

Water Quality Centre Publication No. 15

**PATTERNS OF PESTICIDE USE IN NEW ZEALAND
PART 1. NORTH ISLAND 1985-1988**



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PATTERNS OF PESTICIDE USE IN NEW ZEALAND. PART 1.
NORTH ISLAND 1985 - 1988

by

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ABSTRACT

The use of pesticides (including herbicides, fungicides and insecticides) in the North Island, New Zealand, has been surveyed for the period 1985 - 1988. The principal technique used to acquire data was by direct approach to expert advisors, and users of pesticides, in each of the major regions of the North Island. MAF horticultural advisory officers, county Noxious Plants Officers, the New Zealand Forest Service and individual horticulturists were consulted, as well as sundry other sources of information. Data is tabulated by individual counties and has been summarised for the main growing regions. Pesticide active ingredients, areas and rates of application, are given, as well as LC50 values for rainbow trout (*Oncorhynchus mykiss*).

A comparison was made between this survey and another, independent survey compiled from sales returns for all of New Zealand. Twelve classes of pesticides were compared and there was good agreement between the two surveys, with the exception of data for non-selective weedkillers (which include amitrole and glyphosphate).

About 3 thousand tonnes of pesticide active ingredients were applied annually in the North Island, with 57% of this being herbicide and the remainder equally divided between fungicide and insecticide. On average, 3-19 kg/ha yr of insecticides, and 6-20 kg/ha yr of fungicides, were applied to horticulture.

A simple screening test was applied to test which pesticides might present a hazard to aquatic biota, as a result of runoff from their use on land. Some moderately persistent organophosphate insecticides, notably chlorpyrifos and isazophos, were identified as potentially harmful.

Keywords: fungicide, herbicide, insecticide, pesticide, runoff, survey, toxicity, water pollution

INTRODUCTION

There has been a dramatic increase in the use of chemicals in agriculture throughout the world over the past 30-40 years. Pesticides (viz. herbicides, fungicides and insecticides) are widely used in modern primary production, often with striking results. For example, the use of herbicides in minimal tillage practices has been a major advance in soil conservation in the USA (Overcash and Davidson 1980; Hileman 1982; OECD 1984). The challenge is to manage the use of pesticides in order to balance the benefits of improved and more profitable production, and soil conservation, against the disadvantages of environmental contamination and risk of damage to public health (Hileman 1982). The study reported here is one of a number of investigations being carried out at the Water Quality Centre examining the effects, or potential effects, of pesticide use on the aquatic environment in New Zealand. It was recognised early on in these studies that it would be helpful to have an understanding of the patterns of pesticide use in New Zealand so that efficient monitoring programmes could be implemented.

Information about the amounts of pesticide being used and their areas of application has been extremely difficult to acquire. The main reasons for this are a reluctance by manufacturers and distributors to yield commercially sensitive information, and the controversial nature of the subject. Thus, this project was initiated with the objective of providing a data base from which an assessment might be made of the pesticides having the greatest potential for environmental damage, and their geographical distribution. This report describes the data base, the means used to acquire information and the checks for accuracy that were employed. An assessment is made of the potential for damage to the aquatic environment, using criteria based upon extent of application (area), loading intensity (kg/ha), persistence, runoff properties and toxicity to aquatic life.

It is hoped that this detailed picture of pesticide use in New Zealand in the mid-1980s will be helpful to other researchers and that it may provide a basis for comparison with future surveys. The companion report on pesticide use in the South Island will follow shortly.

SURVEY DESIGN

Data was gathered from 1985 to mid-1988 and is expressed as being for an average year in that period. Some of the data was obtained at the start of the project while other data was collected in 1988. Patterns of pesticide use are ever changing; especially in recent years as the New Zealand economy has contracted and subsidies to farmers for noxious

weed control have been removed. Thus, even if it was possible to have accurate data for a given year it would not necessarily be accurate for the following or preceding years. For this reason, key informants approached in this survey have been asked to base their estimates of annual usage on an average of the last 2-3 years.

Pesticide data has been compiled for individual local government regions, labelled collectively here as "counties", since that is how most land use information is tabulated (Department of Statistics 1987). Where possible, pesticide use by municipal authorities has been included in the compilations of adjoining counties. The pesticides referred to are used principally for plant protection or plant eradication and are those listed in the New Zealand Agrichemical Manual 1987 (and its December Update) (O'Connor 1987).

Chemicals used for noxious animal control (e.g. cyanide and 1080), and industrial uses of pesticides, are not included here. Herbicide use by catchment authorities for the clearance of drainage ditches is mostly excluded from this survey, although some noxious plants authorities have included this in their estimates. Small-scale use of pesticides, such as in private gardens and glasshouses, is not included here.

SOURCES OF INFORMATION

1. **Agricultural Statistics 1984 - 85 June Year:** Published by Department of Statistics, Wellington. This document and its preceding issue (1982-83) were used as sources of land use information. Ministry of Agriculture and Fisheries (MAF) advisory officers have amended old or incorrect entries for horticulture and crops, when consulted.
2. **Agricultural Statistics Hamilton Region July 1984:** Compiled by Peter Josland, MAF, Hamilton. This provided detailed information for 16 counties in the Waikato/Bay of Plenty region. MAF advisory officers amended some entries.
3. **Noxious plants officers:** Local-body noxious plants officers were asked (either in person or by mail) to identify the main problem weeds in their districts, to estimate the extent of each (area being treated) and to estimate or calculate the amounts of the principal herbicides used. About half of those surveyed were able to provide this information. Some based their estimates on local knowledge, while others had access to sales figures.
4. **MAF advisory officers:** MAF specialisists in horticulture and crops were visited and asked to verify, and if necessary amend, land use data. They provided pesticide spray programmes for the major crops grown in their regions

and based their estimates of annual application rates on local knowledge of growers' preferences. The following MAF offices were visited: Auckland, Hamilton, Hastings, Palmerston North, Pukekohe and Whangarei.

5. MAF survey of current maize growing practices: This survey by R.A. Underwood, Morrinsville, provided pesticide use data for the Waikato/Bay of Plenty region, 1983-84 season.

6. New Zealand Forest Service: Data has been provided by the Forest Service, in response to the author's request, listing the total areas of problem weeds and the amounts of chemicals used for each of the seven conservancies of New Zealand. The survey includes copper use for the control of *Dothistroma*. Data (i.e. areas and amounts treated annually) were averaged for the period 1980-1985.

7. New Zealand Agrichemical Manual 1987: This document and its December 1987 Update, and the 1984 edition, has in conjunction with regular printouts of Registered Pesticides (The Pesticides Board) provided the salient information about product formulations.

8. Agcarm survey December 1983 - December 1987: The Agricultural Chemical & Animal Remedies Manufacturers' Association of New Zealand, Agcarm, have surveyed pesticide wholesale returns and have given this data to the Lincoln College study, "Pesticide Use in New Zealand: Issues and Options". The Centre for Resource Management, Lincoln College, and Agcarm have allowed the data to be used here.

METHODS FOR ESTIMATING PESTICIDE LOADS

1. Herbicide usage by local authorities and pastoral farmers: Areas treated (ha) and the amounts (masses and volumes) of specific products used were provided by noxious plants officers for about half the counties and boroughs etc. of the North Island. These amounts were converted to masses of active ingredients (a.i.) using the Agrichemical Manual, or a recent printout of Registered Pesticides. Areas and loads for counties for which data was not submitted were estimated by taking geometric mean values from neighbouring counties having similar patterns of land use. In these calculations target areas were expressed as fractions of the total area in pasture, while loads were expressed as masses per unit target area, for each county. A table of herbicide use was compiled for each county, listing products used, amounts applied, target areas and total masses of each a.i.

2. MAF data: Worksheets were drafted for each principal crop in each of the MAF regions listing the products used, rates of application (i.e. litres or kilograms of product per hectare applied annually), annual rates for each a.i. (expressed as kg/ha yr), and the areas of each crop grown.

3. Forestry data: While accurate data was available for state forests none was supplied for privately owned plantations. The following approach was adopted here for estimating pesticide loads applied to exotic forests: it was assumed that all plantations in a given NZFS Conservancy had the average pesticide loads (kg a.i./ha yr) applied to the same proportions of total afforested areas, as were given in the NZFS survey. For example, all exotic forests in the Auckland Conservancy were assumed to use 2,4,5-T at the average rate of 2.34 kg(a.i.)/ha yr, based on applications to gorse, blackberry and lupin having a total area of 1410 ha, or 0.33% of state forest land. The afforested area of any county in this region was multiplied by 0.33% to get the area treated with 2,4,5-T, and this area multiplied by 2.34 kg/ha yr to get the average annual load. This approach was very much an underestimate of forestry usage of pesticides since it is known that some privately owned forests had much heavier application rates than those cited in the NZFS survey. Indications are that forestry usage is very much smaller than other rural uses of pesticides.

TOXICITY TO AQUATIC ORGANISMS

Aquatic toxicity information about the pesticides used in New Zealand is included here for later use in determining potential environmental damage. Toxicities are expressed as LC50 values, viz the concentration of a.i. that will kill 50% of a sample of given test animals in a given time. LC50 values cited here are for an exposure time of 96 hours. The test animal in this report is the rainbow trout (*Oncorhynchus mykiss*), which was chosen because there is a lot of data available about its sensitivity to toxic substances and because of its importance in other pollution-response tests. The relationships between LC50 values for rainbow trout and other freshwater organisms is discussed by Mayer and Ellersieck (1986).

The LC50 values listed here have come from the following sources: Alabaster (1969), Pimental (1971), Tooby et.al. (1975), Kenega (1979), Worthing and Walker (1983), and Mayer and Ellersieck (1986). The data have been supplemented by the tabulations of toxicities given annually in the June issues of J. Water Pollution Control Federation (1980-1988). There are sometimes discrepancies between different reported LC50 values. Sprague (1988) in a recent review stated that "between-species variations in LC50 was not much greater than the within-species variation in LC50 from work of different investigators". The 96-hour LC50 test is mainly a screening test for acute lethality that provides a coarse measure of environmental damage, and should perhaps be regarded as a starting point for the setting of upper limits for concentrations of potential toxicants in receiving waters. The Australian Water Quality Criteria for Organic Compounds

addresses the aspects of safety margins and sub-lethal effects by defining environmental protection criteria as being the product: $LC50 \times \text{application factor}$. The application factors chosen were 0.1 for compounds which do not accumulate and 0.01 for compounds which do so (Nicholson 1984).

RESULTS

Data bases and worksheets for each county were merged to produce county pesticide load tables listing each a.i. that was used, the total area (ha) which it was applied to and the sum of the masses for each type of application. Some pesticides are known to be used on certain crops in spite of never having been recommended or approved for such use. e.g. deltamethrin and permethrin on berries. Land use information is given for each pesticide entry as well as an average annual application rate (total mass divided by application area) and, where possible, a 96-hour $LC50$ value (mg/l). A pesticide code has been included to distinguish between herbicides, insecticides and fungicides and to give information about the chemistry and mode of application of each substance. County pesticide load tables are shown in the Appendix.

CHECKS FOR ACCURACY

A major problem with carrying out a survey of this kind is the difficulty of describing an average year of pesticide usage when there are large variations from year to year; for any given region and for the whole country. The amounts of herbicides used by farmers to control nuisance weeds were difficult to estimate accurately. Thus, herbicides used for weed control in pasture (coded P in the Appendix tables) may in some cases only be within 50% of the "true" value. An attempt has been made to ensure that the total amounts (i.e. summed for all counties in the survey) of each a.i. or pesticide class are in agreement with other, accurate surveys. In some cases confidential sales data have been provided by manufacturer companies and been used to adjust the amounts and areas of particular a.i.'s by a common factor so that the total amounts are in agreement.

The accuracy of data gathered for horticulture and cropping was much better than for other principal uses of pesticides. Growers of export crops generally abided by the MAF spray programmes. Those who produced crops for the domestic market used much less pesticide material than did the exporters, but this difference was allowed for in the MAF survey data. Checks of compliance by growers with recommended spray programmes, through grower organisations, confirmed the accuracy of these estimates. The overall uncertainty is not likely to exceed 20%.

It has already been said that forestry estimates are low, but that forestry usage of pesticides was much less than for other land uses. Some a.i. totals (for all counties) were adjusted to agree with accurate sales data, as for the pastoral applications of pesticides, to correct forestry estimates. It is not possible to gauge the uncertainty of the forestry data.

The Agcarm survey of sales returns (dollar values) enabled a comparison to be made between average amounts sold in New Zealand (tonne a.i./yr), and amounts used in the North Island estimated from this survey, for the period 1985-1987. This was achieved by selecting 12 pesticide classes from the Agcarm survey that were dominated by a few pesticide a.i.'s. For example, data for the C17 group (bipyridyl weedkillers) comprised sales of paraquat and diquat, only. Wholesale prices for 1985, 1986 and 1987 were used to convert invoice data to total masses of pesticides (in each of the 12 classes) for the three years. These masses were averaged. A graph comparing the Agcarm data with this survey is shown in Fig.1.

DISCUSSION

Comparison between surveys

The comparison in Fig.1 between the total masses estimated in this study, and the total masses obtained from Agcarm sales invoices, shows good agreement for 11 classes and a substantial disparity for class C20 (non-selective weedkillers). Removal of the C20 data substantially improves the agreement between the two kinds of estimates. The least squares slope is 0.87, and R^2 is 0.85, for all the data points. The corresponding values when C20 is omitted are 0.99 and 0.91, respectively. The absence of South Island data may cause some classes to be underestimated. Also, estimates of herbicides use in agriculture that were based on averages of nearby counties will reproduce inaccuracies, giving regions of similar (but inaccurate or even wrong) average annual loads. Thus, while the estimates of total masses of pesticides used in the North Island may be reasonably accurate, there may be large discrepancies in some county load tables that cancel each other out. Deficiencies in the forestry data may also have contributed to the uncertainty of the herbicide loads.

Regional loads

The pesticide loads in the Appendix show that between 10 and 110 different a.i.'s were used in each county, depending on the land-use activities. Annual amounts used varied from a few kilograms to many tonnes (e.g. more than 80 tonne/yr of diazinon were used in Tauranga County, principally on horticulture).

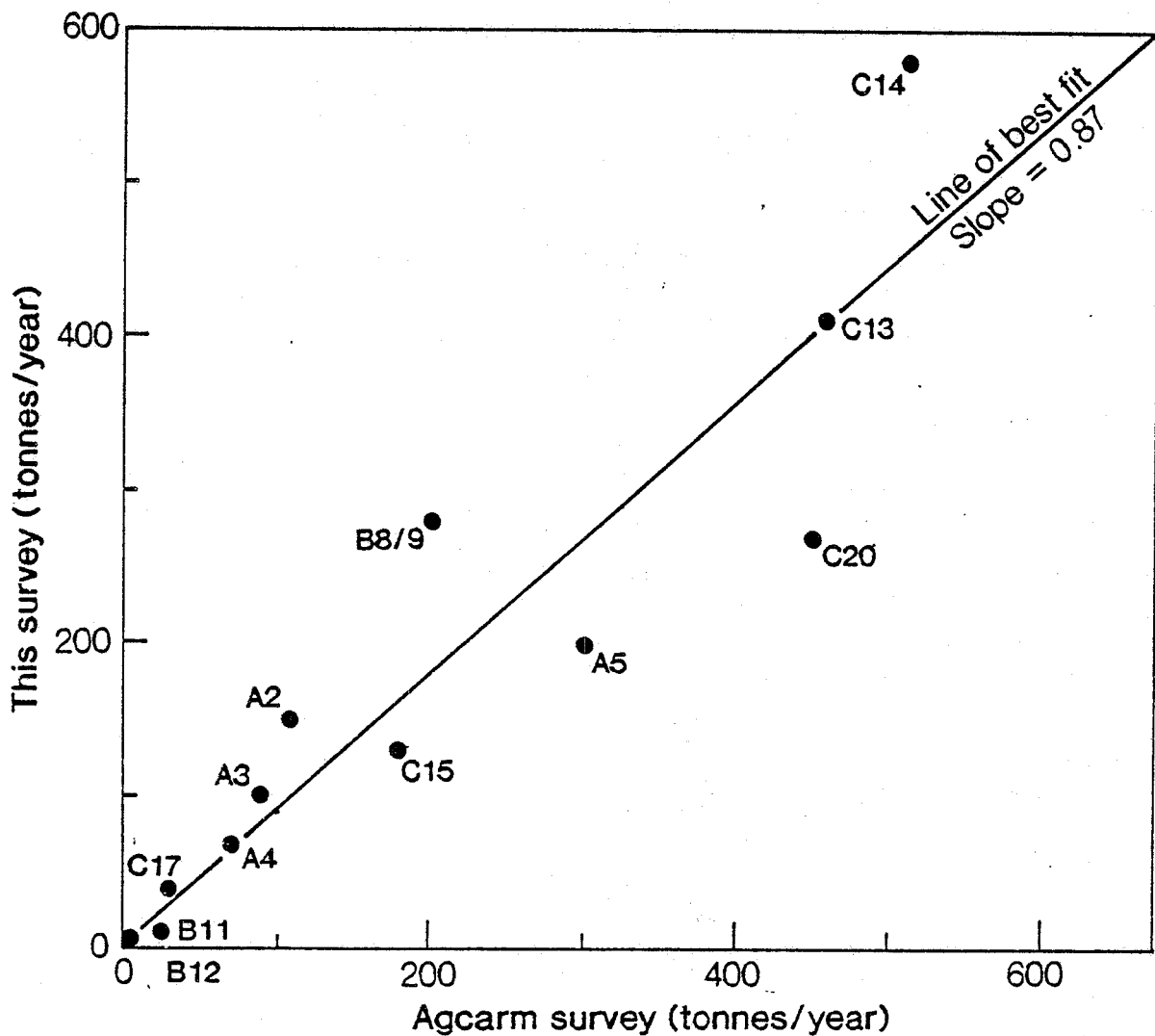


Figure 1. Comparison between this survey (North Island 1985–88) and the Agcarm survey (all New Zealand 1985–87), of total amounts used annually of 12 classes of pesticides. Agcarm codes: A2=dithiocarbamates (mancozeb, maneb); A3=cyclicimides (captan); A4= systemics (vinclozolin, iprodione); A5=other fungicides (incl. copper); B8/9 = organophosphates; B11=carbamates (carbaryl); B12=synthetic pyrethroids (permethrin); C13=brushkillers (2,4,5-T); C14= other phenoxyherbicides (2,4-D, MCPA); C15=triazines (simazine, atrazine); C17=bipyridyl (diquat, paraquat); C20=non-selective weed killers (amitrole, glyphosate)

For the purposes of examining regional patterns of pesticide use, the North Island has been divided into seven regions (Fig.2): Auckland; Bay of Plenty; Hawkes Bay and East Coast; Northland; Southern Areas (including Wanganui and the Wairarapa); Taranaki; Waikato. The total amounts of herbicides, fungicides and insecticides have been summed for each of these regions, and are listed in Table 1. The proportions of phenoxy herbicides and organo-phosphates are also given.

Table 1. Regional Summaries of North Island Pesticide Loads (tonnes a.i./yr)[†]

Region (area, ha)	Herbicide (% phenoxy)	Insecticide (% org-phos)	Fungicide	Total
Northland (1,080,000)	148 (48)	48 (93)	36	232
Auckland (414,000)	125 (34)	57 (93)	157	339
Waikato (2,502,000)	325 (35)	61 (94)	87	473
Bay of Plenty (1,110,000)	179 (14)	274 (99)	116	569
Taranaki (617,000)	22 (48)	0.5 (97)	0.2	23
Hawkes Bay East coast (1,874,000)	213 (33)	115 (81)	244	572
Southern areas (2,157,000)	706 (90)	14 (97)	18	738
Total	1718 (56)	570 (94)	658	2,946

Note: Counties in each region are shown in Fig.2.
[†] a.i. = active ingredient

The entries in Table 1 reflect the predominant land uses of the regions. Pastoral farming occupies 64% of the land area of the North Island, although in many counties the proportion

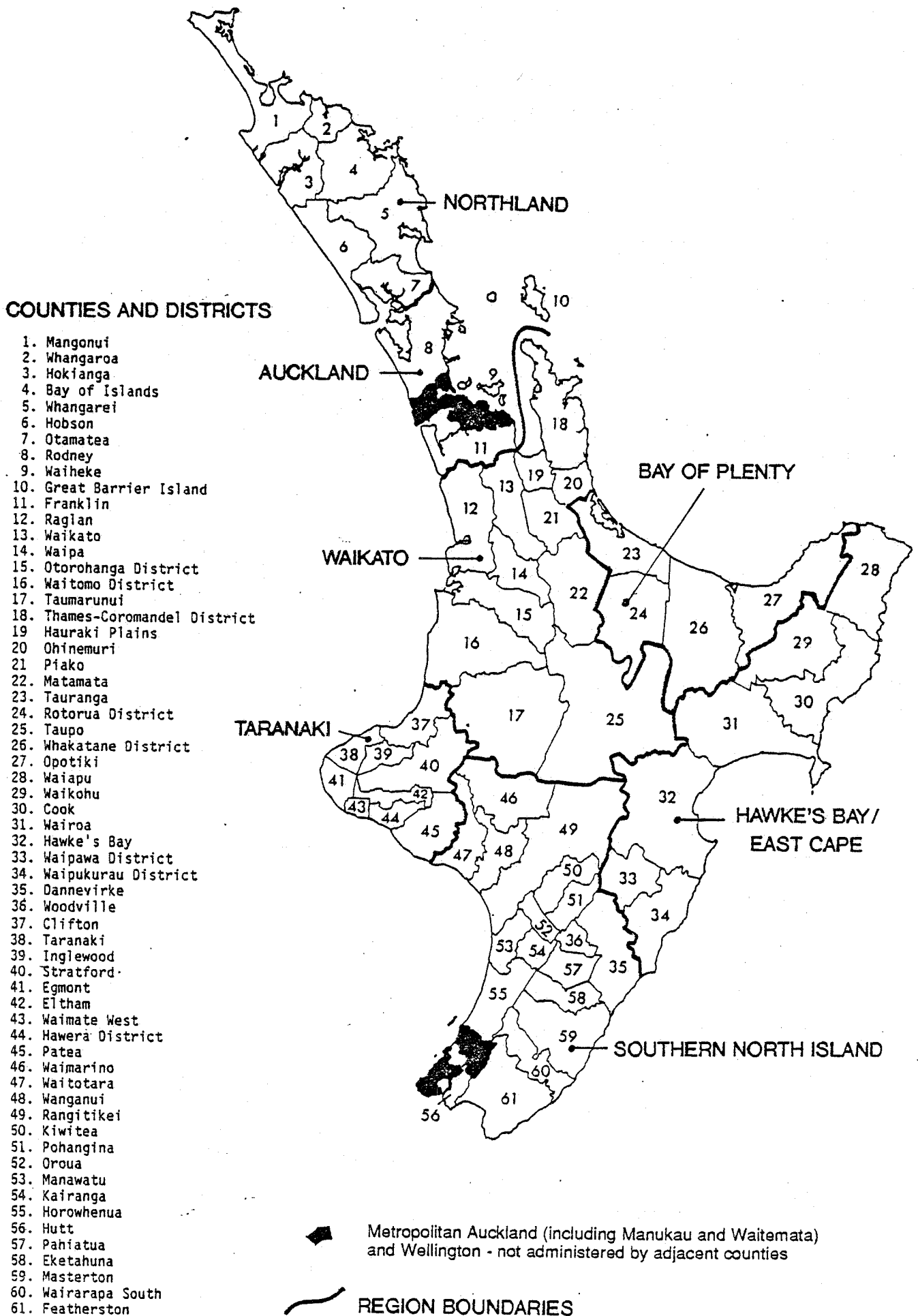


Figure 2. Counties and regions in pesticide survey.

is about 90% (Dept. of Statistics 1987). Thus, herbicides were the dominant pesticides used in all regions. Typical application rates for pastoral use of herbicides were less than 1 kg/ha yr, which was much less than the rates for fungicides (which were 40-50 kg/ha yr in some cases), or insecticides (commonly up to 5 kg/ha yr). The large quantities of 2,4,5-T used in Rangitikei and Wanganui counties caused the overall proportion of phenoxy herbicides to be 56%, compared to 35-45% for most other counties.

Those regions with intensive horticulture, or with fruit or vegetable growing areas, such as Hawkes Bay, Tauranga and Bay of Islands counties, had correspondingly high loads of insecticide and fungicide. The predominantly dairy farming region of Taranaki contrasts with these areas. Between 80 and 100% of the mass of insecticides used were organophosphates. Some lindane was reported as being used for the control of grass grub (*Costelytra* spp) in Hawkes Bay.

Linear regressions

Linear regressions were calculated for total annual loads (kg/yr) of herbicide, insecticide and fungicide used in counties in each of the five regions, against land use areas (ha), in the respective counties. The land uses chosen were pasture, maize and corn (Waikato region), horticulture, and crops (i.e. cereals, in the Southern region). Horticulture included pipfruit, stonefruit, citrus, berry fruit, subtropicals, grapes and vegetables (Josland 1984). The purpose of the regression analysis was to smooth out differences in application rates between the major crops in each county, so that loads could be calculated simply from land use areas in specific regions.

The slopes of the linear regressions for which consistent relationships between land use and pesticide loads were evident, are shown in Table 2.

Table 2. Pesticide Loads and Land Use: Linear Regression Slopes (kg/ha yr)

Region	Pesticide	Slope	Land Use	R ²	(n)
Northland	I	16	horticulture	0.93	(7)
	F	10	horticulture	0.90	(7)
Auckland	I	3	horticulture	0.72	(6)
	F	8	horticulture	0.64	(6)
Waikato	I	3	horticulture and maize	0.69	(12)
	F	17	horticulture	0.88	(12)

Bay of Plenty	I	19	horticulture	0.99	(4)
	F	6	horticulture	0.99	(4)
Taranaki	I	0.4	cereal crops	0.42	(9)
	F	0.3	cereal crops	0.56	(9)
Hawkes Bay etc.	I	8	horticulture	0.99	(7)
	F	20	horticulture	0.99	(7)
Southern areas	F	9	horticulture	0.99	(5)

F = fungicide; I = insecticide; n = number of counties in regression analysis

County herbicide loads showed no covariance with areas of pasture, in any of the regions. This is because the choice of herbicides varied markedly, and because of differences in application rates for specific herbicides (Appendix). For example, 2,4-D used on pasture was applied at an average rate of 0.26 kg/ha yr in Eketahuna County, compared with 2.30 kg/ha yr in Wanganui County.

Insecticide loads applied to horticulture ranged from 3 to 19 kg/ha yr. The low rates in the Auckland region resulted from the large areas of vegetable crops, in Manukau and Franklin counties, having lower loadings than tree crops. For example, pipfruits received, on average, 10-20 kg/ha yr compared to brassicas, onions and potatoes which received about 1-2 kg/ha yr (other vegetable crops had lighter loadings). Given that about 94% of insecticides were organophosphates, containing about 10% phosphorus (P) by weight, then about 1-2 kg/ha yr of P was applied in this form to horticulture (excluding vegetables) in the North Island. This may be compared with 60-90 kg P/ha yr applied as fertiliser to many orchard crops (S. Franklin, MAF, pers. comm.). There may be some contribution to eutrophication of waterways from the fertiliser runoff, but not from pesticides.

Fungicide loads were generally 6-9 kg/ha yr. The high rates used in the Hawkes Bay region (20 kg/ha yr) are attributable to the large areas of pipfruit and stonefruit, which receive 30-40 kg/ha of fungicides, annually.

EFFECTS ON THE AQUATIC ENVIRONMENT

During the period of this study, 1985-1988, the total number of individual substances registered for use in New Zealand as pesticides was about 260. While most of these materials had known toxicities to aquatic organisms (Mayer and Ellersieck

1986, Worthing and Walker 1983) it was likely that only a few of these would cause environmental damage through normal, sensible practices. For this reason, a simple screening test was derived, as follows, to isolate those pesticides for which there might be a potential for damage to aquatic biota, resulting from their residues in runoff from land:

Pesticide loading rate, L (kg/ha yr) \times % runoff loss, r , /100 = load delivered to waterway, D (kg/ha yr).

From a simple catchment water balance, mean annual stream flow, $Q_a = 10 \times (P-E)$ (m^3 /ha yr), where P and E are annual rainfall and evapotranspiration (mm/yr), respectively.

The mean annual stream concentration, C_a (mg/m^3), assuming no in-stream losses occur, is given by

$$\begin{aligned} C_a &= 10^6 D / Q_a \\ &= 10^3 Lr / (P-E) \end{aligned} \quad (1)$$

For a risk of environmental damage to exist, C_a must exceed a critical value, given by

$$C_a > 10^3 (LC50) / f \quad (2)$$

where the numerical value of 10^3 converts LC50 values from mg/l to mg/m^3 , and f is a factor that takes into account the difference between C_a and peak concentrations, and allows for sublethal effects. Thus, combining Eqs. (1) and (2) gives

$$L > (LC50) (P-E) / rf \quad (3)$$

Values of L and LC50 are listed in the Appendix (L =rate) and values of P may be obtained from New Zealand Meteorological Service Misc. Pub.163 (1979). Tank evaporation data cited by Finkelstein (1973) may be used to approximate E values, after some adjustment (AWRC 1970). Equation 3 is only used with values for the difference, $P-E$, that are greater than zero. Estimates of percentage runoff loss (r) for different classes of pesticides are given by Wauchope (1978).

The parameter, f , is the product of the ratio of peak to mean annual pesticide concentration, and the factor used to divide LC50 concentrations to take into account sublethal effects. Nicholson (1984) has adopted a value of 10 for this factor, for non-accumulating toxins. Peak concentrations are defined here as being the averaged stream concentrations in the few storm events that deliver nearly all pesticide runoff, following application. They are not instantaneous maximum concentrations. The ratio of peak concentration (as defined here) to C_a , was about 50 for a study on 2,4,5-T runoff (Fox and Wilcock 1988), while a value of about 10 may be derived from a study by Neary et al. (1983) on hexazinone runoff from

afforested sites. Values for the ratio of peak-to-mean annual concentrations of 80-200 may be derived from a study by Fitzpatrick and Sutherland (1983) observing runoff of several kinds of pesticides. An average value for the ratio of peak to mean concentration (C_a) of 100 was adopted in this study. The parameter, f , was thus given a value of 100×10 , ie. 1000.

As an example of the screening test: let $L = 5$ kg/ha yr; $LC50 = 1$ mg/l; $P-E = 600$ mm/yr and $r = 0.5\%$. Thus, $(LC50)(P-E)/rf = 1.2 (< L)$ and on the bases of load intensity, toxicity and runoff there is a risk of environmental damage.

The screening test was applied to each of the county load tables in the Appendix, and the results are summarised in Table 3, for each of the major regions. Two other criteria were invoked, as well as Eq.3. Firstly, for a pesticide to present a potential hazard it had to be applied to an area of 1000 ha, or 1% of the county area, whichever was smaller. Secondly, each pesticide had to have a soil half-life of at least 10 days, because large storms occurring within 2-4 weeks of application are responsible for major losses that cause environmental damage (Wauchope 1978). Pesticide decay patterns are discussed by Wauchope and Leonard (1980). Soil half-lives for some pesticides are given by Nash (1980) and by Willis and McDowell (1982).

Table 3. Pesticides with a Potential for Damage to the Aquatic Environment[†]

Region	Pesticide	Crop ⁺⁺	Area (ha)	Rate, L ⁺⁺⁺ (kg/ha yr)
Northland	azinphos methyl	H	1100	1.11
	chlorpyrifos	H	1700	0.88
	diazinon	H	1900	4.26
	permethrin	H	1100	0.10
	pirimiphos methyl	H	1100	1.90
Auckland	alachlor	M,V	600	1.13
	azinphos methyl	H	1800	2.96
	chlorpyrifos	H	1800	3.51
	copper	F,H,V	2000	17.9
	deltamethrin	H,V	2200	0.04
	diazinon	H	1200	3.43
	maneb	V	3900	9.72
	permethrin	H,V	4200	0.29
	propachlor	V	1500	3.73
propineb	V	2400	1.95	
Waikato	isazophos	M	15100	0.70
Bay of	azinphos methyl	H	12250	1.18

Plenty	chlorpyriphos	H	13200	2.71
	copper	H	1300	28.7
	diazinon	H	13100	6.30
	isazophos	M	6000	0.70
	phosmet (?)	H	10000	10.2
Taranaki	none			
Hawkes Bay	alachlor	CR,M,V	3100	0.96
East Coast	atrazine	F,M	2100	1.93
	azinphos methyl	H	5700	6.02
	azocyclotin	H	5100	0.28
	bromoxynil	CR	1400	0.12
	bupirimate(?)	H	3600	0.28
	captafol(?)	H,V	1900	2.29
	carbaryl	H	5100	1.10
	chlorpyrifos	H,CR	11800	2.15
	copper	H	10200	5.48
	diazinon	H	1300	4.87
	dichlofluanid	H	3400	2.54
	dinoseb	H	1300	0.72
	dodine(?)	H	3600	2.20
	isazophos	M	1900	0.68
	lindane	P	12600	0.55
	metolachlor	M	1900	0.60
	oryzalin	H	6000	0.88
	permethrin	H	3500	0.14
	pendimethalin	M	1900	0.10
	phorate	M	1900	0.68
	propargite(?)	H	5100	0.75
	prothiofos(?)	H	7000	0.38
	terbutryne	H	1300	0.34
trifluralin	H	1300	0.27	
Southern areas	bromoxynil	CR	1900	0.12
	chlorothalonil	V	1500	2.28
	chlorpyrifos	CR	13400	0.01
	maneb	V	1500	4.12

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- + Based on Eq. 3 and on land area and soil half-life criteria (see text)
- ++ **Crop code:** CR = cereals (other than maize); F = forestry; H = horticulture (berries, citrus, grapes, processing crops, pipfruit, stonefruit and subtropicals, but not vegetables); M = maize/corn; P = pasture; V = vegetables
- +++ **Rate, L** = The average application rate in each region for counties having a potential for environmental damage
- (?) refers to pesticides with unknown soil half-lives
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The summary in Table 3 indicates that about 30 of the 260 pesticides used had a potential for harming aquatic biota. The use of organophosphate insecticides on horticulture and

vegetables crops may be potentially problematic in Northland, Auckland, Bay of Plenty and Hawkes Bay. Some herbicides and fungicides used in Hawkes Bay may also present some risk of damage. There may be potential water pollution in the Waikato region as a result of the use of the soil-applied organophosphate insecticide isazophos, on corn and maize. Chlorpyrifos and isazophos, are widely used pesticides and have soil half-lives of 60-120 days (Worthing and Walker 1980) and 50-70 days (Niemczyk and Krueger 1987), respectively. There may be a need to monitor some waters for some of the pesticides listed in Table 3.

The analysis of county loads shown in Table 3 has a number of flaws that preclude its use other than as a simple means of gauging **potential** for water pollution. The loads are averaged over a year and, even though peak concentrations are allowed for in Eq.3, the seasonal effects of single applications of pesticides have not been considered. The first storm to generate a significant amount of surface runoff may not happen for several weeks after application has occurred, when the amount of material remaining on site (effectively, L) has decayed markedly. The proximity of target areas to sensitive receiving waters is not taken into account. Regions having low values of P-E, such as Hawkes Bay, may seem to have a greater risk of potential pollution when Eq.3 is applied. Equation 3 may not be used for small values of P-E. In order to overcome some of these deficiencies it would be necessary to have much more detailed information about pesticide formulations, the local conditions where they are applied, and the waterways into which the runoff flows. Another approach would be to give index values to the loading rate (L), the area of application, the soil persistence, the toxicity and the runoff characteristics, of each pesticide in the relevant areas of use.

CONCLUSIONS

A survey was conducted to determine average annual pesticide use in the North Island during 1985-1988. Pesticide loads were compiled for each county. A comparison was made between this survey and an independent survey of sales returns throughout New Zealand (by Agcarm), for 12 classes of pesticides. The two surveys agreed remarkably well, even though data for the South Island was absent from one compilation.

About 3 thousand tonnes (a.i.) of pesticides were used annually in the North Island, with 1.7 thousand tonnes (a.i.) being herbicide. The amounts of insecticides and fungicides used in individual counties correlated well with the respective areas of horticulture. Insecticides were used at (total) rates of 3-19 kg a.i./ha yr and fungicides were used at (total) rates of 6-20 kg a.i./ha yr.

A simple screening test showed that moderately persistent organophosphates, such as chlorpyrifos and isazophos, have the greatest potential for causing adverse effects to the aquatic environment. Appropriate monitoring programmes may be needed to verify if there is a real threat.

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APPENDIX

The following tables list average annual pesticide loads in specified counties. Abbreviations used are as follows:-

Code 1st column: H = herbicide; I = insecticide;
F = fungicide; X = other

2nd column: A = cyclic diazine or triazine; O = organohalogen; P = organophosphate;
C = carbamate; F = phenoxyalkanoic herbicide; X = other

3rd column: s = applied to soil; f = applied to foliage

Land Use Code: P = pasture; PF = pipfruit; SF = stonefruit;
C = citrus; B = berry; S = subtropical (avocado, kiwifruit, tamarillo, nuts); G = grape; V = vegetables; M = maize; F = forest;
CR = cereal cash crops (wheat, oats; barley);
PC = processing crops (peas, beans, tomatoes)

Rate: Refers to the average annual load applied to target areas and is calculated by dividing mass (kg) by area (ha) for each pesticide entry.

LC50: Is the concentration that kills 50 % of a test population (rainbow trout) within a given time (96 hours).

Northland Region

Bay of Islands, Hobson, Hokianga, Mangonui, Otamatea, Whangarei, Whangaroa

PESTICIDE LOADS : BAY OF ISLANDS

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	7500	P	4320	.58	2
2,4,5-T	HFf	9060	P/F	10940	1.21	20
acephate	IPf	800	C/S	2810	3.51	1000
alachlor	HXs	21	V	34	1.62	1.8
amitrole	HAF	1323	P/PF/SF/S	2280	1.72	50
ammonium thiocyanate	XXf	1300	P/S	570	.44	10
azinphos methyl	IPf	1130	PF/SF/B/S	1250	1.11	.014
bitertanol	FAf	6	B	4	.67	2.5
bromacil	HXf	600	C	1440	2.40	75
captafol	FXf	620	PF/C/B	900	1.45	.5
captan	FXf	1130	PF/SF/B/S	2570	2.27	.3
chloramben	HXf	21	V	40	1.90	4.2
chlorpyrifos	IPf	1710	PF/C/S	1500	.88	.003
clofentezine	HXf/s	610	C/B	360	.59	
clopyralid	HXf	6	B	1	.17	104
copper	FXf	850	F/PF/SF/C/S	11850	13.94	9.6
cyhexatin	IXf	20	PF/B	20	1.00	.0012
deltamethrin	IXf	200	S	60	.30	.005
diazinon	IPf	1900	C/S	8100	4.26	.09
dichlorvos	IPf	200	S	150	.75	.5
dimethoate	IPf	600	C	430	.72	8.5
dinocap	FXf	200	S	1420	7.10	.5
diquat	HXf	930	PF/SF/C/B/S	440	.47	10
diuron	HXs	800	C/S	1640	2.05	20
endosulfan	IOf	6	B	5	.83	.0012
fluazifop-butyl	HXf	23	PF/SF	7	.30	1.37
fluvalinate	IXf	200	S	44	.22	.014
glyphosate	HXf	6340	P/PF/SF/C/S/V	9800	1.55	86
hexazinone	HAF	20	F	25	1.25	300
iprodione	FXf	1112	SF/S	840	.76	
linuron	HXs	15	SF	10	.67	16
mancozeb	FXf	611	PF/C	1610	2.64	4
MCPA	HFf	400	P	375	.94	10
methazole	HXf	21	V	2	.10	4
methidathion	IPf	600	C	900	1.50	.01
methomyl	ICf	6	B	4	.67	3.4
metiram	FXf	11	PF	140	12.73	17
naled	IPf	6	B	50	8.33	.08
nitrothal-isopropyl	FXf	11	PF	56	5.09	
oryzalin	HXs	23	PF/SF	20	.87	1
paraquat	HXf	2170	P/PF/SF/C/S	1000	.46	32
permethrin	IXf	1100	S	110	.10	.009
phosmet	IPf	1100	S	12430	11.30	.002
picloram	HOf	12700	P	50	.00	20
pirimiphos-methyl	IPf	1100	S	2090	1.90	.02
propargite	IXf	600	C	2160	3.60	.12
pyrazophos	FPf	21	V	2	.10	.48
sethoxydim	HXf	12	SF	2	.17	
simazine	HAF/s	1330	PF/SF/B/S	1000	.75	100
terbacil	HXs	23	PF/SF	14	.61	90
terbumeton	HAF	1123	PF/SF/S	1940	1.73	14
terbuthylazine	HAF	1123	PF/SF/S	1940	1.73	4.6
triadimefon	FAf	21	V	1	.05	25
triforine	FXf	212	SF/S	120	.57	1000
vinclozolin	FXf	1120	SF/B/S	980	.88	52.5

PESTICIDE LOADS : HOBSON

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	Hff	4000	P	2920	.73	2
2,4,5-T	Hff	30	F	70	2.33	20
alachlor	HXs	66	V	110	1.67	1.8
amitrole	Haf	24	S	48	2.00	50
ammonium thiocyanate	XXf	24	S	12	.50	10
azinphos methyl	IPf	34	PF/B/S	71	2.09	.014
bitertanol	FAf	5	B	4	.80	2.5
captafol	FXf	10	PF/B	36	3.60	.5
captan	FXf	34	PF/S/B	135	3.97	.3
chloramben	HXf	66	V	120	1.82	4.2
chlorpyrifos	IPf	30	PF/S	70	2.33	.003
clofentezine	HXf/s	5	B	2	.40	
clopyralid	HXf	5	B	1	.20	104
copper	FXf	17	F/PF	210	12.35	9.6
cyhexatin	IXf	10	PF/B	8	.80	.0012
diazinon	IPf	24	S	90	3.75	.09
diquat	HXf	550	PF/S/B/V	220	.40	10
endosulfan	IOf	5	B	4	.80	.0012
fluazifop-butyl	HXf	5	PF	2	.40	1.37
glyphosate	HXf	1900	P/PF/S/V	630	.33	86
hexazinone	Haf	10	F	15	1.50	300
iprodione	FXf	24	S	18	.75	
mancozeb	FXf	5	PF	160	32.00	4
MCPA	Hff	100	P	75	.75	10
methazole	HXf	66	V	7	.11	4
methomyl	ICf	5	B	3	.60	3.4
metiram	FXf	5	PF	63	12.60	17
naled	IPf	5	B	40	8.00	.08
nitrothal-isopropyl	FXf	5	PF	25	5.00	
oryzalin	HXs	5	PF	4	.80	1
paraquat	HXf	1100	P/PF/S/B/V	845	.77	32
permethrin	IXf	24	S	2	.08	.009
phosmet	IPf	24	S	270	11.25	.002
picloram	HOf	2500	P	16	.01	20
pirimiphos-methyl	IPf	24	S	45	1.88	.02
pyrazophos	FPf	66	V	7	.11	.48
sethoxydim	HXf	5	PF	1	.20	
simazine	Haf/s	34	PF/S/B	30	.88	100
terbacil	HXs	5	PF	3	.60	90
terbumeton	Haf	29	PF/S	45	1.55	14
terbuthylazine	Haf	29	PF/S	45	1.55	4.6
triadimefon	FAf	66	V	2	.03	25
vinclozolin	FXf	30	S/B	40	1.33	52.5

PESTICIDE LOADS : HOKIANGA

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	2700	P	1760	.65	2
2,4,5-T	HFf	5430	P/F	6570	1.21	20
acephate	IPf	2	C	9	4.50	1000
amitrole	HAf	128	P/SF	50	.39	50
ammonium thiocyanate	XXf	128	P/SF	15	.12	10
azinphos methyl	IPf	14	PF/SF	86	6.14	.014
bromacil	HXf	2	C	5	2.50	75
captafol	FXf	8	PF/C	40	5.00	.5
captan	FXf	4	PF/SF	120	30.00	.3
chlorpyrifos	IPf	8	PF/C	80	10.00	.003
copper	FXf	30	F/PF/SF/C	700	23.33	9.6
cyhexatin	IXf	6	PF	8	1.33	.0012
diazinon	IPf	2	C	12	6.00	.09
diquat	HXf	14	PF/SF	8	.57	10
diuron	HXs	2	C	5	2.50	20
fluazifop-butyl	HXf	8	SF	2	.25	1.37
glyphosate	HXf	1688	P/PF/SF	520	.31	86
hexazinone	HAf	10	F	15	1.50	300
linuron	HXs	8	SF	5	.63	16
mancozeb	FXf	6	PF	190	31.67	4
MCPA	HFf	110	P	90	.82	10
metiram	FXf	6	PF	80	13.33	17
nitrothal-isopropyl	FXf	5	PF	30	6.00	
oryzalin	HXs	14	PF/SF	10	.71	1
paraquat	HXf	384	P/PF/SF	170	.44	32
picloram	HOf	5900	P	80	.01	20
propargite	IXf	2	C	10	5.00	.12
sethoxydim	HXf	8	SF	2	.25	
simazine	HAf/s	14	PF/SF	14	1.00	100
terbacil	HXs	14	PF/SF	10	.71	90
terbumeton	HAf	14	PF/SF	10	.71	14
terbuthylazine	HAf	1414	PF/SF	10	.01	4.6
triforine	FXf	8	SF	20	2.50	1000
vinclozolin	FXf	8	SF	14	1.75	52.5

PESTICIDE LOADS : MANGONUI

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	Hff	6700	P	3890	.58	2
2,4,5-T	Hff	8240	P/F	9980	1.21	20
acephate	IPf	86	C/S	345	4.01	1000
amitrole	Haf	196	P/PF/SF	74	.38	50
ammonium thiocyanate	XXf	180	P	20	.11	10
azinphos methyl	IPf	30	PF/SF/S	115	3.83	.014
bromacil	HXf	26	C	62	2.38	75
captafol	FXf	33	PF/C	390	11.82	.5
captan	FXf	16	PF/SF	135	8.44	.3
carbaryl	ICf	45	S	315	7.00	4.34
chlorpyrifos	IPf	33	PF/C	140	4.24	.003
clofentezine	HXf/s	26	C	16	.62	
copper	FXf	140	F/PF/SF/C/S	1730	12.36	9.6
cyhexatin	IXf	7	PF	10	1.43	.0012
diazinon	IPf	86	C/S	420	4.88	.09
dimethoate	IPf	26	C	20	.77	8.5
diquat	HXf	100	PF/SF/C/S	25	.25	10
diuron	HXs	26	C	60	2.31	20
fluazifop-butyl	HXf	12	PF/SF	5	.42	1.37
glyphosate	HXf	2400	P/PF/SF/C/S	1600	.67	86
hexazinone	Haf	25	F	40	1.60	300
iprodione	FXf	25	SF/S	25	1.00	
linuron	HXs	9	SF	5	.56	16
mancozeb	FXf	33	PF/C	275	8.33	4
MCPA	Hff	360	P	340	.94	10
metalaxyl	FXf	45	S	340	7.56	100
methidathion	IPf	26	C	40	1.54	.01
metiram	FXf	7	PF	90	12.86	17
nitrothal-isopropyl	FXf	7	PF	36	5.14	
oryzalin	HXs	16	PF/SF	14	.88	1
paraquat	HXf	320	P/PF/SF/C/S	140	.44	32
permethrin	IXf	60	S	6	.10	.009
picloram	Hof	11480	P	230	.02	20
pirimiphos-methyl	IPf	60	S	70	1.17	.02
propargite	IXf	26	C	94	3.62	.12
sethoxydim	HXf	9	SF	2	.22	
simazine	Haf/s	16	PF/SF	16	1.00	100
terbacil	HXs	16	PF/SF	9	.56	90
terbumeton	Haf	76	PF/SF/S	35	.46	14
terbuthylazine	Haf	76	PF/SF/S	35	.46	4.6
triforine	FXf	9	SF	24	2.67	1000
vinclozolin	FXf	25	SF/S	30	1.20	52.5

PESTICIDE LOADS : OTAMATEA

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	6300	P	4600	.73	2
2,4,5-T	HFf	11100	P	5400	.49	20
acephate	IPf	15	C	60	4.00	1000
alachlor	HXs	30	V	48	1.60	1.8
amitrole	HAF	3330	P/PF/S	1400	.42	50
ammonium thiocyanate	XXf	3330	P/PF/S	345	.10	10
azinphos methyl	IPf	35	PF/S	75	2.14	.014
bentazone	HXf	30	V	13	.43	
bromacil	HXf	13	C	30	2.31	75
captafol	FXf	18	PF/C	200	11.11	.5
captan	FXf	35	PF/S	100	2.86	.3
chloramben	HXf	30	V	56	1.87	4.2
chlorbufam	HCs	30	V	27	.90	
chloridazon	HXf/s	30	V	27	.90	
chlorpyrifos	IPf	46	PF/C/S	93	2.02	.003
chlorthal-dimethyl	HXs		V	56	1.87	
clofentezine	HXf/s		C	8	.62	
copper	FXf		PF/C	430	23.89	9.6
cyhexatin	IXf		PF	6	1.20	.0012
dalapon	HXf		P	150	.68	100
deltamethrin	IXf	30	V	1	.03	.005
diazinon	IPf	41	C/S	185	4.51	.09
dimethoate	IPf	13	C	9	.69	8.5
diquat	HXf	110	PF/C/S/V	22	.20	10
diuron	HXs	13	C	30	2.31	20
fluaizifop-butyl	HXf	35	PF/V	4	.11	1.37
glyphosate	HXf	8510	P/PF/C/S/V	1830	.11	86
ioxynil	HXf	30	V	17	.57	4
iprodione	FXf	28	S	21	.75	
linuron	HXs	30	V	5	.17	16
mancozeb	FXf	18	PF/C	187	10.39	4
maneb	FXf	30	V	270	9.00	.53
MCPA	HFf	200	P	110	.55	10
methabenzthiazuron	HXf	30	V	40	1.33	15.9
methazole	HXf	30	V	3	.10	4
methidathion	IPf	13	C	20	1.54	.01
metiram	FXf	5	PF	63	12.60	17
nitrothal-isopropyl	FXf	5	PF	26	5.20	
oryzalin	HXs	5	PF	4	.80	1
paraquat	HXf	948	P/PF/C/S/V	210	.22	32
parathion methyl	IPf	30	V	3	.10	2.7
permethrin	IXf	58	S/V	22	.38	.009
phosmet	IPf	28	S	315	11.25	.002
picloram	HOf	6600	P	110	.02	20
pirimiphos-methyl	IPf	28	S	55	1.96	.02
propachlor	HXs	30	V	112	3.73	.17
propargite	IXf	13	C	47	3.62	.12
propineb	FCf	30	V	67	2.23	1.9
pyrazophos	FPf	30	V	3	.10	.48
sethoxydim	HXf	30	V	1	.03	
simazine	HAF/s	235	P/PF/S	1330	5.66	100
terbacil	HXs	5	PF	3	.60	90
terbumeton	HAF	35	PF/S	50	1.43	14
terbuthylazine	HAF	35	PF/S	50	1.43	4.6
triadimefon	FAf	30	V	1	.03	25
triazophos	IPf	30	V	5	.17	5.6
vinclozolin	FXf	28	S	24	.86	52.5

PESTICIDE LOADS : WHANGAREI

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	25000	P	18600	.74	2
2,4,5-T	HFf	20000	P/F	10000	.50	20
acephate	IPf	133	C/S	525	3.95	1000
alachlor	HXs	14	V	22	1.57	1.8
amitrole	HAf	6580	P/PF/SF/S	3400	.52	50
ammonium thiocyanate	XXf	6530	P/PF/SF/S	850	.13	10
azinphos methyl	IPf	570	PF/SF/S/B	870	1.53	.014
bitertanol	FAf	10	B	8	.80	2.5
bromacil	HXf	33	C	79	2.39	75
captafol	FXf	70	PF/C/B	574	8.20	.5
captan	FXf	570	PF/SF/S/B	1640	2.88	.3
carbaryl	ICf	100	S	700	7.00	4.34
chloramben	HXf	14	V	27	1.93	4.2
chlorpyrifos	IPf	560	PF/C/S	525	.94	.003
clofentezine	HXf/s	43	C/B	23	.53	
clopyralid	HXf	10	B	2	.20	104
copper	FXf	216	F/PF/SF/C/S	4170	19.31	9.6
cyhexatin	IXf	37	PF/B	40	1.08	.0012
dalapon	HXf	420	P	296	.70	100
diazinon	IPf	633	C/S	2520	3.98	.09
dimethoate	IPf	33	C	24	.73	8.5
diquat	HXf	5700	P/PF/SF/C/S/B	150	.03	10
diuron	HXs	33	C	79	2.39	20
endosulfan	IOf	10	B	9	.90	.0012
fluzifop-butyl	HXf	60	PF/SF	18	.30	1.37
glyphosate	HXf	100730	P/PF/SF/C/S	17260	.17	86
hexazinone	HAf	16	F	24	1.50	300
iprodione	FXf	532	SF/S	230	.43	
karbutilate	HCf	10	P	80	8.00	135
linuron	HXs	32	SF	19	.59	16
mancozeb	FXf	60	PF/C	920	15.33	4
MCPA	HFf	1000	P	375	.38	10
MCPB	HFf	500	P	800	1.60	10
metalaxyl	FXf	100	S	750	7.50	100
methidathion	IPf	33	C	50	1.52	.01
methomyl	ICf	10	B	6	.60	3.4
metiram	FXf	27	PF	340	12.59	17
metsulfuron	HAf	4000	P	60	.02	
naled	IPf	10	B	80	8.00	.08
nitrothal-isopropyl	FXf	27	PF	140	5.19	
oryzalin	HXs	60	PF/SF	53	.88	1
paraquat	HXf	1700	P/PF/SF/C/S/B	400	.24	32
permethrin	IXf	600	S	56	.09	.009
phosmet	IPf	500	S	5650	11.30	.002
picloram	HOf	20000	P/F	512	.03	20
pirimiphos-methyl	IPf	600	S	1070	1.78	.02
propargite	IXf	33	C	120	3.64	.12
pyrazophos	EPf	14	V	1	.07	.48
sethoxydim	HXf	60	PF/SF	11	.18	
simazine	HAf/s	1010	P/PF/S/B	2750	2.72	100
terbacil	HXs	60	PF/SF	35	.58	90
terbumeton	HAf	660	F/PF/SF/S	960	1.45	14
terbuthylazine	HAf	660	F/PF/SF/S	960	1.45	4.6
triforine	FXf	32	SF	86	2.69	1000
vinclozolin	FXf	542	SF/S/B	310	.57	52.5

PESTICIDE LOADS : WHANGAROA

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	1790	P	1040	.58	2
2,4,5-T	HFf	2120	P/F	2550	1.20	20
amitrole	HAF	65	P/S	32	.49	50
ammonium thiocyanate	XXf	65	P/S	12	.18	10
azinphos methyl	IPf	15	S	15	1.00	.014
captan	FXf	15	S	32	2.13	.3
diazinon	IPf	15	S	56	3.73	.09
diquat	HXF	15	S	3	.20	10
glyphosate	HXF	630	P/S	420	.67	86
iprodione	FXf	15	S	11	.73	
MCPA	HFf	94	P	90	.96	10
paraquat	HXF	75	P/S	30	.40	32
phosmet	IPf	15	S	170	11.33	.002
picloram	HOf	3010	P	60	.02	20
pirimiphos-methyl	IPf	15	S	30	2.00	.02
simazine	HAF/s	15	S	11	.73	100
terbumeton	HAF	15	S	26	1.73	14
terbutylazine	HAF	15	S	26	1.73	4.6
vinclozolin	FXf	15	S	13	.87	52.5

Auckland Region

Franklin, Rodney, Manukau, Waitemata

PESTICIDE LOADS : FRANKLIN

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	49500	P	1600	.03	2
2,4,5-T	HFf	18600	P/F	1960	.11	20
acephate	IPf	520	S/V	640	1.23	1000
alachlor	HXs	2760	M/V	3900	1.41	1.8
amitrole	HAF	1640	P/PF/SF/G/S/V	2100	1.28	50
ammonium thiocyanate	XXf	1640	P/PF/SF/G/S/V	630	.38	10
atrazine	HAF	130	M/V	50	.38	8
azinphos methyl	IPf	1080	PF/SF/B/S	1250	1.16	.014
benalaxyl	FXf	1400	V	70	.05	3.75
bentazone	HXf	1500	CR/V	630	.42	
bitertanol	FAf	45	B	35	.78	2.5
bromacil	HXf	110	V	60	.55	75
bromoxynil	HOf	100	CR	10	.10	.15
captafol	FXf	350	PF/C/B/G/V	880	2.51	.5
captan	FXf	1080	PF/SF/B/S	3590	3.32	.3
carbaryl	ICf	110	S	770	7.00	4.34
chloramben	HXf	2160	V	4060	1.88	4.2
chlorbufam	HCS	1500	V	1350	.90	
chloridazon	HXf/s	1500	V	1350	.90	
chlorpyrifos	IPf	1080	PF/C/G/S	1800	1.67	.003
chlorthal-dimethyl	HXs	1500	V	2800	1.87	
clofentezine	HXf/s	45	B	14	.31	
clopyralid	HXf	155	B/V	20	.13	104
copper	FXf	1380	F/PF/SF/C/S/V	11120	8.06	9.6
cyanazine	HAs	100	CR	12	.12	10
cyfluthrin	IXf	1500	V	20	.01	
cyhexatin	IXf	135	PF/B	140	1.04	.0012
dalapon	HXf	490	P	120	.24	100
deltamethrin	IXf	2210	S/V	90	.04	.005
demeton-S-methyl	IPf	100	CR	15	.15	4.3
diazinon	IPf	1190	C/S	4080	3.43	.09
dicamba	HOf	110	V	20	.18	135
dichlofluanid	FXf	20	G	30	1.50	5
dichlorprop	HFf	100	CR	150	1.50	165
dichlorvos	IPf	110	S	80	.73	.5
dimethoate	IPf	90	C	50	.56	8.5
dinocap	FXf	110	S	780	7.09	.5
diquat	HXf	6570	PF/SF/C/B/G/S/V	1350	.21	10
diuron	HXs	220	S/V	440	2.00	20
endosulfan	IOf	45	B	40	.89	.0012
EPTC	HCS	20	M	50	2.50	19
fensulfothion	IPs	110	V	220	2.00	8.8
fluazifop-butyl	HXf	1660	PF/SF/V	125	.08	1.37
fluvalinate	IXf	110	S	25	.23	.014
folpet	FXf	90	C	225	2.50	
fosamine	HXf	4000	P	80	.02	420
glyphosate	HXf	30500	P/PF/SF/C/G/S/V	9000	.30	86
hexazinone	HAF	2430	P/F	570	.23	300
ioxynil	HXf	1500	V	840	.56	4
iprodione	FXf	1260	SF/S/G/V	830	.66	
isazophos	IPs	20	M	14	.70	.008
linuron	HXs	3080	SF/V	1000	.32	16
mancozeb	FXf	1500	PF/G/V	4140	2.76	4
maneb	FXf	3910	V	38000	9.72	.53
MCPA	HFf	20300	P/CR	4600	.23	10
MCPB	HFf	100	CR	20	.20	10
mecoprop	HFf	100	CR	45	.45	230
metalaxyl	FXf	1510	S/V	900	.60	100
methabenzthiazuron	HXf	1500	V	2000	1.33	15.9
methamidophos	IPf	2000	V	1800	.90	51
methazole	HXf	2160	V	240	.11	4
methomyl	ICf	65	B/G	30	.46	3.4
metiram	FXf	90	PF	1130	12.56	17
metolachlor	HXf	110	V	30	.27	2
metribuzin	HAF	1510	V	525	.35	76
naled	IPf	645	B/V	430	.67	.08
nitrothal-isopropyl	FXf	90	PF	460	5.11	
oryzalin	HXs	160	PF/SF	140	.88	1
paraquat	HXf	6570	PF/SF/C/B/G/S/V	2690	.41	32
parathion methyl	IPf	1500	V	150	.10	2.7
penconazole	FAf	2160	V	40	.02	
pendimethalin	HXf/s	20	M	2	.10	.4
permethrin	IXf	4190	S/V	1200	.29	.009
phorate	IPs	20	M	14	.70	.01
phosmet	IPf	880	S	9940	11.30	.002
picloram	HOf	55000	P	140	.00	20
pirimiphos-methyl	IPf	990	S	1800	1.82	.02

PESTICIDE LOADS : FRANKLIN

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
procymidone	FXf	320	G/V	400	1.25	10
propachlor	HXs	1500	V	5600	3.73	.17
propiconazole	FXf	100	CR	5	.05	100
propineb	FCf	2400	V	4670	1.95	1.9
propyzamide	HXs	300	V	340	1.13	
prothiofos	IPf	20	G	20	1.00	1.8
pyrazophos	FPf	2160	V	240	.11	.48
sethoxydim	HXf	1660	PF/SF/V	60	.04	
simazine	HAF/s	4310	P/PF/SE/C/B/G/S/V	1500	.35	100
terbacil	HXs	160	PF/SF	100	.63	90
terbumeton	HAF	1260	PF/SF/S/V	1780	1.41	14
terbutylazine	HAF	1260	PF/SF/S/V	1780	1.41	4.6
triadimefon	FAf	2160	V	60	.03	25
triadimenol	FAf	100	CR	5	.05	23.5
triazophos	IPf	1500	V	220	.15	5.6
tridemorph	FXf	100	CR	14	.14	
triforine	FXf	110	SF/S	240	2.18	1000
vinclozolin	FXf	1320	SF/B/G/S/V	1360	1.03	52.5

PESTICIDE LOADS : RODNEY

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HfF	21300	P	15800	.74	2
2,4,5-T	HfF	17300	P/F	8600	.50	20
alachlor	HXs	67	V	110	1.64	1.8
amitrole	HAF	6120	P/PF/SF/S/G	3230	.53	50
ammonium thiocyanate	XXf	6120	P/PF/SF/S/G	785	.13	10
azinphos methyl	IPf	850	PF/SF/B/S	3100	3.65	.014
bitertanol	FAf	70	B	50	.71	2.5
captafol	FXf	480	PF/B/G	880	1.83	.5
captan	FXf	850	PF/SF/B/S	4310	5.07	.3
chlorbufam	HCs	67	V	125	1.87	
chlorpyrifos	IPf	850	PF/S/G	3480	4.09	.003
clofentezine	HXf/s	70	B	20	.29	
clopyralid	HXf	70	B	10	.14	104
copper	FXf	380	F/PF/SF/B	4500	11.84	9.6
cyhexatin	IXf	330	PF/B	380	1.15	.0012
dalapon	HXf	340	P	240	.71	100
DDT	IOf	20	B	10	.50	.0018
diazinon	IPf	443	S	1660	3.75	.09
dichlofluanid	FXf	167	B/G	375	2.25	5
dichlorvos	IPf	20	B	10	.50	.5
dinoseb	HXf	20	B	140	7.00	.14
dlquat	HXf	1070	PF/SF/B/S/G/V	310	.29	10
endosulfan	IOf	85	B	70	.82	.0012
fenarimol	FXf	150	G	2	.01	.91
fluazifop-butyl	HXf	325	PF/SF	60	.18	1.37
folpet	FXf	20	B	200	10.00	
glyphosate	HXf	86910	P/PF/SF/S/G	16100	.19	86
hexazinone	HAF	30	F	40	1.33	300
iprodisone	FXf	670	SF/B/G/S	470	.70	
linuron	HXs	65	SF	40	.62	16
mancozeb	FXf	410	PF/G	10350	25.24	4
maneb	FXf	20	B	290	14.50	.53
MCPA	HfF	860	P	330	.38	10
methazole	HXf	70	V	10	.14	4
methomyl	ICf	220	B/G	70	.32	3.4
metiram	FXf	260	PF	3280	12.62	17
naled	IPf	70	B	530	7.57	.08
nitrothal-isopropyl	FXf	260	PF	1330	5.12	
oryzalin	HXs	325	PF/SF	290	.89	1
paraquat	HXf	1930	P/PF/SF/B/G/S/V	750	.39	32
parathion methyl	IPf	20	B	10	.50	2.7
penconazole	FAf	150	G	2	.01	
permethrin	IXf	443	S	40	.09	.009
phosmet	IPf	443	S	5000	11.29	.002
picloram	HOf	17240	P/F	490	.03	20
pirimiphos-methyl	IPf	443	S	840	1.90	.02
procymidone	FXf	150	G	40	.27	10
prothiofos	IPf	150	G	150	1.00	1.8
pyrazophos	FPf	70	V	7	.10	.48
sethoxydim	HXf	325	PF/SF	63	.19	
simazine	HAF/s	1280	P/PF/SF/B/G/S	2915	2.28	100
terbacil	HXs	325	PF/SF	195	.60	90
terbumeton	HAF	780	PF/SF/B/S	980	1.26	14
terbuthylazine	HAF	780	PF/SF/B/S	980	1.26	4.6
triadimefon	FAf	220	G/V	3	.01	25
vinclozolin	FXf	720	SF/B/G/S	825	1.15	52.5

PESTICIDE LOADS : MANUKAU

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	Hff	580	P	100	.17	2
2,4,5-T	Hff	1170	P/F	430	.37	20
acephate	IPf	100	V	60	.60	1000
alachlor	HXs	550	M/V	620	1.13	1.8
amitrole	HAf	650	P/PF/SF/G/S	540	.83	50
ammonium thiocyanate	XXf	650	P/PF/SF/G/S	130	.20	10
atrazine	HAf	60	M	100	1.67	8
azinphos methyl	IPf	250	PF/SF/B/S	560	2.24	.014
bitertanol	FAf	30	B	20	.67	2.5
bromacil	HXf	10	C	24	2.40	75
captafol	FXf	100	PF/C/B/G	240	2.40	.5
captan	FXf	250	PF/SF/B/S	1090	4.36	.3
carbofuran	ICf	60	M	2	.03	.28
chloramben	HXf	240	V	450	1.88	4.2
chlorpyrifos	IPf	230	SF/C/G/S	490	2.13	.003
clofentezine	HXf/s	30	B	10	.33	
clopyralid	HXf	30	B	5	.17	104
copper	FXf	420	PF/SF/C/V	3165	7.54	9.6
cyhexatin	IXf	60	PF/B	60	1.00	.0012
deltamethrin	IXf	250	V	5	.02	.005
diazinon	IPf	170	C/S	610	3.59	.09
dicamba	HOf	60	M	6	.10	135
dichlofluanid	FXf	30	G	60	2.00	5
dimethoate	IPf	10	C	6	.60	8.5
diquat	HXf	670	PF/SF/C/B/G/V	120	.18	10
diuron	HXs	10	C	24	2.40	20
endosulfan	IOf	30	B	30	1.00	.0012
EPTC	HCs	60	M	160	2.67	19
fensulfothion	IPs	40	V	80	2.00	8.8
folpet	FXf	10	C	25	2.50	
glyphosate	HXf	6800	P/PF/SF/C/G/S/V	2140	.31	86
iprodione	FXf	320	SF/G/S/V	190	.59	
isazophos	IPs	60	M	40	.67	.008
linuron	HXs	70	SF/V	80	1.14	16
mancozeb	FXf	60	PF/G	1380	23.00	4
maneb	FXf	390	V	1590	4.08	.53
methamidophos	IPf	250	V	390	1.56	51
methazole	HXf	240	V	25	.10	4
methomyl	ICf	60	B/G	30	.50	3.4
metiram	FXf	30	PF	380	12.67	17
metolachlor	HXf	60	M	40	.67	2
metribuzin	HAf	40	V	15	.38	76
metsulfuron	HAf	730	P	430	.59	
naled	IPf	280	B/V	270	.96	.08
nitrothal-isopropyl	FXf	30	PF	150	5.00	
oryzalin	HXs	60	PF/SF	54	.90	1
paraquat	HXf	825	P/PF/SF/C/B/G/S/V	290	.35	32
penconazole	FAf	240	V	5	.02	
pendimethalin	HXf/s	60	M	6	.10	.4
permethrin	IXf	510	S/V	60	.12	.009
phorate	IPs	60	M	40	.67	.01
phosmet	IPf	160	S	1810	11.31	.002
picloram	HOf	290	P	134	.46	20
pirimiphos-methyl	IPf	160	S	300	1.88	.02
procymidone	FXf	130	G/V	135	1.04	10
propineb	FCf	350	V	500	1.43	1.9
propyzamide	HXs	100	V	110	1.10	
prothiofos	IPf	30	G	30	1.00	1.8
pyrazophos	FPf	240	V	25	.10	.48
sethoxydim	HXf	60	PF/SF	12	.20	
simazine	HAf/s	290	PF/SF/C/B/G/S	265	.91	100
terbacil	HXs	60	PF/SF	40	.67	90
terbumeton	HAf	220	PF/SF/S	320	1.45	14
terbutylazine	HAf	220	PF/SF/S	320	1.45	4.6
triadimefon	FAf	270	G/V	10	.04	25
triforine	FXf	30	SF	80	2.67	1000
vinclozolin	FXf	350	SF/B/G/S/V	315	.90	52.5

PESTICIDE LOADS : WAITEMATA (incl. Gt.Barrier & Waiheke)

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	200	P	40	.20	2
2,4,5-T	HFf	400	P	140	.35	20
acephate	IPf	31	C	140	4.52	1000
alachlor	HXs	20	V	2	.10	1.8
amitrole	HAF	990	P/PF/SF/G/S/V	380	.38	50
ammonium thiocyanate	XXf	990	P/PF/SF/G/S	140	.14	10
azinphos methyl	IPf	700	PF/SF/B/S	4070	5.81	.014
bitertanol	FAf	30	B	25	.83	2.5
bromacil	HXf	4	V	2	.50	.75
bromoxynil	HOf	31	C	75	2.42	.15
captafol	FXf	610	PF/C/B/G/V	1290	2.11	.5
captan	FXf	700	PF/SF/B/S	5025	7.18	.3
chloramben	HXf	20	V	40	2.00	4.2
chlorpyrifos	IPf	690	PF/C/G/S	4520	6.55	.003
clofentezine	HXf/s	60	C/B	35	.58	
clopyralid	HXf	30	B	5	.17	104
copper	FXf	580	PF/SF/C/B	24020	41.41	9.6
cyhexatin	IXf	344	PF	450	1.31	.0012
DDT	IOf	10	B	5	.50	.0018
diazinon	IPf	150	C/S	620	4.13	.09
dichlofluanid	FXf	210	B/G	440	2.10	5
dichlorvos	IPf	10	B	6	.60	.5
dimethoate	IPf	30	C	20	.67	8.5
dinoseb	HXf	10	B	80	8.00	.14
diquat	HXf	930	PF/SF/C/B/G/S/V	160	.17	10
diuron	HXs	35	C/V	90	2.57	20
endosulfan	IOf	38	B	20	.53	.0012
fenarimol	FXf	200	G	2	.01	.91
fluazifop-butyl	HXf	540	PF/SF	160	.30	1.37
folpet	FXf	10	B	120	12.00	
glyphosate	HXf	3800	P/PF/SF/C/B/G/S/V	4500	1.18	86
iprodione	FXf	326	B/G/S	140	.43	
linuron	HXs	195	SF	120	.62	16
mancozeb	FXf	575	PF/C/G	13780	23.97	4
maneb	FXf	10	B	165	16.50	.53
methidathion	IPf	30	C	50	1.67	.01
methomyl	ICf	230	B/G	60	.26	3.4
metiram	FXf	344	PF	4330	12.59	17
metsulfuron	HAF	250	P	150	.60	
naled	IPf	30	B	230	7.67	.08
nitrothal-isopropyl	FXf	344	PF	1750	5.09	
oryzalin	HXs	539	PF/SF	485	.90	1
paraquat	HXf	980	P/PF/SF/C/B/G/S/V	810	.83	32
parathion methyl	IPf	10	B	5	.50	2.7
penconazole	FAf	200	G	2	.01	
permethrin	IXf	116	S	12	.10	.009
phosmet	IPf	116	S	1310	11.29	.002
picloram	HOf	720	P	50	.07	20
pirimiphos-methyl	IPf	116	S	220	1.90	.02
procymidone	FXf	200	G	50	.25	10
propargite	IXf	30	C	110	3.67	.12
prothiofos	IPf	200	G	200	1.00	1.8
sethoxydim	HXf	540	PF/SF	110	.20	
simazine	HAF/s	890	PF/SF/B/G/S/V	970	1.09	100
terbacil	HXs	540	PF/SF	327	.61	90
terbumeton	HAF	670	PF/SF/B/S	540	.81	14
terbuthylazine	HAF	670	PF/SF/B/S	540	.81	4.6
triadimefon	FAf	620	G/V	5	.01	25
vinclozolin	FXf	350	B/G/S	310	.89	52.5

Waikato Region

Hauraki Plains, Matamata, Ohinemuri, Otorohanga, Piako, Raglan, Taumarunui, Taupo, Thames-Coromandel, Waikato, Waipa, Waitomo

PESTICIDE LOADS : HAURAKI PLAINS

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	2300	P	1380	.60	2
2,4,5-T	HFf	164	P/F	320	1.95	20
alachlor	HXs	567	M	510	.90	1.8
atrazine	HAF	574	F/M	990	1.72	8
carbofuran	ICf	567	M	23	.04	.28
cyanazine	HAs	567	M	7.4	.01	10
dalapon	HXf	60	P	90	1.50	100
dicamba	HOf	567	M	57	.10	135
diquat	HXf	355	P	43	.12	10
EPTC	HCS	567	M	1474	2.60	19
glyphosate	HXf	1380	P	580	.42	86
isazophos	IPs	567	M	400	.71	.008
MCPA	HFf	1105	P	1060	.96	10
metolachlor	HXf	567	M	340	.60	2
metsulfuron	HAF	37	P	1	.03	
paraquat	HXf	1240	P	310	.25	32
pendimethalin	HXf/s	567	M	57	.10	.4
phorate	IPs	567	M	400	.71	.01
picloram	HOf	550	P/F	61	.11	20
simazine	HAF/s	306	P/F	106	.35	100

PESTICIDE LOADS : MATAMATA

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	6100	P	3660	.60	2
2,4,5-T	HFf	1425	P/F	1718	1.21	20
alachlor	HXs	1580	M/V	1427	.90	1.8
amitrole	HAf	125	PF	70	.56	50
asulam	HCf	48	F	270	5.63	5000
atrazine	HAF	2491	F/M	6380	2.56	8
azinphos methyl	IPf	125	PF/SF/S/B	420	3.36	.014
benomyl	FCf	59	B/V	227	3.85	.17
bromacil	HXf	41	V	20	.49	75
captafol	FXf	64	PF/B/V	168	2.63	.5
captan	FXf	134	PF/SF/B/V	1436	10.72	.3
carbaryl	ICf	7	PF/B	128	18.29	4.34
carbofuran	ICf	1559	M	62	.04	.28
chlorpyrifos	IPf	75	PF/S	431	5.75	.003
copper	FXf	136	PF/SF/C/B/V	2400	17.65	9.6
cyanazine	HAs	1559	M	16	.01	10
cyhexatin	IXf	56	PF/B	55	.98	.0012
dalapon	HXf	159	P	238	1.50	100
delamethrin	IXf/s	27	B	11	.41	.005
diazinon	IPf	58	C/S/V	331	5.71	.09
dicamba	HOf	1600	M/V	164	.10	135
dicofol	IOf	7	B	11	1.57	
dichlofluanid	FXf	6	B	23	3.83	5
dichlorvos	IPf	40	B	270	6.75	.5
dinoseb	HXf	13	B	52	4.00	.14
diquat	HXf	1150	P/PF/SF/S/B/V	180	.16	10
diuron	HXs	46	B/V	125	2.72	20
dodine	FXf	6	PF	57	9.50	.6
endosulfan	IOf	10	B	15	1.50	.0012
EPTC	HCs	1559	M	4053	2.60	19
fluazifop-butyl	HXf	90	PF/SF/S	28	.31	1.37
folpet	FXf	6	C/B	83	13.83	
glyphosate	HXf	4000	P/F/PF/SF/S/V	2200	.55	86
hexazinone	HAF	75	F/B	108	1.44	300
iprodione	FXf	95	SF/S/B	157	1.65	
isazophos	IPs	1559	M	1090	.70	.008
linuron	HXs	70	SF/V	26	.37	16
mancozeb	FXf	82	PF/B/V	997	12.16	4
maneb	FXf	60	B/V	172	2.87	.53
MCPA	HFf	2930	P	2810	.96	10
metalaxyl	FXf	64	B/V	48	.75	100
methomyl	ICf	32	E	29	.91	3.4
metiram	FXf	22	PF	277	12.59	17
metribuzin	HAF	55	V	17	.31	76
metolachlor	HXf	1655	M/V	964	.58	2
metsulfuron	HAF	98	P	2.3	.02	
nitrothal isopropyl	FXf	22	PF	112	5.09	
oryzalin	HXs	90	PF/SF/S	81	.90	1
paraquat	HXf	3500	P/PF/SF/S/B/V	970	.28	32
pendimethalin	HXf/s	1559	M	156	.10	.4
permethrin	IXf	27	B	41	1.52	.009
phorate	IPs	1559	M	1090	.70	.01
phosmet	IPf	47	S	479	10.19	.002
picloram	HOf	1511	P/F	192	.13	20
prometryne	HAF	55	V	17	.31	2.5
pyrazophos	FPf	24	V	11	.46	.48
sethoxydim	HXf	90	PF/SF/S	18	.20	
simazine	HAF/s	1820	P/F/PF/SF/S/B	1750	.96	100
terbacil	HXs	126	PF/SF/S/B	77	.61	90
terbumeton	HAF	140	PF/SF/S/B/V	96	.69	14
terbuthylazine	HAF	140	PF/SF/S/B/V	96	.69	4.6
triclopyr	HOf	7	F	27	3.86	120
triforine	FXf	6	SF	16	2.67	1000
vinclozolin	FXf	53	SF/S	171	3.23	52.5

PESTICIDE LOADS : OHINEMURI

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	1963	P	1180	.60	2
2,4,5-T	HFf	135	P/F	268	1.99	20
alachlor	HXs	157	M	141	.90	1.8
amitrole	HAf	164	SF/S	16	.10	50
atrazine	HAf	157	M	267	1.70	8
azinphos methyl	IPf	176	PF/SF/S/B	245	1.39	.014
benomyl	FCf	5	B/V	13	2.60	.17
captafol	FXf	7	PF/B/V	14	2.00	.5
captan	FXf	22	PF/SF/B/V	250	11.36	.3
carbofuran	ICf	157	M	6	.04	.28
chlorpyrifos	IPf	160	PF/S	420	2.63	.003
copper	FXf	34	PF/SF/C/B/V	771	22.68	9.6
dalapon	HXf	51	P	77	1.51	100
diazinon	IPf	167	C/S	1083	6.49	.09
dicamba	HOf	157	M	16	.10	135
dicofol	IOf	5	B	7.5	1.50	
dichlofluanid	FXf	4	B	15	3.75	5
dichlorvos	IPf	13	B	80	6.15	.5
dinoseb	HXf	5	B	20	4.00	.14
diquat	HXf	490	P/PF/SF/C/S/B/V	122	.25	10
endosulfan	IOf	6	B	10	1.67	.0012
EPTC	HCS	157	M	408	2.60	19
fluazifop-butyl	HXf	166	PF/SF/S	50	.30	1.37
folpet	FXf	11	C/B	55	5.00	
glyphosate	HXf	1530	P/PF/SF/C/S/V	1460	.95	86
iprodione	FXf	172	SF/S/B	432	2.51	
isazophos	IPs	157	M	110	.70	.008
mancozeb	FXf	7	PF/B/V	109	15.57	4
maneb	FXf	5	B/V	54	10.80	.53
MCPA	HFf	942	P	905	.96	10
metalaxyl	FXf	7	B/V	4	.57	100
methomyl	ICf	7	B	5.4	.77	3.4
metolachlor	HXf	157	M	94	.60	2
metasulfuron	HAf	31	P	1	.03	
oryzalin	HXs	166	PF/SF/S	149	.90	1
paraquat	HXf	1240	P/PF/SF/C/S/B/V	457	.37	32
pendimethalin	HXf/s	157	M	16	.10	.4
phorate	IPs	157	M	110	.70	.01
phosmet	IPf	158	S	1612	10.20	.002
picloram	HOf	953	P/F	360	.38	20
sethoxydim	HXf	166	PF/SF/S	33	.20	
simazine	HAf/s	432	P/PF/SF/C/S/B	258	.60	100
terbacil	HXs	173	PF/SF/S/B	104	.60	90
terbumeton	HAf	175	PF/SF/S/B/V	108	.62	14
terbuthylazine	HAf	175	PF/SF/S/B/V	108	.62	4.6
vinclozolin	FXf	164	SF/S	548	3.34	52.5

PESTICIDE LOADS : OTOROHANGA

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4,5-T	HFf	120	P/F	300	2.50	20
alachlor	HXs	1930	M	1740	.90	1.8
amitrole	HAf	35	PF/SF/S	4	.11	50
atrazine	IPf	1950	F/M	3360	1.72	8
azinphos methyl	IPf	35	PF/SF/S	77	2.20	.014
benomyl	FCf	3	V	12	4.00	.17
captafol	FXf	10	PF/B/V	16	1.60	.5
captan	FXf	20	PF/SF/B/V	206	10.30	.3
carbofuran	ICf	1930	M	77	.04	.28
chlorpyrifos	IPf	33	PF/S	123	3.73	.003
copper	FXf	17	PF/SF/B	293	17.24	9.6
cyanazine	HAs	1930	M	25	.01	10
cyhexatin	IXf	4	PF	5.2	1.30	.0012
delamethrin	IXf/s	11	B	3	.27	.005
diazinon	IPf	31	S/V	199	6.42	.09
dicamba	HOf	1930	M/V	193	.10	135
dicofol	IOf	11	B	9	.82	
dichlofluanid	FXf	11	B	66	6.00	5
dichlorvos	IPf	11	B	48	4.36	.5
dinoseb	HXf	11	B	32	2.91	.14
diquat	HXf	51	PF/SF/S/B/V	22	.43	10
diuron	HXs	11	B	1.3	.12	20
endosulfan	IOf	11	B	55	5.00	.0012
EPTC	HCs	1930	M	5020	2.60	19
fluazifop-butyl	HXf	8	PF/SF/S	3.2	.40	1.37
folpet	FXf	11	B	30	2.73	
glyphosate	HXf	80	PF/SF/S/V	210	2.63	86
iprodione	FXf	42	SF/S/B	87	2.07	
isazophos	IPs	1930	M	1350	.70	.008
linuron	HXs	5	SF/V	2.1	.42	16
mancozeb	FXf	18	PF/B/V	190	10.56	4
metiram	FXf	4	PF	50	12.50	17
metolachlor	HXf	1930	M	579	.30	2
naled	IPf	11	B	4	.36	.08
oryzalin	HXs	35	PF/SF/S	30	.86	1
paraquat	HXf	51	PF/SF/S/B/V	46	.90	32
pendimethalin	HXf/s	1930	M	193	.10	.4
phorate	IPs	1930	M	1350	.70	.01
phosmet	IPf	29	S	296		.002
sethoxydim	HXf	33	PF/S	7	.21	
simazine	HAf/s	55	PF/SF/C/S	65	1.18	100
terbacil	HXs	33	PF/SF/S	20	.61	90
terbumeton	HAf	37	PF/SF/S/V	23	.62	14
terbuthylazine	HAf	37	PF/SF/S/V	23	.62	4.6
vinclozolin	FXf	31	SF/S	102	3.29	52.5

PESTICIDE LOADS : PIAKO

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	10350	P	7690	.74	2
2,4,5-T	HFf	245	P	1404	5.73	20
alachlor	HXs	2230	M/V	2030	.91	1.8
amitrole	HAF	160	P/PF/SF/S/V	533	3.33	50
ammonium thiocyanate	XXf	31	V	43	1.39	10
atrazine	HAF	2201	M	3740	1.70	8
azinphos methyl	IPf	139	PF/SF/S/B	547	3.94	.014
benomyl	FCf	19	B/P	65	3.42	.17
bitertanol	FXf	5	B	2.5	.50	
bromacil	HXf	67	P/C/V	302	4.51	75
bromopropylate	IOs	11	B	28	2.55	.35
captafol	FXf	29	PF/C/B/V	47	1.62	.5
captan	FXf	81	PF/SF/B/V	950	11.73	.3
carbaryl	ICf	7	B	97	13.86	4.34
carbofuran	ICf	2201	M	88	.04	.28
chlorpyrifos	IPf	52	PF/C/S	340	6.54	.003
chlorthiamid	HXs	340	P	68	.20	41
clopyralid	HXf	15	B/V	1.8	.12	104
copper	FXf	82	PF/SF/C/B	2160	26.34	9.6
cyanazine	HAs	2201	M	22	.01	10
cyhexatin	IXf	255	PF/B	172	.67	.0012
dalapon	HXf	130	P	1480	11.38	100
delamethrin	IXf/s	11	B	4	.36	.005
diazinon	IPf	48	C/S/V	181	3.77	.09
dicamba	HOf	2201	M	220	.10	135
dicofol	IOf	11	B	20	1.82	
dichlofluanid	FXf	13	B	43	3.31	5
dichlorvos	IPf	32	B	207	6.47	.5
dimethoate	IPf	7	C	4.2	.60	8.5
dinoseb	HXf	21	B	94	4.48	.14
diquat	HXf	150	P/PF/SF/S/B/V	55	.37	10
diuron	HXs	77	P/C/B	298	3.87	20
dodine	FXf	4	PF	42	10.50	.6
endosulfan	IOf	14	B	22	1.57	.0012
EPTC	HCs	2201	M	5720	2.60	19
fluazifop-butyl	HXf	60	PF/SF/S	18	.30	1.37
folpet	FXf	14	C/B	130	9.29	
fosamine	HXf	65	P	312	4.80	420
glyphosate	HXf	860	P/PF/SF/C/V	1560	1.81	86
hexazinone	HAF	11	B	14	1.27	300
iprodione	FXf	67	SF/B/S	117	1.75	
isazophos	IPs	2201	M	1540	.70	.008
lindane	IOF/s	4	PF	8	2.00	.025
linuron	HXs	29	SF/V	13	.45	16
mancozeb	FXf	30	PF/B	655	21.83	4
maneb	FXf	22	B/V	142	6.45	.53
MCPA	HFf	1200	P	1800	1.50	10
metalaxyl	FXf	25	B/V	22	.88	100
methomyl	ICf	17	B	14	.82	3.4
metiram	FXf	14	PF	176	12.57	17
metribuzin	HAF	18	V	5.4	.30	76
metolachlor	HXf	2210	M/V	1320	.60	2
naled	IPf	4	B	8.4	2.10	.08
nitrothal isopropyl	FXf	17	PF	87	5.12	
oryzalin	HXs	74	P/PF/SF/S	74	1.00	1
paraquat	HXf	120	PF/SF/C/S/B/V	65	.54	32
parathion methyl	IPf	14	PF/B	23	1.64	2.7
pendimethalin	HXf/s	2201	M	220	.10	.4
permethrin	IXf	11	B	16	1.45	.009
phorate	IPs	2201	M	1540	.70	.01
phosmet	IPf	23	S	235	10.22	.002
picloram	HOf	800	P	257	.32	20
prometryne	HAF	17	V	5	.29	2.5
pyrazophos	FPf	6	V	3	.50	.48
sethoxydim	HXf	45	PF/S	9	.20	
simazine	HAF/s	78	PF/SF/C/S/B	86	1.10	100
terbacil	HXs	81	PF/SF/S/B	53	.65	90
terbumeton	HAF	70	PF/SF/S/B	46	.66	14
terbuthylazine	HAF	80	PF/SF/S/B/V	54	.68	4.6
triforine	FXf	15	SF	41	2.73	1000
vinclozolin	FXf	38	SF/S	105	2.76	52.5

PESTICIDE LOADS : RAGLAN

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	9100	P	5460	.60	2
2,4,5-T	HFf	1225	P/F	2450	2.00	20
alachlor	HXs	605	M	545	.90	1.8
amitrole	HAF	107	PF/SF/S	11	.10	50
atrazine	HAF	624	F/M	1100	1.76	8
azinphos methyl	IPf	107	PF/SF/S	214	2.00	.014
benomyl	FCf	800	V	3200	4.00	.17
bromacil	HXf	49	C/V	32	.65	75
captafol	FXf	60	PF/C/B/V	165	2.75	.5
captan	FXf	823	PF/SF/B/V	6624	8.05	.3
carbofuran	ICf	605	M	24	.04	.28
chlorpyrifos	IPf	108	PF/C/S	388	3.59	.003
copper	FXf	823	PF/SF/C/B/V	3590	4.36	9.6
cyanazine	HAs	605	M	7.9	.01	10
cyhexatin	IXf	12	PF	15	1.25	.0012
diazinon	IPf	173	C/S/V	707	4.09	.09
dicamba	HOF	605	M/V	61	.10	135
dicofol	IOf	4	B	3.2	.80	
dichlofluanid	FXf	4	B	24	6.00	5
dichlorvos	IPf	4	B	18	4.50	.5
diquat	HXf	960	PF/SF/S/B/V	220	.23	10
diuron	HXs	8	C/B	10	1.25	20
dodine	FXf	2	PF	19	9.50	.6
endosulfan	IOf	4	B	20	5.00	.0012
EPTC	HCS	605	M	1570	2.60	19
fluazifop-butyl	HXf	107	PF/SF/S	11	.10	1.37
folpet	FXf	8	C/B	21	2.63	
glyphosate	HXf	470	PF/SF/C/S/V	670	1.43	86
iprodione	FXf	99	SF/S/B	246	2.48	
isazophos	IPs	605	M	424	.70	.008
linuron	HXs	807	SF/V	243	.30	16
mancozeb	FXf	818	PF/B/V	3690	4.51	4
maneb	FXf	804	V	1200	1.49	.53
MCPA	HFf	25425	P	28000	1.10	10
metalaxyl	FXf	808	B/V	644	.80	100
metiram	FXf	10	PF	126	12.60	17
metribuzin	HAF	804	V	241	.30	76
metolachlor	HXf	650	M/V	376	.58	2
nitrothal isopropyl	FXf	10	PF	51	5.10	
oryzalin	HXs	107	PF/SF/S	94	.88	1
paraquat	HXf	960	PF/SF/S/B/V	427	.44	32
pendimethalin	HXf/s	605	M	61	.10	.4
phorate	IPs	605	M	424	.70	.01
phosmet	IPf	92	S	938	10.20	.002
prometryne	HAF	804	V	243	.30	2.5
pyrazophos	FPf	77	V	35	.45	.48
sethoxydim	HXf	104	PF/S	21	.20	
simazine	HAF/s	130	F/PF/SF/C/S	138	1.06	100
terbacil	HXs	107	PF/SF/S	64	.60	90
terbumeton	HAF	152	PF/SF/S/V	100	.66	14
terbuthylazine	HAF	152	PF/SF/S/V	100	.66	4.6
vinclozolin	FXf	95	SF/S	318	3.35	52.5

PESTICIDE LOADS : TAUMARUNUI

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	11430	P	6860	.60	2
2,4,5-T	HFf	880	P/F	1645	1.87	20
alachlor	HXs	433	M	390	.90	1.8
asulam	HCf	5	F	27	5.40	5000
atrazine	HAF	528	M/F	1116	2.11	8
carbofuran	ICf	433	M	17	.04	.28
cyanazine	HAs	433	M	14	.03	10
dicamba	HOf	433	M	43	.10	135
diquat	HXf	1760	P	211	.12	10
EPTC	HCs	433	M	1126	2.60	19
glyphosate	HXf	6860	P/F	2890	.42	86
isazophos	IPs	433	M	303	.70	.008
MCPA	HFf	5485	P	5300	.97	10
metolachlor	HXf	433	M	260	.60	2
metsulfuron	HAF	183		4	.02	
paraquat	HXf	6170	P	1540	.25	32
pendimethalin	HXF/s	433	M	43	.10	.4
phorate	IPs	433	M	303	.70	.01
picloram	HOf	2750	P/F	305	.11	20
simazine	HAF/s	1580	P/F	618	.39	100

PESTICIDE LOADS : TAUPO

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	6050	P	3630	.60	2
2,4,5-T	HFf	1840	P/F	2080	1.13	20
alachlor	HXs	3540	M/V	5950	1.68	1.8
amitrole	HAf	32	PF/S	3.2	.10	50
asulam	HCF	68	F	380	5.59	5000
atrazine	HAF	4760	F/M	11120	2.34	8
azinphos methyl	IPf	32	PF/S	113	3.53	.014
captafol	FXf	10	PF	18	1.80	.5
captan	FXf	13	PF	52	4.00	.3
carbaryl	ICf	3	PF	62	20.67	4.34
carbofuran	ICf	3441	M	138	.04	.28
chlorpyrifos	IPf	32	PF/S	192	6.00	.003
copper	FXf	13	PF	550	42.31	9.6
cyanazine	HAs	3441	M	34	.01	10
cyhexatin	IXf	13	PF	15	1.15	.0012
dalapon	HXf	157	P	236	1.50	100
diazinon	IPf	19	S	129	6.79	.09
dicamba	HOf	3441	M	344	.10	135
diquat	HXf	1000	P/PF/S	128	.13	10
dodine	FXf	3	PF	29	9.67	.6
EPTC	HCS	3441	M	8950	2.60	19
fluazifop-butyl	HXf	32	PF/S	10	.31	1.37
glyphosate	HXf	3740	P/F/PF/S	1710	.46	86
hexazinone	HAF	48	F	73	1.52	300
iprodione	FXf	19	S	49	2.58	
isazophos	IPs	3441	M	2410	.70	.008
mancozeb	FXf	10	PF	315	31.50	4
MCPA	HFf	2910	P	2790	.96	10
metiram	FXf	10	PF	126	12.60	17
metolachlor	HXf	3441	M	2065	.60	2
metsulfuron	HAF	97	P	2.3	.02	
nitrothal isopropyl	FXf	10	PF	51	5.10	
oryzalin	HXs	32	PF/SF/S	29	.91	1
paraquat	HXf	3300	P/PF/S	853	.26	32
pendimethalin	HXf/s	3441	M	344	.10	.4
phorate	IPs	3441	M	2410	.70	.01
phosmet	IPf	19	S	194	10.21	.002
picloram	HOf	1520	P/F	203	.13	20
sethoxydim	HXf	32	PF/S	6.4	.20	
simazine	HAF/s	2140	P/F/PF/S	2264	1.06	100
terbacil	HXs	32	PF/S	19	.59	90
terbumeton	HAF	32	PF/S	19	.59	14
terbuthylazine	HAF	32	PF/S	19	.59	4.6
vinclozolin	FXf	19	S	65	3.42	52.5

PESTICIDE LOADS : THAMES-COROMANDEL

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	40	P	16	.40	2
2,4,5-T	HFf	300	P/F	316	1.05	20
alachlor	HXs	178	M	160	.90	1.8
amitrole	HAF	233	P/PF/SF/S	33	.14	50
asulam	HCF	13	F	70	5.38	5000
atrazine	HAF	420	F/M	660	1.57	8
azinphos methyl	IPf	173	PF/SF/S	380	2.20	.014
bromacil	HXf	24	P/C	58	2.42	75
captafol	FXf	18	PF/C	28	1.56	.5
captan	FXf	46	PF/SF	405	8.80	.3
carbaryl	ICf	2	PF	42	21.00	4.34
carbofuran	ICf	178	M	7	.04	.28
chlorpyrifos	IPf	187	PF/C/S	543	2.90	.003
copper	FXf	60	PF/SF/C	2740	45.67	9.6
cyanazine	HAS	178	M	2.2	.01	10
cyhexatin	IXf	6	PF	6	1.00	.0012
dalapon	HXf	110	P	134	1.22	100
diazinon	IPf	181	C/S	1150	6.35	.09
dicamba	HOF	178	M	18	.10	135
dimethoate	IPf	14	C	8.4	.60	8.5
diquat	HXf	227	PF/SF/C/S	107	.47	10
diuron	HXs	14	C	34	2.43	20
dodine	FXf	2	PF	19	9.50	.6
EPTC	HCs	178	M	463	2.60	19
fluazifop-butyl	HXf	213	PF/SF/S	64	.30	1.37
folpet	FXf	14	C	35	2.50	
glyphosate	HXf	1020	F/P/PF/SF/C/S	2850	2.79	86
hexazinone	HAF	13	F	19	1.46	300
iprodione	FXf	207	SF/S	486	2.35	
isazophos	IPs	178	M	125	.70	.008
lindane	IOf/s	2	PF	4	2.00	.025
linuron	HXs	40	SF	24	.60	16
mancozeb	FXf	4	PF	126	31.50	4
metiram	FXf	40	PF	504	12.60	17
metolachlor	HXf	178	M	107	.60	2
metsulfuron	HAF	240	P	5	.02	
nitrothal isopropyl	FXf	4	PF	20	5.00	
oryzalin	HXs	213	PF/SF/S	192	.90	1
paraquat	HXf	213	PF/SF/C/S	237	1.11	32
parathion methyl	IPf	2	PF	7.2	3.60	2.7
pendimethalin	HXf/s	178	M	18	.10	.4
phorate	IPs	178	M	125	.70	.01
phosmet	IPf	167	S	1703	10.20	.002
picloram	HOF	313	F/P	47	.15	20
sethoxydim	HXf	213	PF/SF/S	43	.20	
simazine	HAF/s	430	F/P/PF/SF/C/S	690	1.60	100
terbacil	HXs	213	PF/SF/S	128	.60	90
terbumeton	HAF	213	PF/SF/S	128	.60	14
terbuthylazine	HAF	213	PF/SF/S	128	.60	4.6
triclopyr	HOF	2	F	7	3.50	120
triforine	FXf	40	SF	108	2.70	1000
vinclozolin	FXf	207	SF/S	676	3.27	52.5
						4.34

PESTICIDE LOADS : WAIKATO

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	62000	P	1860	.03	2
2,4,5-T	HFf	23060	P/F	2415	.10	20
alachlor	HXf	2069	M/V	1869	.90	1.8
amitrole	HAF	891	P/PF/SF/S/V	187	.21	50
ammonium thiocyanate	XXf	640	P/V	149	.23	10
asulam	HCf	3	F	17	5.67	5000
atrazine	HAF	2060	F/M	3635	1.76	8
azinphos methyl	IPf	412	PF/SF/S/B	1820	4.42	.014
benomyl	FCf	107	B/V	399	3.73	.17
bromacil	HXf	43	C/V	25	.58	75
bromopropylate	IOs	13	B	47	3.62	.35
captafol	FXf	164	PF/C/B/V	346	2.11	.5
captan	FXf	410	PF/SF/B/V	4560	11.12	.3
carbaryl	ICf	34	PF/B	636	18.71	4.34
carbofuran	ICf	2000	M	80	.04	.28
chlorpyrifos	IPf	203	PF/C/S	1704	8.39	.003
clopyralid	HXf	4	B/V	4.7	1.18	104
copper	FXf	416	PF/SF/C/B/V	9860	23.70	9.6
cyanazine	HAs	2000	M	25	.01	10
cyhexatin	IXf	211	PF/B	205	.97	.0012
dalapon	HXf	600	P	148	.25	100
delamethrin	IXf/s	90	B	36	.40	.005
diazinon	IPf	154	C/S/V	594	3.86	.09
dicamba	HOf	2000	M	200	.10	135
dicofol	IOf	22	B	33	1.50	
dichlofluanid	FXf	33	B	117	3.55	5
dichlorvos	IPf	132	B	884	6.70	.5
dinoseb	HXf	42	B	167	3.98	.14
diquat	HXf	552	PF/SF/C/S/B/V	200	.36	10
diuron	HXs	72	C/B/V	137	1.90	20
dodine	FXf	30	PF	285	9.50	.6
endosulfan	IOf	32	B	47	1.47	.0012
EPTC	HCs	2000	M	5200	2.60	19
fluzafop-butyl	HXf	280	PF/SF/S	84	.30	1.37
folpet	FXf	18	C/B	261	14.50	
fosamine	HXf	5000	P	96	.02	420
glyphosate	HXf	60800	P/PF/SF/S/V	2270	.04	86
hexazinone	HAF	3090	P/B	367	.12	300
iprodione	FXf	251	SF/S/B	486	1.94	
isazophos	IPs	2000	M	1400	.70	.008
lindane	IOf/s	30	PF	60	2.00	.025
linuron	HXs	143	SF/V	58	.41	16
mancozeb	FXf	245	PF/V/B	4480	18.29	4
maneb	FXf	110	B/V	419	3.81	.53
MCPA	HFf	25000	P	5625	.23	10
metalaxyl	FXf	123	B/V	102	.83	100
methomyl	ICf	107	B	98	.92	3.4
metiram	FXf	118	PF	1487	12.60	17
metribuzin	HAF	94	V	28	.30	76
metolachlor	HXf	2040	M/V	1212	.59	2
naled	IPf	3	B	6.3	2.10	.08
nitrothal isopropyl	FXf	118	PF	602	5.10	
oryzalin	HXs	280	PF/SF/S	194	.69	1
paraquat	HXf	552	PF/SF/C/S/B/V	411	.74	32
parathion methyl	IPf	59	PF/B	134	2.27	2.7
pendimethalin	HXf/s	2000	M	200	.10	.4
permethrin	IXf	90	B	135	1.50	.009
phorate	IPs	2000	M	1400	.70	.01
phosmet	IPf	83	S	847	10.20	.002
picloram	HOf	68000	P/F	177	.00	20
prometryne	HAF	94	V	28	.30	2.5
pyrazophos	FPf	41	V	19	.46	.48
sethoxydim	HXf	231	PF/S	46	.20	
simazine	HAF/s	3800	P/PF/SF/C/S/B	810	.21	100
terbacil	HXs	399	PF/SF/S/B	245	.61	90
terbumeton	HAF	350	PF/SF/S/B/V	230	.66	14
terbuthylazine	HAF	350	PF/SF/S/B/V	230	.66	4.6
triforine	FXf	49	SF	132	2.69	1000
vinclozolin	FXf	132	SF/S	370	2.80	52.5

PESTICIDE LOADS : WAIPA

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	14500	P	32000	2.2	2
2,4,5-T	HFf	600	P	2380	4	20
alachlor	HXs	3240	M/V	3000	.93	1.8
amitrole	HAf	320	PF/SF/S/V	150	.47	50
ammonium thiocyanate	XXf	124	V	174	1.4	10
atrazine	HAf	2992	M	5090	1.7	8
azinphos methyl	IPf	595	PF/SF/S/B	2166	3.6	.014
benomyl	FCf	134	B/V	492	3.7	.17
bitertanol	FXf	5	B	2.5	.5	
bromacil	HXf	86	C/V	48.7	.6	75
bromopropylate	IOs	25	B	63	2.5	.35
captafol	FXf	200	PF/C/B/V	460	2.3	.5
captan	FXf	536	PF/SF/B/V	6700	12.5	.3
carbaryl	ICf	34	B	560	16.5	4.34
carbofuran	ICf	2992	M	120	.04	.28
chlorpyrifos	IPf	204	PF/C/S	1650	8.1	.003
clopyralid	HXf	90	B/V	9	.1	104
copper	FXf	670	PF/SF/B/V	4060	6.1	9.6
cyanazine	HAs	2992	M	30	.01	10
cyhexatin	IXf	300	PF/B	234	.8	.0012
delamethrin	IXs/f	200	B	80	.4	.005
diazinon	IPf	210	C/S/V	530	2.5	.09
dicamba	HOf	2992	M	300	.1	135
dicofol	IOf	43	B	66	1.5	
dichlofluanid	FXf	66	B	204	3.1	5
dichlorvos	IPf	280	B	1910	6.8	.5
dimethoate	IPf	3	C	1.8	.6	8.5
dinoseb	HXf	83	B	330	4	.14
diquat	HXf	693	PF/SF/S/B/V	218	.31	10
diuron	HXs	61	C/B	24.6	.4	20
dodine	FXf	26	PF	25	.95	.6
endosulfan	IOf	63	B	92	1.5	.0012
EPTC	HCS	2992	M	7800	2.6	19
fluazifop-butyl	HXf	239	PF/SF/S	72	.3	1.37
folpet	FXf	35	C/B	520	15	
glyphosate	HXf	606	PF/SF/C/V	1060	1.7	86
hexazinone	HAf	200	B	260	1.3	300
iprodione	FXf	366	SF/S/B	690	1.9	
isazophos	IPs	2992	M	2094	.7	.008
lindane	IOf/s	26	PF	52	2	.025
linuron	HXs	151	SF/V	56	.37	16
mancozeb	FXf	169	PF/B	4000	24	4
maneb	FXf	146	B/V	720	4.9	.53
MCPA	HFf	15000	P	16900	1.1	10
metalaxyl	FXf	172	B/V	145	.84	100
methomyl	ICf	230	B	216	.94	3.4
metiram	FXf	103	PF	1300	12.6	17
metribuzin	HAf	120	V	36	.3	76
metolachlor	HXf	3077	M/V	1820	.59	2
naled	IPf	5	B	10.5	2.1	.08
nitrothal isopropyl	FXf	103	PF	525	5.1	
oryzalin	HXs	238	PF/SF/S	214	.9	1
paraquat	HXf	700	P/PF/SF/C/S/V	388	.55	32
parathion methyl	IPf	84	PF/B	146	1.7	2.7
pendimethalin	HXs/f	2992	M	299	.1	.4
permethrin	IXf	200	B	300	1.5	.009
phorate	IPs	2992	M	2100	.7	.01
phosmet	IPf	72	S	734	10.2	.002
picloram	HOf	600	P	660	1.1	20
prometryne	HAf	114	V	34	.3	2.5
pyrazophos	FPf	50	V	22	.45	.48
sethoxydim	HXf	201	PF/S	40	.2	
simazine	HAF/s	254	PF/SF/C/S/B	266	1	100
terbacil	HXs	500	PF/SF/S/B	310	.62	90
terbuneton	HAF	300	PF/SF/S/B	200	.67	14
terbuthylazine	HAF	376	PF/SF/S/B/V	264	.7	4.6
triforine	FXf	37	SF	100	2.7	1000
vinclozolin	FXf	109	SF/S	311	2.9	52.5

PESTICIDE LOADS : WAITOMO

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4,5-T	Hff	320	P/F	706	2.21	20
alachlor	HXs	986	M	890	.90	1.8
amitrole	Haf	17	PF/SF/S	1.7	.10	50
asulam	HCf	6	F	35	5.83	5000
atrazine	Haf	1100	F/M	1860	1.69	8
azinphos methyl	IPf	16	PF/SF/S	79	4.94	.014
captafol	FXf	8	PF/C	14	1.75	.5
captan	FXf	11	PF/SF	110	10.00	.3
carbaryl	ICf	2	PF	42	21.00	4.34
carbofuran	ICf	986	M	39	.04	.28
chlorpyrifos	IPf	16	PF/S	108	6.75	.003
copper	FXf	11	PF/SF	452	41.09	9.6
cyanazine	HAs	986	M	12	.01	10
cyhexatin	IXf	10	PF	10	1.00	.0012
dlazinin	IPf	6	S	40.8	6.80	.09
dicamba	HOf	986	M	99	.10	135
diquat	HXf	17	PF/SF/S	8.5	.50	10
dodine	FXf	2	PF	19	9.50	.6
EPTC	HCs	986	M	2560	2.60	19
fluazifop-butyl	HXf	17	PF/SF/S	5.1	.30	1.37
glyphosate	HXf	74	P/PF/SF/S	170	2.30	86
hexazinone	Haf	6	F	9	1.50	300
iprodione	FXf	7	SF/S	17	2.43	
isazophos	IPs	986	M	690	.70	.008
lindane	IOF/s	2	PF	4	2.00	.025
linuron	HXs	1	PF	.6	.60	16
mancozeb	FXf	8	PF	252	31.50	4
metiram	FXf	8	PF	101	12.63	17
metolachlor	HXf	986	M	592	.60	2
nitrothal isopropyl	FXf	8	PF	41	5.13	
oryzalin	HXs	17	PF/SF/S	15	.88	1
paraquat	HXf	98	P/PF/SF/S	59	.60	32
parathion methyl	IPf	2	PF	7.2	3.60	2.7
pendimethalin	HXf/s	986	M	99	.10	.4
phorate	IPs	986	M	690	.70	.01
phosmet	IPf	6	S	61	10.17	.002
picloram	HOf	46	P/F	44	.96	20
sethoxydim	HXf	17	PF/SF/S	3.4	.20	
simazine	Haf/s	186	P/F/PF/SF/C/S	245	1.32	100
terbacil	HXs	17	PF/SF/S	10	.59	90
terbumeton	Haf	17	PF/SF/S	10	.59	14
terbuthylazine	Haf	17	PF/SF/S	10	.59	4.6
triclopyr	HOf	1	F	4	4.00	120
triforine	FXf	1	SF	3	3.00	1000
vinclozolin	FXf	7	SF/S	23	3.29	52.5

Bay of Plenty Region

Opotiki, Rotorua, Tauranga, Whakatane

PESTICIDE LOADS : OPOTIKI

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	2800	P	1680	.60	2
2,4,5-T	HFf	290	P/F	469	1.62	20
alachlor	HXs	900	M/V	1530	1.70	1.8
amitrole	HAf	634	PF/SF/S	63	.10	50
ammonium thiocyanate	XXf	63	PF/SF/S	.6	.01	10
asulam	HCf	6	F	35	5.83	5000
atrazine	HAf	990	F/M	1900	1.92	8
azinphos methyl	IPf	660	PF/SF/S/B	977	1.48	.014
bromacil	HXf	59	C/V	130	2.20	75
captafol	FXf	65	PF/C/V	106	1.63	.5
captan	FXf	47	PF/SF/B/V	608	12.94	.3
carbaryl	ICf	2	PF	42	21.00	4.34
carbofuran	ICf	897	M	36	.04	.28
chlorpyrifos	IPf	681	PF/C/S	1915	2.81	.003
copper	FXf	94	PF/SF/C/B	2400	25.53	9.6
cyanazine	HAs	897	M	9	.01	10
cyhexatin	IXf	29	PF/B	25	.86	.0012
dalapon	HXf	73	P	109	1.49	100
delamethrin	IXf/s	20	B	8	.40	.005
diazinon	IPf	675	C/S/V	4260	6.31	.09
dicamba	HOf	900	M/V	90	.10	135
dicofol	IOf	6	B	8.6	1.43	
dichlofluanid	FXf	8	B	25	3.13	5
dichlorvos	IPf	26	B	200	7.69	.5
dimethoate	IPf	54	C	32	.59	8.5
dinoseb	HXf	10	B	40	4.00	.14
diquat	HXf	1150	P/PF/SF/C/S/B	381	.33	10
diuron	HXs	61	C/B	132	2.16	20
dodine	FXf	2	PF	19	9.50	.6
EPTC	HCs	897	M	2330	2.60	19
fluazifop-butyl	HXf	634	PF/SF/S	190	.30	1.37
folpet	FXf	58	C/B	199	3.43	
glyphosate	HXf	3070	P/PF/SF/C/S/V	4400	1.43	86
iprodione	FXf	652	SF/S/B	1662	2.55	
isazophos	IPs	897	M	628	.70	.008
mancozeb	FXf	20	PF/B/V	331	16.55	4
maneb	FXf	10	B/V	88	8.80	.53
MCPA	HFf	1340	P	1290	.96	10
metiram	FXf	7	PF	88	12.57	17
metolachlor	HXf	900	M/V	539	.60	2
nitrothal isopropyl	FXf	7	PF	36	5.14	
oryzalin	HXs	634	PF/SF/S	571	.90	1
paraquat	HXf	2211	P/PF/SF/C/S/B/V	1090	.49	32
parathion methyl	IPf	14	PF/B	32	2.29	2.7
pendimethalin	HXf/s	897	M	90	.10	.4
permethrin	IXf	20	B	30	1.50	.009
phorate	IPs	897	M	628	.70	.01
phosmet	IPf	618	S	6300	10.19	.002
picloram	HOf	676	P/F	77	.11	20
sethoxydim	HXf	627	PF/SF/S	125	.20	
simazine	HAf/s	1100	P/F/PF/SF/S/B	894	.81	100
terbacil	HXs	641	PF/SF/S/B	410	.64	90
terbumeton	HAf	660	PF/SF/S/B/V	406	.62	14
terbutylazine	HAf	660	PF/SF/S/B/V	406	.62	4.6
vinclozolin	FXf	625	SF/S	2114	3.38	52.5

PESTICIDE LOADS : ROTORUA

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	3170	P	6234	1.97	2
2,4,5-T	HFf	1930	P/F	2110	1.09	20
alachlor	HXs	1590	M	1430	.90	1.8
amitrole	HAF	162	P/PF/SF/S	289	1.78	50
asulam	HCf	419	P/F	1028	2.45	5000
atrazine	HAF	3320	F/M	5300	1.60	8
azinphos methyl	IPf	120	PF/SF/S/B	446	3.72	.014
benomyl	FCf	3	B	4.8	1.60	.17
bitertanol	FXf	6	B	3	.50	
bromacil	HXf	2	C	4.8	2.40	75
bromopropylate	IOs	3	B	11	3.67	.35
captafol	FXf	42	PF/C/B	71	1.69	.5
captan	FXf	87	PF/SF/B	994	11.43	.3
carbaryl	ICf	9	PF/B	170	18.89	4.34
carbofuran	ICf	1590	M	64	.04	.28
chlorpyrifos	IPf	81	PF/C/S	493	6.09	.003
clopyralid	HXf	6	B	1.2	.20	104
copper	FXf	84	PF/SF/C/B	2560	30.48	9.6
cyanazine	HAs	1755	M/P	226	.13	10
cyhexatin	IXf	42	PF/B	52	1.24	.0012
dalapon	HXf	15	P	69	4.60	100
delamethrin	IXf/s	20	B	8	.40	.005
diazinon	IPf	39	C/S	254	6.51	.09
dicamba	HOF	1800	P/M	200	.11	135
dicofol	IOf	2	B	4.2	2.10	
dichlofluanid	FXf	7	B	21	3.00	5
dichlorvos	IPf	29	B	195	6.72	.5
dimethoate	IPf	2	C	1.2	.60	8.5
dinoseb	HXf	9	B	36	4.00	.14
diquat	HXf	339	P/PF/SF/C/S/B	95	.28	10
diuron	HXs	8	C/B	6.6	.83	20
dodine	FXf	8	PF	76	9.50	.6
endosulfan	IOf	12	B	21	1.75	.0012
EPTC	HCs	1590	M	4130	2.60	19
fluazifop-butyl	HXf	92	PF/SF/S	28	.30	1.37
folpet	FXf	2	C	5	2.50	
fosamine	HXf	80	P	192	2.40	420
glyphosate	HXf	1600	P/PF/SF/C/S	2620	1.64	86
hexazinone	HAF	185	F/P	229	1.24	300
iprodione	FXf	56	SF/S/B	119	2.13	
isazophos	IPs	1560	M	1113	.71	.008
lindane	IOf/s	8	PF	16	2.00	.025
linuron	HXs	13	PF	8	.62	16
mancozeb	FXf	41	PF/B	1152	28.10	.4
maneb	FXf	3	B	50	16.67	.53
MCPA	HFf	968	P	1680	1.74	10
metalaxyl	FXf	6	B	5.4	.90	100
methomyl	ICf	24	B	22	.92	3.4
metiram	FXf	34	PF	428	12.59	17
metolachlor	HXf	1590	M	954	.60	2
metsulfuron	HAF	180	P	9	.05	
naled	IPf	6	B	13	2.17	.08
nitrothal isopropyl	FXf	34	PF	173	5.09	
oryzalin	HXs	92	PF/SF/S	83	.90	1
paraquat	HXf	339	P/PF/SF/C/S/B	1312	3.87	32
parathion methyl	IPf	14	PF/B	34	2.43	2.7
pendimethalin	HXf/s	1590	M	159	.10	.4
permethrin	IXf	20	B	30	1.50	.009
phorate	IPs	1590	M	1113	.70	.01
phosmet	IPf	37	S	38	1.03	.002
picloram	HOF	1309	P/F	381	.29	20
sethoxydim	HXf	92	PF/SF/S	18	.20	
simazine	HAF/s	2380	F/P/PF/SF/C/S/B	3116	1.31	100
terbacil	HXs	115	PF/SF/S/B	72	.63	90
terbumeton	HAF	98	PF/SF/S/B	61	.62	14
terbuthylazine	HAF	98	PF/SF/S/B	61	.62	4.6
triclopyr	HOF	13	F	50	3.85	120
triforine	FXf	13	SF	35	2.69	1000
vinclozolin	FXf	50	SF/S	160	3.20	52.5

PESTICIDE LOADS : TAURANGA

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	Hff	32000	P	3520	.11	2
2,4,5-T	Hff	7400	F	241	.03	20
alachlor	HXs	1600	M/V	1450	.91	1.8
amitrole	Haf	38340	P/PF/SF/S/V	1650	.04	50
ammonium thiocyanate	XXf	40	V	56	1.40	10
asulam	Hcf	350	F	89	.25	5000
atrazine	Haf	8550	F/M	3640	.43	8
azinphos methyl	IPf	12250	PF/SF/S/B	14460	1.18	.014
benomyl	ECf	51	B/V	138	2.71	.17
bitertanol	FXf	10	B	5	.50	
bromacil	HXf	1100	C/V	2620	2.38	75
bromopropylate	IOs	7	B	18	2.57	.35
captafol	FXf	1165	PF/C/B/V	1760	1.51	.5
captan	FXf	200	PF/SF/B/V	2160	10.80	.3
carbaryl	ICf	16	PF/B	297	18.56	4.34
carbofuran	ICf	1552	M	62	.04	.28
chlorpyrifos	IPf	13200	PF/C/S	35750	2.71	.003
clopyralid	HXf	25	B/V	3.5	.14	104
copper	FXf	1330	PF/SF/C/B	38200	28.72	9.6
cyanazine	HAs	1552	M	16	.01	10
cyhexatin	IXf	62	PF/B	75	1.21	.0012
delamethrin	IXf/s	32	B	13	.41	.005
diazinon	IPf	13120	C/S/V	82710	6.30	.09
dicamba	Hof	1552	M	155	.10	135
dicofol	IOf	14	B	21	1.50	
dichlofluanid	FXf	52	B	188	3.62	5
dichlorvos	IPf	89	B	483	5.43	.5
dimethoate	IPf	1100	C	660	.60	8.5
dinoseb	HXf	57	B	204	3.58	.14
dlquat	HXf	21830	P/PF/SF/B/V	5340	.24	10
diuron	HXs	1150	C/B	2655	2.31	20
dodine	FXf	14	PF	133	9.50	.6
endosulfan	IOf	60	B	91	1.52	.0012
EPTC	Hcs	1552	M	4035	2.60	19
fluazifop-butyl	HXf	12120	PF/SF/S	3640	.30	1.37
folpet	FXf	1140	C/B	3400	2.98	
glyphosate	HXf	16740	F/P/S	30020	1.79	86
hexazinone	Haf	382	F/B	112	.29	300
iprodione	FXf	12132	SF/S/B	31400	2.59	
isazophos	IPs	1552	M	1090	.70	.008
lindane	IOf/s	14	PF	28	2.00	.025
linuron	HXs	73	SF/V	38	.52	16
mancozeb	FXf	107	PF/V	2250	21.03	4
maneb	FXf	63	B/V	724	11.49	.53
MCPA	Hff	2000	P	2440	1.22	10
metalaxyl	FXf	72	B/V	69	.96	100
methomyl	ICf	43	B	37	.86	3.4
metiram	FXf	55	PF	693	12.60	17
metribuzin	Haf	45	V	14	.31	76
metolachlor	HXf	1570	M/V	936	.60	2
naled	IPf	10	B	21	2.10	.08
nitrothal isopropyl	FXf	55	PF	281	5.11	
oryzalin	HXs	12120	PF/SF/S	10910	.90	1
paraquat	HXf	13300	PF/SF/C/S/B/V	2120	.16	32
parathion methyl	IPf	64	PF/B	95	1.48	2.7
pendimethalin	HXf/s	1552	M	155	.10	.4
permethrin	IXf	32	B	48	1.50	.009
phorate	IPs	1552	M	1090	.70	.01
phosmet	IPf	10000	S	102000	10.20	.002
picloram	Hof	30350	F/P	380	.01	20
prometryne	Haf	21	V	6.3	.30	2.5
pyrazophos	FPf	14	V	6	.43	.48
sethoxydim	HXf	10100	PF/S	2014	.20	
simazine	Haf/s	18220	F/PF/SF/C/S/B	11180	.61	100
terbacil	HXs	10200	PF/SF/S/B	6130	.60	90
terbumeton	Haf	10170	PF/SF/S/B	6100	.60	14
terbuthylazine	Haf	10200	PF/SF/S/B/V	6140	.60	4.6
triclopyr	Hof	50	F	7	.14	120
triforine	FXf	52	SF	140	2.69	1000
vinclozolin	FXf	10050	SF/S	3410	.34	52.5

PESTICIDE LOADS : WHAKATANE

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	4390	P	2630	.60	2
2,4,5-T	HFf	1035	P/F	1250	1.21	20
alachlor	HXs	3000	M/V	5040	1.68	1.8
amitrole	HAf	594	PF/SF/S	59	.10	50
ammonium thiocyanate	XXf	59	PF/SF/S	.6	.01	10
asulam	HCf	35	F	197	5.63	5000
atrazine	HAf	3750	F/M/V	7690	2.05	8
azinphos methyl	IPf	680	PF/SF	1217	1.79	.014
bromacil	HXf	214	C/V	194	.91	75
captafol	FXf	241	PF/C/V	637	2.64	.5
captan	FXf	403	PF/SF/B/V	4023	9.98	.3
carbaryl	ICf	8	PF/B	129	16.13	4.34
carbofuran	ICf	2904	M	116	.04	.28
chlorpyrifos	IPf	584	PF/C/S	1850	3.17	.003
copper	FXf	213	PF/SF/C/B	5890	27.65	9.6
cyanazine	HAs	2904	M	29	.01	10
cyhexatin	IXf	100	PF/B	75	.75	.0012
dalapon	HXf	114	P	171	1.50	100
delamethrin	IXf/s	67	B	27	.40	.005
diazinon	IPf	653	C/S/V	3500	5.36	.09
dicamba	HOf	3000	M/V	310	.10	135
dicofol	IOf	17	B	26	1.53	
dichlofluanid	FXf	25	B	77	3.08	5
dichlorvos	IPf	96	B	663	6.91	8.5
dimethoate	IPf	46	C	28	.61	8.5
dinoseb	HXf	32	B	128	4.00	.14
diquat	HXf	1740	P/PF/SF/C/S/B/V	460	.26	10
diuron	HXs	68	C/B	117	1.72	20
dodine	FXf	6	PF	57	9.50	.6
endosulfan	IOf	24	B	48	2.00	.0012
EPTC	HCs	2904	M	7550	2.60	19
fluaizifop-butyl	HXf	594	PF/SF/S	178	.30	1.37
folpet	FXf	58	C/B	307	5.29	
glyphosate	HXf	4260	P/F/PF/SF/C/S/V	4800	1.13	86
hexazinone	HAf	35	F	53	1.51	300
iprodione	FXf	652	SF/S/B	1545	2.37	
isazophos	IPs	2904	M	2033	.70	.008
lindane	IOf/s	6	SF	16	2.67	.025
linuron	HXs	283	SF/V	102	.36	16
mancozeb	FXf	283	PF/B/V	2030	7.17	4
maneb	FXf	239	B/V	564	2.36	.53
MCPA	HFf	2110	P	2020	.96	10
metalaxyl	FXf	237	B/V	190	.80	100
methomyl	ICf	80	B	73	.91	3.4
metiram	FXf	25	PF	315	12.60	17
metribuzin	HAf	227	V	68	.30	76
metolachlor	HXf	3072	M/V	1793	.58	2
nitrothal isopropyl	FXf	25	PF	128	5.12	
oryzalin	HXs	594	PF/SF/S	535	.90	1
paraquat	HXf	3440	P/PF/SF/C/S/B/V	1416	.41	32
parathion methyl	IPf	28	PF/B	41	1.46	2.7
pendimethalin	HXF/s	2904	M	290	.10	.4
permethrin	IXf	67	B	100	1.49	.009
phorate	IPs	2904	M	2033	.70	.01
phosmet	IPf	507	S	5170	10.20	.002
picloram	HOf	1090	P/F	138	.13	20
prometryne	HAf	227	V	68	.30	2.5
pyrazophos	FPf	100	V	45	.45	.48
sethoxydim	HXf	594	PF/SF/S	119	.20	
simazine	HAF/s	1860	P/F/PF/SF/S/B	1820	.98	100
terbacil	HXs	627	PF/SF/S/V	381	.61	90
terbumeton	HAf	839	PF/SF/S/B/V	568	.68	14
terbutylazine	HAf	839	PF/SF/S/B/V	568	.68	4.6
triclopyr	HOf	10	F	39	3.90	120
triforine	FXf	56	SF	151	2.70	1000
vinclozolin	FXf	563	SF/S	1820	3.23	52.5

Taranaki Region

Clifton, Egmont, Eltham, Hawera, Inglewood, Patea, Stratford, Taranaki, Waimate
West

PESTICIDE LOADS : CLIFTON

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	240	P	290	1.21	2
2,4,5-T	HFf	180	P	450	2.50	20
alachlor	HXs	60	M	50	.83	1.8
amitrole	HAf	24	P	94	3.92	50
atrazine	HAf	60	M	95	1.58	8
bentazone	HXf	115	CR	10	.09	
bromoxynil	HOf	115	CR	15	.13	.15
carbofuran	ICf	60	M	2	.03	.28
cyanazine	HAs	115	CR	15	.13	10
demeton-S-methyl	IPf	115	CR	20	.17	4.3
dicamba	HOf	170	CR/M	10	.06	135
dichlorprop	HFf	115	CR	175	1.52	165
EPTC	HCS	60	M	95	1.58	19
glyphosate	HXf	460	P	420	.91	86
isazophos	IPs	60	M	40	.67	.008
MCPA	HFf	205	P/CR	120	.59	10
MCPB	HFf	185	P/CR	125	.68	10
mecoprop	HFf	115	CR	50	.43	230
metolachlor	HXf	60	M	35	.58	2
metsulfuron	HAf	25	P	5	.20	
paraquat	HXf	165	P/CR	30	.18	32
pendimethalin	HXF/s	60	M	6	.10	.4
phorate	IPs	60	M	40	.67	.01
picloram	HOf	445	P	140	.31	20
prochloraz	FAf	70	CR	6	.09	1
propiconazole	FXf	115	CR	7	.06	100
simazine	HAF/s	60	P	110	1.83	100
sodium chlorate	HXf	15	P	440	29.33	7000

PESTICIDE LOADS : EGMONT

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	Hff	250	P	300	1.20	2
2,4,5-T	Hff	190	P	470	2.47	20
alachlor	HXs	30	M	30	1.00	1.8
amitrole	HAF	25	P	94	3.76	50
atrazine	HAF	30	M	54	1.80	8
bentazone	HXf	80	CR	10	.13	
bromoxynil	HOf	80	CR	10	.13	.15
cyanazine	HAs	80	CR	10	.13	10
demeton-S-methyl	IPf	80	CR	12	.15	4.3
dicamba	HOf	30	M	3	.10	135
dichlorprop	Hff	80	CR	120	1.50	165
EPTC	HCS	30	M	80	2.67	19
glyphosate	HXf	480	P	40	.08	86
isazophos	IPs	30	M	20	.67	.008
MCPA	Hff	180	P/CR	120	.67	10
MCPB	Hff	150	P/CR	125	.83	10
mecoprop	Hff	80	CR	40	.50	230
metolachlor	HXf	30	M	20	.67	2
metulfuron	HAF	25	P	5	.20	
paraquat	HXf	50	P	30	.60	32
pendimethalin	HXf/s	30	M	3	.10	.4
phorate	IPs	30	M	20	.67	.01
picloram	HOf	460	P	150	.33	20
propiconazole	FXf	80	CR	4	.05	100
simazine	HAF/s	60	P	110	1.83	100
sodium chlorate	HXf	15	P	510	34.00	7000

PESTICIDE LOADS : ELTHAM

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	Hff	190	P	230	1.21	2
2,4,5-T	Hff	150	P	370	2.47	20
alachlor	HXs	30	M	24	.80	1.8
amitrole	Haf	20	P	74	3.70	50
atrazine	Haf	30	M	50	1.67	8
bromoxynil	Hof	60	CR	10	.17	.15
cyanazine	HAs	60	CR	10	.17	10
demeton-S-methyl	IPf	60	CR	10	.17	4.3
dicamba	Hof	30	M	5	.17	135
dichlorprop	Hff	60	CR	85	1.42	165
EPTC	HCs	30	M	70	2.33	19
glyphosate	HXf	380	P	340	.89	86
isazophos	IPs	30	M	20	.67	.008
MCPA	Hff	135	P/CR	85	.63	10
MCPB	Hff	120	P/CR	100	.83	10
mecoprop	Hff	60	CR	25	.42	230
metolachlor	HXf	30	M	16	.53	2
metsulfuron	Haf	20	P	5	.25	
paraquat	HXf	40	P	20	.50	32
pendimethalin	HXf/s	30	M	5	.17	.4
phorate	IPs	30	M	20	.67	.01
picloram	Hof	360	P	120	.33	20
propiconazole	FXf	60	CR	3	.05	100
simazine	Haf/s	50	P	90	1.80	100
sodium chlorate	HXf	10	P	400	40.00	7000

PESTICIDE LOADS : HAWERA

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	200	P	240	1.20	2
2,4,5-T	HFf	150	P	370	2.47	20
alachlor	HXs	30	M	26	.87	1.8
amitrole	HAf	20	P	75	3.75	50
bromacil	HXf	60	CR	7	.12	75
carbofuran	ICf	30	M	1	.03	.28
demeton-S-methyl	IPf	60	CR	9	.15	4.3
dicamba	HOf	30	M	3	.10	135
dichlorprop	HFf	60	CR	90	1.50	165
EPTC	HCs	30	M	75	2.50	19
glyphosate	HXf	370	P	330	.89	86
isazophos	IPs	30	M	20	.67	.008
MCPA	HFf	135	P/CR	90	.67	10
MCPB	HFf	115	CR	65	.57	10
mecoprop	HFf	60	CR	30	.50	230
metolachlor	HXf	30	M	20	.67	2
met sulfuron	HAf	20	P	4		
paraquat	HXf	40	P	20	.50	32
pendimethalin	HXf/s	30	M	3	.10	.4
picloram	HOf	370	P	120	.32	20
simazine	HAf/s	50	P	90	1.80	100
sodium chlorate	HXf	12	P	400	33.33	7000

PESTICIDE LOADS : INGLEWOOD

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	210	P	250	1.19	2
2,4,5-T	HFf	150	P	385	2.57	20
alachlor	HXs	30	M	26	.87	1.8
amitrole	HAF	22	P	86	3.91	50
atrazine	Haf	30	M	50	1.67	8
bentazone	HXf	50	CR	4	.08	
bromoxynil	HOf	50	CR	6	.12	.15
cyanazine	HAs	50	CR	6	.12	10
demeton-S-methyl	IPf	50	CR	8	.16	4.3
dicamba	HOf	80	CR/M	5	.06	135
dichlorprop	HFf	50	CR	75	1.50	165
EPTC	HCS	30	M	75	2.50	19
glyphosate	HXf	390	P	350	.90	86
isazophos	IPs	30	M	20	.67	.008
MCPA	HFf	130	P/CR	90	.69	10
MCPB	HFf	110	P/CR	100	.91	10
mecoprop	HFf	50	CR	20	.40	230
metolachlor	HXf	30	M	20	.67	2
metasulfuron	HAF	20	P	5	.25	
paraquat	HXf	95	P/CR	25	.26	32
pendimethalin	HXf/s	30	M	3	.10	.4
phorate	IPs	30	M	20	.67	.01
picloram	HOf	320	P	100	.31	20
prochloraz	FAf	37	CR	3	.08	1
propiconazole	FXf	50	CR	3	.06	100
simazine	HAF/s	50	P	95	1.90	100
sodium chlorate	HXf	12	P	420	35.00	7000
xylene	FXf	40	CR	5	.13	

PESTICIDE LOADS : PATEA

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	395	P/F	465	1.18	2
2,4,5-T	HFf	310	P/F	750	2.42	20
amitrole	HAF	40	P	150	3.75	50
asulam	HCf	1	F	5		5000
atrazine	HAF	2	F	1	.50	8
bentazone	HXf	170	CR	12	.07	
bromoxynil	HOf	170	CR	20	.12	.15
chlorpyrifos	IPf	170	CR	1	.01	.003
clopyralid	HXf	170	CR	1	.01	104
copper	FXf	8	F	6	.75	9.6
cyanazine	HAs	170	CR	20	.12	10
demeton-S-methyl	IPf	170	CR	25	.15	4.3
dicamba	HOf	170	CR	4	.02	135
dichlorprop	HFf	170	CR	260	1.53	165
glyphosate	HXf	760	P/F	670	.88	86
ioxynil	HXf	170	CR	2	.01	4
MCPA	HFf	320	P/CR	200	.63	10
MCPB	HFf	110	P	170	1.55	10
mecoprop	HFf	170	CR	80	.47	230
metsulfuron	HAF	40	P	8	.20	
paraquat	HXf	250	P/F/CR	45	.18	32
picloram	HOf	720	P	230	.32	20
propiconazole	FXf	170	CR	10	.06	100
simazine	HAF/s	85	P/F	180	2.12	100
sodium chlorate	HXf	25	P	800	32.00	7000

PESTICIDE LOADS : STRATFORD

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	560	P/F	670	1.20	2
2,4,5-T	HFf	210	P/F	570	2.71	20
alachlor	HXs	90	M	80	.89	1.8
asulam	HCf	1	F	6	6.00	5000
atrazine	HAF	95	F/M	150	1.58	8
bentazone	HXf	185	CR	15	.08	
bromoxynil	HOf	185	CR	20	.11	.15
carbofuran	ICf	90	M	4	.04	.28
copper	FXf	10	F	8	.80	.96
cyanazine	HAs	185	CR	20	.11	10
demeton-S-methyl	IPf	185	CR	30	.16	4.3
dicamba	HOf	90	M	10	.11	135
dichlorprop	HFf	185	CR	280	1.51	165
dinoseb	HXf	2	CR	2	1.00	.14
EPTC	HCs	90	M	230	2.56	19
glyphosate	HXf	160	P/F	200	1.25	86
hexazinone	HAF	1	F	8	8.00	300
loxynil	HXf	185	CR	2	.01	4
isazophos	IPs	90	M	60	.67	.008
MCPA	HFf	345	P/CR	325	.94	10
MCPB	HFf	410	P/CR	205	.50	10
mecoprop	HFf	185	CR	80	.43	230
metolachlor	HXf	90	M	50	.56	2
paraquat	HXf	260	P/F/CR	40	.15	32
pendimethalin	HXf/s	90	M	10	.11	.4
phorate	IPs	90	M	60	.67	.01
picloram	HOf	150	P	90	.60	20
pirimicarb	ICf	185	CR	1	.01	29
propiconazole	FXf	185	CR	110	.59	100
simazine	HAF/s	65	P/F	85	1.31	100

PESTICIDE LOADS : TARANAKI

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	Hff	190	P	220	1.16	2
2,4,5-T	Hff	140	P	360	2.57	20
alachlor	HXs	25	M	20	.80	1.8
amitrole	HAF	20	P	70	3.50	50
atrazine	HAF	25	M	40	1.60	8
dichlorprop	Hff	50	CR	80	1.60	165
EPTC	HCS	25	M	65	2.60	19
glyphosate	Hxf	360	P	320	.89	86
isazophos	IPs	25	M	20	.80	.008
MCPA	Hff	70	P	60	.86	10
MCPB	Hff	55	P	80	1.45	10
metolachlor	Hxf	25	M	15	.60	2
metasulfuron	HAF	20	P	5	.25	
paraquat	Hxf	40	P	20	.50	32
phorate	IPs	25	M	20	.80	.01
picloram	HOf	350	P	110	.31	20
simazine	HAF/s	50	P	85	1.70	100
sodium chlorate	Hxf	10	P	380	38.00	7000

PESTICIDE LOADS : WAIMATE WEST

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	Hff	110	P	130	1.18	2
2,4,5-T	Hff	80	P	130	1.63	20
amitrole	Haf	11	P	44	4.00	50
ammonium thiocyanate	XXf	11	P	11	1.00	10
atrazine	Haf	13	M	22	1.69	8
dalapon	Hxf	1	P	5	5.00	100
demeton-S-methyl	IPf	30	CR	4	.13	4.3
dichlorprop	Hff	30	CR	40	1.33	165
EPTC	Hcs	13	M	22	1.69	19
glyphosate	Hxf	200	P	180	.90	86
MCPA	Hff	70	P/CR	44	.63	10
MCPB	Hff	60	P/CR	50	.83	10
mecoprop	Hff	30	CR	15	.50	230
metsulfuron	Haf	11	P	2	.18	
paraquat	Hxf	22	P	11	.50	32
picloram	Hof	200	P	64	.32	20
simazine	Haf/s	27	P	48	1.78	100
sodium chlorate	Hxf	6	P	195	32.50	7000

Hawkes Bay East Coast Region

Cook, Hawkes Bay, Waiapu, Waikohu, Waipawa, Waipukurau, Wairoa

PESTICIDE LOADS : COOK

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	5800	P	6160	1.06	2
2,4,5-T	HFf	350	P/F	610	1.74	20
alachlor	HXs	1950	M/V	1750	.90	1.8
amitrole	HAF	2560	P/PF/S/G	2140	.84	50
ammonium thiocyanate	XXf	2500	S/G	500	.20	10
asulam	HCf	950	F/PF/S	130	.14	5000
atrazine	HAF	2110	F/M	4080	1.93	8
azlnphos methyl	IPf	980	PF/SF/S	1560	1.59	.014
azocyclotin	Iaf	90	PF/SF	30	.33	.018
benomyl	FCf	40	SF	2	.05	.17
bentazone	HXf	160	CR/V	20	.13	
bitertanol	FAf	40	SF	8	.20	2.5
bromacil	HXf	475	C	1140	2.40	75
bromoxynil	HOf	140	CR	20	.14	.15
buprimate	FAf	50	PF	15	.30	1.7
captafol	FXf	515	SF/C	800	1.55	.5
captan	FXf	50	PF	750	15.00	.3
carbaryl	ICf	90	PF/SF	110	1.22	4.34
carbofuran	ICf	1900	M	80	.04	.28
chloramben	HXf	30	V	60	2.00	4.2
chlorbufam	HCs	20	V	20	1.00	
chloridazon	HXf/s	20	V	20	1.00	
chlorpyrifos	IPf	3070	PF/SF/C/S/G	6840	2.23	.003
chlorthal-dimethyl	HXs	20	V	40	2.00	
clofentezine	HXf/s	50	PF	10	.20	
copper	FXf	2180	PF/SF/C/G	18200	8.35	9.6
cyanazine	HAs	140	CR	20	.14	10
dalapon	HXf	14	P	70	5.00	100
demeton-S-methyl	IPf	140	CR	20	.14	4.3
diazinon	IPf	1340	C/S	6530	4.87	.09
dicamba	HOf	1900	M	190	.10	135
dichlofluanid	FXf	1610	G	4025	2.50	5
dichlorprop	HFf	140	CR	210	1.50	165
dimethoate	IPf	475	C	285	.60	8.5
diquat	HXf	3120	PF/SF/C/S/G/V	1000	.32	10
diuron	HXs	525	PF/C	1140	2.17	20
dodine	FXf	50	PF	110	2.20	.6
EPTC	HCs	1900	M	4940	2.60	19
fluazifop-butyl	HXf	950	SF/S/V	285	.30	1.37
folpet	FXf	475	C	1200	2.53	
flusilazol	FAF	50	PF/SF	5	.10	
glufosinate-ammon.	HPf	90	PF/SF	5	.06	580
glyphosate	HXf	6840	P/F/PF/SF/C/S/G/V	9980	1.46	86
hexazinone	HAF	10	F	40	4.00	300
ioxynil	HXf	20	V	12	.60	4
iprodione	FXf	2540	SF/S/G	1740	.69	
isazophos	IPs	1900	M	1300	.68	.008
lindane	IOf	90	PF/SF	30	.33	.025
linuron	HXs	20	V	4	.20	16
mancozeb	FXf	1660	PF/G	16700	10.06	4
maneb	FXf	20	V	180	9.00	.53
MCPA	HFf	220	P/CR	120	.55	10
MCPB	HFf	140	CR	25	.18	10
mecoprop	HFf	140	CR	60	.43	230
methabenzthiazuron	HXf	70	PF/V	40	.57	15.9
methazole	HXf	30	V	3	.10	4
metiram	FXf	50	PF	380	7.60	17
metolachlor	HXf	1900	M	1140	.60	2
myclobutanil	FAf	50	PF	6	.12	
nitrothal-isopropyl	FXf	50	PF	50	1.00	
oryzalin	HXs	980	PF/SF/S	920	.94	1
oxadiazon	HXs	40	SF	3	.08	
oxyfluorfen	HXs	930	SF/S	75	.08	
paraquat	HXf	3130	P/PF/SF/C/S/G/V	1960	.63	32
parathion methyl	IPf	24	V	5	.21	2.7
penconazole	FAf	1660	PF/G	270	.16	
pendimethalin	HXf/s	1900	M	190	.10	.4
permethrin	IXf	910	S/V	145	.16	.009
phorate	IPs	1900	M	1300	.68	.01
phosmet	IPf	890	S	3030	3.40	.002
picloram	HOf	30	P/F	20	.67	20
pirimiphos-methyl	IPf	890	S	2580	2.90	.02
procymidone	FXf	1610	G	240	.15	10
propachlor	HXs	20	V	75	3.75	.17
propargite	IXf	90	PF/SF	70	.78	.12
propineb	FCf	20	V	50	2.50	1.9
prothiofos	IPf	1660	PF/G	820	.49	1.8

PESTICIDE LOADS : COOK

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
pyrazophos	FPf	30	V	5	.17	.48
sethoxydim	HXf	910	S/V	710	.78	
simazine	Haf/s	3260	P/F/PF/C/S/G	4070	1.25	100
terbacil	HXs	940	PF/S	540	.57	90
terbumeton	Haf	940	PF/S	1180	1.26	14
terbuthylazine	Haf	940	PF/S	1180	1.26	4.6
triadimefon	FAf	1690	PF/G/V	50	.03	25
triazophos	IPf	20	V	3	.15	5.6
triclopyr	HOf	4	F	10	2.50	120
triforine	FXf	90	PF/SF	60	.67	1000
vinclozolin	FXf	2540	SF/S/G	2270	.89	52.5

PESTICIDE LOADS : HAWKES BAY

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	4410	P	2880	.65	2
2,4,5-T	HFf	8260	P/F	3590	.43	20
alachlor	HXs	1550	M/PC/V	1660	1.07	1.8
amitrole	HAF	6180	PF/S/G/V	9860	1.60	50
ammonium thiocyanate	XXf	2580	S/G/V	1000	.39	10
asulam	HCf	4100	F/PF/S	340	.08	5000
atrazine	HAF	830	F/M	2380	2.87	8
azinphos methyl	IPf	5700	PF/SF/B/S	34300	6.02	.014
azocyclostin	IAf	5100	PF/SF	1440	.28	.018
benalaxyl	FXf	220	V	10	.05	3.75
benomyl	FCf	1500	SF	60	.04	.17
bentazone	HXf	1400	CR/V	120	.09	
bitertanol	FAf	1500	SF	300	.20	2.5
bromacil	HXf	410	C/V	315	.77	75
bromoxynil	HOF	1360	CR	160	.12	.15
bupirimate	FAf	3600	PF	1000	.28	1.7
captafol	FXf	1910	SF/C/V	4380	2.29	.5
captan	FXf	3600	PF	53640	14.90	.3
carbaryl	ICf	5100	PF/SF	5600	1.10	4.34
carbofuran	ICf	400	M	20	.05	.28
chloramben	HXf	445	V	840	1.89	4.2
chlorbufam	HCS	40	V	40	1.00	
chloridazon	HXf/s	40	V	40	1.00	
chlorpyrifos	IPf	8750	PF/SF/C/S/G/CR	18580	2.12	.003
chlorsulfuron	HXf	1360	CR	5	.00	250
chlorthal-dimethyl	HXs	40	V	75	1.88	
clofentezine	HXf/s	3600	PF	470	.13	
clopyralid	HXf	1710	CR/V	50	.03	104
copper	FXf	8000	PF/SF/C/B/G/PC	37700	4.71	9.6
cyanazine	HAS	1360	CR	170	.13	10
demeton-S-methyl	IPf	3060	CR/PC	740	.24	4.3
diazinon	IPf	485	S	3300	6.80	.09
dicamba	HOF	2100	M/CR/V	150	.07	135
dichlofluanid	FXf	1840	B/G	4750	2.58	5
dimethoate	IPf	60	C	40	.67	8.5
dinoseb	HXf	800	B/PC	830	1.04	.14
diquat	HXf	8200	PF/SF/C/B/S/G/V	1640	.20	10
diuron	HXs	4110	PF/C/B/V	1690	.41	20
dodine	FXf	3600	PF	7920	2.20	.6
endosulfan	IOF	100	B	1400	14.00	.0012
EPTC	HCS	400	M	1040	2.60	19
fluazifop-butyl	HXf	2030	SF	2050	1.01	1.37
folpet	FXf	160	C/B/S/V	150	.94	
flusilazol	FAf	3600	PF	430	.12	
glufosinate-ammon.	HPf	5100	PF/SF	150	.03	580
glyphosate	HXf	18000	P/PF/SF/C/S/G/V	14400	.80	86
hexazinone	HAF	20	F	30	1.50	300
ioxynil	HXf	1400	CR/V	40	.03	4
iprodione	FXf	3340	SF/B/S/G	2120	.63	
isazophos	IPs	400	M	280	.70	.008
lindane	IOF	9100	P/PF/SF	4440	.49	.025
linuron	HXs	260	V	100	.38	16
mancozeb	FXf	6700	PF/B/G/PC/V	29000	4.33	4
maneb	FXf	360	B/V	2030	5.64	.53
MCPA	HFf	6600	P/CR	10400	1.58	10
MCPB	HFf	1360	CR	240	.18	10
mecoprop	HFf	1360	CR	610	.45	230
metalaxyl	FXf	320	B/V	120	.38	100
methabenzthiazuron	HXf	3600	PF/V	660	.18	15.9
methamidophos	IPf	220	V	130	.59	51
methazole	HXf	445	V	50	.11	4
methomyl	ICf	1000	PC	300	.30	3.4
metiram	FXf	3600	PF	27140	7.54	17
metolachlor	HXf	750	M/V	345	.46	2
metribuzin	HAF	220	V	80	.36	76
myclobutanil	FAf	3600	PF	430	.12	
nitrothal-isopropyl	FXf	3600	PF	3600	1.00	
oryzalin	HXs	6000	PF/SF/S	5280	.88	1
oxadiazon	HXs	1500	SF	120	.08	
oxyfluorfen	HXs	2000	SF/S	340	.17	
paraquat	HXf	9770	P/PF/SF/C/S/G/CR/V	3400	.35	32
parathion methyl	IPf	140	B/V	90	.64	2.7
penconazole	FAf	5790	PF/G/V	950	.16	
pendimethalin	HXf/s	400	M	40	.10	.4
permethrin	IXf	2230	S/PC/V	470	.21	.009
phorate	IPs	400	M	280	.70	.01
phosmet	IPf	485	S	1650	3.40	.002

PESTICIDE LOADS : HAWKES BAY

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
picloram	HOf	12450	P/F	20	.00	20
pirimicarb	ICf	1360	CR	10	.01	29
pirimiphos-methyl	IPf	485	S	1400	2.89	.02
procymidone	EXf	3440	G/PC	1480	.43	10
propachlor	HXs	40	V	150	3.75	.17
propargite	IXf	5100	PF/SF	3820	.75	.12
propineb	FCf	40	V	90	2.25	1.9
prothiofos	IPf	5340	PF/G	1870	.35	1.8
pyrazophos	FPf	445	V	50	.11	.48
sethoxydim	HXf	530	S/V	390	.74	
simazine	HAF/s	7120	P/F/PF/C/S/G	7430	1.04	100
terbacil	HXs	4185	PF/B/S	750	.18	90
terbumeton	HAF	4530	PF/B/S/V	2810	.62	14
terbuthylazine	HAF	4530	PF/B/S/V	2810	.62	4.6
terbutryne	HAF/s	700	PC	240	.34	.21
triadimefon	FAf	5800	PF/G/V	2240	.39	25
triazophos	IPf	40	V	6	.15	5.6
triclopyr	HOf	7000	P/F	700	.10	120
tridemorph	EXf					
trifluralin	HXs	1700	PC	1500	.88	.1
triforine	EXf	5100	PF/SF	2800	.55	1000
vinclozolin	EXf	3730	SF/S/G	6620	1.77	52.5

PESTICIDE LOADS : WAIAPU

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	4200	P	4540	1.08	2
2,4,5-T	HFf	330	P/F	1700	5.15	20
alachlor	HXs	20	M	20	1.00	1.8
amitrole	HAF	90	P/S/G	110	1.22	50
ammonium thiocyanate	XXf	90	P/S/G	12	.13	10
asulam	HCf	40	F/S	70	1.75	5000
atrazine	HAF	255	F/M	970	3.80	8
azinphos methyl	IPf	24	S	26	1.08	.014
carbofuran	ICf	20	M	1	.05	.28
chlorpyrifos	IPf	74	S/G	120	1.62	.003
copper	FXf	50	G	125	2.50	9.6
dalapon	HXf	5	P	25	5.00	100
diazinon	IPf	24	S	160	6.67	.09
dicamba	HOF	20	M	2	.10	135
dichlofluanid	FXf	50	G	125	2.50	5
diquat	HXf	74	S/G	30	.41	10
EPTC	HCs	20	M	50	2.50	19
fluazifop-butyl	HXf	24	S	10	.42	1.37
glyphosate	HXf	428	P/F/S/G	1140	2.66	86
hexazinone	HAF	12	F	20	1.67	300
iprodione	FXf	74	S/G	50	.68	
isazophos	IPs	20	M	14	.70	.008
mancozeb	FXf	50	G	500	10.00	4
MCPA	HFf	60	P	40	.67	10
metolachlor	HXf	20	M	12	.60	2
metsulfuron	HAF	30	P	30	1.00	
oryzalin	HXs	24	S	22	.92	1
oxyfluorfen	HXs	24	S	2	.08	
paraquat	HXf	214	P/S/G	270	1.26	32
penconazole	FAf	50	G	8	.16	
pendimethalin	HXf/s	20	M	2	.10	.4
permethrin	IXf	24	S	4	.17	.009
phorate	IPs	20	M	14	.70	.01
phosmet	IPf	24	S	80	3.33	.002
picloram	HOF	12	P/F	10	.83	20
pirimiphos-methyl	IPf	24	S	70	2.92	.02
procymidone	FXf	50	G	10	.20	10
prothiofos	IPf	50	G	25	.50	1.8
sethoxydim	HXf	24	S	20	.83	
simazine	HAF/s	310	P/F/S/G	490	1.58	100
terbacil	HXs	24	S	14	.58	90
terbumeton	HAF	24	S	30	1.25	14
terbuthylazine	HAF	24	S	30	1.25	4.6
triclopyr	HOF	5	F	10	2.00	120
vinclozolin	FXf	74	S/G	60	.81	52.5

PESTICIDE LOADS : WAIKOHU

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	Hff	4000	P	4340	1.09	2
2,4,5-T	Hff	200	P/F	210	1.05	20
alachlor	HXs	350	M	320	.91	1.8
amitrole	Haf	240	P/S/G	170	.71	50
ammonium thiocyanate	XXf	230	S/G	35	.15	10
asulam	Hcf	130	F/S	60	.46	5000
atrazine	Haf	530	F/S/M	1330	2.51	8
azinphos methyl	IPf	145	S/B	165	1.14	.014
azocyclotin	IAf	170		12		.018
benalaxyl	FXf	170		20		3.75
bromacil	HXf	14	C	30	2.14	.75
bupirimate	Faf	170		1		1.7
captafol	FXf	14	C	20	1.43	.5
carbaryl	ICf	170		1	.01	4.34
carbofuran	ICf	350	M	14	.04	.28
chloramben	HXf	170		20		4.2
chloridazon	HXf/s	170		25		4.3
chlorpyrifos	IPf	244	C/S/G	475	1.95	.003
chlorsulfuron	HXf	170		4	.02	250
clofentezine	HXf/s	170		260	1.53	165
copper	FXf	124	C/G	675	5.44	9.6
dalapon	HXf	10	P	50	5.00	100
diazinon	IPf	134	C/S	830	6.19	.09
dicamba	HOf	350	M	35	.10	135
dichlofluanid	FXf	110	G	275	2.50	5
dichlorprop	Hff	760		670		165
dimethoate	IPf	14	C	8	.57	8.5
dinoseb	HXf	25	B	40	1.60	.14
diquat	HXf	265	C/S/G/B	90	.34	10
diuron	HXs	14	C	30	2.14	20
endosulfan	IOf	25	B	15	.60	.0012
EPTC	Hcs	350	M	910	2.60	19
fluaizifop-butyl	HXf	120	S	40	.33	1.37
folpet	FXf	14	C	35	2.50	10
glyphosate	HXf	500	F/C/S/G	940	1.88	86
hexazinone	Haf	10	F	15	1.50	300
iprodione	FXf	260	S/G/B	300	1.15	
isazophos	IPs	350	M	245	.70	.008
mancozeb	FXf	135	G/B	1160	8.59	4
MCPB	Hff	720		230	.32	10
methazole	HXf	170		10	.06	4
metiram	FXf	85		180	2.12	17
metolachlor	HXf	350	M	210	.60	2
oryzalin	HXs	120	S	110	.92	1
oxyfluorfen	HXs	120	S	10	.08	
paraquat	HXf	265	C/S/G/B	180	.68	32
parathion methyl	IPf	25	B	20	.80	2.7
penconazole	Faf	110	G	20	.18	52.5
pendimethalin	HXf/s	350	M	35	.10	.4
permethrin	IXf	120	S	20	.17	.009
phorate	IPs	350	M	245	.70	.01
phosmet	IPf	120	S	410	3.42	.002
picloram	HOf	30	P/F	26	.87	20
pirimiphos-methyl	IPf	120	S	350	2.92	.02
procymidone	FXf	110	G	20	.18	10
prothiofos	IPf	110	G	60	.55	1.8
sethoxydim	HXf	120	S	100	.83	
simazine	Haf/s	455	P/F/C/S/G/B	700	1.54	100
terbacil	HXs	120	S	70	.58	90
terbumeton	Haf	120	S	160	1.33	14
terbuthylazine	Haf	120	S	160	1.33	4.6
triadimefon	Faf	110	G	2	.02	25
vinclozolin	FXf	230	S/G	230	1.00	52.5

PESTICIDE LOADS : WAIROA

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	1250	P	890	.71	2
2,4,5-T	HFf	13800	P/F	4280	.31	20
alachlor	HXs	35	M	30	.86	1.8
amitrole	HAF	160	S/G	100	.63	50
ammonium thiocyanate	XXf	160	S/G	30	.19	10
asulam	HCf	95	F/S	90	.95	5000
atrazine	HAF	335	F/M	1260	3.76	8
azinphos methyl	IPf	80	S	90	1.13	.014
bentazone	HXf	230	CR	16	.07	
bromacil	HXf	10	C	24	2.40	75
bromoxynil	HOf	230	CR	30	.13	.15
captafol	FXf	10	C	15		.5
chlorpyrifos	IPf	170	C/S/G	330	1.94	.003
copper	FXf	90	C/S	490	5.44	9.6
cyanazine	HAs	230	CR	30	.13	10
demeton-S-methyl	IPf	230	CR	35	.15	4.3
diazinon	IPf	90	C/S	550	6.11	.09
dicamba	HOf	230	CR	6	.03	135
dichlofluanid	FXf	80	G	200	2.50	5
dimethoate	IPf	10	C	6	.60	8.5
diquat	HXf	170	C/S/G	60	.35	10
diuron	HXs	10	C	24	2.40	20
EPTC	HCS	35	M	90	2.57	19
fluazifop-butyl	HXf	80	S	25	.31	1.37
folpet	FXf	10	C	25	2.50	
glyphosate	HXf	3160	P/C/S/G	1760	.56	86
hexazinone	HAF	15	F	25	1.67	300
iprodione	FXf	160	S/G	120	.75	
isazophos	IPs	35	M	25	.71	.008
lindane	IOf	2000	P	1420	.71	.025
mancozeb	FXf	80	G	800	10.00	4
MCPA	HFf	330	P/CR	330	1.00	10
MCPB	HFf	230	CR	40	.17	10
mecoprop	HFf	230	CR	100	.43	230
metolachlor	HXf	35	M	20	.57	2
oryzalin	HXs	80	S	75	.94	1
oxyfluorfen	HXs	80	S	6	.08	
paraquat	HXf	170	C/S/G	120	.71	32
penconazole	FAf	80	S	15	.19	
permethrin	IXf	80	S	12	.15	.009
phorate	IPs	35	M	25	.71	.01
phosmet	IPf	80	S	270	3.38	.002
picloram	HOf	18900	P/F	760	.04	20
pirimiphos-methyl	IPf	80	S	230	2.88	.02
procymidone	FXf	80	G	12	.15	10
prothiofos	IPf	80	G	40	.50	1.8
sethoxydim	HXf	80	S	60	.75	
simazine	HAF/s	7640	P/F/C/S/G	10840	1.42	100
terbacil	HXs	80	S	50	.63	90
terbumeton	HAF	80	S	100	1.25	14
terbuthylazine	HAF	80	S	100	1.25	4.6
triclopyr	HOf	8000	P/F	790	.10	120
vinclozolin	FXf	160	S/G	150	.94	52.5

PESTICIDE LOADS : WAIPAWA

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	2500	P	3600	1.44	2
2,4,5-T	HFf	180	P/F	480	2.67	20
alachlor	HXs	290	M/PC	260	.90	1.8
amitrole	HAF	115	P/PF/V	335	2.91	50
ammonium thiocyanate	XXf	50	V	70	1.40	10
atrazine	HAF	280	F/M/V	600	2.14	8
azinphos methyl	IPf	50	PF/SF	320	6.40	.014
azocyclotin	IAf	50	PF/SF	20	.40	.018
bentazone	HXf	1120	CR	10	.01	
bitertanol	FAf	20	SF	4	.20	2.5
bromacil	HXf	50	V	25	.50	75
bromoxynil	HOF	1120	CR	140	.13	.15
bupirimate	FAf	30	PF	10	.33	1.7
captafol	FXf	70	SF/V	200	2.86	.5
captan	FXf	30	PF	450	15.00	.3
carbaryl	ICf	50	PF/SF	60	1.20	4.34
carbofuran	ICf	150	M	6	.04	.28
chlorpyrifos	IPf	50	PF/SF	130	2.60	.003
clofentezine	HXf/s	30	PF	4	.13	
clopyralid	HXf	1170	CR/V	20	.02	104
copper	FXf	190	PF/SF/PC	100	.53	9.6
cyanazine	HAs	1120	CR	140	.13	10
dalapon	HXf	40	P	370	9.25	100
demeton-S-methyl	IPf	1260	CR/PC	180	.14	4.3
dicamba	HOF	1300	M/CR/V	45	.03	135
dichlorprop	HFf	1120	CR	1700	1.52	165
dinoseb	HXf	140	PC	100	.71	.14
diquat	HXf	50	PF/SF	5	.10	10
diuron	HXs	120	P/PF/V	675	5.63	20
dodine	FXf	30	PF	70	2.33	.6
EPTC	HCs	150	M	390	2.60	19
fluazifop-butyl	HXf	20	SF	5	.25	1.37
flusilazol	FAf	30	PF	5	.17	
glufosinate-ammon.	HPf	50	PF/SF	15	.30	580
glyphosate	HXf	200	PF/SF/V	100	.50	86
ioxynil	HXf	1120	CR	10	.01	4
iprodione	FXf	20	SF	10	.50	
isazophos	IPs	150	M	105	.70	.008
lindane	IOF	2050	P/PF/SF	1420	.69	.025
mancozeb	FXf	30	PF	345	11.50	4
MCPA	HFf	4720	P/CR	6100	1.29	10
MCPB	HFf	1120	CR	200	.18	10
mecoprop	HFf	1120	CR	500	.45	230
methabenzthiazuron	HXf	30	PF	5	.17	15.9
metiram	FXf	30	PF	230	7.67	17
metolachlor	HXf	200	M/V	100	.50	2
myclobutanil	FAf	30	PF	5	.17	
nitrothal-isopropyl	FXf	30	PF	15	.50	
oryzalin	HXs	50	PF/SF	45	.90	1
oxadiazon	HXs	20	SF	2	.10	
oxyfluorfen	HXs	20	SF	2	.10	
paraquat	HXf	50	PF/SF	10	.20	32
penconazole	FAf	30	PF	6	.20	
pendimethalin	HXf/s	150	M	15	.10	.4
permethrin	IXf	140	PC	5	.04	.009
phorate	IPs	150	M	105	.70	.01
picloram	HOF	100	P	90	.90	20
procymidone	FXf	140	PC	20	.14	10
propargite	IXf	50	PF/SF	40	.80	.12
prothiofos	IPf	30	PF	10	.33	1.8
simazine	HAF/s	160	F/PF/V	150	.94	100
terbacil	HXs	30	PF	5	.17	90
terbumeton	HAF	80	PF/V	55	.69	14
terbutylazine	HAF	80	PF/V	55	.69	4.6
terbutryne	HAF/s	140	PC	5	.04	.21
triadimefon	FAf	30	PF	10	.33	25
trifluralin	HXs	140	PC	40	.29	.1
triforine	FXf	50	PF/SF	30	.60	1000
vinclozolin	FXf	20	SF	60	3.00	52.5

PESTICIDE LOADS : WAIPUKURAU

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	4600	P	3350	.73	2
2,4,5-T	HFf	190	P/F	740	3.89	20
alachlor	HXs	1500	M/PC/V	1330	.89	1.8
atrazine	HAf	170	F/M	335	1.97	8
bentazone	HXf	480	CR	30	.06	
bromoxynil	HOOf	480	CR	60	.13	.15
chloramben	HXf	70	V	130	1.86	4.2
copper	FXf	1300	PC	420	.32	9.6
cyanazine	HAs	500	CR	60	.12	10
demeton-S-methyl	IPf	1780	CR/PC	135	.08	4.3
dicamba	HOOf	630	M/CR	30	.05	135
dichlorprop	HFf	480	CR	720	1.50	165
dinoseb	HXf	1300	PC	940	.72	.14
diquat	HXf	70	V	10	.14	10
EPTC	HCS	150	M	390	2.60	19
glyphosate	HXf	3340	P/V	1800	.54	86
isazophos	IPs	150	M	100	.67	.008
lindane	IOOf	1500	P	1060	.71	.025
MCPA	HFf	7000	P/CR	10320	1.47	10
MCPB	HFf	480	CR	90	.19	10
mecoprop	HFf	480	CR	220	.46	230
methazole	HXf	70	V	10	.14	4
metolachlor	HXf	150	M	90	.60	2
metsulfuron	HAF	350	P	25	.07	
paraquat	HXf	70	V	20	.29	32
pendimethalin	HXf/s	150	M	15	.10	.4
permethrin	IXf	1300	PC	40	.03	.009
phorate	IPs	150	M	100	.67	.01
picloram	HOOf	180	P	175	.97	20
procymidone	FXf	1300	PC	170	.13	10
pyrazophos	FPf	70	V	10	.14	.48
simazine	HAF/s	20	F	30	1.50	100
terbutryne	HAF/s	1300	PC	440	.34	.21
triadimefon	FAf	70	V	2	.03	25
trifluralin	HXs	1300	PC	350	.27	.1

Southern Areas Region

Dannevirke, Eketahuna, Featherston, Horowhenua, Hutt, Kairanga, Kiwitea, Manawatu, Masterton, Oroua, Pahiatua, Pohangina, Rangitikei, Waimarino, Wairarapa South, Waitotara, Wanganui, Woodville

PESTICIDE LOADS : DANNEVIRKE

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	Hff	1570	P/F	1070	.68	2
2,4,5-T	Hff	20410	P/F	5670	.28	20
alachlor	HXs	80	M	75	.94	1.8
amitroie	Haf	170	P	110	.65	50
asulam	HCf	1	F	5	5.00	5000
atrazine	Haf	80	M	140	1.75	8
bentazone	HXf	360	CR	25	.07	
bromoxynil	HOf	360	CR	40	.11	.15
carbofuran	ICf	80	M	4	.05	.28
chlorpyrifos	IPf	360	CR	3	.01	.003
chlorsulfuron	HXf	360	CR	1	.00	250
clopyralid	HXf	360	CR	3	.01	104
copper	FXf	8	F	7	.88	9.6
cyanazine	HAs	360	CR	40	.11	10
dalapon	HXf	320	P	320	1.00	100
demeton-S-methyl	IPf	360	CR	55	.15	4.3
dicamba	HOf	440	CR/M	20	.05	135
dichlorprop	Hff	360	CR	545	1.51	165
diuron	HXs	50	P	400	8.00	20
EPTC	HCS	80	M	220	2.75	19
glyphosate	HXf	1480	P/F	690	.47	86
ioxynil	HXf	360	CR	4	.01	4
isazophos	IPs	80	M	60	.75	.008
MCPA	Hff	750	P/CR	500	.67	10
MCPB	Hff	360	CR	65	.18	10
mecoprop	Hff	360	CR	160	.44	230
metolachlor	HXf	80	M	50	.63	2
paraquat	HXf	540	P/CR	60	.11	32
pendimethalin	HXf/s	80	M	10	.13	.4
phorate	IPs	80	M	60	.75	.01
picloram	HOf	4180	P	150	.04	20
pirimicarb	ICf	360	CR	2	.01	29
propiconazole	FXf	360	CR	20	.06	100
simazine	Haf/s	140	P	260	1.86	100

PESTICIDE LOADS : EKETAHUNA

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	2000	P	520	.26	2
2,4,5-T	HFf	16000	P	2160	.14	20
amitrole	HAF	110	P	20	.18	50
bromoxynil	HOf	40	CR	5	.13	.15
cyanazine	HAs	40	CR	5	.13	10
dalapon	HXf	110	P	40	.36	100
demeton-S-methyl	IPf	40	CR	10	.25	4.3
dichlorprop	HFf	40	CR	60	1.50	165
diquat	HXf	50	P	20	.40	10
glyphosate	HXf	500	P	220	.44	86
MCPA	HFf	140	P/CR	110	.79	10
MCPB	HFf	140	P/CR	50	.36	10
mecoprop	HFf	40	CR	20	.50	230
paraquat	HXf	150	P	40	.27	32
picloram	HOf	9650	P	145	.02	20
simazine	HAF/s	110	P	60	.55	100

PESTICIDE LOADS : FEATHERSTON

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	1860	P/F	790	.42	2
2,4,5-T	HFf	3090	P/F	3690	1.19	20
amitrole	HAf	100	G	120	1.20	50
ammonium thiocyanate	XXf	100	G	30	0.30	10
asulam	HCf	1	F	5	5.00	5000
atrazine	HAf	2	F	1	.50	8
bentazone	HXf	860	CR	60	.07	
bromoxynil	HOf	860	CR	100	.12	.15
chlorpyrifos	IPf	960	CR/G	160	0.17	.003
chlorsulfuron	HXf	860	CR	5	.01	250
clopyralid	HXf	860	CR	10	.01	104
copper	FXf	110	F/G	260	.86	9.6
cyanazine	HAs	860	CR	100	.12	10
demeton-S-methyl	IPf	860	CR	120	.14	4.3
dicamba	HOf	860	CR	20	.02	135
dichlofluanid	FXf	100	G	250	2.50	5
dichlorprop	HFf	860	CR	1300	1.51	165
dinoseb	HXf	400	CR	360	.90	.14
diquat	HSf	100	G	40	0.40	10
glyphosate	HSf	750	P/F/G	790	1.05	86
hexazinone	HAf	160	P	590	3.69	300
ioxynil	HXf	860	CR	10	.01	4
iprodione	FXf	100	G	60	0.60	
mancozeb	FXf	100	G	1000	10.00	4
MCPA	HFf	1480	P/CR	1010	.68	10
MCPB	HFf	1260	CR	440	.35	10
mecoprop	HFf	860	CR	390	.45	230
paraquat	HXf	1500	P/CR/G	200	0.13	32
penconazole	FAf	100	G	16	0.16	
picloram	HOf	340	P	12	.04	20
pirimicarb	ICf	860	CR	5	.01	29
procymidone	FXf	100	G	15	0.15	10
propiconazole	FXf	860	CR	40	.05	100
prothiofos	IPf	100	G	50	0.50	1.8
simazine	HAf/s	100	F/G	1	1.00	100
terbutryne	HAf/s	400	CR	80	.20	2
triadimenol	FAf	280	CR	15	.05	23.5
tridemorph	FXf	280	CR	40	.14	
vinclozolin	FXf	100	G	60	0.60	52.5

PESTICIDE LOADS : HOROWHENUA

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	Hff	2710	P/F	4010	1.48	2
2,4,5-T	Hff	1435	P/F	4220	2.94	20
alachlor	HXs	770	M	700	.91	1.8
amitrole	Haf	250	P	800	3.20	50
ammonium thiocyanate	XXf	250	P	200	.80	10
asulam	Hcf	860	P/F	1200	1.40	5000
atrazine	Haf	775	F/M	1300	1.68	8
azinphos methyl	IPf	180	B	250	1.39	.014
bentazone	HXf	750	CR	50	.07	
bromoxynil	HOf	750	CR	90	.12	.15
carbofuran	ICf	770	M	30	.04	.28
chlornitrofen	HXf	100	P	100	1.00	.18
chlorpyrifos	IPf	750	CR	10	.01	.003
chlorsulfuron	HXf	750	CR	2	.00	250
clopyralid	HXf	750	CR	5	.01	104
copper	FXf	20	P	15	.75	9.6
cyanazine	HAs	750	CR	90	.12	10
demeton-S-methyl	IPf	750	CR	110	.15	4.3
dicamba	HOf	1530	P/CR/M	115	.08	135
dichlorprop	Hff	750	CR	1130	1.51	165
dinoseb	HXf	190	B/CR	310	1.63	.14
diquat	HXf	1120	P/B	520	.46	10
endosulfan	IOf	180	B	100	.56	.0012
EPTC	Hcs	770	M	2000	2.60	19
glufosinate-ammon.	HPf	600	P	600	1.00	580
glyphosate	HXf	10120	P/F	18020	1.78	86
hexazinone	Haf	10	P	25	2.50	300
ioxynil	HXf	750	CR	5	.01	4
iprodione	FXf	180	B	960	5.33	
isazophos	IPs	770	M	540	.70	.008
mancozeb	FXf	180	B	390	2.17	4
MCPA	Hff	840	P/CR	950	1.13	10
MCPB	Hff	760	CR	140	.18	10
mecoprop	Hff	750	CR	340	.45	230
metolachlor	HXf	770	M	460	.60	2
metasulfuron	Haf	40	P	10	.25	
paraquat	HXf	1420	P/E/B/CR	350	.25	32
parathion methyl	IPf	180	B	140	.78	2.7
pendimethalin	HXf/s	770	M	80	.10	.4
phorate	IPs	770	M	540	.70	.01
picloram	HOf	415	P/F	200	.48	20
pirimicarb	ICf	1200	P/CR	55	.05	29
propiconazole	FXf	750	CR	45	.06	100
simazine	Haf/s	180	B	360	2.00	100
terbutryne	Haf/s	10	CR	2	.20	2
triadimenol	Faf	300	CR	15	.05	23.5
tridemorph	FXf	300	CR	40	.13	

PESTICIDE LOADS : HUTT

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	750	P/F	200	.27	2
2,4,5-T	HFf	1060	P/F	3670	3.46	20
asulam	HCf	1	F	7	7.00	5000
atrazine	HAf	3	F	2	.67	8
copper	FXf	11	F	9	.82	9.6
dicamba	HOf	670	P	20	.03	135
glyphosate	HXf	300	P/F	540	1.80	86
hexazinone	HAf	60	P	200	3.33	300
oxadiazon	HXs	2	P	8	4.00	
paraquat	HXf	100	P/F	120	1.20	32
picloram	HOf	75	P/F	3	.04	20
simazine	HAf/s	3	F	2	.67	100

PESTICIDE LOADS : KAIRANGA

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	6330	P	860	.14	2
2,4,5-T	HFf	2700	P/F	1230	.46	20
alachlor	HXs	830	M	750	.90	1.8
amitrole	HAf	140	P	30	.21	50
asulam	HCf	60	P	110	1.83	5000
atrazine	HAf	830	M	1400	1.69	8
bentazone	HXf	1650	CR	120	.07	
bromoxynil	HOf	1650	CR	200	.12	.15
carbofuran	ICf	830	M	35	.04	.28
chlorpyrifos	IPf	1650	CR	15	.01	.003
chlorsulfuron	HXf	1650	CR	5	.00	250
chlorthiamid	HXs	60	P	20	.33	41
clopyralid	HXf	1650	CR	12	.01	104
copper	FXf	6	F	5	.83	9.6
cyanazine	HAs	1650	CR	200	.12	10
dalapon	HXf	420	P	90	.21	100
demeton-S-methyl	IPf	1650	CR	250	.15	4.3
dicamba	HOf	2930	P/CR/M	180	.06	135
dichlobenil	HOf	60	P	20	.33	10
dichlorprop	HFf	1650	CR	2500	1.52	165
dinoseb	HXf	1750	CR	1600	.91	.14
diquat	HXf	170	P	45	.26	10
EPTC	HCS	830	M	2160	2.60	19
ethofumesate	HXf/s	220	P	20	.09	15
fosamine	HXf	60	P	40	.67	420
glyphosate	HXf	1140	P/F	1950	1.71	86
hexazinone	HAf	84	P	130	1.55	300
ioxynil	HXf	1650	CR	20	.01	4
isazophos	IPs	830	M	580	.70	.008
MCPA	HFf	2320	P/CR	1170	.50	10
MCPB	HFf	1650	CR	300	.18	10
mecoprop	HFf	1650	CR	740	.45	230
metolachlor	HXf	830	M	500	.60	2
paraquat	HXf	3740	P/CR	180	.05	32
pendimethalin	HXf/s	830	M	80	.10	.4
phorate	IPs	830	M	580	.70	.01
picloram	HOf	7400	P	280	.04	20
pirimicarb	ICf	1650	CR	10	.01	29
propiconazole	FXf	1650	CR	100	.06	100
simazine	HAf/s	140	P	90	.64	100
TCA	HXf/s	280	P	180	.64	100
terbutryne	HAf/s	1750	CR	350	.20	2
triadimenol	FAf	860	CR	40	.05	23.5
tridemorph	FXf	860	CR	120	.14	

PESTICIDE LOADS : KIWITEA

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	800	P	220	.28	2
2,4,5-T	HFf	1300	P	230	.18	20
alachlor	HXs	60	M	55	.92	1.8
amitrole	HAf	10	P	5	.50	50
atrazine	HAf	60	M	100	1.67	8
bentazone	HXf	930	CR	65	.07	
bromoxynil	HOf	930	CR	110	.12	.15
carbofuran	ICf	60	M	2	.03	.28
chlorpyrifos	IPf	930	CR	7	.01	.003
chlorsulfuron	HXf	930	CR	3	.00	250
clopyralid	HXf	930	CR	6	.01	104
cyanazine	HAs	930	CR	115	.12	10
dalapon	HXf	10	P	10	1.00	100
demeton-S-methyl	IPf	930	CR	140	.15	4.3
dicamba	HOf	990	CR/M	30	.03	135
dichlorprop	HFf	930	CR	1400	1.51	165
dinoseb	HXf	73	CR	15	.21	.14
diquat	HXf	200	P	10	.05	10
EPTC	HCS	60	M	160	2.67	19
glyphosate	HXf	800	P	80	.10	86
ioxynil	HXf	930	CR	9	.01	4
isazophos	IPs	60	M	45	.75	.008
MCPA	HFf	1930	P/CR	590	.31	10
MCPB	HFf	1600	P/CR	320	.20	10
mecoprop	HFf	930	CR	420	.45	230
metolachlor	HXf	60	M	40	.67	2
paraquat	HXf	1000	CR	20	.02	32
pendimethalin	HXf/s	60	M	6	.10	.4
phorate	IPs	60	M	45	.75	.01
picloram	HOf	1150	P	40	.03	20
pirimicarb	ICf	930	CR	6	.01	29
propiconazole	FXf	930	CR	60	.06	100
simazine	HAf/s	10	P	20	2.00	100
terbutryne	HAf/s	75	CR	15	.20	2
triadimenol	FAf	375	CR	20	.05	23.5
tridemorph	FXf	375	CR	50	.13	

PESTICIDE LOADS : MANAWATU

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	3	F	2	.67	2
2,4,5-T	HFf	5	F	8	1.60	20
alachlor	HXs	320	M	290	.91	1.8
amitrole	HAf	30	P	70	2.33	50
ammonium thiocyanate	XXf	30	P	15	.50	10
asulam	Hcf	1	F	4	4.00	5000
atrazine	HAf	320	M	540	1.69	8
bentazone	HXf	3000	CR	210	.07	
bromoxynil	HOf	3000	CR	360	.12	.15
carbofuran	ICf	320	M	15	.05	.28
chlorpyrifos	IPf	3000	CR	25	.01	.003
chlorsulfuron	HXf	3000	CR	10	.00	250
clopyralid	HXf	3000	CR	210	.07	104
copper	FXf	6	F	5	.83	9.6
cyanazine	HAs	3000	CR	370	.12	10
dalapon	HXf	25	P	104	4.16	100
demeton-S-methyl	IPf	3000	CR	450	.15	4.3
dicamba	HOf	3320	CR/M	100	.03	135
dichlorprop	HFf	3000	CR	4500	1.50	165
dinoseb	HXf	380	CR	340	.89	.14
diuron	HXs	20	P	210	10.50	20
EPTC	Hcs	320	M	830	2.59	19
glyphosate	HXf	10	F	6	.60	86
ioxynil	HXf	3000	CR	30	.01	4
isazophos	IPs	320	M	220	.69	.008
MCPA	HFf	8500	P/CR	5300	.62	10
MCPB	HFf	3000	CR	800	.27	10
mecoprop	HFf	3000	CR	130	.04	230
metolachlor	HXf	320	CR	190	.59	2
paraquat	HXf	3350	CR	70	.02	32
pendimethalin	HXf/s	320	CR	30	.09	.4
phorate	IPs	320	M	220	.69	.01
pirimicarb	ICf	3000	CR	20	.01	29
propiconazole	FXf	3000	CR	190	.06	100
simazine	HAF/s	6	P	48	8.00	100
terbutryne	HAF/s	380	CR	80	.21	2
triadimenol	FAf	890	CR	45	.05	23.5
tridemorph	FXf	890	CR	125	.14	

PESTICIDE LOADS : MASTERTON

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	470	P/F	750	1.60	2
2,4,5-T	HFf	8650	P/F	4770	.55	20
amitrole	HAF	60	P/F	230	3.83	50
asulam	HCF	6	F	34	5.67	5000
atrazine	HAF	15	F	10	.67	8
bentazone	HXF	1000	CR	70	.07	
bromoxynil	HOF	1000	CR	120	.12	.15
chlorpyrifos	IPf	1000	CR	10	.01	.003
chlorsulfuron	HXF	1000	CR	5	.01	250
clopyralid	HXF	1000	CR	10	.01	104
copper	FXf	55	F	40	.73	9.6
cyanazine	HAS	1000	CR	120	.12	10
dalapon	HXF	310	P	965	3.11	100
demeton-S-methyl	IPf	1000	CR	150	.15	4.3
dicamba	HOF	1000	CR	25	.03	135
dichlorprop	HFf	1000	CR	1500	1.50	165
dinoseb	HXF	350	CR	320	.91	.14
diuron	HXS	50	P	400		20
glyphosate	HXF	1480	P/F	780	.53	86
hexazinone	HAF	30	F	90	3.00	300
ioxynil	HXF	1000	CR	10	.01	4
MCPA	HFf	1500	P/CR	860	.57	10
MCPB	HFf	1350	CR	420	.31	10
mecoprop	HFf	1000	CR	450	.45	230
paraquat	HXF	1530	P/F/CR	80	.05	32
picloram	HOF	640	P/F	60	.09	20
pirimicarb	ICf	1000	CR	10	.01	29
propiconazole	FXf	1000	CR	60	.06	100
simazine	HAF/s	70	P/F	370	5.29	100
terbutryne	HAF/s	350	CR	70	.20	2
triadimenol	FAf	310	CR	15	.05	23.5
tridemorph	FXf	310	CR	40	.13	

PESTICIDE LOADS : OROUA

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	5000	P	670	.13	2
2,4,5-T	HFf	2100	P	960	.46	20
alachlor	HXs	125	M	110	.88	1.8
amitrole	HAf	110	P	22	.20	50
asulam	HCf	44	P	84	1.91	5000
atrazine	HAf	125	M	21	.17	8
bentazone	HXf	2210	CR	155	.07	
bromoxynil	HOf	2210	CR	270	.12	.15
carbofuran	ICf	125	M	5	.04	.28
chlorpyrifos	IPf	2210	CR	20	.01	.003
chlorsulfuron	HXf	2210	CR	10	.00	250
chlorthiamid	HXs	44	P	20	.45	41
clopyralid	HXf	2210	CR	15	.01	104
cyanazine	HAs	2210	CR	270	.12	10
dalapon	HXf	330	P	70	.21	100
demeton-S-methyl	IPf	2210	CR	330	.15	4.3
dicamba	HOf	2700	P/CR/M	110	.04	135
dichlobenil	HOf	44	P	15	.34	10
dichlorprop	HFf	2210	CR	3340	1.51	165
dinoseb	HXf	220	CR	200	.91	.14
diquat	HXf	130	P	35	.27	10
EPTC	HCs	125	M	330	2.64	19
ethofumesate	HXf/s	180	P	18	.10	15
fosamine	HXf	44	P	34	.77	420
glyphosate	HXf	880	P	1520	1.73	86
hexazinone	HAf	70	P	100	1.43	300
ioxynil	HXf	2210	CR	22	.01	4
isazophos	IPs	125	M	90	.04	.008
MCPA	HFf	2740	P/CR	1330	.49	10
MCPB	HFf	2210	CR	400	.18	10
mecoprop	HFf	2210	CR	1000	.45	230
metolachlor	HXf	125	CR	75	.60	2
paraquat	HXf	2690	P/CR	580	.22	32
pendimethalin	HXf/s	125	M	13	.10	.4
phorate	IPs	125	M	90	.72	.01
picloram	HOf	5800	P	220	.04	20
pirimicarb	ICf	2210	CR	15	.01	29
propiconazole	FXf	2210	CR	140	.06	100
simazine	HAf/s	110	P	70	.64	100
TCA	HXf/s	220	P	140	.64	100
terbutryne	HAf/s	220	CR	45	.20	2
triadimenol	Faf	500	CR	25	.05	23.5
tridemorph	FXf	500	CR	70	.14	

PESTICIDE LOADS : PAHIATUA

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	5190	P	975	.19	2
2,4,5-T	HFf	9570	P	2370	.25	20
amitrole	HAf	180	P	30	.17	50
bentazone	HXf	140	CR	10	.07	
bromoxynil	HOf	140	CR	20	.14	.15
chlorpyrifos	IPf	140	CR	1	.01	.003
cyanazine	HAs	140	CR	20	.14	10
dalapon	HXf	310	P	80	.26	100
demeton-S-methyl	IPf	140	CR	20	.14	4.3
dicamba	HOf	140	CR	3	.02	135
dichlorprop	HFf	140	CR	210	1.50	165
diquat	HXf	130	P	40	.31	10
ethofumesate	HXf/s	450	P	45	.10	15
glyphosate	HXf	1100	P	950	.86	86
MCPA	HFf	520	P/CR	350	.67	10
MCPB	HFf	220	P/CR	70	.32	10
mecoprop	HFf	140	CR	60	.43	230
paraquat	HXf	360	P/CR	105	.29	32
picloram	HOf	2150	P	50	.02	20
propiconazole	FXf	140	CR	10	.07	100
simazine	HAf/s	180	P	110	.61	100
TCA	HXf/s	570	P	360	.63	100

PESTICIDE LOADS : POHANGINA

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	Hff	460	P	125	.27	2
2,4,5-T	Hff	750	P	140	.19	20
amitrole	HAF	10	P	4	.40	50
bentazone	HXf	95	CR	7	.07	
bromoxynil	HOf	95	CR	10	.11	.15
cyanazine	HAs	95	CR	11	.12	10
dalapon	HXf	6	P	6	1.00	100
demeton-S-methyl	IPf	95	CR	14	.15	4.3
dicamba	HOf	95	CR	2	.02	135
dichlorprop	Hff	95	CR	140	1.47	165
diquat	HXf	116	P	6	.05	10
glyphosate	HXf	460	P	40	.09	86
ioxynil	HXf	2				4
MCPA	Hff	675	P/CR	140	.21	10
MCPB	Hff	95	P/CR	80	.84	10
mecoprop	Hff	95	CR	40	.42	230
paraquat	HXf	95	CR	2	.02	32
picloram	HOf	670	P	25	.04	20
propiconazole	FXf	95	CR	5	.05	100
simazine	HAF/s	6	P	9	1.50	100
triadimenol	FAf	26	CR	1	.04	23.5
tridemorph	FXf	26	CR	4	.15	

PESTICIDE LOADS : RANGITIKEI

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	Hff	144000	P/F	155000	1.08	2
2,4,5-T	Hff	37900	P/F	254000	6.70	20
alachlor	HXs	140	M	120	.86	1.8
asulam	Hcf	3	F	15	5.00	5000
atrazine	Haf	145	F/M	230	1.59	8
azinphos methyl	IPf	25	S	28	1.12	.014
bentazone	HXf	6500	CR	455	.07	
bromoxynil	HOf	6500	CR	790	.12	.15
carbofuran	ICf	140	M	3	.02	.28
chlorpyrifos	IPf	6525	CR/S	115	.02	.003
chlorsulfuron	HXf	6500	CR	20	.00	250
clopyralid	HXf	6500	CR	50	.01	104
copper	FXf	24	F	20	.83	9.6
cyanazine	HAs	6500	CR	800	.12	10
demeton-S-methyl	IPf	6500	CR	975	.15	4.3
diazinon	IPf	25	S	170	6.80	.09
dicamba	HOf	6640	CR/M	170	.03	135
dichlorprop	Hff	6500	CR	9820	1.51	165
dinoseb	HXf	240	CR	220	.92	.14
diquat	HXf	25	S	13	.52	10
EPTC	Hcs	140	M	350	2.50	19
fluazifop-butyl	HXf	25	S	8	.32	1.37
glyphosate	HXf	500	P/F/S	940	1.88	86
ioxynil	HXf	6500	CR	65	.01	4
iprodione	FXf	25	S	65	2.60	
isazophos	IPs	140	M	95	.68	.008
MCPA	Hff	6500	CR	2950	.45	10
MCPB	Hff	6740	CR	1340	.20	10
mecoprop	Hff	6500	CR	2930	.45	230
metolachlor	HXf	140	M	80	.57	2
oryzalin	HXs	25	S	23	.92	1
paraquat	HXf	6770	F/CR/S	1380	.20	32
pendimethalin	HXf/s	140	M	14	.10	.4
phorate	IPs	140	M	95	.68	.01
phosmet	IPf	25	S	260	10.40	.002
picloram	HOf	5370	P	2690	.50	20
pirimicarb	ICf	6500	CR	40	.01	29
propiconazole	FXf	6500	CR	410	.06	100
sethoxydim	HXf	25	S	5	.20	
simazine	Haf/s	535	P/F/S	530	.99	100
terbacil	HXs	25	S	15	.60	90
terbumeton	Haf	25	S	15	.60	14
terbutylazine	Haf	25	S	15	.60	4.6
terbutryne	Haf/s	240	CR	50	.21	2
triadimenol	Faf	1950	CR	100	.05	23.5
tridemorph	FXf	1950	CR	270	.14	
vinclozolin	FXf	25	S	85	3.40	52.5

PESTICIDE LOADS : WAIMARINO

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	11970	P/F	9380	.78	2
2,4,5-T	HFf	2740	P/F	9700	3.54	20
alachlor	HXs	200	V	150	.75	1.8
asulam	HCf	5	F	30	6.00	5000
atrazine	HAF	10	F	7	.70	8
benomyl	FCf	520	V	620	1.19	.17
bentazone	HXf	280	CR	20	.07	
bromoxynil	HOf	280	CR	34	.12	.15
captafol	FXf	960	V	96	.10	.5
captan	FXf	320	V	416	1.30	.3
chlorothalonil	FXf	1480	V	3370	2.28	.02
chlorpyrifos	IPf	280	CR	2	.01	.003
chlorsulfuron	HXf	280	CR	1	.00	250
clopyralid	HXf	280	CR	2	.01	104
copper	FXf	570	F/V	1700	2.98	9.6
cyanazine	HAs	280	CR	34	.12	10
demeton-S-methyl	IPf	280	CR	40	.14	4.3
dicamba	HOf	280	CR	7	.03	135
dichlorprop	HFf	280	CR	40	.14	165
diquat	HXf	320	V	60	.19	10
fensulfothion	IPs	960	V	860	.90	8.8
glyphosate	HXf	310	P/F	620	2.00	86
hexazinone	HAF	3	F	4	1.33	300
loxynil	HXf	280	CR	3	.01	4
linuron	HXs	1280	V	820	.64	16
mancozeb	FXf	320	V	510	1.59	4
maneb	FXf	1480	V	6100	4.12	.53
MCPA	HFf	1080	P/CR	900	.83	10
MCPB	HFf	280	CR	50	.18	10
mecoprop	HFf	280	CR	130	.46	230
metalaxyl	FXf	320	V	60	.19	100
metribuzin	HAF	1120	V	300	.27	76
paraquat	HXf	1210	P/F/CR/V	282	.23	32
permethrin	IXf	200	V	16	.08	.009
picloram	HOf	190	P/F	160	.84	20
pirimicarb	ICf	480	CR/V	15	.03	29
pirimphos-methyl	IPf	200	V	300	1.50	.02
prometryne	HAF	1280	V	350	.27	2.5
propiconazole	FXf	230	CR	13	.05	100
simazine	HAF/s	210	P/F	130	.62	100
triadimenol	FAf	280	CR	20	.07	23.5
tridemorph	FXf	280	CR	30	.11	

PESTICIDE LOADS : WAIRARAPA SOUTH

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	4500	P/F	1120	.25	2
2,4,5-T	HFf	4510	P/F	1850	.41	20
amitrole	HAf	5	P	15	3.00	50
asulam	Hcf	1	F	6	6.00	5000
atrazine	HAf	2	F	1	.50	8
bentazone	HXf	930	CR	65	.07	
bromoxynil	HOf	930	CR	112	.12	.15
chlorpyrifos	IPf	930	CR	10	.01	.003
chlorsulfuron	HXf	930	CR	5	.01	250
clopyralid	HXf	930	CR	10	.01	104
copper	FXf	8	F	6	.75	9.6
cyanazine	HAs	930	CR	115	.12	10
dalapon	HXf	40	P	25	.63	100
demeton-S-methyl	IPf	930	CR	140	.15	4.3
dicamba	HOf	930	CR	20	.02	135
dichlorprop	HFf	930	CR	1400	1.51	165
dinoseb	HXf	290	CR	200	.69	.14
glyphosate	HXf	510	P/F	300	.59	86
ioxynil	HXf	930	CR	10	.01	4
MCPA	HFf	1530	P/CR	1020	.67	10
MCPB	HFf	1220	CR	370	.30	10
mecoprop	HFf	930	CR	420	.45	230
paraquat	HXf	1290	P/E/CR	60	.05	32
picloram	HOf	2700	P	115	.04	20
pirimicarb	ICf	930	CR	10	.01	29
propiconazole	FXf	930	CR	60	.06	100
simazine	HAf/s	10	P/F	40	4.00	100
terbutryne	HAf/s	290	CR	60	.21	2
triadimenol	FAf	270	CR	15	.06	23.5
tridemorph	FXf	270	CR	40	.15	

PESTICIDE LOADS : WAITOTARA

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	7530	P/F	4140	.55	2
2,4,5-T	HFf	1750	P/F	5010	2.86	20
alachlor	HXs	10	M	9	.90	1.8
amitrole	HAf	65	S/V	64	.98	50
ammonium thiocyanate	XXf	40	V	60	1.50	10
asulam	Hcf	1	F	6	6.00	5000
atrazine	HAf	50	F/M/V	30	.60	8
azinphos methyl	IPf	25	S	40	1.60	.014
bentazone	HXf	704	CR	50	.07	
bromacil	HXf	40	V	20	.50	75
bromoxynil	HOf	704	CR	85	.12	.15
captafol	FXf	40	V	120	3.00	.5
chlorpyrifos	IPf	730	CR/S	106	.15	.003
chlorsulfuron	HXf	704	CR	2	.00	250
clopyralid	HXf	740	CR/V	10	.01	104
cyanazine	HAs	704	CR	90	.13	10
demeton-S-methyl	IPf	704	CR	106	.15	4.3
diazinon	IPf	25	S	170	6.80	.09
dicamba	HOf	750	CR/V	30	.04	135
dichlorprop	HFf	704	CR	1060	1.51	165
dinoseb	HXf	30	CR	25	.83	.14
diquat	HXf	75	P/S	30	.40	10
diuron	HXs	40	V	120	3.00	20
EPTC	HCs	10	M	26	2.60	19
fluazifop-butyl	HXf	25	S	12	.48	1.37
glyphosate	HXf	140	F/S/V	280	2.00	86
hexazinone	HAf	125	P	288	2.30	300
ioxynil	HXf	704	CR	10	.01	4
iprodione	FXf	25	S	104	4.16	
isazophos	IPs	10	M	7	.70	.008
MCPA	HFf	1860	P/CR	1420	.76	10
MCPB	HFf	730	CR	150	.21	10
mecoprop	HFf	704	CR	320	.45	230
metolachlor	HXf	50	M/V	20	.40	2
oryzalin	HXs	25	S	35	1.40	1
paraquat	HXf	1145	P/F/CR/S	165	.14	32
pendimethalin	HXf/s	10	M	1	.10	.4
phorate	IPs	10	M	7	.70	.01
phosmet	IPf	25	S	410	16.40	.002
picloram	HOf	120	P/F	3	.03	20
pirimicarb	ICf	704	CR	4	.01	29
propiconazole	FXf	704	CR	45	.06	100
sethoxydim	HXf	25	S	10	.40	
simazine	HAf/s	70	F/S/V	50	.71	100
terbacil	HXs	25	S	24	.96	90
terbumeton	HAf	65	S/V	60	.92	14
terbuthylazine	HAf	65	S/V	60	.92	4.6
terbutryne	HAf/s	27	CR	5	.19	2
triadimenol	Faf	184	CR	1	.01	23.5
tridemorph	FXf	184	CR	3	.02	
vinclozolin	FXf	25	S	135	5.40	52.5

PESTICIDE LOADS : WANGANUI

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	HFf	24610	P/F	56600	2.30	2
2,4,5-T	HFf	5950	P/F	24320	4.09	20
amitrole	HAF	200	S	20	.10	50
asulam	HCf	2	F	12	6.00	5000
atrazine	HAF	20	F/M	25	1.25	8
azinphos methyl	IPf	200	S	220	1.10	.014
bentazone	HXf	600	CR	45	.08	
bromoxynil	HOf	600	CR	70	.12	.15
chlorpyrifos	IPf	780	CR/S	510	.65	.003
chlorsulfuron	HXf	600	CR	2	.00	250
clopyralid	HXf	600	CR	4	.01	104
copper	FXf	20	F	15	.75	9.6
cyanazine	HAS	600	CR	75	.13	10
demeton-S-methyl	IPf	600	CR	90	.15	4.3
diazinon	IPf	200	S	1360	6.80	.09
dicamba	HOf	600	CR	15	.03	135
dichlorprop	HFf	600	CR	900	1.50	165
dinoseb	HXf	12	CR	11	.92	.14
diquat	HXf	200	S	100	.50	10
EPTC	HCS	12	M	30	2.50	19
fluazifop-butyl	HXf	200	S	60	.30	1.37
glyphosate	HXf	680	P/F/S	1340	1.97	86
hexazinone	HAF	250	P/F	575	2.30	300
ioxynil	HXf	600	CR	6	.01	4
iprodione	FXf	200	S	520	2.60	
isazophos	IPs	12	M	8	.67	.008
MCPA	HFf	2170	P/CR	1780	.82	10
MCPB	HFf	600	CR	110	.18	10
mecoprop	HFf	600	CR	270	.45	230
metolachlor	HXf	12	M	12	1.00	2
oryzalin	HXS	200	S	180	.90	1
paraquat	HXf	1600	P/F/CR/S	440	.28	32
phorate	IPs	12	M	8	.67	.01
phosmet	IPf	200	S	2040	10.20	.002
picloram	HOf	425	P/F	90	.21	20
pirimicarb	ICf	580	CR	5	.01	29
propiconazole	FXf	580	CR	35	.06	100
sethoxydim	HXf	200	S	40	.20	
simazine	HAF/s	445	P/F/S	400	.90	100
terbacil	HXS	200	S	120	.60	90
terbumeton	HAF	200	S	120	.60	14
terbuthylazine	HAF	200	S	120	.60	4.6
terbutryne	HAF/s	12	CR	2	.17	.21
triadimenol	FAf	200	CR	10	.05	23.5
tridemorph	FXf	200	CR	30	.15	
vinclozolin	FXf	200	S	680	3.40	52.5

PESTICIDE LOADS : WOODVILLE

Active ingredient	Code	Area (ha)	Land use code	Mass (kg)	Rate (kg/ha.yr)	LC50 (mg/l)
2,4-D(all forms)	Hff	2200	P	410	.19	2
2,4,5-T	Hff	4070	P	1010	.25	20
amitrole	Haf	80	P	15	.19	50
bentazone	HXf	420	CR	30	.07	
bromoxynil	HOf	420	CR	50	.12	.15
cyanazine	HAs	420	CR	50	.12	10
dalapon	HXf	130	P	35	.27	100
demeton-S-methyl	IPf	420	CR	60	.14	4.3
dicamba	HOf	320	P	40	.13	135
dichlorprop	Hff	420	CR	630	1.50	165
diquat	HXf	70	P	20	.29	10
ethofumesate	HXf/s	160	P	16	.10	15
glyphosate	HXf	230	P	200	.87	86
hexazinone	Haf	60	P	90	1.50	300
MCPA	Hff	1500	P/CR	1020	.68	10
MCPB	Hff	420	CR	75	.18	10
mecoprop	Hff	420	CR	190	.45	230
paraquat	HXf	550	P/CR	45	.08	32
picloram	HOf	5260	P	125	.02	20
propiconazole	FXf	410	CR	30	.07	100
simazine	Haf	80	P	50	.63	100
TCA	HXf/s	200	P	130	.65	100



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