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National Agricultural Statistics Service

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Agricultural Chemical Usage
2001 Dairy Cattle and Dairy Facilities Summary

May 2002

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2001 Agricultural Chemical Use Estimates for
Dairy Cattle and Dairy Cattle Facilities

Overview: The agricultural chemical usage estimates in this report are based on data compiled from the 2002 General Dairy Management Survey, which was conducted in late December 2001 through January 2002. The States in this survey account for approximately 85% of the milk cow inventory in the United States, based on 2001 data published in the NASS Milk Production release dated February 15, 2002.

This report provides insecticide use information on dairy cattle and dairy facilities in the 21 selected States. All data refer to the on-farm use of chemical active ingredients contained in insecticides which were applied during the 2001 calendar year. Insecticides are defined as chemical products used for the control of insects. Insecticides are regulated by the Environmental Protection Agency (EPA) and the Food and Drug Administration (FDA). Insecticides are applied to dairy cattle and dairy facilities to control flies, mange, mites, lice, grubs, and other external pests.

Chemical usage on dairy cattle is published on a rate per head per application and rate per head per year basis. Some dairy cattle received no chemical applications in 2001; whereas, other dairy cattle received multiple applications of the same chemical. In other cases, dairy cattle received applications of several different chemicals. The number of times a chemical is applied varies significantly based on product formulation, method of application, and pest stress at particular locations. The rate per head data cannot be used to calculate the actual number of head treated with a particular chemical. Dairy cattle inventories are reprinted in this report from a previous NASS release for informational purposes only.

Some active ingredients, such as petroleum distillate, piperonyl butoxide, and xylene are primarily carriers, diluents, synergists, or repellents. These active ingredients are classified by the EPA as pesticides, and are therefore included in this report.

This report excludes pharmaceutical products that treat dairy cattle for internal pests. A pharmaceutical is classified as a drug and is regulated by FDA. Pharmaceuticals generally target internal livestock pests such as viruses, bacteria, or worms. Some products can be classified as either a pesticide or a pharmaceutical because they treat both external and internal pests. Examples of dual purpose products are doramectin and ivermectin. These products can be applied to dairy cattle internally through oral dosage or injection, or applied externally as a pour-on.

Besides pharmaceuticals, disinfectants and sanitizers are also excluded. Only insecticide data were collected and summarized.

Insecticide applications made to dairy cattle facilities are also included in this report. For survey purposes, milking parlors, pens, sheds, and barns are examples of dairy cattle facilities. Herbicide and termite chemical applications are excluded, as are all rodenticides.

Highlights
2001 Dairy Cattle and Dairy Cattle Facilities
Agricultural Chemical Use

2002 General Dairy Management Survey: Agricultural producers applied a total of 161,800 pounds of insecticides to dairy cattle during 2001 in the 21 States surveyed. Dairy operations in 21 States were surveyed in late 2001 through January 2002. States surveyed for dairy cattle chemical use do not necessarily correspond to major dairy cattle States.

Commonly Used Active Ingredients on Dairy Cattle: The insecticide most commonly used on dairy cattle during 2001, based on total pounds applied, in the surveyed States was permethrin, at 47,300 pounds, followed by piperonyl butoxide, at 22,100 pounds. Tetrachlorvinphos was the third most commonly used insecticide, with 21,200 total pounds used during 2001 in the States surveyed.

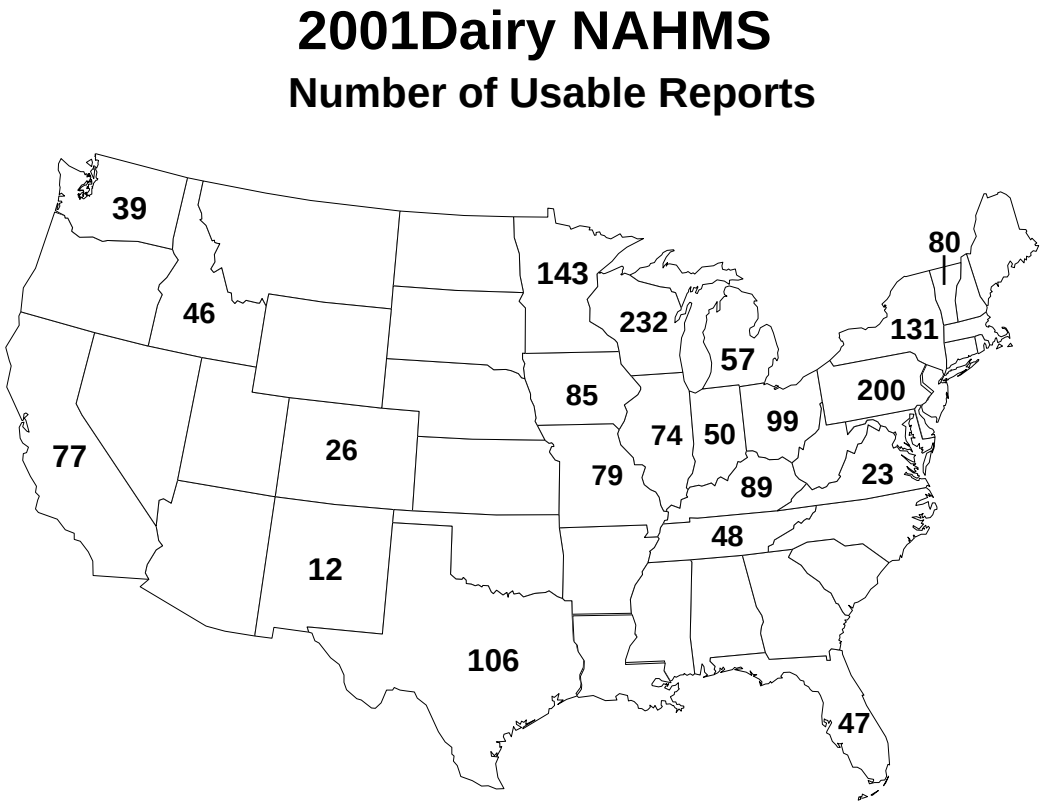
Of the total chemical applications made to dairy cattle during 2001 in the 21 selected States, 59 percent were made as pour-on or spot-on applications, 20 percent by spray method, 8 percent by dust bag or hand dusting, 4 percent by injection, 4 percent with ear tags, and 3 percent by rubbing device. All other methods accounted for the remaining 2 percent of the chemical applications.

Commonly Used Active Ingredients on Dairy Cattle Facilities: In the 21 surveyed States, a total of 100,100 pounds of insecticide active ingredients was applied to dairy facilities in 2001. Piperonyl butoxide had the highest total quantity used, at 24,700 pounds applied during 2001 in the surveyed States. Permethrin had the second highest total pounds used, at 19,200 pounds, followed by dimethoate, for which 14,800 total pounds were applied during 2001 in the selected States.

Highlights
2001 Dairy Cattle and Dairy Cattle Facilities
Agricultural Chemical Use

In the 21 States surveyed, there were 1,743 reports summarized for chemicals applied directly to dairy cattle and 989 reports summarized for chemicals applied to dairy facilities.

The U.S. map below depicts graphically the total number of summarized reports for each State in the 2001 survey.



Milk Cows and Production: By State, and United States, January 1, 2000-2001

State	Milk Cows [1]		Milk Per Cow [2]		Milk Production [2]		Change From 2000
	2000	2001	2000	2001	2000	2001	
	1,000 Head	*1,000 Head*	*Pounds*	*Pounds*	*Million Pounds*	*Million Pounds*	*Percent*
AL	25	21	13,920	14,286	348	300	-13.8
AK	0.9	1.1	14,500	13,055	13.05	14.36	10.0
AZ	139	140	21,436	20,679	3,033	2,895	-4.5
AR	39	35	12,436	12,343	485	432	-10.9
CA	1,526	1,590	21,149	20,913	32,273	33,251	3.0
CO	89	91	21,618	21,648	1,924	1,970	2.4
CT	27	25	17,778	18,240	480	456	-5.0
DE	10.0	9.0	15,000	16,778	150.0	151.0	0.7
FL	157	153	15,688	15,758	2,463	2,411	-2.1
GA	87	86	16,471	16,640	1,433	1,431	-0.1
HI	8.1	7.5	14,358	14,107	116.3	105.8	-9.0
ID	347	366	20,816	21,194	7,223	7,757	7.4
IL	120	116	17,450	17,414	2,094	2,020	-3.5
IN	146	153	16,568	16,732	2,419	2,560	5.8
IA	215	210	18,298	18,024	3,934	3,785	-3.8
KS	91	93	16,923	17,312	1,540	1,610	4.5
KY	132	128	12,841	12,969	1,695	1,660	-2.1
LA	58	54	12,034	11,704	698	632	-9.5
ME	39	38	17,128	17,211	668	654	-2.1
MD	84	82	16,083	15,780	1,351	1,294	-4.2
MA	22	21	17,091	17,048	376	358	-4.8
MI	300	303	19,017	19,323	5,705	5,855	2.6
MN	534	510	17,777	17,278	9,493	8,812	-7.2
MS	36	35	15,028	14,200	541	497	-8.1
MO	154	145	14,662	13,441	2,258	1,949	-13.7
MT	19	19	17,789	18,211	338	346	2.4
NE	76	72	16,513	16,056	1,255	1,156	-7.9
NV	25	25	19,040	19,400	476	485	1.9
NH	18	18	17,333	17,944	312	323	3.5
NJ	16	14	15,250	16,643	244	233	-4.5
NM	250	268	20,944	20,750	5,236	5,561	6.2
NY	686	672	17,378	17,527	11,921	11,778	-1.2
NC	71	67	16,746	17,373	1,189	1,164	-2.1
ND	48	46	14,292	14,000	686	644	-6.1
OH	262	260	17,027	16,612	4,461	4,319	-3.2
OK	91	89	14,231	14,528	1,295	1,293	-0.2
OR	90	95	18,222	18,074	1,640	1,717	4.7
PA	617	599	18,081	18,112	11,156	10,849	-2.8
RI	1.8	1.4	15,667	16,571	28.2	23.2	-17.7
SC	23	21	16,087	17,476	370	367	-0.8
SD	102	99	16,020	15,960	1,634	1,580	-3.3
TN	95	92	14,789	14,511	1,405	1,335	-5.0
TX	348	325	16,483	15,689	5,736	5,099	-11.1
UT	96	93	17,573	17,581	1,687	1,635	-3.1
VT	156	153	17,199	17,431	2,683	2,667	-0.6
VA	120	118	15,833	15,898	1,900	1,876	-1.3
WA	247	247	22,644	22,324	5,593	5,514	-1.4
WV	17	16	15,588	15,563	265	249	-6.0
WI	1,344	1,292	17,306	17,182	23,259	22,199	-4.6
WY	5.6	4.5	13,571	14,000	76.0	63.0	-17.1
US [3]	9,206	9,115	18,201	18,139	167,559	165,336	-1.3

[1] Average number during year, excluding heifers not yet fresh.
[2] Excludes milk sucked by calves.
[3] May not add due to rounding.

Dairy Cattle: Agricultural Chemical Use,
Total Amount Applied
Program States and Total, 2001

State	Total Applied
	1,000 Pounds
CA	13.3
CO	8.0
FL	3.7
ID	2.9
IL	2.4
IN	7.7
IA	9.4
KY	2.0
MI	2.1
MN	19.6
MO	3.4
NM	13.2
NY	11.4
OH	2.2
PA	7.4
TN	8.0
TX	9.4
VT	6.0
VA	2.1
WA	5.5
WI	22.1
Total	161.8

Dairy Cattle: Agricultural Chemical Use,
Total of Program States, 2001 [1] [2]

Agricultural Chemical	Rate per Head per Application	Rate per Head per Year	Total Applied
	Grams	*Grams*	*1,000 Pounds*
Insecticides:			
Amitraz	1.5	3.7	0.1
Chlorpyrifos	0.3	0.8	*
Clorsulon	0.8	1.0	0.2
Coumaphos	0.4	11.1	10.6
Crotoxyphos	0.4	0.6	*
Cyfluthrin	0.9	3.3	5.5
Diazinon	0.7	5.9	0.2
Dichlorvos	0.4	13.6	9.0
Dimethoate	5.0	132.1	7.9
Dipropyl isocinchomeronate	0.5	13.2	1.9
Doramectin	0.2	0.3	0.1
Eprinomectin	0.2	0.3	0.9
Ethion	3.1	4.3	0.1
Famphur	11.4	20.4	1.3
Fenthion	1.8	3.5	0.2
Fenvalerate	2.5	21.3	1.7
Flucythrinate	0.7	0.7	*
Ivermectin	0.2	0.3	0.6
Lambda-cyhalothrin	1.2	1.6	0.1
Malathion	1.3	10.8	1.1
Methoxychlor	13.3	143.2	6.6
Moxidectin	0.2	0.3	0.4
N-octy-bicycloheptene	0.4	9.7	2.3
Naled	4.6	49.2	3.1
Permethrin	0.9	8.3	47.3
Petroleum distillate	3.3	82.7	7.8
Piperonyl butoxide	0.3	8.3	22.1
Pirimiphos-methyl	1.8	2.5	0.1
Pyrethrins	0.03	1.4	2.0
S-Methoprene	0.1	8.6	1.2
Tetrachlorvinphos	1.1	63.2	21.2
Xylene	39.8	71.5	4.7
Zeta-cypermethrin	0.8	0.9	*

* Total applied less than 50 pounds.

[1] States included are CA, CO, FL, ID, IL, IN, IA, KY, MI, MN, MO, NM, NY, OH, PA, TN, TX, VT, VA, WA, and WI.

[2] Insufficient reports to publish data for bendiocarb, bomyl, butoxypolypropylene glycol, carbaryl, cypermethrin, diflubenzuron, methomyl, phosmet, ronnel, sulfur, and toxaphene.

Dairy Cattle: Agricultural Chemical Use, California, 2001 [1]

Agricultural Chemical	Rate per Head per Application	Rate per Head per Year	Total Applied
	Grams	*Grams*	*1,000 pounds*
Insecticides:			
Cyfluthrin	0.1	0.4	0.2
Ivermectin	0.1	0.2	*
Permethrin	0.6	3.4	3.4
Piperonyl butoxide	0.2	5.1	1.0

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for clorsulon, coumaphos, dimethoate, doramectin, eprinomectin, malathion, moxidectin, naled, petroleum distillate, pyrethrins, and tetrachlorvinphos.

Dairy Cattle: Agricultural Chemical Use, Colorado, 2001 [1]

Agricultural Chemical	Rate per Head per Application	Rate per Head per Year	Total Applied
	Grams	*Grams*	*1,000 Pounds*
Insecticides:			
Coumaphos	1.2	118.4	3.9
Permethrin	0.17	1.0	0.1

[1] Insufficient reports to publish data for clorsulon, cyfluthrin, dichlorvos, doramectin, eprinomectin, famphur, fenthion, ivermectin, lambda-cyhalothrin, n-octy-bicycloheptene dicarbo., petroleum distillate, piperonyl butoxide, pyrethrins, tetrachlorvinphos, and xylene.

Dairy Cattle: Agricultural Chemical Use, Florida, 2001 [1]

Agricultural Chemical	Rate per Head per Application	Rate per Head per Year	Total Applied
	Grams	*Grams*	*1,000 Pounds*
Insecticides:			
Coumaphos	0.1	2.9	0.2
Ivermectin	0.1	0.2	*
Permethrin	0.3	2.9	0.8
Piperonyl butoxide	0.3	3.4	0.4
S-Methoprene	0.0	5.2	0.3
Tetrachlorvinphos	1.5	23.9	1.2

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for clorsulon, cyfluthrin, diazinon, dichlorvos, doramectin, eprinomectin, ethion, fenthion, lambda-cyhalothrin, methomyl, methoxychlor, moxidectin, petroleum distillate, phosmet, pyrethrins, and sulfur.

Dairy Cattle: Agricultural Chemical Use, Idaho, 2001 [1]

Agricultural Chemical	Rate per Head per Application	Rate per Head per Year	Total Applied
	Grams	*Grams*	*1,000 Pounds*
Insecticides:			
Coumaphos	0.3	1.7	*
Ivermectin	0.1	0.2	*
Moxidectin	0.3	0.7	*
Permethrin	4.4	8.9	0.6
Piperonyl butoxide	0.1	4.4	0.3

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for bendiocarb, clorsulon, cyfluthrin, diazinon, dichlorvos, doramectin, eprinomectin, famphur, lambda-cyhalothrin, naled, pirimiphos-methyl, pyrethrins, tetrachlorvinphos, and xylene.

Dairy Cattle: Agricultural Chemical Use, Illinois, 2001 [1]

Agricultural Chemical	Rate per Head per Application	Rate per Head per Year	Total Applied
	Grams	*Grams*	*1,000 Pounds*
Insecticides:			
Coumaphos	0.4	1.4	*
Cyfluthrin	0.3	1.6	0.1
Dichlorvos	0.2	3.7	0.2
Doramectin	0.1	0.1	*
Eprinomectin	0.1	0.2	*
Ivermectin	0.1	0.2	*
Moxidectin	0.2	0.4	*
Permethrin	2.4	9.3	0.5
Piperonyl butoxide	0.8	13.4	1.4
Pyrethrins	0.1	1.7	0.1

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for amitraz, clorsulon, crotoxyphos, diazinon, diflubenzuron, fenthion, fenvalerate, naled, n-octy-bicycloheptene dicarbo., ronnel, tetrachlorvinphos, and zeta-cypermethrin.

Dairy Cattle: Agricultural Chemical Use, Indiana, 2001 [1]

Agricultural Chemical	Rate per Head per Application	Rate per Head per Year	Total Applied
	Grams	*Grams*	*1,000 Pounds*
Insecticides:			
Coumaphos	0.3	52.1	1.0
Ivermectin	0.4	0.4	*
Permethrin	0.3	5.5	0.8
Piperonyl butoxide	0.1	8.9	0.3
Pyrethrins	0.0	2.1	*
Tetrachlorvinphos	1.0	226.7	4.7

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for chlorpyrifos, clorsulon, cyfluthrin, cypermethrin, diazinon, dichlorvos, dimethoate, doramectin, eprinomectin, fenvalerate, moxidectin, naled, n-octy-bicycloheptene dicarbo., and s-methoprene.

Dairy Cattle: Agricultural Chemical Use, Iowa, 2001 [1]

Agricultural Chemical	Rate per Head per Application	Rate per Head per Year	Total Applied
	Grams	*Grams*	*1,000 Pounds*
Insecticides:			
Dichlorvos	0.6	20.3	0.6
Eprinomectin	0.3	0.3	*
Ivermectin	0.5	1.0	*
Moxidectin	0.1	0.4	0.1
Permethrin	2.5	23.4	6.0
Piperonyl butoxide	0.5	16.8	2.1
Pyrethrins	0.0	2.0	0.1

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for coumaphos, cyfluthrin, diazinon, dipropyl isocinchomeronate, doramectin, famphur, fenthion, fenvalerate, n-octy-bicycloheptene dicarbo., tetrachlorvinphos, and xylene.

Dairy Cattle: Agricultural Chemical Use, Kentucky, 2001 [1]

Agricultural Chemical	Rate per Head per Application	Rate per Head per Year	Total Applied
	Grams	*Grams*	*1,000 Pounds*
Insecticides:			
Coumaphos	1.8	9.1	0.4
Cyfluthrin	0.3	1.0	0.1
Diazinon	2.9	2.9	*
Eprinomectin	0.2	0.3	*
Ivermectin	0.3	0.5	*
Moxidectin	0.2	0.4	*
Permethrin	1.2	5.6	0.4
Piperonyl butoxide	0.1	1.6	0.1

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for bomyl, chlorpyrifos, cypermethrin, dichlorvos, doramectin, ethion, fenvalerate, flucythrinate, malathion, pirimiphos-methyl, pyrethrins, s-methoprene, tetrachlorvinphos, and zeta-cypermethrin.

Dairy Cattle: Agricultural Chemical Use, Michigan, 2001 [1]

Agricultural Chemical	Rate per Head per Application	Rate per Head per Year	Total Applied
	Grams	*Grams*	*1,000 Pounds*
Insecticides:			
Eprinomectin	0.2	0.3	*
Ivermectin	0.1	0.1	*
Permethrin	0.8	2.0	0.4
Piperonyl butoxide	0.1	1.0	0.2
Pyrethrins	0.0	0.1	*

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for carbaryl, clorsulon, coumaphos, cyfluthrin, dichlorvos, dipropyl isocinchomeronate, doramectin, famphur, fenthion, moxidectin, n-octy-bicycloheptene dicarbo., phosmet, s-methoprene, and xylene.

Dairy Cattle: Agricultural Chemical Use, Minnesota, 2001 [1]

Agricultural Chemical	Rate per Head per Application	Rate per Head per Year	Total Applied
	Grams	*Grams*	*1,000 Pounds*
Insecticides:			
Cyfluthrin	4.3	52.2	3.5
Dichlorvos	0.2	6.5	0.5
Dipropyl isocinchomeronate	0.8	18.5	0.4
Eprinomectin	0.3	0.3	0.2
Ivermectin	0.2	0.3	0.1
Moxidectin	0.2	0.2	*
N-octy-bicycloheptene dicarbo.	0.7	19.3	0.7
Permethrin	0.7	13.4	3.2
Piperonyl butoxide	0.5	14.8	3.1
Pyrethrins	0.0	2.0	0.3

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for coumaphos, dimethoate, doramectin, famphur, fenthion, methoxychlor, naled, ronnel, tetrachlorvinphos, toxphene, xylene, and zeta-cypermethrin.

Dairy Cattle: Agricultural Chemical Use, Missouri, 2001 [1]

Agricultural Chemical	Rate per Head per Application	Rate per Head per Year	Total Applied
	Grams	*Grams*	*1,000 Pounds*
Insecticides:			
Coumaphos	0.1	2.7	0.2
Doramectin	0.2	0.3	*
Eprinomectin	0.2	0.7	*
Ivermectin	0.4	0.4	*
Moxidectin	0.2	0.5	*
Permethrin	0.4	2.9	0.6
Piperonyl butoxide	1.1	7.6	0.4
Tetrachlorvinphos	20.4	39.6	0.6

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for carbaryl, crotoxyphos, cyfluthrin, diazinon, dichlorvos, famphur, fenthion, flucythrinate, lambda-cyhalothrin, malathion, petroleum distillate, pirimiphos-methyl, pyrethrins, s-methoprene, and xylene.

Dairy Cattle: Agricultural Chemical Use, New Mexico, 2001 [1]

Agricultural Chemical	Rate per Head per Application	Rate per Head per Year	Total Applied
	Grams	*Grams*	*1,000 Pounds*
Insecticides:			
Permethrin	2.0	82.7	12.9

[1] Insufficient reports to publish data for ivermectin, moxidectin, piperonyl butoxide, pyrethrins, and s-methoprene.

Dairy Cattle: Agricultural Chemical Use, New York, 2001 [1]

Agricultural Chemical	Rate per Head per Application	Rate per Head per Year	Total Applied
	Grams	*Grams*	*1,000 Pounds*
Insecticides:			
Amitraz	1.7	4.1	0.1
Coumaphos	1.6	4.4	0.6
Dichlorvos	0.1	2.1	*
Doramectin	0.0	0.1	*
Eprinomectin	0.2	0.3	0.1
Ivermectin	0.1	0.2	*
Moxidectin	0.2	0.2	*
N-octy-bicycloheptene dicarbo.	0.1	3.0	0.1
Permethrin	0.7	3.5	1.4
Piperonyl butoxide	0.3	12.3	2.8
Pyrethrins	0.0	2.2	0.3

* Total applied less than 50 pounds.
[1] Insufficient reports to publish data for butoxypolypropylene glycol, chlorpyrifos, clorsulon, cyfluthrin, diazinon, dimethoate, dipropyl isocinchomeronate, fenthion, fenvalerate, lambda-cyhalothrin, methoxychlor, petroleum distillate, pirimiphos-methyl, and tetrachlorvinphos.

Dairy Cattle: Agricultural Chemical Use, Ohio, 2001 [1]

Agricultural Chemical	Rate per Head per Application	Rate per Head per Year	Total Applied
	Grams	*Grams*	*1,000 Pounds*
Insecticides:			
Coumaphos	0.5	1.1	0.1
Cyfluthrin	0.3	0.7	0.1
Dichlorvos	0.2	2.6	*
Eprinomectin	0.1	0.2	*
Ivermectin	0.1	0.1	*
Moxidectin	0.1	0.2	*
Permethrin	0.8	3.7	0.6
Piperonyl butoxide	0.5	5.9	0.6
Pyrethrins	0.0	0.2	*

* Total applied less than 50 pounds.
[1] Insufficient reports to publish data for amitraz, chlorpyrifos, dimethoate, doramectin, fenvalerate, malathion, methoxychlor, pirimiphos-methyl, s-methoprene, and tetrachlorvinphos.

Dairy Cattle: Agricultural Chemical Use, Pennsylvania, 2001 [1]

Agricultural Chemical	Rate per Head per Application	Rate per Head per Year	Total Applied
	Grams	*Grams*	*1,000 Pounds*
Insecticides:			
Coumaphos	0.4	2.4	0.2
Cyfluthrin	1.3	5.3	0.7
Dichlorvos	0.1	3.2	0.2
Eprinomectin	0.2	0.3	0.1
Ivermectin	0.1	0.1	*
Moxidectin	0.2	0.3	*
Permethrin	0.5	3.1	1.7
Piperonyl butoxide	0.3	5.1	1.5
Pyrethrins	0.0	0.7	0.1
Tetrachlorvinphos	1.7	38.8	1.1

* Total applied less than 50 pounds.
[1] Insufficient reports to publish data for clorsulon, crotoxyphos, dimethoate, doramectin, ethion, flucythrinate, lambda-cyhalothrin, malathion, and s-methoprene.

Dairy Cattle: Agricultural Chemical Use, Tennessee, 2001 [1]

Agricultural Chemical	Rate per Head per Application	Rate per Head per Year	Total Applied
	Grams	*Grams*	*1,000 Pounds*
Insecticides:			
Eprinomectin	0.2	0.4	*
Ivermectin	0.1	0.1	*
Permethrin	1.8	41.2	5.0
Piperonyl butoxide	0.2	3.7	0.3
Tetrachlorvinphos	0.5	58.3	2.1

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for chlorpyrifos, clorsulon, coumaphos, cyfluthrin, cypermethrin, diazinon, dichlorvos, doramectin, ethion, famphur, fenthion, fenvalerate, flucythrinate, moxidectin, pyrethrins, ronnel, s-methoprene, xylene, and zeta-cypermethrin.

Dairy Cattle: Agricultural Chemical Use, Texas, 2001 [1]

Agricultural Chemical	Rate per Head per Application	Rate per Head per Year	Total Applied
	Grams	*Grams*	*1,000 Pounds*
Insecticides:			
Coumaphos	0.2	22.5	1.7
Cyfluthrin	0.3	0.8	0.1
Ivermectin	0.1	0.2	*
Moxidectin	0.2	0.5	*
Permethrin	0.8	6.6	2.9
Piperonyl butoxide	0.8	6.9	0.8
Tetrachlorvinphos	3.5	4.5	0.1

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for clorsulon, cypermethrin, diazinon, dichlorvos, doramectin, eprinomectin, ethion, fenthion, fenvalerate, lambda-cyhalothrin, methomyl, n-octy-bicycloheptene dicarbo., petroleum distillate, phosmet, pirimiphos-methyl, pyrethrins, s-methoprene, and sulfur.

Dairy Cattle: Agricultural Chemical Use, Vermont, 2001 [1]

Agricultural Chemical	Rate per Head per Application	Rate per Head per Year	Total Applied
	Grams	*Grams*	*1,000 Pounds*
Insecticides:			
Coumaphos	0.3	5.7	0.2
Dichlorvos	0.4	26.8	0.7
Doramectin	0.8	0.8	*
Eprinomectin	0.3	0.4	*
Ivermectin	0.2	0.2	*
Moxidectin	0.2	0.2	*
Permethrin	0.7	12.1	1.4
Piperonyl butoxide	0.5	39.7	2.3
Pyrethrins	0.1	5.1	0.2

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for amitraz, clorsulon, cyfluthrin, diflubenzuron, ethion, malathion, methoxychlor, pirimiphos-methyl, and tetrachlorvinphos.

Dairy Cattle: Agricultural Chemical Use, Virginia, 2001 [1]

Agricultural Chemical	Rate per Head per Application	Rate per Head per Year	Total Applied
	Grams	*Grams*	*1,000 Pounds*
Insecticides:			
Cyfluthrin	3.8	12.3	0.3
Ivermectin	0.2	0.3	*
Permethrin	0.1	0.5	0.1

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for doramectin, eprinomectin, ethion, fenthion, fenvalerate, flucythrinate, lambda-cyhalothrin, malathion, moxidectin, petroleum distillate, piperonyl butoxide, pirimiphos-methyl, and tetrachlorvinphos.

Dairy Cattle: Agricultural Chemical Use, Washington, 2001 [1]

Agricultural Chemical	Rate per Head per Application	Rate per Head per Year	Total Applied
	Grams	*Grams*	*1,000 Pounds*
Insecticides:			
Coumaphos	0.2	1.8	0.1
Ivermectin	0.1	0.2	*
Moxidectin	0.1	0.2	*
Permethrin	0.1	0.5	0.1
Piperonyl butoxide	0.2	2.0	0.1

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for clorsulon, cyfluthrin, diazinon, dichlorvos, doramectin, eprinomectin, n-octy-bicycloheptene dicarbo., petroleum distillate, pyrethrins, and tetrachlorvinphos.

Dairy Cattle: Agricultural Chemical Use, Wisconsin, 2001 [1]

Agricultural Chemical	Rate per Head per Application	Rate per Head per Year	Total Applied
	Grams	*Grams*	*1,000 Pounds*
Insecticides:			
Coumaphos	1.1	10.1	1.4
Cyfluthrin	0.1	0.4	0.1
Dichlorvos	0.5	16.3	3.4
Dipropyl isocinchomeronate	0.5	22.3	1.4
Doramectin	0.4	0.7	*
Eprinomectin	0.3	0.4	0.3
Ivermectin	0.3	0.4	0.2
Moxidectin	0.2	0.3	0.1
N-octy-bicycloheptene dicarbo.	0.2	8.2	0.7
Permethrin	0.6	5.1	4.4
Piperonyl butoxide	0.3	7.2	4.0
Pyrethrins	0.0	1.2	0.5

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for carbaryl, chlorpyrifos, clorsulon, crotoxyphos, dimethoate, famphur, fenvalerate, malathion, naled, tetrachlorvinphos, toxaphene, and xylene.

Dairy Cattle: Agricultural Chemical Use,
Application Methods Used
Total of Program States, 2001

Application Method	Total of States Surveyed
	Percent
Dust Bag/Hand Dust	8.4
Ear Tag	3.9
Feed Additive/Mineral Block	1.6
Injection	4.0
Pour-On	58.6
Rubbing Device	3.2
Spray	20.0
Other Methods	0.3

Dairy Cattle Facilities: Agricultural Chemical Use,
Total Amount Applied, 2001
Program States and Total

State	Total Applied
	1,000 Pounds
CA	14.0
CO	2.8
FL	0.3
ID	2.9
IL	0.8
IN	7.2
IA	4.6
KY	6.3
MI	2.9
MN	14.0
MO	0.7
NM	3.7
NY	2.8
OH	2.4
PA	5.8
TN	0.9
TX	2.2
VT	2.3
VA	0.2
WA	0.4
WI	23.2
Total	100.1

Dairy Cattle Facilities: Agricultural Chemical Use, Total of Program States, 2001 [1] [2]

Agricultural Chemical	Total Applied
	1,000 pounds
Insecticides:	
Abamectin	*
Carbaryl	0.1
Chlorpyrifos	0.2
Coumaphos	1.0
Cyfluthrin	5.6
Diazinon	1.1
Dichlorvos	12.1
Dimethoate	14.8
Lambda-cyhalothrin	1.1
Malathion	2.1
Methomyl	1.0
Moxidectin	*
N-octy-bicycloheptene dicarbo.	0.6
Naled	8.6
Permethrin	19.2
Petroleum distillate	1.9
Piperonyl butoxide	24.7
Pyrethrins	3.8
Ronnel	*
Tetrachlorvinphos	1.9

[1] States included are CA, CO, FL, ID, IL, IN, IA, KY, MI, MN, MO, NM, NY, OH, PA, TN, TX, VT, VA, WA, and WI.

* Total applied less than 50 pounds.

[2] Insufficient reports to publish data for amitraz, bifenthrin, bomyl, cypermethrin, diflubenzuron, dipropyl isocinchomeronate, fenthion, fenvalerate, methoxychlor, pyriproxyfen, s-methoprene, sulfur, thiazine, and tricosene.

Dairy Cattle Facilities: Agricultural Chemical Use, California, 2001 [1]

Agricultural Chemical	Total Applied
	1,000 Pounds
Insecticides:	
Dichlorvos	2.6
Methomyl	*
Naled	6.9
Permethrin	4.3
Piperonyl butoxide	0.1
Ronnel	*

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for abamectin, carbaryl, chlorpyrifos, coumaphos, cyfluthrin, cypermethrin, diazinon, malathion, petroleum distillate, and pyrethrins.

Dairy Cattle Facilities: Agricultural Chemical Use, Colorado, 2001 [1]

Agricultural Chemical	Total Applied
	1,000 Pounds
Insecticides:	
Dichlorvos	1.2
Methomyl	*
Permethrin	0.7
Piperonyl butoxide	0.3
Pyrethrins	*

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for cyfluthrin, fenvalerate, lambda-cyhalothrin, malathion, naled, petroleum distillate, and ronnel.

Dairy Cattle Facilities: Agricultural Chemical Use, Florida, 2001 [1]

Agricultural Chemical	Total Applied
	1,000 Pounds
Insecticides:	
Dichlorvos	0.1
Methomyl	0.1
Permethrin	0.1
Ronnel	*

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for cyfluthrin, piperonyl butoxide, pyrethrins, s-methoprene, tetrachlorvinphos, thiazine, and tricosene.

Dairy Cattle Facilities: Agricultural Chemical Use, Idaho, 2001 [1]

Agricultural Chemical	Total Applied
	1,000 Pounds
Insecticides:	
Cyfluthrin	0.4
Dichlorvos	0.4
Methomyl	*
Naled	0.5
Permethrin	0.6
Piperonyl butoxide	0.1
Pyrethrins	*

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for abamectin, dimethoate, lambda-cyhalothrin, malathion, n-octy-bicycloheptene dicarbo., petroleum distillate, tetrachlorvinphos, and tricosene.

Dairy Cattle Facilities: Agricultural Chemical Use, Illinois, 2001 [1]

Agricultural Chemical	Total Applied
	1,000 Pounds
Insecticides:	
Cyfluthrin	0.3
Dichlorvos	*
Permethrin	*
Piperonyl butoxide	0.2
Pyrethrins	*

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for abamectin, bomyl, chlorpyrifos, coumaphos, dimethoate, lambda-cyhalothrin, malathion, methoxychlor, n-octy-bicycloheptene dicarbo., ronnel, and tetrachlorvinphos.

Dairy Cattle Facilities: Agricultural Chemical Use, Indiana, 2001 [1]

Agricultural Chemical	Total Applied
	1,000 Pounds
Insecticides:	
Cyfluthrin	0.2
Dichlorvos	0.1
Permethrin	0.3
Piperonyl butoxide	0.7
Pyrethrins	0.1
Ronnel	*

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for abamectin, dimethoate, lambda-cyhalothrin, methomyl, n-octy-bicycloheptene dicarbo., and tetrachlorvinphos.

Dairy Cattle Facilities: Agricultural Chemical Use, Iowa, 2001 [1]

Agricultural Chemical	Total Applied
	1,000 Pounds
Insecticides:	
Cyfluthrin	0.6
Permethrin	1.7

[1] Insufficient reports to publish data for bifenthrin, coumaphos, diazinon, dimethoate, lambda-cyhalothrin, methomyl, piperonyl butoxide, and pyrethrins.

Dairy Cattle Facilities: Agricultural Chemical Use, Kentucky, 2001 [1]

Agricultural Chemical	Total Applied
	1,000 Pounds
Insecticides:	
Coumaphos	*
N-octy-bicycloheptene	0.1
Permethrin	0.1
Piperonyl butoxide	4.8
Pyrethrins	0.9

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for chlorpyrifos, cyfluthrin, diazinon, dichlorvos, dimethoate, fenvalerate, lambda-cyhalothrin, malathion, methomyl, methoxychlor, moxidectin, petroleum distillate, and ronnel.

Dairy Cattle Facilities: Agricultural Chemical Use, Michigan, 2001 [1]

Agricultural Chemical	Total Applied
	1,000 Pounds
Insecticides:	
Cyfluthrin	*
Dichlorvos	*
Piperonyl butoxide	1.0
Pyrethrins	*
Ronnel	*

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for diazinon, dimethoate, lambda-cyhalothrin, methomyl, methoxychlor, n-octy-bicycloheptene dicarbo., and permethrin.

Dairy Cattle Facilities: Agricultural Chemical Use, Minnesota, 2001 [1]

Agricultural Chemical	Total Applied
	1,000 Pounds
Insecticides:	
Cyfluthrin	0.5
Dichlorvos	1.7
Dimethoate	2.9
Piperonyl butoxide	7.5
Pyrethrins	0.9

[1] Insufficient reports to publish data for lambda-cyhalothrin, n-octy-bicycloheptene dicarbo., naled, permethrin, and ronnel.

Dairy Cattle Facilities: Agricultural Chemical Use, Missouri, 2001 [1]

Agricultural Chemical	Total Applied
	1,000 Pounds
Insecticides:	
Dichlorvos	*
Piperonyl butoxide	0.4
Pyrethrins	*
Ronnel	*

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for carbaryl, coumaphos, cyfluthrin, lambda-cyhalothrin, malathion, n-octy-bicycloheptene dicarbo., and permethrin.

Dairy Cattle Facilities: Agricultural Chemical Use, New Mexico, 2001 [1]

Agricultural Chemical	Total Applied
	1,000 Pounds
Insecticides:	
Permethrin	1.3

[1] Insufficient reports to publish data for dichlorvos, lambda-cyhalothrin, malathion, piperonyl butoxide, pyrethrins, ronnel, and tetrachlorvinphos.

Dairy Cattle Facilities: Agricultural Chemical Use, New York, 2001 [1]

Agricultural Chemical	Total Applied
	1,000 Pounds
Insecticides:	
Cyfluthrin	0.4
Dichlorvos	*
Dimethoate	0.9
Permethrin	0.4
Piperonyl butoxide	0.2
Pyrethrins	*

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for bomyl, coumaphos, diazinon, dipropyl isocinchomeronate, methomyl, n-octy-bicycloheptene dicarbo., naled, ronnel, and tetrachlorvinphos.

Dairy Cattle Facilities: Agricultural Chemical Use, Ohio, 2001 [1]

Agricultural Chemical	Total Applied
	1,000 Pounds
Insecticides:	
Cyfluthrin	1.7
Dichlorvos	*
Permethrin	*
Piperonyl butoxide	0.1
Pyrethrins	*

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for chlorpyrifos, dimethoate, fenthion, lambda-cyhalothrin, malathion, methomyl, methoxychlor, petroleum distillate, ronnel, and tetrachlorvinphos.

Dairy Cattle Facilities: Agricultural Chemical Use, Pennsylvania, 2001 [1]

Agricultural Chemical	Total Applied
	1,000 Pounds
Insecticides:	
Cyfluthrin	0.6
Dichlorvos	0.2
Dimethoate	1.0
Methomyl	0.5
Permethrin	0.7
Piperonyl butoxide	0.6
Pyrethrins	0.3
Ronnel	*

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for abamectin, diflubenzuron, lambda-cyhalothrin, malathion, moxidectin, n-octy-bicycloheptene dicarbo., petroleum distillate, and pyriproxyfen.

Dairy Cattle Facilities: Agricultural Chemical Use, Tennessee, 2001 [1]

Agricultural Chemical	Total Applied
	1,000 Pounds
Insecticides:	
Permethrin	0.1
Piperonyl butoxide	0.3
Pyrethrins	0.1

[1] Insufficient reports to publish data for dichlorvos, methomyl, n-octy-bicycloheptene dicarbo., naled, and ronnel.

Dairy Cattle Facilities: Agricultural Chemical Use, Texas, 2001 [1]

Agricultural Chemical	Total Applied
	1,000 Pounds
Insecticides:	
Cyfluthrin	0.2
Dichlorvos	0.2
Lambda-cyhalothrin	0.1
Methomyl	0.1
Permethrin	0.7
Piperonyl butoxide	0.1
Pyrethrins	*
Ronnel	*

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for abamectin, carbaryl, chlorpyrifos, dimethoate, n-octy-bicycloheptene dicarbo., tetrachlorvinphos, and tricosene.

Dairy Cattle Facilities: Agricultural Chemical Use, Vermont, 2001 [1]

Agricultural Chemical	Total Applied
	1,000 Pounds
Insecticides:	
Dichlorvos	0.1
Permethrin	0.6
Piperonyl butoxide	1.1
Pyrethrins	0.2
Ronnel	*

* Total applied less than 50 pounds.

[1] Insufficient reports to publish data for abamectin, amitraz, cyfluthrin, dimethoate, malathion, methomyl, moxidectin, n-octy-bicycloheptene dicarbo., naled, and tetrachlorvinphos.

Dairy Cattle Facilities: Agricultural Chemical Use, Virginia, 2001 [1]

Agricultural Chemical	Total Applied
	1,000 Pounds
Insecticides:	
Dichlorvos	*
Piperonyl butoxide	0.1
Pyrethrins	*

* Total applied less than 50 pounds.
[1] Insufficient reports to publish data for cyfluthrin, dimethoate, lambda-cyhalothrin, methomyl, n-octy bicycloheptene dicarbo., permethrin, and ronnel.

Dairy Cattle Facilities: Agricultural Chemical Use, Washington, 2001 [1]

Agricultural Chemical	Total Applied
	1,000 Pounds
Insecticides:	
Cyfluthrin	0.1
Permethrin	0.1
Piperonyl butoxide	*
Pyrethrins	*

* Total applied less than 50 pounds.
[1] Insufficient reports to publish data for dichlorvos, lambda-cyhalothrin, n-octy-bicycloheptene dicarbo., naled, ronnel, and tetrachlorvinphos.

Dairy Cattle Facilities: Agricultural Chemical Use, Wisconsin, 2001 [1]

Agricultural Chemical	Total Applied
	1,000 Pounds
Insecticides:	
Cyfluthrin	0.5
Dichlorvos	5.1
Dimethoate	3.3
Methomyl	0.1
N-octy-bicycloheptene dicarbo.	0.3
Permethrin	6.3
Piperonyl butoxide	5.4
Pyrethrins	0.9
Ronnel	*

* Total applied less than 50 pounds.
[1] Insufficient reports to publish data for bomyl, chlorpyrifos, dipropyl isocinchomeronate, lambda-cyhalothrin, malathion, moxidectin, petroleum distillate, sulfur, and tetrachlorvinphos.

Survey Procedures: The estimates in this report are based on the 2002 National Animal Health Monitoring System (NAHMS) General Dairy Management Report conducted from late December 2001 through January 2002. This survey was based on a sample of pre-screened operators reporting dairy cattle on a previous NASS survey. Enumerators conducting the survey collected a variety of information including insecticide applications to dairy cattle and dairy cattle facilities for respondents' entire operations. Data were collected in the State where the operation's headquarters was located.

Estimation Procedures: The chemical applications data, reported by product name or trade name, were reviewed within State and across States for reasonableness and consistency. This review compared reported data with manufacturers' recommendations and with data from other operations using the same product. Following this review, product information was converted to active ingredient level. The chemical usage estimates in this publication are of those active ingredients.

Detailed data within a table may not multiply across or add down due to independent rounding of the published values.

Reliability: The survey was designed so that the estimates are statistically representative of chemical use on dairy cattle and dairy cattle facilities. The reliability of these survey results is affected by sampling variability and non-sampling errors.

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 chemical. In general, the more often the chemical was applied, the smaller the sampling variability. For example, estimates of use of a commonly used product, such as permethrin, will exhibit less variability than a more rarely used product. For more commonly used chemicals, cv's range from 5-30 percent at the 21-State program level and 5-55 percent at the State level. Other items may have cv's up to 100 percent. Items that have an insufficient number of reports are not published and are noted with an asterisk (*).

Non-sampling errors occur during a survey process, but 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.

Variability for estimates of volume of the commodity handled will be higher than the variability for estimates of application rates. This is because application rates have a narrower range of responses and the manufacturers' recommended rates are generally followed.

Terms and Definitions

Active ingredient: The active ingredient is the specific chemical which kills or controls the target pests. Usage data are reported by pesticide product and are converted to an amount of active ingredient.

Agricultural chemicals: The phrase, "agricultural chemicals," refers to the active ingredients in pesticides.

Application rates: The application rates refer to an average weight of a pesticide active ingredient applied to a volume of product. For this survey, rate per application is the average number of grams applied in one application. Rate per year is the average number of grams applied counting multiple applications.

Carrier: An inert liquid, solid, or gas added to an active ingredient to make a pesticide dispense effectively. A carrier is also the material, usually water or oil, used to dilute the formulated product for application.

Common name: The common name is an officially recognized name for an active ingredient. This report shows active ingredient by common name.

Diluent: Any liquid or solid material used to dilute or carry an active ingredient.

Dips: Dip vats provide effective parasite control. Vats can be filled early in the season and used throughout the year. Because animals are wet thoroughly in a vat, good coverage is ensured.

Drench: Drench treatments for livestock are formulated as pastes to be applied orally with a ready-to-use syringe.

Drylot: An enclosed, unpaved area where the animals can move about freely and where they can feed along a feed apron, except during milking.

Dust Bags/Hand Dusters: Dusts can be applied to animals by hand shakers or in self-treatment dust bags. Dust bags are most effective when used in forced-use situations especially where cattle have to pass under them daily to get to water or feed.

Ear Tags: Ear tags and plastic devices can be impregnated with an insecticide. These ear tags are usually used for ear tick and horn fly control.

Feed and Mineral Pesticide Additives: Certain pesticides may be administered as feed or mineral additives. Feed additives are used to prevent the development of fly larvae in animal feces. Feed additives target fly maggots breeding in fresh animal manure by controlling certain fly species whose maggot stages occur in animal manure.

Feed Apron or Feed Bunk: A paved or hard surface along one side of a drylot where feed is provided to the animals.

Freestall Barn: A barn where animals are managed in individual open stalls and are free to roam around. The animals can move about freely.

Injectables: Pesticides applied by subcutaneous injection. Some injectables control internal parasites with added benefit of external control.

Loafing Area: A resting area for cattle. Loafing sheds are structures that have at least one side open to the elements. This three-sided loafing shed offers protection from flies, summer sun, winter wind, rain, and storms. This type of structure is also known as a run-in shed

Milking Parlor: A facility where lactating cows are managed before, during, and after milking.

Pesticides: As defined by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), pesticides include any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any pest, and any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant.

Pour-Ons: Pour-on insecticides are formulated for direct application to the backlines of animals. The chemical is absorbed through the skin and circulates through the animal's system.

Repellent: A pesticide used to keep target pests away from a treated area by saturating the area with an odor that is disagreeable to the pest.

Rubbing Device (Backrubber, Face Rubber): Backrubbers are another method of insecticide self-treatment for cattle. Cattle bothered by insects rub against devices soaked with insecticides. Backrubbers are placed where animals move to and from, such as between watering areas and pasture.

Spot-Ons: Spot-on pesticides are easily applied. This method involves applying a small amount of pesticide with specially designed applicators in a single area or 'spot' on the backlines of animals.

Sprays : Emulsifiable concentrates, or soluble formulations are usually used with smaller sprayers. Animals are usually sprayed with enough solution to cover the animal thoroughly.

Stanchion: A stanchion is a specially designed headgate to hold an animal in place while allowing feeding and resting.

Synergist: A material which exhibits synergism; that is, the joint action of different agents results in an effect greater than the sum of their separate effects.

Tie Stall Barn: A barn where animals are confined to stalls or stanchions and each cow is individually tied with a strap or chain.

Trade name: A trademark name given to a specific formulation of a pesticide product. A formulation contains a specific concentration of the active ingredient, carrier materials, and other ingredients such as emulsifiers and wetting agents. Some formulations, as in the case of pre-mixes, can contain more than one active ingredient.

Trade Name, Active Ingredient, and Pesticide Class

The following is a list of the associated class, (I=insecticide) and active ingredients included in this report. Also provided are product trade names associated with the listed active ingredients reported in the survey. This list is provided as an aid in reviewing pesticide data. The list is not complete for all trade names used and NASS does not mean to imply the use of any specific trade name.

Class	Active Ingredient	Trade Name
I	Abamectin	Fatal Attraction
I	Amitraz	Taktic
I	Bendiocarb	Ficam
I	Bifenthrin	Talstar
I	Bomyl	Purina Fly Bait
I	Butoxypolypropylene glycol	Straight Arrow Fly Spray
I	Carbaryl	Sevin
I	Chlorpyrifos	Dursban, Max-Con/Warrior Ear Tags
I	Clorsulon	Ivomec Plus
I	Coal Tar Creosote	Creosote
I	Coumaphos	Co-Ral, Zip-Cide, Purina Cattle Duster
I	Crotoxyphos	Purina Lice Powder
I	Cyfluthrin	Countdown, Cylence, Tempo, Cutter Gold Ear Tags, Baythroid
I	Cypermethrin	Demon, Max-Con/ZetaGard Ear Tags
I	Cyromazine	Larvadex
I	Diazinon	Diazinon, Dryzon, Knox Out, several ear tags
I	Dichlorvos	several
I	Diflubenzuron	Vigilante
I	Dimethoate	Cygon, Dimethoate
I	Dioxathion	Del-Tox
I	Dipropyl isocinchomeronate	Tox-O-Wik
I	Doramectin	Dectomax
I	Eprinomectin	Eprinex
I	Ethion	Commando Ear Tags
I	Famphur	Warbex
I	Fenthion	Lysoff, Spotton, Cutter Blue Ear Tags
I	Fenvalerate	Ectrin
I	Flucythrinate	Gurardian Ear Tag

- - continued

Class	Active Ingredient	Trade Name
I	Ivermectin	Ivomec, Ivercide
I	Lambda-cyhalothrin	Demand, Grenade, Saber, Warrior
I	Malathion	Malathion
I	Methomyl	Apache/Die Fly/Stimukil Fly Bait
I	Methoxychlor	Marlate, Methoxychlor, Sur-Noxem
I	Moxidectin	Cydectin
I	N-octy bicycloheptene dicarbo.	several
I	Naled	Dibrom, Fly Killer D
I	Permethrin	several
I	Petroleum distillate	several
I	Phosmet	Del-Phos, Prolate
I	Piperonyl butoxide	several
I	Pirimiphos-methyl	Dominator/Double Barrel Ear Tags
I	Pyrethrins	several
I	Pyriproxyfen	Archer IGR
I	Ronnel	Golden Marlin Fly Bait
I	S-methoprene	Altoside, Extinguish, MoorMans IGR
I	Sulfur	Sulfur Stock Block
I	Tetrachlorvinphos	Several
I	Thiazine	QuikStrike
I	Toxaphene	Drycide
I	Tricosene	Stimukil Fly Bait
I	Xylene	Warbex
I	Zeta-cypermethrin	Python Ear Tags

G - Chemical Applications To Dairy Cattle

[Include cows both dry and in milk, heifers 500 pounds + for dairy replacement, dairy heifer calves under 500 pounds, and bulls and bull calves associated with the dairy operation.]

1.Did this operation treat any dairy cattle for external pests and/or parasites (such as flies, lice, grubs, or scabies) during 2001?

	000
1 - Incomplete 3 - Valid Zero	711
LINES IN TABLES	712

YES ☐ - (*Continue with Item 2*)
NO ☐ - (*Enter 3 in Code Box 711, and go to Section H)*

2. Now I need to get complete information on **insecticides** and **chemicals** applied to dairy cattle on this site/operation in 2001. (*Exclude disinfectants, herbicides, and fungicides*.)

[**ENUMERATOR NOTE**: *Complete tables for all chemical applications to **Dairy Cattle**. Use supplemental tables if necessary. If no code is listed in the Respondent Booklet, record the name and formulation of the insecticide product applied, what it was used for, whether it was liquid or dry, and its NADA/EPA registration number.*]

			1		2
	LINE	What product(s) were applied to your dairy herd? (Show product codes from Respondent Booklet)		Formulation Was this product bought in liquid or dry form? L = Liquid D = Dry	What was the method of application? 1 Spray 2 Injection 3 Feed Additive 4 Pour-on/Spot-On 5 Dust Bags/Hand Dusting 6 Ear Tags 7 Dip 8 Feed/Mineral Block 9 Rubbing Device 10 Pill/Bolus 11 Oral Drench 12 Other
NOTES		Product	Code	Code	Code
	101		701		702
	102		701		702
	103		701		702
	104		701		702
	105		701		702
	106		701		702
	107		701		702
	108		701		702

LINE	(Insecticide)	NADA/EPA No. or Trade Name and Formulation	Form Purchased (Liquid or Dry)	Where Purchased [Ask only if NADA/EPA No. cannot be reported.]
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

LINE	4 How many head were treated with this product? Number	5 OR 6 How much was applied per HEAD per application?	5 OR 6 What was the TOTAL amount applied per application?	7 1 Pounds 12 Gallons 13 Quarts 14 Pints 15 Ounces 30 Grams 31 cc/ml 35 Tags 37 Pills 41 Liters 50 Other Unit Code	8 How many times was this applied? Number
101	703	704 . __ __	705 . __ __	706	707
102	703	704 . __ __	705 . __ __	706	707
103	703	704 . __ __	705 . __ __	706	707
104	703	704 . __ __	705 . __ __	706	707
105	703	704 . __ __	705 . __ __	706	707
106	703	704 . __ __	705 . __ __	706	707
107	703	704 . __ __	705 . __ __	706	707
108	703	704 . __ __	705 . __ __	706	707

SECTION H: **CHEMICAL APPLICATIONS TO DAIRY CATTLE FACILITIES**

1. In 2001, on your total acres operated, did you apply any **insecticides** or other **chemical products** to dairy facilities to control insects? Include buildings that are used by the dairy cattle on this operation, such as barns, hutches, stalls, pens, drylots, etc.

YES ☐ - (*Continue*)
NO ☐ - (*Enter 3 in Code Box 713,* and go to Section I)

2. Now I need to get complete information on **insecticides** (*exclude disinfectants, herbicides, and fungicides*) and **chemicals** applied to dairy fcilities on this operation in 2001.

	000
1 - Incomplete 3 - Valid Zero	713
LINES IN TABLE	714

[**ENUMERATOR NOTE**: *Complete tables for all insecticide applications to dairy cattle **facilities**. Dairy cattle **facilities** include buildings, structures, etc. Use supplemental tables if necessary. If no code is listed in the Respondent Booklet, record the name and formulation of the product applied, what it was used for (insecticide, other), whether it was liquid or dry, and its EPA/NADA registration number*.]

NOTES	LINE	1 Facility Treated 10 Individual Pen or Multi-pen 11 Freestall Barn 12 Tie Stall or Stanchion Barn 13 Milking Parlor 14 Calf Hutch 15 Drylot 16 Feed Bunk/Apron 17 Loafing Area/Run-in Shed 20 Other		2 What product(s) were applied to the [*column 1*] facility? [*Show product codes from Respondent Booklet*]		3 Was this product bought in liquid or dry form? L = Liquid D = Dry
		Facility	Code	Product	Code	Code
	201		709		701	
	202		709		701	
	203		709		701	
	204		709		701	
	205		709		701	
	206		709		701	
	207		709		701	
	208		709		701	
	209		709		701	

LINE	**Pesticide Type** (Insecticide)	**NADA/ EPA No. or Tradename and Formulation**	**Form Purchased** (Liquid or Dry)	**Where Purchased** [Ask only if NADA/EPA No. cannot be reported.]
_____	_____	_____	_____	_____

LINE	4 What was the TOTAL amount applied per application?	5 1 Pounds 12 Gallons 13 Quarts 14 Pints 15 Ounces 23 Fly Strip 30 Grams 31 cc/ml 41 Liters 50 Other Unit Code	6 How many times was this applied? Number
201	705 . __ __	706	707
202	705 . __ __	706	707
203	705 . __ __	706	707
204	705 . __ __	706	707
205	705 . __ __	706	707
206	705 . __ __	706	707
207	705 . __ __	706	707
208	705 . __ __	706	707
209	705 . __ __	706	707

Report Features

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