

#### IV. TRENDS IN USE IN CERTAIN PESTICIDE CATEGORIES

Reported pesticide use in California in 2000 totaled 188 million pounds, a decline of 15 million pounds from 1999 and the lowest reported pounds applied statewide since 1992. (Note: not all data were received prior to printing this preliminary report.)

Production agriculture, the major category of use subject to reporting requirements, was responsible for most of the overall decrease in use. Applications for production agriculture dropped by 14.2 million pounds.

Major crops and commodities that showed an overall decline in pesticide pounds applied from 1999 to 2000 included almonds (down 3.2 million pounds), wine grapes (3.0 million pounds), raisin and table grapes (2.7 million pounds), processing tomatoes (2.1 million pounds), strawberries (1.1 million pounds), and carrots (1 million pounds). Major crops with increased pounds applied included rice (up 2.1 million pounds), lemon (0.9 million pounds), and cotton (0.8 million pounds).

Sulfur use declined from 1999 to 2000 (down 5.9 million pounds) yet still remained the most highly used pesticide in 2000, both in pounds applied and acres treated. By pounds, sulfur accounted for one-third of all reported pesticide use. Sulfur is a natural fungicide favored by both conventional and organic farmers.

DPR data analyses have shown that pesticide use varies from year to year, depending upon pest problems, weather, acreage and types of crops planted, and other factors. Weather is often an important factor in fungicide use because wet conditions tend to promote certain kinds of plant diseases. Rainfall in 2000 was fairly normal and so we would not expect use of fungicides, such as sulfur, to be high. All factors contributing to the 2000 decline cannot be pinpointed due to the preliminary nature of the data provided to compile this report.

Pesticide use is reported as the number of pounds of active ingredient and the total number of acres treated. The data for pounds include both agricultural and non-agricultural applications; the data for acres treated are primarily agricultural applications. The number of acres treated means the cumulative number of acres treated; the acres treated in each application are summed even when the same field is sprayed more than once in a year. (For example, if one acre is treated three times in a season with an individual active ingredient, it is counted as three acres treated in the tables and graphs in Section IV of this report.)

Because the 2000 data are preliminary and errors have not been completely identified and corrected, the values should be viewed with caution. However, based on this preliminary data, some of the major statistical changes from 1999 to 2000 include:

- Use of insecticide organophosphate and carbamate chemicals, which includes compounds of high regulatory concern, declined by approximately 624,000 pounds from 1999 to 2000. Cumulative acres treated with these pesticides declined by 746,000 acres.
- Chemicals classified as carcinogens declined in overall pounds applied (down 3.6 million pounds) but increased in acres treated (up 1.6 million acres). As measured in pounds, 22 carcinogenic chemicals declined in use, but most of the decrease was due to the fumigant metam-sodium. However, use of another fumigant, 1,3-D, increased by 1.3 million pounds.

- Chemicals classified as reproductive toxins also showed an overall decline in pounds applied (down 9 million pounds), but acres treated increased (up 241,000 acres). More than half of these chemicals reported a decreased use both in terms of pounds and acres treated.
- Chemicals categorized as toxic air contaminants, another regulatory concern, decreased by about 3.9 million pounds applied. Acres treated increased by about 492,000 cumulative acres.
- Chemicals categorized as ground water contaminants, increased by about 107,000 pounds applied. Acres treated increased by about 36,000 cumulative acres.
- Reduced-risk pesticides increased both in pounds applied and acres treated, while biopesticides increased in pounds and declined in acres treated from 1999 to 2000.

Since 1994, the reported pounds of pesticides applied has fluctuated from year to year with no general increasing or decreasing trend. An increase or decrease in use from one year to the next or in the span of a few years does not necessarily indicate a general trend in use; it simply may reflect normal variations. Short periods of time (three to five years) may suggest trends, such as the increased pesticide use from 1994 to 1998. However, the overall decrease in pesticide pounds applied from 1998 to 2000, and the fact that no other increases during any part of this time period were statistically significant, suggests no general increasing trend in pesticide use in California.

To improve data quality when calculating the total pounds of pesticides, DPR excluded values that were so large they were probably in error. The procedure to exclude probable errors involved the development of complex error-checking algorithms, a data improvement process that is ongoing. As mentioned before, both the 1999 and 2000 data are preliminary which means not all such extreme values have been identified and that most errors found have not been corrected.

Over-reporting errors have a much greater impact on the numerical accuracy of the database than under-reporting errors. For example, if a field is treated with 100 pounds of pesticide active ingredient and the application is erroneously recorded as 100,000 pounds (a decimal point shift of three places to the right), an error of 99,900 pounds is introduced into the database. If the same degree of error is made in shifting the decimal point to the left, the application is recorded as 0.1 pounds, and an error of 99.9 pounds is entered into the database.

To provide an overview, pesticide use is summarized for eight different categories from 1992 to 2000 (Tables 3–10 and Figures 1–8). These categories classify pesticides according to certain characteristics, such as reproductive toxins, carcinogens, or reduced-risk characteristics.

The statistical summaries detailed in these categories are not intended to serve as indicators of pesticide risks to the public or the environment. Rather, the data supports DPR regulatory functions to enhance public safety and environmental protection. (See “How Pesticide Data are Used” on page iv.) The different pesticide categories, described more fully, are:

- 1) Pesticides listed on the State's Proposition 65 list of chemicals "known to cause reproductive toxicity";
- 2) Pesticides listed by U.S. EPA as B2 carcinogens or on the State's Proposition 65 list of chemicals "known to cause cancer";
- 3) Pesticides that are cholinesterase inhibitors, that is, organophosphate and carbamate chemicals;

- 4) Pesticides on DPR's groundwater protection list (California Code of Regulations, Title 3, Division 6, Chapter 4, Subchapter 1, Article 1, Section 6800[a]) and norflurazon, which DPR is recommending be listed as a restricted material;
- 5) Pesticides from DPR's toxic air contaminants list (California Code of Regulations, Title 3, Division 6, Chapter 4, Subchapter 1, Article 1, Section 6860);
- 6) Oil pesticides, which may include some chemicals on the State's Proposition 65 list of chemicals "known to cause cancer" but which also serve as alternatives to high-toxicity pesticides;
- 7) Active ingredients contained in pesticide products that have been given reduced-risk status by U.S. EPA;
- 8) Biopesticides, which include microorganisms and naturally occurring compounds, or compounds essentially identical to naturally occurring compounds that are not toxic to the target pest (such as pheromones).

**USE TRENDS OF PESTICIDES ON THE STATE’S PROPOSITION 65 LIST OF CHEMICALS THAT ARE “KNOWN TO CAUSE REPRODUCTIVE TOXICITY”.**

**Table 3A.** The reported **pounds** of pesticides used which are on the State’s Proposition 65 list of chemicals that are “known to cause reproductive toxicity”. Use includes both agricultural and reportable non-agricultural applications. The 1999 and 2000 data are preliminary.

| ACTIVE INGREDIENT                   | 1992       | 1993       | 1994       | 1995       | 1996       | 1997       | 1998       | 1999       | 2000       |
|-------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| 2,4-DB ACID                         | 0          | 0          | 0          | 0          | 0          | 1,697      | 6,932      | 12,397     | 11,453     |
| AMITRAZ                             | 8,953      | 4,877      | 70,363     | 75,018     | 55,459     | 66,439     | 13,563     | 7,558      | 8,087      |
| ARSENIC PENTOXIDE                   | 262,017    | 150,200    | 86,445     | 83,814     | 205,089    | 64,372     | 50,899     | 245,238    | 91,267     |
| ARSENIC TRIOXIDE                    | <1         | <1         | <1         | <1         | <1         | <1         | 1          | 1          | <1         |
| BENOMYL                             | 125,777    | 536,594    | 141,586    | 189,943    | 148,433    | 114,406    | 227,690    | 133,109    | 118,601    |
| BROMACIL, LITHIUM SALT              | 4,837      | 7,045      | 11,085     | 6,517      | 17,381     | 9,141      | 4,686      | 4,162      | 4,478      |
| BROMOXYNIL OCTANOATE                | 106,724    | 112,643    | 127,154    | 119,407    | 148,480    | 115,368    | 120,877    | 120,265    | 116,125    |
| CHLORSULFURON                       | 1,994      | 1,110      | 1,228      | 1,485      | 1,623      | 2,218      | 3,046      | 1,440      | 2,566      |
| CYANAZINE                           | 340,945    | 501,962    | 532,688    | 641,057    | 566,632    | 470,838    | 277,313    | 180,487    | 50,468     |
| CYCLOATE                            | 49,041     | 51,715     | 51,035     | 49,138     | 44,628     | 55,459     | 62,753     | 49,096     | 37,408     |
| DICLOFOP-METHYL                     | 30,616     | 23,082     | 38,276     | 16,540     | 79,874     | 41,130     | 24,783     | 18,710     | 21,696     |
| DISODIUM CYANODITHIOIMIDO CARBONATE | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          |
| EPTC                                | 641,581    | 698,176    | 765,576    | 660,185    | 703,996    | 579,245    | 393,031    | 448,883    | 323,254    |
| ETHYLENE OXIDE                      | 7          | 1,471      | 3          | 0          | 0          | 0          | 31         | 2          | 6          |
| FENOXAPROP ETHYL                    | 0          | 0          | 5,023      | 3,731      | 3,974      | 3,895      | 1,504      | 2,048      | 979        |
| FLUAZIFOP-BUTYL                     | 18,361     | 21,356     | 19,772     | 20,451     | 15,095     | 15,253     | 14,724     | 14,339     | 11,783     |
| HYDRAMETHYLNON                      | 145        | 142        | 227        | 807        | 1,741      | 5,456      | 3,183      | 2,250      | 2,495      |
| LINURON                             | 73,577     | 230,827    | 79,950     | 84,937     | 84,335     | 84,621     | 82,170     | 77,971     | 65,511     |
| METAM-SODIUM                        | 8,554,646  | 8,588,969  | 11,122,361 | 14,975,528 | 15,253,924 | 14,969,732 | 13,729,306 | 16,774,246 | 12,844,344 |
| METHYL BROMIDE                      | 18,051,774 | 14,115,900 | 16,607,324 | 17,165,964 | 16,022,069 | 15,663,832 | 13,569,875 | 15,232,624 | 10,862,836 |
| METIRAM                             | 0          | 0          | 0          | 0          | 0          | 0          | <1         | 0          | 0          |
| MYCLOBUTANIL                        | 57,288     | 86,712     | 69,941     | 85,525     | 89,087     | 94,375     | 129,773    | 94,579     | 96,139     |
| NABAM                               | 4          | 0          | 8          | 1          | 0          | 0          | 50         | 2          | 1          |
| NICOTINE                            | 898        | 457        | 457        | 228        | 298        | 258        | 83         | 93         | 21         |
| NITRAPYRIN                          | 332        | 175        | 150        | 639        | 114        | 49         | 407        | 150        | 192        |
| OXADIAZON                           | 18,122     | 19,269     | 20,488     | 21,458     | 25,260     | 23,196     | 21,959     | 19,342     | 18,168     |
| OXYDEMETON-METHYL                   | 118,285    | 117,416    | 111,347    | 120,101    | 106,612    | 115,781    | 89,789     | 122,891    | 110,495    |
| OXYTHIOQUINOX                       | 6,829      | 6,207      | 4,474      | 7,172      | 6,204      | 2,709      | 1,576      | 2,683      | 409        |
| POTASSIUM DIMETHYL DITHIO CARBAMATE | 0          | 21         | 47         | 0          | 0          | 15         | 24,795     | 0          | 0          |
| PROPARGITE                          | 1,702,328  | 1,653,855  | 1,742,736  | 1,770,065  | 1,743,278  | 1,816,028  | 1,385,327  | 1,472,263  | 1,306,767  |

**Table 3A** continued. The reported **pounds** of pesticides used which are on the State’s Proposition 65 list of chemicals that are “known to cause reproductive toxicity”.

| ACTIVE INGREDIENT                    | 1992       | 1993       | 1994       | 1995       | 1996       | 1997       | 1998       | 1999       | 2000       |
|--------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| RESMETHRIN                           | 1,519      | 1,720      | 1,069      | 856        | 661        | 594        | 796        | 608        | 600        |
| SODIUM DIMETHYL DITHIO CARBAMATE     | 4          | 0          | 337        | 1          | 0          | 0          | 8,279      | 355        | 1,315      |
| SODIUM FLUOROACETATE (COMPOUND 1080) | <1         | <1         | <1         | <1         | 1          | <1         | <1         | <1         | <1         |
| STREPTOMYCIN SULFATE                 | 1,988      | 5,110      | 6,165      | 9,619      | 9,494      | 9,605      | 14,950     | 9,406      | 10,820     |
| TAU-FLUVALINATE                      | 4,632      | 3,730      | 4,723      | 3,787      | 4,137      | 3,040      | 2,827      | 3,305      | 2,242      |
| THIOPHANATE-METHYL                   | 91,493     | 94,265     | 100,890    | 116,746    | 122,862    | 88,640     | 65,169     | 75,394     | 67,738     |
| TRIADIMEFON                          | 48,645     | 29,699     | 24,147     | 20,692     | 17,370     | 12,204     | 12,919     | 4,778      | 3,040      |
| TRIBUTYL TIN METHACRYLATE            | 90         | 130        | 1,734      | 278        | 185        | 60         | 113        | 270        | 107        |
| TRIFORINE                            | 29,268     | 41,848     | 32,574     | 39,729     | 24,877     | 6,562      | 2,752      | 518        | 365        |
| VINCLOZOLIN                          | 41,221     | 37,550     | 33,661     | 48,270     | 60,286     | 46,908     | 54,719     | 52,720     | 35,658     |
| WARFARIN                             | 1          | 1          | <1         | <1         | 1          | 1          | 1          | 1          | 1          |
| Grand Total                          | 30,393,943 | 27,144,235 | 31,815,043 | 36,339,689 | 35,563,459 | 34,483,130 | 30,402,653 | 35,184,185 | 26,227,436 |

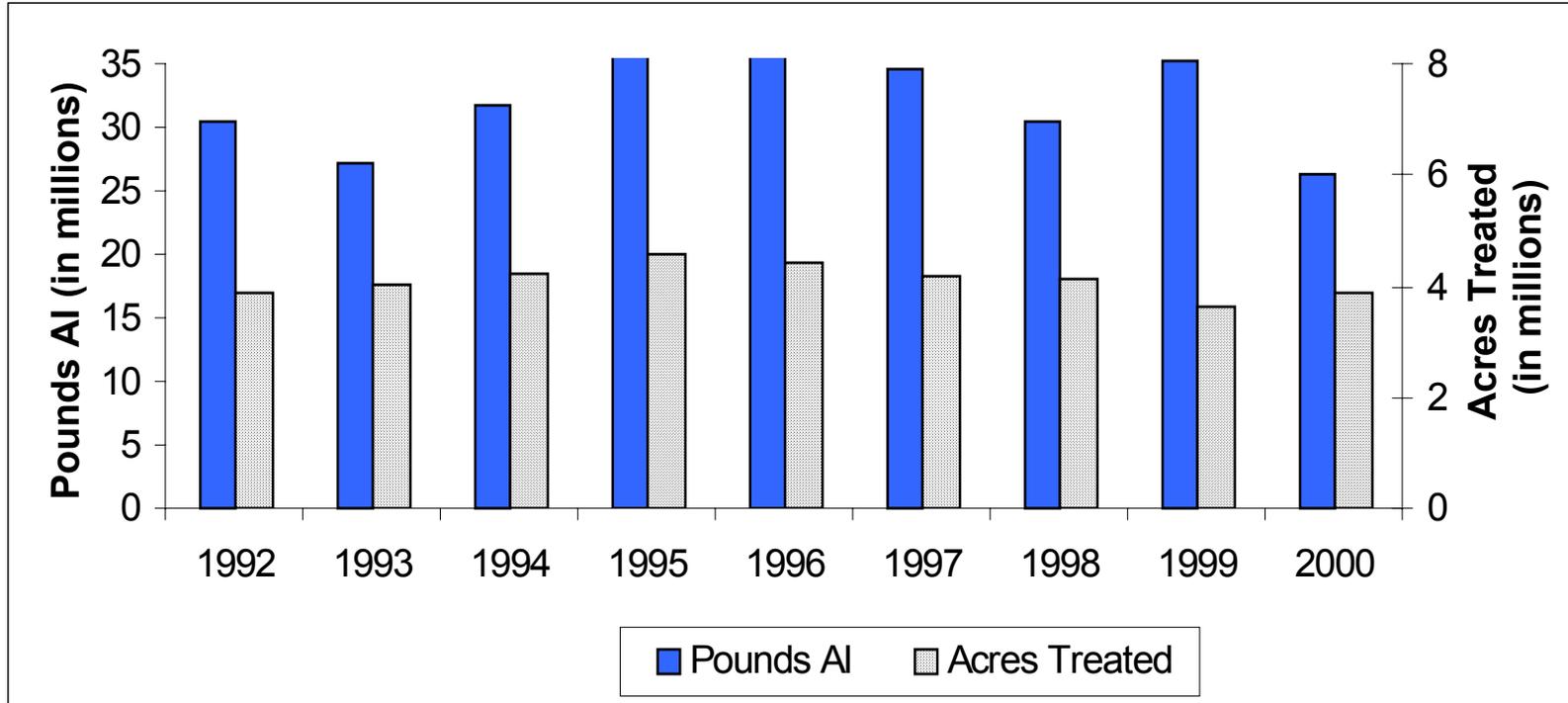
**Table 3B.** The reported **cumulative acres treated** with pesticides that are on the State’s Proposition 65 list of chemicals “known to cause reproductive toxicity”. Use includes primarily agricultural applications. The grand total for acres treated may be less than the sum of acres treated for all active ingredients because some products contain more than one active ingredient. Data are from the Department of Pesticide Regulation’s Pesticide Use Reports. The 1999 and 2000 data are preliminary.

| ACTIVE INGREDIENT                   | 1992    | 1993    | 1994    | 1995    | 1996    | 1997    | 1998    | 1999    | 2000    |
|-------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 2,4-DB ACID                         | 0       | 0       | 0       | 0       | 0       | 2,599   | 12,167  | 20,063  | 19,496  |
| AMITRAZ                             | 6,327   | 3,391   | 137,434 | 174,867 | 129,857 | 161,651 | 28,945  | 14,684  | 16,011  |
| ARSENIC PENTOXIDE                   | 103     | 0       | 660     | 0       | 0       | 0       | 0       | 0       | 709,893 |
| ARSENIC TRIOXIDE                    | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| BENOMYL                             | 256,653 | 278,444 | 271,289 | 360,931 | 310,563 | 245,687 | 434,725 | 242,796 | 217,611 |
| BROMACIL, LITHIUM SALT              | <1      | 0       | 0       | 0       | 0       | 0       | 40      | 40      | 30      |
| BROMOXYNIL OCTANOATE                | 222,988 | 204,241 | 245,715 | 224,276 | 277,062 | 224,250 | 240,997 | 257,217 | 313,362 |
| CHLORSULFURON                       | 49,239  | 41,189  | 39,962  | 39,584  | 54,360  | 27,628  | 39,873  | 30,691  | 34,528  |
| CYANAZINE                           | 206,875 | 263,463 | 284,812 | 365,520 | 325,627 | 288,087 | 185,082 | 129,547 | 56,059  |
| CYCLOATE                            | 23,172  | 21,600  | 22,571  | 20,685  | 19,597  | 25,986  | 29,761  | 24,555  | 18,487  |
| DICLOFOP-METHYL                     | 41,919  | 27,457  | 47,273  | 19,314  | 89,276  | 47,217  | 28,296  | 21,442  | 24,470  |
| DISODIUM CYANODITHIOIMIDO CARBONATE | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| EPTC                                | 238,804 | 246,970 | 273,441 | 241,587 | 232,820 | 208,093 | 141,511 | 148,685 | 107,613 |
| ETHYLENE OXIDE                      | 0       | 0       | 0       | 0       | 0       | 0       | 194     | 31      | 41      |

**Table 3B** continued. The reported **cumulative acres treated** with pesticides that are on the State’s Proposition 65 list of chemicals “known to cause reproductive toxicity”.

| ACTIVE INGREDIENT                    | 1992      | 1993      | 1994      | 1995      | 1996      | 1997      | 1998      | 1999      | 2000      |
|--------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| FENOXAPROP ETHYL                     | 0         | 0         | 33,712    | 24,153    | 25,540    | 24,439    | 10,480    | 13,824    | 8,847     |
| FLUAZIFOP-BUTYL                      | 78,596    | 88,357    | 90,378    | 80,726    | 58,367    | 54,192    | 55,734    | 51,114    | 41,917    |
| HYDRAMETHYLNON                       | 0         | 2         | 0         | 3         | 36        | 35        | 289       | 1,615     | 3,648     |
| LINURON                              | 87,584    | 111,535   | 97,887    | 105,284   | 104,772   | 110,067   | 112,122   | 110,913   | 86,317    |
| METAM-SODIUM                         | 135,606   | 136,218   | 183,625   | 199,457   | 215,899   | 198,395   | 154,309   | 186,300   | 146,847   |
| METHYL BROMIDE                       | 124,739   | 89,220    | 106,694   | 107,933   | 96,507    | 103,068   | 90,107    | 102,125   | 75,741    |
| METIRAM                              | 0         | 0         | 0         | 0         | 0         | 0         | <1        | 0         | 0         |
| MYCLOBUTANIL                         | 574,972   | 859,361   | 692,036   | 841,178   | 814,268   | 866,360   | 1,225,372 | 887,978   | 842,639   |
| NABAM                                | 0         | 0         | 0         | 0         | 0         | 0         | 55        | 20        | 0         |
| NICOTINE                             | 2,005     | 348       | 382       | 237       | 167       | 128       | 57        | 36        | 14        |
| NITRAPYRIN                           | 698       | 434       | 261       | 1,493     | 147       | 105       | 851       | 329       | 276       |
| OXADIAZON                            | 1,317     | 1,094     | 1,812     | 2,400     | 2,213     | 1,832     | 1,933     | 3,407     | 2,624     |
| OXYDEMETON-METHYL                    | 235,570   | 235,013   | 226,433   | 253,868   | 220,824   | 244,056   | 186,964   | 253,281   | 225,984   |
| OXYTHIOQUINOX                        | 9,407     | 9,227     | 6,410     | 10,000    | 8,768     | 5,896     | 5,306     | 2,147     | 817       |
| POTASSIUM DIMETHYL DITHIO CARBAMATE  | 0         | 0         | 6         | 0         | 0         | 0         | 0         | 0         | 0         |
| PROPARGITE                           | 1,006,602 | 952,438   | 1,030,485 | 1,052,358 | 980,963   | 989,265   | 756,098   | 795,378   | 704,529   |
| RESMETHRIN                           | 398       | 512       | 419       | 222       | 144       | 182       | 160       | 84,044    | 33        |
| SODIUM DIMETHYL DITHIO CARBAMATE     | 0         | 0         | 0         | 0         | 0         | 0         | 253       | 20        | 0         |
| SODIUM FLUOROACETATE (COMPOUND 1080) | 0         | 0         | 53        | 32        | 25        | 0         | 0         | 0         | 42        |
| STREPTOMYCIN SULFATE                 | 19,260    | 49,236    | 58,703    | 84,111    | 84,999    | 89,336    | 131,936   | 76,414    | 97,019    |
| TAU-FLUVALINATE                      | 21,690    | 24,386    | 26,578    | 19,771    | 22,156    | 18,387    | 14,075    | 17,324    | 10,101    |
| THIOPHANATE-METHYL                   | 76,295    | 91,084    | 86,803    | 101,694   | 128,267   | 89,556    | 63,842    | 81,418    | 68,422    |
| TRIADIMEFON                          | 330,965   | 165,472   | 132,295   | 118,746   | 100,142   | 59,229    | 79,968    | 25,716    | 11,855    |
| TRIBUTYL TIN METHACRYLATE            | 0         | 0         | 13        | <1        | 1         | <1        | 1         | 1         | 1         |
| TRIFORINE                            | 56,156    | 84,554    | 64,069    | 76,411    | 53,589    | 17,455    | 6,352     | 1,279     | 751       |
| VINCLOZOLIN                          | 59,653    | 49,042    | 49,519    | 66,672    | 82,968    | 67,373    | 69,067    | 63,931    | 43,629    |
| WARFARIN                             | 493       | 112       | 192       | 151       | 541       | 382       | 310       | 99        | 556       |
| Grand Total                          | 3,868,087 | 4,034,384 | 4,211,923 | 4,593,665 | 4,440,467 | 4,170,939 | 4,107,177 | 3,648,813 | 3,890,210 |

**Figure 1.** Use trends of pesticides that are on the State’s Proposition 65 list of chemicals that are “known to cause reproductive toxicity”. Reported pounds of active ingredient (AI) applied includes both agricultural and non-agricultural applications. The reported cumulative acres treated includes primarily agricultural applications. Data are from the Department of Pesticide Regulation’s Pesticide Use Reports. The 1999 and 2000 data are preliminary.



**USE TRENDS OF PESTICIDES LISTED BY U.S. EPA AS CARCINOGENS OR BY THE STATE AS "KNOWN TO CAUSE CANCER".**

**Table 4A.** The reported **pounds** of pesticides used that are listed by U.S. EPA as B2 carcinogens or that are on the State's Proposition 65 list of chemicals "known to cause cancer". Use includes both agricultural and reportable non-agricultural applications. Data are from the Department of Pesticide Regulation's Pesticide Use Reports. The 1999 and 2000 data are preliminary.

| ACTIVE INGREDIENT               | 1992      | 1993      | 1994       | 1995       | 1996       | 1997       | 1998       | 1999       | 2000       |
|---------------------------------|-----------|-----------|------------|------------|------------|------------|------------|------------|------------|
| 1,3-DICHLOROPROPENE             | 23,998    | 47,694    | 2,122      | 409,821    | 1,956,846  | 2,400,930  | 2,911,385  | 3,120,931  | 4,440,928  |
| ACIFLUORFEN, SODIUM SALT        | 17        | 6         | 1          | 6          | 11         | 29         | <1         | 10         | <1         |
| ALACHLOR                        | 82,046    | 44,957    | 42,854     | 41,119     | 45,733     | 51,259     | 46,264     | 29,789     | 36,468     |
| ARSENIC ACID                    | 72,182    | 13,014    | 27,571     | 37,206     | 53,777     | 59,835     | 52,558     | 48,029     | 11,906     |
| ARSENIC PENTOXIDE               | 262,017   | 150,200   | 86,445     | 83,814     | 205,089    | 64,372     | 50,899     | 245,238    | 91,267     |
| ARSENIC TRIOXIDE                | <1        | <1        | <1         | <1         | <1         | <1         | 1          | 1          | <1         |
| CACODYLIC ACID                  | 37,928    | 51,314    | 43,685     | 43,275     | 31,417     | 26,060     | 17,379     | 15,923     | 16,091     |
| CAPTAN                          | 295,542   | 483,507   | 608,658    | 734,314    | 918,588    | 799,878    | 1,559,136  | 965,922    | 642,755    |
| CHLOROTHALONIL                  | 824,171   | 826,918   | 832,288    | 1,125,790  | 1,053,319  | 779,328    | 1,181,163  | 750,595    | 679,746    |
| CHROMIC ACID                    | 364,900   | 209,555   | 120,822    | 117,092    | 286,521    | 89,931     | 71,109     | 343,543    | 128,642    |
| CREOSOTE                        | 304,448   | 479,417   | 871,469    | 444,461    | 491,044    | 259,086    | 1,752      | 4,873      | 9,879      |
| DAMINOZIDE                      | 7,636     | 7,763     | 6,775      | 6,763      | 7,944      | 11,028     | 10,306     | 9,353      | 9,138      |
| DDVP                            | 5,224     | 3,331     | 4,798      | 6,063      | 13,097     | 13,636     | 13,998     | 12,321     | 12,488     |
| DIPROPYL ISOCINCHOMERONATE      | 10        | <1        | 2          | 1          | 3          | <1         | <1         | 0          | <1         |
| ETHYLENE OXIDE                  | 7         | 1,471     | 3          | 0          | 0          | 0          | 31         | 2          | 6          |
| FENOXYCARB                      | 1,194     | 1,928     | 1,492      | 1,673      | 712        | 65         | 552        | 71         | 80         |
| FOLPET                          | 1         | 3         | 3          | 2          | <1         | <1         | <1         | <1         | <1         |
| FORMALDEHYDE                    | 5,094     | 13,322    | 11,864     | 153,519    | 334,548    | 403,824    | 305,297    | 111,714    | 55,300     |
| IPRODIONE                       | 373,968   | 452,112   | 431,318    | 564,127    | 520,763    | 424,338    | 572,287    | 411,031    | 422,158    |
| LINDANE                         | 8,208     | 9,715     | 5,281      | 4,507      | 4,576      | 5,388      | 6,293      | 4,834      | 4,738      |
| MANCOZEB                        | 336,371   | 446,086   | 464,924    | 659,240    | 567,866    | 526,364    | 987,270    | 629,799    | 611,197    |
| MANEB                           | 464,469   | 625,326   | 912,903    | 1,257,122  | 1,328,318  | 1,081,124  | 1,596,876  | 1,045,567  | 1,203,322  |
| METAM-SODIUM                    | 8,554,646 | 8,588,969 | 11,122,361 | 14,975,528 | 15,253,924 | 14,969,732 | 13,729,306 | 16,774,246 | 12,844,344 |
| METIRAM                         | 0         | 0         | 0          | 0          | 0          | 0          | <1         | 0          | 0          |
| ORTHO-PHENYLPHENOL              | 2,839     | 6,232     | 11,027     | 14,892     | 10,349     | 15,962     | 11,248     | 8,600      | 8,473      |
| ORTHO-PHENYLPHENOL, SODIUM SALT | 64,940    | 63,741    | 46,825     | 30,830     | 33,539     | 25,389     | 32,315     | 29,019     | 30,708     |
| OXADIAZON                       | 18,122    | 19,269    | 20,488     | 21,458     | 25,260     | 23,196     | 21,959     | 19,342     | 18,168     |
| OXYTHIOQUINOX                   | 6,829     | 6,207     | 4,474      | 7,172      | 6,204      | 2,709      | 1,576      | 2,683      | 409        |

**Table 4A** continued. The reported **pounds** of pesticides used that are listed by U.S. EPA as B2 carcinogens or that are on the State's Proposition 65 list of chemicals "known to cause cancer".

| ACTIVE INGREDIENT    | 1992       | 1993       | 1994       | 1995       | 1996       | 1997       | 1998       | 1999       | 2000       |
|----------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| PARA-DICHLOROBENZENE | 82         | 37         | 3          | 2          | 4          | 3          | 219        | 86         | 4          |
| PENTACHLOROPHENOL    | 107,946    | 91,123     | 40         | 3          | 3          | 8          | 33         | 92         | 466        |
| POTASSIUM DICHROMATE | 1,705      | 106        | 596        | 380        | 41         | 50         | 103        | 319        | 554        |
| PROPARGITE           | 1,702,328  | 1,653,855  | 1,742,736  | 1,770,065  | 1,743,278  | 1,816,028  | 1,385,327  | 1,472,263  | 1,306,767  |
| PROPYLENE OXIDE      | 131,091    | 34,764     | 41,815     | 131,593    | 224,495    | 198,559    | 198,595    | 172,556    | 118,381    |
| PROPYZAMIDE          | 109,266    | 110,123    | 111,797    | 113,761    | 106,811    | 99,292     | 104,292    | 102,408    | 101,684    |
| SILICA AEROGEL       | 8,525      | 10,052     | 14,245     | 12,599     | 16,216     | 10,780     | 8,483      | 8,271      | 11,137     |
| SODIUM DICHROMATE    | 0          | 0          | 0          | 0          | 180,478    | 182,185    | 122,647    | 32,699     | 122        |
| THIODICARB           | 0          | <1         | 0          | 13,679     | 122,927    | 156,002    | 114,785    | 60,453     | 36,844     |
| VINCLOZOLIN          | 41,221     | 37,550     | 33,661     | 48,270     | 60,286     | 46,908     | 54,719     | 52,720     | 35,658     |
| Grand Total          | 14,218,972 | 14,489,668 | 17,625,349 | 22,830,147 | 25,603,985 | 24,543,280 | 25,170,164 | 26,485,304 | 22,889,829 |

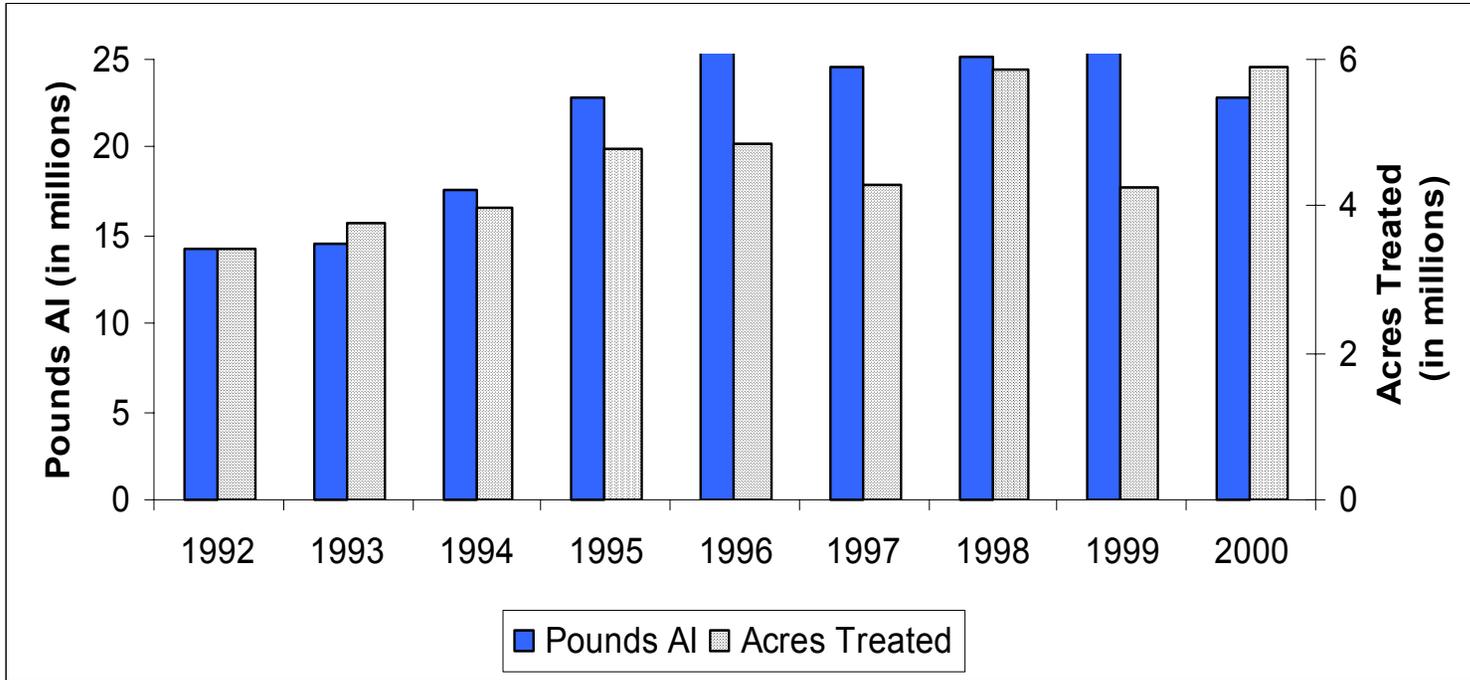
**Table 4B.** The reported **cumulative acres treated** with pesticides listed by U.S. EPA as B2 carcinogens or on the State's Proposition 65 list of chemicals "known to cause cancer". Use includes primarily agricultural applications. The grand total for acres treated is less than the sum of acres treated for all active ingredients because some products contain more than one active ingredient. Data are from the Department of Pesticide Regulation's Pesticide Use. The 1999 and 2000 data are preliminary.

| ACTIVE INGREDIENT          | 1992    | 1993    | 1994    | 1995    | 1996    | 1997    | 1998    | 1999    | 2000    |
|----------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1,3-DICHLOROPROPENE        | 447     | 823     | 33      | 4,174   | 17,223  | 22,193  | 27,059  | 29,430  | 33,101  |
| ACIFLUORFEN, SODIUM SALT   | 4       | 7       | 2       | 8       | <1      | 0       | 0       | 0       | 0       |
| ALACHLOR                   | 27,472  | 17,637  | 16,135  | 15,359  | 18,181  | 19,059  | 16,430  | 11,008  | 13,302  |
| ARSENIC ACID               | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| ARSENIC PENTOXIDE          | 103     | 0       | 660     | 0       | 0       | 0       | 0       | 0       | 709,893 |
| ARSENIC TRIOXIDE           | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| CACODYLIC ACID             | 283,516 | 326,027 | 304,060 | 315,336 | 251,414 | 192,816 | 126,912 | 111,592 | 117,656 |
| CAPTAN                     | 134,103 | 212,563 | 244,164 | 295,860 | 381,989 | 347,631 | 602,684 | 404,731 | 309,768 |
| CHLOROTHALONIL             | 517,695 | 535,201 | 517,357 | 674,126 | 674,086 | 492,219 | 796,672 | 455,993 | 428,109 |
| CHROMIC ACID               | 103     | 0       | 660     | 0       | 0       | 0       | 0       | 0       | 709,893 |
| CREOSOTE                   | 0       | 0       | 0       | 0       | 0       | 0       | 126     | 11      | 45      |
| DAMINOZIDE                 | 3,113   | 3,262   | 2,692   | 2,659   | 2,653   | 3,512   | 4,510   | 3,097   | 3,416   |
| DDVP                       | 2,960   | 683     | 1,888   | 1,887   | 1,499   | 2,596   | 3,692   | 2,180   | 2,336   |
| DIPROPYL ISOCINCHOMERONATE | 0       | 2       | 50      | 10      | 0       | 0       | 0       | 0       | 5       |

**Table 4B** continued. The reported **cumulative acres treated** with pesticides listed by U.S. EPA as B2 carcinogens or on the State's Proposition 65 list of chemicals "known to cause cancer".

| ACTIVE INGREDIENT               | 1992      | 1993      | 1994      | 1995      | 1996      | 1997      | 1998      | 1999      | 2000      |
|---------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| ETHYLENE OXIDE                  | 0         | 0         | 0         | 0         | 0         | 0         | 194       | 31        | 41        |
| FENOXYCARB                      | 674       | 1         | 5         | 11        | 5         | <1        | 210       | 3,707     | 3,388     |
| FOLPET                          | 0         | 3         | <1        | 0         | 1         | 2         | 0         | 0         | 0         |
| FORMALDEHYDE                    | 68        | 132       | 15        | 137       | 234       | 12        | 126       | 123       | 47        |
| IPRODIONE                       | 582,227   | 721,086   | 656,402   | 886,077   | 804,311   | 666,336   | 1,348,367 | 933,191   | 2,196,303 |
| LINDANE                         | 21,737    | 26,921    | 22,984    | 19,380    | 25,352    | 36,573    | 32,650    | 20,924    | 14,628    |
| MANCOZEB                        | 186,333   | 262,758   | 273,836   | 405,494   | 351,801   | 284,134   | 682,979   | 387,300   | 363,260   |
| MANEB                           | 290,011   | 373,116   | 512,009   | 652,122   | 731,079   | 624,123   | 942,083   | 629,897   | 611,717   |
| METAM-SODIUM                    | 135,606   | 136,218   | 183,625   | 199,457   | 215,899   | 198,395   | 154,309   | 186,300   | 146,847   |
| METIRAM                         | 0         | 0         | 0         | 0         | 0         | 0         | <1        | 0         | 0         |
| ORTHO-PHENYLPHENOL              | 732       | 6         | 4         | 8         | 67        | 75        | 645       | 583       | 321       |
| ORTHO-PHENYLPHENOL, SODIUM SALT | 111       | 52        | 88        | 47        | 652       | 0         | 20        | 6,234     | 18,599    |
| OXADIAZON                       | 1,317     | 1,094     | 1,812     | 2,400     | 2,213     | 1,832     | 1,933     | 3,407     | 2,624     |
| OXYTHIOQUINOX                   | 9,407     | 9,227     | 6,410     | 10,000    | 8,768     | 5,896     | 5,306     | 2,147     | 817       |
| PARA-DICHLOROBENZENE            | 0         | <1        | 0         | 0         | 0         | 0         | 10        | 0         | 0         |
| PENTACHLOROPHENOL               | 1         | 0         | 2         | <1        | 15        | 4         | 190       | 0         | 59        |
| POTASSIUM DICHROMATE            | 0         | 0         | 0         | 0         | 0         | 0         | 40        | 71        | 40        |
| PROPARGITE                      | 1,006,602 | 952,438   | 1,030,485 | 1,052,358 | 980,963   | 989,265   | 756,098   | 795,378   | 704,529   |
| PROPYLENE OXIDE                 | 10        | 0         | 0         | 0         | 0         | <1        | 0         | 573       | 0         |
| PROPYZAMIDE                     | 156,702   | 156,678   | 157,829   | 155,773   | 150,791   | 140,791   | 144,864   | 142,194   | 137,337   |
| SILICA AEROGEL                  | <1        | <1        | 1         | 1         | 1         | 5         | <1        | 2         | 1         |
| SODIUM DICHROMATE               | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         |
| THIODICARB                      | 0         | 0         | 0         | 22,785    | 176,788   | 223,154   | 155,440   | 83,796    | 50,604    |
| VINCLOZOLIN                     | 59,653    | 49,042    | 49,519    | 66,672    | 82,968    | 67,373    | 69,067    | 63,931    | 43,629    |
| Grand Total                     | 3,406,238 | 3,766,328 | 3,962,512 | 4,765,577 | 4,856,783 | 4,285,583 | 5,850,300 | 4,264,351 | 5,899,480 |

**Figure 2.** Use trends of pesticides that are listed by U.S. EPA as B2 carcinogens or that are on the State’s Proposition 65 list of chemicals “known to cause cancer”. Reported pounds of active ingredient (AI) applied includes both agricultural and reportable non-agricultural applications. The reported cumulative acres treated includes primarily agricultural applications. Data are from the Department of Pesticide Regulation’s Pesticide Use Reports. The 1999 and 2000 data are preliminary.



## USE TRENDS OF CHOLINESTERASE-INHIBITING PESTICIDES

**Table 5A.** The reported **pounds** of cholinesterase-inhibiting pesticides used. These pesticides are the currently registered organophosphate and carbamate active ingredients. Use includes both agricultural and reportable non-agricultural applications. Data are from the Department of Pesticide Regulation's Pesticide Use Reports. The 1999 and 2000 data are preliminary.

| ACTIVE INGREDIENT                 | 1992      | 1993      | 1994      | 1995      | 1996      | 1997      | 1998      | 1999      | 2000      |
|-----------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 3-iodo-2-propynyl butyl carbamate | 0         | <1        | 0         | 0         | <1        | 0         | 1         | 0         | <1        |
| ACEPHATE                          | 380,706   | 331,453   | 371,862   | 458,012   | 355,350   | 343,840   | 384,091   | 306,855   | 283,284   |
| ALDICARB                          | 164,291   | 237,382   | 225,973   | 354,500   | 545,117   | 530,066   | 534,665   | 280,755   | 329,431   |
| AZINPHOS METHYL                   | 520,356   | 474,748   | 418,935   | 406,230   | 406,099   | 336,353   | 193,069   | 216,572   | 185,055   |
| BENDIOCARB                        | 20,150    | 9,740     | 4,431     | 1,526     | 1,674     | 259       | 125       | 104       | 593       |
| BENSULIDE                         | 57,944    | 55,639    | 64,796    | 69,271    | 94,587    | 129,784   | 192,136   | 242,388   | 217,111   |
| BUTYLATE                          | 90,218    | 121,979   | 108,686   | 67,179    | 87,612    | 84,268    | 69,805    | 71,071    | 31,732    |
| CARBARYL                          | 775,078   | 773,404   | 820,787   | 835,811   | 809,794   | 753,801   | 426,893   | 385,710   | 364,968   |
| CARBOFURAN                        | 287,629   | 289,581   | 278,108   | 242,999   | 220,622   | 183,321   | 161,588   | 138,665   | 132,427   |
| CHLORPROPHAM                      | 3,953     | 5,448     | 3,000     | 3,230     | 3,015     | 2,057     | 2,321     | 3,102     | 3,544     |
| CHLORPYRIFOS                      | 2,536,605 | 2,246,121 | 2,887,838 | 3,385,416 | 2,687,809 | 3,152,564 | 2,355,626 | 2,196,493 | 2,041,815 |
| CYCLOATE                          | 49,041    | 51,715    | 51,035    | 49,138    | 44,628    | 55,459    | 62,753    | 49,096    | 37,408    |
| DDVP                              | 5,224     | 3,331     | 4,798     | 6,063     | 13,097    | 13,636    | 13,998    | 12,321    | 12,488    |
| DESMEDIPHAM                       | 10,430    | 8,956     | 8,588     | 8,465     | 6,092     | 6,188     | 4,737     | 6,014     | 6,703     |
| DIAZINON                          | 1,306,574 | 1,412,733 | 1,358,358 | 1,216,935 | 1,093,121 | 955,108   | 900,596   | 957,827   | 1,053,407 |
| DIMETHOATE                        | 635,778   | 586,300   | 671,948   | 583,498   | 419,807   | 515,798   | 397,847   | 485,265   | 397,177   |
| DISULFOTON                        | 176,216   | 151,010   | 134,600   | 95,972    | 142,372   | 128,335   | 105,327   | 95,915    | 75,900    |
| EPTC                              | 641,581   | 698,176   | 765,576   | 660,185   | 703,996   | 579,245   | 393,031   | 448,883   | 323,254   |
| ETHEPHON                          | 608,613   | 859,439   | 848,134   | 982,776   | 951,415   | 882,802   | 762,217   | 734,251   | 734,792   |
| ETHOPROP                          | 41,512    | 62,143    | 51,270    | 51,104    | 27,955    | 23,842    | 27,949    | 26,196    | 16,119    |
| FENAMIPHOS                        | 186,312   | 232,396   | 178,781   | 187,242   | 189,379   | 156,280   | 125,459   | 107,710   | 104,505   |
| FENTHION                          | 1,089     | 146       | 186       | 413       | 141       | 176       | 29        | 18        | 33        |
| FONFOS                            | 58,213    | 55,991    | 73,167    | 74,936    | 67,969    | 50,555    | 25,349    | 24,216    | 4,370     |
| FORMETANATE HYDROCHLORIDE         | 200,592   | 182,061   | 152,622   | 104,012   | 106,168   | 97,907    | 77,723    | 65,027    | 43,941    |
| MALATHION                         | 779,204   | 708,469   | 749,317   | 801,496   | 673,379   | 773,782   | 645,889   | 677,947   | 489,650   |
| METHAMIDOPHOS                     | 283,562   | 330,178   | 240,959   | 500,055   | 260,255   | 312,067   | 244,269   | 116,256   | 76,865    |
| METHIDATHION                      | 385,998   | 451,826   | 367,447   | 321,605   | 328,328   | 309,154   | 178,451   | 177,105   | 98,129    |
| METHIOCARB                        | 4,613     | 3,686     | 4,126     | 2,672     | 2,120     | 4,769     | 5,384     | 3,304     | 2,411     |
| METHOMYL                          | 571,743   | 528,545   | 707,814   | 807,977   | 679,383   | 833,758   | 666,442   | 551,174   | 550,591   |
| METHYL PARATHION                  | 102,730   | 154,452   | 129,155   | 140,469   | 130,614   | 153,187   | 158,228   | 157,594   | 75,169    |
| MOLINATE                          | 1,375,411 | 1,518,002 | 1,496,227 | 1,377,257 | 1,356,258 | 1,170,699 | 1,006,025 | 911,376   | 1,025,786 |

**Table 5A** continued. The reported **pounds** of cholinesterase inhibiting pesticides used.

| ACTIVE INGREDIENT                | 1992       | 1993       | 1994       | 1995       | 1996       | 1997       | 1998       | 1999       | 2000       |
|----------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| NALED                            | 160,012    | 180,642    | 457,723    | 700,676    | 351,267    | 615,314    | 260,048    | 297,806    | 255,410    |
| OXAMYL                           | 70,894     | 71,478     | 73,440     | 66,179     | 82,327     | 119,441    | 161,042    | 128,956    | 137,989    |
| OXYDEMETON-METHYL                | 118,285    | 117,416    | 111,347    | 120,101    | 106,612    | 115,781    | 89,789     | 122,891    | 110,495    |
| PEBULATE                         | 219,766    | 191,529    | 235,690    | 244,181    | 202,634    | 184,015    | 185,696    | 225,077    | 160,018    |
| PHENMEDIPHAM                     | 10,632     | 9,062      | 8,863      | 8,771      | 6,612      | 6,621      | 5,836      | 6,735      | 7,478      |
| PHORATE                          | 217,399    | 151,250    | 159,146    | 135,887    | 160,854    | 139,725    | 149,707    | 113,902    | 87,974     |
| PHOSALONE                        | 703        | 180        | 99         | 52         | 27         | 33         | 11         | 0          | 4          |
| PHOSMET                          | 258,465    | 204,157    | 189,415    | 266,349    | 395,160    | 566,484    | 644,898    | 638,760    | 583,116    |
| PROFENOFOS                       | 39,708     | 51,239     | 263,884    | 245,420    | 184,264    | 150,575    | 40,433     | 49,575     | 43,879     |
| PROPAMOCARB HYDROCHLORIDE        | 0          | 0          | 0          | 0          | 16,341     | 10,215     | 57,121     | 6,285      | 4,959      |
| PROPETAMPHOS                     | 24,235     | 23,804     | 38,307     | 77,985     | 23,249     | 17,338     | 9,970      | 5,947      | 4,500      |
| PROPOXUR                         | 3,187      | 2,674      | 2,667      | 3,296      | 1,341      | 1,760      | 1,604      | 1,719      | 2,141      |
| S,S,S-TRIBUTYL PHOSPHOTRITHIOATE | 757,765    | 920,837    | 892,441    | 866,726    | 760,809    | 626,684    | 440,382    | 347,833    | 399,706    |
| SODIUM DIMETHYL DITHIO CARBAMATE | 4          | 0          | 337        | 1          | 0          | 0          | 8,279      | 355        | 1,315      |
| SULFOTEP                         | 1,199      | 1,141      | 1,000      | 509        | 316        | 355        | 213        | 246        | 215        |
| SULPROFOS                        | 1,370      | 236        | 876        | 171        | 0          | 119        | 84         | 0          | 0          |
| TETRACHLORVINPHOS                | 27,270     | 8,247      | 10,051     | 7,118      | 7,056      | 6,044      | 5,831      | 3,975      | 4,850      |
| THIOBENCARB                      | 175,805    | 252,423    | 406,085    | 559,610    | 618,412    | 894,287    | 724,926    | 732,505    | 1,007,249  |
| THIODICARB                       | 0          | <1         | 0          | 13,679     | 122,927    | 156,002    | 114,785    | 60,453     | 36,844     |
| TRICHLORFON                      | 4,236      | 5,607      | 4,275      | 4,552      | 3,327      | 3,843      | 2,476      | 2,703      | 3,992      |
| Grand Total                      | 14,352,300 | 14,736,972 | 16,034,172 | 17,117,709 | 15,451,689 | 16,153,697 | 13,025,153 | 12,194,936 | 11,570,792 |

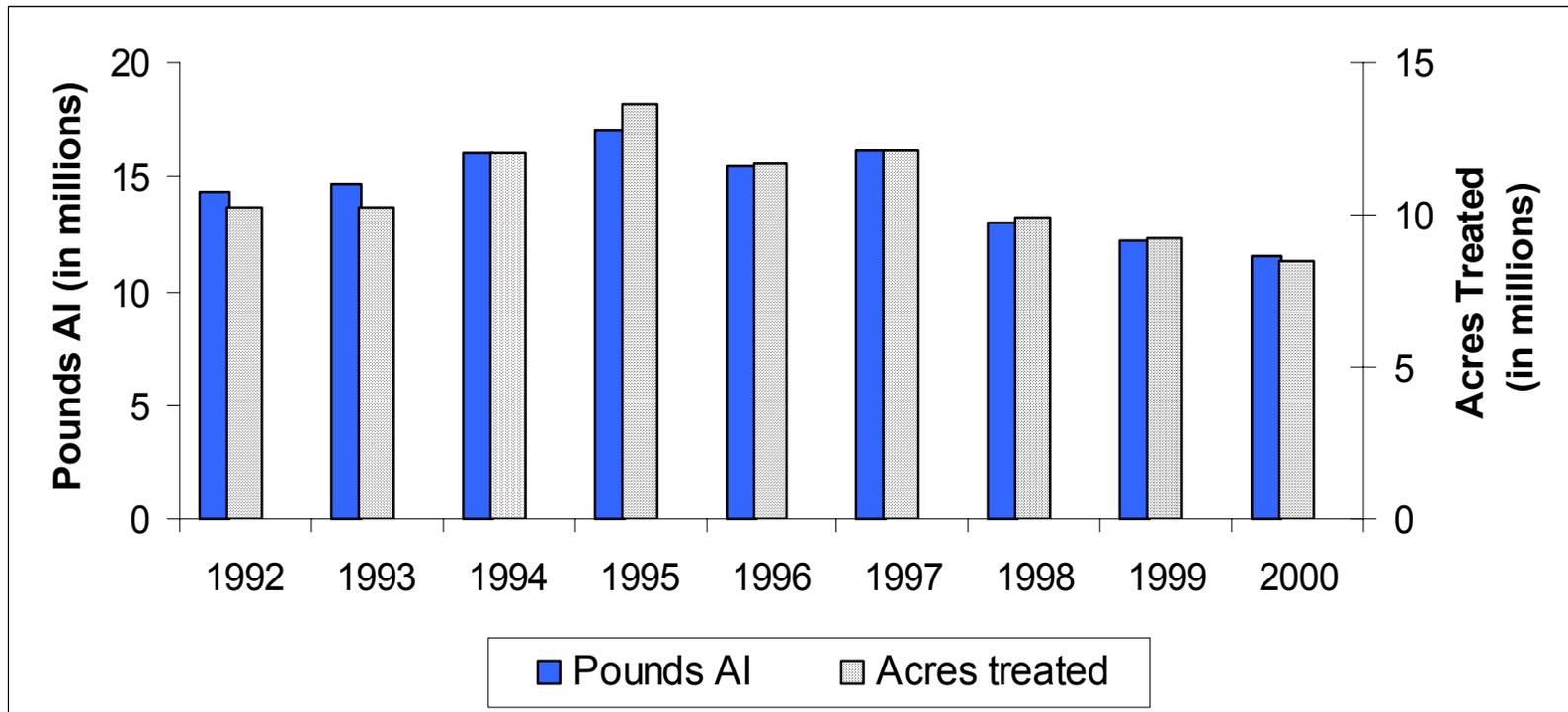
**Table 5B.** The reported **cumulative acres treated** with cholinesterase-inhibiting pesticides. These pesticides are the currently registered organophosphate and carbamate active ingredients. Use includes primarily agricultural applications. The grand total for acres treated is less than the sum of acres treated for all active ingredients because some products contain more than one active ingredient. Data are from the Department of Pesticide Regulation's Pesticide Use Reports. The 1999 and 2000 data are preliminary.

| ACTIVE INGREDIENT                 | 1992      | 1993      | 1994      | 1995      | 1996      | 1997      | 1998      | 1999      | 2000      |
|-----------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 3-IODO-2-PROPYNYL BUTYL CARBAMATE | 0         | 0         | 0         | 0         | 0         | 0         | 150       | 0         | 0         |
| ACEPHATE                          | 394,165   | 328,012   | 402,643   | 489,259   | 406,607   | 372,566   | 403,537   | 370,079   | 295,298   |
| ALDICARB                          | 153,672   | 254,372   | 256,428   | 355,717   | 490,499   | 442,029   | 397,890   | 266,773   | 314,440   |
| AZINPHOS METHYL                   | 357,655   | 324,769   | 293,466   | 274,347   | 277,745   | 233,406   | 134,334   | 140,177   | 118,805   |
| BENDIOCARB                        | 2,268     | 1,661     | 1,574     | 499       | 188       | 19        | 28        | 11        | <1        |
| BENSULIDE                         | 17,545    | 15,239    | 17,446    | 22,489    | 31,916    | 45,795    | 61,984    | 80,873    | 72,866    |
| BUTYLATE                          | 19,777    | 24,957    | 23,105    | 14,864    | 17,689    | 17,572    | 14,259    | 14,959    | 6,957     |
| CARBARYL                          | 322,588   | 285,046   | 291,147   | 305,452   | 312,058   | 292,721   | 197,664   | 216,991   | 196,264   |
| CARBOFURAN                        | 393,594   | 397,071   | 460,647   | 449,507   | 364,150   | 322,064   | 303,957   | 272,441   | 258,441   |
| CHLORPROPHAM                      | 118       | 482       | 20        | 0         | 4         | 26        | 106       | 151       | 127       |
| CHLORPYRIFOS                      | 1,130,628 | 1,163,147 | 1,910,520 | 2,824,142 | 1,869,874 | 2,223,551 | 1,669,859 | 1,420,369 | 1,441,819 |
| CYCLOATE                          | 23,172    | 21,600    | 22,571    | 20,685    | 19,597    | 25,986    | 29,761    | 24,555    | 18,487    |
| DDVP                              | 2,960     | 683       | 1,888     | 1,887     | 1,499     | 2,596     | 3,692     | 2,180     | 2,336     |
| DESMEDIPHAM                       | 59,693    | 58,486    | 62,171    | 71,577    | 51,183    | 61,368    | 56,272    | 71,977    | 60,248    |
| DIAZINON                          | 792,397   | 828,003   | 878,221   | 752,898   | 680,947   | 530,355   | 477,804   | 546,532   | 478,994   |
| DIMETHOATE                        | 1,031,266 | 1,005,411 | 1,205,884 | 1,193,214 | 955,445   | 1,097,751 | 871,305   | 1,078,024 | 874,730   |
| DISULFOTON                        | 155,955   | 127,555   | 114,949   | 87,291    | 147,078   | 124,319   | 100,935   | 86,332    | 69,018    |
| EPTC                              | 238,804   | 246,970   | 273,441   | 241,587   | 232,820   | 208,093   | 141,511   | 148,685   | 107,613   |
| ETHEPHON                          | 555,613   | 727,925   | 704,394   | 806,425   | 776,247   | 700,941   | 653,817   | 720,773   | 697,300   |
| ETHOPROP                          | 5,113     | 7,062     | 5,767     | 5,470     | 3,139     | 3,213     | 3,784     | 3,610     | 3,477     |
| FENAMIPHOS                        | 107,492   | 142,914   | 114,333   | 112,249   | 111,729   | 97,013    | 72,102    | 66,100    | 60,340    |
| FENTHION                          | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         |
| FONOFOS                           | 47,038    | 50,046    | 58,852    | 59,041    | 55,207    | 36,123    | 16,926    | 14,146    | 2,325     |
| FORMETANATE HYDROCHLORIDE         | 180,958   | 170,117   | 141,203   | 100,837   | 103,521   | 95,544    | 77,965    | 63,044    | 42,880    |
| MALATHION                         | 403,997   | 357,210   | 401,037   | 425,062   | 363,635   | 410,658   | 383,121   | 403,638   | 323,737   |
| METHAMIDOPHOS                     | 441,648   | 284,160   | 199,314   | 418,703   | 313,618   | 263,816   | 290,061   | 158,079   | 101,494   |
| METHIDATHION                      | 317,536   | 315,398   | 255,006   | 231,930   | 245,914   | 200,528   | 129,358   | 115,249   | 71,992    |
| METHIOCARB                        | 8,655     | 4,853     | 3,394     | 2,129     | 1,511     | 2,906     | 3,523     | 2,368     | 2,700     |
| METHOMYL                          | 969,920   | 932,435   | 1,215,586 | 1,425,295 | 1,145,115 | 1,376,868 | 1,118,188 | 880,894   | 893,424   |
| METHYL PARATHION                  | 135,774   | 171,353   | 137,691   | 129,976   | 125,729   | 125,638   | 128,675   | 119,315   | 43,773    |
| MOLINATE                          | 350,994   | 388,852   | 384,031   | 348,465   | 357,239   | 317,680   | 267,090   | 246,084   | 276,315   |

**Table 5B** continued. The reported **cumulative acres treated** with cholinesterase-inhibiting pesticides.

| ACTIVE INGREDIENT                | 1992       | 1993       | 1994       | 1995       | 1996       | 1997       | 1998      | 1999      | 2000      |
|----------------------------------|------------|------------|------------|------------|------------|------------|-----------|-----------|-----------|
| NALED                            | 175,023    | 167,034    | 473,011    | 702,155    | 338,861    | 604,615    | 251,044   | 279,898   | 244,617   |
| OXAMYL                           | 97,332     | 106,553    | 115,085    | 106,205    | 122,353    | 176,793    | 225,380   | 177,183   | 179,048   |
| OXYDEMETON-METHYL                | 235,570    | 235,013    | 226,433    | 253,868    | 220,824    | 244,056    | 186,964   | 253,281   | 225,984   |
| PEBULATE                         | 78,948     | 65,788     | 76,688     | 86,494     | 74,647     | 69,381     | 64,501    | 74,697    | 51,205    |
| PHENMEDIPHAM                     | 60,237     | 58,343     | 62,694     | 72,060     | 52,125     | 62,449     | 58,649    | 73,905    | 61,975    |
| PHORATE                          | 187,605    | 125,357    | 133,392    | 111,217    | 123,789    | 106,427    | 109,759   | 81,724    | 71,407    |
| PHOSALONE                        | 416        | 108        | 47         | 56         | 18         | 64         | 5         | 0         | 10        |
| PHOSMET                          | 174,281    | 150,436    | 136,500    | 172,539    | 214,416    | 236,611    | 312,707   | 253,209   | 219,707   |
| PROFENOFOS                       | 44,258     | 62,345     | 336,830    | 296,860    | 211,769    | 162,204    | 44,641    | 46,250    | 46,617    |
| PROPAMOCARB HYDROCHLORIDE        | 0          | 0          | 0          | 0          | 23,793     | 14,677     | 81,050    | 6,851     | 17,696    |
| PROPETAMPHOS                     | 0          | 0          | 0          | 0          | 0          | 0          | 0         | 0         | 0         |
| PROPOXUR                         | 8          | <1         | 14         | 5          | 9          | 73         | 45        | 39        | 26        |
| S,S,S-TRIBUTYL PHOSPHOTRITHIOATE | 574,170    | 652,163    | 615,978    | 604,586    | 531,052    | 437,505    | 305,306   | 245,470   | 282,844   |
| SODIUM DIMETHYL DITHIO CARBAMATE | 0          | 0          | 0          | 0          | 0          | 0          | 253       | 20        | 0         |
| SULFOTEP                         | 903        | 1,191      | 884        | 537        | 408        | 251        | 241       | 224       | 168       |
| SULPROFOS                        | 1,252      | 1,273      | 896        | 299        | 0          | 83         | 80        | 0         | 0         |
| TETRACHLORVINPHOS                | 2,072      | 553        | 780        | 519        | 674        | 356        | 3,109     | 1,543     | 575       |
| THIOBENCARB                      | 45,140     | 65,612     | 91,906     | 126,745    | 159,121    | 227,658    | 187,295   | 186,341   | 252,506   |
| THIODICARB                       | 0          | 0          | 0          | 22,785     | 176,788    | 223,154    | 155,440   | 83,796    | 50,604    |
| TRICHLORFON                      | 1,991      | 2,444      | 818        | 1,037      | 204        | 149        | 1,071     | 97        | 70        |
| Grand Total                      | 10,236,375 | 10,271,121 | 12,043,484 | 13,656,124 | 11,660,714 | 12,135,586 | 9,938,816 | 9,225,391 | 8,479,224 |

**Figure 3.** Use trends of cholinesterase-inhibiting pesticides, which includes pesticides with organophosphate and carbamate active ingredients. Reported pounds of active ingredient (AI) applied includes both agricultural and reportable non-agricultural applications. The reported cumulative acres treated includes primarily agricultural applications. Data are from the Department of Pesticide Regulation's Pesticide Use Reports. The 1999 and 2000 data are preliminary.



## USE TRENDS OF PESTICIDES ON DPR'S GROUNDWATER PROTECTION LIST

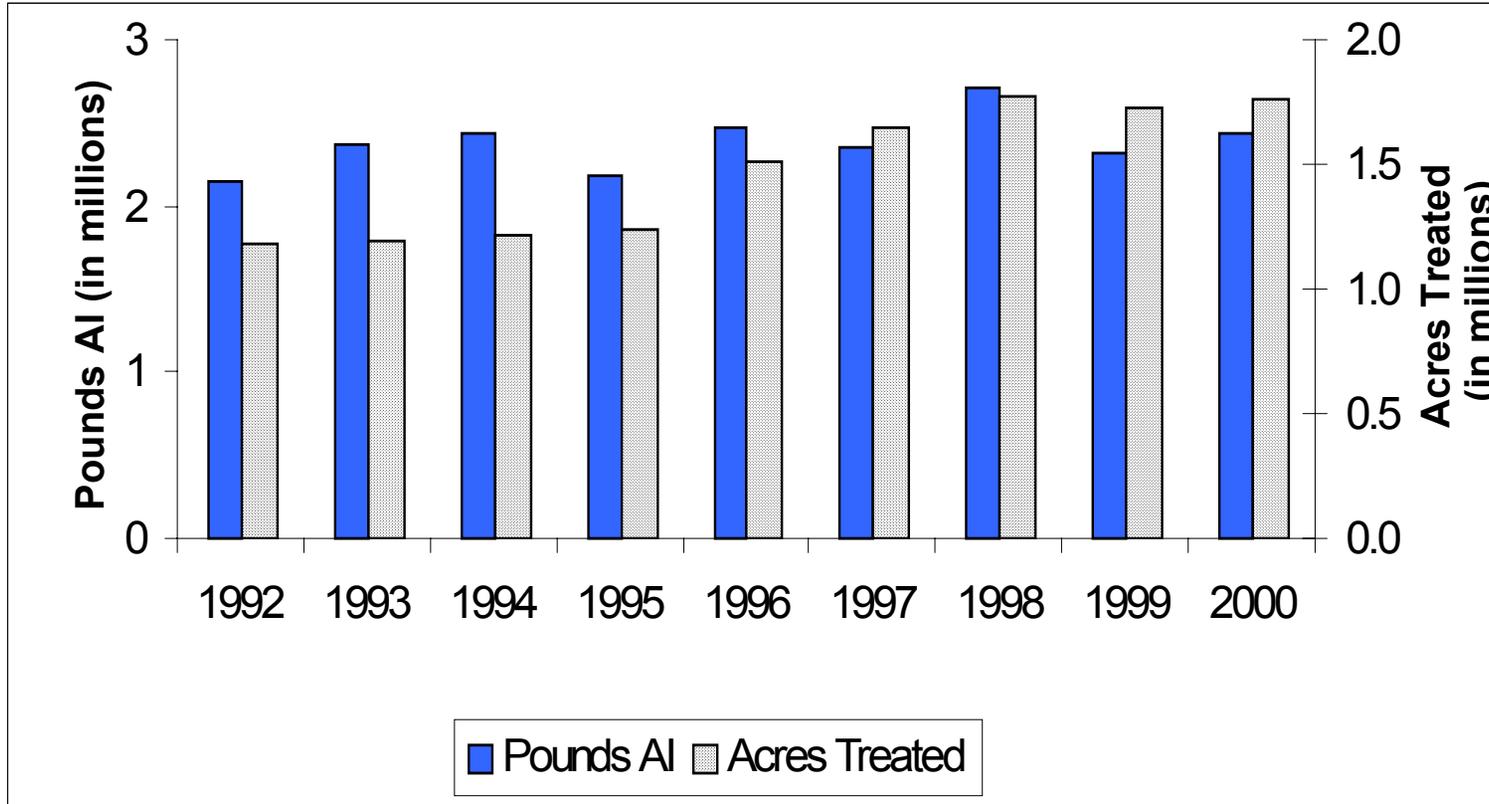
**Table 6A.** The reported **pounds** of pesticides on DPR's groundwater protection list. These pesticides are the currently registered active ingredients listed in the California Code of Regulations, Title 3, Division 6, Chapter 4, Subchapter 1, Article 1, Section 6800(a). Use includes both agricultural and reportable non-agricultural applications. Data are from the Department of Pesticide Regulation's Pesticide Use Reports. The 1999 and 2000 data are preliminary.

| ACTIVE INGREDIENT            | 1992      | 1993      | 1994      | 1995      | 1996      | 1997      | 1998      | 1999      | 2000      |
|------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| ATRAZINE                     | 48,313    | 44,485    | 46,497    | 36,078    | 57,018    | 46,568    | 54,840    | 69,549    | 55,284    |
| ATRAZINE, OTHER RELATED      | 2,567     | 2,365     | 2,480     | 1,932     | 3,062     | 2,502     | 2,943     | 3,706     | 2,952     |
| BENTAZON, SODIUM SALT        | 846       | 1,017     | 1,175     | 655       | 1,518     | 1,907     | 1,757     | 1,837     | 1,210     |
| BROMACIL                     | 112,160   | 117,128   | 104,052   | 95,444    | 98,293    | 82,424    | 84,645    | 75,319    | 67,753    |
| BROMACIL, DIMETHYLAMINE SALT | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         |
| BROMACIL, LITHIUM SALT       | 4,837     | 7,045     | 11,085    | 6,517     | 17,381    | 9,141     | 4,686     | 4,162     | 4,478     |
| DIURON                       | 916,083   | 1,074,854 | 1,234,507 | 1,054,409 | 1,265,426 | 1,228,114 | 1,504,268 | 1,188,203 | 1,342,871 |
| NORFLURAZON                  | 171,375   | 164,451   | 154,383   | 153,138   | 196,142   | 212,621   | 265,886   | 286,214   | 257,651   |
| PROMETON                     | 87        | 41        | 84        | 117       | 68        | 20        | 22        | 4         | 28        |
| SIMAZINE                     | 887,151   | 957,812   | 890,353   | 837,366   | 839,209   | 764,586   | 794,758   | 696,550   | 700,588   |
| Grand Total                  | 2,143,420 | 2,369,197 | 2,444,616 | 2,185,656 | 2,478,115 | 2,347,882 | 2,713,804 | 2,325,543 | 2,432,815 |

**Table 6B.** The reported **cumulative acres treated** in California with pesticides on DPR's groundwater protection list. These pesticides are the currently registered active ingredients listed in the California Code of Regulations, Title 3, Division 6, Chapter 4, Subchapter 1, Article 1, Section 6800(a). Use includes primarily agricultural applications. The grand total for acres treated is less than the sum of acres treated for all active ingredients because some products contain more than one active ingredient. Data are from the Department of Pesticide Regulation's Pesticide Use Reports. The 1999 and 2000 data are preliminary.

| <b>ACTIVE INGREDIENT</b>     | <b>1992</b>      | <b>1993</b>      | <b>1994</b>      | <b>1995</b>      | <b>1996</b>      | <b>1997</b>      | <b>1998</b>      | <b>1999</b>      | <b>2000</b>      |
|------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| ATRAZINE                     | 21,425           | 23,617           | 32,065           | 22,234           | 32,043           | 27,257           | 37,556           | 39,881           | 34,524           |
| ATRAZINE, OTHER RELATED      | 21,425           | 23,617           | 32,065           | 22,234           | 32,042           | 27,257           | 37,529           | 39,876           | 34,524           |
| BENTAZON, SODIUM SALT        | 894              | 1,107            | 1,688            | 805              | 1,460            | 2,010            | 1,904            | 1,968            | 1,502            |
| BROMACIL                     | 82,090           | 78,423           | 65,421           | 66,289           | 62,206           | 58,722           | 57,136           | 53,861           | 42,458           |
| BROMACIL, DIMETHYLAMINE SALT | 0                | 0                | 0                | 0                | 0                | 0                | 0                | 0                | 0                |
| BROMACIL, LITHIUM SALT       | <1               | 0                | 0                | 0                | 0                | 0                | 40               | 40               | 30               |
| DIURON                       | 392,716          | 414,892          | 454,829          | 507,279          | 685,352          | 819,993          | 865,246          | 849,482          | 864,334          |
| NORFLURAZON                  | 143,942          | 142,274          | 139,498          | 133,585          | 179,015          | 186,991          | 214,144          | 217,178          | 230,836          |
| PROMETON                     | 3                | 11               | 8                | 23               | 27               | 8                | 85               | 18               | 51               |
| SIMAZINE                     | 616,551          | 615,003          | 589,560          | 573,735          | 607,228          | 613,237          | 647,072          | 611,613          | 619,639          |
| <b>Grand Total</b>           | <b>1,179,383</b> | <b>1,198,303</b> | <b>1,218,778</b> | <b>1,238,484</b> | <b>1,505,936</b> | <b>1,651,236</b> | <b>1,769,479</b> | <b>1,721,883</b> | <b>1,757,983</b> |

**Figure 4.** Use trends of pesticides on DPR's groundwater protection list. These pesticides are the currently registered active ingredients listed in the California Code of Regulations, Title 3, Division 6, Chapter 4, Subchapter 1, Article 1, Section 6800(a). Reported pounds of active ingredient (AI) applied includes both agricultural and reportable non-agricultural applications. The reported cumulative acres treated includes primarily agricultural applications. Data are from the Department of Pesticide Regulation's Pesticide Use Reports. The 1999 and 2000 data are preliminary.



## USE TRENDS OF PESTICIDES ON DPR'S TOXIC AIR CONTAMINANTS LIST

**Table 7A.** The reported **pounds** of pesticides on DPR's toxic air contaminants list applied in California. These pesticides are the currently registered active ingredients listed in the California Code of Regulations, Title 3, Division 6, Chapter 4, Subchapter 1, Article 1, Section 6860. Use includes both agricultural and reportable non-agricultural applications. Data are from the Department of Pesticide Regulation's Pesticide Use Reports. The 1999 and 2000 data are preliminary.

| ACTIVE INGREDIENT  | 1992    | 1993    | 1994    | 1995      | 1996      | 1997      | 1998      | 1999      | 2000      |
|--|---------|---------|---------|-----------|-----------|-----------|-----------|-----------|-----------|
| 1,3-DICHLOROPROPENE  | 23,998  | 47,694  | 2,122   | 409,821   | 1,956,846 | 2,400,930 | 2,911,385 | 3,120,931 | 4,440,928 |
| 2,4-D  | 26,098  | 26,462  | 27,544  | 23,995    | 22,089    | 10,227    | 3,868     | 2,967     | 2,065     |
| 2,4-D, 2-ETHYLHEXYL ESTER                                  | 112     | 12      | 71      | 278       | 10        | 1,313     | 13,750    | 72,225    | 12,557    |
| 2,4-D, ALKANOLAMINE SALTS (ETHANOL AND ISOPROPANOL AMINES) | 32,471  | 35,378  | 28,863  | 30,642    | 27,954    | 25,684    | 29,061    | 15,992    | 5,654     |
| 2,4-D, BUTOXYETHANOL ESTER                                 | 36,014  | 47,601  | 67,414  | 31,743    | 38,567    | 13,263    | 12,140    | 5,625     | 6,107     |
| 2,4-D, BUTOXYPROPYL ESTER                                  | 1,674   | 1,921   | 1,166   | 224       | 61        | 13        | 569       | 5         | 4         |
| 2,4-D, BUTYL ESTER   | 2       | 0       | 1       | 39        | 0         | 0         | 2,169     | 8         | 0         |
| 2,4-D, DIETHANOLAMINE SALT                                 | 5,950   | 1,572   | 714     | 1,938     | 3,003     | 24,809    | 14,965    | 5,843     | 13,002    |
| 2,4-D, DIMETHYLAMINE SALT                                  | 366,038 | 350,293 | 399,046 | 454,658   | 468,771   | 428,874   | 422,673   | 354,996   | 426,211   |
| 2,4-D, DODECYLAMINE SALT                                   | 86      | 0       | 5       | 16        | 8         | 58        | 75        | 730       | 0         |
| 2,4-D, HEPTYLAMINE SALT                                    | 0       | 0       | 0       | 86        | <1        | 0         | 0         | 46        | 0         |
| 2,4-D, ISOCTYL ESTER                                       | 2,545   | 2,659   | 1,212   | 13,466    | 7,822     | 60,356    | 46,603    | 17,230    | 6,914     |
| 2,4-D, ISOPROPYL ESTER                                     | 3,362   | 4,540   | 4,508   | 5,077     | 5,090     | 6,543     | 7,510     | 6,879     | 8,260     |
| 2,4-D, N-OLEYL-1,3-PROPYLENEDIAMINE SALT                   | 1,708   | 670     | 672     | 37        | 35        | 0         | 3         | 7         | 11        |
| 2,4-D, OCTYL ESTER   | 0       | 0       | 0       | 15        | 0         | 0         | 0         | 0         | 0         |
| 2,4-D, PROPYL ESTER  | 3,394   | 2,515   | 2,326   | 2,032     | 1,774     | 1,575     | 999       | 1,822     | 783       |
| 2,4-D, TETRADECYLAMINE SALT                                | 20      | 0       | 1       | 4         | 2         | 13        | 17        | 170       | 0         |
| 2,4-D, TRIETHYLAMINE SALT                                  | 117,451 | 107,782 | 121,241 | 105,656   | 93,876    | 34,610    | 5,688     | 2,344     | 1,038     |
| 2,4-D, TRIISOPROPYLAMINE SALT                              | 20      | 10      | 24      | 6         | 2         | 3         | 5         | 6         | 0         |
| ACROLEIN   | 227,022 | 298,535 | 336,993 | 362,773   | 322,578   | 341,245   | 264,207   | 328,238   | 290,180   |
| ARSENIC ACID   | 72,182  | 13,014  | 27,571  | 37,206    | 53,777    | 59,835    | 52,558    | 48,029    | 11,906    |
| ARSENIC PENTOXIDE  | 262,017 | 150,200 | 86,445  | 83,814    | 205,089   | 64,372    | 50,899    | 245,238   | 91,267    |
| ARSENIC TRIOXIDE   | <1      | <1      | <1      | <1        | <1        | <1        | 1         | 1         | <1        |
| CAPTAN   | 295,542 | 483,507 | 608,658 | 734,314   | 918,588   | 799,878   | 1,559,136 | 965,922   | 642,755   |
| CAPTAN, OTHER RELATED                                      | 7,671   | 12,093  | 14,890  | 17,831    | 21,729    | 19,448    | 54,940    | 22,216    | 14,617    |
| CARBARYL   | 775,078 | 773,404 | 820,787 | 835,811   | 809,794   | 753,801   | 426,893   | 385,710   | 364,968   |
| CHLORINE   | 417,665 | 466,825 | 750,653 | 2,815,119 | 330,017   | 423,469   | 422,252   | 628,123   | 678,417   |
| CHROMIC ACID   | 364,900 | 209,555 | 120,822 | 117,092   | 286,521   | 89,931    | 71,109    | 343,543   | 128,642   |

**Table 7A** continued. The reported **pounds** of pesticides on DPR's toxic air contaminants list applied in California.

| ACTIVE INGREDIENT                  | 1992       | 1993       | 1994       | 1995       | 1996       | 1997       | 1998       | 1999       | 2000       |
|------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| DDVP                               | 5,224      | 3,331      | 4,798      | 6,063      | 13,097     | 13,636     | 13,998     | 12,321     | 12,488     |
| ETHYLENE OXIDE                     | 7          | 1,471      | 3          | 0          | 0          | 0          | 31         | 2          | 6          |
| FORMALDEHYDE                       | 5,094      | 13,322     | 11,864     | 153,519    | 334,548    | 403,824    | 305,297    | 111,714    | 55,300     |
| HYDROGEN CHLORIDE                  | 122        | 32         | 206        | 224        | 1,938      | 129        | 762        | 11,067     | 3,316      |
| LINDANE                            | 8,208      | 9,715      | 5,281      | 4,507      | 4,576      | 5,388      | 6,293      | 4,834      | 4,738      |
| MANCOZEB                           | 336,371    | 446,086    | 464,924    | 659,240    | 567,866    | 526,364    | 987,270    | 629,799    | 611,197    |
| MANEB                              | 464,469    | 625,326    | 912,903    | 1,257,122  | 1,328,318  | 1,081,124  | 1,596,876  | 1,045,567  | 1,203,322  |
| META-CRESOL                        | 3          | 5          | 2          | 2          | 3          | 6          | 8          | 11         | 14         |
| METHANOL                           | 768        | 1,920      | 100        | 27         | 0          | 0          | 0          | 3          | <1         |
| METHOXYCHLOR                       | 595        | 1,412      | 692        | 1,049      | 484        | 358        | 566        | 16         | 26         |
| METHOXYCHLOR, OTHER RELATED        | 46         | 52         | 90         | 139        | 62         | 44         | 11         | <1         | 0          |
| METHYL BROMIDE                     | 18,051,774 | 14,115,900 | 16,607,324 | 17,165,964 | 16,022,069 | 15,663,832 | 13,569,875 | 15,232,624 | 10,862,836 |
| NAPHTHALENE                        | 1          | 1          | 1          | <1         | 0          | 1          | 333        | <1         | 0          |
| PARA-DICHLOROBENZENE               | 82         | 37         | 3          | 2          | 4          | 3          | 219        | 86         | 4          |
| PARATHION                          | 33,913     | 4,665      | 6,104      | 13,642     | 14,050     | 5,187      | 5,766      | 4,035      | 3,581      |
| PCNB                               | 89,999     | 87,672     | 91,601     | 109,755    | 83,087     | 89,548     | 88,036     | 67,034     | 62,224     |
| PCP, OTHER RELATED                 | 12,555     | 10,596     | 5          | <1         | <1         | 1          | 2          | 11         | 54         |
| PCP, SODIUM SALT                   | 0          | 2,361      | 0          | 0          | 0          | 0          | 2          | 0          | 0          |
| PCP, SODIUM SALT, OTHER RELATED    | 0          | 329        | 0          | 0          | 0          | 0          | 0          | 0          | 0          |
| PENTACHLOROPHENOL                  | 107,946    | 91,123     | 40         | 3          | 3          | 8          | 33         | 92         | 466        |
| PHOSPHORUS                         | 167        | 132        | 29         | 34         | 58         | 14         | 12         | 9          | 22         |
| POTASSIUM PERMANGANATE             | 238        | 0          | 0          | 0          | 0          | 0          | 243        | 0          | 0          |
| PROPOXUR                           | 3,187      | 2,674      | 2,667      | 3,296      | 1,341      | 1,760      | 1,604      | 1,719      | 2,141      |
| PROPYLENE OXIDE                    | 131,091    | 34,764     | 41,815     | 131,593    | 224,495    | 198,559    | 198,595    | 172,556    | 118,381    |
| S,S,S-TRIBUTYL PHOSPHOROTRITHIOATE | 757,765    | 920,837    | 892,441    | 866,726    | 760,809    | 626,684    | 440,382    | 347,833    | 399,706    |
| SODIUM CYANIDE                     | 120        | 1,597      | 1,754      | 1,347      | 1,338      | 2,197      | 3,280      | 1,109      | 2,200      |
| SODIUM DICHROMATE                  | 0          | 0          | 0          | 0          | 180,478    | 182,185    | 122,647    | 32,699     | 122        |
| TRIFLURALIN                        | 1,087,377  | 1,193,363  | 1,261,342  | 1,380,785  | 1,143,695  | 1,191,780  | 1,219,810  | 1,260,368  | 1,158,293  |
| XYLENE                             | 30,216     | 45,137     | 29,009     | 17,965     | 12,627     | 8,511      | 5,366      | 4,840      | 4,292      |
| Grand Total                        | 24,170,357 | 20,650,102 | 23,758,749 | 27,856,695 | 26,268,950 | 25,561,393 | 24,940,793 | 25,515,197 | 21,651,013 |

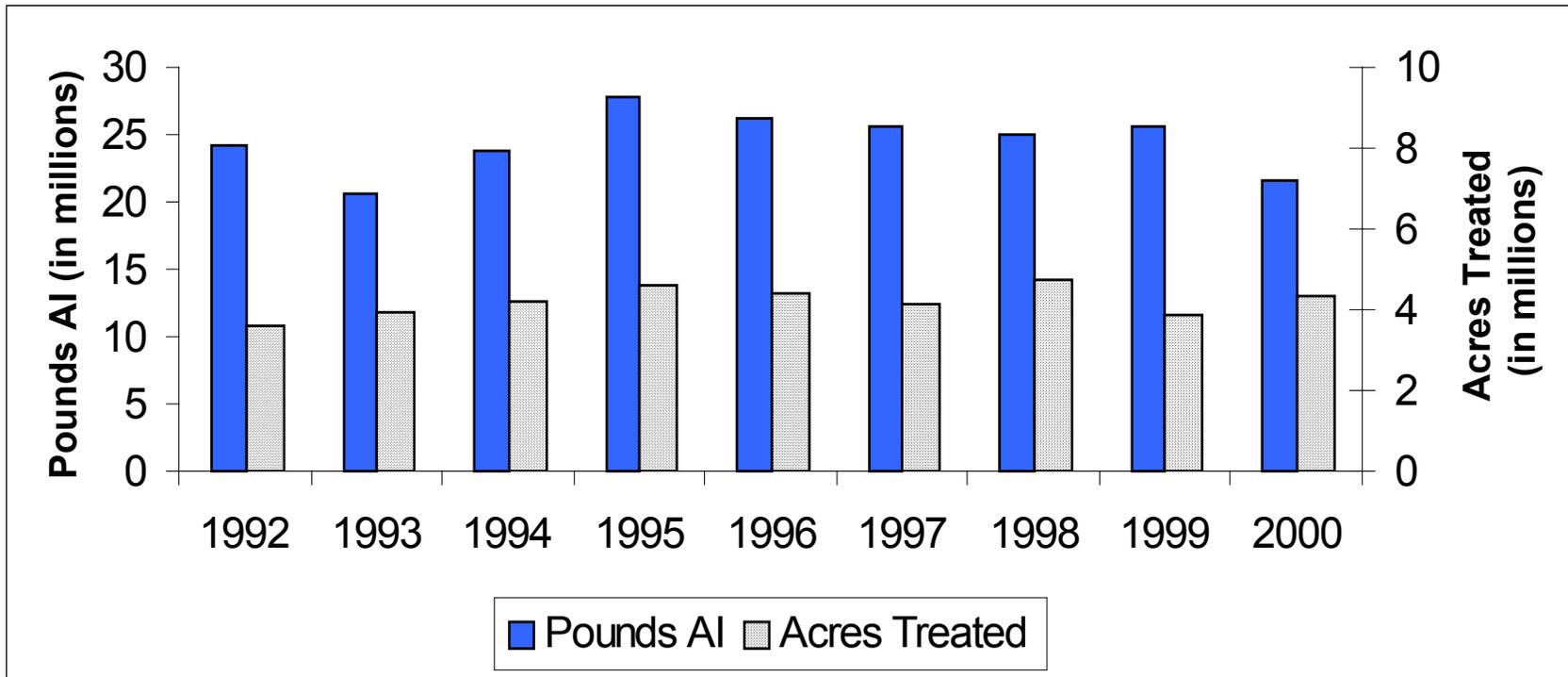
**Table 7B.** The reported **cumulative acres treated** in California with pesticides on DPR's toxic air contaminants list. These pesticides are the currently registered active ingredients listed in the California Code of Regulations, Title 3, Division 6, Chapter 4, Subchapter 1, Article 1, Section 6860. Use includes primarily agricultural applications. The grand total for acres treated is less than the sum of acres treated for all active ingredients because some products contain more than one active ingredient. Data are from the Department of Pesticide Regulation's Pesticide Use Reports. The 1999 and 2000 data are preliminary.

| ACTIVE INGREDIENT  | 1992    | 1993    | 1994    | 1995    | 1996    | 1997    | 1998    | 1999    | 2000    |
|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1,3-DICHLOROPROPENE  | 447     | 823     | 33      | 4,174   | 17,223  | 22,193  | 27,059  | 29,430  | 33,101  |
| 2,4-D  | 167,271 | 156,294 | 156,563 | 151,453 | 137,230 | 50,709  | 11,649  | 7,791   | 5,054   |
| 2,4-D, 2-ETHYLHEXYL ESTER                                  | 28      | 80      | 65      | 385     | 160     | 729     | 6,867   | 7,624   | 7,833   |
| 2,4-D, ALKANOLAMINE SALTS (ETHANOL AND ISOPROPANOL AMINES) | 29,351  | 33,132  | 26,138  | 22,298  | 21,872  | 20,055  | 22,117  | 11,843  | 5,711   |
| 2,4-D, BUTOXYETHANOL ESTER                                 | 31,154  | 35,573  | 46,343  | 29,933  | 35,599  | 13,504  | 13,798  | 7,198   | 7,013   |
| 2,4-D, BUTOXYPROPYL ESTER                                  | 52      | 63      | 100     | 5       | 2       | 51      | 105     | 37      | 5       |
| 2,4-D, BUTYL ESTER   | 0       | 0       | 0       | 0       | 0       | 0       | 307     | 37      | 24      |
| 2,4-D, DIETHANOLAMINE SALT                                 | 24,143  | 1,710   | 933     | 4,683   | 8,721   | 88,149  | 58,239  | 23,884  | 49,357  |
| 2,4-D, DIMETHYLAMINE SALT                                  | 395,276 | 388,083 | 474,599 | 524,146 | 540,728 | 527,870 | 477,967 | 411,858 | 495,513 |
| 2,4-D, DODECYLAMINE SALT                                   | 2       | 0       | 0       | 0       | 0       | 76      | 82      | 1,481   | 0       |
| 2,4-D, HEPTYLAMINE SALT                                    | 0       | 0       | 0       | 18      | <1      | 0       | 0       | 29      | 0       |
| 2,4-D, ISOOCTYL ESTER                                      | 1,595   | 220     | 379     | 3,497   | 5,163   | 35,045  | 29,179  | 14,449  | 3,970   |
| 2,4-D, ISOPROPYL ESTER                                     | 48,471  | 61,243  | 63,244  | 72,878  | 69,081  | 87,492  | 101,141 | 100,837 | 103,938 |
| 2,4-D, N-OLEYL-1,3-PROPYLENEDIAMINE SALT                   | 2,493   | 1,475   | 449     | 36      | 26      | 0       | 2       | 3       | 0       |
| 2,4-D, OCTYL ESTER   | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| 2,4-D, PROPYL ESTER  | 40,929  | 33,904  | 28,812  | 22,655  | 23,846  | 21,479  | 14,356  | 15,542  | 11,278  |
| 2,4-D, TETRADECYLAMINE SALT                                | 2       | 0       | 0       | 0       | 0       | 76      | 82      | 1,481   | 0       |
| 2,4-D, TRIETHYLAMINE SALT                                  | 161,126 | 149,513 | 152,474 | 146,454 | 131,679 | 46,600  | 7,381   | 2,638   | 1,311   |
| 2,4-D, TRIISOPROPYLAMINE SALT                              | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| ACROLEIN   | 724     | 243     | 888     | 3,190   | 2,462   | 1,514   | 292     | 3,981   | 873     |
| ARSENIC ACID   | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| ARSENIC PENTOXIDE  | 103     | 0       | 660     | 0       | 0       | 0       | 0       | 0       | 709,893 |
| ARSENIC TRIOXIDE   | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| CAPTAN   | 134,103 | 212,563 | 244,164 | 295,860 | 381,989 | 347,631 | 602,684 | 404,731 | 309,768 |
| CAPTAN, OTHER RELATED                                      | 132,927 | 210,620 | 244,097 | 295,831 | 381,989 | 347,235 | 602,585 | 404,511 | 309,116 |
| CARBARYL   | 322,588 | 285,046 | 291,147 | 305,452 | 312,058 | 292,721 | 197,664 | 216,991 | 196,264 |
| CHLORINE   | 700     | 4       | 0       | 290     | 0       | 1,005   | 1,329   | 46,611  | 37,220  |
| CHROMIC ACID   | 103     | 0       | 660     | 0       | 0       | 0       | 0       | 0       | 709,893 |

**Table 7B** continued. The reported **cumulative acres treated** in California with pesticides on the toxic air contaminants list.

| <b>ACTIVE INGREDIENT</b>           | <b>1992</b> | <b>1993</b> | <b>1994</b> | <b>1995</b> | <b>1996</b> | <b>1997</b> | <b>1998</b> | <b>1999</b> | <b>2000</b> |
|------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| DDVP                               | 2,960       | 683         | 1,888       | 1,887       | 1,499       | 2,596       | 3,692       | 2,180       | 2,336       |
| ETHYLENE OXIDE                     | 0           | 0           | 0           | 0           | 0           | 0           | 194         | 31          | 41          |
| FORMALDEHYDE                       | 68          | 132         | 15          | 137         | 234         | 12          | 126         | 123         | 47          |
| HYDROGEN CHLORIDE                  | 0           | 0           | 1           | 0           | 1           | 0           | 16          | 0           | 0           |
| LINDANE                            | 21,737      | 26,921      | 22,984      | 19,380      | 25,352      | 36,573      | 32,650      | 20,924      | 14,628      |
| MANCOZEB                           | 186,333     | 262,758     | 273,836     | 405,494     | 351,801     | 284,134     | 682,979     | 387,300     | 363,260     |
| MANEB                              | 290,011     | 373,116     | 512,009     | 652,122     | 731,079     | 624,123     | 942,083     | 629,897     | 611,717     |
| META-CRESOL                        | 931         | 1,585       | 930         | 1,279       | 1,309       | 3,488       | 1,407       | 657         | 3,142       |
| METHANOL                           | 240         | 5           | 0           | 0           | 0           | 0           | 0           | 0           | 14          |
| METHOXYCHLOR                       | 679         | 233         | 220         | 30          | 19          | 131         | 194         | 140         | 197         |
| METHOXYCHLOR, OTHER RELATED        | 187         | 1           | 70          | 5           | 9           | 52          | 5           | 0           | 0           |
| METHYL BROMIDE                     | 124,739     | 89,220      | 106,694     | 107,933     | 96,507      | 103,068     | 90,107      | 102,125     | 75,741      |
| NAPHTHALENE                        | 0           | 0           | 0           | 0           | 0           | 0           | 0           | 0           | 0           |
| PARA-DICHLOROBENZENE               | 0           | <1          | 0           | 0           | 0           | 0           | 10          | 0           | 0           |
| PARATHION                          | 24,579      | 2,459       | 3,404       | 6,688       | 5,099       | 2,071       | 2,592       | 1,970       | 4,025       |
| PCNB                               | 63,638      | 61,114      | 55,371      | 53,079      | 44,187      | 29,169      | 39,090      | 28,324      | 28,628      |
| PCP, OTHER RELATED                 | 1           | 0           | 2           | <1          | 15          | 4           | 15          | 0           | 59          |
| PCP, SODIUM SALT                   | 0           | 0           | 0           | 0           | 0           | 0           | 20          | 0           | 0           |
| PCP, SODIUM SALT, OTHER RELATED    | 0           | 0           | 0           | 0           | 0           | 0           | 0           | 0           | 0           |
| PENTACHLOROPHENOL                  | 1           | 0           | 2           | <1          | 15          | 4           | 190         | 0           | 59          |
| PHOSPHORUS                         | 15,047      | 7,751       | 3,435       | 1,908       | 69          | 790         | 965         | 5,701       | 2,847       |
| POTASSIUM PERMANGANATE             | 0           | 0           | 0           | 0           | 0           | 0           | 20          | 0           | 0           |
| PROPOXUR                           | 8           | <1          | 14          | 5           | 9           | 73          | 45          | 39          | 26          |
| PROPYLENE OXIDE                    | 10          | 0           | 0           | 0           | 0           | <1          | 0           | 573         | 0           |
| S,S,S-TRIBUTYL PHOSPHOROTRITHIOATE | 574,170     | 652,163     | 615,978     | 604,586     | 531,052     | 437,505     | 305,306     | 245,470     | 282,844     |
| SODIUM CYANIDE                     | 18,000      | 0           | 82,520      | 6,040       | 3,020       | 84,800      | 53,285      | 0           | 0           |
| SODIUM DICHROMATE                  | 0           | 0           | 0           | 0           | 0           | 0           | 0           | 0           | 0           |
| TRIFLURALIN                        | 1,039,487   | 1,195,142   | 1,160,072   | 1,282,997   | 1,086,892   | 1,131,033   | 1,083,219   | 1,159,648   | 1,038,856   |
| XYLENE                             | 44,308      | 48,402      | 28,673      | 28,870      | 24,221      | 13,568      | 11,327      | 3,319       | 6,208       |
| Grand Total                        | 3,584,293   | 3,905,956   | 4,177,591   | 4,585,244   | 4,420,501   | 4,137,785   | 4,727,895   | 3,850,060   | 4,342,186   |

**Figure 5.** Use trends of pesticides on DPR's toxic air contaminants list. These pesticides are the currently registered active ingredients listed in the California Code of Regulations, Title 3, Division 6, Chapter 4, Subchapter 1, Article 1, Section 6860. Reported pounds of active ingredient (AI) applied includes both agricultural and reportable non-agricultural applications. The reported cumulative acres treated includes primarily agricultural applications. Data are from the Department of Pesticide Regulation's Pesticide Use Reports. The 1999 and 2000 data are preliminary.



## USE TRENDS OF OIL PESTICIDES

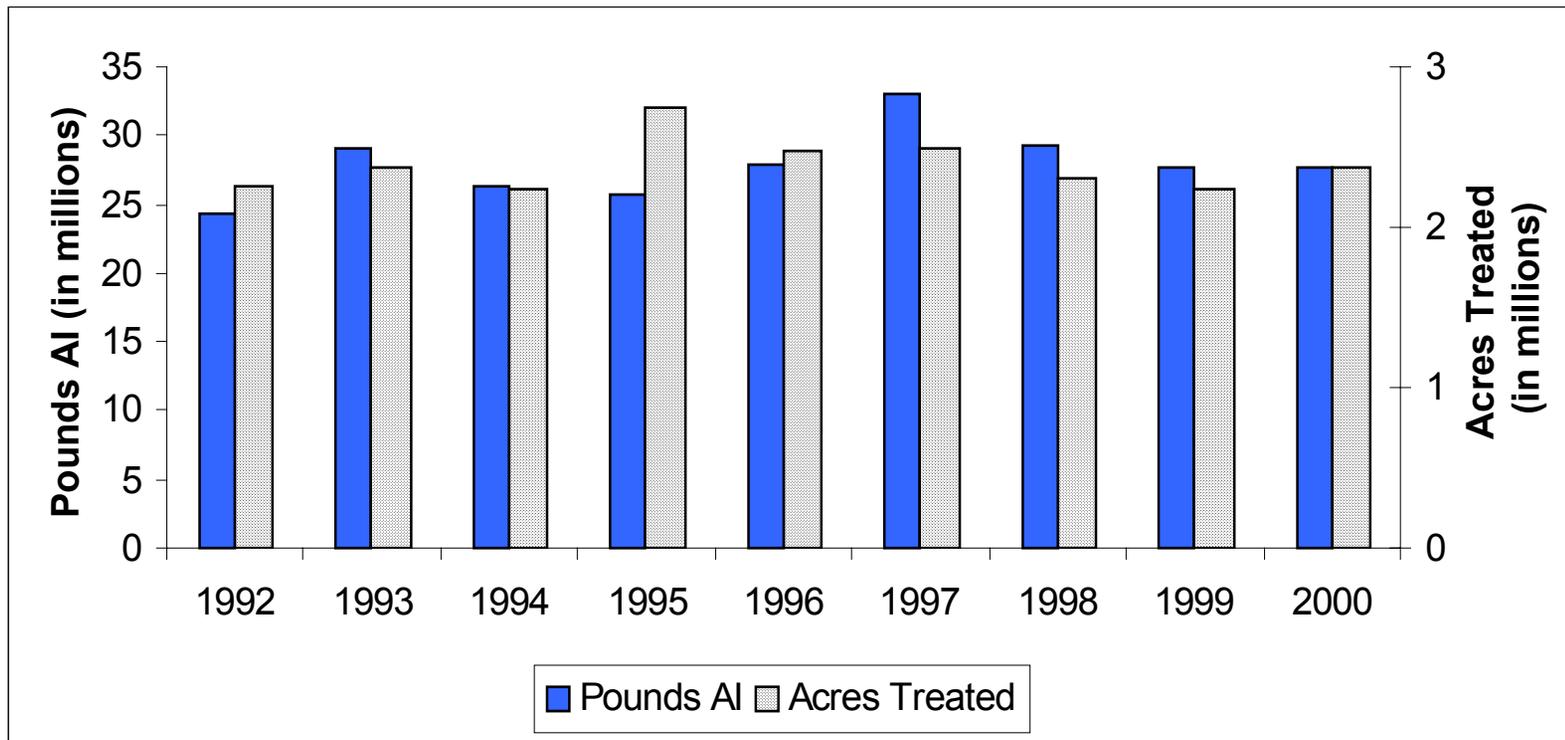
**Table 8A.** The reported **pounds** of oil pesticides. As a broad group, oil pesticides and other petroleum distillates are on U.S. EPA’s list of B2 carcinogens or the State’s Proposition 65 list of chemicals “known to cause cancer.” However, these classifications do not distinguish among oil pesticides that may not qualify as carcinogenic due to their degree of refinement. Many such oil pesticides also serve as alternatives to high-toxicity chemicals. For this reason, oil pesticide data was classified separately in this report. Use includes both agricultural and reportable non-agricultural applications. Data are from the Department of Pesticide Regulation's Pesticide Use Reports. The 1999 and 2000 data are preliminary.

| ACTIVE INGREDIENT                | 1992       | 1993       | 1994       | 1995       | 1996       | 1997       | 1998       | 1999       | 2000       |
|----------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| MINERAL OIL                      | 2,607,034  | 3,156,693  | 3,884,948  | 3,785,414  | 5,110,235  | 5,810,235  | 5,286,094  | 4,729,148  | 4,243,169  |
| PETROLEUM DERIVATIVE RESIN       | 2,126      | 1,117      | 551        | 4          | 94         | 15         | 6          | 1          | 3          |
| PETROLEUM DISTILLATES            | 2,763,671  | 3,200,539  | 2,279,777  | 2,459,518  | 1,711,402  | 1,798,960  | 1,612,875  | 2,415,756  | 2,306,453  |
| PETROLEUM DISTILLATES, ALIPHATIC | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | <1         |
| PETROLEUM DISTILLATES, AROMATIC  | 103,146    | 81,291     | 64,529     | 31,535     | 14,631     | 13,961     | 35,085     | 9,869      | 10,400     |
| PETROLEUM DISTILLATES, REFINED   | 10,842     | 21,107     | 63,524     | 45,967     | 38,396     | 45,094     | 60,337     | 113,454    | 927,949    |
| PETROLEUM HYDROCARBONS           | 235,217    | 835,276    | 370,908    | 662,568    | 862,761    | 788,309    | 514,308    | 398,814    | 395,846    |
| PETROLEUM NAPHTHENIC OILS        | 101        | 28         | 320        | 0          | 12         | 1          | 9          | 2          | 3          |
| PETROLEUM OIL, UNCLASSIFIED      | 18,632,896 | 21,757,068 | 19,674,078 | 18,688,068 | 20,063,969 | 24,633,269 | 21,723,758 | 20,079,279 | 19,750,914 |
| PETROLEUM SULFONATES             | 3          | 1          | 1          | <1         | 4          | 1          | <1         | <1         | 1          |
| Grand Total                      | 24,355,035 | 29,053,120 | 26,338,637 | 25,673,073 | 27,801,503 | 33,089,845 | 29,232,472 | 27,746,323 | 27,634,736 |

**Table 8B.** The reported **cumulative acres treated** in California from 1991 to 1998 with oil pesticides. (See qualifying comments on U.S. EPA B2 carcinogen and Proposition 65 listing with Table 8A.) Uses include primarily agricultural applications. Data are from the Department of Pesticide Regulation's Pesticide Use Reports. The 1999 and 2000 data are preliminary.

| ACTIVE INGREDIENT                | 1992      | 1993      | 1994      | 1995      | 1996      | 1997      | 1998      | 1999      | 2000      |
|----------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| MINERAL OIL                      | 873,871   | 841,244   | 795,403   | 825,003   | 655,058   | 635,013   | 615,564   | 634,179   | 619,458   |
| PETROLEUM DERIVATIVE RESIN       | 482       | 2,089     | 1,321     | 3         | 191       | 50        | 13        | 1         | 0         |
| PETROLEUM DISTILLATES            | 303,898   | 304,055   | 340,671   | 440,375   | 378,714   | 308,206   | 279,400   | 229,371   | 286,348   |
| PETROLEUM DISTILLATES, ALIPHATIC | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         |
| PETROLEUM DISTILLATES, AROMATIC  | 70,888    | 73,663    | 66,424    | 53,211    | 12,324    | 19,003    | 2,153     | 7,088     | 6,238     |
| PETROLEUM DISTILLATES, REFINED   | 540       | 1,809     | 4,173     | 3,976     | 5,145     | 6,146     | 6,162     | 12,473    | 42,145    |
| PETROLEUM HYDROCARBONS           | 403,588   | 525,361   | 429,456   | 724,415   | 759,453   | 714,126   | 640,560   | 579,771   | 598,157   |
| PETROLEUM NAPHTHENIC OILS        | 509       | 12        | 540       | 0         | 73        | 0         | 50        | 37        | 0         |
| PETROLEUM OIL, UNCLASSIFIED      | 597,185   | 631,281   | 603,690   | 703,859   | 663,575   | 811,902   | 753,904   | 775,735   | 817,752   |
| PETROLEUM SULFONATES             | <1        | 0         | 0         | <1        | <1        | <1        | 0         | <1        | 10        |
| Grand Total                      | 2,250,273 | 2,379,256 | 2,241,119 | 2,750,682 | 2,474,361 | 2,494,361 | 2,297,756 | 2,238,559 | 2,370,087 |

**Figure 6.** Use trends of oil pesticides. As a broad group, oil pesticides and other petroleum distillates are on U.S. EPA’s list of B2 carcinogens or the State’s Proposition 65 list of chemicals “known to cause cancer.” However, these classifications do not distinguish among oil pesticides that may not qualify as carcinogenic due to their degree of refinement. Many such oil pesticides also serve as alternatives to high-toxicity chemicals. For this reason, oil pesticide data was classified separately in this report. Reported pounds of active ingredient (AI) applied includes both agricultural and reportable non-agricultural applications. The reported cumulative acres treated includes primarily agricultural applications. Data are from the Department of Pesticide Regulation’s Pesticide Use Reports. The 1999 and 2000 data are preliminary.



## USE TRENDS OF REDUCED-RISK PESTICIDES

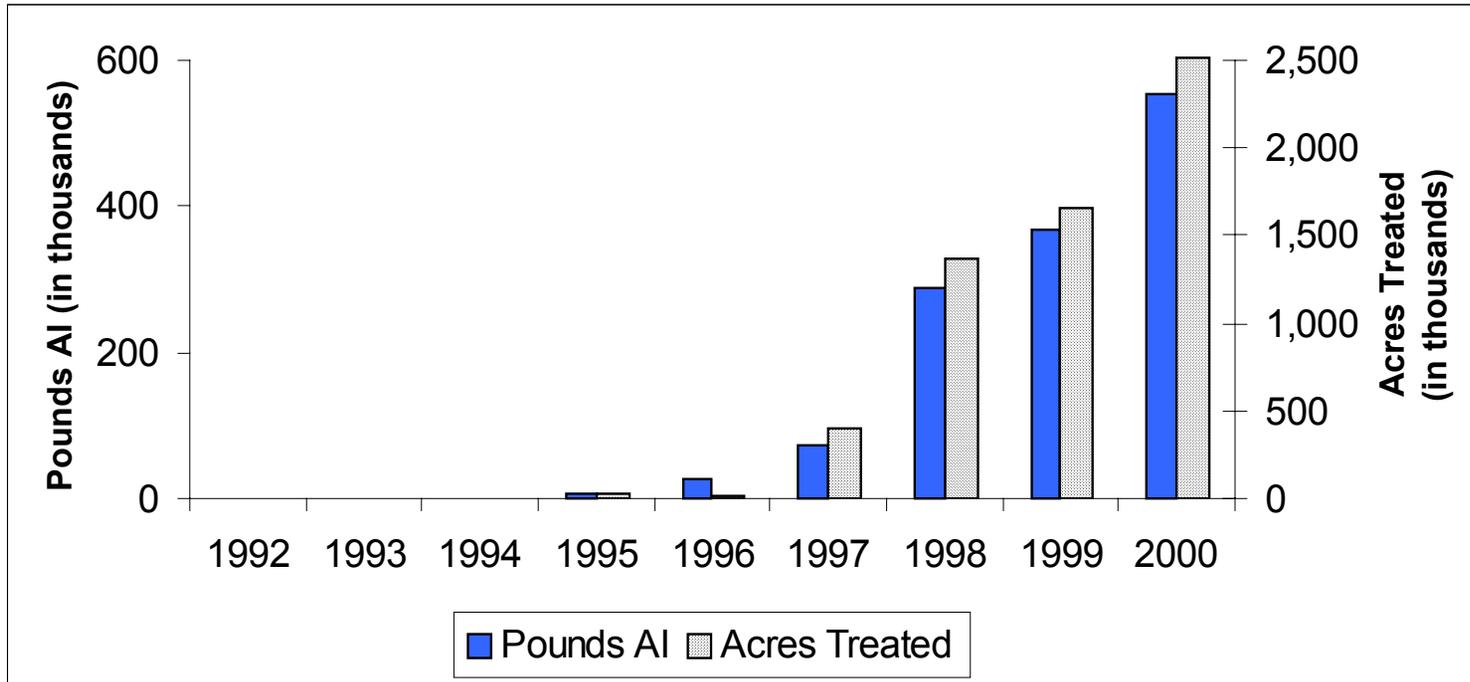
**Table 9A.** The reported **pounds** of reduced-risk pesticides applied in California. These active ingredients are contained in pesticide products that have been given reduced-risk status by U.S. EPA. Use includes both agricultural and non-agricultural applications. Zero values in early years likely indicate the pesticide was not yet registered for use. Data are from the Department of Pesticide Regulation's Pesticide Use Reports. The 1999 and 2000 data are preliminary.

| ACTIVE INGREDIENT                          | 1992 | 1993 | 1994 | 1995  | 1996   | 1997   | 1998    | 1999    | 2000    |
|--|------|------|------|-------|--------|--------|---------|---------|---------|
| AZOXYSTROBIN                               | 0    | 0    | 0    | 0     | 0      | 23,851 | 69,232  | 95,618  | 114,968 |
| CARBO METHOXY ETHER CELLULOSE, SODIUM SALT | 0    | 0    | 92   | 184   | 22,994 | 1,032  | 723     | 638     | 436     |
| CINNAMALDEHYDE                             | 0    | 0    | 0    | 0     | 0      | <1     | <1      | 6,764   | 10,332  |
| CORN GLUTEN MEAL                           | 0    | 0    | 0    | 0     | 0      | 0      | 0       | 2,490   | 4,590   |
| CYPRODINIL                                 | 0    | 0    | 0    | 0     | 0      | 0      | 48,417  | 56,268  | 98,773  |
| FIPRONIL                                   | 0    | 0    | 0    | 0     | 0      | <1     | 1       | 2       | 662     |
| FLUDIOXONIL                                | 0    | 0    | 0    | 0     | 0      | 0      | 551     | 349     | 568     |
| HEXAFLUMURON                               | 0    | 0    | 0    | <1    | <1     | <1     | 2       | 8       | 8       |
| IRON PHOSPHATE                             | 0    | 0    | 0    | 0     | 0      | 0      | 66      | 187     | 340     |
| MEFENOXAM                                  | 0    | 0    | 0    | 0     | 43     | 29,078 | 59,960  | 55,737  | 60,266  |
| METHYL ANTHRANILATE                        | 0    | 0    | 0    | 0     | 6      | 184    | 49      | 57      | 50      |
| POTASSIUM BICARBONATE                      | 0    | 0    | 0    | 0     | 0      | 28     | 65,909  | 92,990  | 130,462 |
| PYRIPROXYFEN                               | 0    | 0    | 0    | 0     | 0      | 3,220  | 6,072   | 3,096   | 14,040  |
| SODIUM BICARBONATE                         | 0    | 29   | 0    | 0     | 0      | 0      | 0       | 5       | 22      |
| SPINOSAD                                   | 0    | 0    | 0    | 0     | 0      | 10,146 | 29,717  | 44,570  | 55,442  |
| TEBUFENOZIDE                               | 0    | 0    | 0    | 7,955 | 3,463  | 5,300  | 9,178   | 8,815   | 62,310  |
| Grand Total                                | 0    | 29   | 92   | 8,138 | 26,506 | 72,838 | 289,879 | 367,594 | 553,268 |

**Table 9B.** The reported **cumulative acres treated** in California with each reduced-risk pesticide. These active ingredients are contained in pesticide products that have been given reduced-risk status by U.S. EPA. Use includes primarily agricultural applications. Zero values in early years likely indicate the pesticide was not yet registered for use. Data are from the Department of Pesticide Regulation's Pesticide Use Reports. The 1999 and 2000 data are preliminary.

| <b>ACTIVE INGREDIENT</b>                   | <b>1992</b> | <b>1993</b> | <b>1994</b> | <b>1995</b> | <b>1996</b> | <b>1997</b> | <b>1998</b> | <b>1999</b> | <b>2000</b> |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| AZOXYSTROBIN                               | 0           | 0           | 0           | 0           | 0           | 28,421      | 340,507     | 449,610     | 581,810     |
| CARBO METHOXY ETHER CELLULOSE, SODIUM SALT | 0           | 0           | 61          | 113         | 235         | 328         | 83          | 77          | 197         |
| CINNAMALDEHYDE                             | 0           | 0           | 0           | 0           | 0           | <1          | <1          | 2,418       | 4,136       |
| CORN GLUTEN MEAL                           | 0           | 0           | 0           | 0           | 0           | 0           | 0           | 0           | 0           |
| CYPRODINIL                                 | 0           | 0           | 0           | 0           | 0           | 0           | 122,772     | 186,536     | 314,850     |
| FIPRONIL                                   | 0           | 0           | 0           | 0           | 0           | 0           | 0           | 0           | 0           |
| FLUDIOXONIL                                | 0           | 0           | 0           | 0           | 0           | 0           | 0           | 1,102       | 343         |
| HEXAFLUMURON                               | 0           | 0           | 0           | 0           | 0           | 0           | 0           | 0           | 0           |
| IRON PHOSPHATE                             | 0           | 0           | 0           | 0           | 0           | 0           | 205         | 470         | 852         |
| MEFENOXAM                                  | 0           | 0           | 0           | 0           | 40          | 153,858     | 360,994     | 334,836     | 406,191     |
| METHYL ANTHRANILATE                        | 0           | 0           | 0           | 0           | 0           | 0           | 0           | 0           | 0           |
| POTASSIUM BICARBONATE                      | 0           | 0           | 0           | 0           | 0           | 11          | 34,010      | 52,110      | 60,330      |
| PYRIPROXYFEN                               | 0           | 0           | 0           | 0           | 0           | 60,164      | 64,648      | 35,307      | 72,934      |
| SODIUM BICARBONATE                         | 0           | 0           | 0           | 0           | 0           | 0           | 0           | 8           | 0           |
| SPINOSAD                                   | 0           | 0           | 0           | 0           | 0           | 128,313     | 384,192     | 541,164     | 680,424     |
| TEBUFENOZIDE                               | 0           | 0           | 0           | 32,418      | 14,449      | 28,620      | 53,705      | 52,379      | 387,464     |
| Grand Total                                | 0           | 0           | 61          | 32,531      | 14,724      | 399,715     | 1,361,117   | 1,656,018   | 2,509,530   |

**Figure 7.** Use trends of reduced-risk pesticides. These active ingredients are contained in pesticide products that have been given reduced-risk status by U.S. EPA. Reported pounds of active ingredient (AI) applied includes both agricultural and reportable non-agricultural applications. The reported cumulative acres treated includes primarily agricultural applications. Data are from the Department of Pesticide Regulation's Pesticide Use Reports. The 1999 and 2000 data are preliminary.



## USE TRENDS OF BIOPESTICIDES.

**Table 10A.** The reported **pounds** of biopesticides applied in California. Biopesticides include microorganisms and naturally occurring compounds, or compounds essentially identical to naturally occurring compounds that are not toxic to the target pest (such as pheromones). Use includes both agricultural and non-agricultural applications. Zero values in early years likely indicate the pesticide was not yet registered for use. Data are from the Department of Pesticide Regulation's Pesticide Use Reports. The 1999 and 2000 data are preliminary.

| ACTIVE INGREDIENT  | 1992   | 1993   | 1994   | 1995   | 1996   | 1997   | 1998   | 1999   | 2000   |
|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| (E)-4-TRIDECEN-1-YL-ACETATE  | <1     | 13     | 3      | 12     | 140    | 76     | 65     | 67     | 252    |
| (E)-5-DECENOL  | 0      | 0      | 0      | 12     | 71     | 737    | 176    | 246    | 5      |
| (E)-5-DECENYL ACETATE  | 0      | 0      | 0      | 58     | 339    | 3,508  | 844    | 1,183  | 26     |
| (R,Z)-5-(1-DECENYL) DIHYDRO-2-(3H)-FURANONE  | 0      | 0      | 0      | <1     | 0      | 0      | <1     | 0      | <1     |
| (Z)-4-TRIDECEN-1-YL-ACETATE  | 7      | 4      | <1     | <1     | 4      | 2      | 2      | 2      | 8      |
| (Z,E)-7,11-HEXADECADIEN-1-YL ACETATE   | 80     | 16     | 3      | 29     | 2      | 1      | 46     | 229    | 3      |
| (Z,Z)-7,11-HEXADECADIEN-1-YL ACETATE   | 35     | 1      | 3      | 2      | 2      | 1      | 46     | 242    | 3      |
| 1-DECANOL  | 1      | 4      | 1      | 1      | 1      | <1     | <1     | <1     | <1     |
| AGROBACTERIUM RADIOBACTER  | <1     | 2      | 4      | 6      | 14     | 28     | 20     | 7      | 2      |
| AMPELOMYCES QUISQUALIS   | 0      | 0      | 0      | <1     | 3      | 9      | 40     | 4      | 4      |
| BACILLUS SPHAERICUS, SEROTYPE H-5A5B, STRAIN 2362  | 0      | 0      | 0      | 0      | 0      | 1,298  | 4,886  | 2,264  | 2,746  |
| BACILLUS SUBTILIS GB03   | 0      | 0      | 0      | 0      | 0      | <1     | <1     | <1     | <1     |
| BACILLUS THURINGIENSIS (BERLINER)  | 3,734  | 1,071  | 476    | 1,562  | 536    | 179    | 751    | 114    | 112    |
| BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, GC-91 PROTEIN   | 0      | 711    | 1,936  | 5,115  | 6,520  | 7,406  | 4,273  | 3,017  | 4,419  |
| BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7  | 2      | 802    | 4,935  | 8,050  | 10,145 | 14,210 | 10,854 | 10,424 | 9,065  |
| BACILLUS THURINGIENSIS (BERLINER), SUBSP. ISRAELENIS, SEROTYPE H-14  | 6,070  | 9,236  | 4,619  | 6,827  | 4,059  | 4,423  | 12,963 | 4,987  | 88,039 |
| BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, SEROTYPE 3A,3B   | 30,099 | 32,834 | 39,667 | 39,550 | 25,890 | 29,825 | 20,535 | 14,153 | 13,114 |
| BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN EG 2348   | 0      | 0      | 2,714  | 3,391  | 3,056  | 1,448  | 4,548  | 1,360  | 1,574  |
| BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN EG2371  | 3,327  | 8,291  | 7,042  | 7,466  | 3,468  | 2,752  | 1,633  | 213    | 139    |
| BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN SA-11   | 10,035 | 7,865  | 6,416  | 8,643  | 8,689  | 11,676 | 9,603  | 8,730  | 9,928  |
| BACILLUS THURINGIENSIS (BERLINER), SUBSP. SAN DIEGO  | 53     | 44     | 10     | 1      | 3      | 26     | 8      | 34     | 18     |
| BACILLUS THURINGIENSIS SUBSPECIES KURSTAKI STRAIN BMP 123  | 0      | 0      | 0      | 0      | 0      | 0      | 6      | 1      | 33     |
| BACILLUS THURINGIENSIS SUBSPECIES KURSTAKI, GENETICALLY ENGINEERED STRAIN EG7841 LEPIDOPTERAN ACTIVE TOXIN | 0      | 0      | 0      | 0      | 257    | 15,619 | 12,522 | 12,831 | 16,679 |
| BACILLUS THURINGIENSIS VAR. KURSTAKI STRAIN M-200  | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | <1     |
| BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN SD-1372, LEPIDOPTERAN ACTIVE TOXIN(S)                       | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 3      | 158    |
| BACILLUS THURINGIENSIS, SUBSP. KURSTAKI, STRAIN HD-1   | 0      | 0      | 0      | 0      | <1     | 57     | 20,771 | 21,652 | 21,081 |

**Table 10A** continued. The reported **pounds** of biopesticides applied in California.

| ACTIVE INGREDIENT   | 1992   | 1993   | 1994   | 1995   | 1996    | 1997    | 1998    | 1999    | 2000    |
|---|--------|--------|--------|--------|---------|---------|---------|---------|---------|
| BACILLUS THURINGIENSIS, VAR. KURSTAKI DELTA ENDOTOXINS CRY 1A(C) AND CRY 1C (GENETICALLY ENGINEERED) ENCAPSULATED IN PSEUDOMONAS FLUORESCENS (KILLED) | 0      | 0      | 0      | 0      | 3,663   | 29,895  | 12,634  | 8,048   | 7,123   |
| BEAUVERIA BASSIANA STRAIN GHA   | 0      | 0      | 0      | 0      | 1       | 573     | 1,243   | 914     | 913     |
| CANDIDA OLEOPHILA ISOLATE I-182   | 0      | 0      | 0      | 0      | 0       | 305     | 103     | 55      | 0       |
| CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL   | 0      | 0      | 0      | 0      | 3,196   | 13,792  | 55,005  | 94,569  | 110,012 |
| DIHYDRO-5-HEPTYL-2(3H)-FURANONE   | 0      | <1     | <1     | <1     | <1      | <1      | <1      | <1      | <1      |
| DIHYDRO-5-PENTYL-2(3H)-FURANONE   | 0      | <1     | <1     | <1     | <1      | <1      | <1      | <1      | <1      |
| E,E-8,10-DODECADIEN-1-OL  | 98     | 98     | 214    | 1,067  | 253     | 431     | 220     | 21,029  | 6,278   |
| E-11-TETRADECEN-1-YL ACETATE  | 0      | 0      | 0      | 0      | 0       | 3       | 2       | 548     | 397     |
| E-8-DODECENYL ACETATE   | 503    | 7      | 25     | 38     | 27      | 46      | 57      | 66      | 92      |
| ENCAPSULATED DELTA ENDOTOXIN OF BACILLUS THURINGIENSIS VAR. KURSTAKI IN KILLED PSEUDOMONAS FLUORESCENS  | 1,823  | 7,959  | 14,341 | 14,535 | 30,809  | 43,815  | 35,129  | 28,435  | 17,904  |
| ENCAPSULATED DELTA ENDOTOXIN OF BACILLUS THURINGIENSIS VAR. SAN DIEGO IN KILLED PSEUDOMONAS FLUORESCENS   | 0      | 2      | 0      | 7      | 13      | 0       | 34      | 1       | 6       |
| GLIOCLADIUM VIRENS GL-21 (SPORES)   | 0      | 0      | 0      | 15     | 144     | 156     | 104     | 86      | 58      |
| LAGENIDIUM GIGANTEUM (CALIFORNIA STRAIN)  | 0      | 0      | 87     | 151    | <1      | 134     | 859     | 499     | 0       |
| METARHIZIUM ANISOPLIAE, VAR. ANISOPLIAE, STRAIN ESF1  | 0      | 0      | 1      | 1      | <1      | 3       | 37      | 13      | 18      |
| METHYL ANTHRANILATE   | 0      | 0      | 0      | 0      | 6       | 184     | 49      | 57      | 50      |
| MYROTHECIUM VERRUCARIA, DRIED FERMENTATION SOLIDS & SOLUBLES  | 0      | 0      | 0      | 0      | 0       | 1,097   | 8,496   | 18,824  | 20,846  |
| NOSEMA LOCUSTAE SPORES  | <1     | <1     | 0      | 0      | 0       | <1      | <1      | <1      | <1      |
| PSEUDOMONAS FLUORESCENS, STRAIN A506  | 0      | 0      | <1     | 206    | 3,044   | 3,639   | 3,660   | 2,173   | 103     |
| PSEUDOMONAS SYRINGAE STRAIN ESC-11  | 0      | 0      | 0      | 0      | 0       | 0       | 34      | 0       | 0       |
| PSEUDOMONAS SYRINGAE, STRAIN ESC-10   | 0      | 0      | 0      | 0      | 15      | <1      | <1      | 0       | 0       |
| STREPTOMYCES GRISEOVIRIDIS STRAIN K61   | 0      | 0      | <1     | 21     | 1       | 2       | 5       | 2       | 4       |
| TRICHODERMA HARZIANUM RIFAI STRAIN KRL-AG2  | 0      | 0      | 0      | 0      | 65      | 39      | 60      | 121     | 124     |
| Z-11-TETRADECEN-1-YL ACETATE  | 0      | 0      | 0      | 0      | 0       | <1      | <1      | 85      | 61      |
| Z-8-DODECENOL   | 76     | 1      | 4      | 6      | 4       | 7       | 10      | 12      | 16      |
| Z-8-DODECENYL ACETATE   | 8,729  | 125    | 435    | 659    | 447     | 777     | 888     | 1,009   | 1,436   |
| Grand Total   | 64,674 | 69,088 | 82,935 | 97,433 | 104,888 | 188,180 | 223,221 | 258,308 | 332,851 |

**Table 10B.** The reported **cumulative acres treated** in California with each biopesticide. Biopesticides includes microorganisms and naturally occurring compounds, or compounds essentially identical to naturally occurring compounds that are not toxic to the target pest (such as pheromones). Use includes primarily agricultural applications. The grand total for acres treated is less than the sum of acres for all active ingredients because some products contain more than one active ingredient. Zero values in early years likely indicate the pesticide was not yet registered for use. Data are from the Department of Pesticide Regulation's Pesticide Use Reports. The 1999 and 2000 data are preliminary.

| ACTIVE INGREDIENT  | 1992    | 1993    | 1994    | 1995    | 1996    | 1997    | 1998    | 1999    | 2000    |
|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| (E)-4-TRIDECEN-1-YL-ACETATE  | 812     | 783     | 70      | 706     | 5,428   | 3,574   | 2,886   | 3,132   | 12,571  |
| (E)-5-DECENOL  | 0       | 0       | 0       | 725     | 1,434   | 2,187   | 1,414   | 1,034   | 784     |
| (E)-5-DECENYL ACETATE  | 0       | 0       | 0       | 725     | 1,434   | 2,187   | 1,414   | 1,034   | 784     |
| (R,Z)-5-(1-DECENYL) DIHYDRO-2-(3H)-FURANONE  | 0       | 0       | 0       | 0       | 0       | 0       | 1       | 0       | 0       |
| (Z)-4-TRIDECEN-1-YL-ACETATE  | 812     | 783     | 70      | 706     | 5,428   | 3,574   | 2,886   | 3,132   | 12,571  |
| (Z,E)-7,11-HEXADECADIEN-1-YL ACETATE   | 14,195  | 2,785   | 588     | 5,535   | 2,295   | 279     | 82      | 148     | 171     |
| (Z,Z)-7,11-HEXADECADIEN-1-YL ACETATE   | 10,210  | 1,350   | 588     | 2,120   | 2,295   | 279     | 82      | 148     | 171     |
| 1-DECANOL  | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| AGROBACTERIUM RADIOBACTER  | 1,139   | 3,233   | 2,517   | 2,110   | 6,048   | 1,284   | 5,954   | 1,517   | 1,072   |
| AMPELOMYCES QUISQUALIS   | 0       | 0       | 0       | 366     | 4,566   | 18,628  | 15,039  | 8,363   | 7,156   |
| BACILLUS SPHAERICUS, SEROTYPE H-5A5B, STRAIN 2362  | 0       | 0       | 0       | 0       | 0       | 104     | 84      | 39      | 0       |
| BACILLUS SUBTILIS GB03   | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| BACILLUS THURINGIENSIS (BERLINER)  | 42,489  | 18,233  | 18,412  | 12,305  | 8,368   | 6,286   | 4,437   | 5,561   | 3,345   |
| BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, GC-91 PROTEIN   | 0       | 14,233  | 42,378  | 108,867 | 137,786 | 146,197 | 82,473  | 60,262  | 74,282  |
| BACILLUS THURINGIENSIS (BERLINER), SUBSP. AIZAWAI, SEROTYPE H-7  | 83      | 7,694   | 46,069  | 68,505  | 84,793  | 109,951 | 86,430  | 85,539  | 65,923  |
| BACILLUS THURINGIENSIS (BERLINER), SUBSP. ISRAELENSIS, SEROTYPE H-14                                       | 8,024   | 3,754   | 1,761   | 738     | 3,357   | 4,289   | 5,242   | 3,221   | 2,434   |
| BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, SEROTYPE 3A,3B   | 384,803 | 388,663 | 400,394 | 574,228 | 435,707 | 486,699 | 342,525 | 249,709 | 245,114 |
| BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN EG 2348   | 0       | 0       | 16,675  | 27,972  | 22,742  | 11,590  | 22,097  | 9,280   | 11,891  |
| BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN EG2371  | 23,856  | 72,452  | 56,536  | 62,435  | 32,471  | 19,739  | 11,015  | 1,684   | 845     |
| BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN SA-11   | 177,335 | 135,320 | 104,848 | 134,225 | 139,051 | 175,772 | 161,858 | 152,834 | 143,643 |
| BACILLUS THURINGIENSIS (BERLINER), SUBSP. SAN DIEGO  | 10      | 8       | 3       | 0       | 4       | 100     | 6       | 20      | 18      |
| BACILLUS THURINGIENSIS SUBSPECIES KURSTAKI STRAIN BMP 123  | 0       | 0       | 0       | 0       | 0       | 0       | 87      | 7       | 687     |
| BACILLUS THURINGIENSIS SUBSPECIES KURSTAKI, GENETICALLY ENGINEERED STRAIN EG7841 LEPIDOPTERAN ACTIVE TOXIN | 0       | 0       | 0       | 0       | 1,377   | 87,123  | 81,541  | 83,094  | 118,598 |
| BACILLUS THURINGIENSIS VAR. KURSTAKI STRAIN M-200  | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 2       |
| BACILLUS THURINGIENSIS, SUBSP. AIZAWAI, STRAIN SD-1372, LEPIDOPTERAN ACTIVE TOXIN(S)                       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 32      | 1,561   |
| BACILLUS THURINGIENSIS, SUBSP. KURSTAKI, STRAIN HD-1   | 0       | 0       | 0       | 0       | 24      | 2,718   | 202,653 | 217,136 | 199,377 |

**Table 10B** continued. The reported **cumulative acres treated** in California with each biopesticide. Biopesticides includes microorganisms and naturally occurring compounds, or compounds essentially identical to naturally occurring compounds that are not toxic to the target pest (such as pheromones).

| ACTIVE INGREDIENT   | 1992    | 1993    | 1994    | 1995      | 1996    | 1997      | 1998      | 1999      | 2000      |
|---|---------|---------|---------|-----------|---------|-----------|-----------|-----------|-----------|
| BACILLUS THURINGIENSIS, VAR. KURSTAKI DELTA ENDOTOXINS CRY 1A(C) AND CRY 1C (GENETICALLY ENGINEERED) ENCAPSULATED IN PSEUDOMONAS FLUORESCENS (KILLED) | 0       | 0       | 0       | 0         | 6,387   | 43,741    | 23,196    | 14,779    | 14,698    |
| BEAUVERIA BASSIANA STRAIN GHA   | 0       | 0       | 0       | 0         | 3       | 1,459     | 2,991     | 25,510    | 3,399     |
| CANDIDA OLEOPHILA ISOLATE I-182   | 0       | 0       | 0       | 0         | 0       | 0         | 0         | 0         | 0         |
| CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL   | 0       | 0       | 0       | 0         | 7,526   | 13,537    | 22,092    | 45,247    | 49,142    |
| DIHYDRO-5-HEPTYL-2(3H)-FURANONE   | 0       | 0       | 0       | 0         | 0       | 20        | 0         | 0         | 0         |
| DIHYDRO-5-PENTYL-2(3H)-FURANONE   | 0       | 0       | 0       | 0         | 0       | 20        | 0         | 0         | 0         |
| E,E-8,10-DODECADIEN-1-OL  | 755     | 2,719   | 3,001   | 3,880     | 3,811   | 3,696     | 4,300     | 4,514     | 10,407    |
| E-11-TETRADECEN-1-YL ACETATE  | 0       | 0       | 0       | 0         | 0       | 13        | 2,171     | 54,460    | 38,834    |
| E-8-DODECENYL ACETATE   | 2,126   | 3,112   | 4,539   | 3,870     | 6,045   | 9,932     | 11,791    | 23,549    | 22,721    |
| ENCAPSULATED DELTA ENDOTOXIN OF BACILLUS THURINGIENSIS VAR. KURSTAKI IN KILLED PSEUDOMONAS FLUORESCENS  | 4,268   | 17,826  | 34,056  | 35,755    | 69,222  | 96,678    | 83,238    | 59,905    | 32,372    |
| ENCAPSULATED DELTA ENDOTOXIN OF BACILLUS THURINGIENSIS VAR. SAN DIEGO IN KILLED PSEUDOMONAS FLUORESCENS   | 0       | 0       | 0       | 4         | 1       | 0         | 19        | 7         | 6         |
| GLIOCLADIUM VIRENS GL-21 (SPORES)   | 0       | 0       | 0       | 1         | 21      | 14        | 29        | 12        | 8         |
| LAGENIDIUM GIGANTEUM (CALIFORNIA STRAIN)  | 0       | 0       | 0       | 0         | <1      | 0         | 0         | 0         | 0         |
| METARHIZIUM ANISOPLIAE, VAR. ANISOPLIAE, STRAIN ESF1  | 0       | 0       | 0       | 0         | 0       | 0         | 0         | 0         | 0         |
| METHYL ANTHRANILATE   | 0       | 0       | 0       | 0         | 0       | 0         | 0         | 0         | 0         |
| MYROTHECIUM VERRUCARIA, DRIED FERMENTATION SOLIDS & SOLUBLES  | 0       | 0       | 0       | 0         | 0       | 104       | 1,514     | 3,348     | 3,173     |
| NOSEMA LOCUSTAE SPORES  | 0       | 13      | 0       | 0         | 0       | 0         | 7         | 14        | 2         |
| PSEUDOMONAS FLUORESCENS, STRAIN A506  | 0       | 0       | 8       | 990       | 16,951  | 26,617    | 29,656    | 15,760    | 1,443     |
| PSEUDOMONAS SYRINGAE STRAIN ESC-11  | 0       | 0       | 0       | 0         | 0       | 0         | 17        | 0         | 0         |
| PSEUDOMONAS SYRINGAE, STRAIN ESC-10   | 0       | 0       | 0       | 0         | 0       | 0         | 0         | 0         | 0         |
| STREPTOMYCES GRISEOVIRIDIS STRAIN K61   | 0       | 0       | <1      | 13        | 20      | 115       | 34        | 27        | 83        |
| TRICHODERMA HARZIANUM RIFAI STRAIN KRL-AG2  | 0       | 0       | 0       | 0         | <1      | 69        | 369       | 456       | 885       |
| Z-11-TETRADECEN-1-YL ACETATE  | 0       | 0       | 0       | 0         | 0       | 13        | 2,171     | 54,460    | 38,834    |
| Z-8-DODECENOL   | 2,126   | 3,112   | 4,539   | 3,870     | 6,045   | 9,932     | 11,791    | 23,549    | 22,721    |
| Z-8-DODECENYL ACETATE   | 2,126   | 3,112   | 4,539   | 3,870     | 6,045   | 9,932     | 11,791    | 23,549    | 22,721    |
| Grand Total   | 659,894 | 670,828 | 731,855 | 1,043,230 | 995,437 | 1,272,516 | 1,207,251 | 1,130,200 | 1,066,648 |

**Figure 8.** Use trends of biopesticides. Biopesticides include microorganisms and naturally occurring compounds, or compounds essentially identical to naturally occurring compounds that are not toxic to the target pest (such as pheromones). Reported pounds of active ingredient (AI) applied includes both agricultural and reportable non-agricultural applications. The reported cumulative acres treated includes primarily agricultural applications. Data are from the Department of Pesticide Regulation's Pesticide Use Reports. The 1999 and 2000 data are preliminary.

