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Pesticide Residues in Produce Sold in Connecticut 2005

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INTRODUCTION

As directed by State law, The Connecticut Agricultural Experiment Station (CAES) published its first annual report on the adulteration of food entitled "Examination of Food Products Sold in Connecticut" in 1896 (Johnson, 1896) which contained data for the calendar year 1895. CAES personnel have published an annual report on the adulteration of food sold within the State ever since.

Beginning with the inception of our market basket study in 1963, Connecticut is the only state in New England that has continuously monitored its food supply for pesticide residues in cooperation with the Connecticut Department of Consumer Protection (DCP). Food commodities included in all these studies were not only grown in Connecticut, but also in other parts of the world. The results of the pesticide monitoring study have been published, at least in part, on an annual basis since 1963; and in a bulletin of the present form since 1988.

In the United States there are three currently government agencies that share responsibility for the regulation of pesticides: The Environmental Protection Agency (EPA), The Food Safety Inspection Service of the United States Department of Agriculture (FSIS-USDA), and the Food and Drug Administration (FDA). Since its inception in 1970 (Reorganization plant No. 3, 1970), it has been the responsibility of the EPA to register (i.e., approve) for use and set pesticide residue tolerances (Vida Infra) if the use of a particular pesticide may result in residues on food. EPA it was retroactively granted these responsibilities under the Food, Drug and Cosmetic Act (FDCA) (FDCA, 1938), and under the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) (FIFRA, 1947).

The EPA was granted the ability to establish co-operative agreements with Federal, State, and Local Agencies under the provisions of its formation in 1970 for the enforcement of food tolerances (Reorganization plan No.3, 1970). The EPA relies upon the USDA and the FDA for Federal enforcement of food adulteration. The FDA in turn has established co-operative agreements with 41 states, the District of Columbia, Puerto Rico, and the National Association of State Departments of Agriculture.

The FSIS branch of the USDA is responsible for monitoring and enforcing tolerances of pesticide residues on meat, poultry and certain egg products through three separate acts. The FDA is charged with a broader mandate under FIFRA. One mandate is the enforcement of tolerances in or on imported and domestic foods (predominantly fresh fruits and vegetables but also processed food). If the quantity of residues exceeds the tolerance, the food is considered "adulterated," and the full authority of the FDA may be brought to bear (Vida Infra).

The FDA approach to pesticide residue monitoring, the model adopted as closely as possible for the market basket study described in this bulletin, involves collecting samples of individual lots of domestically produced and imported foods as close as possible to their point of entry into the distribution system; both the federal and state programs include the analysis of processed and raw foods for pesticide residues. When illegal pesticide residues are found, the FDA, or for samples grown in Connecticut, DCP, can impose various sanctions, including seizure of the commodity or injunction. For those samples imported into the US, shipments will be stopped at the port of entry if they are found to contain illegal residues. If there is reason to believe that future lots from a particular foreign grower or geographic region may be in violation during a given season, the FDA can invoke detention without physical examination (automatic detention). In this case, the produce will be detained at the port of entry until analysis is complete (Schierow, 2004).

A residue pesticide tolerance is a commodity-specific, federally established upper limit to the amount of a chemical residue allowed on the individual food or feed product. This can be on a raw agricultural commodity at the time of harvest as dictated in the FDCA, and now applies uniformly to fresh and processed food or feed commodities under the Food Quality Protection Act of 1996 (FQPA) (FQPA, 1996) (See also Table 4). A chemical residue includes the parent compound plus any degradates or metabolites. All substances intentionally applied to an agricultural crop must have a tolerance, or exemption from tolerance, established (40 CFR 180, 2005). Tolerances impact food safety by limiting the concentration of a pesticide residue allowed on a commodity and by limiting the type of commodity on which it is allowed. Tolerances are the only tool the EPA has under Federal law to control the quantity of pesticides on the food we consume.

To be able to enforce the EPA mandated tolerances, both the FDA and DCP must know the quantity and the type of pesticide residue present in foodstuffs offered for sale. The DCP uses the analytical laboratories at the CAES to perform analysis of foods sold within Connecticut for pesticide residues. In 2005, the CAES was recognized as one of 8 state laboratories to enter into a Cooperative Agreement Program (CAP) with the USDA/FDA as part of the Food Emergency Response Network (FERN) under the authority of the Department of Homeland Security (DHS).

The Department of Analytical Chemistry at CAES in conjunction with DCP examines foods sold in this state for pesticide residues. This market basket survey concentrates on fresh produce grown in this state, but also includes fresh produce from other states and foreign countries and some processed food. The primary goal of this program is to determine if the amounts and types of pesticides found on fruits and vegetables are in accordance with the tolerances set by EPA. Violations of the law occur when pesticides are not used in accordance with label registration and are applied in excessive amounts, or when pesticides are accidentally or deliberately applied to crops on which they are not allowed. The FDA did not examine any samples from Connecticut for pesticide residues between 2000 and 2002 (FDA, 2002 and references cited therein), and only 25 samples in 2003 (FDA, 2005) since it relied on the CAES/DCP market basket project for pesticide residue surveillance on foods sold in Connecticut.

METHODS

Samples of produce grown in Connecticut, other states, and foreign countries are collected at various Connecticut producers, retailers, and wholesale outlets by inspectors from the DCP. The samples collected are brought to our laboratory in New Haven for pesticide residue testing. These market basket samples are collected without prior knowledge of any pesticide application.

Commodities are tested for pesticides using a multi-residue method developed in our laboratories (Pylypiw, 1993). In most cases, each sample is prepared in its natural state as received, unwashed and unpeeled, but in all cases samples are processed according to the Pesticide Analytical Manual (PAM, 1994). The sample is chopped and a portion is placed into a blender. Organic solvents are added and the mixture is blended to extract the pesticides from the sample. Interfering co-extracted compounds are removed from the solvent extract by washing with water. A small amount of the extract is then injected into various gas chromatographic (GC) instruments to determine how much, if any, pesticide(s) are present. Our method is capable of determining pesticides with recoveries ranging from 81 percent to 114 percent, and has an average detection limit of 10 parts per billion. Our method is able to detect over 100 different pesticides in a wide range of foods.

From 1963 through 1993, the detection of pesticide residues in food extracts was performed by GC employing various highly sensitive detection devices, each individually specific to certain elements contained within the pesticide being analyzed. Initially the halogenated pesticides could be determined by employing a hydrogen flame detector. This served well for the detection of the early generation of pesticides most of which were highly halogenated. In 1965, a sodium Thermionic Emission Detector (TED) was built in our laboratories and used for the detection of those insecticides containing phosphorous.

These early detectors, of relatively low sensitivity, gave way to newer, more specialized detectors in the 1970's and 1980's. Detectors such as the Nitrogen Phosphorous Detector (NPD), and the Hall Electrolytic Conductivity Detector (ELCD) specific and highly sensitive for nitrogen, phosphorous, sulfur and halogenated pesticides were routinely employed in our labs. They are, however, no longer used in our work. All of these detection devices, while extremely sensitive and accurate had a single major drawback: they could not unequivocally identify the pesticide being detected.

In the late 1980's and early 1990's, it became economically and technically feasible to couple the GC separation with Mass Spectral Detection (MSD). This method for the first time allowed the unequivocal identification and quantification of each specific pesticide residue found. It is known that each chemical or pesticide possesses its own unique chemical 'fingerprint' which allows its identity to be confirmed. This is analogous to our own fingerprints or DNA, unique to each individual. Since 1993, we have routinely confirmed pesticides found with other detectors such as the NPD and ELCD by taking its chemical 'fingerprint' with a MSD. Employing newer instrumentation purchased in 1999, all pesticide residues in food extracts are analyzed simultaneously by Electron Capture Detection (ECD), specific for halogenated and aromatic chemicals, and MSD to confirm their identity.

The amount of pesticide allowed on produce (its tolerance) according to Federal law (40 CFR 180, 2005) is expressed in terms of parts per million (ppm), however, it might also appear in the literature as parts per billion (ppb). These values are unimaginably low. In searching for 1 ppm, one might imagine searching for one second in 11 days and 6 hours, and in searching for 1 ppb one might imagine looking for 1 second in 31 years and 7 months!

In 2005, the use of a high pressure liquid chromatograph (HLPC) in tandem with the purchase of a new mass spectrometer (MS), known as HPLC/MS, increased our ability to detect different types of pesticides and obtain their chemical 'fingerprints' by using new and different methodology. It has also lowered our detection limits into the parts per trillion (ppt) realm. It follows from the discussion above that searching for 1 ppt equates to searching for one second in 31,708 years! In 2006, we plan to refine existing methodology used for the extraction of pesticide residues from sample matrices, making the extract amenable for analysis employing this new instrumentation in combination with other new GC instrumentation acquired in 2005.

RESULTS AND DISCUSSION

In 2005, a total of 163 samples representing 43 varieties of fresh and 11 varieties of processed food were tested for pesticide residues. Of the total samples tested, 125 (77%) were fresh produce, and 38 (23%) were processed foods. No pesticide residues were found in 93 (57%) of the total samples tested. A total of 109 pesticide residues were detected in the 70 (43%) remaining samples (see Tables 1, 2, & 3). There were 8 samples containing three or more residues, 6 with four or more and one sample contained five different residues. Pesticide residues were found in 67 (54%) of the fresh produce samples and 3 (8%) of the processed food samples (see Tables 1, 2 & 4) in 2005. The 54% found in fresh produce is slightly above the 1990 - 2004 average of 41% (Krol, 2005 and references cited therein). This is likely due to a seasonal variation in pesticide usage and / or sampling patterns. The 8% value for processed food is well in line with the 10.4% average for processed foods between 1996 and 2004 (see Table 4).

A more comprehensive breakdown of the data into fruit and vegetable categories is shown in Table 5, which allows for a direct comparison of the Connecticut survey with the data from the 2003 FDA Pesticide Data Program (PDP) survey. The 2003 survey was used because it is the latest data available from the FDA at the time of this writing. The 2003 – 2005 Connecticut Survey analysis results are provided with the data broken down into categories of Connecticut fresh and processed fruits; Connecticut fresh and processed vegetables; domestically grown (including those obtained from Connecticut) fresh and processed fruits; domestically grown (including those obtained from Connecticut) fresh and processed vegetables; imported fresh and processed fruits, and imported fresh and processed vegetables. From the data, one can easily discern that although the number of samples analyzed in the Connecticut survey is substantially smaller than in the FDA national survey, the relative percentages of produce with and without residues remains relatively constant with fluctuations due to the specific sample types obtained in the Connecticut survey on an annual basis. These variations in the data become less pronounced as the sampling size and range of each category increases.

In 2005, 10 (6.1%) of the total samples analyzed were certified as organic by USDA accredited, certifying agents. Six samples of fresh produce, 1 fruit (imported) and 5 vegetable (4 Connecticut grown, one from Massachusetts); and four samples of processed produce, 3 fruit (domestic ciders) and 1 vegetable (domestic lettuce) were examined. Twenty percent (20%) of organically labeled produce were found to contain pesticide residues. Two of the domestic organically grown samples of squash were found to contain chlordane (0.033 & 0.069 ppm). The uptake of Persistent Organochlorine Pesticides (POPs) by squash from contaminated soil is well documented (Pylypiw, 1991). The amount of chlordane residues found is well below the FDA action levels for poisonous or deleterious substances in human food and animal feed of 0.1 ppm (FDA, 2000). The National Organic Program (NOP) standard for POPs as Unavoidable Residual Environmental Contamination (UREC) is defined as the FDA action level (7 CFR 205, 2000) described above. Although all this produce was grown in accordance with the NOP standards, some were found to contain pesticides and, in accordance with Federal law, they are permitted to be sold as 'Certified Organic.'

In 2005, the average pesticide residue found in samples containing residues was 0.953 ppm. The average value for all pesticide residues found since 1990 in Connecticut was 0.453 ppm. The minimum amount of residue detected in 2005 was 4 ppb of chlorothalonil on a sample of squash, and the maximum amount of pesticide residue found was 17 ppm of sulfur on a sample of grapes. Sulfur is generally recognized as safe (GRAS, see 40 CFR 180, 2005) by the EPA and, therefore, has no tolerance. The maximum concentration of a synthetic pesticide residue in 2005 was 13.4 ppm of iprodione on a sample of peaches. These minimum and maximum values compare to the minimum concentration of 1 ppb and maximum concentration of 82 ppm of pesticide residues found on samples since 1990.

Of the 163 samples analyzed in 2005, there were 3 samples (1.8%) that contained pesticide residues for which there is no EPA tolerance. These samples all originated within the

State of Connecticut and, since the CAES has no regulatory enforcement capability, the results were forwarded to the DCP for enforcement. A sample of strawberries grown in Connecticut was found to contain residues of the fungicide Ronilin® (vinclozolin). Viclozolin was widely used on strawberries until its tolerance was terminated in 1998 under the provisions of the FQPA (FQPA, 1996). The residue levels of 0.08 ppm found in the 2005 sample were 100 fold below the previously revoked tolerance of 10 ppm. Due to public comment received by the EPA, it was permissible to use existing stocks of vinclozolin until January 30, 2000 after which its application to strawberries became unlawful (FDA Guidance for Industry, 2002, Federal Register 2002, Viclozolin). A sample of apples was found to contain residues of chlorothalonil at 0.056 ppm. The third violation was that of 0.06 ppm chlorothalonil on bell peppers. Chlorothalonil has a tolerance level of 5 ppm on all other type of peppers, but it is not allowed on bell peppers (PCNG, 2006, 40 CFR 180, 2005). In all these cases, the growers were notified of their respective violations by DCP. As a direct consequence of third violative analysis, and by working in close co-ordination with representatives of the State DCP and the Department of Environmental Protection (DEP), the grower willfully destroyed a crop of eggplant due to the misapplication of this same pesticide. The eggplants were never sampled for pesticide residues, and never reached the consumer.

CONCLUSIONS

In conclusion, as can be seen in Table 3, 57% of the 163 produce samples analyzed in 2005 as part of this yearly survey contained no pesticide residues. A total of 107 residues were detected in the remaining 43% of the samples in the range of 0.004 – 17 ppm, with an average residue value of 0.953 ppm. The value of 57% is in line with the average value found in our survey in previous years (1990-2004), which was 64.7%. From 1990 through 2005, a total of 4846 food samples were analyzed. A total of 3103 samples were found to contain no residues, and a total of 1675 samples were found to contain residues within EPA tolerances, with an average residue value of 0.453 ppm. Over the complete 15-year time span (1990-2005), there were 9 samples that contained pesticide residues that were over EPA tolerance levels. Since 1990, a total of 59 samples were found to contain residues with no EPA tolerance due to spray drift or misapplication of pesticides to food products. Over the past year, there were 3 samples with residues with no EPA tolerance which were grown within the State of Connecticut. A breakdown of the results of our survey into fruit and vegetable categories allows a direct comparison of our results to those obtained from the FDA PDP study. Sampling of 10 organically grown samples of produce indicated that 2 samples (20%) contained pesticide residues, which can legally be sold as 'certified organic' under the current law. The results of all analysis have been forwarded to DCP for regulatory enforcement purposes.

ACKNOWLEDGEMENTS
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Table 1. Summary of Pesticides Found in Fresh Fruits and Vegetables Sold in Connecticut, 2005.

Commodity	Pesticide	Samples with Residues	No. of Times Detected	Residue Range (ppm)	EPA Tolerance (ppm)
Apples (21 samples)		17			
	Captan		14	0.02-1.24	25
	Chlorothalonil		1	0.056	0[(c)]
	Chloropyrifos		1	0.012	1.5
	Dipenylamine		2	2.2-2.4	10
	Endosulfan		4	0.014-0.091	2.0
	Fenpropathrin		2	0.248-2.52	5.0
	Phosmet		1	0.016	5.0
Beans, Snap (3 samples)		3			
	Chlorothalonil		3	0.009-0.103	5.0
	Endosulfan		1	1.04	2.0
Blueberries (3 samples)		0			
Broccoli (1 sample)		1			
	Sulfur		1	10	GRAS[(b)]
Cherries (1 sample)		1			
	Iprodione		1	10.2	20
Collards (2 samples)		0			
Cranberries (2 samples)		2			
	Chlorothalonil		2	0.081-0.247	5.0
Cucumbers (3 samples)		2			
	Endosulfan		2	0.021-0.068	2.0
Grapes (1 sample)		1			
	Sulfur		1	17	GRAS[(b)]
Lettuce (3 samples)		2			
	Benefin		1	0.03	0.05
	Endosulfan		1	0.01	2.0
	Permethrin		1	0.42	20
	Trifluralin		1	0.03	0.05
Nectarine (1 sample)		1			
	Captan		1	0.57	50
Peaches (6 samples)		5			
	Captan		3	0.02-0.71	50
	Febuconazole		1	0.21	2.0
	Iprodione		1	13.4	20
	Phosmet		1	0.076	10

Pears (8 samples)		4		
	Boscalid	1	0.02	3.0
	Captan	1	1.242	10
	Endosulfan	2	0.073-0.140	2.0
	Fenpropathrin	1	0.22	5.0
	Permethrin	1	0.016	3.0
	Phosmet	1	0.114	10
	Sulfur	1	5.0	GRAS[b]
Peppers (2 samples)		0		
Peppers, Bell (1 sample)		1		
	Chlorothalonil	1	0.06	0[c, d]
Peppers, Frying (2 samples)		1		
	Chlorothalonil	1	0.043	5.0
Plums (2 samples)		2		
	Iprodione	2	0.75-2.4	20
Potatoes (5 samples)		2		
	CIPC	2	0.6-6.8	50
Squash, Summer (10 samples)		5		
	Chlorothalonil	1	0.004	5.0
	Chlordane	4	0.026-0.08	0.1[a]
	Dieldrin	1	0.07	0.1[a]
Squash, Winter (2 samples)		1		
	Chlordane	1	0.05	0.1[a]
	Dieldrin	1	0.03	0.1[a]
Strawberries (16 samples)		14		
	Bifenthrin	3	0.024-0.11	3.0
	Captan	10	0.026-5.4	25
	Cyprodinil	6	0.006-0.34	5.0
	Endosulfan	4	0.091-0.88	2.0
	Fenhexamid	3	0.18-0.36	3.0
	Fenpropathrin	2	0.08-0.33	2.0
	Fludioxonil	2	0.11-0.16	2.0
	Vinclozolin	1	0.08	0[c]
Tomatoes (10 samples)		2		
	Bifenthrin	1	0.04	0.15
	Chlorothalonil	2	0.01-0.012	5.0
	Endosulfan	2	0.012-0.023	2.0
	Malathion	1	0.058	8
Miscellaneous (1 each)		0		

Artichokes, Asparagus, Avocado, Cabbage, Cantaloupe, Carrots, Corn, Endive, Garlic, Ginger Root, Limes, Mushrooms, Okra, Peas (Snap), Plantains, Raspberries, Turnips, Watermelon, Yams (True), Yuca.

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[a] Action level as per FDA Compliance Policy Guidelines

[b] GRAS = Generally Recognized as Safe, these chemicals are exempt from tolerances.

[c] Violative sample, no tolerance.

[d] Chlorothalonil is allowed on peppers in general, however, it is specifically not allowed on Bell Peppers.

Table 2. Summary of Pesticides Found in Processed Fruits and Vegetables Sold in Connecticut, 2005.

Commodity	Pesticide	Samples Analyzed	Samples with residues	No. of times detected	Residue range (ppm)
Juices					
Apple Cider/Juice		20	0		
Vegetables*					
Asparagus		1	0		
Beets		1	0		
Carrots		1	0		
Greens, Mixed		1	0		
Peaches		2	0		
Pears		3	0		
Peas		1	0		
Potatoes		3	0		
Romaine Salad		1	1		
	Permethrin			1	0.15
Spinach		4	2		
	Permethrin			2	1.5 – 2.0
Total		38	3	3	

*The mixed greens and one spinach sample had been washed, and/or chopped and packaged; the remaining samples were canned or jarred.

Table 3. Summary of All Market Basket Samples, Including Organic and Processed Food Since 1990.

Year	Total Samples Tested	Samples with NO Residues	Samples With Residues Within EPA Tolerances	Samples With Residues Over EPA Tolerances	Samples With Residues With NO EPA Tolerance
1990	418	186	230	0	2
1991	285	190	94	0	1
1992(d)	273	179	89	1	4
1993	443	305	128	3	7
1994	545	414	125	1	5
1995	444	307	129	0	8
1996	327	188	134	1(a)	4
1997	412	266	144	0	2
1998	180	115	63	0	2
1999(e)	195	115	72	0	8
2000	145	90	54	1	0
2001	315	201	112	0	2
2002	206	137	68(b)	0	1
2003	298	195	95	1	7(c)
2004	197	122	71	1	3
2005	163	93	67	0	3
Total	4846	3103	1675	9	5

(a) Over FDA Action Level.
(b) Two samples listed as Organic, but below 5% of the EPA Tolerance.
(c) Includes two “action level” violations, DDE is not allowed in Broccoli Rabe.
(d) 1992 MSD Confirmation Began.

(e) 1999 ALL Samples Analyzed by ECD and MSD Beginning in this Year.

Table 4. Samples Analyzed by CAES Market Basket Survey and Those Containing Residues Since the Inception of the FQPA Codifying Tolerances on Fresh and Processed Commodities.

Year	Total Samples	Samples of Fresh Foods (% of total)	Samples of Processed Foods (% of total)	Fresh foods with residues (% of fresh foods)	Processed foods with residues (% of processed foods)
1996	327	281 (86%)	46 (14%)	136 (48%)	2 (5%)
1997	412	354 (86%)	58 (14%)	130 (37%)	6 (10%)
1998	180	161 (89%)	19 (11%)	63 (35%)	2 (10%)
1999	195	143 (73%)	52 (27%)	70 (49%)	10 (19%)
2000	145	120 (83%)	25 (17%)	55 (42%)	5 (20%)
2001	315	229 (73%)	86 (27%)	108 (47%)	6 (7%)
2002	206	162 (79%)	44 (21%)	67 (42%)	2 (4.5%)
2003	298	235 (79%)	63 (21%)	96 (40%)	7 (11%)
2004	197	169 (86%)	28 (14%)	71 (42%)	4 (14%)
2005	163	125 (77%)	38 (23%)	67 (54%)	3 (8%)

Table 5. Breakdown of Data by Sample Type and Comparison of FDA Data with Data Obtained in Our Survey.

2003 FDA Summary Data	Total Samples	No Residues	Non-Violative Residues	Violative Residues	Tolerance Over	Tolerance No
FDA Domestic Fresh & Processed Fruits	**813**	**395** (49.0%)	**400** (49.0%)	**18** (2.0%)	0	18
FDA Domestic Fresh & Processed Vegetables	**1132**	**783** (69.1%)	**327** (29.0%)	**22** (1.9%)	1	21
FDA Fresh & Processed Imported Fruits	**1537**	**977** (63.6%)	**478** (31.1%)	**82** (5.3%)	3	79
FDA Fresh & Processed Imported Vegetables	**2494**	**1808** (72.5%)	**519** (20.8%)	**167** (6.7%)	15	152
2003 Connecticut Summary Data[1]						
CT Fresh & Processed Fruit	**76**	**50** (65.8%)	**26** (34.2%)	**0** (0.0%)	0	0
CT Fresh & Processed Vegetables	**57**	**36 (63.2%)**	**17** (29.8%)	**4** (7.0%)	0	4
Domestic Fresh & Processed Fruit (incl. CT)	**129**	**81** (62.8%)	**46** (35.7%)	**2** (1.5%)	1	1
Domestic Fresh & Processed Vegetables (incl. CT)	**136**	**79** (58.1%)	**32** (23.5%)	**6** (4.4%)	0	6
Imported Fresh & Processed Fruit	**32**	**20** (62.5%)	**12** (37.5%)	**0** (0.0%)	0	0
Imported Fresh & Processed Vegetables	**14**	**11** (78.6%)	**3** (21.4%)	**0** (0.0%)	0	0
2004 Connecticut Summary						
CT Fresh & Processed Fruit	**69**	**35** (50.7%)	**32** (46.4%)	**2** (2.9%)	0	2
CT Fresh & Processed Vegetables	**54**	**37** (68.5%)	**17** (31.5%)	**0** (0.0%)	0	0
Domestic Fresh & Processed Fruit (incl. CT)	**99**	**54** (54.6%)	**43** (43.4%)	**2** (2.0%)	0	2
Domestic Fresh & Processed Vegetables (incl. CT)	**75**	**54** (72.0%)	**21** (28.0%)	**0** (0.0%)	0	0
Imported Fresh & Processed Fruit	**10**	**7** (70.0%)	**3** (30.0%)	**0** (0.0%)	0	0
Imported Fresh & Processed Vegetables	**13**	**7** (53.8%)	**5** (38.5%)	**1** (7.7%)	0	1
2005 Connecticut Summary[2]						
CT Fresh & Processed Fruit	**54**	**22** (40.7%)	**30** (55.6%)	**2** (3.7%)	0	2
CT Fresh & Processed Vegetables	**32**	**21** (65.6%)	**10** (31.3%)	**1** (2.9%)	0	1
Domestic Fresh & Processed Fruit (incl. CT)	**79**	**38** (48.1%)	**39** (49.4%)	**2** (2.5%)	0	2
Domestic Fresh & Processed Vegetables (incl. CT)	**51**	**31** (60.8%)	**19** (37.3%)	**1** (1.9%)	0	1
Imported Fresh & Processed Fruit	**12**	**7** (58.3%)	**5** (41.7%)	**0** (0.0%)	0	0
Imported Fresh & Processed Vegetables	**8**	**6** (75.0%)	**2** (25.0%)	**0** (0.0%)	0	0

[1]Does not include data for 3 samples of unknown origin.

[2] Does not include data for 13 samples of unknown origin.

Notes

Notes