



2009 Agricultural Chemical Use Estimates

for fruit crops

In the fall of 2009, the North Carolina Field Office of the National Agricultural Statistics Service collected data on chemical use and pest management practices for growers of blueberries and apples. This data is part of a series of chemical use data which was last conducted in 2005. North Carolina participated in the fruit chemical usage survey along with 6 other states for apples, and 4 other states for blueberries. The survey provides data to develop an agricultural chemical use database that is timely, detailed, and reliable.

Blueberries: The most utilized herbicides were **Hexazinone**, applied to 71 percent of the surveyed acreage and **Glyphosate isopropylamine salt** applied to 43 percent of the acres. The most commonly used insecticide was **Malathion**, applied to 85 percent of the surveyed acreage. **Fenbuconazole** was the most commonly used fungicide, applied to 74 percent of the acres, followed by **Captan** which was applied to 58 percent of the surveyed acres.

Blueberries¹: Agricultural Chemical Applications, 2009

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre	Pounds per Acre	1,000 lbs
HERBICIDES					
Glufosinate-Ammonium	12	1.7	0.494	0.839	0.6
Glyphosate Iso. Salt	43	1.6	0.817	1.301	3.1
Hexazinone	71	1.0	0.813	0.829	3.2
Oryzalin	6	1.5	2.342	3.442	1.1
Paraquat	21	1.7	0.437	0.763	0.9
Sethoxydim	17	1.1	0.671	0.740	0.7
INSECTICIDES					
Esfenvalerate	69	2.1	0.037	0.079	0.3
Malathion	85	5.0	0.789	3.910	18.2
FUNGICIDES					
Captan	58	2.0	1.235	2.477	7.8
Fenbuconazole	74	2.8	0.103	0.292	1.2
Fenhexamid	7	1.3	0.557	0.733	0.3
Propiconazole	15	1.7	0.121	0.207	0.2
Pyraclostrobin	15	2.6	0.083	0.221	0.2

¹ Bearing acreage in 2009 for North Carolina was 5500 acres.

Apples: The most commonly used herbicide was **Glyphosate isopropylamine salt** applied to 18 percent of the acres followed by **Paraquat** on 14 percent of the acres. The most utilized insecticides were: **Petroleum distillate**, applied to 84 percent of the acreage; **Spinetoram**, on 70 percent of the acres; **Acetamiprid**, applied to 59 percent of the acres; and **Chlorantraniliprole** on 54 percent of the acreage. The most common fungicides were **Captan** and **Thiophanate-Methyl**, applied to 87 and 57 percent, respectively. Other Chemicals were used to treat some of the apple acreage in North Carolina as well; **NAA** and **Benzyladenine** were two of the most commonly used Other Chemicals.

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Apples¹: Agricultural Chemical Applications, 2009

Active Ingredient	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	Percent	Number	Pounds per Acre	Pounds per Acre	1,000 lbs
HERBICIDES					
2,4-D, Dimeth. Salt	8	1.8	0.700	1.286	0.7
Diuron	11	1.5	1.578	2.382	1.7
Flumioxazin	5	1.0	0.238	0.250	0.1
Glyphosate Iso. Salt	18	1.5	0.976	1.421	1.8
Paraquat	14	1.2	0.865	1.041	1.0
Simazine	9	1.4	1.464	1.987	1.2
INSECTICIDES					
Acetamiprid	59	1.5	0.190	0.288	1.2
Azinphos-Methyl	36	1.9	0.833	1.554	3.8
Benzoic Acid	31	1.1	0.187	0.200	0.4
Carbaryl	33	1.6	1.289	2.046	4.6
Chlorantraniliprole	54	1.8	0.067	0.120	0.4
Chlorpyrifos	43	1.1	1.204	1.325	3.9
Endosulfan	14	1.1	1.370	1.440	1.4
Esfenvalerate	17	1.6	0.044	0.070	0.1
Fenpropathrin	17	1.8	0.251	0.441	0.5
Fenpyroximate	5	1.0	0.089	0.092	³
Imidacloprid	22	2.0	0.060	0.122	0.2
Permethrin	12	1.3	0.139	0.184	0.1
Petroleum Distillate	84	1.3	25.013	31.990	182.3
Phosmet	32	1.7	1.583	2.706	5.8
Spinetoram	70	1.4	0.080	0.111	0.5
Thiamethoxam	19	1.2	0.066	0.079	0.1
FUNGICIDES					
Bacillus Subtilis	6	6.5	²	²	²
Basic Copper Sulfate	8	1.1	1.310	1.436	0.8
Boscalid	29	1.2	0.015	0.018	³
Captan	87	5.2	2.442	12.636	75.0
Copper Hydroxide	17	1.1	3.521	3.871	4.5
Copper Oxychloride Sul.	14	1.0	1.081	1.081	1.1
Copper Sulfate	6	1.4	0.251	0.343	0.1
Cyprodinil	26	3.2	0.210	0.665	1.2
Dodine	28	1.7	1.291	2.164	4.1
Fenarimol	26	3.2	0.052	0.164	0.3
Kresoxim-Methyl	56	2.0	0.143	0.279	1.1
Mancozeb	39	3.3	2.576	8.568	22.6
Metiram	46	4.0	2.592	10.347	32.1
Myclobutanil	46	4.1	0.119	0.488	1.5
Phosphorous Acid	7	5.6	1.575	8.876	4.0
Pyraclostrobin	29	1.2	0.001	0.001	³
Streptomycin	25	2.6	0.197	0.505	0.9
Streptomycin Sulfate	7	1.5	0.205	0.300	0.2
Sulfur	23	4.6	4.379	20.232	31.5
Thiophanate-Methyl	57	4.2	0.479	1.992	7.7
Ziram	43	3.2	2.629	8.516	25.2
OTHER CHEMICALS					
Benzyladenine	12	2.4	0.029	0.069	0.1
Butenoic Acid Hydro.	2	1.0	0.109	0.109	³
Naa, Sodium	19	1.8	0.012	0.022	³

¹ Bearing acreage in 2009 for North Carolina was 6800 acres. ² Total applied is less than 100 lbs. ³ The area chemical applied to less than 1% of total acreage.