GUIDELINES FOR LOCAL GOVERNMENT ON

REDUCING PESTICIDE EXPOSURE

PIRSA Biosecurity - Rural Chemicals

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GUIDELINES FOR LOCAL GOVERNMENT ON REDUCING PESTICIDE EXPOSURE (2009)

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Introduction

Local government has two main areas of responsibility with regard to pest control:

- Managing weeds, insects and diseases on Council or public land
- Managing pests that are a threat to public or environmental health

Weed control is the dominant pest management activity on Council or public land. Most insect control undertaken by Councils is likely to be for reasons of public or environmental health (see below). Disease control may occasionally be necessary in sporting turf or ornamental plantings. This document focuses on weed control and herbicide use, but the principles apply to other classes of pesticides as well.

Councils control weeds for various reasons including:

- Road and pedestrian safety – eg maintenance of sight lines and control of growth around roadside furniture
- Reduction of fire fuel loads
- Removal of harbour for pests – snakes, rats, mice, rabbits, etc
- Removal of competition with desirable plant species – trees, shrubs, understorey, turf
- Management of water catchments – water quality and flood mitigation
- Physical health and safety – control of weeds with toxic or allergenic properties or with prickles, burrs, spines, etc
- Compliance with noxious (declared) weeds legislation
- Aesthetics

Pests that pose a risk to public or environmental health, and might be controlled by Councils, include bees and wasps (including European wasp), mosquitoes, flies and rodents. Many councils also undertake termite control to protect buildings, street trees, etc.

A range of control techniques, including chemicals, is available for most pests. Councils should consider which control methods are most appropriate for particular pests and situations. Because Councils control pests in areas that are usually accessible to the public, any pesticide use carries an associated risk of public exposure.

Production of this document is partly in response to a recommendation from the Social Development Committee of the Parliament of South Australia, which reported to the Legislative Council in July 2005 on its Inquiry into Multiple Chemical Sensitivity (MCS). The Report of this Inquiry included the following recommendation (No. 6) -

That Primary Industries and Resources SA (PIRSA):

- *Encourage all relevant bodies across SA to adopt and implement best practice guidelines for administering chemicals;*
- *Advise local councils, through the Local Government Association, on best practice in the use of chemicals and in working with local communities to implement best practice measures, particularly in relation to No-Spray Registers;*
- *Ensure that all Councils clearly understand their legal obligations with regard to chemical use, as outlined under Control of Use legislation*

Pesticide Regulation in Australia

Federal legislation for the national registration of pesticides consists of seven Acts. The centrepiece is the Agricultural and Veterinary Chemicals Code (the 'Agvet Code') scheduled to the *Agricultural and Veterinary Chemicals Code Act 1994.* All States and Northern Territory have enacted complementary legislation that applies the AgVet Code Australia-wide.

The Agvet Code contains the detailed operational provisions for registering pesticides and establishes the powers of the Australian Pesticides and Veterinary Medicines Authority (APVMA). The APVMA administers the National Registration Scheme that registers and regulates the manufacture and supply of all pesticides in Australia, up to and including the point of sale. Once sold, pesticides are regulated by each State's control-of-use legislation.

APVMA manages the risk assessment process for the registration of chemical products, which involves independently evaluating scientific data and providing the opportunity for public comment before registration. The APVMA also issues permits for off-label use, reviews currently registered products and investigates adverse experience reports.

In addition to complementary legislation that enables the National Registration Scheme, SA has other legislation that regulates the sale and use of pesticides in this State. PIRSA administers the *Agricultural and Veterinary Products (Control of Use) Act 2002* and *Regulations 2004.* This *Act* encourages responsible chemical use in the community by providing a clear framework for chemical users based on knowledge, skill and responsibility. It sets out what constitutes responsible chemical use and gives powers to control persons who choose not to exercise that responsibility.

Through legislation administered by other SA Government Departments, pesticides are also subject to regulation for:

- Purchase and sale
- Licensing of commercial pest controllers
- Storage and transport
- Occupational Health, Safety and Welfare
- Environmental responsibility
- Disposal of products and containers

Pesticide Use in Australia

The Australian Academy of Technological Sciences and Engineering (ATSE) published a review on Pesticide Use in Australia[2] in 2002. The review was restricted to use of pesticides in the rural environment. It did not consider urban uses of these pesticides, for example in public spaces, home gardens or for termite controls in buildings. Despite this constraint, the review provides useful information on the magnitude of pesticide use in Australia.

ATSE reported that determining specific data about pesticide use is difficult. Herbicides are the largest group of pesticide products. Glyphosate was (and probably still is) the most widely used pesticide in Australia, with use approaching 15 000 tonnes per annum when ATSE wrote its report. The next most widely used herbicides were atrazine and simazine. About 3000 tonnes of each were used annually, much of them in industrial situations for seasonal weed control. Over 1000 tonnes of the group of chemicals that disrupt plant cell growth, including 2,4-D and its derivatives and MCPA, are used. A similar level is used of chemicals in the pyridil group, mainly paraquat and diquat. Agricultural use of the pyridil group of herbicides may have increased since ATSE published its review, in response to growing adoption of zero or reduced tillage for crop establishment and concerns about glyphosate resistance in weed species.

The ATSE review found that there was no detailed and publicly available information in Australia on usage of individual pesticides, either nationally or by regions. The development of a database on agricultural and veterinary chemical use would allow government, industry and the wider community to access data, giving the ability to recognise changes in use patterns, determine what is causing any observed trends and relate this to changes in productivity, the environment and any perceived health risks.

Survey of Pesticide Use by Local Government in SA

In late 2008, PIRSA Rural Chemicals Program surveyed SA councils by sending them a questionnaire to obtain general information on their pesticide use. Five metropolitan councils and six regional councils responded to the survey. All eleven councils applied pesticides. Eight used both their own staff and licensed contractors, two regional councils used their own staff only and one regional council used licensed contractors only.

Pesticide Use by Council Staff

Amongst the ten councils where staff applied pesticides, all used herbicides, six used insecticides, three used fungicides and three used rodent baits. The main situations where council staff applied herbicides were parks, gardens, roadsides and footpaths but included constructed wetlands, firetracks, tree stumps/suckers and proclaimed plant control. The main situation where council staff applied insecticides was gardens (ornamental) but included wasp and bee control, mosquito control in creeks and drains, footpaths, roadsides, street trees, golf courses and a council's plant nursery. Fungicide use was minimal and was generally restricted to ornamental plantings, usually roses. Rodent baiting was carried out in and around council-owned buildings.

Councils that used their own staff to apply pesticides generally required them to have a recognised qualification such as a Pest Management Technician's Licence, a Horticultural or Natural Resources Management Certificate or *ChemCert* accreditation. One of the ten councils required in-house training only and a second gave in-house training to staff who only applied glyphosate through knapsacks.

Pesticide Use on behalf of Councils by Licensed Contractors

Amongst the eight councils that provided information about their employment of licensed contractors, seven used them for insecticide application, six used them for herbicide application, three used them for rodent baiting and there was one use each for rabbit control and pigeon control. No councils used contractors to apply fungicides. One metropolitan council said that it used contractors, in addition to its own staff, to apply pesticides but declined to divulge any contractual details.

Contractors' main use of insecticide was for termite, bee and European wasp control. Contractors used insecticide to control beetles in sports turf for two councils. The main situations where contractors applied herbicides were roadsides, footpaths and reserves but included ovals, parks, gardens, verges, cemeteries, creeklines and drains.

Types of Pesticides used by Councils

Based on information from the survey, herbicides are the dominant pesticide group used by councils and most of this herbicide use is glypyhosate. One outer metropolitan council applies approximately 2500 L of glyphosate-based herbicide annually by its staff, in addition to an unspecified amount by contractors, whereas its combined use of all other herbicides is less than 40 L/kg. The properties of these other herbicides (triclopyr, picloram, dicamba, MCPA, metsulfuron-methyl and organosilicone penetrant) suggest that they are used for turf and woody weed control. Contractors working for one regional council applied approximately equal amounts of glyphosate and simazine (for residual weed control) but the council commented that it was considering ways to reduce or eliminate the use of simazine. Councils use much smaller amounts of other herbicides for control of broad-leaf weeds in turf, woody weeds and proclaimed plants.

Only one council used more than 20 L/kg of insecticide per annum. This outer-metropolitan council used 80 L/kg, that included 40 kg of Meridian® (thiamethoxam) which is used for beetle control in turf, 20 kg of *Bacillus thuringiensis* which is a biological insecticide used for control of mosquito larvae, 10 kg of permethrin and 10 L of imidacloprid.

Properties of Glyphosate

Glyphosate is arguably the most widely used herbicide in Australia. It is a major agricultural herbicide but is also commonly used in urban areas and home gardens. It is frequently cited as a chemical that can trigger MCS. This does not necessarily mean that glyphosate is any more potent than other chemicals as a sensitising agent. It may indicate that, because of its widespread use, the potential for public exposure to glyphosate is greater than for any other pesticide.

Glyphosate is a broad-spectrum non-selective post-emergence herbicide with high activity on many annual and perennial weeds. It shows no pre-emergence or residual activity because it binds strongly to soil particles and is readily metabolized by soil micro-organisms. It has relatively low mammalian toxicity and is a Schedule 5 poison according to the Standard for Uniform Scheduling of Drugs and Poisons. This indicates that glyphosate represents a low to moderate hazard that may cause minor injury to humans in normal use but is unlikely to cause fatal poisoning. Handling, storage and use require care.

Monsanto developed and patented the active constituent, glyphosate, and marketed it as Roundup® from 1973. Over 90 companies now market nearly 300 different glyphosate products in Australia. The Australian Pesticides and Veterinary Medicines Authority must assess and approve all of these products before they can be used in this country.

A Material Safety Data Sheet (MSDS) must be produced for every hazardous substance used in workplaces in Australia. The MSDS provides technical and health information about the concentrated product. Some of the assessments do not apply when the product has been diluted for application. Acute health effects of the diluted product are likely to be much less severe.

The toxicological information on the MSDS for Roundup® Herbicide states that no harmful effects are expected if the precautions on the label and the MSDS are followed. No chronic effects are expected. It may cause irritation to mucous membranes and respiratory tract if inhaled. The concentrate is of low toxicity if swallowed. Amounts swallowed incidental to normal handling procedures and use are not expected to cause injury. Possible symptoms of exposure include nausea, vomiting and gastrointestinal discomfort and diarrhoea. It is a slight eye and skin irritant.

MSDSs for other glyphosate products would be expected to be generally similar to the Roundup® example.

The symptoms experienced by people with MCS following exposure to glyphosate, or other pesticides, are invariably more severe and are not addressed in the existing MSDSs.

Glyphosate Resistance

Development of resistance to glyphosate in weed populations that would normally be controlled by this herbicide has been confirmed in Australia. Currently, there are 64 documented populations of glyphosate-resistant annual ryegrass *(Lolium rigidum)*, two documented population of glyphosate-resistant barnyard grass *(Echinocloa colona)*[3] and one documented population of glyphosate-resistant liverseed grass *(Urochloa panicoides)*[3].

All of the glyphosate-resistant populations have developed in situations where there has been:

- intensive use of glyphosate, often over 15 years or more
- few or no other effective herbicides used
- little or no non-chemical control

Consequently, to reduce the likelihood that glyphosate resistance in weeds will develop it would be logical to:

- Reduce glyphosate use
- Integrate glyphosate use with other effective herbicides that have different modes of action. Properties of any alternative herbicides, such as toxicity, must be considered and the risks associated with their use must be assessed.
- Integrate glyphosate use with non-chemical methods of weed control

Responsibilities when Using Pesticides

The document "EPA Guidelines for Responsible Pesticide Use[4]" provides a good coverage of this subject: http://www.epa.sa.gov.au/pdfs/guide_pesticides.pdf

Anyone who uses pesticides has a common law duty of care to ensure that their actions do not cause harm to the environment, other people or their property, or themselves. They must also comply with other specific legislation pertaining to pesticides.

PIRSA administers the *Agricultural and Veterinary Products (Control of Use) Act 2002.* Under this legislation, a person using or disposing of an agricultural chemical product must take all reasonable and practicable measures to prevent or minimise:

- Actual or potential contamination of land, animals or plants outside the target area
- Actual or potential harm to the health or safety of human beings, whether within or outside the target area
- Other unintended actual or potential environmental harm.

Department of Health and local government administer the *Public and Environmental Health Act 1987.* Offences under this Act include creating a risk to human health and emitting offensive material or odours.

SafeWork SA administers the *Occupational Health, Safety and Welfare Act 1986* and *Regulations 1995.* An employee must take reasonable care to protect their own health and safety at work and avoid adversely affecting the health and safety of others.

The Disability Discrimination Commissioner of the Human Rights and Equal Opportunity Commission has advised that a person who exhibits sensitive reactions to commonly used chemicals would be considered to have a disability. The Disability Discrimination Act provides for people who are affected by discrimination to seek remedies by making complaints.

Minimising Pesticide Exposure

Local government can adopt three general strategies to reduce the likelihood of public exposure to pesticides:

- Reduce pesticide use
- Reduce exposure outside the target area
- Reduce exposure within the target area

Reducing Pesticide Use

The following discussion concentrates on herbicides and weed control, but the principles apply to other classes of pests and pesticides as well.

Integrated weed management (IWM) is the coordinated use of a range of suitable control techniques to achieve effective long-term weed management. The aim is to incorporate methods that are cost-effective and practical and which will reduce reliance on herbicides. The methods used should reinforce each other, with the ultimate long-term goal of achieving long-term weed control without damaging the environment or risking human health. Successful IWM requires long-term planning based on an understanding of weed biology and ecology, control methods and the situation. Some of the techniques that can be incorporated into an IWM program are listed below. "Weed Control Methods for Community Groups[5]" produced by the Cooperative Research Centre for Australian Weed Management is a useful reference.

1. **Prevention (hygiene)**

   Preventing the spread of weeds reduces the need for subsequent control. Many weeds are spread by human activity. Graders and slashers can introduce or spread weeds along roadsides. Slashing equipment can also introduce or spread weeds on parks and reserves. Work with the local Natural Resource Management (NRM) Board to identify the location of priority weed species in your council area and avoid practices that may spread the weeds from these sites. Clean machinery before moving to a new site, and require any contractors working for your council to do the same. Monitor sites where machinery has been operating to identify any introduction or spread of weeds, and control outbreaks promptly.

Weeds can also be introduced in soil, manures or mulch. Check with suppliers to ensure, as far as possible, that the material is weed-free. Monitor sites for any weed outbreaks, especially weeds new to the region, and control promptly.

Flowing water can transport some weed species. Work with the NRM Board and other authorities to adopt a catchment-based approach to weed management. Monitor areas where weeds may be introduced to your region from upstream sources, and control promptly.

2. Competition/exclusion

Weeds tend to colonise any areas of bare ground, particularly after disturbance. Manage these areas to make them less susceptible to weed invasion. The common principle of all the following techniques is that something else is introduced to occupy the space where weeds might otherwise grow.

Competition: where revegetation is possible, desirable native or introduced species (trees, shrubs, groundcovers, grasses) will suppress weeds by competing for light, water and nutrients. Revegetation also has other environmental and aesthetic benefits.

1. Physical barriers:
    - **Mulches**: covering the ground surface with various materials can smother weeds and make re-establishment more difficult. Mulches also reduce evaporation and insulate the soil surface. Mulches can be organic, inorganic or a combination of both, eg plastic weed mat under a layer of bark or wood chips. Organic mulches (any chipped, shredded or composted plant material) will gradually decompose and return nutrients to the soil. Inorganic mulches include black plastic, weed mat, pebbles or gravel, etc.
    - **Sealing bare ground** with an impervious layer (bitumen, concrete, pavers, etc) suitable for the current or proposed use of the land will exclude weed growth. Capital cost will be higher but the need for ongoing weed control will be reduced. Examples including sealing road shoulders and constructing footpaths.

- **Solarisation** uses sheeting, usually black or clear plastic, to cover weeds and the sun's energy raises temperatures under the sheeting to an extent where weeds and their seeds are destroyed. It can be used to treat small areas of tenacious species and works best in the warmer months and in locations with open and sunny aspects. Solarisation can also be used to sterilise weeds for disposal, by accelerating composting and subjecting the material to high temperatures. This can eliminate the need to take material off site and reduces the risk of inadvertently spreading weeds.

3. Physical weed control

Weeds can be controlled by various methods of physical destruction. Physical methods can control annual weeds effectively if seeding is prevented. Physical control may be less effective against perennial weeds, unless their root systems are destroyed, because these species can regrow from remnant parts of the plants.

- **Slashing (including mowing, brush-cutting, whipper-snipping):** Councils commonly slash in a range of situations to remove excess vegetative growth. To be effective as a method of weed control, slashing must generally be carried out before plants set seed. Regular slashing can discourage the growth of erect-growing species in favour of prostrate species. Periodic slashing at the end of the growing season, after annual plants have set seed and started to dry off, may have aesthetic benefits or reduce a fire risk but will not control weeds. In fact, this approach may actually spread weeds by dispersing seeds from the parent plants and by carrying seeds on the equipment within and between sites.

  Edge-trimming and physical barriers can be used to contain creeping turf species such as kikuyu or couch, instead of spraying glyphosate along the edges of the turf area.

- **Cultivation and hand-weeding:** Cultivation controls weeds by burying the tops, exposing the roots and damaging the plants. Cultivation and hand-weeding probably are practical weed control options for Councils only in very limited situations, eg ornamental garden beds. Cultivation and hand-weeding can be combined with subsequent mulching to inhibit reinfestation.

4. Heat

Flame and steam weeding employ a burst of intense heat to kill weeds. Flame weeding uses burners fuelled by propane gas or kerosene to apply a constant flame directly to the target weeds. Steam weeding applies pressurised heated water to the weeds. The objective is not to burn the weeds but to "boil" moisture in the plant, causing the cells to burst. Flame or steam weeding are already used by some councils to treat roadside and footpath weeds where there is an objective to reduce chemical use. They are more effective on broadleaf weeds than grasses. Flame and steam weeding are relatively expensive, being characterised by slow work rates, and may require repeated applications. Prolonged use of these methods in urban areas has seen a shift in the weed flora towards deeper-rooted perennials that are more resistant to heat treatments.

5. Other weed control methods

Other techniques include fire, selective grazing and biological control. They are probably not important for urban situations but could have a role on land managed by rural councils.

2. Fire: Controlled burning is used to reduce fuel loads and to manipulate vegetation and weeds. The aim is to favour indigenous vegetation over environmental weeds, especially woody weeds such as blackberry, gorse and broom. Fire may destroy some seeds but may cause others to germinate. Both heat and the chemicals released in smoke can stimulate germination. Follow-up control of weed seedlings that germinate after fire is critical, and this may include the use of herbicides.
3. Grazing by sheep may help to suppress weeds if the stocking rate is appropriate. Horses, on the other hand, are very selective grazers that will actively seek out palatable species while allowing weeds to dominate. Cattle are intermediate between sheep and horses in their grazing habits.
4. Biological control uses natural predators or diseases from the area of origin of an introduced weed to reduce the vigour and/or seed production of that weed. Biological control does not eradicate a weed but, if successful, can reduce the population to a manageable level.

6. Herbicides

IWM aims to reduce, but not necessarily eliminate, reliance on herbicides for weed control. Herbicides can often control weeds economically and effectively. They may be the most practical tools for some hard-to-kill perennial weeds. Residual herbicides may keep an area free of weed regrowth for a period of time.

- **Timing of herbicide application:** when used as part of an IWM program, correct timing of herbicide application can further increase the effectiveness of weed control. This may lead to an overall reduction in herbicide use over the longer term. The life cycle of the weeds, and the situation in which they are growing, needs to be taken into account. All weeds absorb herbicides more effectively when they are growing actively.

  Weeds that are growing in competition with other plants are best controlled when they are small. Where weed germination is likely to occur over an extended period of time it may be preferable to delay herbicide application until most of the plants have emerged, but before any have set seed. Bulb weeds are best controlled at the "bulb exhaustion" stage, just before or at early flowering, when the reserves of the old bulb are depleted but the new bulb has not formed.

- **Residual herbicides:** use of residual herbicides can be a contentious issue. They can inhibit the re-establishment of weeds and keep areas of ground free of vegetation for an extended period of time, thus reducing the need for ongoing management. To provide residual control, these herbicides must be able to persist in the soil. This persistence may have environmental consequences, however. Residual herbicides have been implicated in the contamination of ground and surface water and in off-target damage to desirable plant species, usually because the desirable species have taken up herbicide from the soil through their roots.

  Because of the perceived environmental risks with residual herbicides some chemical users, including some councils, have moved away from residual herbicides towards exclusive use of knock-down non-residual herbicides such as glyphosate. This practice may result in more frequent herbicide applications, however, especially if the user does not follow an IWM program.

Reducing Pesticide Exposure Outside the Target Area

Spray drift is the movement of pesticide away from the target area during or after application, in the form of droplets, particles or vapour. All chemical users have an obligation, under the *Agricultural and Veterinary Products (Control of Use) Act* and other legislation, to take all reasonable and practicable measures to prevent or minimise spray drift.

The following recommendations have been adapted for councils from the Rural Chemicals Program Fact Sheet "Working together to minimise chemical spray drift[6]".

- **Communication and programming**
  Communicate with residents and the general public about when and where spraying is to occur, the chemicals that will be used and measures that will be taken to minimise drift. Develop a **spray drift awareness** zone around areas to be sprayed. This zone should be used to highlight sensitive situations, including the potential for sufferers of MCS to be in the awareness zone. Establish a register of confirmed cases and use this information when planning weed control programs.

  The July 2005 Report of the Social Development Committee of the Parliament of South Australia on its Inquiry into MCS contained the following recommendation:
  That the MCS Reference Group convened by the Department of Health work to develop best practice guidelines to enable local Councils to establish No-Spray Registers that identify MCS sufferers, and those with chemical sensitivities generally in local communities. To assist in informing these guidelines, best practice models of No-Spray Registers currently used by Councils should be identified.

  The MCS Reference Group is currently developing a document "Guidance for the Establishment of No-Spray Registers".

  The potential for a pesticide to drift under a particular set of parameters can be estimated. This information can help to set the boundaries of the awareness zone. The "safe" distance between a site of chemical use and an MCS sufferer is unknown and is likely to vary significantly with the situation. Where MCS is an issue, consideration should be given to extending the awareness zone and/or notifying confirmed MCS sufferers in the awareness zone before applying any pesticides.

Spray when there is least likelihood of human activity in the awareness zone, e.g. at the beginning or end of the day for places that are occupied during business hours or during holiday periods for schools, kindergartens, etc.

- **Weather conditions**

  Wind speed, wind direction, temperature and relative humidity all influence the potential for spray drift. Preferably spray when consistent light winds (3-15 km/hr) are blowing away from sensitive areas. Use coarse droplets if spraying in still conditions. Do not spray when air temperature is high and relative humidity is low. Spray droplets, especially small ones, may evaporate rapidly under these conditions and not reach the target.

- **Product selection**

  Where a choice of pesticides is available for a specific situation, use the one that is **least hazardous**. Usually this has meant using the one that is **least toxic**, but the potential for products to elicit sensitive reactions may also have to be taken into account. This may require further assessment of pesticide products, including both the active constituent and other components of the formulation.

- **Application equipment**

  The most common method of pesticide application is spraying. Pesticide applications performed for councils are most likely to be by boom spray, side-jet (on roadsides and footpaths) or handgun/knapsack. Use nozzles that produce a spray quality classified as medium or coarser according to the ASAE S572 definition for standard nozzles. Take note of any label directions regarding spray quality. Operate spray equipment within the appropriate pressure range for the nozzles. Higher pressure tends to produce smaller droplets that are more likely to drift. Release the pesticide as close as possible to the target, to reduce the risk of drift, but not so close that coverage is compromised. Shrouds or covers over a boom spray can reduce drift by mitigating the influence of wind.

At least one council in South Australia has used a small covered Controlled Droplet Application (CDA) sprayer mounted on a 4-wheel motorbike, similar to the units used for weed control in vineyards, to spray weeds on footpaths and roadsides. This type of sprayer applies a relatively low volume of spray mixture per area, with minimal drift. When used in urban situations as described above, it gave effective weed control with very little impact on the awareness zone. Enviromist Industries at Berri manufactures this type of equipment.

In some situations it may be possible to avoid spraying, and the consequent risk of drift, by using an alternative application method e.g. weed wiper, cut-stump treatment on woody weeds, granules. Weed-wipers and cut-stump treatment use minimal amounts of herbicide applied directly to the target plant.

- **Application records**

  It is good practice to keep records of pesticide applications. Records are important tools in showing 'due diligence' in pesticide use. They are useful in pest management by providing information on product performance. Decisions can be based on objective data and observed results compiled over a number of years. Records can help to corroborate actual use if there are questions regarding residues, compensation, drift damage, injury, litigation, etc. Records could also help to identify any associations between pesticide use and MCS.

  Information should be recorded as soon as practicable, and no later than 24 hours, after the application. The minimum information required is:

  5. The full product name(s) of the pesticide(s) applied
  6. The pest or pests being targeted
  7. The rate of application of the pesticide(s) and the quantity applied
  8. A description of the equipment used and the manner in which the pesticide was applied
  9. The location, address and general description of the treated area
  10. The date and time of application (including start and finish times)
  11. The name, address and contact details of the applicator, or employer of the applicator
  12. The name, address and contact details of the property owner
  13. A record of the weather conditions – at least wind speed, wind direction and temperature – immediately before and during the pesticide application

Pest management technicians (contractors) are required, under the conditions of their licences issued by Department of Health, to make such records and keep them for seven years. Councils using contractors for pesticide applications should request and keep a copy of the contractors' application records.

Reducing Pesticide Exposure Within the Target Area

Pesticide exposure within the target area could occur at, or for some period after, the time of application. There is little information about when it is "safe" to re-enter an area where a pesticide has been applied. A few pesticides, usually insecticides that might be used in enclosed spaces such as glasshouses, specify a "re-entry period" on the label. In outdoor situations there should be reduced likelihood of pesticide absorption by anyone entering a sprayed area after the spray application has dried on the target. MCS sufferers might be more susceptible, and for a longer period of time after pesticide application. Some people with MCS report severe and prolonged exacerbation of symptoms after entering an area such as a public reserve that had been sprayed with a herbicide several days earlier.

Councils could adopt the following practices to reduce the potential for exposure within the target area.

- Give prior notice by letters, newspaper advertisements, posters, website, etc of when and where spraying will occur. Advise the public to avoid the target area for a prescribed period of time if possible.
- Spray when there is least likelihood of human activity in the target zone, e.g. at the beginning or end of the day for places that are occupied during business hours or during holiday periods for schools, kindergartens, etc. Erect warning signs, barriers, etc on the boundaries of the target area and leave them in place for a prescribed period of time after spraying.
- Use marker dye in the spray mixture so that the public can identify and avoid sprayed areas until the dye has faded from view.

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