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Fruit and Vegetable Agricultural Practices - 1999

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Table of Contents

Page

Overview	2
Number of Summarized Reports	3-4
Program Coverage by Commodity	5-6
Highlights	7-8

Grower Agricultural Practices

Field Environment	9-16
Irrigation	17-26
Organic Fertilizers	27-36
Harvest Methods and Equipment	37-58
Packing Methods	59-62
Harvest Workers	63-67
Food Safety Training	68-79
Trace Back Information	80-85

Packer Agricultural Practices

Buyer Food Safety Requirements, Organically Grown and Exports	86-88
Packing Workers	89
Food Safety Training and Procedures	90-115
Field Packing	117-139
Location for Packing	116, 140-143
Facility Packing	144-166
Trace Back Information	167-172
Terms and Definitions	173-175
Survey Procedures	176
Reliability	177
Report Features/Contacts	178

1999 Fruit and Vegetable Agricultural Practices

Overview: In October 1997, the President signed a directive entitled “Initiative to Ensure the Safety of Imported and Domestic Fruits and Vegetables.” Part of this initiative directed the Secretary of Health and Human Services, in partnership with the Secretary of Agriculture and in close cooperation with the agricultural community to issue guidance on good agricultural practices (GAPs) for fresh fruits and vegetables to ensure the safety of the Nation’s food supply. To comply with this directive, the Food and Drug Administration (FDA) and the USDA issued a document entitled “Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables”. The document discusses potential sources of microbial contamination to produce including: water, manure, worker, field and facility sanitation and transportation. The document also discusses trace back issues so that sources of contamination may be determined.

An important component of the President’s initiative was to develop an educational outreach program. To effectively develop an educational outreach program, a baseline of current agricultural practices needed to be established. The National Agricultural Statistics Service (NASS) in collaboration with representatives from the fruit and vegetables industries conducted the 1999 Fruit and Vegetable Agricultural Practices Survey to establish the baseline of agricultural practices.

USDA, FDA, and industry decided the most important criteria for crop inclusion in the survey was an objective selection of commodities that would provide a representative cross section of the fruit and vegetable industries. The criteria used in selecting the targeted fruits and vegetables were the following: 1) produce that are included in the top 20 fresh fruit and vegetables consumed in the United States, 2) produce with the greatest number of planted acres in the United States, and 3) produce that is predominately consumed uncooked.

To meet this criteria and to ensure statistically reliable coverage, 30 fruit and vegetable commodities in fourteen states were included in the survey (see Program Coverage tables on pages 5 and 6). The survey data pertains to the 1999 crop year unless otherwise noted.

Two populations of interest were established and surveyed. The “Grower” population consisted of producers of targeted fruit and vegetable crops harvested for fresh market utilization. The “Packer” population consisted of operations that packed these same target crops for fresh market use. These populations are not mutually exclusive because many growers are also packers.

Two independent surveys (a Grower Survey and a Packer Survey) were conducted. Growers were surveyed for information pertaining to field environment, agricultural water, organic fertilizers, harvest-field operations, harvest workers, and trace back systems. Packers were surveyed for information pertaining to packing workers, field packing, facility packing, and trace back systems.

Virtually all data in this publication are presented in terms of “percent of total”. The question format in many sections of the questionnaires involved “follow-on” questions. For example, “Was a knife used to harvest the crop?” - If yes... “Was the knife washed?” - If yes... “How frequently was it washed?”. Footnotes are provided for each data table to clarify the sub-population to which percentages pertain. If there is no footnote, the percentages pertain to “all growers” or “all packers”.

The data was summarized to provide data users two sets of statistics. The Grower data is presented in terms of “Percent of Farms” reporting an agricultural practice and corresponding “Percent of Acres” on which the agricultural practice was applied. Similarly, the Packer data are presented in terms of “Percent of Packers” and corresponding “Percent of Volume”. In both the grower and packer populations, the majority are small operations such as roadside stand grower-packers. The “Percent of Farms” and “Percent of Packers” are provided more for educational extension analysis where as “Percent of Acres” and “Percent of Volume” are more appropriate for food safety analysis.

Percentages may not add to 100 due to rounding. Percentages in some data tables will add to more than 100 when respondents could respond positively to more than one response option.

**Number of Summarized Reports
Grower Agricultural Practices
Fruit Program States, 1999**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>
823	133	349	103	47

Target Fruit Crop (continued)				
Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines
<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>
24	70	30	29	41

Target Fruit Crop (continued)					
Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>
123	658	384	48	99	2,961

**Number of Summarized Reports
Grower Agricultural Practices
Vegetable Program States, 1999**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>
47	409	192	121	103

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>
20	302	22	89	53

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Straw- berries	Tomatoes	Watermelons	All Vegetables
<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>
475	273	745	646	409	3,906

**Number of Summarized Reports
Packer Agricultural Practices
Fruit Program States, 1999**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>
371	23	79	50	24

Target Fruit Crop (continued)				
Kiwifruit	Lemons	Limes	Nectarines	Oranges
<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>
12	12	3	21	80

Target Fruit Crop (continued)				
Peaches	Pears	Plums	Tangerines	All Fruit
<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>
270	108	28	17	1,098

**Number of Summarized Reports
Packer Agricultural Practices
Vegetable Program States, 1999**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>
14	214	52	73	28

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>
29	139	21	34	23

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>	<i>no. of reports</i>
190	133	376	237	207	1,770

**Agricultural Practices Survey
1999 Crop Year
Fruit Program Coverage by Commodity**

Commodity	States in Survey	Percent of U.S. Total ¹	
		Acres Harvested for Fresh Market	Fresh Market Utilization
Apples	CA, GA, MI, NJ, NY, NC, OR, PA, SC, WA	(²)	89
Avocados	CA, FL	99	99
Cherries, Sweet	CA, MI, OR, WA	(²)	96
Grapefruit	CA, FL	(²)	85
Grapes, Table	CA	(²)	100
Grapes, Raisin	CA	(²)	100
Kiwifruit	CA	100	100
Lemons	CA	(²)	81
Limes	FL	(²)	100
Nectarines	CA	100	100
Oranges	CA, FL	(²)	94
Peaches	CA, GA, MI, NJ, NY, NC, PA, SC, WA	(²)	86
Pears	CA, NY, OR, PA, WA	(²)	99
Plums	CA	(²)	(²)
Tangerines	CA, FL	(²)	87

¹ Based on NASS estimating program.

² Not published.

**Agricultural Practices Survey
1999 Crop Year
Vegetable Program Coverage by Commodity**

Commodity	States in Survey	Percent of U.S. Total ¹	
		Acres Harvested for Fresh Market	Fresh Market Production
Broccoli	AZ, CA, TX	100	100
Cabbage	CA, FL, GA, MI, NJ, NY, NC, TX, WI	89	88
Cantaloups	AZ, CA, GA, MI, TX	92	95
Carrots	AZ, CA, MI, NY, TX, WA	96	93
Cauliflower	AZ, CA, MI, NY, TX	(²)	100
Celery	CA, MI, TX	(²)	(²)
Cucumbers	CA, FL, GA, MI, NJ, NY, NC, TX	87	95
Honeydews	AZ, CA, TX	100	100
Lettuce, Head	AZ, CA, NJ, NY	98	99
Lettuce, Other	AZ, CA, FL	99	99
Onions, Bulb	AZ, CA, GA, MI, NY, OR, TX, WA, WI	(²)	(²)
Peppers, Bell	CA, FL, MI, NJ, NC, TX	(²)	(²)
Strawberries	CA, FL, MI, NJ, NY, NC, OR, WA, WI	(²)	99
Tomatoes	CA, FL, GA, MI, NJ, NY, NC, TX	78	83
Watermelons	AZ, CA, FL, GA, NC, TX	73	81

¹ Based on NASS estimating program.

² Not published.

Highlights

Grower Practices

Field environment: Only 2 percent of vegetable acres and 1 percent of fruit acres were reported as being adjacent to a confined animal production facility. Seven percent of all fruit acres and 3 percent of all vegetable acres were reported being adjacent to a residential area. One or less than one percent of all fruit and all vegetable acres were reported located next to industry, waste disposal or landfill or manure storage sites.

Agricultural water: The percent of all fruit acres irrigated in 1999 was 92 while 93 percent of all vegetable acres were irrigated. The most common source of irrigation water was deep ground wells with 51 percent of the vegetable and 39 percent of the fruit growers reporting this source of water. Flowing surface water was the next most common source of irrigation water with 38 percent of the fruit growers and 19 percent of the vegetable growers drawing water from this source.

Organic fertilizers: Organic fertilizers are not commonly used by fruit and vegetable growers. Only 6 percent of fruit acres and 3 percent of vegetable acres were reported having manure applied in 1999. Only 2 percent of all fruit acres and 1 percent of all vegetable acres received sludge applications in 1999.

Harvest-field operations: Harvest methods across all fruit acres were 94 percent by hand only, 5 percent by hand and machine and less than 1 percent by machine only. Vegetable acres were 87 percent harvested by hand only, 8 percent by hand and machine, and 5 percent by machine only.

The most frequently used types of harvest equipment by fruit growers in 1999 (% of farms) were bins at 79 percent, bags at 57 percent, followed by trucks at 52 percent, wagons or trailers at 30 percent, and buckets or pans at 20 percent. For vegetable growers, the most common types of harvest equipment were boxes at 37 percent, trucks at 34 percent, retail packages at 31 percent, wagons or trailers at 29 percent, buckets or pans at 25 percent, and bins at 19 percent.

Seventy-seven percent of the fruit growers had their crop packed at an off-farm packing facility in 1999 while 16 percent used an on-farm packing facility and 8 percent field packed. In the field is where 40 percent of vegetable growers packed their 1999 crop followed by 36 percent using an on-farm packing facility, and 23 percent using an off-farm packing facility.

Harvest workers: The percent of harvest workers working the entire season harvesting a grower's commodity in 1999 was 76 percent for fruit and 79 percent for vegetables. Food safety related training was provided in 1999 by 93 percent of the fruit growers and 79 percent of vegetable growers.

Trace back systems: For fruit growers who did not pack their production in 1999, 90 percent of the crop from acres harvested had trace back information on the crop shipped from farm to packer. For vegetable harvested acres, 79 percent of the crop had trace back information on the crop shipped from farm to packer.

Packer Practices

Packing workers: The percent of packing workers working the entire season packing a specific commodity in 1999 was 76 percent for fruit and 75 percent for vegetables.

Food safety related training was provided in 1999 by 89 percent of the fruit packers and 82 percent of vegetable packers. Of the total volume packed, 77 percent of the fruit and 60 percent of vegetables were by workers wearing gloves.

Field packing: Only 35 percent of all fruit packers reported field packing. All packers of table grapes reported field packing followed by 43 percent of sweet cherry packers and 33 percent of apple packers. For vegetables, 57 percent of all growers reported some field packing. Broccoli had field packing reported by 99 percent of the packers followed by head lettuce at 95 percent, cauliflower at 94 percent, and watermelons at 87 percent.

Of the packers who field packed, only 12 percent of the fruit packers and 21 percent of the vegetable packers used a mobile packing unit.

Facility packing: Facility packing was reported by 83 percent of fruit packers and 72 percent of vegetable packers. The most common packing facility operations reported by fruit packers were manual packing at 77 percent, manual culling/grading/sorting at 75 percent, conveyor belt transport at 56 percent, refrigeration at 52 percent and washing at 48 percent. The most common packing facility operations reported by vegetable packers were manual packing at 90 percent, manual culling/grading/sorting at 86 percent, washing at 43 percent and refrigeration at 32 percent.

Trace back systems: Packers of fruit reported that 98 percent of the volume packed in 1999 had trace back information on the crop shipped. Vegetable packers reported 95 percent of the volume packed in 1999 had trace back information on the crop shipped.

**Grower Agricultural Practices
Field Environment - Percent of Farms
Fruit Program States, 1999**

Field located next to...	Target Fruit Crop					
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
A confined animal production facility	2	0	2	1	1	
Industry	(¹)	0	(¹)	1	0	
Waste disposal or landfill	*	0	(¹)	(¹)	0	
Manure storage	1	0	1	1	0	
Residential area	6	0	5	5	0	
Field located next to...	Target Fruit Crop (continued)					
	Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
A confined animal production facility	1	*	0	0	0	
Industry	0	0	0	0	0	
Waste disposal or landfill	0	0	0	0	0	
Manure storage	0	0	0	0	0	
Residential area	1	2	4	0	1	
Field located next to...	Target Fruit Crop (continued)					
	Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
A confined animal production facility	3	3	1	(¹)	*	2
Industry	0	(¹)	*	0	1	(¹)
Waste disposal or landfill	0	(¹)	2	(¹)	0	(¹)
Manure storage	0	(¹)	*	0	2	(¹)
Residential area	12	6	3	1	5	6

* Insufficient data.

¹ Less than one percent.

**Grower Agricultural Practices
Field Environment - Percent of Acres
Fruit Program States, 1999**

Field located next to...	Target Fruit Crop					
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table	
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	
A confined animal production facility	1	0	3	1	1	
Industry	1	0	(¹)	*	0	
Waste disposal or landfill	*	0	(¹)	(¹)	0	
Manure storage	1	0	1	(¹)	0	
Residential area	3	0	5	4	0	
Field located next to...	Target Fruit Crop (continued)					
	Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines	
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	
A confined animal production facility	2	*	0	0	0	
Industry	0	0	0	0	0	
Waste disposal or landfill	0	0	0	0	0	
Manure storage	0	0	0	0	0	
Residential area	1	1	8	0	1	
Field located next to...	Target Fruit Crop (continued)					
	Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
A confined animal production facility	1	1	1	(¹)	*	1
Industry	0	(¹)	*	0	1	(¹)
Waste disposal or landfill	0	(¹)	2	*	0	(¹)
Manure storage	0	(¹)	1	0	(¹)	(¹)
Residential area	12	10	7	1	5	7

* Insufficient data.

¹ Less than one percent.

**Grower Agricultural Practices
Field Environment - Percent of Farms
Vegetable Program States, 1999**

Field located next to...	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
A confined animal production facility	(¹)	3	2	1	(¹)	
Industry	0	(¹)	0	(¹)	(¹)	
Waste disposal or landfill	0	1	0	*	0	
Manure storage	0	1	0	(¹)	0	
Residential area	4	4	2	(¹)	5	
Field located next to...	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
A confined animal production facility	0	6	0	*	(¹)	
Industry	*	(¹)	0	1	0	
Waste disposal or landfill	3	(¹)	0	(¹)	0	
Manure storage	0	3	0	0	0	
Residential area	0	3	0	9	5	
Field located next to...	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
A confined animal production facility	1	2	2	3	3	3
Industry	(¹)	1	1	*	(¹)	1
Waste disposal or landfill	2	0	(¹)	(¹)	0	1
Manure storage	(¹)	1	(¹)	(¹)	0	(¹)
Residential area	2	5	5	3	1	4

* Insufficient data.

¹ Less than one percent.

**Grower Agricultural Practices
Field Environment - Percent of Acres
Vegetable Program States, 1999**

Field located next to...	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	
A confined animal production facility	(¹)	2	(¹)	2	(¹)	
Industry	0	(¹)	0	(¹)	(¹)	
Waste disposal or landfill	0	*	0	*	0	
Manure storage	0	(¹)	0	(¹)	0	
Residential area	2	4	7	(¹)	3	
Field located next to...	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	
A confined animal production facility	0	4	0	*	2	
Industry	*	(¹)	0	1	0	
Waste disposal or landfill	2	1	0	(¹)	0	
Manure storage	0	3	0	0	0	
Residential area	0	2	0	2	4	
Field located next to...	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
A confined animal production facility	4	(¹)	2	1	5	2
Industry	(¹)	(¹)	(¹)	*	2	(¹)
Waste disposal or landfill	*	0	(¹)	(¹)	0	1
Manure storage	(¹)	(¹)	(¹)	(¹)	0	(¹)
Residential area	*	3	9	2	(¹)	3

* Insufficient data.

¹ Less than one percent.

**Grower Agricultural Practices
Field Environment Run-off Control - Percent of Farms
Fruit Program States, 1999 ²**

Type of run-off control	ALL FRUIT				
	Field located next to...				
	A confined animal production facility	Industry	Waste disposal or landfill	Manure storage	Residential area
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Ditch	19	4	0	0	8
Vegetative buffer strip	14	35	*	36	11
Other buffer strip	2	5	*	*	4
Evaporation pond	0	0	0	0	(¹)
Retention system or pond	0	2	*	0	1
Drainage system	15	0	18	*	4
Other	15	13	*	0	11
None	34	40	47	24	61

* Insufficient data.

¹ Less than one percent.

² Percent based on number of growers reporting "Field located next to...".

**Grower Agricultural Practices
Field Environment Run-off Control - Percent of Acres
Fruit Program States, 1999 ²**

Type of run-off control	ALL FRUIT				
	Field located next to...				
	A confined animal production facility	Industry	Waste disposal or landfill	Manure storage	Residential area
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
Ditch	40	1	0	0	5
Vegetative buffer strip	11	12	16	51	22
Other buffer strip	8	65	8	*	3
Evaporation pond	0	0	0	0	(¹)
Retention system or pond	0	1	(¹)	0	(¹)
Drainage system	8	0	6	*	3
Other	6	1	25	0	8
None	27	20	44	2	59

* Insufficient data.

¹ Less than one percent.

² Percent based on number of growers reporting "Field located next to...".

**Grower Agricultural Practices
Field Environment Run-off Control - Percent of Farms
Vegetable Program States, 1999 ²**

Type of run-off control	ALL VEGETABLES				
	Field located next to...				
	A confined animal production facility	Industry	Waste disposal or landfill	Manure storage	Residential area
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Ditch	34	20	51	12	33
Vegetative buffer strip	30	*	3	6	11
Other buffer strip	16	5	44	3	2
Evaporation pond	0	0	0	1	(¹)
Retention system or pond	(¹)	33	0	1	1
Drainage system	6	3	0	2	7
Other	5	*	0	58	10
None	9	8	1	17	36

* Insufficient data.

¹ Less than one percent.

² Percent based on number of growers reporting "Field located next to...".

**Grower Agricultural Practices
Field Environment Run-off Control - Percent of Acres
Vegetable Program States, 1999 ²**

Type of run-off control	ALL VEGETABLES				
	Field located next to...				
	A confined animal production facility	Industry	Waste disposal or landfill	Manure storage	Residential area
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
Ditch	51	48	52	12	44
Vegetative buffer strip	26	3	*	1	3
Other buffer strip	5	1	47	(¹)	4
Evaporation pond	0	0	0	(¹)	(¹)
Retention system or pond	(¹)	44	0	(¹)	(¹)
Drainage system	8	*	0	4	30
Other	1	*	0	81	8
None	9	3	*	1	10

* Insufficient data.

¹ Less than one percent.

² Percent based on number of growers reporting "Field located next to...".

Grower Agricultural Practices
Field Environment Pest Control Methods - Percent of Farms
Fruit Program States, 1999

Pest control method	Target Fruit Crop					
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Traps or chemical sprays for insects	94	75	98	92	79	
Traps or chemicals for rodents	55	48	55	15	36	
Field or block maintenance	97	95	96	94	94	
Pest exclusion	18	21	14	2	8	
Pest control method	Target Fruit Crop (continued)					
	Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Traps or chemical sprays for insects	82	16	76	81	96	
Traps or chemicals for rodents	8	11	77	0	17	
Field or block maintenance	95	90	90	80	95	
Pest exclusion	0	13	0	20	3	
Pest control method	Target Fruit Crop (continued)					
	Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Traps or chemical sprays for insects	89	93	98	92	86	90
Traps or chemicals for rodents	23	27	54	19	14	34
Field or block maintenance	99	95	99	93	96	96
Pest exclusion	7	11	11	2	4	10

**Grower Agricultural Practices
Field Environment Pest Control Methods - Percent of Farms
Vegetable Program States, 1999**

Pest control method	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Traps or chemical sprays for insects	98	91	61	40	98	
Traps or chemicals for rodents	24	8	23	14	28	
Field or block maintenance	99	88	82	94	98	
Pest exclusion	1	6	21	15	2	
Pest control method	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Traps or chemical sprays for insects	84	63	73	92	89	
Traps or chemicals for rodents	18	10	4	33	34	
Field or block maintenance	96	93	94	98	94	
Pest exclusion	22	7	4	9	7	
Pest control method	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Straw-berries	Tomatoes	Water-melons	All Vegetables
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Traps or chemical sprays for insects	70	81	73	85	45	78
Traps or chemicals for rodents	14	18	22	29	9	21
Field or block maintenance	89	87	87	91	76	92
Pest exclusion	8	9	21	18	8	11

**Grower Agricultural Practices
Crop Irrigated - Percent of Farms
Fruit Program States, 1999**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
59	100	81	90	100

Target Fruit Crop (continued)				
Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
100	100	100	82	100

Target Fruit Crop (continued)					
Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
99	76	87	100	98	86

**Grower Agricultural Practices
Crop Irrigated - Percent of Acres
Fruit Program States, 1999**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
68	100	88	96	100

Target Fruit Crop (continued)				
Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
100	100	100	98	100

Target Fruit Crop (continued)					
Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
100	78	97	100	99	92

**Grower Agricultural Practices
Crop Irrigated - Percent of Farms
Vegetable Program States, 1999**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
99	74	84	90	92

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
100	70	99	98	97

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelon	All Vegetables
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
60	87	84	89	59	84

**Grower Agricultural Practices
Crop Irrigated - Percent of Acres
Vegetable Program States, 1999**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
99	85	98	96	99

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
100	74	99	99	99

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
84	98	96	99	73	93

**Grower Agricultural Practices
Type of Irrigation System - Percent of Farms
Fruit Program States, 1999²**

Type of irrigation system	Target Fruit Crop					
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Gravity irrigation (Flood or furrow)	4	(¹)	8	6	52	
Sprinkler irrigation (Over canopy)	26	4	7	2	(¹)	
Sprinkler irrigation (Under canopy)	54	76	70	34	1	
Drip or trickle	15	19	16	50	46	
Subirrigation	0	0	0	0	0	
Other	1	1	1	8	0	
Type of irrigation system	Target Fruit Crop (continued)					
	Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Gravity irrigation (Flood or furrow)	93	2	19	0	87	
Sprinkler irrigation (Over canopy)	0	17	2	66	0	
Sprinkler irrigation (Under canopy)	1	37	46	32	2	
Drip or trickle	6	39	26	1	10	
Subirrigation	1	0	0	0	0	
Other	0	5	7	0	1	
Type of irrigation system	Target Fruit Crop (continued)					
	Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Gravity irrigation (Flood or furrow)	2	60	6	88	19	26
Sprinkler irrigation (Over canopy)	2	11	14	0	1	7
Sprinkler irrigation (Under canopy)	32	10	74	6	33	34
Drip or trickle	37	16	5	6	12	23
Subirrigation	0	2	0	0	0	(¹)
Other	26	1	1	0	35	10

¹ Less than one percent.

² Percent based on number of growers reporting irrigation in 1999.

Grower Agricultural Practices
Type of Irrigation System - Percent of Farms
Vegetable Program States, 1999 ²

Type of irrigation system	Target Vegetable Crop				
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Gravity irrigation (Flood or furrow)	51	30	62	17	50
Sprinkler irrigation (Over canopy)	39	51	13	62	42
Sprinkler irrigation (Under canopy)	2	4	1	11	3
Drip or trickle	8	9	25	9	6
Subirrigation	0	3	0	(¹)	0
Other	0	4	(¹)	1	0
Type of irrigation system	Target Vegetable Crop (continued)				
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Gravity irrigation (Flood or furrow)	60	20	49	42	50
Sprinkler irrigation (Over canopy)	12	46	2	49	48
Sprinkler irrigation (Under canopy)	16	7	0	3	(¹)
Drip or trickle	11	25	48	5	(¹)
Subirrigation	0	1	0	0	1
Other	0	2	0	(¹)	(¹)

Grower Agricultural Practices
Type of Irrigation System - Percent of Farms (continued)
Vegetable Program States, 1999 ²

Type of irrigation system	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Gravity irrigation (Flood or furrow)	30	15	4	44	19	36
Sprinkler irrigation (Over canopy)	49	45	71	13	41	40
Sprinkler irrigation (Under canopy)	2	2	3	1	5	4
Drip or trickle	10	29	21	40	31	18
Subirrigation	3	4	(¹)	(¹)	1	1
Other	6	4	(¹)	2	3	1

¹ Less than one percent.

² Percent based on number of growers reporting irrigation in 1999.

**Grower Agricultural Practices
Source of Irrigation Water - Percent of Farms
Fruit Program States, 1999²**

Source of irrigation water	Target Fruit Crop					
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Standing Surface (Ponds, lakes, and reservoirs)	12	10	7	29	1	
Flowing surface (Rivers, canals, streams, and irrigation ditches)	47	1	49	6	34	
Ground; Deep well	19	34	28	52	46	
Ground; Shallow well	2	11	3	4	6	
Municipal	4	37	2	10	14	
Other	15	7	10	0	0	
Source of irrigation water	Target Fruit Crop (continued)					
	Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Standing surface (Ponds, lakes, and reservoirs)	2	2	1	0	0	
Flowing surface (Rivers, canals, streams, and irrigation ditches)	79	11	28	0	65	
Ground; Deep well	14	73	47	1	30	
Ground; Shallow well	4	9	3	99	5	
Municipal	1	4	7	0	0	
Other	0	1	14	0	0	
Source of irrigation water	Target Fruit Crop (continued)					
	Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Standing surface (Ponds, lakes, and reservoirs)	8	15	7	1	6	9
Flowing surface (Rivers, canals, streams, and irrigation ditches)	17	58	51	73	12	38
Ground; Deep well	67	22	13	19	71	39
Ground; Shallow well	4	4	5	7	7	4
Municipal	4	1	4	(¹)	4	5
Other	(¹)	(¹)	19	0	(¹)	4

¹ Less than one percent.

² Percent based on number of growers reporting irrigation in 1999.

Grower Agricultural Practices
Source of Irrigation Water - Percent of Farms
Vegetable Program States, 1999 ²

Source of irrigation water	Target Vegetable Crop				
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Standing surface (Ponds, lakes, and reservoirs)	21	24	9	6	3
Flowing surface (Rivers, canals, streams, and irrigation ditches)	5	25	51	29	11
Ground; Deep well	69	40	37	*	62
Ground; Shallow well	2	2	2	*	23
Municipal	(¹)	9	1	7	1
Other	2	(¹)	0	7	0
Source of irrigation water	Target Vegetable Crop (continued)				
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Standing surface (Ponds, lakes, and reservoirs)	2	33	2	3	12
Flowing surface (Rivers, canals, streams, and irrigation ditches)	3	20	50	17	20
Ground; Deep well	89	35	48	69	68
Ground; Shallow well	(¹)	6	1	11	0
Municipal	2	7	0	(¹)	0
Other	4	0	0	0	0

Grower Agricultural Practices
Source of Irrigation Water - Percent of Farms (continued)
Vegetable Program States, 1999 ²

Source of irrigation water	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Standing surface (Ponds, lakes, and reservoirs)	22	22	30	20	25	17
Flowing surface (Rivers, canals, streams, and irrigation ditches)	28	15	9	24	20	19
Ground; Deep well	35	51	45	42	46	51
Ground; Shallow well	12	6	4	7	8	7
Municipal	3	5	7	7	1	4
Other	(¹)	(¹)	5	(¹)	0	1

* Insufficient data.

¹ Less than one percent.

² Percent based on number of growers reporting irrigation in 1999.

**Grower Agricultural Practices
Last Irrigation to First Harvest Interval - Percent of Farms
Fruit Program States, 1999¹**

Number of days	Target Fruit Crop					
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
1 - 7	23	9	24	13	18	
8 - 21	27	3	16	12	32	
22+	50	88	60	75	50	
Number of days	Target Fruit Crop (continued)					
	Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
1 - 7	1	25	10	0	48	
8 - 21	8	53	3	0	34	
22+	91	22	87	100	18	
Number of days	Target Fruit Crop (continued)					
	Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
1 - 7	31	40	29	51	40	25
8 - 21	6	29	37	19	12	16
22+	64	31	35	30	48	59

¹ Percent based on number of growers reporting irrigation in 1999.

**Grower Agricultural Practices
Last Irrigation to First Harvest Interval - Percent of Acres
Fruit Program States, 1999¹**

Number of days	Target Fruit Crop					
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table	
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	
1 - 7	21	13	25	10	16	
8 - 21	30	1	16	4	43	
22+	48	86	59	85	42	
Number of days	Target Fruit Crop (continued)					
	Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines	
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	
1 - 7	2	21	10	0	50	
8 - 21	9	56	2	0	30	
22+	89	23	88	100	20	
Number of days	Target Fruit Crop (continued)					
	Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
1 - 7	38	28	24	35	20	25
8 - 21	5	29	44	28	11	14
22+	58	43	31	37	68	61

¹ Percent based on number of growers reporting irrigation in 1999.

**Grower Agricultural Practices
Last Irrigation to First Harvest Interval - Percent of Farms
Vegetable Program States, 1999¹**

Number of days	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
1 - 7	26	16	20	34	42	
8 - 21	18	37	34	17	31	
22+	56	48	45	49	27	
Number of days	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
1 - 7	27	15	10	46	45	
8 - 21	14	20	24	17	35	
22+	59	65	66	38	20	
Number of days	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
1 - 7	21	21	5	6	14	23
8 - 21	39	12	22	20	38	23
22+	40	67	73	74	49	54

¹ Percent based on number of growers reporting irrigation in 1999.

**Grower Agricultural Practices
Last Irrigation to First Harvest Interval - Percent of Acres
Vegetable Program States, 1999¹**

Number of days	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	
1 - 7	23	8	36	22	30	
8 - 21	20	32	41	36	38	
22+	56	60	23	42	33	
Number of days	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	
1 - 7	25	21	9	35	49	
8 - 21	21	17	52	10	37	
22+	54	63	39	55	14	
Number of days	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
1 - 7	15	11	3	5	13	18
8 - 21	45	7	5	19	36	24
22+	40	82	92	76	52	58

¹ Percent based on number of growers reporting irrigation in 1999.

**Grower Agricultural Practices
Organic Fertilizer Applied in 1998 or 1999 - Percent of Farms
Fruit Program States**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
4	20	3	*	30

Target Fruit Crop (continued)				
Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
7	*	5	2	31

Target Fruit Crop (continued)					
Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
12	12	2	32	6	15

* Insufficient data.

**Grower Agricultural Practices
Organic Fertilizer Applied in 1998 or 1999 - Percent of Acres
Fruit Program States**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
3	9	3	*	23

Target Fruit Crop (continued)				
Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
11	*	4	1	38

Target Fruit Crop (continued)					
Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
7	20	2	18	6	13

* Insufficient data.

**Grower Agricultural Practices
Organic Fertilizer Applied in 1998 or 1999 - Percent of Farms
Vegetable Program States**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
8	13	25	17	9

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
19	15	2	9	13

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
8	11	21	14	7	14

**Grower Agricultural Practices
Organic Fertilizer Applied in 1998 or 1999 - Percent of Acres
Vegetable Program States**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
4	5	6	1	3

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
12	9	(1)	6	8

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
1	3	16	2	6	6

¹ Less than one percent.

**Grower Agricultural Practices
Sludge Applied - Percent of Farms
Fruit Program States, 1999**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of farms</i> (1)	<i>% of farms</i> *	<i>% of farms</i> (1)	<i>% of farms</i> *	<i>% of farms</i> *

Target Fruit Crop (continued)				
Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines
<i>% of farms</i> 2	<i>% of farms</i> 1	<i>% of farms</i> 0	<i>% of farms</i> 1	<i>% of farms</i> *

Target Fruit Crop (continued)					
Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
<i>% of farms</i> (1)	<i>% of farms</i> 2	<i>% of farms</i> 0	<i>% of farms</i> *	<i>% of farms</i> 2	<i>% of farms</i> 1

* Insufficient data.

¹ Less than one percent.

**Grower Agricultural Practices
Sludge Applied - Percent of Acres
Fruit Program States, 1999**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of acres</i> *	<i>% of acres</i> 1	<i>% of acres</i> (1)	<i>% of acres</i> *	<i>% of acres</i> 3

Target Fruit Crop (continued)				
Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines
<i>% of acres</i> 3	<i>% of acres</i> 3	<i>% of acres</i> 0	<i>% of acres</i> (1)	<i>% of acres</i> *

Target Fruit Crop (continued)					
Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
<i>% of acres</i> (1)	<i>% of acres</i> 4	<i>% of acres</i> 0	<i>% of acres</i> *	<i>% of acres</i> 3	<i>% of acres</i> 2

* Insufficient data.

¹ Less than one percent.

**Grower Agricultural Practices
Sludge Applied - Percent of Farms
Vegetable Program States, 1999**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
0	1	0	(1)	0

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
0	1	1	(1)	0

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
(1)	1	2	2	1	1

¹ Less than one percent.

**Grower Agricultural Practices
Sludge Applied - Percent of Acres
Vegetable Program States, 1999**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
0	3	0	(1)	0

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
0	5	(1)	(1)	0

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
(1)	2	1	1	(1)	1

¹ Less than one percent.

**Grower Agricultural Practices
Manure Applied in 1998 - Percent of Farms
Fruit Program States**

Target Fruit Crop (continued)				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
2	7	3	*	30

Target Fruit Crop (continued)				
Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
4	*	3	*	19

Target Fruit Crop (continued)					
Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
5	5	2	22	*	5

* Insufficient data.

**Grower Agricultural Practices
Manure Applied - Percent of Farms
Fruit Program States, 1999**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
4	20	3	*	21

Target Fruit Crop (continued)				
Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
5	*	2	1	20

Target Fruit Crop (continued)					
Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
*	8	1	22	*	8

* Insufficient data.

**Grower Agricultural Practices
Manure Applied - Percent of Acres
Fruit Program States, 1999**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
3	9	3	*	20

Target Fruit Crop (continued)				
Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
8	*	3	(1)	22

Target Fruit Crop (continued)					
Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
4	13	1	12	3	6

* Insufficient data.

¹ Less than one percent.

**Grower Agricultural Practices
Manure Applied in 1998 - Percent of Farms
Vegetable Program States**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
4	10	20	8	5

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
19	13	2	4	10

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Water- melons	All Vegetables
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
8	9	16	9	4	9

**Grower Agricultural Practices
Manure Applied - Percent of Farms
Vegetable Program States, 1999**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
4	11	24	9	8

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
19	12	2	9	6

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
7	10	17	11	4	10

**Grower Agricultural Practices
Manure Applied - Percent of Acres
Vegetable Program States, 1999**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
2	2	6	(1)	3

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
12	3	(1)	6	2

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
1	1	14	1	5	3

¹ Less than one percent.

**Grower Agricultural Practices
Average Manure Application Rate
Fruit Program States, 1999¹**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>tons per acre</i>	<i>tons per acre</i>	<i>tons per acre</i>	<i>tons per acre</i>	<i>tons per acre</i>
1.0	1.1	4.0	*	7.6

Target Fruit Crop (continued)				
Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines
<i>tons per acre</i>	<i>tons per acre</i>	<i>tons per acre</i>	<i>tons per acre</i>	<i>tons per acre</i>
5.2	*	2.0	*	5.5

Target Fruit Crop (continued)					
Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
<i>tons per acre</i>	<i>tons per acre</i>	<i>tons per acre</i>	<i>tons per acre</i>	<i>tons per acre</i>	<i>tons per acre</i>
2.0	5.1	2.1	6.8	2.5	3.2

* Insufficient data.

¹ Rates based on number of growers reporting manure applied in 1999.

**Grower Agricultural Practices
Average Manure Application Rate
Vegetable Program States, 1999¹**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>tons per acre</i>	<i>tons per acre</i>	<i>tons per acre</i>	<i>tons per acre</i>	<i>tons per acre</i>
4.9	3.9	2.2	1.8	2.3

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>tons per acre</i>	<i>tons per acre</i>	<i>tons per acre</i>	<i>tons per acre</i>	<i>tons per acre</i>
*	4.4	*	1.7	3.3

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>tons per acre</i>	<i>tons per acre</i>	<i>tons per acre</i>	<i>tons per acre</i>	<i>tons per acre</i>	<i>tons per acre</i>
4.7	2.2	3.5	4.6	1.3	3.1

* Insufficient data.

¹ Rates based on number of growers reporting manure applied in 1999.

**Grower Agricultural Practices
Type of Manure Applied - Percent of Farms
Program States, 1999 ²**

Crop category	Beef	Dairy	Hog	Sheep	Poultry	Equine	Other
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
ALL FRUIT	37	28	0	*	24	*	8
ALL VEGETABLES	18	19	1	(¹)	41	13	8

* Insufficient data.

¹ Less than one percent.

² Percent based on number of growers reporting manure applied in 1999.

**Grower Agricultural Practices
Type of Manure Applied - Percent of Acres
Program States, 1999 ²**

Crop category	Beef	Dairy	Hog	Sheep	Poultry	Equine	Other
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
ALL FRUIT	22	45	0	*	20	*	12
ALL VEGETABLES	18	23	(¹)	(¹)	39	9	11

* Insufficient data.

¹ Less than one percent.

² Percent based on number of growers reporting manure applied in 1999.

**Grower Agricultural Practices
Source of Manure Applied - Percent of Farms
Program States, 1999 ¹**

Crop category	On-farm	Other farm	Commercial supplier
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
ALL FRUIT	37	16	47
ALL VEGETABLES	24	29	47

¹ Percent based on number of growers reporting manure applied in 1999.

**Grower Agricultural Practices
Source of Manure Applied - Percent of Acres
Program States, 1999 ¹**

Crop category	On-farm	Other farm	Commercial supplier
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
ALL FRUIT	11	29	59
ALL VEGETABLES	10	23	66

¹ Percent based on number of growers reporting manure applied in 1999.

**Grower Agricultural Practices
Type of Manure Treatment - Percent of Farms
Program States, 1999 ¹**

Crop category	Composted	Aged	Other	Not treated	Don't know
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
ALL FRUIT	12	44	5	22	18
ALL VEGETABLES	41	32	3	15	9

¹ Percent based on number of growers reporting manure applied in 1999.

**Grower Agricultural Practices
Type of Manure Treatment - Percent of Acres
Program States, 1999 ¹**

Crop category	Composted	Aged	Other	Not treated	Don't know
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
ALL FRUIT	21	33	3	25	18
ALL VEGETABLES	55	29	3	3	9

¹ Percent based on number of growers reporting manure applied in 1999.

**Grower Agricultural Practices
Manure Method of Application - Percent of Farms
Program States, 1999 ¹**

Crop category	Dry broadcast without incorporation	Dry broadcast with incorporation	Liquid broadcast without incorporation	Injected or liquid broadcast with incorporation
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
ALL FRUIT	65	29	5	0
ALL VEGETABLES	16	82	2	1

¹ Percent based on number of growers reporting manure applied in 1999.

**Grower Agricultural Practices
Manure Method of Application - Percent of Acres
Program States, 1999 ²**

Crop category	Dry broadcast without incorporation	Dry broadcast with incorporation	Liquid broadcast without incorporation	Injected or liquid broadcast with incorporation
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
ALL FRUIT	45	48	7	0
ALL VEGETABLES	10	89	1	(¹)

¹ Less than one percent.

² Percent based on number of growers reporting manure applied in 1999.

**Grower Agricultural Practices
Method of Harvest - Percent of Farms
Fruit Program States, 1999**

Harvest method	Target Fruit Crop					
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
By hand only	100	99	87	100	100	
By both hand and machine	(¹)	1	9	1	0	
By machine only	0	0	3	0	0	
Harvest method	Target Fruit Crop (continued)					
	Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
By hand only	41	100	100	100	100	
By both hand and machine	59	0	0	0	0	
By machine only	0	0	0	0	0	
Harvest method	Target Fruit Crop (continued)					
	Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
By hand only	100	100	100	100	100	93
By both hand and machine	(¹)	(¹)	0	0	0	7
By machine only	0	0	0	0	0	(¹)

¹ Less than one percent.

**Grower Agricultural Practices
Method of Harvest - Percent of Acres
Fruit Program States, 1999**

Harvest method	Target Fruit Crop					
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table	
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	
By hand only	99	100	88	99	100	
By both hand and machine	1	(¹)	6	1	0	
By machine only	0	0	6	0	0	
Harvest method	Target Fruit Crop (continued)					
	Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines	
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	
By hand only	63	100	100	100	100	
By both hand and machine	37	0	0	0	0	
By machine only	0	0	0	0	0	
Harvest method	Target Fruit Crop (continued)					
	Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
By hand only	100	100	100	100	100	94
By both hand and machine	(¹)	(¹)	0	0	0	5
By machine only	0	0	0	0	0	(¹)

¹ Less than one percent.

**Grower Agricultural Practices
Method of Harvest - Percent of Farms
Vegetable Program States, 1999**

Harvest method	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
By hand only	79	96	92	58	98	
By both hand and machine	21	4	8	9	2	
By machine only	0	0	(¹)	33	0	
Harvest method	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
By hand only	94	98	74	91	95	
By both hand and machine	1	1	26	9	5	
By machine only	4	2	0	0	0	
Harvest method	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
By hand only	44	98	100	97	100	89
By both hand and machine	8	2	0	3	(¹)	6
By machine only	48	0	0	(¹)	0	5

¹ Less than one percent.

**Grower Agricultural Practices
Method of Harvest - Percent of Acres
Vegetable Program States, 1999**

Harvest method	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	
By hand only	82	92	73	8	98	
By both hand and machine	18	8	27	23	2	
By machine only	0	0	(¹)	69	0	
Harvest method	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	
By hand only	94	88	68	95	98	
By both hand and machine	1	5	32	5	2	
By machine only	5	8	0	0	0	
Harvest method	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
By hand only	55	98	100	94	99	87
By both hand and machine	20	2	0	6	1	8
By machine only	25	0	0	(¹)	0	5

¹ Less than one percent.

**Grower Agricultural Practices
Harvest Tools Used - Percent of Farms
Fruit Program States, 1999**

Harvest tool	Target Fruit Crop					
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Hands	100	100	96	100	100	
Knife	(¹)	2	0	2	8	
Machete	0	0	0	0	0	
Clippers/scissors	6	88	0	20	84	
Other	(¹)	6	*	0	0	
Harvest tool	Target Fruit Crop (continued)					
	Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Hands	100	100	100	100	100	
Knife	29	10	2	0	*	
Machete	0	0	0	0	0	
Clippers/scissors	10	2	95	1	*	
Other	*	8	0	0	1	
Harvest tool	Target Fruit Crop (continued)					
	Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Hands	100	100	100	100	100	100
Knife	3	0	0	0	1	4
Machete	0	0	0	0	0	0
Clippers/scissors	33	0	1	4	33	21
Other	(¹)	1	1	1	0	7

* Insufficient data.

¹ Less than one percent.

**Grower Agricultural Practices
Harvest Tools Used - Percent of Acres
Fruit Program States, 1999**

Harvest tool	Target Fruit Crop					
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table	
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	
Hands	100	100	97	100	100	
Knife	(¹)	1	0	1	8	
Machete	0	0	0	0	0	
Clippers/scissors	10	86	0	8	73	
Other	2	8	5	0	0	
Harvest tool	Target Fruit Crop (continued)					
	Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines	
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	
Hands	100	100	100	100	100	
Knife	41	10	2	0	1	
Machete	0	0	0	0	0	
Clippers/scissors	19	2	93	1	1	
Other	*	5	0	0	1	
Harvest tool	Target Fruit Crop (continued)					
	Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
Hands	100	100	100	100	100	99
Knife	1	0	0	0	(¹)	6
Machete	0	0	0	0	0	0
Clippers/scissors	22	0	1	3	25	21
Other	(¹)	(¹)	2	5	0	6

* Insufficient data.

¹ Less than one percent.

**Grower Agricultural Practices
Harvest Tools Used - Percent of Farms
Vegetable Program States, 1999**

Harvest tool	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Hands	100	100	100	67	100	
Knife	91	87	17	2	92	
Machete	0	3	0	0	2	
Clippers/ scissors	0	(¹)	1	(¹)	0	
Other	0	1	0	14	(¹)	
	Target Vegetable Crop (continued)					
Harvest tool	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Hands	95	99	100	100	100	
Knife	94	8	56	85	91	
Machete	*	0	0	0	0	
Clippers/ scissors	0	1	0	(¹)	0	
Other	1	1	0	0	4	
	Target Vegetable Crop (continued)					
Harvest tool	Onions, Bulb	Peppers, Bell	Straw- berries	Tomatoes	Water- melons	All Vegetables
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Hands	52	100	100	100	100	95
Knife	3	22	4	2	97	41
Machete	0	0	0	0	0	1
Clippers/ scissors	22	*	(¹)	14	1	4
Other	8	(¹)	0	3	(¹)	2

* Insufficient data.

¹ Less than one percent.

**Grower Agricultural Practices
Harvest Tools Used - Percent of Acres
Vegetable Program States, 1999**

Harvest tool	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	
Hands	100	100	100	31	100	
Knife	93	92	3	(¹)	94	
Machete	0	3	0	0	1	
Clippers/ scissors	0	(¹)	(¹)	2	0	
Other	0	(¹)	0	24	(¹)	
	Target Vegetable Crop (continued)					
Harvest tool	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	
Hands	95	93	100	100	100	
Knife	94	3	91	92	86	
Machete	*	0	0	0	0	
Clippers/ scissors	0	(¹)	0	(¹)	0	
Other	1	(¹)	0	0	4	
	Target Vegetable Crop (continued)					
Harvest tool	Onions, Bulb	Peppers, Bell	Straw- berries	Tomatoes	Water- melons	All Vegetables
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
Hands	75	100	100	100	100	95
Knife	11	13	13	3	97	39
Machete	0	0	0	0	0	(¹)
Clippers/ scissors	56	*	(¹)	3	1	4
Other	9	(¹)	0	6	1	3

* Insufficient data.

¹ Less than one percent.

**Grower Agricultural Practices
Harvest Tool Washing - Percent of Farms
Program States, 1999¹**

Crop category	Knife washed			Machete washed			Clippers/scissors washed			Other tool washed		
	Yes	No	Don't know	Yes	No	Don't know	Yes	No	Don't know	Yes	No	Don't know
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
ALL FRUIT	44	12	44	(²)	(²)	(²)	49	29	22	95	4	1
ALL VEGETABLES	78	15	6	*	*	*	81	13	6	53	33	14

* Insufficient data.

¹ Percent based on number of growers reporting using knife, machete, clippers/scissors, other harvest tools in 1999.

² Not applicable.

**Grower Agricultural Practices
Harvest Tool Washing Frequency - Percent of Farms
Program States, 1999²**

Crop category	Harvest tool	Frequency of washing					
		Daily	Weekly	Monthly	Per season	As needed	Other
		<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
ALL FRUIT	Knife	67	6	0	*	5	*
	Machete	(³)	(³)	(³)	(³)	(³)	(³)
	Clippers/scissors	55	4	*	2	39	*
	Other	0	0	0	0	0	0
ALL VEGETABLES	Knife	71	1	(¹)	1	26	1
	Machete	*	*	*	*	*	*
	Clippers/scissors	28	5	55	(¹)	11	(¹)
	Other	20	22	1	12	42	2

* Insufficient data.

¹ Less than one percent.

² Percent based on number of growers reporting using knife, machete, clippers/scissors, other harvest tools in 1999.

³ Not applicable.

**Grower Agricultural Practices
Harvest Tool Sanitizing - Percent of Farms
Program States, 1999 ¹**

Crop category	Knife sanitized			Machete sanitized			Clippers/scissors sanitized			Other tool sanitized		
	Yes	No	Don't know	Yes	No	Don't know	Yes	No	Don't know	Yes	No	Don't know
ALL FRUIT	% of farms *	% of farms *	% of farms *	% of farms (²)	% of farms (²)	% of farms (²)	% of farms 30	% of farms 37	% of farms 33	% of farms *	% of farms 98	% of farms *
ALL VEGETABLES	53	34	13	*	*	*	24	25	51	5	62	33

* Insufficient data.

¹ Percent based on number of growers reporting using knife, machete, clippers/scissors, other harvest tools in 1999.

² Not applicable.

**Grower Agricultural Practices
Harvest Tool Sanitizing Frequency - Percent of Farms
Program States, 1999 ²**

Crop category	Harvest tool	Frequency of sanitizing					
		Daily	Weekly	Monthly	Per season	As needed	Other
ALL FRUIT	Knife	% of farms *	% of farms *	% of farms *	% of farms *	% of farms *	% of farms *
	Machete	(³)	(³)	(³)	(³)	(³)	(³)
	Clippers/scissors	8	(¹)	1	35	2	7
	Other	24	17	0	0	59	0
ALL VEGETABLES	Knife	73	3	(¹)	(¹)	22	2
	Machete	*	*	*	*	*	*
	Clippers/scissors	12	1	0	1	3	2
	Other	35	4	0	37	0	25

* Insufficient data.

¹ Less than one percent.

² Percent based on number of growers reporting using knife, machete, clippers/scissors, other harvest tools in 1999.

³ Not applicable.

**Grower Agricultural Practices
Harvest Equipment Used - Percent of Farms
Fruit Program States, 1999**

Harvest equipment	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Buckets or pans	21	10	85	7	50
Bins	79	97	60	84	7
Bags	64	82	8	71	30
Boxes	18	1	40	31	54
Retail packages	7	(¹)	8	1	80
Tables	*	6	7	7	45
Washing tubs	1	0	11	4	0
Wagons or trailers	27	23	41	22	9
Trucks	34	73	48	63	70
Other	25	17	31	3	1
Harvest equipment	Target Fruit Crop (continued)				
	Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Buckets or pans	26	6	0	97	17
Bins	88	82	98	59	74
Bags	0	82	65	0	73
Boxes	0	12	2	*	20
Retail packages	0	2	2	0	(¹)
Tables	0	0	1	0	0
Washing tubs	0	0	1	0	0
Wagons or trailers	7	40	33	0	51
Trucks	89	48	83	50	55
Other	6	6	41	1	4

Grower Agricultural Practices
Harvest Equipment Used - Percent of Farms (continued)
Fruit Program States, 1999

Harvest equipment	Target Fruit Crop (continued)					
	Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Buckets or pans	4	38	11	12	2	20
Bins	87	53	89	82	86	79
Bags	76	38	82	74	67	57
Boxes	16	22	9	16	16	17
Retail packages	2	18	2	2	3	7
Tables	3	1	1	(¹)	3	3
Washing tubs	0	(¹)	(¹)	0	2	1
Wagons or trailers	33	53	25	43	18	30
Trucks	76	36	42	68	69	52
Other	9	14	49	3	7	16

* Insufficient data.

¹ Less than one percent.

**Grower Agricultural Practices
Harvest Equipment Used - Percent of Acres
Fruit Program States, 1999**

Harvest equipment	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
Buckets or pans	21	9	89	3	72
Bins	90	97	71	81	13
Bags	72	83	5	85	40
Boxes	9	1	36	63	46
Retail packages	3	(¹)	3	1	71
Tables	*	6	6	2	73
Washing tubs	1	0	16	1	0
Wagons or trailers	40	42	55	19	5
Trucks	51	63	53	88	85
Other	27	14	25	*	(¹)
Harvest equipment	Target Fruit Crop (continued)				
	Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
Buckets or pans	46	4	0	99	10
Bins	78	92	99	98	83
Bags	0	89	64	0	84
Boxes	0	4	2	*	14
Retail packages	0	1	(¹)	0	(¹)
Tables	0	0	5	0	0
Washing tubs	0	0	5	0	0
Wagons or trailers	9	42	38	0	37
Trucks	80	60	80	71	57
Other	6	6	45	(¹)	5

Grower Agricultural Practices
Harvest Equipment Used - Percent of Acres (continued)
Fruit Program States, 1999

Harvest equipment	Target Fruit Crop (continued)					
	Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
Buckets or pans	5	31	18	7	4	20
Bins	78	69	97	89	87	79
Bags	78	50	80	69	75	62
Boxes	25	16	2	25	10	20
Retail packages	1	8	1	(¹)	2	4
Tables	1	1	(¹)	(¹)	(¹)	4
Washing tubs	0	(¹)	(¹)	0	(¹)	1
Wagons or trailers	28	65	33	51	26	31
Trucks	73	35	55	68	68	61
Other	9	16	51	9	17	14

* Insufficient data.

¹ Less than one percent.

**Grower Agricultural Practices
Harvest Equipment Used - Percent of Farms
Vegetable Program States, 1999**

Harvest equipment	Target Vegetable Crop				
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Buckets or pans	0	*	*	*	3
Bins	18	16	21	*	7
Bags	1	13	2	*	3
Boxes	44	53	55	*	59
Retail packages	52	34	26	*	29
Tables	21	*	2	*	21
Washing tubs	1	1	0	*	11
Wagons or trailers	50	39	20	29	52
Trucks	40	24	25	51	10
Other	7	7	9	32	8
Harvest equipment	Target Vegetable Crop (continued)				
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Buckets or pans	0	62	0	1	(¹)
Bins	4	18	*	35	14
Bags	7	7	*	5	12
Boxes	72	43	*	55	51
Retail packages	27	17	*	44	51
Tables	10	8	*	1	*
Washing tubs	7	11	*	(¹)	*
Wagons or trailers	65	24	33	10	41
Trucks	36	28	75	34	39
Other	3	8	*	*	1

**Grower Agricultural Practices
Harvest Equipment Used - Percent of Farms (continued)
Vegetable Program States, 1999**

Harvest equipment	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Straw- berries	Tomatoes	Water- melons	All Vegetables
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Buckets or pans	16	44	17	69	3	25
Bins	29	18	5	24	19	19
Bags	29	6	*	5	(¹)	7
Boxes	23	21	32	22	6	37
Retail packages	7	39	80	19	9	31
Tables	5	7	2	7	1	7
Washing tubs	*	8	(¹)	5	*	4
Wagons or trailers	16	19	5	23	49	29
Trucks	47	33	19	28	62	34
Other	47	12	13	7	1	10

* Insufficient data.

¹ Less than one percent.

**Grower Agricultural Practices
Harvest Equipment Used - Percent of Acres
Vegetable Program States, 1999**

Harvest equipment	Target Vegetable Crop				
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
Buckets or pans	0	2	*	*	(¹)
Bins	15	28	18	*	2
Bags	1	11	2	*	8
Boxes	44	38	63	*	61
Retail packages	52	23	29	*	35
Tables	19	*	8	*	11
Washing tubs	(¹)	(¹)	0	*	5
Wagons or trailers	55	46	12	62	42
Trucks	39	20	29	65	5
Other	4	2	6	36	14
Harvest equipment	Target Vegetable Crop (continued)				
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
Buckets or pans	0	63	0	(¹)	(¹)
Bins	5	45	*	31	10
Bags	7	2	*	3	11
Boxes	75	22	*	37	52
Retail packages	49	13	*	63	53
Tables	18	3	*	1	*
Washing tubs	11	7	*	(¹)	*
Wagons or trailers	64	31	32	4	33
Trucks	39	29	71	48	34
Other	2	1	*	*	1

Grower Agricultural Practices
Harvest Equipment Used - Percent of Acres (continued)
Vegetable Program States, 1999

Harvest equipment	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Straw-berries	Tomatoes	Water-melons	All Vegetables
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
Buckets or pans	8	62	6	89	(¹)	35
Bins	15	54	18	60	29	35
Bags	69	1	*	3	2	7
Boxes	10	5	42	4	6	22
Retail packages	14	15	94	1	13	24
Tables	6	5	2	4	3	5
Washing tubs	*	2	(¹)	5	*	3
Wagons or trailers	12	21	10	76	46	44
Trucks	64	40	37	57	71	48
Other	23	3	16	1	(¹)	5

* Insufficient data.

¹ Less than one percent.

**Grower Agricultural Practices
Harvest Equipment Washing - Percent of Farms
Program States, 1999 ¹**

Harvest equipment	ALL FRUIT			ALL VEGETABLES		
	Equipment washed			Equipment washed		
	Yes	No	Don't know	Yes	No	Don't know
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Buckets or pans	63	29	9	70	20	10
Bins	50	38	12	71	25	4
Bags	29	49	22	10	76	13
Boxes	49	44	7	12	53	33
Tables	84	*	*	67	23	10
Washing tubs	94	3	3	97	*	*
Wagons or trailers	53	30	17	68	21	11
Trucks	44	32	23	67	25	9
Other	50	41	9	50	31	19

* Insufficient data.

¹ Percent based on number of growers reporting use of specified harvest equipment in 1999.

Grower Agricultural Practices
Harvest Equipment Washing Frequency - Percent of Farms
Program States, 1999 ²

Crop category	Harvest equipment	Frequency of washing						
		After each use	Daily	Weekly	Monthly	Per season	As needed	Other
		<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
ALL FRUIT	Buckets or pans	13	18	13	4	19	33	1
	Bins	31	5	16	1	21	25	1
	Bags	15	6	8	2	22	45	2
	Boxes	59	3	5	0	11	21	1
	Tables	7	7	8	(¹)	4	73	(¹)
	Washing tubs	22	21	1	1	3	51	0
	Wagons or trailers	6	3	7	2	13	69	(¹)
	Trucks	22	3	6	9	4	56	(¹)
	Other	11	3	5	3	16	61	1
ALL VEGETABLES	Buckets or pans	20	26	13	(¹)	3	37	1
	Bins	43	20	3	(¹)	4	30	(¹)
	Bags	4	40	0	0	(¹)	48	9
	Boxes	25	11	7	(¹)	7	49	(¹)
	Tables	4	72	3	(¹)	1	21	0
	Washing tubs	17	55	2	(¹)	2	23	(¹)
	Wagons or trailers	10	33	10	1	2	45	(¹)
	Trucks	13	13	18	(¹)	2	53	(¹)
	Other	16	21	7	2	5	48	1

¹ Less than one percent.

² Percent based on number of growers reporting washing specified harvest equipment in 1999.

**Grower Agricultural Practices
Harvest Equipment Sanitizing - Percent of Farms
Program States, 1999 ¹**

Harvest equipment	ALL FRUIT			ALL VEGETABLES		
	Equipment sanitized			Equipment sanitized		
	Yes	No	Don't know	Yes	No	Don't know
	<i>% of Farms</i>	<i>% of Farms</i>	<i>% of Farms</i>	<i>% of Farms</i>	<i>% of Farms</i>	<i>% of Farms</i>
Buckets or pans	24	59	17	27	54	18
Bins	33	50	18	48	43	9
Bags	20	52	28	10	75	14
Boxes	37	52	11	5	59	35
Tables	70	22	7	48	39	12
Washing tubs	28	65	6	68	22	10
Wagons or trailers	31	55	14	15	56	29
Trucks	18	55	27	16	68	16
Other	12	75	14	16	58	26

¹ Percent based on number of growers reporting use of specified harvest equipment in 1999.

Grower Agricultural Practices
Harvest Equipment Sanitizing Frequency - Percent of Farms
Program States, 1999 ²

Crop category	Harvest equipment	Frequency of sanitizing						
		After each use	Daily	Weekly	Monthly	Per season	As needed	Other
		<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
ALL FRUIT	Buckets or pans	8	16	17	9	28	21	1
	Bins	28	5	23	1	23	19	(¹)
	Bags	19	6	11	1	31	32	(¹)
	Boxes	85	3	1	0	6	5	1
	Tables	2	7	12	(¹)	4	76	0
	Washing tubs	7	30	0	3	9	51	0
	Wagons or trailers	26	4	1	(¹)	30	39	(¹)
	Trucks	29	2	19	(¹)	26	23	(¹)
	Other	6	10	1	2	3	77	0
ALL VEGETABLES	Buckets or pans	15	21	27	(¹)	6	29	2
	Bins	55	19	3	0	4	19	(¹)
	Bags	20	38	0	0	1	41	0
	Boxes	20	25	6	0	8	41	1
	Tables	3	85	4	(¹)	(¹)	8	0
	Washing tubs	11	65	4	(¹)	2	18	0
	Wagons or trailers	22	60	5	1	3	8	0
	Trucks	3	5	66	(¹)	1	25	0
	Other	14	9	*	6	5	59	*

* Insufficient data.

¹ Less than one percent.

² Percent based on number of growers reporting sanitizing specified harvest equipment in 1999.

**Grower Agricultural Practices
Where the Crop was Packed - Percent of Farms
Fruit Program States, 1999**

Where the crop was packed	Target Fruit Crop					
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
In the field:						
Field packed directly into retail packages	7	(¹)	8	1	96	
Field packed using a mobile packing unit	(¹)	0	(¹)	0	*	
On-farm packing facility	30	(¹)	18	14	*	
Off-farm packing facility	63	100	73	85	*	
Where the crop was packed	Target Fruit Crop (continued)					
	Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
In the field:						
Field packed directly into retail packages	0	2	2	0	(¹)	
Field packed using a mobile packing unit	0	0	0	0	0	
On-farm packing facility	0	19	6	1	39	
Off-farm packing facility	100	79	91	99	61	
Where the crop was packed	Target Fruit Crop (continued)					
	Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
In the field:						
Field packed directly into retail packages	2	18	2	2	3	7
Field packed using a mobile packing unit	0	6	(¹)	0	0	1
On-farm packing facility	3	46	13	33	9	16
Off-farm packing facility	95	30	84	65	88	77

* Insufficient data.

¹ Less than one percent.

**Grower Agricultural Practices
Where the Crop was Packed - Percent of Acres
Fruit Program States, 1999**

Where the crop was packed	Target Fruit Crop					
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table	
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	
In the field:						
Field packed directly into retail packages	3	(¹)	3	1	97	
Field packed using a mobile packing unit	(¹)	0	(¹)	0	*	
On-farm packing facility	27	(¹)	19	6	*	
Off-farm packing facility	70	100	78	94	*	
Where the crop was packed	Target Fruit Crop (continued)					
	Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines	
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	
In the field:						
Field packed directly into retail packages	0	1	(¹)	0	(¹)	
Field packed using a mobile packing unit	0	0	0	0	0	
On-farm packing facility	0	22	7	(¹)	35	
Off-farm packing facility	100	77	93	100	65	
Where the crop was packed	Target Fruit Crop (continued)					
	Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
In the field:						
Field packed directly into retail packages	1	8	1	(¹)	2	4
Field packed using a mobile packing unit	0	5	(¹)	0	0	(¹)
On-farm packing facility	1	63	5	46	13	12
Off-farm packing facility	98	25	94	54	85	83

* Insufficient data.

¹ Less than one percent.

**Grower Agricultural Practices
Where the Crop was Packed - Percent of Farms
Vegetable Program States, 1999**

Where the crop was packed	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
In the field:						
Field packed directly into retail packages	45	41	16	*	36	
Field packed using a mobile packing unit	32	6	26	*	23	
On-farm packing facility	10	37	23	64	20	
Off-farm packing facility	13	16	34	29	20	
Where the crop was packed	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
In the field:						
Field packed directly into retail packages	51	17	*	49	49	
Field packed using a mobile packing unit	17	1	*	5	8	
On-farm packing facility	17	56	*	26	28	
Off-farm packing facility	16	26	*	20	15	
Where the crop was packed	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
In the field:						
Field packed directly into retail packages	10	35	83	17	16	32
Field packed using a mobile packing unit	5	3	(¹)	2	10	8
On-farm packing facility	61	41	14	41	55	36
Off-farm packing facility	24	21	3	39	19	23

* Insufficient data.

¹ Less than one percent.

**Grower Agricultural Practices
Where the Crop was Packed - Percent of Acres
Vegetable Program States, 1999**

Where the crop was packed	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	
In the field:						
Field packed directly into retail packages	52	23	19	*	35	
Field packed using a mobile packing unit	23	12	49	*	26	
On-farm packing facility	17	32	4	18	18	
Off-farm packing facility	7	33	28	81	21	
Where the crop was packed	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	
In the field:						
Field packed directly into retail packages	49	13	*	63	53	
Field packed using a mobile packing unit	23	4	*	4	13	
On-farm packing facility	23	52	*	19	27	
Off-farm packing facility	4	31	*	14	8	
Where the crop was packed	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
In the field:						
Field packed directly into retail packages	14	15	94	1	13	24
Field packed using a mobile packing unit	2	1	(¹)	(¹)	9	8
On-farm packing facility	62	48	5	5	45	22
Off-farm packing facility	23	37	(¹)	93	33	46

* Insufficient data.

¹ Less than one percent.

**Grower Agricultural Practices
Percent of Harvest Workers Working Entire Harvest Season
Fruit Program States, 1999¹**

Target Fruit Crop							
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table	Grapes, Raisin	Kiwifruit	Lemons
<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>
71	85	72	88	76	83	87	85

Target Fruit Crop (continued)							
Limes	Nectarines	Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>
95	79	72	78	82	65	79	76

¹ Percent based on number of growers reporting hired harvest workers in 1999.

**Grower Agricultural Practices
Percent of Harvest Workers Working Entire Harvest Season
Vegetable Program States, 1999¹**

Target Vegetable Crop							
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	Celery	Cucumbers	Honeydews
<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>
67	86	80	82	63	92	79	89

Target Vegetable Crop (continued)							
Lettuce, Head	Lettuce, Other	Onions, Bulb	Peppers, Bell	Straw- berries	Tomatoes	Water- melons	All Vegetables
<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>
76	84	79	74	66	83	82	79

¹ Percent based on number of growers reporting hired harvest workers in 1999.

Grower Agricultural Practices
Harvest Workers: Method of Pay - Percent of Farms
Fruit Program States, 1999¹

Method of pay	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Hourly	34	50	25	18	*
Piece work	64	64	82	81	33
Salary	*	2	2	*	20
Other	13	*	4	3	*

Method of pay	Target Fruit Crop (continued)				
	Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Hourly	38	39	21	6	93
Piece work	49	44	83	90	26
Salary	6	*	*	7	*
Other	13	19	0	0	0

Method of pay	Target Fruit Crop (continued)					
	Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Hourly	13	73	21	89	13	34
Piece work	96	19	75	13	86	67
Salary	2	7	1	2	*	3
Other	*	14	*	5	7	7

* Insufficient data.

¹ Percent based on number of growers reporting hired harvest workers in 1999.

Grower Agricultural Practices
Harvest Workers: Method of Pay - Percent of Farms
Vegetable Program States, 1999 ¹

Method of pay	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Hourly	87	62	38	61	87	
Piece work	53	24	11	12	15	
Salary	*	2	1	*	5	
Other	3	21	51	30	6	
Method of pay	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Hourly	73	52	82	71	62	
Piece work	66	28	1	54	84	
Salary	*	8	17	1	*	
Other	0	16	12	*	*	
Method of pay	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Hourly	48	68	44	44	40	52
Piece work	20	29	51	29	23	29
Salary	4	3	3	6	3	5
Other	34	23	*	28	37	25

* Insufficient data.

¹ Percent based on number of growers reporting hired harvest workers in 1999.

**Grower Agricultural Practices
Supervisor of Harvest Workers - Percent of Farms
Fruit Program States, 1999²**

Supervisor of harvest workers	Target Fruit Crop					
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Farm owner, operator or manager	90	50	76	45	61	
Labor contractor/ crew chief	18	56	34	52	62	
Packer, shipper or processor	(¹)	7	*	5	0	
Other	2	0	1	0	0	
Supervisor of harvest workers	Target Fruit Crop (continued)					
	Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Farm owner, operator or manager	46	50	14	9	29	
Labor contractor/ crew chief	57	46	93	86	58	
Packer, shipper or processor	*	8	1	5	9	
Other	0	0	0	0	16	
Supervisor of harvest workers	Target Fruit Crop (continued)					
	Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Farm owner, operator or manager	33	80	92	28	20	57
Labor contractor/ crew chief	69	27	17	62	78	47
Packer, shipper or processor	3	5	(¹)	12	2	3
Other	0	2	1	*	1	1

* Insufficient data.

¹ Less than one percent.

² Percent based on number of growers reporting hired harvest workers in 1999.

**Grower Agricultural Practices
Supervisor of Harvest Workers - Percent of Farms
Vegetable Program States, 1999 ²**

Supervisor of harvest workers	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Farm owner, operator or manager	47	86	82	86	67	
Labor contractor/ crew chief	58	16	14	8	28	
Packer, shipper or processor	8	1	2	7	*	
Other	0	1	*	(¹)	0	
Supervisor of harvest workers	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Farm owner, operator or manager	56	89	58	41	21	
Labor contractor/ crew chief	31	15	40	47	76	
Packer, shipper or processor	16	(¹)	3	16	9	
Other	0	1	8	0	0	
Supervisor of harvest workers	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Farm owner, operator or manager	70	89	95	72	77	80
Labor contractor/ crew chief	27	10	6	22	25	19
Packer, shipper or processor	1	(¹)	(¹)	1	1	2
Other	*	1	2	*	*	4

* Insufficient data.

¹ Less than one percent.

² Percent based on number of growers reporting hired harvest workers in 1999.

**Grower Agricultural Practices
Provided Food Safety Related Training - Percent of Farms
Fruit Program States, 1999 ¹**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
88	96	90	93	97

Target Fruit Crop (continued)				
Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
94	71	100	100	100

Target Fruit Crop (continued)					
Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
97	91	95	96	91	93

¹ Percent based on number of growers reporting hired harvest workers in 1999.

**Grower Agricultural Practices
Provided Food Safety Related Training - Percent of Farms
Vegetable Program States, 1999 ¹**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
100	79	77	78	98

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
100	81	96	95	100

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
69	79	91	78	53	79

¹ Percent based on number of growers reporting hired harvest workers in 1999.

**Grower Agricultural Practices
Food Safety Training Topics for Workers - Percent of Farms
Fruit Program States, 1999¹**

Food safety topic	Target Fruit Crop					
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Personal hygiene	57	86	50	66	95	
Protective measures for cuts and sores	56	84	59	75	81	
Produce quality	84	92	84	88	94	
Keeping produce clean	78	82	86	81	79	
Equipment cleaning or sanitizing	32	60	44	44	74	
Food safety topic	Target Fruit Crop (continued)					
	Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Personal hygiene	52	58	54	97	97	
Protective measures for cuts and sores	56	41	49	97	59	
Produce quality	81	64	100	100	98	
Keeping produce clean	75	64	42	100	86	
Equipment cleaning or sanitizing	49	24	32	100	32	
Food safety topic	Target Fruit Crop (continued)					
	Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Personal hygiene	67	73	53	96	54	64
Protective measures for cuts and sores	76	62	57	68	78	65
Produce quality	89	88	93	92	63	87
Keeping produce clean	82	84	88	91	82	80
Equipment cleaning or sanitizing	37	48	36	57	33	41

¹ Percent based on number of growers reporting harvest workers received food safety training in 1999.

**Grower Agricultural Practices
Food Safety Training Topics for Workers - Percent of Farms
Vegetable Program States, 1999¹**

Food safety topic	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Personal hygiene	92	63	61	62	76	
Protective measures for cuts and sores	92	60	68	69	78	
Produce quality	94	73	76	76	95	
Keeping produce clean	94	74	73	76	94	
Equipment cleaning or sanitizing	76	48	56	59	78	
Food safety topic	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Personal hygiene	95	59	78	85	98	
Protective measures for cuts and sores	100	60	68	85	98	
Produce quality	100	72	87	91	100	
Keeping produce clean	99	75	85	92	100	
Equipment cleaning or sanitizing	73	55	62	79	92	
Food safety topic	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Personal hygiene	53	66	64	59	32	60
Protective measures for cuts and sores	58	60	58	51	25	58
Produce quality	63	75	89	72	49	74
Keeping produce clean	60	74	84	64	44	72
Equipment cleaning or sanitizing	50	56	40	44	22	50

¹ Percent based on number of growers reporting harvest workers received food safety training in 1999.

Grower Agricultural Practices
Type of Training for Food Safety - Percent of Farms
Fruit Program States, 1999²

Type of training	Target Fruit Crop					
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Classroom	11	23	13	18	6	
Informal group	94	95	95	99	97	
Written materials	24	31	22	9	32	
Video	14	14	11	9	*	
Audio cassette	3	(¹)	6	6	0	
Type of training	Target Fruit Crop (continued)					
	Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Classroom	19	7	16	25	7	
Informal group	86	95	100	75	99	
Written materials	*	23	41	26	14	
Video	0	2	17	25	11	
Audio cassette	0	0	0	0	0	
Type of training	Target Fruit Crop (continued)					
	Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Classroom	17	14	10	13	*	15
Informal group	99	96	93	91	98	95
Written materials	30	21	37	27	18	25
Video	19	14	11	8	11	13
Audio cassette	*	3	5	0	4	2

* Insufficient data.

¹ Less than one percent.

² Percent based on number of growers reporting harvest workers received food safety training in 1999.

Grower Agricultural Practices
Type of Training for Food Safety - Percent of Farms
Vegetable Program States, 1999¹

Type of training	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Classroom	12	21	1	24	8	
Informal group	95	93	99	97	99	
Written materials	52	19	13	25	31	
Video	18	16	8	25	18	
Audio cassette	7	*	1	10	2	
Type of training	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Classroom	33	13	*	30	18	
Informal group	100	97	76	87	95	
Written materials	67	20	39	43	56	
Video	11	11	40	43	30	
Audio cassette	0	*	*	*	5	
Type of training	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Classroom	19	17	10	19	7	15
Informal group	94	95	95	95	90	95
Written materials	30	17	21	19	7	22
Video	17	13	11	14	3	14
Audio cassette	4	3	2	3	*	3

* Insufficient data.

¹ Percent based on number of growers reporting harvest workers received food safety training in 1999.

**Grower Agricultural Practices
Person who Provided Food Safety Training - Percent of Farms
Fruit Program States, 1999 ²**

Person who provided the training	Target Fruit Crop					
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Farm owner, operator or manager	91	70	77	33	55	
Labor contractor/ crew chief	14	52	34	58	58	
Packer, shipper or processor	(¹)	13	*	15	0	
Other	4	3	3	2	*	
Person who provided the training	Target Fruit Crop (continued)					
	Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Farm owner, operator or manager	42	46	11	9	25	
Labor contractor/ crew chief	66	42	47	66	73	
Packer, shipper or processor	*	14	47	25	14	
Other	0	*	0	0	*	
Person who provided the training	Target Fruit Crop (continued)					
	Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Farm owner, operator or manager	45	77	92	35	21	60
Labor contractor/ crew chief	58	31	16	61	73	44
Packer, shipper or processor	7	7	*	12	6	7
Other	*	*	4	2	1	2

* Insufficient data.

¹ Less than one percent.

² Percent based on number of growers reporting harvest workers received food safety training in 1999.

Grower Agricultural Practices
Person who Provided Food Safety Training - Percent of Farms
Vegetable Program States, 1999 ²

Person who provided the training	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Farm owner, operator or manager	49	85	83	85	68	
Labor contractor/ crew chief	57	17	20	9	27	
Packer, shipper or processor	11	1	3	10	*	
Other	5	4	1	4	*	
Person who provided the training	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Farm owner, operator or manager	66	84	73	42	21	
Labor contractor/ crew chief	21	17	20	50	74	
Packer, shipper or processor	17	(¹)	7	17	18	
Other	2	7	20	11	3	
Person who provided the training	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Straw-berries	Tomatoes	Water-melons	All Vegetables
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Farm owner, operator or manager	55	87	95	74	79	78
Labor contractor/ crew chief	33	13	6	27	23	21
Packer, shipper or processor	2	1	(¹)	2	1	3
Other	12	*	5	3	2	5

* Insufficient data.

¹ Less than one percent.

² Percent based on number of growers reporting harvest workers received food safety training in 1999.

**Grower Agricultural Practices
Training Language - Percent of Farms
Fruit Program States, 1999 ²**

Training language	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
English	89	58	85	84	53
Spanish	54	99	74	88	88
German	(¹)	0	0	0	0
Hmong	0	0	0	0	0
Philipino	0	0	0	0	8
Pun Jabi	0	0	0	0	(¹)
Sign	0	0	0	0	0
Russian	0	0	0	0	0
French	(¹)	0	0	0	0
Training language	Target Fruit Crop (continued)				
	Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
English	78	62	53	88	47
Spanish	65	81	100	97	100
German	0	0	0	0	0
Hmong	0	0	0	0	0
Philipino	0	0	0	0	0
Pun Jabi	0	0	0	0	0
Sign	0	0	0	0	0
Russian	0	0	0	0	0
French	0	0	0	0	0

Grower Agricultural Practices
Training Language - Percent of Farms (continued)
Fruit Program States, 1999²

Training language	Target Fruit Crop (continued)					
	Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
English	78	80	92	55	84	78
Spanish	87	69	66	97	91	77
German	0	(¹)	0	0	0	(¹)
Hmong	0	0	0	0	0	0
Philipino	0	(¹)	0	(¹)	0	(¹)
Pun Jabi	0	0	0	0	0	(¹)
Sign	0	0	0	(¹)	0	(¹)
Russian	0	0	0	0	0	0
French	0	0	(¹)	0	0	(¹)

¹ Less than one percent.

² Percent based on number of growers reporting harvest workers received food safety training in 1999.

**Grower Agricultural Practices
Training Language - Percent of Farms
Vegetable Program States, 1999 ²**

Training language	Target Vegetable Crop				
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
English	53	82	85	88	76
Spanish	85	55	36	47	63
German	0	(¹)	0	0	*
Hmong	0	(¹)	0	(¹)	0
Philipino	0	0	0	0	0
Pun Jabi	0	0	0	5	0
Sign	0	0	0	0	0
Russian	0	(¹)	0	0	0
French	0	0	0	0	0
	Target Vegetable Crop (continued)				
Training language	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
English	64	78	76	46	49
Spanish	79	66	99	82	95
German	0	0	0	0	0
Hmong	0	0	0	0	0
Philipino	0	0	0	0	0
Pun Jabi	0	0	0	0	0
Sign	0	0	0	0	0
Russian	0	0	0	0	0
French	0	0	0	0	0

**Grower Agricultural Practices
Training Language - Percent of Farms (continued)
Vegetable Program States, 1999 ²**

Training language	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Straw-berries	Tomatoes	Water-melons	All Vegetables
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
English	75	62	77	87	79	77
Spanish	60	70	46	57	41	58
German	(¹)	0	(¹)	*	0	(¹)
Hmong	(¹)	0	(¹)	0	0	(¹)
Philipino	0	0	0	0	0	0
Pun Jabi	0	0	0	0	0	(¹)
Sign	(¹)	0	0	0	0	(¹)
Russian	0	0	(¹)	0	0	(¹)
French	0	0	0	0	0	0

* Insufficient data.

¹ Less than one percent.

² Percent based on number of growers reporting harvest workers received food safety training in 1999.

**Grower Agricultural Practices
Food Safety or Hygiene Signs Posted on Operation - Percent of Farms
Fruit Program States, 1999 ¹**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
44	33	52	65	79

Target Fruit Crop (continued)				
Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
55	32	92	22	68

Target Fruit Crop (continued)					
Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
81	57	56	85	77	61

¹ Percent based on number of growers reporting hired harvest workers in 1999.

**Grower Agricultural Practices
Food Safety or Hygiene Signs Posted on Operation - Percent of Farms
Vegetable Program States, 1999 ¹**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
87	47	28	46	67

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
69	48	32	87	98

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Water- melons	All Vegetables
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
43	40	43	39	19	43

¹ Percent based on number of growers reporting hired harvest workers in 1999.

**Grower Agricultural Practices
Trace Back Information on Crop Shipped from Farm to Packer - Percent of Farms
Fruit Program States, 1999¹**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
77	56	84	*	85

Target Fruit Crop (continued)				
Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
100	72	75	*	88

Target Fruit Crop (continued)					
Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
*	74	89	88	*	75

* Insufficient data.

¹ Percent based on number of growers reporting not packing their production in 1999.

**Grower Agricultural Practices
Trace Back Information on Crop Shipped from Farm to Packer - Percent of Acres
Fruit Program States, 1999¹**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
92	76	83	0	94

Target Fruit Crop (continued)				
Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
100	87	88	*	93

Target Fruit Crop (continued)					
Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
*	93	91	91	*	90

* Insufficient data.

¹ Percent based on number of growers reporting not packing their production in 1999.

Grower Agricultural Practices
Type of Trace Back Info. on Crop Shipped from Farm to Packer - Percent of Farms
Fruit Program States, 1999¹

Type of trace back information	Target Fruit Crop					
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Farm	71	54	78	*	58	
Field/block	39	26	31	*	67	
Date of harvest	59	39	65	*	69	
Picker/harvester	42	26	25	*	45	
Other	32	3	32	*	11	
Type of trace back information	Target Fruit Crop (continued)					
	Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines	
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	
Farm	95	58	55	*	85	
Field/block	21	28	50	*	79	
Date of harvest	56	44	51	*	82	
Picker/harvester	10	23	36	*	16	
Other	39	14	*	*	26	
Type of trace back information	Target Fruit Crop (continued)					
	Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Farm	*	64	82	81	*	55
Field/block	*	47	41	63	*	31
Date of harvest	*	52	66	75	*	45
Picker/harvester	*	19	52	14	*	21
Other	*	19	41	14	*	20

* Insufficient data.

¹ Percent based on number of growers reporting not packing their production in 1999.

Grower Agricultural Practices
Type of Trace Back Info. on Crop Shipped from Farm to Packer - Percent of Acres
Fruit Program States, 1999¹

Type of trace back information	Target Fruit Crop					
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table	
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	
Farm	86	74	79	*	87	
Field/block	59	23	35	*	92	
Date of harvest	79	55	62	*	92	
Picker/harvester	63	19	25	*	86	
Other	41	27	32	*	6	
Type of trace back information	Target Fruit Crop (continued)					
	Grapes, Raisin	Kiwifruit	Lemons	Limes	Nectarines	
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	
Farm	98	76	81	*	90	
Field/block	38	43	71	*	76	
Date of harvest	42	63	80	*	82	
Picker/harvester	17	32	43	*	36	
Other	52	15	*	*	21	
Type of trace back information	Target Fruit Crop (continued)					
	Oranges	Peaches	Pears	Plums	Tangerines	All Fruit
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
Farm	*	85	89	80	*	72
Field/block	*	76	44	77	*	53
Date of harvest	*	74	64	83	*	61
Picker/harvester	*	51	43	34	*	36
Other	*	22	37	18	*	25

* Insufficient data.

¹ Percent based on number of growers reporting not packing their production in 1999.

**Grower Agricultural Practices
Trace Back Information on Crop Shipped from Farm to Packer - Percent of Farms
Vegetable Program States, 1999 ¹**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
83	41	44	43	64

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
46	45	*	77	91

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Water-Melons	All Vegetables
<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
31	55	39	41	18	43

* Insufficient data.

¹ Percent based on number of growers reporting not packing their production in 1999.

**Grower Agricultural Practices
Trace Back Information on Crop Shipped from Farm to Packer - Percent of Acres
Vegetable Program States, 1999 ¹**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
99	48	85	54	93

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
83	63	89	96	84

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Water-melons	All Vegetables
<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
65	84	90	75	32	79

¹ Percent based on number of growers reporting not packing their production in 1999.

Grower Agricultural Practices
Type of Trace Back Info. on Crop Shipped from Farm to Packer - Percent of Farms
Vegetable Program States, 1999 ²

Type of trace back information	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Farm	52	28	36	34	42	
Field/block	57	8	21	36	53	
Date of harvest	57	12	17	41	53	
Picker/harvester	37	3	9	26	36	
Other	31	11	11	15	*	
Type of trace back information	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	
Farm	42	36	*	50	45	
Field/block	42	7	*	48	68	
Date of harvest	46	22	*	45	66	
Picker/harvester	37	4	*	42	46	
Other	0	3	*	25	11	
Type of trace back information	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>	<i>% of farms</i>
Farm	16	45	11	32	17	31
Field/block	13	26	11	25	2	20
Date of harvest	19	38	16	30	10	26
Picker/harvester	6	9	15	19	2	13
Other	(¹)	1	12	8	10	8

* Insufficient data.

¹ Less than one percent.

² Percent based on number of growers reporting not packing their production in 1999.

Grower Agricultural Practices
Type of Trace Back Info. on Crop Shipped from Farm to Packer - Percent of Acres
Vegetable Program States, 1999 ²

Type of trace back information	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	
Farm	55	30	50	53	29	
Field/block	86	19	71	53	76	
Date of harvest	86	15	49	47	76	
Picker/harvester	51	13	42	19	74	
Other	40	4	20	25	*	
Type of trace back information	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	
Farm	78	39	83	68	49	
Field/block	79	20	33	73	72	
Date of harvest	83	27	21	73	61	
Picker/harvester	67	11	6	68	47	
Other	0	4	*	28	12	
Type of trace back information	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Straw-berries	Tomatoes	Water-melons	All Vegetables
	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>	<i>% of acres</i>
Farm	31	70	55	69	31	57
Field/block	23	65	57	65	4	61
Date of harvest	24	67	67	70	6	60
Picker/harvester	13	22	48	60	6	47
Other	(¹)	1	30	5	9	15

* Insufficient data.

¹ Less than one percent.

² Percent based on number of growers reporting not packing their production in 1999.

**Packer Agricultural Practices
Reporting New Food Safety Requirements
by Buyers of Fruit for Fresh Market - Percent of Packers
Fruit Program States, 1999**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
6	6	4	7	18

Target Fruit Crop (continued)				
Kiwifruit	Lemons	Nectarines	Oranges	Peaches
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
13	25	12	9	6

Target Fruit Crop (continued)			
Pears	Plums	Tangerines	All Fruit
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
5	12	4	8

**Packer Agricultural Practices
Reporting New Food Safety Requirements
by Buyers of Vegetables for Fresh Market - Percent of Packers
Vegetable Program States, 1999**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
34	13	1	7	26

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
48	1	10	36	3

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
6	4	11	4	2	8

**Packer Agricultural Practices
Labeled as Organically Grown - Percent of Volume
Fruit Program States, 1999**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
7	(1)	1	(1)	(1)

Target Fruit Crop (continued)				
Kiwifruit	Lemons	Nectarines	Oranges	Peaches
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
4	(1)	3	3	2

Target Fruit Crop (continued)				
Pears	Plums	Tangerines	All Fruit	
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	
1	3	(1)	4	

¹ Less than one percent

**Packer Agricultural Practices
Labeled as Organically Grown - Percent of Volume
Vegetable Program States, 1999**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
(1)	1	(1)	(1)	(1)

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
1	1	(1)	2	(1)

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
(1)	(1)	1	(1)	(1)	(1)

¹ Less than one percent

**Packer Agricultural Practices
Packed for Export - Percent of Volume
Fruit Program States, 1999**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
21	22	37	37	26

Target Fruit Crop (continued)				
Kiwifruit	Lemons	Nectarines	Oranges	Peaches
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
24	23	21	19	20

Target Fruit Crop (continued)				
Pears	Plums	Tangerines	All Fruit	
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	
29	30	13	23	

**Packer Agricultural Practices
Packed for Export - Percent of Volume
Vegetable Program States, 1999**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
16	4	10	5	27

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
9	4	12	7	8

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
8	9	12	9	6	10

**Packer Agricultural Practices
Percent of Packing Workers Working Entire Packing Season
Fruit Program States, 1999¹**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>
85	80	71	86	67

Target Fruit Crop (continued)				
Kiwifruit	Lemons	Nectarines	Oranges	Peaches
<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>
88	82	81	64	83

Target Fruit Crop (continued)				
Pears	Plums	Tangerines	All Fruit	
<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	
74	78	85	76	

¹ Percent based on number of packers reporting hired workers in 1999.

**Packer Agricultural Practices
Percent of Packing Workers Working Entire Packing Season
Vegetable Program States, 1999¹**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>
66	84	85	79	96

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>
91	81	79	93	96

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>
84	87	63	77	86	75

¹ Percent based on number of packers reporting hired workers in 1999.

**Packer Agricultural Practices
Provided Food Safety Related Training - Percent of Packers
Fruit Program States, 1999¹**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
78	87	84	99	94

Target Fruit Crop (continued)				
Kiwifruit	Lemons	Nectarines	Oranges	Peaches
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
95	100	100	99	86

Target Fruit Crop (continued)				
Pears	Plums	Tangerines	All Fruit	
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
88	100	100	89	

¹ Percent based on number of packers reporting hired workers in 1999.

**Packer Agricultural Practices
Provided Food Safety Related Training - Percent of Packers
Vegetable Program States, 1999¹**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
95	79	68	90	85

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
98	80	100	98	100

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
78	93	87	76	67	82

¹ Percent based on number of packers reporting hired workers in 1999.

**Packer Agricultural Practices
Food Safety Training Topics for Workers - Percent of Packers
Fruit Program States, 1999¹**

Food safety topic	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Personal hygiene	65	86	77	80	88
Protective measures for cuts and sores	56	86	71	85	87
Produce quality	75	87	83	98	91
Keeping produce clean	72	86	81	96	93
Equipment cleaning or sanitizing	60	65	63	98	86
Food safety topic	Target Fruit Crop (continued)				
	Kiwifruit	Lemons	Nectarines	Oranges	Peaches
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Personal hygiene	86	88	100	70	73
Protective measures for cuts and sores	31	100	94	58	56
Produce quality	95	100	100	98	84
Keeping produce clean	91	100	100	95	84
Equipment cleaning or sanitizing	44	100	92	89	52
Food safety topic	Target Fruit Crop (continued)				
	Pears	Plums	Tangerines	All Fruit	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Personal hygiene	70	100	79	76	
Protective measures for cuts and sores	71	96	92	69	
Produce quality	86	98	100	88	
Keeping produce clean	83	100	100	86	
Equipment cleaning or sanitizing	78	89	100	73	

¹ Percent based on number of packers reporting hired workers received food safety training in 1999.

Packer Agricultural Practices
Food Safety Training Topics for Workers - Percent of Packers
Vegetable Program States, 1999¹

Food safety topic	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Personal hygiene	91	64	59	71	79	
Protective measures for cuts and sores	95	67	57	71	80	
Produce quality	95	71	67	90	85	
Keeping produce clean	95	70	66	77	85	
Equipment cleaning or sanitizing	89	55	35	84	76	
Food safety topic	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Personal hygiene	93	66	88	90	100	
Protective measures for cuts and sores	98	63	62	92	99	
Produce quality	98	80	100	98	99	
Keeping produce clean	97	74	93	96	100	
Equipment cleaning or sanitizing	93	60	63	90	95	
Food safety topic	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Personal hygiene	68	74	71	63	36	67
Protective measures for cuts and sores	67	65	66	61	37	65
Produce quality	74	89	84	76	65	80
Keeping produce clean	75	75	82	73	58	76
Equipment cleaning or sanitizing	68	63	47	57	41	60

¹ Percent based on number of packers reporting hired workers received food safety training in 1999.

Packer Agricultural Practices
Type of Training for Food Safety - Percent of Packers
Fruit Program States, 1999¹

Type of training	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Classroom	21	14	20	48	5
Informal group	89	100	90	98	100
Written materials	36	15	42	63	13
Video	15	11	13	52	3
Audio cassette	4	0	3	4	0
Type of training	Target Fruit Crop (continued)				
	Kiwifruit	Lemons	Nectarines	Oranges	Peaches
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Classroom	18	79	27	33	16
Informal group	87	84	88	98	88
Written materials	19	62	41	46	20
Video	*	58	30	30	12
Audio cassette	0	0	14	4	3
Type of training	Target Fruit Crop (continued)				
	Pears	Plums	Tangerines	All Fruit	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Classroom	20	17	35	24	
Informal group	97	97	96	93	
Written materials	50	54	75	38	
Video	13	21	48	21	
Audio cassette	5	8	0	4	

* Insufficient data.

¹ Percent based on number of packers reporting hired workers received food safety training in 1999.

**Packer Agricultural Practices
Type of Training for Food Safety - Percent of Packers
Vegetable Program States, 1999 ¹**

Type of training	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Classroom	38	13	5	14	8	
Informal group	100	93	99	96	98	
Written materials	92	11	4	14	51	
Video	14	11	9	*	20	
Audio cassette	3	3	*	4	0	
Type of training	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Classroom	20	19	10	12	83	
Informal group	100	94	100	94	100	
Written materials	72	34	25	47	5	
Video	46	13	25	24	2	
Audio cassette	12	*	7	4	*	
Type of training	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Straw-berries	Tomatoes	Water-melons	All Vegetables
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Classroom	44	20	19	20	9	22
Informal group	94	95	95	95	94	95
Written materials	16	44	35	25	17	29
Video	10	19	18	16	5	15
Audio cassette	6	3	*	*	0	4

* Insufficient data.

¹ Percent based on number of packers reporting hired workers received food safety training in 1999.

Packers Agricultural Practices
Person who Provided Food Safety Training - Percent of Packers
Fruit Program States, 1999¹

Person who provided the training	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Farm owner, operator or manager	90	56	90	88	35
Labor contractor/ crew chief	14	49	24	*	88
Other	11	1	6	2	0
Person who provided the training	Target Fruit Crop (continued)				
	Kiwifruit	Lemons	Nectarines	Oranges	Peaches
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Farm owner, operator or manager	95	84	89	95	94
Labor contractor/ crew chief	*	12	25	8	4
Other	5	21	5	9	5
Person who provided the training	Target Fruit Crop (continued)				
	Pears	Plums	Tangerines	All Fruit	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Farm owner, operator or manager	87	91	86	85	
Labor contractor/ crew chief	14	11	13	20	
Other	12	5	14	7	

* Insufficient data.

¹ Percent based on number of growers reporting harvest workers received food safety training in 1999.

**Packer Agricultural Practices
 Person who Provided Food Safety Training - Percent of Packers
 Vegetable Program States, 1999¹**

Person who provided the training	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Farm owner, operator or manager	58	74	91	95	72	
Labor contractor/ crew chief	62	32	13	15	49	
Other	3	7	4	4	3	
Person who provided the training	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Farm owner, operator or manager	73	97	76	83	94	
Labor contractor/ crew chief	51	12	31	37	6	
Other	12	1	10	9	1	
Person who provided the training	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Farm owner, operator or manager	87	85	93	97	81	87
Labor contractor/ crew chief	14	24	13	10	25	21
Other	6	2	6	4	4	4

¹ Percent based on number of growers reporting harvest workers received food safety training in 1999.

**Packer Agricultural Practices
Training Language - Percent of Packers
Fruit Program States, 1999²**

Training language	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
English	95	89	95	80	47
Spanish	51	97	72	81	95
German	(¹)	0	0	0	0
Hmong	0	0	0	0	0
Philipino	0	0	0	0	0
Pun Jabi	0	0	0	0	0
Russian	1	0	1	0	0
French	(¹)	0	0	0	0
Training language	Target Fruit Crop (continued)				
	Kiwifruit	Lemons	Nectarines	Oranges	Peaches
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>packers</i>
English	95	58	77	96	94
Spanish	37	96	99	57	29
German	0	0	0	0	(¹)
Hmong	0	0	0	0	0
Philipino	0	0	*	0	(¹)
Pun Jabi	*	0	0	0	0
Russian	0	0	0	0	0
French	0	0	0	0	0
Training language	Target Fruit Crop (continued)				
	Pears	Plums	Tangerines	All Fruit	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
English	98	88	96	90	
Spanish	62	83	82	65	
German	0	0	0	(¹)	
Hmong	0	0	0	0	
Philipino	0	0	0	(¹)	
Pun Jabi	0	0	0	(¹)	
Russian	1	0	0	(¹)	
French	0	0	0	(¹)	

* Insufficient data.

¹ Less than one percent.

² Percent based on number of packers reporting hired workers received food safety training in 1999.

**Packer Agricultural Practices
Training Language - Percent of Packers
Vegetable Program States, 1999 ²**

Training language	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
English	62	78	92	91	77	
Spanish	100	60	75	64	87	
German	0	0	0	0	2	
Hmong	0	(¹)	0	1	0	
Philipino	0	0	0	0	0	
Pun Jabi	0	0	0	0	0	
Russian	0	0	0	0	0	
French	0	0	0	0	0	
Training language	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
English	63	81	72	41	*	
Spanish	91	48	73	90	98	
German	0	0	0	0	0	
Hmong	0	0	0	0	0	
Philipino	0	0	0	0	0	
Pun Jabi	0	0	0	0	0	
Russian	0	0	0	0	0	
French	0	0	0	0	0	
Training language	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Straw-berries	Tomatoes	Water-melons	All Vegetables
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
English	60	81	72	93	90	75
Spanish	76	64	61	60	50	66
German	0	0	(¹)	0	0	(¹)
Hmong	(¹)	0	(¹)	0	0	(¹)
Philipino	0	0	0	0	0	0
Pun Jabi	0	0	0	0	0	0
Russian	0	0	0	0	0	0
French	0	0	0	0	0	0

* Insufficient data.

¹ Less than one percent.

² Percent based on number of packers reporting hired workers received food safety training in 1999.

**Packer Agricultural Practices
Food Safety or Hygiene Signs Posted on Operation - Percent of Packers
Fruit Program States, 1999¹**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
54	*	68	90	97

Target Fruit Crop (continued)				
Kiwifruit	Lemons	Nectarines	Oranges	Peaches
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>packers</i>
35	71	68	62	29

Target Fruit Crop (continued)				
Pears	Plums	Tangerines	All Fruit	
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
61	57	65	56	

* Insufficient data.

¹ Percent based on number of packers reporting hired workers in 1999.

**Packer Agricultural Practices
Food Safety or Hygiene Signs Posted on Operation - Percent of Packers
Vegetable Program States, 1999¹**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
95	54	43	54	74

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
91	48	65	71	*

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
31	60	51	42	33	49

* Insufficient data.

¹ Percent based on number of packers reporting hired workers in 1999.

**Packer Agricultural Practices
Responsible for Microbial Food Safety - Percent of Workers
Fruit Program States, 1999¹**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>
3	10	2	3	4

Target Fruit Crop (continued)				
Kiwifruit	Lemons	Nectarines	Oranges	Peaches
<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>
2	5	4	3	5

Target Fruit Crop (continued)				
Pears	Plums	Tangerines	All Fruit	
<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	
3	3	3	3	

¹ Percent based on number of packers reporting hired workers in 1999.

**Packer Agricultural Practices
Responsible for Microbial Food Safety - Percent of Workers
Vegetable Program States, 1999¹**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>
4	4	7	5	5

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>
5	5	5	4	5

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>
4	3	4	3	4	4

¹ Percent based on number of packers reporting hired workers in 1999.

**Packer Agricultural Practices
Monitored for Microbial Counts - Percent of Packers
Fruit Program States, 1999 ¹**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
39	*	55	62	93

Target Fruit Crop (continued)				
Kiwifruit	Lemons	Nectarines	Oranges	Peaches
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
27	96	55	57	36

Target Fruit Crop (continued)				
Pears	Plums	Tangerines	All Fruit	
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
54	44	82	47	

* Insufficient data.

**Packer Agricultural Practices
Monitored for Microbial Counts - Percent of Volume
Fruit Program States, 1999**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
89	*	76	88	95

Target Fruit Crop (continued)				
Kiwifruit	Lemons	Nectarines	Oranges	Peaches
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
76	99	81	77	90

Target Fruit Crop (continued)				
Pears	Plums	Tangerines	All Fruit	
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	
72	86	84	84	

* Insufficient data.

**Packer Agricultural Practices
Monitored for Microbial Counts - Percent of Packers
Vegetable Program States, 1999**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
78	40	55	57	69

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
72	40	59	63	74

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
27	37	44	33	*	40

* Insufficient data.

**Packer Agricultural Practices
Monitored for Microbial Counts - Percent of Volume
Vegetable Program States, 1999**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
99	66	81	95	96

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
79	75	86	93	94

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
59	50	78	88	*	65

* Insufficient data.

**Packer Agricultural Practices
Items Monitored for Microbial Counts - Percent of Packers
Fruit Program States, 1999¹**

Item monitored	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Equipment or food contact surfaces	53	97	69	66	23
Produce	71	16	79	76	96
Water	82	8	69	85	7
Other	4	8	16	*	3
Item monitored	Target Fruit Crop (continued)				
	Kiwifruit	Lemons	Nectarines	Oranges	Peaches
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Equipment or food contact surfaces	67	70	34	83	75
Produce	50	79	91	59	82
Water	33	44	54	86	85
Other	0	39	0	12	6
Item monitored	Target Fruit Crop (continued)				
	Pears	Plums	Tangerines	All Fruit	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Equipment or food contact surfaces	64	42	78	62	
Produce	66	92	74	75	
Water	73	54	83	69	
Other	5	0	*	10	

* Insufficient data.

¹ Percent based on number of packers reporting monitoring for microbial counts in 1999.

**Packer Agricultural Practices
Items Monitored for Microbial Counts - Percent of Volume
Fruit Program States, 1999**

Item monitored	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
Equipment or food contact surfaces	44	46	41	82	15
Produce	53	46	66	66	92
Water	86	27	75	85	8
Other	5	27	2	5	5
Item monitored	Target Fruit Crop (continued)				
	Kiwifruit	Lemons	Nectarines	Oranges	Peaches
	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
Equipment or food contact surfaces	55	73	12	62	66
Produce	35	52	61	61	64
Water	49	39	49	70	85
Other	0	76	0	34	16
Item monitored	Target Fruit Crop (continued)				
	Pears	Plums	Tangerines	All Fruit	
	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	
Equipment or food contact surfaces	44	12	73	52	
Produce	53	74	62	58	
Water	64	47	65	73	
Other	5	0	*	17	

* Insufficient data.

Packer Agricultural Practices
Items Monitored for Microbial Counts - Percent of Packers
Vegetable Program States, 1999¹

Item monitored	Target Vegetable Crop				
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Equipment or food contact surfaces	82	41	75	78	72
Produce	62	72	88	79	84
Water	91	48	75	59	94
Other	29	6	17	11	*

Item monitored	Target Vegetable Crop (continued)				
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Equipment or food contact surfaces	69	66	68	85	52
Produce	78	71	77	88	48
Water	74	89	66	43	83
Other	*	6	23	0	4

Item monitored	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Equipment or food contact surfaces	70	54	44	59	58	61
Produce	79	84	74	69	77	75
Water	49	51	57	71	58	66
Other	9	10	11	7	30	12

* Insufficient data.

¹ Percent based on number of packers reporting monitoring for microbial counts in 1999.

**Packer Agricultural Practices
Items Monitored for Microbial Counts - Percent of Volume
Vegetable Program States, 1999**

Item monitored	Target Vegetable Crop				
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
Equipment or food contact surfaces	75	26	57	76	99
Produce	85	63	46	70	68
Water	95	26	23	89	100
Other	69	(¹)	22	12	*

Item monitored	Target Vegetable Crop (continued)				
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
Equipment or food contact surfaces	50	66	78	92	78
Produce	44	62	51	100	76
Water	76	72	53	*	81
Other	*	1	46	0	2

Item monitored	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
Equipment or food contact surfaces	48	39	38	64	14	52
Produce	53	50	70	62	15	52
Water	37	40	50	87	9	41
Other	6	3	10	8	*	10

* Insufficient data.

¹ Less than one percent.

**Packer Agricultural Practices
Glove Wear - Percent of Packers
Fruit Program States, 1999¹**

For operations requiring workers to touch produce, were gloves worn?	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
Yes:	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
For all operations that required touching the produce ²	46	71	47	77	45
For some operations requiring touching the produce ²	51	35	52	83	*
No	54	29	53	23	55
For operations requiring workers to touch produce, were gloves worn?	Target Fruit Crop (continued)				
	Kiwifruit	Lemons	Nectarines	Oranges	Peaches
Yes:	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
For all operations that required touching the produce ²	96	96	59	71	45
For some operations requiring touching the produce ²	100	79	56	55	37
No	4	4	41	29	55
For operations requiring workers to touch produce, were gloves worn?	Target Fruit Crop (continued)				
	Pears	Plums	Tangerines	All Fruit	
Yes:	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
For all operations that required touching the produce ²	53	50	79	57	
For some operations requiring touching the produce ²	64	69	50	55	
No	46	50	21	44	

* Insufficient data.

¹ Percent based on number of packers reporting hired workers in 1999.

² Percent based on number of packers reporting hired workers wore gloves in 1999.

**Packer Agricultural Practices
Glove Wear - Percent of Packers
Vegetable Program States, 1999 ¹**

For operations requiring workers to touch produce, were gloves worn?	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
Yes:	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
For all operations that required touching the produce ²	74	59	56	83	82	
For some operations requiring touching the produce ²	53	58	85	39	41	
No	47	42	15	61	59	
	26	41	44	17	18	
For operations requiring workers to touch produce, were gloves worn?	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
Yes:	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
For all operations that required touching the produce ²	85	55	67	75	98	
For some operations requiring touching the produce ²	62	82	52	65	*	
No	38	18	48	35	*	
	15	45	33	25	2	
For operations requiring workers to touch produce, were gloves worn?	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
Yes:	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
For all operations that required touching the produce ²	57	54	43	45	22	54
For some operations requiring touching the produce ²	81	61	42	69	43	65
No	19	39	58	31	57	35
	43	46	57	55	77	46

* Insufficient data.

¹ Percent based on number of packers reporting hired workers in 1999.

² Percent based on number of packers reporting hired workers wore gloves in 1999.

**Packer Agricultural Practices
Wore Gloves if Handling Produce - Percent of Workers
Fruit Program States, 1999 ¹**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>
59	69	59	65	62

Target Fruit Crop (continued)				
Kiwifruit	Lemons	Nectarines	Oranges	Peaches
<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>
92	92	69	66	62

Target Fruit Crop (continued)				
Pears	Plums	Tangerines	All Fruit	
<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	
66	41	34	62	

¹ Percent based on number of packers reporting hired workers in 1999.

**Packer Agricultural Practices
Wore Gloves if Handling Produce - Percent of Volume
Fruit Program States, 1999**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
62	83	92	63	91

Target Fruit Crop (continued)				
Kiwifruit	Lemons	Nectarines	Oranges	Peaches
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
100	100	73	95	68

Target Fruit Crop (continued)				
Pears	Plums	Tangerines	All Fruit	
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	
96	73	68	77	

**Packer Agricultural Practices
Wore Gloves if Handling Produce - Percent of Workers
Vegetable Program States, 1999 ¹**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>
69	20	32	85	90

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>
77	52	23	88	98

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>	<i>% of workers</i>
46	67	43	55	14	56

¹ Percent based on number of packers reporting hired workers in 1999.

**Packer Agricultural Practices
Wore Gloves if Handling Produce - Percent of Volume
Vegetable Program States, 1999**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
75	62	26	99	99

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
62	79	50	92	99

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
70	95	81	91	20	60

**Packer Agricultural Practices
Type of Glove Worn by Workers - Percent of Packers
Fruit Program States, 1999¹**

Type of glove	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Thin latex	27	5	78	15	0
Medium/heavy latex or rubber	51	27	30	63	66
Cotton or cloth	60	68	18	73	38
Metal or mesh	*	*	*	*	*
Other	2	1	0	0	3
Type of glove	Target Fruit Crop (continued)				
	Kiwifruit	Lemons	Nectarines	Oranges	Peaches
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Thin latex	9	17	48	18	18
Medium/heavy latex or rubber	5	48	19	23	16
Cotton or cloth	90	65	72	86	76
Metal or mesh	*	*	*	*	*
Other	0	0	0	1	*
Type of glove	Target Fruit Crop (continued)				
	Pears	Plums	Tangerines	All Fruit	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Thin latex	26	24	44	25	
Medium/heavy latex or rubber	56	19	17	35	
Cotton or cloth	89	69	73	68	
Metal or mesh	*	*	*	*	
Other	0	0	0	1	

* Insufficient data.

¹ Percent based on number of packers reporting hired workers wore gloves in 1999.

Packer Agricultural Practices
Type of Glove Worn by Workers - Percent of Packers
Vegetable Program States, 1999 ²

Type of glove	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Thin latex	9	41	53	25	7	
Medium/heavy latex or rubber	82	60	28	68	64	
Cotton or cloth	45	27	35	50	58	
Metal or mesh	18	0	0	0	27	
Other	4	(¹)	4	2	18	
Type of glove	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Thin latex	26	46	24	42	11	
Medium/heavy latex or rubber	70	45	47	87	92	
Cotton or cloth	26	33	61	0	1	
Metal or mesh	6	0	0	0	0	
Other	6	0	15	0	0	
Type of glove	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Thin latex	26	29	72	48	8	37
Medium/heavy latex or rubber	68	54	32	40	21	54
Cotton or cloth	27	53	10	32	67	32
Metal or mesh	0	0	0	0	2	2
Other	2	0	1	*	4	2

* Insufficient data.

¹ Less than one percent.

² Percent based on number of packers reporting hired workers wore gloves in 1999.

**Packer Agricultural Practices
Hairnet Wear - Percent of Packers
Fruit Program States, 1999 ¹**

For operations requiring workers to touch produce, were hairnets worn	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
Yes:	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
For all operations that required touching the produce ²	10	11	18	10	*
For some operations requiring touching the produce ²	66	75	33	92	*
No	34	25	67	8	*
91	89	82	90	*	*
For operations requiring workers to touch produce, were hairnets worn	Target Fruit Crop (continued)				
	Kiwifruit	Lemons	Nectarines	Oranges	Peaches
Yes:	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
For all operations that required touching the produce ²	5	21	23	*	6
For some operations requiring touching the produce ²	*	*	82	*	49
No	*	*	18	*	51
95	79	77	*	94	
For operations requiring workers to touch produce, were hairnets worn	Target Fruit Crop (continued)				
	Pears	Plums	Tangerines	All Fruit	
Yes:	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
For all operations that required touching the produce ²	*	7	22	12	
For some operations requiring touching the produce ²	*	50	59	53	
No	*	50	41	47	
	*	92	78	89	

* Insufficient data.

¹ Percent based on number of packers reporting hired workers in 1999. Does not include other types of head coverings.

² Percent based on number of packers reporting hired workers wore hairnets in 1999.

**Packer Agricultural Practices
Hairnet Wear - Percent of Packers
Vegetable Program States, 1999 ¹**

For operations requiring workers to touch produce, were hairnets worn	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
Yes:	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
For all operations that required touching the produce ²	35	22	34	39	19	
For some operations requiring touching the produce ²	96	*	87	84	84	
No	65	78	66	61	81	
For operations requiring workers to touch produce, were hairnets worn	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
Yes:	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
For all operations that required touching the produce ²	30	7	17	41	89	
For some operations requiring touching the produce ²	83	31	62	*	98	
No	70	93	83	59	11	
For operations requiring workers to touch produce, were hairnets worn	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
Yes:	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
For all operations that required touching the produce ²	25	10	11	11	7	19
For some operations requiring touching the produce ²	96	66	74	45	*	77
No	75	90	89	89	93	81

* Insufficient data.

¹ Percent based on number of packers reporting hired workers in 1999. Does not include other types of head coverings.

² Percent based on number of packers reporting hired workers wore hairnets in 1999.

**Packer Agricultural Practices
Workers Wore Hairnets if Handling Produce - Percent of Volume
Fruit Program States, 1999 ¹**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
23	29	46	6	*

Target Fruit Crop (continued)				
Kiwifruit	Lemons	Nectarines	Oranges	Peaches
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
1	13	21	*	38

Target Fruit Crop (continued)				
Pears	Plums	Tangerines	All Fruit	
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	
*	29	13	17	

* Insufficient data.

¹ Does not include other types of head coverings.

**Packer Agricultural Practices
Workers Wore Hairnets if Handling Produce - Percent of Volume
Vegetable Program States, 1999 ¹**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
37	12	22	75	35

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
50	45	32	63	66

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
15	28	25	46	12	33

¹ Does not include other types of head coverings.

**Packer Agricultural Practices
Field Packing - Percent of Packers
Fruit Program States, 1999**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
33	*	43	7	100

Target Fruit Crop (continued)				
Kiwifruit	Lemons	Nectarines	Oranges	Peaches
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
*	*	*	*	*

Target Fruit Crop (continued)				
Pears	Plums	Tangerines	All Fruit	
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
23	*	9	35	

* Insufficient data.

**Packer Agricultural Practices
Field Packing - Percent of Packers
Vegetable Program States, 1999**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
99	69	81	16	94

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
72	37	63	95	96

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
19	51	85	35	87	57

**Packer Agricultural Practices
Field Packing - Harvest Tools Used - Percent of Packers
Fruit Program States, 1999¹**

Harvest tool	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Hands	100	*	100	*	100
Knife	0	*	0	*	46
Machete	0	*	0	*	0
Clippers/scissors	1	*	0	*	45
Other	*	*	8	*	2
Harvest tool	Target Fruit Crop (continued)				
	Kiwifruit	Lemons	Nectarines	Oranges	Peaches
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Hands	*	*	*	*	*
Knife	*	*	*	*	*
Machete	*	*	*	*	*
Clippers/scissors	*	*	*	*	*
Other	*	*	*	*	*
Harvest tool	Target Fruit Crop (continued)				
	Pears	Plums	Tangerines	All Fruit	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Hands	100	*	*	99	
Knife	0	*	*	9	
Machete	0	*	*	0	
Clippers/scissors	7	*	*	9	
Other	0	*	*	6	

* Insufficient data.

¹ Percent based on number of packers reporting field packing in 1999.

Packer Agricultural Practices
Field Packing - Harvest Tools Used - Percent of Packers
Vegetable Program States, 1999 ²

Harvest tool	Target Vegetable Crop				
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Hands	100	100	100	100	100
Knife	100	79	8	6	83
Machete	0	7	0	0	*
Clippers/scissors	0	0	0	10	0
Other	0	(¹)	0	53	1

Harvest tool	Target Vegetable Crop (continued)				
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Hands	100	100	100	100	100
Knife	98	1	30	90	96
Machete	0	0	0	0	0
Clippers/scissors	0	(¹)	0	0	0
Other	2	0	*	0	0

Harvest tool	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Hands	100	100	100	100	100	100
Knife	39	24	2	4	44	37
Machete	0	0	0	0	0	1
Clippers/scissors	32	*	1	2	3	2
Other	3	0	*	0	0	2

* Insufficient data.

¹ Less than one percent.

² Percent based on number of packers reporting field packing in 1999.

Packers Agricultural Practices
Field Packing - Harvest Tool Washed - Percent of Packers
Program States, 1999 ¹

Crop category	Knife washed			Machete washed			Clippers/scissors washed			Other tool washed		
	Yes	No	Don't know	Yes	No	Don't know	Yes	No	Don't know	Yes	No	Don't know
ALL FRUIT	% of packers *	% of packers *	% of packers *	% of packers (²)	% of packers (²)	% of packers (²)	% of packers 50	% of packers 23	% of packers 27	% of packers 70	% of packers 30	% of packers 0
ALL VEGETABLES	72	20	8	45	49	6	85	9	6	64	26	10

* Insufficient data.

¹ Percent based on number of packers reporting using knife, machete, clippers/scissors, other harvest tools in 1999.

² Not applicable.

Packer Agricultural Practices
Field Packing - Harvest Tool Washing Frequency - Percent of Packers
Program States, 1999 ²

Crop category	Harvest tool	Frequency of washing					
		Daily	Weekly	Monthly	Per season	As needed	Other
ALL FRUIT	Knife	% of packers *	% of packers *	% of packers *	% of packers *	% of packers *	% of packers *
	Machete	(³)	(³)	(³)	(³)	(³)	(³)
	Clippers/scissors	56	21	0	5	*	*
	Other	*	*	*	*	*	*
ALL VEGETABLES	Knife	55	5	1	(¹)	34	5
	Machete	0	48	0	0	52	0
	Clippers/scissors	54	15	0	0	31	0
	Other	27	40	0	4	29	0

* Insufficient data.

¹ Less than one percent.

² Percent based on number of packers reporting using knife, machete, clippers/scissors, other harvest tools in 1999.

³ Not applicable.

**Packer Agricultural Practices
Field Packing - Harvest Tool Sanitized - Percent of Packers
Program States, 1999¹**

Crop category	Knife sanitized			Machete sanitized			Clippers/scissors sanitized			Other tool sanitized		
	Yes	No	Don't know	Yes	No	Don't know	Yes	No	Don't know	Yes	No	Don't know
ALL FRUIT	% of packers *	% of packers *	% of packers *	% of packers (²)	% of packers (²)	% of packers (²)	% of packers 33	% of packers 33	% of packers 35	% of packers *	% of packers *	% of packers *
ALL VEGETABLES	31	53	16	0	94	6	38	37	24	22	68	10

* Insufficient data.

¹ Percent based on number of packers reporting using knife, machete, clippers/scissors, other harvest tools in 1999.

² Not applicable.

**Packer Agricultural Practices
Field Packing - Harvest Tool Sanitizing Frequency - Percent of Packers
Program States, 1999¹**

Crop category	Harvest tool	Frequency of sanitizing					
		Daily	Weekly	Monthly	Per season	As needed	Other
ALL FRUIT	Knife	% of packers *	% of packers *	% of packers *	% of packers *	% of packers *	% of packers *
	Machete	(²)	(²)	(²)	(²)	(²)	(²)
	Clippers/scissors	23	0	0	0	0	77
	Other	*	*	*	*	*	*
ALL VEGETABLES	Knife	72	9	1	0	15	3
	Machete	(²)	(²)	(²)	(²)	(²)	(²)
	Clippers/scissors	96	4	0	0	0	0
	Other	64	0	0	0	36	0

* Insufficient data.

¹ Percent based on number of packers reporting using knife, machete, clippers/scissors, other harvest tools in 1999.

² Not applicable.

**Packer Agricultural Practices
Used Mobile Packing Unit - Percent of Packers
Fruit Program States, 1999¹**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
8	*	7	*	11

Target Fruit Crop (continued)				
Kiwifruit	Lemons	Nectarines	Oranges	Peaches
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
*	*	*	*	*

Target Fruit Crop (continued)				
Pears	Plums	Tangerines	All Fruit	
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
*	*	*	*	12

* Insufficient data.

¹ Percent based on number of packers reporting field packing in 1999.

**Packer Agricultural Practices
Used Mobile Packing Unit - Percent of Packers
Vegetable Program States, 1999¹**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
86	13	31	*	76

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
51	5	41	28	46

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
*	10	12	5	18	21

* Insufficient data.

¹ Percent based on number of packers reporting field packing in 1999.

Packer Agricultural Practices
Operation Performed on Mobile Packing Unit - Percent of Packers
Fruit Program States, 1999¹

Operation	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Washing	2	*	*	*	0
Machine culling/ grading/sorting	0	*	*	*	0
Manual culling/ grading/sorting	100	*	*	*	100
Machine trimming	*	*	*	*	29
Manual trimming	5	*	*	*	86
Conveyor belt transport	0	*	*	*	0
Other transport	10	*	*	*	29
Machine packing	0	*	*	*	14
Manual packing	100	*	*	*	86
Hydro cooling	0	*	*	*	0
Slushed ice cooling	0	*	*	*	0
Other cooling	17	*	*	*	14
Operation	Target Fruit Crop (continued)				
	Kiwifruit	Lemons	Nectarines	Oranges	Peaches
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Washing	*	*	*	*	*
Machine culling/ grading/sorting	*	*	*	*	*
Manual culling/ grading/sorting	*	*	*	*	*
Machine trimming	*	*	*	*	*
Manual trimming	*	*	*	*	*
Conveyor belt transport	*	*	*	*	*
Other transport	*	*	*	*	*
Machine packing	*	*	*	*	*
Manual packing	*	*	*	*	*
Hydro cooling	*	*	*	*	*
Slushed ice cooling	*	*	*	*	*
Other cooling	*	*	*	*	*

Packer Agricultural Practices
Operation Performed on Mobile Packing Unit - Percent of Packers (continued)
Fruit Program States, 1999 ¹

Operation	Target Fruit Crop (continued)			
	Pears	Plums	Tangerines	All Fruit
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Washing	*	*	*	5
Machine culling/ grading/sorting	*	*	*	3
Manual culling/ grading/sorting	*	*	*	97
Machine trimming	*	*	*	9
Manual trimming	*	*	*	13
Conveyor belt transport	*	*	*	3
Other transport	*	*	*	9
Machine packing	*	*	*	2
Manual packing	*	*	*	98
Hydro cooling	*	*	*	1
Slushed ice cooling	*	*	*	0
Other cooling	*	*	*	9

* Insufficient data.

¹ Percent based on number of packers reporting use of a mobile packing unit in 1999.

**Packer Agricultural Practices
Operation Performed on Mobile Packing Unit - Percent of Packers
Vegetable Program States, 1999¹**

Operation	Target Vegetable Crop				
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Washing	7	17	*	*	85
Machine culling/ grading/sorting	13	16	0	*	0
Manual culling/ grading/sorting	100	84	100	*	62
Machine trimming	17	3	0	*	0
Manual trimming	70	47	*	*	100
Conveyor belt transport	30	43	25	*	66
Other transport	13	18	29	*	12
Machine packing	0	5	*	*	22
Manual packing	100	95	77	*	98
Hydro cooling	0	19	0	*	0
Slushed ice cooling	*	4	0	*	0
Other cooling	0	12	2	*	1
Operation	Target Vegetable Crop (continued)				
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Washing	70	100	*	60	87
Machine culling/ grading/sorting	0	0	13	0	0
Manual culling/ grading/sorting	100	100	100	100	100
Machine trimming	0	0	13	0	0
Manual trimming	87	0	40	80	100
Conveyor belt transport	*	44	73	78	87
Other transport	13	14	13	0	0
Machine packing	13	11	13	13	0
Manual packing	100	100	100	87	100
Hydro cooling	31	0	0	16	3
Slushed ice cooling	0	0	0	0	0
Other cooling	0	0	0	5	77

Packer Agricultural Practices
Operation Performed on Mobile Packing Unit - Percent of Packers (continued)
Vegetable Program States, 1999¹

Operation	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Straw- berries	Tomatoes	Water- melons	All Vegetables
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Washing	*	45	*	*	*	33
Machine culling/ grading/sorting	*	5	*	0	2	7
Manual culling/ grading/sorting	*	95	84	100	98	93
Machine trimming	*	0	0	0	0	4
Manual trimming	*	6	4	55	6	48
Conveyor belt transport	*	28	0	0	30	37
Other transport	*	3	7	54	30	15
Machine packing	*	5	0	0	0	6
Manual packing	*	100	100	100	100	95
Hydro cooling	*	0	0	0	0	4
Slushed ice cooling	*	*	0	0	0	6
Other cooling	*	5	7	0	0	4

* Insufficient data.

¹ Percent based on number of packers reporting use of a mobile packing unit in 1999.

**Packer Agricultural Practices
Mobile Packing Unit - Source of Water for Washing - Percent of Packers
Fruit Program States, 1999¹**

Crop category	Source of water					
	Standing surface (Ponds, lakes, reservoirs)	Flowing surface (Rivers, canals, streams, irrigation ditches)	Ground water; Deep well	Ground water; Shallow well	Municipal	Other
ALL FRUIT	<i>% of packers</i> 0	<i>% of packers</i> 0	<i>% of packers</i> 70	<i>% of packers</i> 18	<i>% of packers</i> 12	<i>% of packers</i> 0

¹ Percent based on number of packers reporting washing on mobile packing unit in 1999.

**Packer Agricultural Practices
Mobile Packing Unit - Source of Water for Washing - Percent of Packers
Vegetable Program States, 1999¹**

Source of water	Target Vegetable Crop				
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Standing surface (Ponds, lakes and reservoirs)	*	*	*	*	0
Flowing surface (Rivers, canals, streams, and irrigation ditches)	*	*	*	*	0
Ground; Deep well	*	*	*	*	57
Ground; Shallow well	*	*	*	*	2
Municipal	*	*	*	*	41
Other	*	*	*	*	0
Source of water	Target Vegetable Crop (continued)				
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Standing surface (Ponds, lakes and reservoirs)	0	0	*	0	*
Flowing surface (Rivers, canals, streams, and irrigation ditches)	0	10	*	0	*
Ground; Deep well	63	75	*	66	*
Ground; Shallow well	0	14	*	0	*
Municipal	37	0	*	34	*
Other	0	0	*	0	*

Packer Agricultural Practices
Mobile Packing Unit - Source of Water for Washing - Percent of Packers (cont.)
Vegetable Program States, 1999¹

Source of water	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Straw- berries	Tomatoes	Water- melons	All Vegetables
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Standing surface (Ponds, lakes and reservoirs)	*	0	*	*	*	0
Flowing surface (Rivers, canals, streams, and irrigation ditches)	*	0	*	*	*	2
Ground; Deep well	*	86	*	*	*	55
Ground; Shallow well	*	14	*	*	*	13
Municipal	*	0	*	*	*	31
Other	*	0	*	*	*	0

* Insufficient data.

¹ Percent based on number of packers reporting washing on mobile packing unit in 1999.

**Packer Agricultural Practices
Mobile Packing Unit - Monitored Washing
Water Quality - Percent of Packers
Fruit Program States, 1999¹**

ALL FRUIT
<i>% of packers</i>
12

¹ Percent based on number of packers reporting washing on mobile packing unit in 1999.

**Packer Agricultural Practices
Mobile Packing Unit - Monitored Washing Water Quality - Percent of Packers
Vegetable Program States, 1999¹**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
*	*	*	*	67

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
44	44	*	100	*

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
*	88	*	*	*	68

* Insufficient data.

¹ Percent based on number of packers reporting washing on mobile packing unit in 1999.

**Packer Agricultural Practices
Mobile Packing Unit - Washing Water Monitoring Method - Percent of Packers
Fruit Program States, 1999¹**

Crop category	Monitoring method			
	Visual inspection	Meter	Chemical test	Other
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
ALL FRUIT	*	*	*	*

* Insufficient data.

¹ Percent based on number of packers reporting monitoring washing water quality on mobile packing unit in 1999.

**Packer Agricultural Practices
Mobile Packing Unit - Washing Water Monitoring Method - Percent of Packers
Vegetable Program States, 1999¹**

Monitoring method	Target Vegetable Crop				
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Visual inspection	*	*	*	*	93
Meter	*	*	*	*	33
Chemical test	*	*	*	*	64
Other	*	*	*	*	0

Monitoring method	Target Vegetable Crop (continued)				
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Visual inspection	100	100	*	96	*
Meter	0	0	*	74	*
Chemical test	42	25	*	78	*
Other	0	0	*	0	*

Monitoring method	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Straw-berries	Tomatoes	Water-melons	All Vegetables
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Visual inspection	*	100	*	*	*	97
Meter	*	0	*	*	*	27
Chemical test	*	14	*	*	*	58
Other	*	0	*	*	*	0

* Insufficient data.

¹ Percent based on number of packers reporting monitoring washing water quality on mobile packing unit in 1999.

**Packer Agricultural Practices
Mobile Packing Unit - Treatment Method for Washing Water - Percent of Packers
Fruit Program States, 1999¹**

Crop category	Treatment method						
	Chlorine	Ozone	Ultraviolet light	Filter	Hot water	Other	No treatment
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
ALL FRUIT	77	0	0	0	0	0	23

¹ Percent based on number of packers reporting washing on mobile packing unit in 1999.

**Packer Agricultural Practices
Mobile Packing Unit - Treatment Method for Washing Water - Percent of Packers
Vegetable Program States, 1999¹**

Treatment method	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Chlorine	*	*	*	*	67	
Ozone	*	*	*	*	0	
Ultraviolet light	*	*	*	*	0	
Filter	*	*	*	*	0	
Hot water	*	*	*	*	0	
Other	*	*	*	*	0	
No treatment	*	*	*	*	33	
Treatment method	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Chlorine	75	58	*	100	*	
Ozone	0	0	*	0	*	
Ultraviolet light	0	0	*	0	*	
Filter	0	0	*	0	*	
Hot water	0	0	*	0	*	
Other	0	0	*	0	*	
No treatment	25	42	*	0	*	
Treatment method	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Chlorine	*	74	*	*	*	68
Ozone	*	0	*	*	*	0
Ultraviolet light	*	0	*	*	*	0
Filter	*	14	*	*	*	6
Hot water	*	0	*	*	*	0
Other	*	0	*	*	*	0
No treatment	*	12	*	*	*	27

* Insufficient data.

¹ Percent based on number of packers reporting washing on mobile packing unit in 1999.

**Packer Agricultural Practices
Mobile Packing Unit - Source of Water for Cooling - Percent of Packers
Program States, 1999 ¹**

Crop category	Source of water					
	Standing surface (Ponds, lakes, reservoirs)	Flowing surface (Rivers, canals, streams, irrigation ditches)	Ground water; Deep well	Ground water; Shallow well	Municipal	Other
ALL FRUIT	* <i>% of packers</i>	* <i>% of packers</i>	* <i>% of packers</i>	* <i>% of packers</i>	* <i>% of packers</i>	* <i>% of packers</i>
ALL VEGETABLES	*	0	19	*	18	4

* Insufficient data.

¹ Percent based on number of packers reporting hydro or slushed ice cooling on mobile packing unit in 1999.

**Packer Agricultural Practices
Mobile Packing Unit - Monitored Cooling
Water Quality - Percent of Packers
Program States, 1999 ¹**

ALL FRUIT	ALL VEGETABLES
* <i>% of packers</i>	76 <i>% of packers</i>

* Insufficient data.

¹ Percent based on number of packers reporting hydro or slushed ice cooling on mobile packing unit in 1999.

**Packer Agricultural Practices
Mobile Packing Unit - Cooling Water Monitoring Method - Percent of Packers
Program States, 1999 ¹**

Crop category	Monitoring method			
	Visual inspection	Meter	Chemical test	Other
ALL FRUIT	* <i>% of packers</i>	* <i>% of packers</i>	* <i>% of packers</i>	* <i>% of packers</i>
ALL VEGETABLES	48	21	56	1

* Insufficient data.

¹ Percent based on number of packers reporting monitoring cooling water on mobile packing unit in 1999.

**Packer Agricultural Practices
Mobile Packing Unit - Treatment Method for Cooling Water - Percent of Packers
Program States, 1999 ¹**

Crop category	Treatment method						
	Chlorine	Ozone	Ultraviolet light	Filter	Hot water	Other	No treatment
ALL FRUIT	* <i>% of packers</i>	* <i>% of packers</i>	* <i>% of packers</i>	* <i>% of packers</i>	* <i>% of packers</i>	* <i>% of packers</i>	* <i>% of packers</i>
ALL VEGETABLES	74	0	0	*	0	0	*

* Insufficient data.

¹ Percent based on number of packers reporting hydro or slushed ice cooling on mobile packing unit in 1999.

**Packer Agricultural Practices
Mobile Packing Unit Washed - Percent of Packers
Fruit Program States, 1999¹**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
57	*	100	*	86

Target Fruit Crop (continued)				
Kiwifruit	Lemons	Nectarines	Oranges	Peaches
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
*	*	*	*	93

Target Fruit Crop (continued)				
Pears	Plums	Tangerines	All Fruit	
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
*	*	*	*	83

* Insufficient data.

¹ Percent based on number of packers reporting use of a mobile packing unit in 1999.

**Packer Agricultural Practices
Mobile Packing Unit Washed - Percent of Packers
Vegetable Program States, 1999¹**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
100	83	89	*	92

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
96	100	100	93	*

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
*	100	61	92	56	85

* Insufficient data.

¹ Percent based on number of packers reporting use of a mobile packing unit in 1999.

Packer Agricultural Practices
Frequency of Washing the Mobile Packing Unit - Percent of Packers
Fruit Program States, 1999¹

Frequency of washing	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Daily	22	*	19	*	50
Weekly	10	*	0	*	33
Monthly	0	*	0	*	0
Per season	0	*	67	*	0
As needed	68	*	14	*	17
Other	0	*	0	*	0
Frequency of washing	Target Fruit Crop (continued)				
	Kiwifruit	Lemons	Nectarines	Oranges	Peaches
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Daily	*	*	*	*	5
Weekly	*	*	*	*	5
Monthly	*	*	*	*	0
Per season	*	*	*	*	78
As needed	*	*	*	*	12
Other	*	*	*	*	0
Frequency of washing	Target Fruit Crop (continued)				
	Pears	Plums	Tangerines	All Fruit	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Daily	*	*	*	13	
Weekly	*	*	*	12	
Monthly	*	*	*	0	
Per season	*	*	*	54	
As needed	*	*	*	21	
Other	*	*	*	0	

* Insufficient data.

¹ Percent based on number of packers reporting washing their mobile packing unit in 1999.

Packer Agricultural Practices
Frequency of Washing the Mobile Packing Unit - Percent of Packers
Vegetable Program States, 1999²

Frequency of washing	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Daily	33	27	36	*	46	
Weekly	33	20	5	*	30	
Monthly	0	19	0	*	0	
Per season	0	*	0	*	0	
As needed	33	23	59	*	24	
Other	0	*	0	*	0	
Frequency of washing	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Daily	41	58	53	69	*	
Weekly	27	0	13	16	*	
Monthly	0	0	0	14	*	
Per season	0	0	0	0	*	
As needed	32	42	34	0	*	
Other	0	0	0	0	*	
Frequency of washing	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Daily	*	59	34	81	27	43
Weekly	*	0	46	0	3	22
Monthly	*	0	0	9	0	3
Per season	*	0	0	0	6	1
As needed	*	41	15	10	64	31
Other	*	0	5	0	0	(¹)

* Insufficient data.

¹ Less than one percent.

² Percent based on number of packers reporting washing their mobile packing unit in 1999.

Packer Agricultural Practices
Source of Water for Washing the Mobile Packing Unit - Percent of Packers
Fruit Program States, 1999¹

Source of water	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Standing surface (Ponds, lakes and reservoirs)	0	*	0	*	0
Flowing surface (Rivers, canals, streams, and irrigation ditches)	0	*	0	*	0
Ground; Deep well	18	*	86	*	67
Ground; Shallow well	*	*	*	*	*
Municipal	22	*	0	*	17
Other	*	*	*	*	*
Source of water	Target Fruit Crop (continued)				
	Kiwifruit	Lemons	Nectarines	Oranges	Peaches
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Standing surface (Ponds, lakes and reservoirs)	*	*	*	*	1
Flowing surface (Rivers, canals, streams, and irrigation ditches)	*	*	*	*	0
Ground; Deep well	*	*	*	*	89
Ground; Shallow well	*	*	*	*	*
Municipal	*	*	*	*	8
Other	*	*	*	*	*
Source of water	Target Fruit Crop (continued)				
	Pears	Plums	Tangerines	All Fruit	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Standing surface (Ponds, lakes and reservoirs)	*	*	*	1	
Flowing surface (Rivers, canals, streams, and irrigation ditches)	*	*	*	2	
Ground; Deep well	*	*	*	77	
Ground; Shallow well	*	*	*	*	
Municipal	*	*	*	10	
Other	*	*	*	*	

* Insufficient data.

¹ Percent based on number of packers reporting washing their mobile packing unit in 1999.

**Packer Agricultural Practices
Source of Water for Washing the Mobile Packing Unit - Percent of Packers
Vegetable Program States, 1999¹**

Source of water	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Standing surface (Ponds, lakes and reservoirs)	0	0	5	*	0	
Flowing surface (Rivers, canals, streams, and irrigation ditches)	0	0	21	*	0	
Ground; Deep well	40	52	44	*	65	
Ground; Shallow well	17	10	9	*	1	
Municipal	43	39	21	*	33	
Other	0	0	0	*	0	
Source of water	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Standing surface (Ponds, lakes and reservoirs)	0	0	13	0	*	
Flowing surface (Rivers, canals, streams, and irrigation ditches)	0	0	27	0	*	
Ground; Deep well	73	75	34	64	*	
Ground; Shallow well	0	25	0	0	*	
Municipal	27	0	27	36	*	
Other	0	0	0	0	*	
Source of water	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Straw-berries	Tomatoes	Water-melons	All Vegetables
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Standing surface (Ponds, lakes and reservoirs)	*	0	0	0	3	1
Flowing surface (Rivers, canals, and streams, irrigation ditches)	*	33	0	0	0	3
Ground; Deep well	*	58	50	18	19	46
Ground; Shallow well	*	6	17	0	75	17
Municipal	*	3	33	82	2	32
Other	*	0	0	0	0	0

* Insufficient data.

¹ Percent based on number of packers reporting washing their mobile packing unit in 1999.

**Packer Agricultural Practices
Mobile Packing Unit Sanitized - Percent of Packers
Fruit Program States, 1999¹**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
51	*	*	*	57

Target Fruit Crop (continued)				
Kiwifruit	Lemons	Nectarines	Oranges	Peaches
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
*	*	*	*	*

Target Fruit Crop (continued)				
Pears	Plums	Tangerines	All Fruit	
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
*	*	*	*	30

* Insufficient data.

¹ Percent based on number of packers reporting use of a mobile packing unit in 1999.

**Packer Agricultural Practices
Mobile Packing Unit Sanitized - Percent of Packers
Vegetable Program States, 1999¹**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
100	50	*	*	90

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
83	100	*	93	*

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
*	69	44	85	56	71

* Insufficient data.

¹ Percent based on number of packers reporting use of a mobile packing unit in 1999.

Packer Agricultural Practices
Frequency of Sanitizing the Mobile Packing Unit - Percent of Packers
Fruit Program States, 1999¹

Frequency of sanitizing	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Daily	24	*	*	*	25
Weekly	0	*	*	*	25
Monthly	0	*	*	*	0
Per season	0	*	*	*	25
As needed	76	*	*	*	25
Other	0	*	*	*	0
Frequency of sanitizing	Target Fruit Crop (continued)				
	Kiwifruit	Lemons	Nectarines	Oranges	Peaches
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Daily	*	*	*	*	*
Weekly	*	*	*	*	*
Monthly	*	*	*	*	*
Per season	*	*	*	*	*
As needed	*	*	*	*	*
Other	*	*	*	*	*
Frequency of sanitizing	Target Fruit Crop (continued)				
	Pears	Plums	Tangerines	All Fruit	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Daily	*	*	*	16	
Weekly	*	*	*	14	
Monthly	*	*	*	0	
Per season	*	*	*	8	
As needed	*	*	*	62	
Other	*	*	*	0	

* Insufficient data.

¹ Percent based on number of packers reporting sanitizing their mobile packing unit in 1999.

Packer Agricultural Practices
Frequency of Sanitizing the Mobile Packing Unit - Percent of Packers
Vegetable Program States, 1999 ¹

Frequency of sanitizing	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Daily	33	18	*	*	47	
Weekly	33	6	*	*	21	
Monthly	17	*	*	*	31	
Per season	0	6	*	*	0	
As needed	17	63	*	*	1	
Other	0	*	*	*	0	
Frequency of sanitizing	Target Vegetable Crop (continued)					
	Celery	Cucumber	Honeydew	Lettuce, Head	Lettuce, Other	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Daily	32	47	*	67	*	
Weekly	16	0	*	19	*	
Monthly	16	0	*	0	*	
Per season	0	0	*	0	*	
As needed	22	53	*	14	*	
Other	13	0	*	0	*	
Frequency of sanitizing	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Daily	*	41	38	55	0	34
Weekly	*	8	6	14	3	19
Monthly	*	0	0	10	0	12
Per season	*	0	14	0	68	10
As needed	*	51	42	21	29	23
Other	*	0	0	0	0	1

* Insufficient data.

¹ Percent based on number of packers reporting sanitizing their mobile packing unit in 1999.

**Packer Agricultural Practices
Do Only Field Packing - Percent of Packers
Fruit Program States, 1999**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
13	4	11	0	*

Target Fruit Crop (continued)				
Kiwifruit	Lemons	Nectarines	Oranges	Peaches
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
*	*	*	*	*

Target Fruit Crop (continued)				
Pears	Plums	Tangerines	All Fruit	
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
4	5	0	17	

* Insufficient data.

**Packer Agricultural Practices
Do Only Field Packing - Percent of Packers
Vegetable Program States, 1999**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
29	30	*	8	38

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
33	18	23	48	9

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
10	20	46	18	56	28

* Insufficient data.

**Packer Agricultural Practices
Do Only Facility Packing - Percent of Packers
Fruit Program States, 1999**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
67	*	57	93	0

Target Fruit Crop (continued)				
Kiwifruit	Lemons	Nectarines	Oranges	Peaches
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
*	*	*	*	*

Target Fruit Crop (continued)				
Pears	Plums	Tangerines	All Fruit	
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
77	74	91	64	

* Insufficient data.

**Packer Agricultural Practices
Do Only Facility Packing - Percent of Packers
Vegetable Program States, 1999**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
1	31	*	84	6

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
28	63	37	5	85

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
81	49	15	65	13	43

* Insufficient data.

**Packer Agricultural Practices
Do Field and Facility Packing - Percent of Packers
Fruit Program States, 1999**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
20	*	32	7	*

Target Fruit Crop (continued)				
Kiwifruit	Lemons	Nectarines	Oranges	Peaches
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
*	*	*	*	*

Target Fruit Crop (continued)				
Pears	Plums	Tangerines	All Fruit	
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
19	*	9	19	

* Insufficient data.

**Packer Agricultural Practices
Do Field and Facility Packing - Percent of Packers
Vegetable Program States, 1999**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
69	39	*	7	56

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
38	20	40	48	6

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
9	31	39	17	31	29

* Insufficient data.

**Packer Agricultural Practices
Do Facility Packing - Percent of Packers
Fruit Program States, 1999**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
87	96	89	100	*

Target Fruit Crop (continued)				
Kiwifruit	Lemons	Nectarines	Oranges	Peaches
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
*	*	*	*	*

Target Fruit Crop (continued)				
Pears	Plums	Tangerines	All Fruit	
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
96	95	100	83	

* Insufficient data.

**Packer Agricultural Practices
Do Facility Packing - Percent of Packers
Vegetable Program States, 1999**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
71	70	*	92	62

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
67	82	77	52	91

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
90	80	54	82	44	72

* Insufficient data.

Packer Agricultural Practices
Packing Facilities - Operations Performed - Percent of Packers
Fruit Program States, 1999 ²

Parking Operation	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Washing	51	7	42	98	76
Float/soak tank	35	0	28	47	0
Machine culling/ grading/sorting	41	23	31	35	0
Manual culling/ grading/sorting	70	77	72	94	100
Machine trimming	1	0	8	1	0
Manual trimming	3	0	4	41	6
Flume transport	20	0	18	*	0
Cup sizers	33	29	11	55	0
Conveyor belt transport	56	39	49	90	3
Other transport	10	4	6	27	0
Machine packing	21	9	22	31	0
Manual packing	79	93	78	81	100
Vacuum cooling	*	6	0	3	0
Hydro cooling	4	2	30	0	0
Hydro vacuum	1	0	2	0	0
Forced air cooling	19	*	19	14	8
Slushed ice cooling	*	*	*	*	*
Refrigeration	58	43	51	68	6
Other cooling	3	3	0	0	0

Packer Agricultural Practices
Packing Facilities - Operations Performed - Percent of Packers (continued)
Fruit Program States, 1999 ²

Packing Operation	Target Fruit Crop (continued)				
	Kiwifruit	Lemons	Nectarines	Oranges	Peaches
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Washing	0	82	32	77	22
Float/soak tank	0	70	1	31	10
Machine culling/ grading/sorting	20	88	25	54	18
Manual culling/ grading/sorting	81	82	75	84	81
Machine trimming	0	0	0	(¹)	1
Manual trimming	5	0	11	20	3
Flume transport	0	12	0	8	4
Cup sizers	30	65	46	48	15
Conveyor belt transport	44	88	64	87	27
Other transport	5	41	23	39	8
Machine packing	24	76	24	47	11
Manual packing	86	65	78	73	89
Vacuum cooling	0	6	0	3	2
Hydro cooling	0	0	17	1	8
Hydro vacuum	0	12	0	3	0
Forced air cooling	53	41	41	17	12
Slushed ice cooling	*	*	*	*	*
Refrigeration	48	88	45	63	38
Other cooling	28	18	9	0	*

Packer Agricultural Practices
Packing Facilities - Operations Performed - Percent of Packers (continued)
Fruit Program States, 1999 ²

Packing Operation	Target Fruit Crop (continued)			
	Pears	Plums	Tangerines	All Fruit
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Washing	40	48	82	48
Float/soak tank	40	0	39	24
Machine culling/ grading/sorting	37	28	66	35
Manual culling/ grading/sorting	63	82	70	75
Machine trimming	0	0	0	1
Manual trimming	10	4	25	9
Flume transport	29	0	0	11
Cup sizers	39	52	66	34
Conveyor belt transport	53	57	91	56
Other transport	20	33	31	17
Machine packing	20	19	35	23
Manual packing	80	85	65	77
Vacuum cooling	*	0	0	2
Hydro cooling	2	9	0	6
Hydro vacuum	*	0	0	1
Forced air cooling	27	34	8	19
Slushed ice cooling	*	*	*	*
Refrigeration	72	30	58	52
Other cooling	4	4	4	3

* Insufficient data.

¹ Less than one percent.

² Percent based on number of packers reporting facility packing in 1999.

Packer Agricultural Practices
Packing Facilities - Operations Performed - Percent of Packers
Vegetable Program States, 1999 ²

Packing Operation	Target Vegetable Crop				
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Washing	12	30	30	90	10
Float/soak tank	*	3	3	46	7
Machine culling/ grading/sorting	6	5	6	21	3
Manual culling/ grading/sorting	94	95	94	79	97
Machine trimming	8	*	0	35	0
Manual trimming	8	57	0	42	19
Flume transport	0	0	0	8	0
Cup sizers	0	0	0	0	0
Conveyor belt transport	10	13	9	52	3
Other transport	2	5	*	31	21
Machine packing	6	1	0	7	3
Manual packing	94	99	100	93	97
Vacuum cooling	16	4	*	2	3
Hydro cooling	56	5	9	19	3
Hydro vacuum	*	*	*	*	*
Forced air cooling	32	10	5	31	40
Slushed ice cooling	92	2	0	5	*
Refrigeration	70	30	51	68	67
Other cooling	16	1	(¹)	2	33

Packer Agricultural Practices
Packing Facilities - Operations Performed - Percent of Packers (continued)
Vegetable Program States, 1999 ²

Packing Operation	Target Vegetable Crop (continued)				
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Washing	55	82	39	34	3
Float/soak tank	17	21	22	30	2
Machine culling/ grading/sorting	17	18	0	20	0
Manual culling/ grading/sorting	83	83	100	80	100
Machine trimming	26	0	0	8	(¹)
Manual trimming	50	19	9	82	96
Flume transport	17	*	0	14	(¹)
Cup sizers	0	0	0	0	0
Conveyor belt transport	56	26	43	37	2
Other transport	29	6	4	7	1
Machine packing	7	6	0	15	(¹)
Manual packing	93	94	100	85	99
Vacuum cooling	8	2	0	22	1
Hydro cooling	45	3	8	26	(¹)
Hydro vacuum	*	*	*	*	*
Forced air cooling	27	17	18	0	(¹)
Slushed ice cooling	7	6	0	0	1
Refrigeration	68	42	40	30	7
Other cooling	7	1	0	0	(¹)

Packer Agricultural Practices
Packing Facilities - Operations Performed - Percent of Packers (continued)
Vegetable Program States, 1999 ²

Packing Operations	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers Bell	Straw- berries	Tomatoes	Water- melons	All Vegetables
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Washing	25	68	7	57	11	43
Float/soak tank	4	30	(¹)	18	(¹)	13
Machine culling/ grading/sorting	21	27	12	19	7	14
Manual culling/ grading/sorting	80	73	88	81	93	86
Machine trimming	14	2	1	1	0	5
Manual trimming	59	13	8	15	4	27
Flume transport	1	2	(¹)	6	0	3
Cup sizers	2	4	0	4	0	2
Conveyor belt transport	31	35	1	26	24	23
Other transport	8	16	2	7	12	8
Machine packing	28	15	(¹)	15	0	10
Manual packing	72	85	99	85	100	90
Vacuum cooling	(¹)	4	(¹)	2	0	3
Hydro cooling	1	*	0	1	0	6
Hydro vacuum	*	*	*	*	*	*
Forced air cooling	4	13	15	9	(¹)	12
Slushed ice cooling	*	4	0	1	0	5
Refrigeration	14	32	29	25	*	32
Other cooling	1	(¹)	2	6	1	3

* Insufficient data.

¹ Less than one percent.

² Percent based on number of packers reporting facility packing in 1999.

Packer Agricultural Practices
Packing Facilities - Equipment/Tools Washing Frequency - Percent of Packers
Fruit Program States, 1999¹

Packing equipment/tools	ALL FRUIT						
	Frequency of washing						
	Daily	Weekly	Monthly	Per season	As needed	Other	Not washed
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Float/soak tank	60	25	2	0	11	2	0
Machine culling/ grading/sorting	56	13	1	3	18	1	7
Machine trimming	87	0	0	3	6	0	4
Manual trimming	46	1	0	1	40	0	12
Flume transport	44	29	4	1	15	4	4
Cup sizers	49	14	5	6	18	1	6
Conveyor belt transport	52	13	4	4	21	1	5
Other transport	48	17	3	1	25	2	4
Machine packing	51	17	1	5	21	1	5
Vacuum cooling	27	0	0	34	21	18	0
Hydro cooling	66	18	0	4	9	2	1
Hydro vacuum	45	30	7	0	18	0	0
Forced air cooling	30	9	2	18	21	3	16
Slushed ice cooling	*	*	*	*	*	*	*
Refrigeration	19	6	4	23	40	1	7
Other cooling	37	1	0	39	20	2	1

* Insufficient data.

¹ Percent based on number of packers reporting specified facility packing operation in 1999.

Packer Agricultural Practices
Packing Facilities - Equipment/Tools Washing Frequency - Percent of Packers
Vegetable Program States, 1999²

Packing equipment/tools	ALL VEGETABLES						
	Frequency of washing						
	Daily	Weekly	Monthly	Per season	As needed	Other	Not washed
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Float/soak tank	77	2	(¹)	(¹)	10	10	0
Machine culling/ grading/sorting	60	7	1	5	17	1	8
Machine trimming	54	1	(¹)	4	8	20	13
Manual trimming	39	2	1	(¹)	48	1	9
Flume transport	90	0	0	0	8	1	0
Cup sizers	74	1	1	0	18	0	6
Conveyor belt transport	59	5	1	3	24	(¹)	8
Other transport	48	16	3	4	22	(¹)	7
Machine packing	57	2	(¹)	7	19	2	13
Vacuum cooling	70	2	0	1	18	1	8
Hydro cooling	72	6	(¹)	0	12	1	9
Hydro vacuum	*	*	*	*	*	*	*
Forced air cooling	32	12	5	9	25	0	18
Slushed ice cooling	65	0	0	12	5	16	2
Refrigeration	28	19	2	7	33	2	10
Other cooling	*	*	*	*	*	*	*

* Insufficient data.

¹ Less than one percent.

² Percent based on number of packers reporting specified facility packing operation in 1999.

Packer Agricultural Practices
Packing Facilities - Equipment/Tools Sanitizing Frequency - Percent of Packers
Fruit Program States, 1999²

Packing equipment/tools	ALL FRUIT						
	Frequency of sanitizing						
	Daily	Weekly	Monthly	Per season	As needed	Other	Not sanitized
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Float/soak tank	48	18	1	4	11	3	14
Machine culling/ grading/sorting	45	14	1	3	12	(¹)	24
Machine trimming	62	0	0	0	7	0	31
Manual trimming	41	2	0	0	25	5	27
Flume transport	43	16	3	3	12	6	17
Cup sizers	36	14	4	7	14	2	24
Conveyor belt transport	42	12	3	5	16	1	20
Other transport	37	20	*	*	17	2	20
Machine packing	44	18	1	6	15	1	16
Vacuum cooling	0	0	11	34	21	18	17
Hydro cooling	46	12	3	2	15	9	13
Hydro vacuum	19	30	13	0	18	0	20
Forced air cooling	19	5	8	15	20	5	29
Slushed ice cooling	*	*	*	*	*	*	*
Refrigeration	8	5	6	17	35	2	27
Other cooling	5	0	0	28	14	2	47

* Insufficient data.

¹ Less than one percent.

² Percent based on number of packers reporting specified facility packing operation in 1999.

Packer Agricultural Practices
Packing Facilities - Equipment/Tools Sanitizing Frequency - Percent of Packers
Vegetable Program States, 1999²

Packing equipment/tools	ALL VEGETABLES						
	Frequency of sanitizing						
	Daily	Weekly	Monthly	Per season	As needed	Other	Not sanitized
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Float/soak tank	57	7	4	2	9	1	22
Machine culling/ grading/sorting	44	6	1	5	14	1	29
Machine trimming	47	(¹)	0	3	7	17	26
Manual trimming	26	3	(¹)	2	32	(¹)	37
Flume transport	65	19	0	0	8	3	4
Cup sizers	65	2	0	1	13	4	16
Conveyor belt transport	39	6	1	5	16	1	32
Other transport	43	7	0	6	9	1	34
Machine packing	44	3	1	3	10	0	39
Vacuum cooling	62	3	3	1	8	1	22
Hydro cooling	41	6	1	1	13	22	16
Hydro vacuum	*	*	*	*	*	*	*
Forced air cooling	26	7	10	3	23	1	30
Slushed ice cooling	40	1	0	12	6	22	19
Refrigeration	19	15	2	7	26	4	26
Other cooling	*	*	*	*	*	*	*

* Insufficient data.

¹ Less than one percent.

² Percent based on number of packers reporting specified facility packing operation in 1999.

**Packer Agricultural Practices
Packing Facilities - Source of Water - Percent of Packers
Fruit Program States, 1999¹**

Source of water	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Standing surface (Ponds, lakes and reservoirs)	1	0	0	1	0
Flowing surface (Rivers, canals, streams, and irrigation ditches)	1	0	*	0	19
Ground; Deep well	54	2	69	25	63
Ground; Shallow well	7	8	*	11	0
Municipal	30	90	19	63	17
Other	7	0	1	0	0
Source of water	Target Fruit Crop (continued)				
	Kiwifruit	Lemons	Nectarines	Oranges	Peaches
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Standing surface (Ponds, lakes and reservoirs)	0	0	0	0	1
Flowing surface (Rivers, canals, streams, and irrigation ditches)	0	0	0	0	2
Ground; Deep well	90	7	66	39	44
Ground; Shallow well	0	0	9	9	*
Municipal	10	93	25	48	11
Other	0	0	0	3	*
Source of water	Target Fruit Crop (continued)				
	Pears	Plums	Tangerines	All Fruit	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Standing surface (Ponds, lakes and reservoirs)	1	2	8	1	
Flowing surface (Rivers, canals, streams, and irrigation ditches)	0	0	0	1	
Ground; Deep well	54	78	26	43	
Ground; Shallow well	4	8	21	9	
Municipal	38	12	45	40	
Other	3	0	0	6	

* Insufficient data.

¹ Percent based on number of packers reporting water using facility packing operations in 1999.

**Packer Agricultural Practices
Packing Facilities - Source of Water - Percent of Packers
Vegetable Program States, 1999²**

Source of water	Target Vegetable Crop				
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Standing surface (Ponds, lakes and reservoirs)	0	4	3	1	0
Flowing surface (Rivers, canals, streams, and irrigation ditches)	0	*	0	3	0
Ground; Deep well	17	50	23	46	13
Ground; Shallow well	35	10	11	12	9
Municipal	48	31	64	37	78
Other	0	*	0	1	0

Source of water	Target Vegetable Crop (continued)				
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Standing surface (Ponds, lakes and reservoirs)	0	2	0	0	0
Flowing surface (Rivers, canals, streams, and irrigation ditches)	0	1	0	0	0
Ground; Deep well	48	63	5	69	95
Ground; Shallow well	8	8	14	0	0
Municipal	44	26	53	31	5
Other	0	0	28	0	0

Source of water	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Straw-berries	Tomatoes	Water-melons	All Vegetables
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Standing surface (Ponds, lakes and reservoirs)	*	3	2	*	0	2
Flowing surface (Rivers, canals, streams, and irrigation ditches)	*	1	0	*	0	1
Ground; Deep well	70	72	68	64	48	58
Ground; Shallow well	12	6	8	12	26	11
Municipal	12	18	20	18	24	27
Other	(¹)	0	1	(¹)	2	1

* Insufficient data.

¹ Less than one percent.

² Percent based on number of packers reporting water using facility packing operations in 1999.

**Packer Agricultural Practices
Packing Facilities - Monitored Water Quality - Percent of Packers
Fruit Program States, 1999¹**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
61	*	67	73	*

Target Fruit Crop (continued)				
Kiwifruit	Lemons	Nectarines	Oranges	Peaches
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
*	87	62	77	40

Target Fruit Crop (continued)				
Pears	Plums	Tangerines	All Fruit	
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
74	74	96	60	

* Insufficient data.

¹ Percent based on number of packers reporting water using facility packing operations in 1999.

**Packer Agricultural Practices
Packing Facilities - Monitored Water Quality - Percent of Packers
Vegetable Program States, 1999¹**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
60	47	71	54	93

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
92	61	48	66	56

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
43	69	44	51	44	54

¹ Percent based on number of packers reporting water using facility packing operations in 1999.

**Packer Agricultural Practices
Packing Facilities - Water Quality Monitoring Method - Percent of Packers
Fruit Program States, 1999¹**

Monitoring method	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Visual inspection	60	*	67	75	*
Meter	16	*	12	17	*
Chemical test	72	*	73	72	*
Other	8	*	4	12	*
Monitoring method	Target Fruit Crop (continued)				
	Kiwifruit	Lemons	Nectarines	Oranges	Peaches
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Visual inspection	*	62	45	71	59
Meter	*	62	20	50	24
Chemical test	*	77	91	87	73
Other	*	8	14	8	8
Monitoring method	Target Fruit Crop (continued)				
	Pears	Plums	Tangerines	All Fruit	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Visual inspection	59	87	72	67	
Meter	17	*	37	26	
Chemical test	74	41	82	73	
Other	6	*	0	7	

* Insufficient data.

¹ Percent based on number of packers reporting monitoring water for facility packing operations in 1999.

**Packer Agricultural Practices
Packing Facilities - Water Quality Monitoring Method - Percent of Packers
Vegetable Program States, 1999¹**

Monitoring method	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Visual inspection	58	56	33	71	97	
Meter	55	1	*	10	36	
Chemical test	97	53	75	42	45	
Other	35	4	63	42	0	
Monitoring method	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Visual inspection	72	76	58	85	30	
Meter	37	22	40	51	58	
Chemical test	68	63	51	66	33	
Other	11	11	10	0	4	
Monitoring method	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Straw- berries	Tomatoes	Water- melons	All Vegetables
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Visual inspection	71	79	62	67	83	69
Meter	2	7	*	23	*	19
Chemical test	51	42	48	57	56	58
Other	6	10	11	13	*	16

* Insufficient data.

¹ Percent based on number of packers reporting monitoring water for facility packing operations in 1999.

Packer Agricultural Practices
Packing Facilities - Treatment Method for Water - Percent of Packers
Fruit Program States, 1999 ²

Treatment method	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Chlorine	41	15	62	69	17
Ozone	(¹)	0	0	0	0
Ultraviolet light	(¹)	0	0	1	0
Filter	3	1	*	3	0
Hot water	3	0	0	8	0
Other	5	0	*	14	17
No treatment	48	84	32	4	65
Treatment method	Target Fruit Crop (continued)				
	Kiwifruit	Lemons	Nectarines	Oranges	Peaches
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Chlorine	9	93	58	60	29
Ozone	0	0	0	0	0
Ultraviolet light	0	0	0	1	1
Filter	0	0	0	8	37
Hot water	9	0	(¹)	13	4
Other	0	0	0	(¹)	2
No treatment	83	7	41	17	27
Treatment method	Target Fruit Crop (continued)				
	Pears	Plums	Tangerines	All Fruit	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Chlorine	45	53	65	46	
Ozone	0	0	0	(¹)	
Ultraviolet light	*	0	0	(¹)	
Filter	18	0	9	8	
Hot water	1	0	8	4	
Other	*	6	0	4	
No treatment	24	40	18	38	

* Insufficient data.

¹ Less than one percent.

² Percent based on number of packers reporting water using facility packing operations in 1999.

Packer Agricultural Practices
Packing Facilities - Treatment Method for Water - Percent of Packers
Vegetable Program States, 1999²

Treatment method	Target Vegetable Crop				
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Chlorine	99	33	22	63	40
Ozone	0	0	0	0	0
Ultraviolet light	0	0	0	0	0
Filter	0	(¹)	0	7	2
Hot water	0	15	0	3	3
Other	0	3	0	2	0
No treatment	(¹)	49	78	25	55

Treatment method	Target Vegetable Crop (continued)				
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Chlorine	60	42	38	71	4
Ozone	0	0	0	0	1
Ultraviolet light	0	0	0	0	0
Filter	0	14	37	0	(¹)
Hot water	0	*	0	0	0
Other	15	*	0	0	0
No treatment	25	31	25	29	95

Treatment method	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Chlorine	9	65	29	36	34	39
Ozone	0	0	0	0	0	0
Ultraviolet light	0	0	0	1	0	(¹)
Filter	*	3	6	7	3	6
Hot water	*	0	1	1	0	2
Other	1	1	1	(¹)	0	3
No treatment	80	31	63	54	63	49

* Insufficient data.

¹ Less than one percent.

² Percent based on number of packers reporting water using facility packing operations in 1999.

Packer Agricultural Practices
Person Responsible for Making Sure Trucks Carrying Packed Produce
from the Facility were Cleaned - Percent of Packers
Fruit Program States, 1999 ¹

Person responsible for making sure trucks were cleaned	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Seller or packer	64	57	65	43	10
Truck driver or truck company	28	25	32	55	88
Buyer	10	19	9	1	3
Other	4	1	3	*	0
Trucks not cleaned	2	0	0	7	0
Person responsible for making sure truck were cleaned	Target Fruit Crop (continued)				
	Kiwifruit	Lemons	Nectarines	Oranges	Peaches
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Seller or packer	47	23	63	43	74
Truck driver or truck company	29	82	31	55	18
Buyer	5	6	9	7	6
Other	28	0	0	*	1
Trucks not cleaned	5	0	0	0	2
Person responsible for making sure trucks were cleaned	Target Fruit Crop (continued)				
	Pears	Plums	Tangerines	All Fruit	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Seller or packer	68	83	52	59	
Truck driver or truck company	44	45	57	37	
Buyer	5	2	*	8	
Other	2	0	0	3	
Trucks not cleaned	2	0	0	1	

* Insufficient data.

¹ Percent based on number of packers reporting facility packing in 1999.

Packer Agricultural Practices
Person Responsible for Making Sure Trucks Carrying Packed Produce
from the Facility were Cleaned - Percent of Packers
Vegetable Program States, 1999 ²

Person responsible for making sure trucks were cleaned	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Seller or packer	46	62	54	79	79	
Truck driver or truck company	86	32	52	22	12	
Buyer	0	4	2	6	2	
Other	28	3	2	5	7	
Trucks not cleaned	0	3	(¹)	3	0	
Person responsible for making sure trucks were cleaned	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Seller or packer	66	74	78	39	97	
Truck driver or truck company	58	24	40	71	2	
Buyer	0	6	4	4	(¹)	
Other	3	*	*	0	1	
Trucks not cleaned	0	0	0	4	1	
Person responsible for making sure trucks were cleaned	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Straw-berries	Tomatoes	Water-melons	All Vegetables
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Seller or packer	74	57	71	79	55	67
Truck driver or truck company	28	32	22	16	45	29
Buyer	7	10	7	7	1	5
Other	2	9	2	4	5	6
Trucks not cleaned	2	(¹)	*	1	1	1

* Insufficient data.

¹ Less than one percent.

² Percent based on number of packers reporting facility packing in 1999.

**Packer Agricultural Practices
Packing Facilities - Pest Control Methods - Percent of Packers
Fruit Program States, 1999¹**

Pest control method	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Traps or chemical sprays for insects	37	89	47	66	*
Traps or chemicals for rodents	51	83	45	51	*
Pest monitoring on a set schedule	37	21	44	66	*
Pest control record keeping	27	21	33	44	*
Grounds maintenance	84	99	77	91	*
Pest exclusion	38	40	31	34	*
Pest control method	Target Fruit Crop (continued)				
	Kiwifruit	Lemons	Nectarines	Oranges	Peaches
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Traps or chemical sprays for insects	10	53	30	53	32
Traps or chemicals for rodents	24	59	49	74	36
Pest monitoring on a set schedule	20	65	38	48	33
Pest control record keeping	15	59	36	40	26
Grounds maintenance	95	100	97	85	88
Pest exclusion	10	65	26	41	27
Pest control method	Target Fruit Crop (continued)				
	Pears	Plums	Tangerines	All Fruit	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Traps or chemical sprays for insects	39	18	52	44	
Traps or chemicals for rodents	63	38	61	53	
Pest monitoring on a set schedule	37	31	35	37	
Pest control record keeping	37	20	39	30	
Grounds maintenance	90	76	87	85	
Pest exclusion	42	17	31	34	

* Insufficient data.

¹ Percent based on number of packers reporting facility packing in 1999.

**Packer Agricultural Practices
Packing Facilities - Pest Control Methods - Percent of Packers
Vegetable Program States, 1999 ¹**

Pest control method	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Traps or chemical sprays for insects	36	42	49	40	51	
Traps or chemicals for rodents	22	39	45	53	57	
Pest monitoring on a set schedule	58	33	54	43	87	
Pest control record keeping	42	33	39	41	84	
Grounds maintenance	60	75	83	89	93	
Pest exclusion	42	18	35	52	74	
Pest control method	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Traps or chemical sprays for insects	70	41	31	41	*	
Traps or chemicals for rodents	55	49	22	41	*	
Pest monitoring on a set schedule	62	40	48	41	*	
Pest control record keeping	75	37	22	44	*	
Grounds maintenance	88	77	87	52	*	
Pest exclusion	55	22	27	29	*	
Pest control method	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Traps or chemical sprays for insects	37	43	36	40	24	38
Traps or chemicals for rodents	21	49	22	30	20	34
Pest monitoring on a set schedule	30	41	28	34	34	37
Pest control record keeping	20	47	26	33	20	33
Grounds maintenance	62	85	67	76	79	73
Pest exclusion	19	14	22	18	19	23

* Insufficient data.

¹ Percent based on number of packers reporting facility packing in 1999.

Packer Agricultural Practices
How Harvest Containers were Cleaned before Sending
to Another Grower - Percent of Packers
Fruit Program States, 1999¹

Cleaning method	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Remove debris or brushed out	77	68	69	84	*
Rinsed or washed out	77	77	81	47	*
Sanitized	46	13	56	66	*
Cleaning method	Target Fruit Crop (continued)				
	Kiwifruit	Lemons	Nectarines	Oranges	Peaches
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Remove debris or brushed out	93	69	62	93	71
Rinsed or washed out	58	75	82	65	55
Sanitized	15	69	33	50	22
Cleaning method	Target Fruit Crop (continued)				
	Pears	Plums	Tangerines	All Fruit	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Remove debris or brushed out	70	85	94	74	
Rinsed or washed out	91	77	89	74	
Sanitized	28	18	50	36	

* Insufficient data.

¹ Percent based on number of facility packers reporting harvest containers were cleaned before sending to another grower in 1999.

Packer Agricultural Practices
How Harvest Containers were Cleaned before Sending
to Another Grower - Percent of Packers
Vegetable Program States, 1999 ¹

Cleaning method	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Remove debris or brushed out	58	66	76	59	*	
Rinsed or washed out	71	65	74	87	*	
Sanitized	71	26	15	32	*	
Cleaning method	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Remove debris or brushed out	92	77	*	*	*	
Rinsed or washed out	100	88	*	*	*	
Sanitized	69	32	*	*	*	
Cleaning method	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Remove debris or brushed out	60	89	63	82	76	78
Rinsed or washed out	74	72	96	83	48	79
Sanitized	7	21	66	31	8	33

* Insufficient data.

¹ Percent based on number of facility packers reporting harvest containers were cleaned before sending to another grower in 1999.

**Packer Agricultural Practices
Trace Back Information on Crop Shipped - Percent of Packers
Fruit Program States, 1999**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
65	*	63	87	97

Target Fruit Crop (continued)				
Kiwifruit	Lemons	Nectarines	Oranges	Peaches
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
70	96	78	*	50

Target Fruit Crop (continued)				
Pears	Plums	Tangerines	All Fruit	
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
61	91	92	66	

* Insufficient data.

**Packer Agricultural Practices
Trace Back Information on Crop Shipped - Percent of Packers
Vegetable Program States, 1999**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
93	48	26	64	71

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
89	41	77	88	91

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
40	49	44	36	26	44

Packer Agricultural Practices
Type of Trace Back Information on Crop Shipped - Percent of Packers
Fruit Program States, 1999

Type of trace back information	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Farm	56	*	58	53	95
Field or block	27	*	22	65	90
Date of harvest	23	*	24	64	94
Picker or harvester	17	*	19	28	78
Packinghouse or packer	31	*	38	81	79
Date packed	29	*	26	75	26
Other	17	*	25	32	11
Type of trace back information	Target Fruit Crop (continued)				
	Kiwifruit	Lemons	Nectarines	Oranges	Peaches
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Farm	61	67	73	*	47
Field or block	26	50	53	*	11
Date of harvest	22	79	59	*	11
Picker or harvester	13	42	20	*	7
Packinghouse or packer	44	96	78	*	16
Date packed	44	96	76	*	12
Other	39	*	45	*	16
Type of trace back information	Target Fruit Crop (continued)				
	Pears	Plums	Tangerines	All Fruit	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Farm	53	72	57	54	
Field or block	23	34	35	31	
Date of harvest	32	59	39	34	
Picker or harvester	17	12	21	20	
Packinghouse or packer	40	63	83	44	
Date packed	45	66	66	39	
Other	31	41	34	21	

* Insufficient data.

**Packer Agricultural Practices
Type of Trace Back Information on Crop Shipped - Percent of Packers
Vegetable Program States, 1999**

Type of trace back information	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Farm	78	42	21	42	71	
Field or block	52	10	2	16	48	
Date of harvest	52	13	8	18	66	
Picker or harvester	45	9	6	11	63	
Packinghouse or packer	64	20	12	23	51	
Date packed	62	14	9	35	51	
Other	14	6	7	*	14	
Type of trace back information	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	
Farm	79	39	63	81	14	
Field or block	51	4	20	23	6	
Date of harvest	59	8	17	24	7	
Picker or harvester	49	3	10	15	1	
Packinghouse or packer	66	8	37	38	6	
Date packed	54	6	34	21	10	
Other	21	3	24	10	1	
Type of trace back information	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>	<i>% of packers</i>
Farm	35	39	39	31	22	38
Field or block	6	10	16	7	6	12
Date of harvest	8	19	22	14	6	16
Picker or harvester	3	10	20	8	5	11
Packinghouse or packer	18	21	12	12	9	18
Date packed	9	14	18	13	7	16
Other	5	6	7	9	*	7

* Insufficient data.

**Packer Agricultural Practices
Trace Back Information on Crop Shipped - Percent of Volume
Fruit Program States, 1999**

Target Fruit Crop				
Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
99	100	99	94	99

Target Fruit Crop (continued)				
Kiwifruit	Lemons	Nectarines	Oranges	Peaches
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
99	98	100	99	93

Target Fruit Crop (continued)				
Pears	Plums	Tangerines	All Fruit	
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	
98	98	81	98	

**Packer Agricultural Practices
Trace Back Information on Crop Shipped - Percent of Volume
Vegetable Program States, 1999**

Target Vegetable Crop				
Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
100	80	90	100	*

Target Vegetable Crop (continued)				
Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
90	90	97	100	90

Target Vegetable Crop (continued)					
Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
60	89	90	98	97	95

* Insufficient data.

Packer Agricultural Practices
Type of Trace Back Information on Crop Shipped - Percent of Volume
Fruit Program States, 1999

Type of trace back information	Target Fruit Crop				
	Apples	Avocados	Cherries, Sweet	Grapefruit	Grapes, Table
	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
Farm	98	56	86	68	97
Field or block	81	31	75	58	94
Date of harvest	85	71	49	53	97
Picker or harvester	64	6	59	31	90
Packinghouse or packer	98	94	89	87	94
Date packed	72	95	87	67	22
Other	67	45	63	44	6
Type of trace back information	Target Fruit Crop (continued)				
	Kiwifruit	Lemons	Nectarines	Oranges	Peaches
	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
Farm	92	71	91	85	87
Field or block	72	72	77	73	57
Date of harvest	56	72	54	76	53
Picker or harvester	19	34	18	19	35
Packinghouse or packer	99	98	100	98	69
Date packed	99	98	98	92	57
Other	11	22	48	35	46
Type of trace back information	Target Fruit Crop (continued)				
	Pears	Plums	Tangerines	All Fruit	
	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	
Farm	91	89	41	90	
Field or block	49	82	40	75	
Date of harvest	46	69	40	77	
Picker or harvester	40	10	14	44	
Packinghouse or packer	93	97	81	96	
Date packed	93	98	59	79	
Other	72	35	35	51	

**Packer Agricultural Practices
Type of Trace Back Information on Crop Shipped - Percent of Volume
Vegetable Program States, 1999**

Type of trace back information	Target Vegetable Crop					
	Broccoli	Cabbage	Cantaloups	Carrots	Cauliflower	
	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	
Farm	99	68	31	84	*	
Field or block	86	41	17	79	*	
Date of harvest	86	44	51	81	*	
Picker or harvester	83	35	51	57	*	
Packinghouse or packer	86	46	89	86	*	
Date packed	86	60	54	87	*	
Other	42	16	47	*	*	
Type of trace back information	Target Vegetable Crop (continued)					
	Celery	Cucumbers	Honeydews	Lettuce, Head	Lettuce, Other	
	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	
Farm	90	84	64	93	90	
Field or block	86	45	17	48	10	
Date of harvest	86	48	47	48	12	
Picker or harvester	84	30	45	11	6	
Packinghouse or packer	89	58	83	52	31	
Date packed	86	50	63	45	10	
Other	*	7	88	*	15	
Type of trace back information	Target Vegetable Crop (continued)					
	Onions, Bulb	Peppers, Bell	Strawberries	Tomatoes	Watermelons	All Vegetables
	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>	<i>% of volume</i>
Farm	49	55	84	80	92	86
Field or block	25	47	66	59	5	42
Date of harvest	20	50	72	83	15	49
Picker or harvester	6	46	64	52	4	34
Packinghouse or packer	45	81	50	83	85	77
Date packed	33	48	67	88	15	51
Other	21	12	44	38	(¹)	15

* Insufficient data.

Terms and Definitions

Broadcast:	To apply fertilizer in all directions by scattering.
Buffer strip:	Also referred to as a filter strip. A strip of permanent vegetation of sufficient width and vegetative density adjacent to or near a susceptible target area to provide protection from microbial contamination through water. The vegetation retards the flow of run-off water, causing the flowing water to deposit silt.
Chlorine:	The chemical element CL. A greenish-yellow gaseous element used in water purification as a disinfectant.
Composting:	A managed process (treatment, turning, etc.) in which organic materials are placed in a pit or enclosure, moistened and decomposed. The compost is then used as fertilizer.
Conveyor:	A mechanical device for carrying material from one point to another.
Drip/trickle irrigation:	Watering plants so that only soil in the plant's immediate vicinity is moistened. Water is supplied from a thin plastic tube at a low flow rate. It is the most efficient use of water for irrigation and also reduces the chance of pathogens because the entire plant is not wetted, thereby denying moisture to the microorganisms.
Facility:	A building or other physical structure used for or in connection with the harvesting, washing, sorting, grading, storage, packaging, labeling, holding, or transport of a product.
Field packing:	Packing produce directly from the field into market containers for commercial distribution and sale.
Float/soak tank:	Tanks filled with water and cleansing agents to clean produce.
Flume transport:	An inclined, open conduit or trough-like structure for the conduction of water and floating objects.
Forced air cooling:	A fan powered cooling system which exposes packages of produce in a cooling room to higher air pressure on one side than on the other forcing the cool air through the packages and past the produce for heat transfer from the produce.
Gravity irrigation:	Water that moves through soils under the influence of gravity. It is distinguished from a pumped supply of water.
Hmong:	The language of people who originated in China and migrated to Burma, Northern Vietnam, Laos, and Thailand.

Terms and Definitions (continued)

Hydro cooling:	A cooling process accomplished by flooding the produce with large volumes of chilled water, normally in a hydro-cooler designed specifically for that purpose.
Hygiene:	The science of health and the prevention of disease. Conditions and practices (such as hand washing) promoting or preserving health.
Incorporation:	To unite or combine to form a single whole such as fertilizer tilled or injected into the soil.
Microbial:	Pertaining to microorganisms.
Microorganism:	Bacteria, molds, viruses, and other organisms so small that they cannot be seen without the aid of a microscope. Some microorganisms are beneficial and help create food products, some cause foods to spoil, and some harmful microorganisms can cause sickness and even death.
Mobile packing unit:	A piece of equipment that moves slowly through the field allowing workers to harvest and pack produce as it progresses.
Organic crops:	Crops grown using only organic (carbon containing) compounds. Organic growers may use fertilizers and pesticides, but these compounds must be organic and not synthetic chemicals.
Overhead sprinkler system:	Overhead application of water to a crop by any of a wide range of systems, e.g. center pivot. The entire plant is wetted.
Ozone:	A blue gaseous allotrope of oxygen, derived from diatomic oxygen by electric discharge or exposure to ultraviolet radiation.
Packing facility:	In many instances fresh produce is harvested in one location and transported to a central facility for cleaning and packing into market containers. The size of the packing facility can range from a small on-farm shed to a large commercial plant.
Pathogen:	Any microorganism that causes disease in humans.
Pun Jabi:	A central Indic language spoken in Punjab, an area in northwest India.
Sanitizing:	Treatment to kill microorganisms. Includes rinsing, soaking, spraying, or wiping the surface with a sanitizing solution. Surfaces should be properly washed and rinsed before they are sanitized. An unclean surface cannot be effectively sanitized because soap and soil inactivate sanitizing solutions.
Sludge:	Residual solid matter which remain after sewage treatment: the sewage solids deposited by sedimentation in sewage treatment, sometimes used as a fertilizer.

Terms and Definitions (continued)

- Slushed ice cooling:** The packing of produce where alternate layers of ice and the commodity are placed in a shipping box or crate. A preferred cooling method for many types of extremely perishable produce items that not only removes heat rapidly when first applied to produce but continues to absorb heat as it melts.
- Subirrigation:** Water supplied to the soil (from ditches or through underground tile lines, or perforated pipe lines, or by natural subsoil moisture) in sufficient amounts to maintain a water table sufficiently close to the soil surface to supply adequate water quantities for crop needs.
- Trace back:** The ability to trace a fruit or vegetable back to its source of origin. A common practice used by health officials to investigate foodborne illness outbreaks. Retailer, stocker, shipper, packer, grower, field, harvester, date of harvest are information items which may be part of a trace back system.
- Ultraviolet (UV) light:** Ultraviolet light is a form of radiation which is not visible to the human eye. It is sometimes used for irradiation of produce to eliminate disease pathogens.
- Vacuum cooling:** A cooling system where the product is put into a vacuum chamber and the atmospheric pressure is lowered. As water evaporates, the heat of vaporization quickly removes heat from the product. Commonly used for leafy vegetables, such as lettuce.

Survey Procedures: The Fruit and Vegetable Agricultural Practices Survey used a multiple phase sampling design. The first phase involved conduct of a Screening Survey in mid 1999. Based on information maintained on NASS's List Sampling Frame, a large sample of growers of targeted fruit and vegetables were contacted to collect total acres planted and the percent of production intended for fresh market use. When growers reported production intended for fresh market use, they were also asked if they planned on packing the crop for fresh market use. A list of commercial packers was also screened to determine the targeted crops that were actually packed by each packing operation.

A sample of "in scope" growers from the Screening Survey was selected for the "Grower" Fruit and Vegetable Agricultural Practices Survey. All packers (whether grower-packer or only packer) were selected for the "Packer" Fruit and Vegetable Agricultural Practices Survey.

Each grower in the sample was selected to report on up to two targeted commodities. If a grower grew more than two targeted commodities, the two randomly selected commodities were most likely to be the ones that had the most significant contribution to the State's total acreage. If a packer packed more than two targeted commodities, the two randomly selected commodities were most likely the ones that had the lowest number of total packers in the State for the targeted commodities. This procedure insured adequate coverage of each targeted fruit and vegetable in terms of number of growers, acres harvested for fresh market, and the number of packers.

There are two differences in the commodities published for "Grower" and "Packer" agricultural practices. Due to a commodity coding error in the sampling phase, raisin grapes were not surveyed in the Packer Survey and are therefore not included in the Packer "All fruit" data. Limes are not published separately in the Packer data due to a small number of usable reports, but are included in the Packer "All fruit" data.

A total of 6,867 commodity level usable reports were summarized in the Grower Fruit and Vegetable Agricultural Practices Survey. The number of commodity level usable reports summarized in the Packer Fruit and Vegetable Agricultural Practices Survey was 2,868.

Reliability: The probability nature of the survey provides for expansion of data so estimates are statistically representative of agricultural practices for the targeted commodities in the surveyed States. The reliability of these survey results is affected by sampling variability and non-sampling errors.

The results of this survey are subject to sampling variability. Sampling variability is a measure of how the estimates would differ if other samples had been drawn. The sampling variability expressed as a percent of the estimate is called the coefficient of variation (cv). Sampling variability of the estimates differed considerably by agricultural practice. In general, the more frequent an agricultural practice occurred, the smaller the sampling variability. For more common practices, cv's will range from 10-90 percent at the U.S. level. Some less frequent practices could have cv's above 150 percent. These items have insufficient data for publication and these instances are noted with an asterisk (*)

Non-sampling errors occur during a survey process, and unlike sampling variability, are difficult to measure. They may be caused by interviewers failing to follow instructions, poorly worded questions, non-response, problematic survey procedures, or data handling mistakes between collection and publication. In this survey, all survey procedures and analyses were carried out in a consistent and orderly manner to minimize the occurrence of these types of errors.

Report Features

Released June, 2001, by the National Agricultural Statistics Service (NASS), Agricultural Statistics Board, U.S. Department of Agriculture. For information on "Fruit and Vegetable Agricultural Practices" call (202) 720-6146, office hours 7:30 a.m. to 4:00 p.m. ET.

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