

Legal responsibilities in applying pesticides

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Pesticides Act

This section summarises requirements for NSW. While Qld requirements are similar, differences are spelt out in the box on this page.

The Pesticides Act 1999 is the primary legislative instrument controlling the use of pesticides in NSW and is administered by the Environment Protection Authority (EPA). The underlying principle of the Pesticides Act is that pesticides must only be used for the purpose described on the product label and all the instructions on the label must be followed. Consequently, all label directions must be read by or explained to the user prior to each use of the pesticide.

All pesticide users should take reasonable care to protect their own health and the health of others when using a pesticide. They should also make every reasonable attempt to prevent damage occurring from the use of a pesticide, such as off-target drift onto sensitive areas or harm to endangered and protected species.

A regulation was gazetted in 2009 requiring all commercial pesticide users, i.e. all farmers and spray contractors, to keep records of their pesticide application.

While no set form is required for records they must include the following:

- Full product name,
- Description of the crop or situation,
- Rate of application and quantity applied,
- Description of the equipment used,
- Address of the property, identification of the area treated and order of paddocks treated,
- Date and time of the application (including start and finish),
- Name, address, and contact details of the applicator and of the employer or owner if an employee or contractor is the applicator,
- Estimated wind speed and direction (including any significant changes during application),
- Other weather conditions specified on label as being relevant (e.g. temperature, rainfall, relative humidity).

An example form that captures all the information required by the Pesticides Regulation 2009 is provided on the following page. Notes on how to fill it in, can be downloaded from the NSW DPI website. A self-carbonating record book is available for purchase through the Qld DAFF Dalby and Toowoomba offices and through the NSW DPI SMARTtrain National Support Centre at Yanco.

Records must be made within 24 hours of application, be made in legible English, and kept for 3 years.

The Pesticides Regulation 2009 also requires all commercial pesticide users to be trained in pesticide application.

The training of aerial applicators, pest control operators and fumigators is recognised as satisfying the requirements of the regulation. Apart from these groups, all commercial users must have a prescribed qualification. Only domestic use, such as home gardens, is excluded, provided the pesticide is a specific domestic/home garden product.

Covered by the regulation is pest control by/on:

- Public authorities, e.g. State Rail,
- Golf courses, sporting fields and bowling greens,
- Agricultural, horticultural, aquacultural and forestry operations,
- Businesses, educational institutions, and hospitals.

The minimum prescribed training qualification will be the AQF2 unit of competency, 'Apply chemicals under supervision', although owner-applicators are encouraged to train and be assessed in the two higher AQF3 competencies, 'Prepare and apply chemicals' and 'Transport, handle and store chemicals'.

Growers are recommended to undertake the SMARTtrain course, Chemical Application, or the standard ChemCert course, both of which cover the higher AQF3 competencies. For growers with literacy and/or numeracy problems, the lower level AQF2 competency will provide a minimum qualification that satisfies the Regulation.

In Queensland the Chemical Usage (Agricultural and Veterinary) Control Act 1988 (Chem Usage Act) imposes requirements on all users of pesticides similar to those under the NSW Pesticides Act 1999. The Chemical Usage Act requires users to use agricultural chemical products for the crop or situations specified on the approved label instructions or under the conditions of a permit granted by the Australian Pesticides and Veterinary Medicines Authority. Persons using chemicals must also apply agricultural chemical products according to all other approved label instructions, including any use instructions or restraints that may be listed that relate to droplet size, wind speed and direction, mandatory downwind no-spray zones and other off-target drift restriction controls. There are significant penalties imposed on anyone found to have breached the Chemical Usage Act by failing to observe label instructions.

Under the Agricultural Chemicals Distribution Control Act 1966 (ACDC Act) aerial distribution contractors in the business of aerial distribution (application) of agricultural chemicals and ground distribution contractors in the business of ground distribution of herbicides must be licensed. In addition agricultural pilots and ground spray operators working for or engaged by these contractors must undergo prescribed training and also be licensed. In most instances, agricultural producers applying agricultural chemicals on their own land do not need to undertake training or to hold a licence. However, Queensland growers are strongly encouraged to undergo some form of vocational training or further training a registered training organisation so their skills and knowledge in application technology and handling, storing and transporting chemicals are maintained and kept up to date.

In Queensland cotton growers are required to keep records of spraying activities where specified on the product label or under the conditions of a permit. This differs to the situation in NSW. However it is considered good farming management practice to keep records and therefore all Queensland growers are strongly encouraged to keep records of all their chemical applications along the same lines as NSW growers are required to do so by law.

Licensed aerial and ground distribution contractors are required to make records of all their spraying activities and keep these for a minimum of 2 years.

Additional advice on legal responsibilities in applying pesticides in Qld., Biosecurity Queensland 13 25 23.

Legal responsibilities

Hazardous Chemicals Legislation

Many registered pesticides are classified as hazardous chemicals and most of those that are not pose some risk to the health of those who use them or are exposed to them.

The Work Health and Safety Act 2011, and the Hazardous Chemical section of the Work Health and Safety Regulation 2011, detail the legal requirements of suppliers, workers and persons conducting businesses or undertakings in the workplace for hazardous chemicals management. The Act and accompanying Regulations are intended to protect workers from both the short and long term health effects of exposure to hazardous chemicals and to improve current health and safety practices by:

- Provision of health and safety information to workers (including a list or register of all hazardous chemicals and an SDS (safety data sheet) for each hazardous chemical);
- Consultation with workers;
- Training of workers;
- Minimising the risks arising from hazardous chemicals exposure; and,
- Health surveillance (if warranted by the risk assessment in respect to organophosphates).

Both storage and use are covered by WHS legislation.

Storage limits have changed. Premises storing large quantities require placarding of both storage shed and the entrances to the premises. If very large quantities are stored – which would be rare on-farm, a manifest, site plan and written emergency plan are required. Consult your local WorkCover office for advice.

WorkCover NSW's Code of practice for the safe use and storage of chemicals (including pesticides and herbicides) in agriculture is an approved industry code of practice and provides practical guidance for farm chemical users to comply with the legislation mentioned here.

myBMP provides guidance and resources to meet your requirements for handling, storage and application of chemicals.

Pesticides and The Environment

The cotton industry's guidelines for minimising risk to the environment are another component of myBMP.

Most insecticides are toxic to aquatic organisms, bees and birds. Fungicides and herbicides are relatively safe to bees in terms of their active ingredients, but their carriers and surfactants may be toxic. The risks that a particular product poses to the environment are reflected in statements on the label under headings like 'Protecting wildlife, fish, crustacea and the environment'.

Protecting bees

The cotton growing environment is a high risk environment for bees. Bees are particularly susceptible to many of the insecticides used on cotton farms, such as abamectin, fipronil, indoxacarb and pyrethroids. The productivity of hives can be damaged if bees or the hives are contaminated. Insecticides that are particularly toxic to bees are identified as such with the following special statement on the label:

Dangerous to bees. DO NOT spray any plants in flower while bees are foraging.

The relative toxicities of cotton insecticides to honeybees are listed in Table 3 on pages 8–9.

Table 3 ranks the acute toxicities of products to bees based on LD50 information. The residual toxicity of insecticides, that is, the amount of time the product remains toxic to bees after the time of application, should also be considered when information is available. For the majority of insecticides used in cotton the residual toxicities are unknown. Table 41 summarises the currently available information.

Bees are generally active between 7:00 am and 4:00 pm and most bees forage within a 2 to 4 km radius of their hive. They may travel up to 7 km in search of pollen and nectar, though only when nearby pollen and nectar sources are in decline or are of poor quality. Bees collect nectar from extra-floral nectaries (eg under leaves) as well as from cotton flowers so they may forage in cotton crops before, during and after flowering. As well as bees foraging in cotton crops, damage may occur to bees when pesticides drift over hives or over neighbouring vegetation being foraged by bees eg. coolibah. Coolibah trees (*Eucalyptus microtheca*) are a primary source of nectar and pollen for honey bees. These trees grow on the black soil plains along many of the river courses in the cotton growing areas. Budding and flowering occurs in response to good spring rains. In northern NSW buds appear in November and the trees begin to flower mid-late December finishing about the end of January, budding and flowering times vary by a few weeks in both the southern and central Qld areas. When heavy budding occurs beekeepers may move large numbers of hives into cotton growing areas for honey production.

With good communication and good will, it is possible for apiarists and cotton growers to work together to minimise risks to bees, as both the honey industry and cotton industry are important to regional development.

The pesticide risk to bees can be reduced by:

- Applying pesticides toxic to bees in the evening when bees are not foraging;
- Notifying apiarist when beehives are in the vicinity of crops to be sprayed to allow removal of the hives before spraying. Beekeepers require as much notice possible, preferably 48 hours, to move an apiary;

Protect bees when using Regent Insecticide

The Regent Insecticide label states:

'Dangerous to bees. DO NOT apply where bees from managed hives are known to be foraging, and crops, weeds or cover crops are in flower at the time of spraying, or are expected to flower within 28 days (7 days for pastures and sorghum).

Before spraying, notify beekeepers to move hives to a safe location with an untreated source of nectar, if there is any potential for managed bees to be affected by the spray or spray drift. If an area has been sprayed inadvertently, in which the crop, weeds or cover crop were in flower or subsequently came into flower, notify beekeepers in order to keep managed bees out of the area for at least 28 days (7 days for pastures and sorghum) from the time of spraying. Where the owner of managed hives in the vicinity of a crop to be sprayed is not known, contact your State Department of Primary Industries/Agriculture, citing the registration number, for assistance in contacting the owner.'

- Where possible, use EC or granular formulations in preference to wettable powders which are particularly hazardous to bees. Micro-encapsulated formulations such as that used for lambda-cyhalothrin are particularly hazardous to bees because of their persistence in the environment and because bees transport the micro-capsules back to the hive along with the pollen;
- Inform contract pesticide applicators operating on the property of the locations of apiaries;
- Paying particular attention to windspeed and direction, air temperature and time of day before applying pesticides;
- Using buffer zones as a mechanism to reduce the impact of spray drift or overspray; and,
- Avoiding drift and contamination of surface waters where bees may drink (see advice on risk management for aquatic organisms).

'Bee Alert'

The CottonInfo team Cotton Calendar app includes a 'Bee Alert' (Industry Events/Regional Events/My Events/Bee Alert/RSVP Settings) tab that aims to improve communication between hive owners and cotton growers. This free service

allows beekeepers to regularly update information about their hives, with information automatically linked to relevant growers. Bee hives are entered as special event type, with GPS co-ordinates of hives as well as start date, likely duration, number of hives and contact details. Calendar App users in the vicinity will be advised of the risk. Communication with growers and aerial operators can then be coordinated locally. When communicating with beekeepers, encourage them to use this service, particularly when apiaries are being placed within bee flight range of flowering crops.

For more information on how to access the Cotton Calendar App or to use the 'BEE Alert' tab contact Dave Larsen, NSW DPI 02 6799 1534.



BEE Alert with Cotton Calendar

Further information about protecting bees or to contact the owner of bee hives

NSW Apiarist Association

Kate McGilvray (Secretary)

info@nswaa.com.au

Phone: 02 6373 1435, Fax: 02 6373 1436

Qld Beekeepers Association

Colleen Morris (secretary)

qbainc@bigpond.com

Phone: 07 5465 3682

NSW DPI

Doug Somerville, Technical Specialist (Honey Bees)

Ph: 02 4828 6619 Mob: 0427 311 410

doug.somerville@dpi.nsw.gov.au

Qld DAFF

Patricia Swift, Apiary officer

Ph: 07 5466 2216

patricia.swift@daff.qld.gov.au

Protecting the aquatic environment

The risk to aquatic organisms can be managed by:

- Preventing drift into surface waters during application;
- Locating mixing/loading and decontaminating facilities away from surface waters and providing such facilities with bunding and sumps to prevent movement of either concentrate or rinsate into surface waters;
- Installing valves which prevent back-flow when filling spray tanks from surface waters and in suction lines for chemigation systems which draw directly from surface waters;
- Avoiding aerial application of spray on fields during irrigation;
- Building sufficient on-farm storage capacity (including provision for storm run-off) to contain pesticide contaminated tail water from irrigation;
- Spraying in an upstream direction, when it is necessary to spray near surface waters, to reduce the maximum concentration at any one point in the watercourse;

TABLE 41: Cotton insecticides with known residual toxicities to honey bees

Active Ingredient	Chemical group	Residual toxicity to bees ¹	Comment
clothianidin	neonicotinoids		Residues may remain toxic to bees several days after application.
fipronil	phenyl pyrazole	7 to 28 days	Long residual. See label extract above.
clothianidin	neo-nicotinoids		Residue may remain toxic for several days after spraying.
spinosad	spinosyn	1 day	Not hazardous once the spray has dried. Avoid drift onto hives.
betacyfluthrin	synthetic pyrethroid	>1 day	Longer residual expected in Australian conditions.
chlorfenapyr	pyrole		Foraging behaviour could be affected for >2 days
esfenvalerate	synthetic pyrethroid	1 day	
lambda-cyhalothrin	synthetic pyrethroid	>7 days	Micro-encapsulated formulation has longer residual.
carbaryl	carbamate	up to 7 days	
chlorpyrifos	organophosphate	up to 1 day	
dimethoate	organophosphate	up to 3 days	
parathion	organophosphate	1 day	Depending on weather conditions, residual may be 4–6 days ² .
methidathion	organophosphate	3 days	

Source: Primefact 149, Pesticides – a guide to their effect on honey bees.

¹Residual toxicity is the amount of time the pesticide remains toxic after application. Data is derived from United States field trials conducted by the University of California (Atkins et al. 1981, Reducing pesticide hazards to honey bees) and Washington State University (Mayer et al. 1999, How to reduce bee poisoning from pesticides) unless otherwise indicated.

²United States Environment Protection Agency.



Legal responsibilities

- Using only registered products to control aquatic weeds, e.g. Roundup Bioactive® rather than Roundup®; and,
- Avoiding disposal of used containers in surface waters and on flood plains and river catchments.

Protecting birds

Organophosphate and carbamate insecticides can be particularly toxic to birds, especially in granular formulations. Bird kills from diazinon, monocrotophos and carbofuran have been well documented in Australia and overseas. Insecticidal seed dressings can pose similar risks. Just a few seeds and granules can be lethal. Spillages can be very hazardous as birds can easily ingest a toxic dose from a small area.

Risks to birds from granular products can be managed by:

- Ensuring complete incorporation beneath the soil, particularly at row ends where spillage may occur; and,
- Immediate clean up of spillage, however small.

Bait materials for control of rodents or soil insect pests can also be hazardous to birds, either through direct consumption of the bait or from feeding on bait-affected animals or pests. The risks to birds from baits can be managed by:

- Ensuring even bait distribution, with no locally high concentrations;
- Not baiting over bare ground or in more open situations, such as near crop perimeters, where birds may see the baits;
- Not baiting near bird habitat such as remnant native vegetation;
- Use of bait stations which prevent access by birds, particularly near bird habitat;
- Only baiting where pest pressure is high;
- Baiting late in the evening when birds have finished feeding;
- Prompt collection and burial of rodent carcasses where these occur in open situations; and,

Foliar applied insecticide sprays can also be hazardous to birds, either because of direct contact with the sprayed chemical, or by feeding on sprayed insect pests or crops. Even where birds are not killed, they may be sufficiently affected to make them more vulnerable to predation. Contaminated seed and insects collected from sprayed fields by parent birds can also be lethal to young chicks still in the nest. Risks to feeding and nesting birds can be managed by:

- Minimising drift into remnant vegetation, wildlife corridors, nesting sites, or other bird habitats;
- Actively discouraging birds from feeding in-crops which are to be sprayed;
- Spraying late in the day when birds have finished feeding; and,
- Using only low toxicity chemicals when large concentrations of birds are nesting nearby. The best way to manage any long term adverse environmental risks is to follow the protection statements on labels, minimise spray drift, and to dispose of chemical containers and waste in accordance with label directions and codes of practice.

Recycle chemical containers

Recycling is now possible for properly rinsed metal and plastic containers used for farm chemicals. drumMUSTER is the national program for the collection and recycling of non-returnable crop production and animal health product chemical containers.

The containers when presented at a drumMUSTER receipt site MUST BE: Free of chemical residue with the lids removed. Some stains are acceptable but physical chemical residue is not. Dirt, dust and mould are not reasons for rejection.

Inspection of containers at drumMUSTER collection points is necessary to ensure that containers can be safely recycled. There must be no product residue on the inside or the outside of the container, including the thread and cap. Visible residues could be powder, flake, coloured /dark fluid or clear fluid.

Preparing chemical drums for recycling

Always follow these procedures to ensure your drums are suitable for delivery to a collection centre:

- Triple rinse or pressure rinse your containers immediately after use (residues are more difficult to remove when dry). Pour the rinse water back into the spray tank.
- Thoroughly clean the container thread and outside surfaces with a hose into the spray tank. Rinse all caps separately in a bucket of clean water, and pour the rinsate into the spray tank.
- Inspect the container, particularly the thread and screw neck to ensure all chemical residues have been removed.
- Metal containers should be punctured using a steel rod or crowbar, this should be done by passing it through the neck/ pouring opening and out the base of the container. This also allows the containers to vent and remove any residual odour.
- Allow the containers to drain completely and air dry them (this may take a number of days) to ensure they do not retain any rinse water.
- Store cleaned containers in a sheltered place with caps removed, where they will remain clean and dry until they can be delivered to a drumMUSTER collection centre.

If containers are rejected the user is responsible for ensuring that the container is taken back to the property and cleaned



Birds can make a significant contribution to pest management. (Photo: Cotton Australia – Julie Reardon)

using all rinsate to make up an application of the same chemical according to the label recommendations.

As more resellers turn to using Intermediate Bulk Containers (IBCs), many are still unsure about the right way to return IBCs once they've been used. Agsafe has prepared a quick and easy guide that may assist users on how to send IBCs back for recycling or reuse. www.drummuster.com.au/container-recycling/the-abcs-for-your-ibcs/

For information on the **drumMUSTER** program

phone 1800 008 707 or contact your local representative:

Northern NSW	Southern NSW	Queensland
Phil Tucker	Vernon Keighley	Colin Hoey
0427 925 274	0406 745 030	0428 964 576

Safely dispose of unwanted chemicals

ChemClear is an industry stewardship program which is funded to collect currently registered agricultural and veterinary chemicals at the end of their life cycle, or, when they become surplus. The program is targeted to meet disposal requirements of ag and vet chemical users, and, whilst doing so diverts potential hazardous chemicals from being dumped in landfills, creeks or being inappropriately disposed of in the community.

Unwanted rural chemicals may result from; discontinued use of a chemicals because of changes in-cropping or animal practices, development of newer, more effective or safe chemicals, changes in a chemicals registration through the APVMA and/or banning from use, unknown product, sale of property, inherited product and deceased estates. Any unwanted or unknown

chemicals held on farm are potential hazards to people, the environment and the community. The ChemClear program arranges for the collection of unwanted chemicals for their appropriate environmental disposal.

Registering to use the ChemClear program

There are six simple steps in using the program;

1. Take an inventory of any unwanted rural chemicals. The inventory should include all identifiable features of the container including label, manufacturer, expiry date, size of container and the remaining quantity of chemical left in the container.
2. Register the inventory for the next collection in your area. Book on; free-call 1800 008 182 or at; www.chemclear.com.au
3. Continue to store your registered chemicals safely and securely.
4. ChemClear will contact you direct to advise the location for retrieval.
5. Prepare chemicals for delivery to collection site.
6. Deliver chemicals.

The cost to use the ChemClear service depends on the chemical to be collected. Group 1 chemicals are collected free of charge under the program. These chemicals are currently registered ag and vet chemicals manufactured by companies supporting the Industry Waste Reduction Stewardship initiative. Group 2 chemicals are those chemicals that are no longer registered, unknown, unlabelled, out of date, or mixed ag and vet chemicals. A fee applies for disposal.

Keeping your property clean is easier than you think...

drumMUSTER has over **780** collection points in Australia!



Register your eligible agvet chemicals for collection with ChemClear.

Register at
1800 008 182
www.chemclear.com.au

1800 008 707
drummuster.com.au



IMPORTANT: USE OF PESTICIDES

Pesticides must only be used for the purpose for which they are registered and must not be used in any other situation or in any manner contrary to the directions on the label. Some chemical products have more than one retail name. All retail products containing the same chemical may not be registered for use on the same crops. Registration may also vary between States. Check carefully that the label on the retail product carries information on the crop to be sprayed.

This publication is only a guide to the use of pesticides. The correct choice of chemical, selection of rate, and method of application is the responsibility of the user. Pesticides may contaminate the environment. When spraying, care must be taken to avoid spray drift on to adjoining land or waterways.

Pesticide residues may accumulate in animals treated with any pesticides or fed any crop product, including crop residues, which have been sprayed with pesticides. In the absence of any specified grazing withholding period(s), grazing of any treated crop is at the owner's risk. Withholding periods for stock treated with any pesticides or fed on any pesticide treated plant matter must also be observed. Animals which test positive for chemical residues (i.e. with readings which exceed maximum residue limits for certain chemicals) at slaughter will be rejected. Pesticide residues may also contaminate grains, oils and other plant products for human use and consumption. Growers should observe harvest withholding periods on the pesticide label and should not assume that in the absence of a withholding period or after the expiry of a withholding period that the plant products will be free of pesticide residues.

Some of the chemical use patterns quoted in this publication are approved under Permits issued by the Australian Pesticides and Veterinary Medicines Authority (APVMA) at the time the publication was prepared. Persons wishing to use a chemical in a manner approved under Permit should obtain a copy of the relevant Permit from the APVMA and must read all the details, conditions and limitations relevant to that Permit, and must comply with the details, conditions and limitations prior to use.

