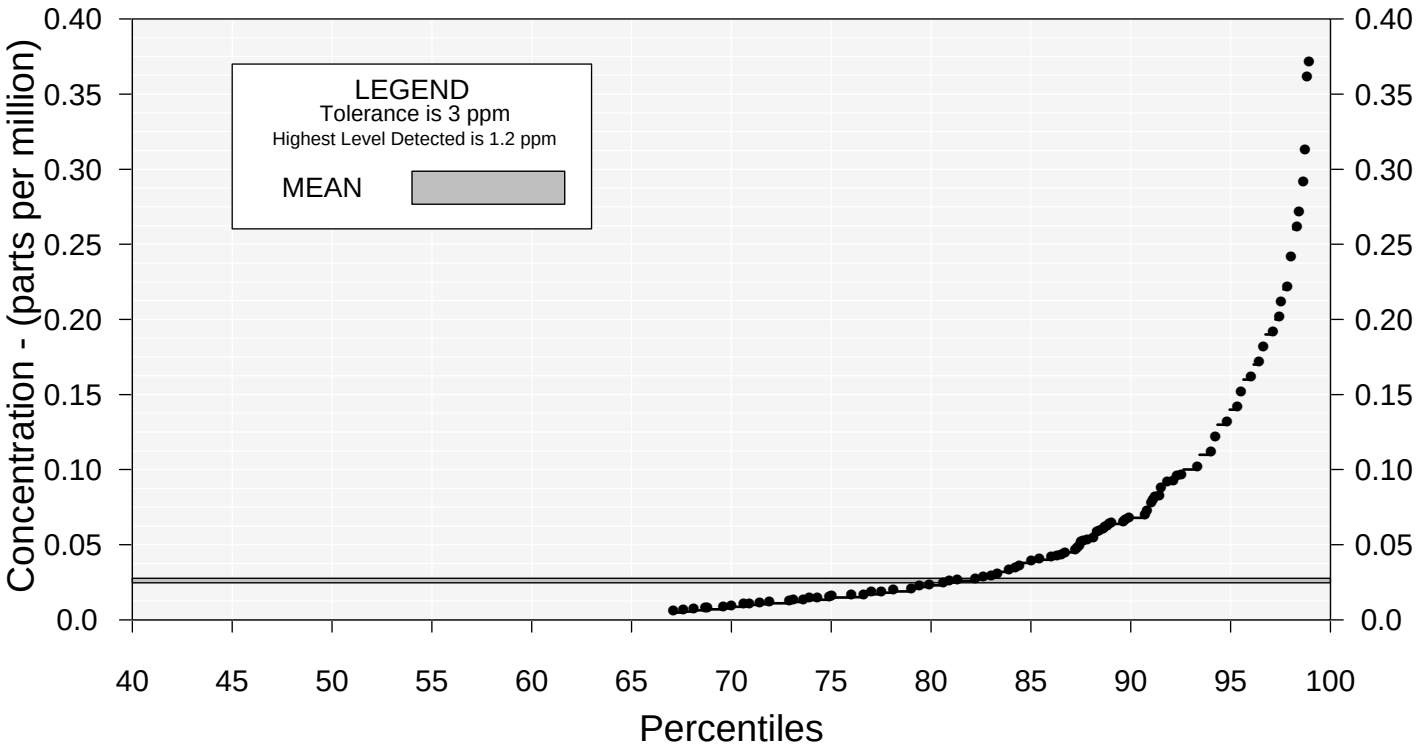
Imazalil / Oranges



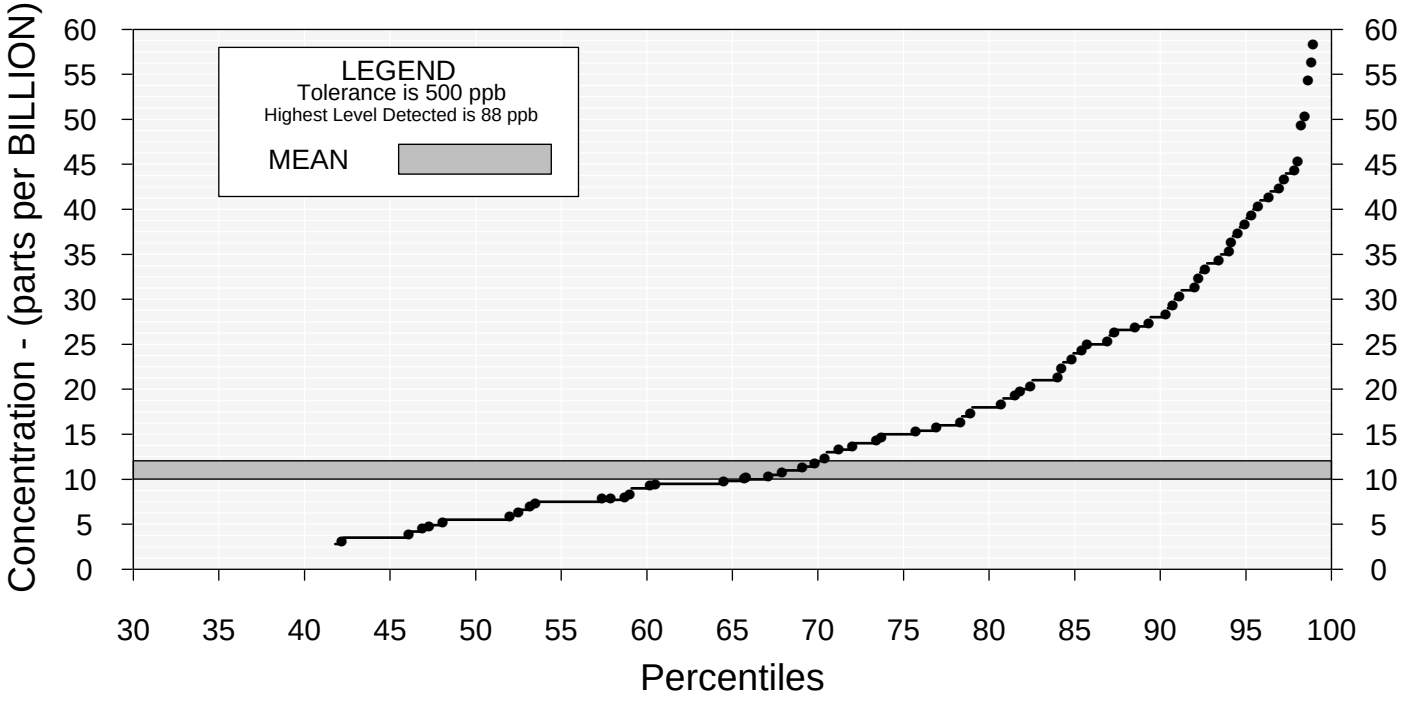
Methamidophos / Green Beans



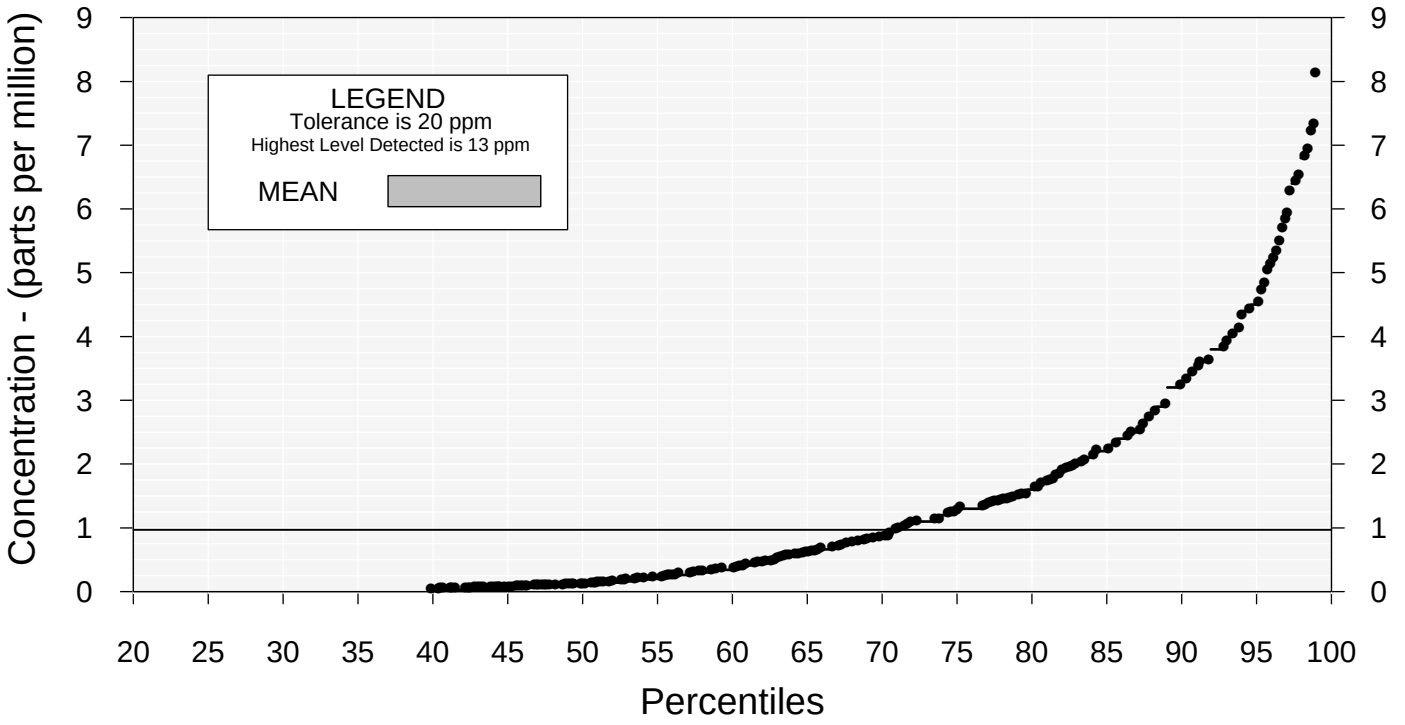
Acephate / Green Beans



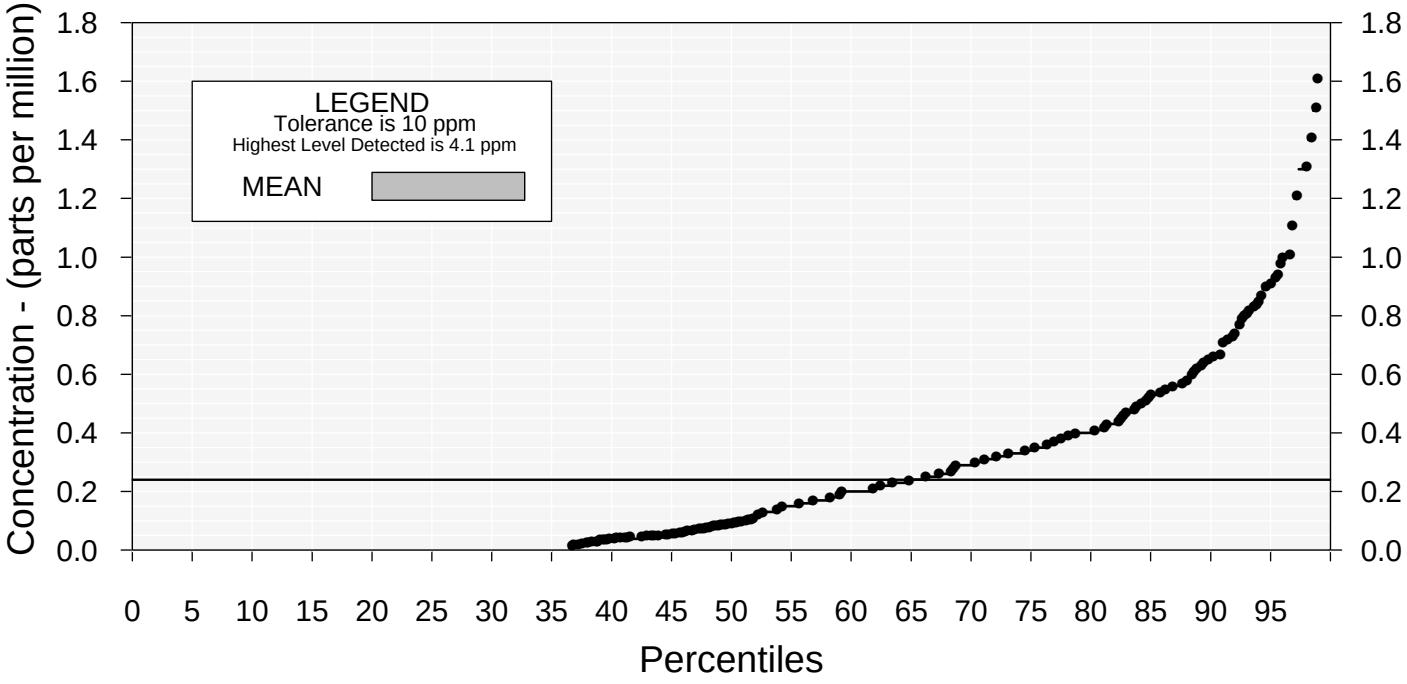
DDE / Spinach



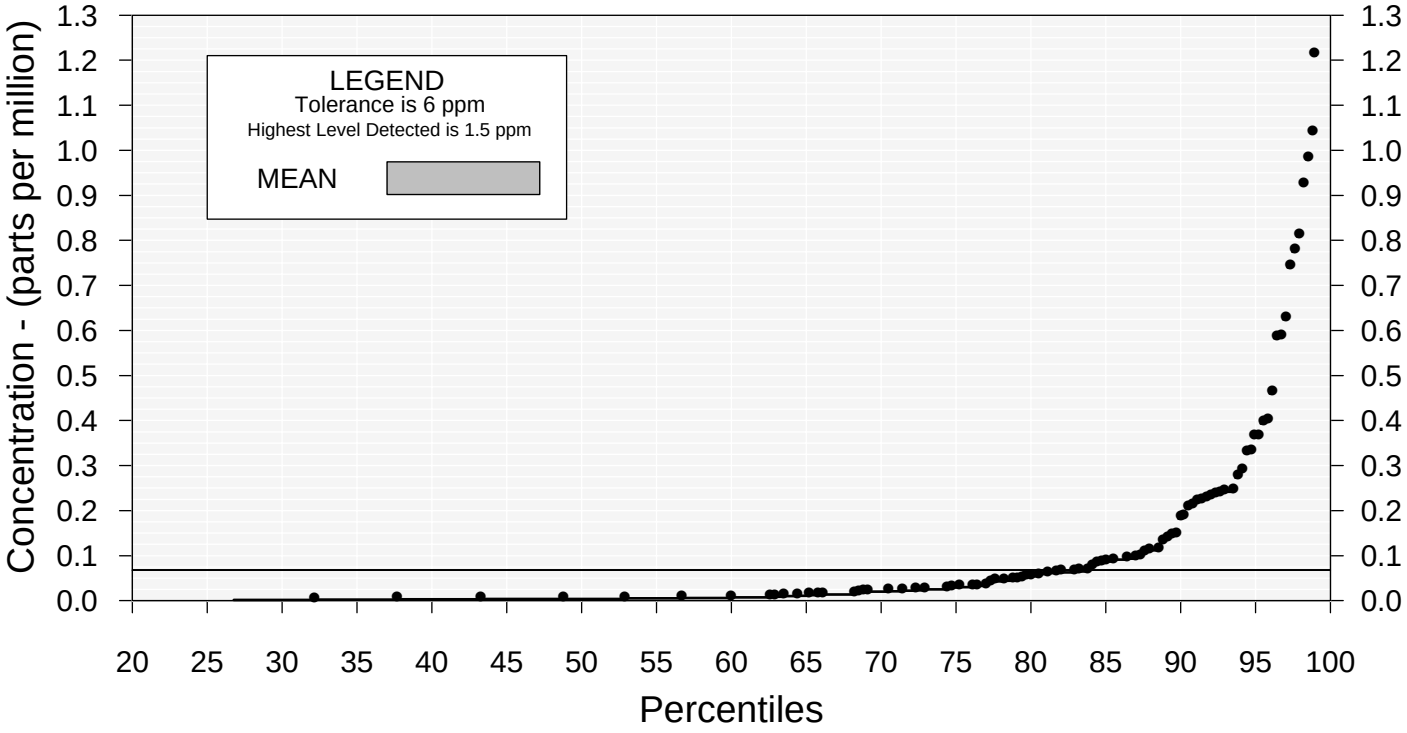
Permethrins / Spinach



Dicloran / Sweet Potatoes



Chlorpyrifos methyl / Wheat



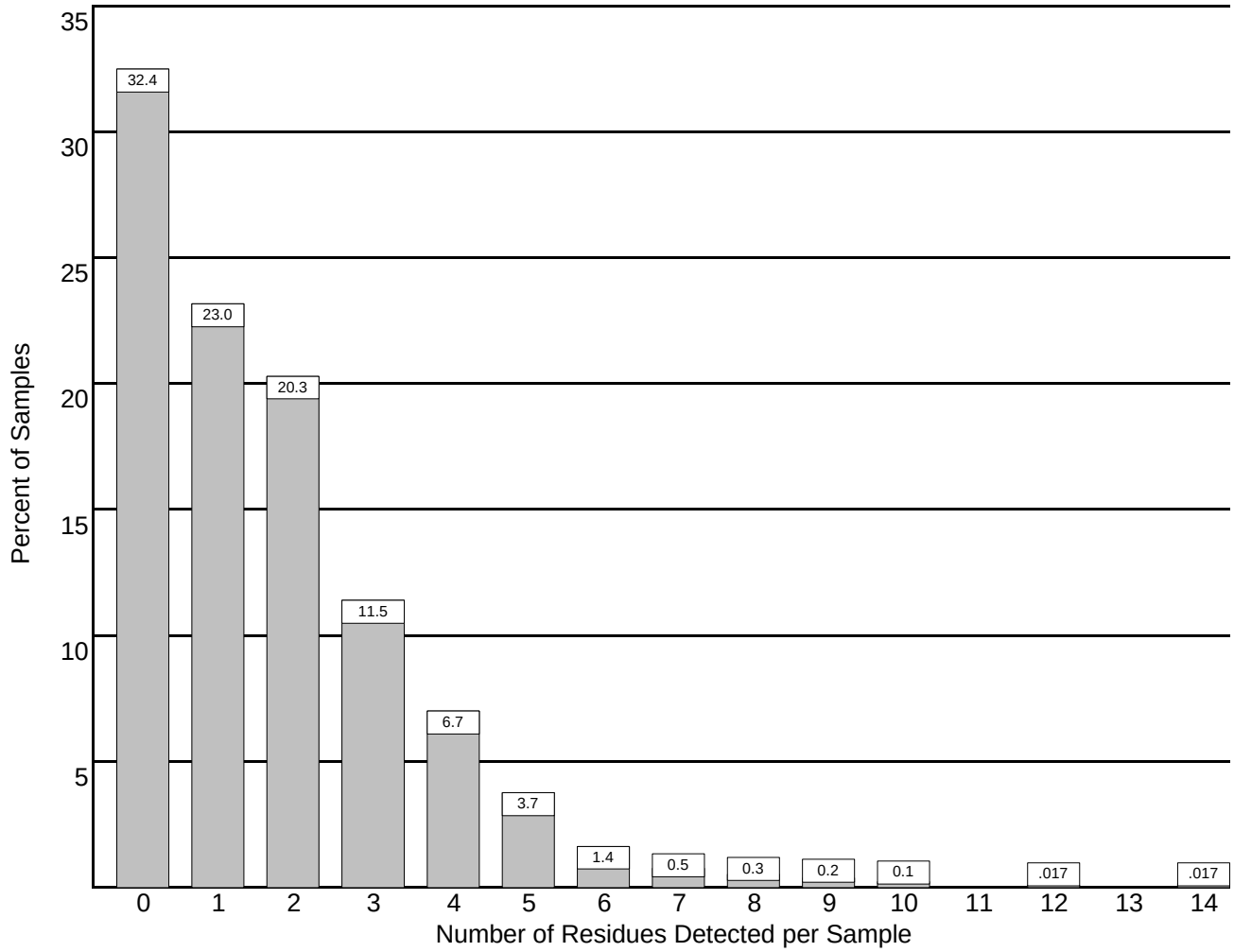
Appendix I

Percentage of Samples vs. Number of Residues Detected per Sample

(Fresh and Processed Commodities)

Appendix I shows the percentage of samples versus number of residues detected per sample. Page 1 shows the overall number of samples and percentages (of the total number of samples analyzed) for each detection group across all commodites. Page 2 shows the number of residues detected by individual commodity. For the 5,771 samples tested, 32.4 percent had no detectable residues and 44.6 percent had more than one residue.

APPENDIX I. PERCENTAGE vs. NUMBER OF RESIDUES DETECTED PER SAMPLE



	Number of Residues Detected per Sample														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Number of Samples	1872	1329	1172	661	384	211	82	29	16	9	4	--	1	--	1
Percent of Total Samples	32.4	23.0	20.3	11.5	6.7	3.7	1.4	0.5	0.3	0.2	0.1	--	.017	--	.017

TOTAL NUMBER OF SAMPLES = 5,771

APPENDIX I. PERCENTAGE OF SAMPLES vs. NUMBER OF RESIDUES DETECTED PER SAMPLE

	Number of Residues Detected per Sample														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Fresh:	Percent														
Apples (530 Samples)	1.7	5.8	14.5	26.4	24.5	15.3	6.2	2.5	1.3	1.3	0.4	--	--	--	--
Carrots (500 Samples)	22.4	27.6	25.6	16.2	4.6	3.2	0.2	0.2	--	--	--	--	--	--	--
Grapes (525 Samples)	20.0	21.9	25.1	13.7	9.9	6.5	1.7	1.0	0.2	--	--	--	--	--	--
Oranges (519 Samples)	15.6	38.0	28.9	14.3	2.7	0.4	0.2	--	--	--	--	--	--	--	--
Peaches (329 Samples)	4.0	11.9	22.5	21.9	20.7	10.0	5.5	2.1	1.2	0.3	--	--	--	--	--
Spinach (525 Samples)	11.6	25.3	32.6	13.5	8.2	5.5	1.7	0.4	0.4	--	0.4	--	0.2	--	0.2
Sweet Potatoes (511 Samples)	32.9	47.4	12.5	5.3	1.2	0.8	--	--	--	--	--	--	--	--	--
Tomatoes (179 Samples)	35.8	26.8	16.2	8.4	5.6	2.2	3.9	--	1.1	--	--	--	--	--	--
Processed:															
Apple Juice (179 Samples)	33.5	35.2	16.8	8.9	5.0	0.6	--	--	--	--	--	--	--	--	--
Green Beans (531 Samples)	46.1	15.1	23.7	9.0	4.1	0.9	0.6	0.2	--	0.2	--	--	--	--	--
Sweet Corn (173 Samples)	100.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sweet Peas (355 Samples)	78.9	13.0	7.6	0.6	--	--	--	--	--	--	--	--	--	--	--
Number of Samples	1371	1132	1008	618	377	209	81	29	16	9	4	--	1	--	1
Percent of Total Samples	28.2	23.3	20.8	12.7	7.8	4.3	1.7	0.6	0.3	0.2	0.1	--	.017	--	.017

TOTAL NUMBER OF FRUIT & VEGETABLE SAMPLES = 4,856

Grain: Wheat (340 Samples)

Number of Samples	31	92	164	43	7	2	1	--	--	--	--	--	--	--	--
Percent	9.1	27.1	48.2	12.6	2.1	0.6	0.3	--	--	--	--	--	--	--	--

Dairy: Milk (575 Samples)

Number of Samples	470	105	--	--	--	--	--	--	--	--	--	--	--	--	--
Percent	81.7	18.3	--	--	--	--	--	--	--	--	--	--	--	--	--

Appendix J

Distribution of Presumptive Tolerance Violations

(Across all commodities)

Appendix J shows the distribution of presumptive tolerance violations reported in 1996 samples across all commodities. In 1996, the following commodities were analyzed:

- **4,856 Fruit and Vegetable samples were analyzed. A total of 196 samples (4.0%) were reported as presumptive tolerance violations.**
- **340 Wheat samples were analyzed. One sample (0.29%) was reported as a presumptive tolerance violation.**
- **575 Domestic Milk samples were analyzed. One sample (0.17%) was reported as a presumptive tolerance violation.**

Nine samples were reported which contained residues that exceeded the established EPA tolerances including;

In Sweet Potatoes (5)
1 sample with Carbaryl
2 samples with Chlorpyrifos
2 samples with Thiabendazole.

In Spinach (2)
1 sample with Dimethoate
1 sample with Endosulfan Sulfate

In Grapes (1)
1 sample with 3-Hydroxycarbofuran

In Wheat (1)
1 sample withTrifluralin

Pesticide residue established tolerances for pesticide/commodity pairs in PDP span several orders of magnitude--from 0.01 ppm for heptachlor/oranges (FDA action level), to 100 ppm for captan/spinach. Of the 198 reported samples containing violations (243 violations), 168 samples contained a single residue, 23 samples contained two residues, 3 samples contained three residues, 1 sample contained four residues, 2 samples contained five residues, and 1 sample contained six residue violations. Approximately half of the reported presumptive violations were in spinach.

APPENDIX J. DISTRIBUTION OF PRESUMPTIVE TOLERANCE VIOLATIONS

	Commodity	Samples Screened	Samples Reported as PTV	% of Samples with PTV	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
1	**Apple Juice**							
	Acephate	177	1	0.6	0.004	0.004	0.002 - 0.008	NT
	Methamidophos	177	2	1.1	0.006	0.006	0.001 - 0.006	NT
	** Total Samples Taken*	*179*	*3*	*1.7*				
2	**Apples**							
	Chlorothalonil	530	4	0.8	0.030	0.030	0.004 - 0.018	NT
	Chlorpropham	530	2	0.4	0.013	0.020	0.006 - 0.031	NT
	Dicloran	530	1	0.2	0.019	0.019	0.001 - 0.016	NT
	Imazalil	530	1	0.2	0.092	0.092	0.009 - 0.15	NT
	Iprodione	530	3	0.6	0.014	0.025	0.008 - 0.090	NT
	** Total Samples Taken*	*530*	*11*	*2.1*				
3	**Carrots**							
	Acephate	500	2	0.4	0.004	0.010	0.002 - 0.006	NT
	Chlorpyrifos	500	7	1.4	0.005	0.074	0.003 - 0.011	NT
	Ethion	500	4	0.8	0.007	0.007	0.001 - 0.006	NT
	Phosphamidon	500	1	0.2	0.16	0.16	0.002 - 0.093	NT
	Hexachlorobenzene	500	1	0.2	0.005	0.005	0.002 - 0.004	NT
	** Total Samples Taken*	*500*	*15*	*3.0*				
4	**Grapes**							
	3-Hydroxycarbofuran	525	1	0.2	0.024	0.30	0.010 - 0.076	0.2
	Chlorothalonil	420	1	0.2	0.012	0.012	0.006 - 0.008	NT
	Chlorpropham	525	1	0.2	0.020	0.020	0.006 - 0.020	NT
	Chlorpyrifos	525	13	2.5	0.005	0.44	0.003 - 0.011	0.5 R
	Hexachlorobenzene	525	1	0.2	1.3	1.3	0.002 - 0.004	NT
	** Total Samples Taken*	*525*	*17*	*3.2*				
5	**Green Beans**							
	Demeton S sulfone	81	11	13.6	0.005	0.010	0.003 - 0.006	NT
	Methamidophos	531	3	0.6	0.004	0.22	0.001 - 0.006	NT
	Permethrins	531	2	0.4	0.016	0.10	0.005 - 0.040	NT
	o-Phenylphenol	446	9	2.0	0.025	0.025	0.003 - 0.015	NT
	** Total Samples Taken*	*531*	*25*	*4.7*				
6	**Milk**							
	o-Phenylphenol	202	1	0.5	0.010	0.010	0.006	NT
	** Total Samples Taken*	*575*	*1*	*0.2*				

	Commodity	Samples Screened	Samples Reported as PTV	% of Samples with PTV	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
7	**Oranges**							
	Diphenylamine	454	1	0.2	0.086	0.086	0.010 - 0.027	NT
	Endosulfan sulfate	518	5	1.0	0.005	0.005	0.001 - 0.010	NT
	** Total Samples Taken*	*519*	*6*	*1.2*				
8	**Peaches**							
	DCPA	324	1	0.3	0.013	0.013	0.002 - 0.008	NT
	Diphenylamine	280	5	1.8	0.017	0.16	0.010 - 0.030	NT
	Imazalil	324	4	1.2	0.017	0.017	0.009 - 0.055	NT
	Methamidophos	324	1	0.3	0.005	0.005	0.001 - 0.019	NT
	Thiabendazole	324	2	0.6	0.042	0.042	0.025 - 0.061	NT
	** Total Samples Taken*	*329*	*13*	*3.9*				
9	**Peas (Sweet)**							
	Methamidophos	355	1	0.3	0.005	0.005	0.002 - 0.004	NT
	o-Phenylphenol	355	9	2.5	0.015	0.025	0.003 - 0.015	NT
	** Total Samples Taken*	*355*	*10*	*2.8*				
10	**Spinach**							
	Acephate	517	16	3.1	0.004	0.12	0.002 - 0.024	NT
	Atrazine	517	2	0.4	0.033	0.033	0.003 - 0.020	NT
	3-Hydroxycarbofuran	517	1	0.2	0.033	0.033	0.010 - 0.070	NT
	Chlorothalonil	517	4	0.8	0.007	0.88	0.003 - 0.018	NT
	Chlorpyrifos	517	26	5.0	0.003	0.030	0.002 - 0.009	NT
	Cypermethrins	302	3	1.0	0.033	0.42	0.020 - 0.046	NT
	DCPA	517	16	3.1	0.005	0.030	0.003 - 0.020	NT
	Demeton S sulfone	79	1	1.3	0.013	0.013	0.003 - 0.006	NT
	Dicloran	516	17	3.3	0.002	0.051	0.001 - 0.016	NT
	Dimethoate	517	1	0.2	0.003	4.6	0.002 - 0.015	2
	Endosulfan sulfate	517	1	0.2	0.002	2.4	0.001 - 0.010	2
	Esfenvalerate	269	1	0.4	0.042	0.042	0.015 - 0.31	NT
	Fenvalerate	491	1	0.2	0.050	0.050	0.007 - 0.29	NT
	Iprodione	517	2	0.4	0.025	0.050	0.015 - 0.090	NT
	Linuron	79	1	1.3	0.005	0.005	0.003 ^	NT
	Methamidophos	517	19	3.7	0.002	0.031	0.001 - 0.019	NT
	Oxamyl	517	2	0.4	0.015	0.082	0.010 - 0.048	NT
	o-Phenylphenol	441	3	0.7	0.016	0.016	0.010 - 0.066	NT
	Piperonyl butoxide	79	1	1.3	0.060	0.060	0.040 ^	NT
	Quintozene (PCNB)	517	4	0.8	0.002	0.015	0.001 - 0.006	NT
	Pentachloroaniline	104	2	1.9	0.002	0.002	0.001 - 0.003	NT
	** Total Samples Taken*	*525*	*124*	*23.6*				

Commodity	Samples Screened	Samples Reported as PTV	% of Samples with PTV	Minimum Value Detected, ppm	Maximum Value Detected, ppm	Range of LODs, ppm	Tolerance Level, ppm
11 Sweet Potatoes							
Acephate	507	2	0.4	0.007	0.008	0.002 - 0.005	NT
Carbaryl	507	1	0.2	0.67	0.67	0.006 - 0.076	0.2
Chlorpropham	507	1	0.2	0.013	0.013	0.006 - 0.020	NT
Chlorpyrifos	507	2	0.4	0.005	0.086	0.003 - 0.011	0.05
Diphenylamine	507	1	0.2	0.015	0.015	0.008 - 0.015	NT
Methamidophos	507	2	0.4	0.005	0.006	0.001 - 0.004	NT
Thiabendazole	507	2	0.4	0.050	0.15	0.011 - 0.045	0.02
** Total Samples Taken*	*511*	*11*	*2.2*				
12 Tomatoes							
Acephate	174	1	0.6	0.007	0.007	0.002 - 0.006	NT
3-Hydroxycarbofuran	174	1	0.6	0.024	0.024	0.010 - 0.020	NT
Iprodione	174	3	1.7	0.10	0.14	0.015 - 0.060	NT
Myclobutanil	174	1	0.6	0.025	0.025	0.010 - 0.046	NT
** Total Samples Taken*	*179*	*6*	*3.3*				
13 Wheat							
Trifluralin	340	1	0.3	0.012	0.16	0.007	0.05
** Total Samples Taken*	*340*	*1*	*0.3*				

KEY

* Total reflects table 3 figures, in some cases not all pesticides were screened due to multiple labs reporting.

^ Only one LOD reference for the pair. Either 1 laboratory reporting or more than one laboratory with the same LOD.

NT No tolerance level was set for that pesticide / commodity pair.

@ All other residues were detected in combination with acephate, for which a tolerance exists.

R Regional tolerance.

Where the minimum detected value is less than the limit of quantitation (3 times the limit of detection), the reported values are estimates. In a few cases, this may apply to the maximum detected value.

PESTICIDE DATA PROGRAM

Annual Summary Calendar Year 1996

Your satisfaction is very important to us and we welcome your comments and suggestions. Thank you for taking a moment to fill out and return this card.

How would you rate this document on:	**Good**	**Fair**	**Poor**
Visual Presentation?	☐	☐	☐
Ease of Readability?	☐	☐	☐
Information Provided?	☐	☐	☐

Comments/ Suggestions: (Attach additional pages if needed)

_____

_____

_____

_____

_____

How did you obtain this copy?_____

Would you like additional copies? (limit 10 per person, 25 per organization)

Requested _____ Mailing Address _____

_____

_____

Would you like to have your name/organization added to our mailing list?

_____

Mail or Fax to:

Dr. Robert L. Epstein, Associate Deputy
Administrator for Science and Technology
Agricultural Marketing Service, USDA
P.O. Box 96456, Room 3522-S, Stop Code 0222
Washington, DC 20090-6456

Facsimile: 703-369-0678