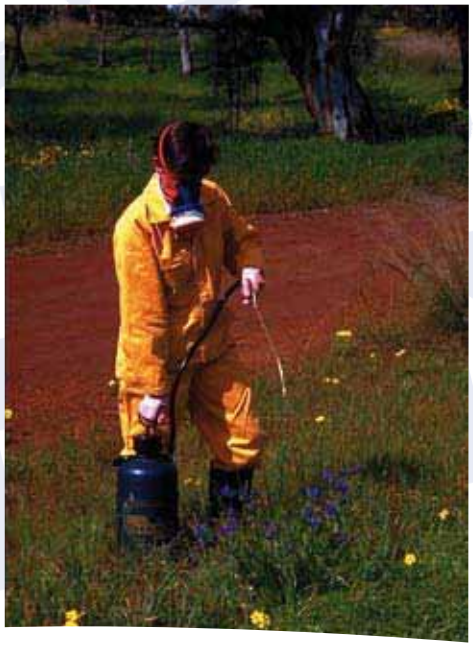
DairyingForTomorrow

DairyCatch

A Partnership for Sustainable and Profitable Dairy Farming in Western Australia

# ENVIRONMENTAL BEST PRACTICE GUIDELINES
## 10.0 CHEMICAL MANAGEMENT



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## 10.0 CHEMICAL MANAGEMENT

Agricultural and Veterinary chemicals such as pesticides (herbicides, insecticides and fungicides), spray additives, solvents, cleaning agents and fuels are valuable management tools which, when used responsibly, contribute significantly to the production of safe, high quality food and fibre in Western Australia. However, their misuse can have adverse effects on people, animals, crops and the environment, and can also lead to trade problems with our overseas customers.

The correct use of chemical is an important environmental concern on dairy farms because:

- Chemicals are used frequently and often in high volumes
- There is risk of contaminating milk
- Many operations involving chemicals take place close to water resources

Chemicals provide a number of economic benefits but can also have significant negative impacts if not used properly. There is no such thing as a completely safe chemical.

- Chemical residues in food, air and groundwater can affect public health
- Applying chemicals without adequate protection endangers farm workers
- Pesticides may destroy beneficial predator species allowing other organisms to reach pest proportions
- Excessive use of chemicals may lead to chemical- resistant pests
- Chemicals can reduce biodiversity by killing non-targeted species of plants and animals

You should make every effort to minimise your use of chemicals and ensure that correct practices are established and always followed.

### *Implementing Good Practice*

Anyone who uses farm chemicals should be ChemCert accredited. ChemCert Australia is recognized by governments and industry bodies as the peak body in Australia for the coordination and delivery of national training and accreditation in farm chemical management.

ChemCert™ training will assist you demonstrate duty of care and comply with chemical use, occupational health and safety and environmental protection regulations. More efficient use of chemicals can save you money and boost your profitability.

**Minimise your use of chemicals.** There are many management practices that reduce the incidence and severity of pest and disease outbreaks without the need for chemicals. The main way to achieve this is by implementing an Integrated Pest and Disease Management (IPDM) strategy. Only buy as much chemical as you need. It is not usually wise to store chemicals for lengthy periods.

**Transport, use and store chemicals and fuels safely.** The largest spills most likely to poison humans occur during the transport of chemicals. Traffic accidents can happen even when travelling only a short distance and because pesticides are transported on public roads, the potential impacts of such accidents are great. Improperly loaded pesticide containers can fall off vehicles and be punctured or torn. Do not transport chemicals inside passenger vehicles.

Many farm chemicals, particularly pesticides and diesel fuel, are extremely toxic to humans and aquatic flora and fauna. Every effort should be made to use these substances safely, for the purpose and in a manner for which they were intended. Fuel leaks and spills commonly pollute farm water and soils. These are caused by jammed dispensing nozzles, broken hoses, leaking or broken fuel lines in motors and accidental rupture of mobile fuel tanks. The risks of these accidents can be greatly reduced by ensuring your equipment is well-maintained and designed for its intended use.

Before you use any chemical, read and follow the instructions on the label and Material Safety Data Sheet, carefully. Check weather conditions to ensure rain does not dilute your intended concentrations or strong winds don't blow sprays off-target.

Always wear the recommended protective clothing (overalls, gloves and safety glasses). Mix chemicals in well-ventilated areas, away from waterways. Make sure you have a supply of clean water close by. If there is no tap, place a bucket of clean water near you.

**Dispose of empty containers appropriately.** In some instances, you may be able to return containers to the manufacturer or supplier for recycling. The **drumMuster** program has collection points in most south-west regions and the shires provide details of the local collection venues. Be sure to rinse empty containers three times to remove all traces of the chemical before uncapping and puncturing or crushing them to prevent accidental re-use. Your shire may have special requirements for chemical waste disposal. It pays to call and ask if you are not sure.

## *Further Information*

ChemCert online at www.chemcert.org.au.

For details of your local **drumMUSTER** program contact your local shire or visit the program online at www.drummuster.com.au

National Chemical Information Gateway online at www.deh.gov.au/chemical-gateway

**Rutherford. P. 2005.** Code of Practice for the use of agricultural and veterinary chemicals in Western Australia 3nd Edition. Department of Agriculture Western Australia. Bulletin 4648.

## 10.1 CHOOSING THE RIGHT CHEMICAL

Contamination with farm chemicals and fuels is a particular risk to the groundwater aquifers that underlie the Swan Coastal Plain. These valuable groundwater resources are widely used for private and public drinking water supplies and bores that provide stock and irrigation water.

When all physical and biological measures have been considered and use of a pesticide is the only practical option, the safest, most selective chemical option should be chosen. Where possible, select chemicals that are least hazardous to the surrounding natural and human environment. The first and most obvious way to reduce the impacts of those chemicals that pose risks to the environment and human health is to use less of them. When you have the choice of alternative registered or permitted chemicals, choose the least toxic and most environmentally safe chemical or formulation that will achieve cost-effective control.

### *Implementing Good Practice*

Certain groups of chemicals are particularly toxic to aquatic life. The pyrethroids (active ingredient ending in –thrin, for example cypermethrin) and rotenone (a plant derivative) are very toxic to fish and crustaceans and may persist in the aquatic environment for several weeks. Most organophosphates (name of active ingredient generally contains -thion, -oate, -phos or -fos), the organochlorines, some carbonates (methiocarb and propoxur) and nearly all wetting agents used with herbicides are toxic to aquatic fauna, particularly frogs. Herbicides that are registered for use near wetlands have environmentally-acceptable wetting agents.

Before using hazardous chemicals, assess the likelihood of an injury, harmful reaction or a hazardous incident occurring and what steps to minimise or eliminate the risk should be taken.

If chemical control is the best option, choose a chemical that is registered for your purposes, or for which there is a current permit in place allowing its use. When purchasing and using chemicals, ensure the chemical container is fully labeled. Do not allow the use of an unlabeled or partially labeled chemical until a replacement label has been obtained. Do not purchase or accept a chemical from clearing sales unless in its original container, clearly unopened, properly labeled and sold by an authorised reseller. Ensure the chemical is still registered and in a useable condition. It is illegal to sell and use unregistered chemicals.

Do not purchase more chemical than you will need for the foreseeable future. Large purchases to take advantage of a ‘special’ are rarely cost-effective. Your storage conditions are likely to be inferior to those of the reseller and may reduce the effectiveness of the product. In addition, registered uses and limitations may change leaving you to rely on an ‘old’ label and you could end up exceeding the expiry date on the label.

Purchase your chemicals only from resellers that hold appropriate licenses under the Poisons Act, the Dangerous Goods Act and preferably, the chemical industry AgSafe Accreditation Program. Try and get chemicals packaged in recyclable or refillable containers wherever possible.

### *Further Information*

**Rutherford, P. 2005.** Code of Practice for the use of agricultural and veterinary chemicals in Western Australia 3rd Edition. Department of Agriculture and Food Western Australia. Bulletin 4648.

## 10.2 CHEMICAL HANDLING TRAINING

In 1990, the National Farmers' Federation and the Rural Training Council of Australia introduced the National Farm Chemical User Training Program to ensure that chemicals are used safely and effectively on the farm. ChemCert Australia, as it is now known, is a non-profit organisation that provides competency-based training and participant accreditation through its state ChemCert™ networks.

Full details of the various courses and levels of accreditation available through ChemCert™ are available from their website (www.chemcert.org.au). Information on course costs and subsidies available through FarmBis are also detailed.

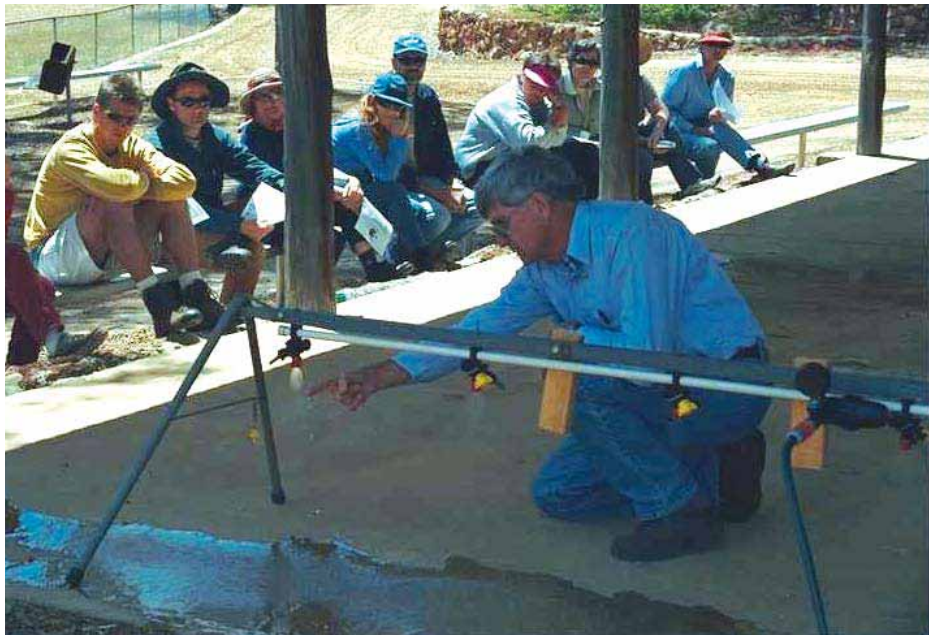
***You and others who come into contact with chemicals on the farm should receive training***

### *Further Information*

If you want to learn more about using agricultural chemicals safely but don't necessarily want to do the full ChemCert accreditation course, ChemCert now offers a one day chemical use awareness course. Phone 08 9341 5325 or visit farmcarewa@bigpond.com.au for details of courses being run near you.

ChemCert online at www.chemcert.org.au or

ChemCertWA at www.chemcertwa.com.au.



## 10.3 TRANSPORTING CHEMICALS

The Dangerous Goods Regulations (1992) set safety standards for transporting farm chemicals and fuels. Many pesticides are considered dangerous goods and are subject to these regulations. Dangerous pesticides are classified into three Packaging Groups, according to their hazardous properties. The carrying of small amounts of pesticides is not regulated. The maximum amount exempted per load depends on the Packaging Group Table 10.1.

Table 10.1 Pesticide packaging groups (PG) and maximum exemption loads

| Packaging Group | Mass or Volume Loads |
|---|---|
| PG - I | 250 kilograms or litres |
| PG – II and PG - III | 1000 kilograms or litres |

Pesticides within Packaging Group I (PG-I) pose the greatest threat to public safety in the event of a spill. Three pesticides that fall into this group are Nuvacron 400® (monocrotophos), Phosdrin® (mevinphos) and Phostoxin® (aluminium phosphide) fumigation pellets. This list is not exhaustive and your supplier will be able to give you information on other PG-I pesticides.

### *Implementing Good Practice*

If you exceed the Packaging Group load limits, you must carry a Shipping Document that states:

- Name of retailer or supplier (for example: Rural Traders Pty. Ltd.)
- Pesticide name and UN number (for example: ICI Gramoxone, UN No. 3016).
- Pesticide class or subclass (for example, Class 6.1).
- Packaging group (for example, PG-III).
- Packaging type and quantity to be carried (for example, 40 x 20 litre drums).

Further, when you exceed the Packaging Group limits you must also:

- Placard your vehicle, front and rear, with appropriate hazard diamonds
- Carry at least $1,000,000 in public liability insurance
- Ensure your vehicle has been certified as roadworthy within the last twelve months
- Have a suitable fire extinguisher and appropriate protective clothing on board.

You must also carry Emergency Procedure Guides for vehicle fire and all classes of dangerous goods within the load. Emergency Procedure Guides are available from Standards Australia.

If you only occasionally carry pesticides, it would be prudent to carry less than the maximum exemption load in any one journey to avoid the expense of having to comply with these requirements.

- Avoid transporting chemicals with food, water, animal feed or other reactive hazardous substances
- Secure hazardous substances on the vehicle so they can't move or fall
- Never carry chemicals in the cabin of a vehicle, or on any vehicle containing food, foodstuffs or fertiliser
- Transport chemicals safely and securely in the back of a truck or utility that has a tray with sides and a tailgate, lined with an impervious material to minimise the risk of spillage due to an accident
- Always carry correct documentation, displayed in a prominent position in the cab, describing the dangerous goods that are on board
- Do not transport flammable pesticides with poisonous gases, combustible solids or oxidising substances

**In the event of a spill in a public place, you should contact the local shire immediately. If this is a major spill and likely to endanger public health and safety, local government will contact Fire and Rescue Services and the appropriate state Departments (Environment, Water, Agriculture & Food and/or Health) to take appropriate action.**

## *Further Information*

If you are unsure about a load of dangerous goods you are planning to transport, contact the Explosives and Dangerous Goods Division of the Department of Minerals and Petroleum Resources on telephone (08) 9222 3333

**Department of Employment Training and Industrial Relations. 1999.** The storage and use of chemicals at rural workplaces Industry Code of Practice. Department of Employment Training and Industrial Relations, Queensland.

**Department of Consumer and Employment Protection. 2003.** Farm chemicals: Storage and Disposal - Topic 3. Department of Consumer and Employment Protection, Western Australia. Available online at www.worksafe.wa.gov.au

## 10.4 CHEMICAL STORAGE

It is critical that chemicals are stored safely to reduce the risk of contaminating the environment and endangering life.

### *Implementing Good Practice*

**Chemical storage site selection**

- Locate the facility well away from residential areas, key work areas, animal yards and shelters and water resources.
- Storage facilities are best located downwind of areas to be avoided
- The site should be in an area where flooding is unlikely, where storm water run-off from outside the site can be diverted and drainage from the site cannot contaminate surface or groundwater
- Locate the storage facility away from bushland that presents high fire and pollution risks.

**Storage shed designs**

**Chemical storage sheds should**

- be purpose-built structures
- have secured doors and windows to prevent unauthorised access
- be well ventilated
- have appropriate signage outside and inside the shed and emergency procedures clearly visible
- have compartments for the segregation of different chemical groups and incompatible compounds
- have access to running water (safety shower and eyewash) and a comprehensive first aid kit
- be equipped with an exhaust fan, fire alarm and fire fighting equipment
- have fitted metal shelves for the storage of dry formulations in water permeable containers or sacks and wooden pallets for metal drums that need to be kept dry. This helps reduce potential deterioration, corrosion and leakage of containers
- have a containment (of a spill) capacity of at least the largest package, plus 25 per cent of the total volume of the stored products
- make sure containers are clearly labelled and well maintained with no holes

### *Further Information*

**Department of Agriculture and Food WA, The Potato Growers Association of W.A. (Inc), W.A. Vegetable Growers Association, Department of Environmental Protection, Western Australia, Waters and Rivers Commission, Western Australia, Western Potatoes, and Horticulture Australia. 2002.** Code of practice for environmentally sustainable vegetable and potato production in Western Australia. Department of Agriculture and Food Western Australia.

**Rutherford. P. 2002.** Code of Practice for the use of agricultural and veterinary chemicals in Western Australia 2nd Edition. Department of Agriculture Western Australia

## 10.5 CHEMICAL PREPARATION AREAS



Areas where chemicals are temporarily stored and prepared for use need to be constructed and maintained to prevent harm to the environment, human health and spillage of expensive chemicals.

### *Implementing Good Practice*

Storage tanks should be located on a containment pad that can effectively capture and contain spills, storm water or fire fighting liquid. The containment pad should be constructed from concrete and have a raised kerb around the edge and sloped to drain into a sump, preventing liquid run-off into the environment. The sump should be at least 110% of the capacity of the storage tank. The containment compound should be maintained to prevent accumulation of storm water and litter. Storm water from the surrounding area should be diverted by bunds or drains away from the chemical storage and preparation area.

A spill cleanup kit consisting of a bin, shovel, broom, absorbent material (such as kitty litter or sand) and a bag of hydrated lime should be located in an easily accessible place. Refer to the Material Safety Data Sheet or label on the chemical packaging for disposal procedures. Ensure that you comply with all local and state laws

The preparation area should not have ‘speed bumps’ or irregular surfaces that may cause container accidents. External pavement for buildings or compartments used to provide isolation of incompatible materials should be surrounded by bunding, raised edges or a grade break. This is to contain liquids in the local area and to avoid mixing

Do not allow the storage, loading or mixing of chemicals adjacent to, or near, environmentally sensitive areas such as water bodies, bush reserves and wildlife.

Before mixing the pesticide, check for leaks and operative problems on the spray equipment using clean water. Read the label thoroughly before opening pesticide containers. Work in a well-ventilated area and accurately measure out the amount of active ingredient required. Do not attempt to pour concentrates above shoulder height (e.g. into a spray tank), as spillage is likely. Rinse measuring containers three times, adding the rinse water to the tank. Never start siphoning using your mouth.

***Avoid working alone if the substance you are working with is highly toxic***

Reduce or eliminate operator contact by using closed loading systems, auto fillers or wettable powder mixers. Use the right protective clothing when handling the concentrate. Open bags carefully by cutting (not tearing) them open. Do not stir chemicals with hands or arms. Choose your mixing site carefully and consider the fate of probable residues that may drain from it.
Triple-rinse empty containers, pouring rinse water back into the spray tank. Seal and return spent containers to the manufacturer or chemical container recycler where applicable. Alternatively puncture/crush the container (to prevent re-use) and dispose of it at an approved tip. Contact your local council for disposal options

**As standard precautions**

- Prepare an emergency plan outlining exactly how you would deal with a spill
- Have an Emergency Kit on site containing
  - protective clothing
  - soil, sand, vermiculite or commercially available chemical absorbent material
  - other items recommended on the label or Material Safety Data Sheet

**If you have a major leakage or spill you should**

- call Fire and Rescue Services immediately
- keep bystanders upwind and well away from spill.
- do not hose down the site as this will only spread the contamination.

**During any cleanup operation you should**

- Wear full protective clothing including rubber boots, gloves, goggles and respirator
- Minimise further leakage by carefully altering the position of the leaking container or decanting the contents to another sound container. Return uncontaminated chemical to its container
- Use sand, soil, vermiculite or chemical absorbent material to form a dam around the spill area, to prevent any further chemical from spreading. Use vermiculite, sand or sawdust to soak up the chemical from small spills
- Place all contaminated material in a clearly labeled container and dispose of appropriately
- Spread hydrated lime over the spill area, ensuring total coverage for at least one hour.

## *Further Information*

**Department of Primary Industries and Fisheries. 2004.** Using agricultural pesticides. 3. Safe storage and handling. Department of Primary Industries and Fisheries Queensland. Online at www.dpi.qld.gov.au/fieldcrops sited 23/11/04

**Rutherford. P. 2002.** Code of Practice for the use of agricultural and veterinary chemicals in Western Australia 2nd Edition. Department of Agriculture and Food Western Australia. Available online at www.agric.wa.gov.au

## 10.6 APPLYING CHEMICALS



The use of chemicals is an important part of modern farming and spraying is one of the most widely used methods of application. The main factors that influence the effectiveness of spraying include the chemicals and equipment used, the way the spraying is conducted and the prevailing weather. Each of these factors needs to be carefully considered when you are planning to spray.

### *Implementing Good Practice*

Minimising off-target impact is one of the most important aspects of chemical spraying. This means being aware of the factors that contribute to spray drift, such as the suitability and accuracy of your application equipment, wind speed and direction, the presence of atmospheric inversion layers and the proximity of sensitive areas or animals. You should carefully assess each of these before and during the spraying operation. You should be prepared to cancel the operation if weather conditions deteriorate.

- Prepare a Spray Map that shows sensitive areas and exactly where chemicals are to be applied
- Ensure spray operators have an up-dated copy of the spray map before each spraying operation.
- Where possible, plant and maintain buffer vegetation on downwind edges of paddocks and properties, and adjacent to sensitive areas, such as watercourses. Cover all watering troughs.
- Be sure to tell your neighbours and others in the locality of your intentions. Let them know what chemicals you plan to apply, when and how you are going to apply them. Discuss with them how you intend to minimise spray drift and proposed buffer distances in relation to sensitive areas on their property. Agree on any risk-minimisation practices they may wish to take such as moving stock to another paddock. If your neighbours' enterprises are particularly sensitive to the chemicals you use, for example your plans could jeopardise their organically grown certification, you may need to enter into a more formal agreement with them to specify the conditions under which you may and may not apply chemicals.

**Choosing your sprayer**

A range of sprayers are available to apply insecticides and herbicides. The size of the area to be treated and the chemical to be used will determine which spraying unit is best suited to your situation.

**Automatic backpack sprayers** with 20 litre tanks and rechargeable battery packs eliminate the need for continuous manual pumping to maintain a constant and steady spray pattern. However, these should never be used to apply highly flammable chemicals.
Trailer sprayers have 56 to 230 litres tanks mounted on a small trailer. They have a vertical boom spray and can be fitted with a remote control to allow the pump to be turned on or off from the towing vehicle seat. Hand spray guns can also be fitted to spray small areas.

**Skid sprayers** range in size from 210 to 795 litres and are generally fitted to the back of a utility vehicle. They come with a long hose allowing larger areas of land to be treated without having to move the vehicle and can be fitted with a hand gun or vertical spray boom.
Three-point sprayers consist of a 210 to 795 litre tank that can be towed behind a tractor. It has larger and multiple boom sprays to cover larger areas of land.

**Broadacre boom sprayers** can be fitted behind most vehicles, tractors or 4 wheel motorbikes. The tank size ranges from 1000 to 4000 litres. Boom sizes vary from 12 to 33 metres and are ideal for spraying large areas of pasture and along fence lines.

**Selecting chemicals**

Many different chemicals are available and selecting the right one or mixture and calculating application rates can be a complex decision. It is important to use the right chemicals at the right time and in the best conditions. Ask your farm consultant if you need assistance.

**Timing applications**

Herbicides and pesticides are most effective when applied at the right time. The correct time depends on the size or growth stage of the weeds or pest and the particular chemical used. With post-emergent herbicides, the correct time is generally when the weeds are small. Less chemical is needed to kill a small weed than a big weed. Pasture yield is also potentially higher if the weeds are controlled early.

The effectiveness of your application is also highly dependant on the weather conditions before, during and after spraying. Avoid periods of drought, waterlogging or frost. High temperatures, low humidity and windy conditions during spraying may mean a loss of chemical through evaporation and drift. Rainfall shortly after spraying may wash chemicals away before they have been absorbed by the target species.

**Calibrating spray equipment**

Calibration will ensure your sprayer is operating correctly. Sprayers that are not properly calibrated waste money and deliver poor results. Be sure to calibrate your sprayer at the start of every season and periodically during the season.

**Maintenance of spraying equipment**

Regular maintenance of the spray equipment will prevent loss of spraying time through breakdowns and prolong sprayer life. Spray equipment should be maintained to the manufacturer's specification. Before spraying, check all nozzles to ensure they are the correct type and are in good working order. Check hoses for cracking, kinks and leaks and clean or replace filters.

Residual chemicals left in spray tanks or on machinery increase the risk of operator poisoning and can corrode or block delivery mechanisms. In some cases, the toxicity and effectiveness of chemicals may be altered when they are mixed.

Be sure to spray out all of the contents of the tank onto the treatment area. Flush and hose-down the equipment with clean water after each operation. Do this in the field, away from sensitive areas. Clean both the inside and outside of the sprayer to eliminate the risk of exposure to chemicals later when modifying or repairing the sprayer. Clean components, in particular filters, spray tank, spray line and nozzles, will prevent blockages and enable the sprayer to operate correctly. Some chemicals need special cleaning agents or techniques to prevent damage to subsequent crops. In these cases, follow the instructions given on the chemical label.

Lubricate moving parts and Inflate tyres correctly. Fix small problems as soon as they are noticed and before they have a chance to become big problems. Replace worn components such as nozzles.

**Safety**

The last decade has seen a dramatic increase in public concern with safety issues associated with spraying. Community expectations are that spraying should be safe to the operator, neighbours, consumers and the environment in both the short and long term.

You should ensure everyone involved in the operation has

- read and understood the label and the Material Safety Data Sheet (MSDS) prior to using each chemical, particularly the first aid and safety directions.
- received training and supervision in the safe use of chemicals and adopted methods such as the use of suction probes or pumps to avoid manual handling or pouring of the chemical concentrate
- been provided with properly fitted personal protective equipment recommended in the MSDS and that this safety equipment is clean and working properly.
- washed with soap and water before eating, drinking and smoking and at the completion of each job.
- thoroughly washed their personal protective equipment at the completion of each job, and store it to ensure it does not become contaminated or damaged.
- been instructed to report any symptoms of ill health during, or immediately after, chemicals have been handled.

**All protective equipment** should have the appropriate Australian Standard number on the label. These standards not only provide specifications but also indicate the type to be selected. You should use the labels and the material safety data sheets as guides. If you have any doubts ask your supplier what is recommended in the chemical's specifications.

**Eye protection** is critical because eyes are the most vulnerable parts of the body to chemical or physical damage. They are also the most difficult to repair surgically. Appropriate eye protection in the form of safety glasses, goggles, a face shield, or full-face respirator, must be worn anywhere there is a chance that chemicals may splash. This is most likely when mixing, pouring and charging application equipment. Australian standards for eye protection are referenced under Further Information.

**Gloves and aprons** used when handling chemicals should never be made from leather or cloth because these materials absorb liquid and therefore provide a constant source of exposure. Further, rubber gloves should be unlined for this same reason. Gloves should be always worn during cleaning operations to protect the skin from the corrosive effects of cleaning agents. Gloves may also be necessary when decanting or preparing chemicals. Check the MSDS for appropriate glove type. You may also want to confirm this with your glove supplier. Domestic-grade rubber gloves are rarely sufficient.

In most situations involving pesticides, **respiratory protection** will be necessary. Pesticide labels usually specify the use of a respirator or recommend the inhalation of spray, vapour and dust be avoided.

**Footwear** is an important safety item. Good soles provide a sound grip to prevent slipping accidents. Footwear can also protect the feet from mechanical or chemical damage. Gumboots are often practical when carrying out preparation or application where splashes are possible. In some cases, safety footwear is necessary.

**All vehicles used to apply chemicals** should carry soap and water for personal washing, an eye-wash bottle and a comprehensive First Aid kit. Being trained in basic First Aid treatment for chemical exposure is also a sound decision.
You should arrange for a medical examination and, if necessary, treatment, as soon as possible after significant chemical exposure has occurred.

## *Further Information*

**Department of Agriculture and Food, Western Australia, The Potato Growers Association of W.A. (Inc), W.A. Vegetable Growers Association, Department of Environmental Protection, Western Australia, Waters and Rivers Commission, Western Australia, Western Potatoes, and Horticulture Australia. 2002.** Code of practice for environmentally sustainable vegetable and potato production in Western Australia. Department of Agriculture and Food Western Australia.

**Department of Consumer and Employment Protection.** Chemicals in the workplace- pesticides in agriculture- reducing risks from chemicals. Department of Consumer and Employment Protection, Western Australia.

- AS 1336 Recommended Practices for Eye Protection in the Industrial Environment
- AS 1337 Eye Protection for Industrial Application.

Available online at www.worksafe.wa.gov.au.

**Dorr, G. 1990.** Effective spraying. Farmnote 59/1990. Department of Agriculture and Food Western Australia. Available online at www.agric.wa.gov.au

**Department of Primary Industries and Fisheries.** Using agricultural and veterinary chemicals - a checklist. Department of Primary Industries and Fisheries Queensland. Available online at www.dpi.qld.gov.au.

**FIMCO Industries.** Spraying equipment and supplies. FIMCO Industries USA. Available online at www.sprayingequipmentsupply.com.

**Jetstream Australia.** Boom Sprays. Available online at www.jetstream.com.au

**Rutherford. P. 2002.** Code of Practice for the use of agricultural and veterinary chemicals in Western Australia 2nd Edition. Department of Agriculture and Food Western Australia

## 10.7 DISPOSAL OF CHEMICAL CONTAINERS



Large numbers of chemical containers can build up on the farm over time, creating a health hazard to stock and humans. This can be prevented by following appropriate methods for their disposal.

### *Implementing Good Practice*

Some chemical manufacturers and retailers recycle their spent containers and this is usually stated on the label. If this is not an option readily available to you

1. Completely empty spent containers into the sprayer mixing tank, allowing it to drain for at least 30 seconds
2. Fill all empty containers at least 1/10th full with water and rinse out. Repeat at least three times. Add the rinse water to the tank when you are spraying.
3. For containers which hold oil-based Ultra Low Volume (ULV) formulations, add strong detergent to the rinse. Dispose of the rinse water by land fill as for other chemical wastes.
4. Crush or make a hole in the bottom of empty metal or plastic containers and break glass bottles to prevent them from being reused on the farm for other purposes, such as stock watering buckets.
5. Dispose of all containers at an approved rubbish site if possible. Check with your local council as many have an approved collection site for empty pesticide containers. It is illegal to burn pesticide containers. There are adequate facilities available for farmers to recycle their used chemical containers. The **drumMuster** program has collection points in most south-west regions and the shires provide details of the local collection venues.

***Recycle all rinsed chemical containers by either returning them to the manufacturer or depositing them at a drumMUSTER collection point.***

As a very last resort, rinsed and damaged containers may be buried on the farm **if, and only if, a suitable site can be located.** They need to be buried at least 0.5 metre below ground level. The hole should be at least 30 metres from any creeks, streams, dams or wells, and at least 3 metres above the water table. Add a bag of lime to the pit before adding the containers. Farm disposal sites should be on high level ground where there is no risk of flooding or erosion. The soil should be at least 2 to 3 metres deep over bedrock to allow for percolation. If possible the hole should be dug through a clay layer. The site should be well clear of sensitive areas and fenced-off so that no stock, wildlife or humans can gain access. Put up signs to let people know that the area has empty pesticide containers buried there.

***Unless the label on the container states otherwise, never attempt to burn chemical containers as the vapours released can be poisonous to humans, livestock and plants. Some chemicals containing chlorates that explode when heated. Never recycle empty chemical drums into livestock feed or water troughs, water storage containers or floats as they may contaminate feed or water supplies.***

You can help reduce chemical wastes on your farm by

- not purchasing more than you need,
- not mixing more than you need for immediate use,
- being careful to avoid spillage during mixing, handling and storage, and
- When possible, use the full contents of the container, triple rinse and dispose of correctly.

## *Further Information*

For the disposal of banned pesticides (Dieldrin, DDT, Arsenic Sheep Dips), contact the Department of Environment - Controlled Waste Section on (08) 9222 7000

For the disposal of unwanted chemicals- contact the Department of Environmental Protection - ChemCollect on (08) 9222 7000

For details of your local drumMUSTER program contact your local shire or visit the program website at www.drummuster.com.au

POISONS INFORMATION CENTRE on 13 11 26

**Barden. J. 2001.** Safe disposal of empty pesticide containers. Department of Agriculture and Food, Western Australia.

**Department of Agriculture and Food, Western Australia, The Potato Growers Association of W.A. (Inc), W.A. Vegetable Growers Association, Department of Environmental Protection, Western Australia, Waters and Rivers Commission, Western Australia, Western Potatoes, and Horticulture Australia. 2002.** Code of practice for environmentally sustainable vegetable and potato production in Western Australia. Department of Agriculture and Food Western Australia.

**Department of Primary Industries and Fisheries. 2004.** Using agricultural pesticides. 3. Safe storage and handling. Department of Primary Industries and Fisheries Queensland. Available online at www.dpi.qld.gov.au/fieldcrops

**WorkSafe. 2004.** Bulletin WH 08.01.14 Hazardous substances – farm chemical disposal. WorkSafe, Northern Territory.