



WASHINGTON'S AGRICULTURAL VEGETABLE CHEMICAL USAGE, 2006

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CARROTS, PROCESSING

Results of the 2006 Vegetable Chemical Use Survey are presented in the following tables. The survey was designed to collect data on chemical applications made from the end of the 2005 harvest through completion of the 2006 harvest from a sampling of vegetable growers in Washington. Targeted crops in Washington included asparagus, processing carrots, processing sweet corn, dry onions, processing green peas, and strawberries. The probability nature of the survey allowed for estimates that are representative of chemical use on all targeted vegetables in the state.

Survey results include estimates of total area treated, number of applications, rates per application and per crop year, and total pounds of chemicals applied. Data are summarized for the active ingredients of pesticides and other chemicals applied. Pesticide data were collected for specific formulations of active ingredients (trade name products) and then converted to active ingredient. Therefore, the estimates associated with a particular active ingredient may represent applications of several trade name products. Pesticide application rates also reflect partial

coverage applications as a result of band, spot, and alternate row spraying techniques.

In 2006, acreage planted for processing carrots was surveyed in four Program States: California, Michigan, Washington, and Wisconsin. Nitrogen, phosphate, potash, and sulfur applications were made to 86, 65, 61, and 30 percent of the planted acreage, respectively. Herbicide applications were reported on 96 percent of the surveyed acres. The herbicides most commonly used were **Linuron** and **Clethodim**, at 93 and 40 percent, respectively. Insecticides were applied to 75 percent of the acres. **Esfenvalerate** was used most, applied to 66 percent of the acreage. Fungicides were applied to 86 percent of the acres. **Chlorothalonil** was the most utilized fungicide, covering 75 percent of the acreage, followed by **Copper hydroxide**, which was applied to 33 percent of the acreage. The only active ingredient published for Other Chemicals in 2006 was **Metam-sodium**, at 30 percent. Fertilizer information was not collected on the 2004 Vegetable Chemical Use Survey.

Carrots: Fertilizer Applications, Planted Acreage & Percentage Receiving Applications, Program States & Total, 2004 & 2006

State	Planted Acreage		Area Receiving 1/							
			Nitrogen		Phosphate		Potash		Sulfur	
	2004	2006	2004	2006	2004	2006	2004	2006	2004	2006
	Acres		Percent							
California	4,300	4,500	-	100	-	81	-	**	-	**
Texas 2/	1,000	-	-	-	-	-	-	-	-	-
Michigan	-	1,800	-	**	-	**	-	73	-	-
Washington	5,600	3,500	-	**	-	**	-	**	-	**
Wisconsin	4,200	4,300	-	55	-	**	-	75	-	**
TOTAL	15,100	14,100	-	86	-	65	-	61	-	30

1/ Refers to acres receiving one or more applications of a specific fertilizer ingredient.

2/ Texas was not surveyed in the 2006 Vegetable Chemical Use Survey.

- Fertilizer applications were not collected in the 2004 Vegetable Chemical Use Survey.

** Insufficient reports to publish data for the fertilizer primary nutrient.



Carrots, Processing: Pesticide Applications, Planted Acreage & Percentage Receiving Applications, Program States & Total, 2004-2006

State	Planted Acreage		Area Receiving 1/							
			Herbicide		Insecticide 2/		Fungicide		Other	
	2004	2006	2004	2006	2004	2006	2004	2006	2004	2006
	Acres		Percent							
California	4,300	4,500	38	88	16	40	37	70	**	52
Texas 3/	1,000	-	87	-	46	-	55	-	**	-
Michigan	-	1,800	-	**	-	**	-	**	-	-
Washington	5,600	3,500	100	**	82	**	**	**	**	**
Wisconsin	4,200	4,300	100	100	96	93	88	93	**	**
TOTAL	15,100	14,100	81	96	50	75	63	86	36	**

** Insufficient reports to publish data for pesticide class.

1/ Refers to acres receiving one or more applications of a specific pesticide class.

2/ Total applied excludes Bt's (*Bacillus thuringiensis*). Quantities are not available because amounts of active ingredients are not comparable between products.

3/ Texas was not surveyed in the 2006 Vegetable Chemical Use Survey.

Carrots, Processing: Agricultural Chemical Applications, Program States, 2004-2006 1/

Active Ingredient 2/	Area Applied 3/		Applications		Rate Per Application		Rate Per Crop Year		Total Applied	
	2004	2006	2004	2006	2004	2006	2004	2006	2004	2006
Herbicides	Percent		Number		Pounds Per Acre				1,000 Pounds	
Clethodim	11	40	1.2	1.3	0.11	0.125	0.12	0.166	0.2	1.0
Fluazifop-P-butyl	17	9	1.2	1.0	0.13	0.267	0.16	0.274	0.4	0.3
Linuron	81	93	2.1	2.1	0.56	0.619	1.17	1.287	14.3	17.8
Trifluralin	27	-	1.0	-	0.68	-	0.68	-	2.8	-
Insecticides										
Diazinon	-	27	-	1.8	-	0.520	-	0.948	-	3.6
Esfenvalerate	42	66	3.7	2.1	0.02	0.024	0.09	0.051	0.6	0.5
Fungicides										
Azoxystrobin	-	20	-	1.0	-	0.155	-	0.155	-	0.4
Chlorothalonil	48	75	3.7	2.3	0.93	1.135	3.46	2.614	25.3	32.3
Copper hydroxide	22	33	1.0	1.7	0.44	0.734	0.45	1.271	1.5	5.7
Sulfur	-	7	-	1.4	-	23.083	-	31.625	-	32.1
Other Chemicals										
Dichloropropene	32	-	1.0	-	118.86	-	118.86	-	579.0	-
Metam-sodium	-	30	-	1.0	-	148.105	-	149.971	-	627.9

1/ Planted acres for the four major states in 2004 were 15,100. Planted acres for the four major states in 2006 were 14,100. States included in 2004 were CA, TX, WA, and WI, and states in 2006 were CA, MI, WA, and WI.

2/ Insufficient reports to publish data for the following agricultural chemicals: 2004: Herbicides: Bentazon, Glyphosate, Metribuzin, Pendimethalin, Sethoxydim. Insecticides: Azadirachtin, Carbaryl, Cyfluthrin, Diazinon, Endosulfan, Lambda-cyhalothrin, Malathion, Oxamyl. Fungicides: Azoxystrobin, Boscalid, Copper oxide, Copper resinate, Iprodione, Mefenoxam, Pyraclostrobin, Sulfur. Other Chemicals: Chloropicrin, Metam-sodium. 2006: Herbicides: EPTC, Glyphosate iso. salt, Metribuzin, Paraquat, Sethoxydim, Trifluralin. Insecticides: Cyfluthrin, Endosulfan, Malathion, Methomyl, Oxamyl. Fungicides: Boscalid, Copper oxide, Copper resinate, Iprodione, Mefenoxam, Pyraclostrobin, Trifloxystrobin. Other Chemicals: Dichloropropene, Metam-potassium.

3/ Refers to acres receiving one or more applications of a specific agricultural chemical. Note: Data may not multiply across due to rounding