



Ministry for the
Environment
Manatū Mō Te Taiao

Intractable Agricultural Chemicals in New Zealand

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Executive Summary

New Zealand will have safely disposed of 225 tonnes of old and unwanted agricultural chemicals by June 2006.

The Ministry for the Environment and 13 regional councils have been working together over the past three years to collect agricultural chemicals, mainly from rural properties. This programme is near completion. The total amount of collected intractable agrichemicals exceeds earlier expectations and has greatly reduced risks posed to farmers, their families and the environment.

To date, the Ministry for the Environment has contributed \$2.5 million through its Sustainable Management Fund to finance the disposal of the collected material. The Ministry intends to continue its efforts to clear New Zealand from unwanted agricultural chemicals in partnership with regional councils. It has allocated funding for an additional three years to continue the work. This will ensure that the remaining agrichemicals are cleared.

Most of the chemicals collected are so-called persistent organic pollutants (POPs) – chemical substances that persist in the environment and pose a risk of causing adverse effects to human health and the environment. New Zealand is a signatory to the United Nations Stockholm Convention on Persistent Organic Pollutants. We are required to collect and dispose of agrichemical POPs.

So what have we been doing? In 2002 an estimate of the intractable agrichemical pesticides (some of which are POPs) was made to allow for an assessment of the total cost and time required to collect and dispose of agrichemical POPs. In addition, the 2002 estimate assisted in identifying which New Zealand regions resources should be invested. It was estimated that 282 tonnes of intractable agrichemical pesticides remained in New Zealand. Following this estimate the three-year collection programme was undertaken to collect and dispose of as much intractable material as possible.

Given that this programme is now near completion, an updated estimate is needed to determine how much intractable material remains and to determine if further collection programmes are required. This report estimates that a further 175 tonnes of material remains to be collected after June 2006.

This updated estimate is based on the 2002 estimate, with adjustments following feedback from territorial local authorities and data from the three-year collection and disposal programme.

Introduction

Purpose of this report

This report provides a revised best estimate of the amount of intractable agrichemicals (some of which are POPs) remaining on farms in each region of New Zealand.

This estimate will allow for an assessment of whether future collections are required to collect and dispose of intractable agrichemicals, and in which New Zealand regions resources should be invested.

This report also demonstrates a key component of New Zealand's implementation of obligations under the United Nations Stockholm Convention on Persistent Organic Pollutants. Agrichemical POPs are defined as Persistent Organic Pollutants (POPs) under the United Nations Stockholm Convention on Persistent Organic Pollutants.

What are POPs?

Persistent organic pollutants (POPs) are chemical substances that persist in the environment and pose a risk of causing adverse effects to human health and the environment.

The chemicals listed as POPs under the Stockholm Convention are:

- nine pesticides (aldrin, chlordane, DDT, dieldrin, endrin, heptachlor, mirex, hexachlorobenzene and toxaphene)
- PCBs (polychlorinated biphenyls)
- dioxins and furans (polychlorinated dibenzo-p-dioxins or PCDDs, and polychlorinated dibenzofurans or PCDFs).

Environmental and health effects of POPs

POPs persist in the environment for decades and may bioconcentrate significantly. These properties together with their semi-volatility have resulted in the presence of POPs all over the world, even in regions where they have never been used. POPs are everywhere. They have been measured on every continent, at sites representing every major climatic zone and geographic region throughout the world. These include remote regions, where no significant local sources exist and the only reasonable explanation for their presence is long-range transport from other parts of the globe. Referred to as the “grasshopper effect”, POPs released in one part of the world can – through a repeated (and often seasonal) process of evaporation and deposit – be transported through the atmosphere to regions far away from the original source.

POPs are found globally in soils, sediments, in the fat of fish and terrestrial animals, as well as in human breast milk. Some of the highest levels have been recorded in the Arctic region.

Humans are mainly exposed to POPs through eating foods of animal origin, such as meat, dairy products and fish. A growing body of scientific evidence associates exposure to POPs with adverse health effects in humans including cancer, neurotoxic, behavioural, reproductive effects and immutotoxicity. The mechanism for some of these effects appears to be through disruption of the human endocrine system. Humans may be sensitive to these chemicals during foetal development.

A growing body of evidence links POPs to reproductive failure, deformities and malfunctions in fish and wild life. Studies from the Great Lakes environment revealed that a dozen Great Lakes predators (such as eagles and turtles) suffered significant health impacts. These impacts included: population decline and reproductive dysfunction; eggshell thinning; metabolic changes; deformities and birth defects; cancers; behavioural changes; abnormally functioning thyroids and other hormone system dysfunction; immune suppression; feminisation of males and masculinisation of females.¹

New Zealand's commitment to the United Nations Stockholm Convention

The United Nations Stockholm Convention on Persistent Organic Pollutants aims to protect human health and the environment by banning the production and use of POPs. New Zealand is a party to the Stockholm Convention, along with 150 other countries. All parties commit themselves to a long-term international effort to reduce or eliminate health and environmental risks from chemicals specified in the convention.

The Convention came into force for New Zealand on 23 December 2004. New legislation was introduced to bring New Zealand's legislation into line with the legal requirements of the Stockholm Convention. The Hazardous Substances and New Organisms (Stockholm Convention) Amendment 2003 requires that POPs (as defined under the Stockholm Convention) are now banned from importation, production and use in New Zealand.

The storage of POPs chemicals must meet the criteria provided in a Gazette notice released by the Environmental Risk Management Authority (ERMA).²

The key obligations for New Zealand under the Convention relating to agrichemical pesticides are:

- Article 3: reduce/eliminate the production, importation and exportation and use of POPs (pesticides and industrial chemicals); and
- Article 6: measures to reduce or eliminate releases of POPs from stockpiles and wastes.

¹ Adapted from: *Persistent Organic Pollutants and Human Health*, World Federation of Public Health Association, May 2000.

² New Zealand Gazette, No 174 Hazardous Substances (Storage and Disposal of Persistent Organic Pollutants) Notice 2004.

What were agrichemical POPs used for in New Zealand?

From the mid-1940s until the 1970s some pesticides containing POPs (including DDT and dieldrin) were used widely in New Zealand. The main areas of use were agriculture, horticulture and timber treatment. Smaller amounts were also used for amenity purposes and in households.

The use of pesticides in New Zealand was not subject to regulatory control until the Agricultural Chemicals Act 1959 established the Agricultural Chemicals Board. The use of persistent organochlorine pesticides was then progressively restricted by a succession of laws. By the mid-1970s the use of agrichemical POPs had effectively ceased in agriculture and horticulture. All Stockholm Convention POPs were formally deregistered by the Pesticides Board in 1989.

Progress made towards clearing New Zealand of POPs and other intractable agrichemicals

New Zealand collections of intractable agrichemicals prior to 2003

Under the Local Government Act 2002, territorial local authorities are responsible for waste and waste management. Under the Resource Management Act 1991, territorial local authorities and regional councils have the function of controlling the use of land to prevent or mitigate adverse effects from the storage, use and disposal of hazardous substances. Some councils have been proactive and have taken a lead in dealing with hazardous waste (including intractable agrichemicals).

The most significant collection and disposal of intractable agrichemicals occurred between 1997 and 1999, when a consortium of seven councils worked together to ship 120 tonnes of intractable agrichemicals overseas. Since then, some regions have maintained ongoing collections, while others have run less frequent collections. Some collections were sponsored by the Ministry for the Environment's Sustainable Management Fund, but most were funded by local government.

2003–2005 rural agricultural chemical collection programme

The Ministry for the Environment has been partnering with regional councils to provide a three-year, comprehensive rural agricultural chemical collection programme since 2003. This programme has involved 13 regional councils or unitary authorities. By June 2006 this programme will have collected approximately 290 tonnes of material, of which approximately 225 tonnes is intractable material.

The partnership with councils has also provided more reliable information on the remaining amount of intractable material in New Zealand. This information has been used to calculate the updated estimate of intractable agrichemicals remaining in New Zealand.

Appendix One outlines the results for individual regions and provides a brief commentary on each of their achievements.

Urban collections and disposal of agrichemical POPs and intractable materials

In urban centres, agrichemical POPs and other intractable material are collected – along with other hazardous materials – in the HazMobile collections. The HazMobile is New Zealand's first mobile household hazardous waste collection service. It is a free service for householders provided by councils, mainly in the Auckland region. The HazMobile visits various sites throughout New Zealand several times a year so that householders can safely dispose of their hazardous wastes – old paints, waste oil, batteries and household and agrichemical POPs and intractable material. In addition, a number of local authorities have drop-off points for agrichemicals.

Estimates of intractable agrichemicals remaining in New Zealand

Initial 2002 POPs estimate

In 2002 Tredi New Zealand Ltd estimated the amount of rural agrichemical POPs and other intractable material (material which has to be sent overseas for disposal. Intractable material includes, but is not limited to, POPs) remaining within each region of the country. It was then estimated that approximately 282 tonnes of intractable agrichemicals remained in New Zealand. This estimate was then used to plan a three-year agrichemical collection and disposal programme (see 2003–2005 rural agricultural chemical collection programme above).

The 2002 report was sent to regional councils and feedback was sought. Initially very few responses were received, which is indicative of the difficult task in trying to estimate the agrichemical POPs volumes remaining. Often the council has very little information on which to provide a better estimate. Even when collections do occur, it is difficult to record useful information and it is particularly difficult if drop-off points are used. There are many variables that make this a very difficult task to undertake.

Revised estimate of intractable agrichemical pesticides in New Zealand

In 2002 it was estimated that 282 tonnes of intractable agrichemicals remained uncollected in New Zealand. Since 2002 approximately 228.8 tonnes of intractable material have been collected as part of the Ministry for the Environment's agrichemical programme. This would imply that approximately 54 tonnes of intractable material remains in New Zealand.

However, it is estimated that, as at June 2006, there will be approximately 175 tonnes of uncollected intractable agrichemicals in New Zealand. This estimate is based on collection information and the experience of territorial local authorities.

The difference between the values is due to the complexity of estimating the volume of intractable materials. Intractable agrichemicals are often at the back of sheds and not easy to quantify. The 2006 estimate is based on estimates from local authorities, who have vast experience in this area.

Table 1: Revised estimate of intractable material in each region of New Zealand as at June 2006

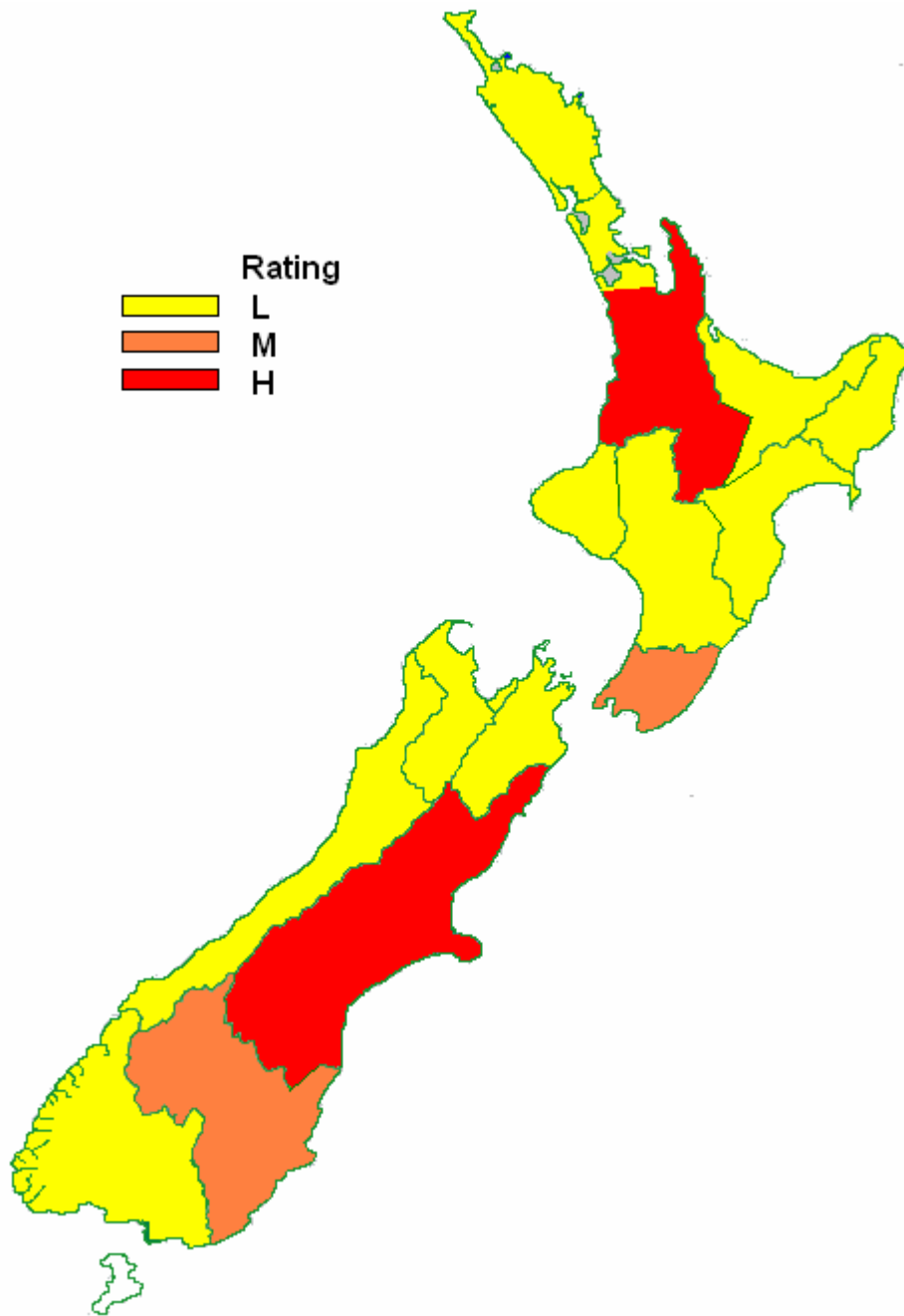
| Region | Intractables collected during 2003–2005 Ministry for the Environment’s programme (tonnes) | Estimated intractable material remaining as at June 2006 (tonnes) | Quantity rating | % of total tonnage |
|-------------------|---|---|-----------------|--------------------|
| Northland | 19.6 | 1.0 | L | 0.6% |
| Auckland | 0 | 7.0 | L | 4.0% |
| Waikato | 3 | 77.0 | H | 44.3% |
| Bay of Plenty | 13.6 | 0* | L | 0.0% |
| Gisborne | 4 | 0* | L | 0.0% |
| Hawke’s Bay | 12.5 | 0* | L | 0.0% |
| Taranaki | 2.6 | 2.0 | L | 1.2% |
| Manawatu–Wanganui | 8 | 2.0 | L | 1.2% |
| Wellington | 0 | 25.7 | M | 14.8% |
| Tasman | 8.8 | 0* | L | 0.0% |
| Nelson | 0 | 0.7 | L | 0.4% |
| Marlborough | 15.1 | 0* | L | 0.0% |
| West Coast | 0.5 | 7.0 | L | 4.0% |
| Canterbury | 106.1 | 34.1 | H | 19.6% |
| Otago | 22.4 | 11.6 | M | 6.7% |
| Southland | 10.2 | 5.8 | L | 3.3% |
| Total | 228.8 | 173.9 | | 100% |

Key to table – quantity rating based on tonnes remaining: L = 0 to 10 tonnes; M = 11 to 30 tonnes; H = greater than 31 tonnes.

* Note: where an estimate is 0 tonnes, it should be noted that there are probably still small amounts of intractable material present.

The map below shows where there are still significant intractable agricultural pesticides to be collected and disposed of.

Figure 1: Quantity rating by region



Estimate of quantity yet to be collected
L = From 0 to 10 tonnes remaining.
M = From 11 to 30 tonnes remaining.
H = Greater than 31 tonnes remaining.

More details on how the amounts for each region were calculated are provided in Appendix One.

Next steps

So that New Zealand meets its obligations under the Stockholm Convention, the Ministry for the Environment is supporting local government to ensure that New Zealand does not again build up a backlog of agrichemical POPs or intractable material requiring disposal.

The Ministry for the Environment is exploring possible next steps – these are discussed below.

Continue with agrichemical collections

The Ministry for the Environment is committed to working with local government to continue with agrichemical collections. It has allocated funding for an additional three years to continue the work. This will ensure that the remaining agrichemicals are cleared.

Legislation under the Hazardous Substances and New Organisms Act

The purpose of the Hazardous Substances and New Organisms Act (the HSNO Act) 1996 is to protect the environment, and the health and safety of people and communities, by preventing or managing the adverse effects of hazardous substances and new organisms.

Under the HSNO Act, the Environmental Risk Management Authority (ERMA) has the power to assess a substance, and ban or restrict its use or manufacture, or put controls on the substance. Under the HSNO (Stockholm Convention) Amendment 2003, agricultural POPs are banned from manufacture, use or storage. In addition, under the Amendment, chemicals exhibiting POPs characteristics can be regulated to prevent their production or use.

The Ministry for the Environment's agrichemical programme is assisting New Zealand in meeting its obligations under the Stockholm Convention. Any regulation of chemicals exhibiting POPs characteristics would be undertaken by ERMA as required.

Appendix One

The 2002 estimates are presented below, with a summary of collection results and a brief discussion.

Table 2: 2002 estimates of intractable agricultural chemicals and updated estimates

| Region/district | 2002 estimate of intractable agrichemical pesticides | Assumptions in 2002 estimate | Estimated intractable material remaining as at June 2006 |
|-------------------|--|---|--|
| Northland | 19 tonnes | Farms: 7,554 Farms with POPs: 2,518 % yet to be cleared: 30% | 1.0 tonne |
| Auckland | 26.6 tonnes | Farms: 7,983 Farms with POPs: 2,661 % yet to be cleared: 40% | 7.0 tonnes |
| Waikato | 24.1 tonnes | Farms: 14,478 Farms with POPs: 4,826 % yet to be cleared: 20% | 77.0 tonnes |
| Bay of Plenty | 13.4 tonnes | Farms: 4,020 Farms with POPs: 1,340 % yet to be cleared: 40% | 0 tonnes* |
| Gisborne | 3.6 tonnes | Farms: 1,092 Farms with POPs: 364 % yet to be cleared: 40% | 0 tonnes* |
| Hawke's Bay | 7.5 tonnes | Farms: 2,988 Farms with POPs: 996 % yet to be cleared: 30% | 0 tonnes* |
| Taranaki | 2.5 tonnes | Farms: 5,898 Farms with POPs: 1,966 % yet to be cleared: 5% | 2.0 tonnes |
| Manawatu–Wanganui | 12.6 tonnes | Farms: 7,560 Farms with POPs: 2,520 % yet to be cleared: 20% | 2.0 tonnes |
| Wellington | 23.6 tonnes | Farms: 1,180 Farms with POPs: 393 % yet to be cleared: 80% | 25.7 tonnes |
| Tasman | 4.9 tonnes | Farms: 1,965 Farms with POPs: 655 % yet to be cleared: 30% | 0 tonnes* |
| Nelson | 0.7 tonnes | Farms: 111 Farms with POPs: 37 % yet to be cleared: 70% | 0.7 tonnes |
| Marlborough | 4.7 tonnes | Farms: 1,419 Farms with POPs: 473 % yet to be cleared: 40% | 0 tonnes* |
| West Coast | 9.7 tonnes | Farms: 1,287 Farms with POPs: 429 % yet to be cleared: 90% | 7.0 tonnes |
| Canterbury | 79.3 tonnes | Farms: 10,581 Farms with POPs: 3,527 % yet to be cleared: 90% | 34.1 tonnes |
| Otago | 33.8 tonnes | Farms: 5,073 Farms with POPs: 1,691 % yet to be cleared: 80% | 11.6 tonnes |
| Southland | 16 tonnes | Farms: 4,791 Farms with POPs: 1,597 % yet to be cleared: 40% | 5.8 tonnes |
| Total | 282 tonnes | | 173.9 tonnes |

* Note: where an estimate is 0 tonnes, it should be noted that there are probably still small amounts of intractable material present.

Collection results and discussion

Council Collections

Between 1997 and 1999 a consortium of seven councils worked together to dispose of intractable agrichemicals. The councils involved collectively shipped 120 tonnes of intractable agrichemicals overseas. Since then, some regions have maintained ongoing collections, while others have run less frequent collections. An outline of each region's collections and progress is presented below.

Northland

In 1993 Northland undertook a collection of intractable material. A further collection in March 2004 yielded 4.6 tonnes of intractable material. In 1994/95 the Council investigated the use of organochlorines on Landcorp and former Lands & Survey land and made arrangements for the safe disposal of unwanted material.

Northland Regional Council has been an active partner in the Ministry for the Environment's agrichemical programme. Between 2003 and 2006 Northland has disposed of approximately 19.6 tonnes of unwanted intractable agrichemicals.

Northland Regional Council staff consider that most of the users of intractable agrichemicals have been cleared. Northland is now nearly clear of intractable agrichemicals and as at June 2006 it is estimated that approximately 1 tonne of intractable agrichemicals will remain.

Auckland

Auckland undertook a huge effort to clear their region in 1999 and contributed 59.4 tonnes of intractable material to the Council consortium collection at the time. They have continued to run regular collection services (2–3 times a year) for both rural and urban hazardous waste.

Auckland Regional Council has seen a steady decline in the quantities of intractable material collected. In 2001/02, 4.6 tonnes of intractable agrichemicals were collected and in 2002/03 only 3.6 tonnes. This was reduced further in 2003/04 when only 1.5 tonnes of intractable agrichemicals were collected.

It is felt that Auckland has removed the historical legacy of hazardous waste, with only approximately 7 tonnes of intractable agrichemicals remaining. It is considered they are over the peak of outdated material and their volumes collected are stable for implementing a long-term solution.

Waikato

Waikato also had a significant amount to contribute to the consortium in 1999 with 29.3 tonnes of intractable material. Waikato has continued to provide regular collections and 1–2 tonnes intractable material is collected each year.

It is assumed there is still historical legacy material in this region although it is not known how much remains. Environment Waikato feels that the estimate of 24.1 tonnes in 2002 is low and has been calculated incorrectly.

A pilot collection was undertaken in 2004/05 during which approximately 3 tonnes of intractable agrichemicals were disposed of. It is now estimated that 77 tonnes of intractable agrichemicals remain in the Waikato region.

Bay of Plenty

Bay of Plenty also contributed to the consortium in 1999 with 9.6 tonnes of agrichemicals. Since then collections have occurred each year with lower volumes in 1999/00 and 2000/01, of 1–2 tonnes. In 2001/02 a large volume of over 7.5 tonnes of intractable material was received, including one very large amount from one farm. In 2002/03 the kiwifruit industry helped collect 1.2 tonnes of intractable agrichemicals. In addition, the Bay of Plenty utilises the HazMobile.

Between 2003 and 2006 Environment Bay of Plenty disposed of approximately 13.6 tonnes of intractable agrichemicals, through the Ministry for the Environment's agrichemical programme.

It is now estimated that the Bay of Plenty is essentially clear of intractable material, although traces may remain.

Gisborne

Previous collections in Gisborne include 6.7 tonnes of intractable material collected between 1997 and 1999. A small collection in 2003 collected nearly 700 kg.

Gisborne District Council has been involved in the Ministry for the Environment's agrichemical programme for three years, disposing of approximately 4 tonnes of intractable agrichemicals. Gisborne is now considered effectively clear of intractable material.

Hawke's Bay

Hawke's Bay contributed 7.3 tonnes to the 1999 consortium and has since collected between 1–2.5 tonnes of material each year. Low volumes and numbers registering in recent collections suggest this region is cleared of the bulk of the historical material. There has been good availability to collections 2–3 times a year. In 2004 there was also the removal of a large 4.3 tonne stockpile of DDT fertiliser.

Hawke's Bay Regional Council has participated in the Ministry for the Environment's agrichemical programme in 2003/04, 2004/05 and 2005/06. During this time approximately 12.5 tonnes of intractable agrichemicals have been disposed of. Hawke's Bay is now considered relatively clear of intractable material.

Taranaki

Taranaki contributed 6.9 tonnes of intractable agrichemicals to the consortium in 1999. Since then a collection in 2001 collected a further 4.2 tonnes of intractable agrichemicals. In 2004, Taranaki participated in the Ministry for the Environment's programme, resulting in the collection 2.6 tonnes of intractable material. Taranaki Regional Council has recently undertaken a survey of all farms in their region and found results similar to the 2002 Tredi estimate of 2.5 tonnes.

Taranaki are confident that the historical material has been removed for their region, with only approximately 2 tonnes of intractable material remaining.

Manawatu–Wanganui

A collection in 1996 removed 9 tonnes of intractable material from Manawatu–Wanganui. This collection was preceded by a major publicity programme. A recent assessment undertaken by Horizons Regional Council suggests that approximately 5–10 tonnes remain in their region.

Horizons Regional Council is participating in the 2005/06 agrichemical programme run by the Ministry for the Environment. It is hoped that this will result in the disposal of approximately 6–8 tonnes of intractable material.

In June 2006 it is estimated that approximately 2 tonnes of intractable material will remain in the Manawatu–Wanganui region.

Wellington

After completing a collection from 2001 to 2003 that resulted in 11.6 tonnes of intractable material, Wellington provided feedback on the Tredi report to say it is more likely to have 87% remaining to be cleared, rather than Tredi's estimate of 80%. This increases the estimate to 25.7 tonnes remaining in this region.

Greater Wellington also collected information on the amount collected per property and found that each property had approximately 25 kilograms of intractable material. This suggested to Tredi that the model is appropriate for this region. The district councils run drop-off points and some have an annual household HazMobile collection.

It is estimated that approximately 25.7 tonnes of intractable agrichemicals remain in the Wellington region.

Tasman

A collection between 1993 and 1997, from 500 farms collected 10 tonnes of intractable material. Since then a further 1 tonne of material has been collected from drop-off points and a 1.2 tonne stockpile of intractable-contaminated sawdust removed.

Material has been cleared from Tasman District as part of the Ministry for the Environment's agrichemical programme. In total approximately 8.8 tonnes of intractable agrichemicals have been disposed of.

It thought that Tasman is now effectively clear of intractable material, although traces may remain.

Nelson

Nelson has never run a region-wide collection, however they maintain drop-off points where people can dispose of material. A good, one-off collection targeting the rural historical legacy material is probably sufficient for this region, as Nelson is primarily urban-based with a small number of farms.

Given no further information, it is likely the 2002 estimate of 0.7 tonnes is still applicable.

Marlborough

Marlborough contributed 7 tonnes of intractable agrichemicals to the consortium in 1999 and have since collected a further 3.1 tonnes from drop-off centres. Marlborough District Council participated in the Ministry for the Environment's agrichemical programme in 2003/04, clearing 3.1 tonnes of intractable material. Marlborough is also participating in the agrichemical programme in 2005/06 and it is anticipated that approximately 8–12 tonnes of intractable material will be cleared.

It is estimated that as at June 2006, Marlborough will be effectively clear of intractable material, although a small amount may remain.

West Coast

West Coast Regional Council ran a collection in the early 1990s. Records of total volumes collected are unclear, but the collection included 0.5–1 tonne of DDT and a small amount of other material.

More recently, a three site collection was carried out in 2003 that collected 0.2 tonnes of intractable material. This collection included a high level of publicity to target the historical legacy material and provided good coverage of the region, although participation was low. The 2004 collection used 16 sites and collected 1.2 tonnes of intractables. A drop-off system is now also available, with three centrally located sheds in each district. To date very little material has been received and therefore it may be appropriate to assume there is less than the predicted 9.7 tonnes of intractable agrichemicals in the West Coast region.

West Coast Regional Council participated in the Ministry for the Environment's agrichemical programme in 2003/04, collecting 0.5 tonnes of intractable material.

It estimated that as at June 2006, approximately 7 tonnes of intractable material remains in the West Coast region.

Canterbury

The 2002 Tredi estimate was based on 25 kg/property, however new information resulting from Environment Canterbury's collections indicate this is an underestimate and 40 kg/property may be more suitable for this region.

Environment Canterbury has participated in the Ministry for the Environment's agrichemical programme since 2003. By June 2006 it is estimated that Canterbury will have disposed of approximately 106 tonnes of intractable agrichemicals. This collection included 11.6 tonnes of stockpiled DDT fertiliser.

It is now estimated that approximately 34.1 tonnes of intractable agrichemicals remains in Canterbury.

Otago

A collection in 1997 visited 613 properties and collected 16 tonnes of intractable material. Otago Regional Council was involved in the Ministry for the Environment's agrichemical programme in 2004/05 and 22.4 tonnes of intractable agrichemicals were collected.

It is now estimated that approximately 11.6 tonnes of intractable material remains in the Otago region.

Southland

Southland Regional Council undertook a survey in 1993 and then progressively collected from each area within the region from 1995 to 1997. The collection cleared 468 properties, resulting in 16.2 tonnes of intractable agrichemicals. These chemicals were kept in safe storage before being included in the council consortium in 1999.

Environment Southland was involved in the Ministry for the Environment's agrichemical programme in 2005/06. This involvement cleared 10.2 tonnes of unwanted intractable agrichemicals from the region.

It is now estimated that approximately 5.8 tonnes of intractable material remains in Southland.