

# Regulatory Impact Statement

## Proposed Pesticides Amendment (User Training) Regulation 2001

## **Please send us your comments**

The Environment Protection Authority invites you to make written submissions on this Regulatory Impact Statement on the proposed Pesticides Amendment (User Training) Regulation 2001 (the 'proposed Regulation').

The proposed Regulation will require that all people using pesticides for commercial and agricultural purposes must have achieved a specific level of competency in pesticide use. The proposed Regulation will not apply to small-scale domestic type pesticide usage.

The EPA also specifically seeks your comments on:

- the proposal that commercial users of pesticides must have attained specific skills before they may use pesticides
- the most appropriate method for improving the responsible use of pesticides in non-commercial applications
- providing training for pesticide users who have low levels of literacy, including non-English speaking background users, and on appropriate communication strategies to fully engage these important sectors of the community
- recognition of training programs conducted before the commencement of the proposed Regulation, and whether any nationally accredited program other than Farmcare, ChemCert or SMARTtrain should be recognised under the transitional provisions (8A) of the proposed Regulation.

Submissions should be made in writing, and sent to:

Director Chemicals Policy  
NSW Environment Protection Authority  
PO Box A290  
Sydney South NSW 1232

Email: [info@epa.nsw.gov.au](mailto:info@epa.nsw.gov.au)

Submissions will be accepted up until the close of business on 1 March 2002

This publication is also available on the EPA's website at [www.epa.nsw.gov.au/pesticides](http://www.epa.nsw.gov.au/pesticides)

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# 1 Summary of proposed Regulation

New laws are being proposed about compulsory training for people who use pesticides. The Environment Protection Authority (EPA) wants to know what you think about the proposed new laws.

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## Compulsory training for using pesticides?

To help protect pesticide users, the community and the environment from the effects of pesticides that have been incorrectly applied or managed, a new law is being proposed about compulsory training for people who use pesticides in their work.

*You have an opportunity now to let the NSW Environment Protection Authority know what you think about the proposed new law.*

## What is proposed?

The proposed new law says:

- People who use pesticides **in their business or as part of their job** must be trained in how to use those pesticides.
- You must not employ a person to use pesticides unless that person is trained.
- A person who is ‘trained’ has a qualification that shows they are able to apply and manage pesticides correctly.
- Someone who has already done Farmcare, *ChemCert* or SMARTtrain training is already qualified. This qualification remains valid for five years from when it was completed.
- People who do not have the proposed qualification have two years to get trained or to have their current skills recognised.
- People who are qualified have to be re-assessed every five years.
- People who are already a licensed pest controller under WorkCover legislation, or have a licence related to aerial application of pesticides under the *Pesticides Act 1999*, do not need to do more training.
- You don’t need to be trained for using pesticides at home or in your home garden.

The proposed law also sets out what will be considered an offence in relation to misusing qualifications.

## Why do we need the new law?

Pesticides can be dangerous if incorrectly applied or managed, especially to those people who work with pesticides or are regularly exposed to them. Training will help minimise mistakes being made when pesticides are used, and is one of the most effective ways of protecting the community, the environment and the people who use pesticides regularly.

## **What sort of pesticides would be included?**

The proposed law would cover all types of pesticides, including herbicides, insecticides, fungicides, bactericides, baits, lures and rodenticides (rat poison).

## **Who would have to be trained?**

People who use pesticides as part of their job or business would have to be trained, such as:

- landlords, or a person acting on behalf of a landlord
- people acting for a public authority (including local council officers and the staff of all government agencies such as NSW Agriculture, National Parks and Wildlife Service, and Department of Land and Water Conservation)
- people working at golf courses, sporting fields or bowling greens
- people working in agriculture, aquaculture, horticulture, forestry or farming (including market gardeners, commercial flower growers, nursery staff and operators and all other types of commercial farmers)
- people working in a business, educational institution or hospital.

## **What sort of training would be needed?**

A range of training options would be available, to suit all types of pesticide users. In most cases the training would be a two-day course, based on the national Agriculture and Horticulture Training Packages.

Alternatively, people could get the qualification by demonstrating to an assessor they understand how to use pesticides for their job or business. (This is commonly called Recognition of Prior Learning—known as ‘RPL’.) If you choose to get your qualification this way it would take about one day.

People who successfully complete the training or demonstrate prior learning would receive a Statement of Attainment.

General information about training is available on the NSW Primary Industry Training Advisory Body website at [www.nswpitab.com.au](http://www.nswpitab.com.au)

## **When would pesticide users need to be trained?**

Pesticide users would need to be trained within two years of the date of the start of the proposed new law. For example, if the law starts in mid-2002 they would need to be trained by mid-2004.

## **Would users need to be retrained in the future?**

Yes pesticide users would need to demonstrate **every five years** that they understand how to use pesticides correctly, and can do so on the job. This could be done during a short assessment process.

## **What if users have already done some training?**

Pesticide users would not need to be trained again until five years after the certificate or statement was issued if they already have:

- a certificate under the *ChemCert* Farm Chemical User Training Program (or the earlier Farmcare program), or
- a Statement of Attainment under the SMARTtrain Chemical Application Course or Managing Chemical Use Course.

### **What do you think about this proposed new law?**

The NSW Environment Protection Authority (EPA) wants to know what you think about the proposed new law so that the final regulation about training addresses everybody's needs.

The proposed new law was developed in consultation with a working group of experts in pesticide use and training, and with advice from the Pesticides Implementation Committee, a body representing community interests in pesticide issues.

### **Do you have suggestions for helping pesticide users understand the proposed new law?**

We welcome feedback about the training proposal from everyone with an interest in pesticide use.

People who prefer to respond in a language other than English are welcome to contact us through the Telephone Interpreter Service (see below) or to contribute through your association.

We welcome comments from representatives of ethnic communities and any other interested person or group about how we can best communicate with and fully engage non-English speaking sectors of the community in the proposal about pesticide training. We would also be interested to hear contributions about how training could best be provided for non-English speaking and low-literacy pesticide users.

### **How to send us your comments**

You can send us your own comments, or contribute comments through your industry association or organisation.

If you need an interpreter to help you speak to an EPA officer about this proposal, please call the Telephone Interpreter Service on 131 450 and ask them to connect you to the EPA office on 131 555.

Written submission should be sent to: Director Chemicals Policy  
NSW Environment Protection Authority  
PO Box A290  
SOUTH SYDNEY NSW 1232

Submissions may be emailed to: [info@epa.nsw.gov.au](mailto:info@epa.nsw.gov.au).

Closing date for submissions: **1 March 2002**

### **More information**

If you want to ask more about the proposed new law, or you're still not sure what it means for you, you can contact EPA pesticide staff on (02) 9995 5799 or call the EPA's Pollution Line on 131 555 for the cost of a local call from anywhere in NSW.

When available, EPA staff would be happy to visit your group and explain the proposed new laws.

## 2 Summary of impact assessment

The Environment Protection Authority (EPA) has proposed an amendment to the Pesticides Regulation 1995. The Pesticides Amendment (User Training) Regulation 2001 proposes the introduction of mandatory competency standards which must be met by all people who use pesticides for commercial purposes.

The EPA is keen to hear all views on the proposal, as well as comments on appropriate methods of managing non-commercial applications of pesticides. Although formal consultation on an amendment regulation is not legally required, the EPA has chosen to consult widely so that everyone has an opportunity to have a say. To help people understand the proposal, the EPA has prepared this Regulatory Impact Statement (RIS), providing a detailed analysis of the proposed Regulation.

This RIS describes a number of issues relating to pesticide use in NSW, and identifies a need to increase the level of competence in pesticide use. The proposed objective is to introduce mandatory competency standards for pesticide use that will make a cost-effective contribution to:

- directly reducing risks of harm to human health, property and the environment from the use of pesticides, and
- reducing current risks or avoiding future risks to agricultural trade.

Proposed competency standards for all commercial pesticide users are examined by reviewing the merits of a range of options. The proposed standards are similar to those achieved after successfully completing existing training programs under *ChemCert* and SMARTtrain (and former Farmcare programs). The proposed Regulation will recognise existing training that has been provided by these programs endorsed under the National Training Framework (see Appendix 3.)

This RIS evaluates the proposed Regulation against the principal alternatives: continuing with the current voluntary approach to competence, or licensing all commercial users of pesticides. The RIS finds that the benefits of the proposed Regulation are likely to exceed those of the alternatives. This is principally because the proposed Regulation will achieve a high level of pesticide use competency, with less cost and in a much shorter time than the alternatives of voluntary measures or licensing.

Although many of the benefits of the proposed Regulation could not be quantified, training would provide a form of ‘insurance’ against the human health and economic risks of pesticide contamination. Misuse of pesticides could result in a very significant damage bill, such as direct harm to people, community confidence in food quality and loss of export markets.

Adopting a ‘do nothing’ approach and relying on voluntary measures would not adequately achieve the objectives of the *Pesticides Act 1999* (the ‘Pesticides Act’). Doing nothing may result in leaving a significant proportion of pesticide users untrained, posing an unacceptable risk to the environment. Around one-third of existing pesticide users already hold qualifications on a voluntary basis. However, there is no evidence to suggest that those who have voluntarily undertaken training were in greater need of training than those who have not yet trained. Additionally, the consequences of pesticide misuse can affect parties other than those who make a mistake, such as consumers, employees and producers generally.

Licensing all relevant commercial pesticide users may also achieve the objectives of the Pesticides Act in a short time frame. However, the administrative cost and complexity of licensing would result in higher costs than believed necessary. It was estimated that licensing would cost over \$11 million in the first year with a total cost of \$35 million over five years.



Quantified incremental costs of the proposed Regulation compared with the option of doing nothing (the 'base case') are estimated at between \$6.0 million and \$7.2 million per year, equivalent to a present cost of between \$25 million and \$29 million over five years at a discount rate of 7%. These costs are based on conservative assumptions and represent the upper limit of potential costs. The costs are based on the assumption that a significant proportion of agricultural employees in NSW will require pesticide training or assessment. In reality the costs of the proposed Regulation are likely to be lower as many people may already be trained and organisations or employers may rationalise the number of people applying pesticides and hence requiring training.

The benefits of the proposed Regulation are complex and difficult to quantify, given the diffuse nature of pesticide use and the lack of appropriate primary valuation research. However, the principal unquantified benefits of the proposed Regulation are likely to include:

- reduced risk of trade impacts
- reduced risk of lowered agricultural production value
- reduced likelihood of residue violations
- reduced incidence of environmental or health effects from pesticide use, and
- more efficient application of pesticides due to improved practices and better understanding of environmental impacts.

The major benefits for the NSW community are reduced risk to trade and consumer welfare, and reduced risk of harm to human health and the environment through improved compliance with the Pesticides Act.

Pesticide users are also likely to gain private benefits through greater confidence that agricultural production meets produce quality standards, better understanding of best practice requirements in pesticide use and purchasing requirements, and more appropriate use of pesticides or alternatives to address common farming problems. Pesticide users are often neighbours and would therefore benefit from better use of pesticides by neighbouring properties.

A review of research into the effectiveness of training programs provided evidence that appropriate training can result in positive behavioural changes, and can also build awareness in safe pesticide use. Recent community attitude surveys by the EPA (*Who Cares about the Environment? 2000*) have demonstrated significant support for strengthening current pesticide regulations and chemical use training schemes. A recent university survey estimated that over 75% of farmers strongly or mostly believe that compulsory training is the best way to reduce pesticide misuse.

Delivering appropriate programs to meet the training needs of pesticide users who may have low levels of literacy, including those from non-English speaking backgrounds (NESB) is considered a priority objective for achieving improved environmental and health outcomes for the whole community. It is widely accepted that traditional approaches to education and training have had limited success in raising awareness and meeting the particular needs of these groups.

Accordingly, the EPA is seeking input from representatives of NESB communities, and any interested person or group, on how best to provide training for pesticide users who have low levels of literacy, including NESB users, and on appropriate communication strategies to fully engage these important sectors of the community.

At an industry level, the proposed Regulation would impose a cost equivalent to about 0.085% (i.e. less than 0.1 of one percent) of the total annual value of agricultural output in NSW, which totalled \$7.7 billion in 1998–99 (ABS 2000). Alternatively, the total annualised cost of the

proposed Regulation would impose a cost equivalent to 0.376%<sup>1</sup> of the total value of agricultural exports from NSW, being \$1.752 billion for 1999–2000. The recent catastrophic impact of foot and mouth disease on the agricultural sector in the UK highlights the importance of maintaining best practice standards in NSW production and protecting our valuable export markets.

At an individual business level, it is estimated that the cost to most agricultural businesses or operators affected by the training requirements will be between \$250 to \$400 per person per business (over 5 years). This cost principally comprises course fees, travel and the opportunity cost of time that could be dedicated to other activities. Farmers who have already voluntarily obtained training (around a third) would be minimally affected by the proposed Regulation.

These costs could be considered a small premium to pay to insure protection of the environment, agricultural production and the NSW economy. The analysis concludes that the total costs of pesticide training will be significantly outweighed by benefits from better pesticide use and application decisions, improved compliance with the Pesticides Act and a reduced risk of residue violation.

The proposed Regulation has been assessed against the requirements of the Competition Principles Agreement. No inconsistencies with the National Competition Policy have been identified.

It is therefore concluded that the proposed Regulation should be made.

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<sup>1</sup> Cost of proposed regulation (\$6–\$7.2 million) divided by total agricultural exports from NSW in 1999/2000 of \$1.752 billion.

## 3 Introduction

‘Pesticides’ is a broad term that includes herbicides, insecticides, fungicides, bactericides, rodenticides, baits, lures, external parasite treatments and repellents.

The Environment Protection Authority (EPA) proposes to amend the Pesticides Regulation 1995 to introduce new competency standards in connection with the use of pesticides for commercial purposes.

The proposed amendment will be made in accordance with section 119(2)(f) of the *Pesticides Act 1999* (the ‘Pesticides Act’). The principal proposed amendments are that:

- all people who use pesticides for commercial or occupational purposes (including landlords, public authorities, greenkeepers, businesses, agriculture, horticulture or farming, forestry or aquaculture operations) must have achieved a specified level of competency in pesticide use before using pesticides
- a person must not employ another person to apply pesticides unless that person is able to demonstrate that they have achieved the specified level of competency, and
- penalty notice provisions apply to some of the new requirements.

The proposed Regulation includes transitional provisions that will recognise training undertaken with *ChemCert*, Farmcare and SMARTtrain programs before the commencement of the Regulation as adequate for complying with the proposed Regulation. This recognition will last for five years from the time the training was successfully completed. The EPA invites comment on whether any appropriate training programs other than *ChemCert*, Farmcare and SMARTtrain should be recognised under the transitional provisions (8A) of the proposed Regulation. Program providers are asked to submit details of the program’s accreditation under the National Training Framework for the EPA’s consideration by 1 March 2002.

It is recognised that a key sector of pesticide users are members of the community who may have low levels of English literacy, including those from non-English speaking backgrounds (NESB). The delivery of appropriate programs to meet the training needs of these significant stakeholder groups is considered a priority objective for achieving improved environmental and health outcomes for these pesticide users and the broader community. It is widely accepted that traditional approaches to education and training have had limited success in raising awareness and meeting the particular needs of these groups.

Accordingly, the EPA is seeking input from representatives of NESB communities, and any interested person or group, on how best to provide training for pesticide users who have low levels of literacy, including NESB users, and on appropriate communication strategies to fully engage these important sectors of the community.

The use of pesticides for non-commercial purposes, such as small-scale domestic type use or non-commercial hobby farms, will not be affected by the proposed Regulation. In addition to comment on the proposed Regulation, the EPA is seeking comment on the most appropriate method for achieving safe pesticide use in non-commercial applications in the greater community.

The proposed Regulation is set out in its entirety in Appendix 5.

### **Purpose and content of the Regulatory Impact Statement**

The proposed Regulation is an amendment regulation, which means a RIS is not required under the Subordinate Legislation Act. However, because there is a high level of public interest in the

issue of mandatory demonstration of competence by pesticide users, the EPA has chosen to prepare this RIS in order to provide interested parties with an opportunity to make submissions on the proposed Regulation. A RIS is an assessment of the economic, social and environmental costs and benefits of new regulations and their alternatives. The purpose of the RIS is to ensure that the proposed Regulation provides the greatest net benefit or the least net cost to the community, compared with its alternatives.

This RIS firstly explores the nature of pesticide use by commercial operators in NSW and provides an overview of pesticide issues. Existing regulations and policy frameworks are then discussed in the context of the Pesticides Act. The objectives of the proposed amendment are presented, along with a description of the proposed competency standards. The RIS then discusses three options for achieving the objectives. A cost benefit analysis is presented on the proposed Regulation, together with a discussion on National Competition Policy issues.

## **Consultation on the proposed Regulation**

There has been considerable preliminary consultation in the preparation of the proposed Regulation to date. In particular, there has been:

- development of the proposed Regulation through formal consultation with the Pesticides Implementation Committee at its scheduled meetings
- consultation with a Working Group specifically established by the Pesticides Implementation Committee to consider issues relating to training, and
- extensive consultation with individual stakeholder representatives on the Pesticides Implementation Committee out of session.

The availability of the RIS will be advertised on the EPA website and in the *Sydney Morning Herald* and *The Land* and widely in other regional publications. The RIS will be on display and public submissions will be accepted until 1 March 2002.

In addition, the EPA has an extensive list of interested parties to whom the RIS will be distributed, including all organisations represented on the Working Group established to help develop the Regulation and on the Pesticides Implementation Committee. These organisations include:

NSW Agriculture, NSW Health, WorkCover NSW, *ChemCert* NSW, NSW TAFE, NSW Farmers' Association, National Farm Safety Training Centre, Aerial Agricultural Association of Australia, State Catchment Management Coordinating Committee, NSW Primary Industry Training Advisory Body, Australian Beef Association, Australian Environmental Pest Managers Association, Local Government and Shires Associations and the Total Environment Centre.

The EPA also plans to provide opportunities for any interested person, including representatives of communities with non-English-speaking backgrounds, to discuss particular details of the proposed Regulation.

## 4 The issue

### Commercial and public sector pesticide use in NSW

It is estimated that there are around 50,000 agricultural enterprises, government agencies, local authorities, sports clubs and commercial pesticide applicators who use pesticides on a commercial scale in NSW. With most commercial operators having more than one employee, around 100,000 people may be applying pesticides on a commercial basis. Appendix 1 provides a breakdown of the estimated number of commercial pesticide users who would need to have a prescribed qualification if they wish to use pesticides.

While there is no comprehensive data available on agricultural chemical use in Australia, data provided by ABS (1996) shows that in 1991–1992, over 700,000 L of herbicide, insecticide and fungicide were collectively applied to between 3.3 million and 4.5 million hectares of land in NSW. These older statistics provide some indication of the likely order of the volume of pesticides being applied in NSW at present.

### Benefits of pesticide use

The application of pesticides provides significant benefits to NSW, such as:

- avoiding yield loss in NSW agricultural industries—for example, in the case of grain, the saving could be as much as 15% on production, valued at around \$2.6 billion (EPA 1998, ABS 1997)
- preventing plant and insect pests outcompeting or damaging native species in reserves, landcare and bushcare areas
- protecting structures (homes and businesses) from white ant damage
- avoiding health and amenity impacts from other pests.

The order of magnitude of private benefit derived from using pesticides in Australia is suggested by the value of pesticide sales. Data from the National Registration Authority for Agricultural and Veterinary Chemicals (NRA 2001) shows that the value of pesticide sales in Australia in 1999 exceeded \$1.74 billion, of which \$1.37 billion was for sales of herbicides, insecticides and fungicides<sup>2</sup>. Separate figures are not available for NSW, but the proportion of sales in NSW is likely to lie between 27% and 36%<sup>3</sup> of this value, that is \$470 million to \$626 million per year. The value of avoided crop damage will be at least as great as the value of sales, if they are being used rationally. Although the net benefit cannot be determined directly from the value of pesticide sales, sales of \$470 million to \$626 million per year are likely to indicate the existence of a significant welfare benefit.

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<sup>2</sup> Excluding household insecticides.

<sup>3</sup> NSW produces 27% of Australian agricultural production by value and represents 36% of the Australian economy (DSRD 2000).

## Actual or potential problems from pesticide use

The widespread use of pesticides in NSW can result in actual or potential problems if pesticides are used improperly, cause off-site effects or if accidents occur. Examples include:

- incidences of human chemical poisonings for workers in agriculture
- community concerns about potential health impacts
- production losses (e.g. crop damage) on-farm
- impacts on native flora and fauna, including aquatic life, and
- produce or food residue level violations and consequent trade impacts.

These can occur from chemical handling and use, spray drift, contaminated run-off, incorrect storage and disposal, use of inadequate withholding periods, use of deregistered chemicals, or inappropriate chemical use (e.g. contrary to label instructions).

These private and external costs of pesticide use reduce the welfare benefits of pesticide use that were described above. These costs are described in more detail later on.

## Occupational health effects

Franklin et al. (2000) presented data showing that pesticides or farm chemicals were directly responsible for three farm fatalities in Australia between 1989 and 1992, or 0.5% of all farm fatalities in that period. Over the same period, NSW averaged 46.25 farm deaths per year but recorded no fatalities from pesticides or other farm chemicals.

Hassall & Associates (1998) searched WorkCover NSW records to show there were five chemical-related fatalities in the agriculture sector between 1991/92 and 1996/97, or 0.83 per year.

More recently, statistics sourced from the National Occupational Health and Safety Commission online database (<http://nohsc.info.au.com>) show five chemical-related fatalities between 1994/95 and 1997/98, as reported to the WorkCover NSW. This is equivalent to 1.25 deaths per year over that period. However, as not all chemical-related fatalities involve pesticides (other agents include fuels and gases), the rate of fatalities from pesticides is likely to be lower than 1.25 per year.

At first glance, these figures suggest that the rate of deaths from farm chemicals has increased over the last decade. However, the annual numbers range from 0 to 2, meaning that relative fluctuations from year to year can appear very large.

Between 1994/95 and 1997/98, there were also 84 non-fatal chemical accidents reported to WorkCover NSW, a rate of 28 per year. As explained by the National Occupational Health and Safety Commission, accidents in the agricultural sector are likely to be significantly under-reported due to reasons such as many farmers being self-employed and not insured with WorkCover NSW, non-recognition of poisoning (as distinct from illness) and failure of an employee to report a poisoning to an employer. The statistics also show limited work absences of five days or more. The average absence for chemical injuries in agriculture was 12.3 weeks between 1994/95 and 1997/98.

Considering the issue from another perspective, between 1994/95 and 1996/97, there were 324 cases of accidental poisoning from pesticides recorded at NSW public hospitals, a rate of 108 per year. Of these, 52 are known to have occurred on farms, but location data was not available for all cases.

Finally, it should be noted that in one successful civil damages case taken by three shearers for diazinon poisoning, the claimants won nearly \$700,000 in damages. This was awarded for

reduced earnings capacity, indicating the cost to society of reduced output. It did not include compensation for other costs such as pain and suffering or psychological effects.

Appropriate user training on correct handling, storing and mixing of pesticides will help workers understand the occupational hazards of pesticide use and better equip people to take precautions in their application.

## **Community concerns about potential health impacts**

A recent major NSW public attitude survey *Who Cares About the Environment? 2000* shows that 52% of respondents thought that pesticides had quite a lot of very harmful effects on the environment. The survey also showed there is wide support for strengthening current pesticide use regulations: 47% of respondents thought that current regulations were too lax (EPA 2001).

National surveys of farmers' attitudes on a range of environmental issues show there has been a significant increase in support among farmers for training related to chemical use. NSW figures also show this increase in support up from 49.6% in 1991 to 66% support in 2000.

The economic wellbeing of rural communities often depends on the viability of agricultural activities, and can therefore be especially sensitive to impacts (both positive and negative) resulting from pesticide management.

Areas where there have been past instances of community health concerns related to pesticides include:

- Wee Waa (cotton, late 1970s)
- Moree (cotton, early 1980s)
- NSW North Coast (cattle tick dip sites, early 1990s)
- Coffs Harbour (bananas, 1992–93)
- Gunnedah (cotton, 1995)
- Byron Shire (bananas, 1997) and
- Narromine (cotton, 1996).

(Fragar 1998)

A health study coordinated by the Australian Agricultural Health Unit of 61 individuals reporting suspected pesticide-related health problems in Gunnedah found that 22% of the residents examined had symptoms that were 'probably related' to aerial pesticide application (AAHU, 1996). Symptoms included rhinitis (inflammation of mucous membranes), headaches, asthma, eye irritation and fatigue.

Accurate assessment of pesticide impacts on community health is difficult. The Australian Centre for Agricultural Health and Safety has identified the following problems with studies:

- difficulties achieving a valid study sample from the community
- health indicators used were not agreed or acceptable to affected people
- exposure information was not available
- the most appropriate methodology was not established, available or agreed upon
- relevant information was not accessible to the groups involved
- limited ability to control for confounding factors to determine causal relationships between pesticide exposure and health effects. (Fragar 1998)

However, despite these difficulties it can be concluded that cases of elevated community concern about pesticide use can and do occur. Genuine adverse effects on community welfare, and related health effects directly caused by pesticide use can also be shown.

Improving the competency standards of pesticide users through the proposed Regulation should help to alleviate community concerns and help to reduce the incidence of community health problems related to incorrect pesticide use.

## **Production losses**

Losses of primary produce can occur as a result of pesticide use, for example, through spray drift. There is no information kept on the external costs to primary production from pesticide use. However, in a recent case the owners of a vineyard in NSW successfully prosecuted the farmer of the neighbouring property and the aerial pesticide applicator for harm to their vines as a result of spray drift from the pesticide 2,4-D. The damages award exceeded \$2.5 million. (Cotton Industry BMP Manual, Discussion Draft, May 2000, 2nd edn)

The gross value of agricultural commodities produced in Australia for 1998/99 was \$29 billion, a 4% increase on the 1997/98 value of \$28 billion. This level of production makes a significant contribution to the NSW economy. Protecting the economic value of this asset through appropriate environmental management is important. The value of agricultural commodities produced in 1998/99 in NSW totalled \$7.7 billion (ABS 2000). The breakdown of this value into various categories is shown in Table 1 below. Of the total output, cereal grains comprised \$1.9 billion, livestock slaughterings \$1.8 billion and livestock products \$1.4 billion.

Incorrect pesticide use has the potential to cause substantial economic loss to the agricultural sector. This will increase, as consumers in many overseas markets become increasingly focused on the safety and purity of agricultural produce.

The introduction of mandatory competency standards will help to reduce the risk of potential production losses and good reputation due to pesticide contamination.



**Table 1 Gross value of NSW agricultural commodities produced 1998/1999**

<b>Crops (excluding pastures and grasses)</b>	<b>\$ million</b>
Cereals for grain	1,888.0
Crops for hay	47.5
Legumes for grain	75.1
Oilseeds	305.8
Fruit and nuts	411.4
Grapes	249.3
Vegetables	251.1
Cotton lint	824.5
<b>Pastures and grasses</b>	
Cut for hay	136.2
Harvested for seed	14.0
<b>Livestock slaughterings and other disposals</b>	
Cattle and calves	951.0
Sheep and lambs	256.2
Pigs	173.2
Poultry	411.6
<b>Total livestock slaughtering and other disposals</b>	<b>1,795.50</b>
Livestock products	
Wool	842.3
Milk	461.6
<b>Total livestock products</b>	<b>1,432.80</b>
<b>Total agriculture</b>	<b>7,699.70</b>

Source: ABS, *Agriculture - New South Wales, Cat no 7113.1, 1996-7, October 1998. Tables 16, 23, 27, 46.*

## Environmental impacts

Pesticides can have adverse effects on the environment beyond those intended in the control of target pests. There is limited information about pesticide impacts on the environment, but the following examples illustrate the type of environmental harm that can occur and indicate the potential for both acute and chronic ecological impacts.

Studies of irrigation drainage water from the Murrumbidgee Irrigation Area in 1993/94 showed that a mix of pesticides were present in the drainage water. Laboratory tests of drainage water samples involving water flea species, which form a basic part of the aquatic food chain, showed that the contaminated water had chronic toxicity to the water fleas (Korth et al. 1994).

Increased incidents of large fish kills in Australia, particularly in the northern cotton growing areas, have been attributed to high pesticide usage, particularly of endosulfan (Napier et al. 1998). Population densities of the six dominant macroinvertebrate taxa in the Namoi River in 1995/96 and 1997/98 cotton growing seasons were also negatively correlated to total endosulfan

concentrations in the river (Leonard et al. 2000). The concentrations of endosulfan that cause effects on some of these macroinvertebrates in laboratory studies (Leonard et al. 1999), were less than the endosulfan concentrations measured in the river during storm events (Muschal 1998).

Profenofos, an organophosphorous compound (OP), widely used in the cotton growing areas of NSW, has also been implicated in fish kills (Kumar and Chapman 1998). Profenofos also affected enzyme activity associated with nerve transmission in the native shrimp *Paratya australiensis* (Abdullah et al. 1994).

Chlorpyrifos has been associated with a number of fish kills in Australia, both in urban and rural areas. It has also been associated with bird kills, usually caused by birds eating contaminated invertebrates. In particular, chlorpyrifos may have caused the deaths of large numbers of ibis nestlings in the Macquarie Marshes in 1995, after parent birds brought contaminated invertebrates back to the nests as food (NRA 2000).

Endosulfan provides an example of the type of environmental harm possible from pesticides. In 1998, the NRA wrote that acute impacts on fish were likely during the spray season, subtle chronic effects on aquatic fauna were possible given the frequency with which endosulfan breached environmental guidelines, and endosulfan residues in soil appeared to exert protracted adverse effects on earthworm populations (NRA 1998).

The proposed Regulation will help to protect the ecological environment by educating pesticide users on the potential risks to fauna, flora and water resources.

## Residue violations

NSW Agriculture and Sydney Markets Limited tested a range of fresh fruit and vegetables for pesticide residues over the periods 1989–1992 and 1992–1995. In the six years of testing, over 1,000 fruit and 2,000 vegetable samples were subjected to around 50,000 tests for pesticide use (NSW Agriculture Agfacts 1996). The testing found that 98.4% of samples contained either no detectable residues or contained residues within acceptable limits. Of the total 3,000 samples tested (1,000 fruit + 2,000 vegetable samples), 50 contained a pesticide residue which exceeded the Maximum Residue Limit (MRL). The MRLs were exceeded for three main reasons:

- residues of persistent pesticides in the soil
- use of pesticides on crops for which they were not registered, and
- incorrect use of pesticides on crops for which they were registered.

Although these figures point toward fairly high compliance and low levels of residues, the risk of unacceptable chemical residues in food remains of paramount importance. A residue violation means the MRL has been exceeded and an incidence is reported and investigated by the EPA. Up to the MRL, the health effects of pesticide residue are considered tolerable. However, residues beyond the MRL are not acceptable. The introduction of mandatory training will help to address the concerns raised by the findings of this survey.

The National Office of Food Safety in Agriculture, Fisheries and Forestry - Australia (AFFA) regularly conducts a National Residue Survey (NRS). Prior to December 1998 the program was conducted by the then Bureau of Resource Sciences. The primary function of the NRS is to monitor chemical residues and environmental contaminants in the products of participating industries.

Residue monitoring is an important part of an overall strategy to minimise unwanted residues and environmental contaminants in food. It serves to identify potential problems and indicates where follow-up action is required. Surveys for chemical residues are also important as a measure of overall product quality, particularly for exporting countries such as Australia.

Residues above Australian Standards are considered unacceptable but do not necessarily represent a risk to consumer health because of the generous safety margins used in calculating standards. When a result above a standard is detected the relevant State regulatory authorities are advised so that appropriate corrective action can be taken.

NRS results show that Australian produce is of a high quality with respect to residues. The results of the 144,287 analyses conducted during the reporting period indicated only 69 analyses detected residues above Australian Standards. These consisted of 29 residues of agricultural and veterinary chemicals (including one due to the contamination of sampling equipment) and 40 of metals (20 of which were for the micronutrients copper, zinc and selenium) (AFFA 2000). Although these results provide the community with a level of confidence, it is paramount that agricultural practice continues to follow strict management controls with respect to pesticide use to maintain high quality produce.

## **Potential trade impacts**

The issue of potential trade impacts from pesticide residue violations appears to be of growing significance. Globally there is an increasing use of sanitary and phytosanitary regulations, although trade rules exist under the World Trade Organisation's Agreement on the Application of Sanitary and Phytosanitary Measures (the 'SPS Agreement').

Whether such barriers are being used as a form of protectionism is a contentious issue. However, the increasing use of SPS measures is a fact, and the SPS Agreement has proved controversial in its application. There are a number of SPS measures that are being contested by Australia at present, or to which Australia is a third party interested in the outcome, including Korean measures affecting beef imports and US measures on lamb (DFAT 2000).

ARMCANZ (1998) identified a heightened focus on non-tariff barriers to trade, and noted that countries may use product standards and quarantine arrangements as disguised forms of local industry protection. New Zealand researchers have also noted the rise of what they see as protectionist policies involving the strengthening of food safety criteria, restricting agri-chemical inputs and stricter maximum residue levels for food imports into markets such as the EU and Japan (Campbell & Coombes 1999).

AQIS has identified that, as well as bans and embargoes on products, rejection frequently occurs at the point of import due to residues of agricultural and veterinary products in food (despite the existence of international codes and standards). In such situations, non-compliance of the imported product is often a result of the relevant chemicals not being needed or registered in the importing country, with the default tolerance level being applied (AQIS 2000).

While the SPS Agreement and associated international standards act as a framework to protect human, animal and plant health and safety, there is no guarantee that they will result in certainty for exporters in accessing markets. The potential impacts of such standards suggest there are benefits to exporters in applying and maintaining the highest standards possible for pesticide use. The introduction of mandatory competency standards would help Australia maintain its environmental reputation as a producer of clean and green agricultural products and would help protect Australia's exports of agricultural produce.

## **How competency standards and training can help**

Research suggests that a number of the problems of pesticide misuse described above could be mitigated if pesticide users become suitably competent in pesticide use. There are a number of ways of achieving competencies, of which formal training is one.

National surveys of farmers' attitudes on a range of environmental issues undertaken by the University of New England in 1991 and 2000 show there has been a significant increase in support among farmers for training related to chemical use (Reeve and Black 1993; Reeve 2001). The NSW figures from these surveys also show this increase in support.

**Table 2 Response of NSW farmers to the statement: 'The best way to reduce the misuse of agricultural chemicals is for there to be courses on safety that are compulsory before you can use a chemical.'**<sup>4</sup>

Survey year	Proportion of respondents (%)				
	Strongly agree	Mostly agree	Neutral or not sure	Mostly disagree	Strongly disagree
1991	12.9	36.7	14.9	27.5	8.0
2000	23.2	42.8	11.9	17.5	4.6

(CHISQ = 32.14, d.f. 4, p<0.000005)

The figures in the above table were derived from surveys of farmers listed in the Yellow Pages.

Another survey undertaken by the University of New England in 2000 used electoral rolls instead of the Yellow Pages. The electoral roll sample had relatively higher numbers of farmers with smaller properties, and the proportions concerned about farm chemicals tended to be somewhat higher than in the Yellow Pages sample. For this reason, the proportion in Table 2 who strongly or mostly agree in the year 2000 is probably slightly less than that among all farmers in NSW. The electoral roll sample is more representative of all farmers in non-metropolitan NSW. The proportion of farmers in the electoral roll sample strongly or mostly agreeing with the above statement was 75.6 %. The range of industries covered by the electoral roll survey includes beef, dairy, sheep meat, wool, goat fibres, pig, poultry, horse, cereals, rice, cotton, grain legumes, oil seeds, fodder, grapes, fruit, nuts, vegetables and forestry.

In relation to the agriculture industry, studies have shown that the achievement of a number of different objectives—such as encouraging safer workplaces, improving farm management and encouraging sustainable management of natural resources—have all been assisted through programs that incorporate education and training for farmers and farming communities.

In relation to occupational health and safety objectives, studies on the 'Managing Farm Safety' program undertaken through Farmsafe Australia showed that over 80% of farmers who attended training made changes to address the potential safety hazards identified (Day, Cassell & McGrath 1999). In relation to natural resource and farm management, a study of the Property Management Planning campaign showed that 79% of surveyed participants had changed one or more aspects of their management, resulting in immediate or long term economic, ecological or social benefits (AFFA 2000).

A survey of participants in the National Farm Chemical User Training Program in 1994 showed that 77% of participants had changed their practices for the better following the course. Of those, 53% had greatly improved safety measures and 19% had begun reading the label and/or keeping records (Sunderland 1994).

A separate evaluation of the Farm Chemical User Training Program in Western Australia showed that the majority of respondents (from courses between March 1993 and March 1995) reported they had learnt something new as a result of the training. This included safe application

<sup>4</sup> Figures supplied by Ian Reeve, Institute for Rural Futures, University of New England from Land and Water Australia Research Project UNE 37 – 'A national audit of changes in farmers' environmental attitudes since 1991'.

of farm chemicals (69%), safe transport (72%), safe mixing (66%) and safe disposal (62%). (Centre for Health Promotion Research 1995.)

Finally, a 1997 report on the NSW Farmcare course showed that, following the course, 75% of survey participants achieved an increase in their knowledge on the short and long-term health effects of exposure to farm chemicals (Cross 1997).

## Summary of the issue

It is evident from the above discussion that pesticide misuse can have a real impact on human health, the environment, agricultural production and trade. The problems that can arise from pesticide use are significant enough to warrant the development of cost-effective measures to minimise their potential impact.

As described above, training has been shown to bring about improvements in performance in a number of areas. While around 37,000<sup>5</sup> pesticide users have undertaken training voluntarily, it is estimated that at least 60,000 users (60%) have not undertaken any formal pesticide use training.

Research into the effectiveness of training in achieving program, policy or legislative outcomes indicates that appropriate training can have a positive influence in terms of building awareness and changing behaviour.

Reducing the potential impact of pesticide use may be achieved through pursuing a number of policy objectives including increasing the level of education and training about pesticide use.

It is therefore considered that there is a need to increase competency levels for pesticide users in NSW.

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<sup>5</sup> Estimate of 37,000 based on the number of people completing ChemCert and SMARTtrain courses over the last five years since 1996

## 5 Policy context

This section describes the policy context within which the issue of pesticide use competency lies in NSW.

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### Recent policy history

In May 1997, the NSW Government released the discussion paper *Improving Pesticide Management in NSW*. While the discussion paper did not specifically propose training to meet certain competencies, it set out principles for public comment and discussion of a number of factors influencing pesticide management in NSW.

The discussion paper outlined proposed changes to the *Pesticides Act 1978*, to:

- provide consistency with the national scheme for registering pesticides
- promote best practice approaches to pesticide management
- improve EPA enforcement tools
- allow key interest groups to contribute to the ongoing development of approaches to pesticide management through a statutory advisory committee.

The discussion paper was released for public comment from May to August 1997. Three thousand copies were distributed and 124 written submissions were received. Six public consultation meetings were held in Dubbo, Griffith, Gunnedah, Lismore, Penrith and Yass during July 1997 with over 320 participants in total. Consultation sessions were held with specific stakeholder groups including NSW Farmers' Association, the Total Environment Centre and the National Association for Crop Protection and Animal Health (AVCARE).

The majority of submissions and comments from the consultation workshops were supportive of the principles set out in the discussion paper and the need to update the legislation.

Following from the discussion paper, the Minister for the Environment requested that the NSW Parliament's Standing Committee on State Development carry out an inquiry into the use and management of pesticides in New South Wales.

In its majority report the Committee recommended that:

- training in the use and management of pesticides be compulsory for applicators who conduct application activities for professional purposes
- other commercial applicators undertake education and training regimes that correspond with user needs and toxicity of chemicals applied, and
- mechanisms could include pamphlets, video instruction or course attendance where appropriate and be funded by a levy on agricultural chemical sales.

In 1999, draft amendments to the *Pesticides Act 1978* were prepared. It was decided at that time that pesticide use training requirements would be more appropriately left to detailed regulations under the Act, which would allow for further detailed consultation. Regulations prescribing training requirements were foreshadowed in the Minister's second reading speech and in the Parliamentary debates on the new *Pesticides Act 1999*.

## The Pesticides Act 1999

The *Pesticides Act 1999* commenced on 1 July 2000, replacing the older *Pesticides Act 1978*. The *Pesticides Act 1999* (the 'Pesticides Act') aims to:

- promote the proper use of pesticides
- promote the protection of human health, the environment, property and trade by minimising risk and having regard to principles of ecologically sustainable development
- address concerns relating to potential adverse impacts of pesticide use on human health, property, trade and the environment
- remove duplication with the National Registration Scheme
- strengthen and modernise pesticide regulation
- provide greater consistency with other environmental legislation
- provide for community involvement in development and implementation of reforms.

In respect of competency standards and training, the Pesticides Act provides powers to require standards to be met or training to be carried out for a specific pesticide or classes of pesticides under a Pesticides Order (ss38-39), or more generally through regulations [s119(f) and (g)].

The Pesticides Act also makes provision for promotion of competency and training through Pesticides Codes of Practice (ss69-70).

The Pesticides Regulation 1995 currently prescribes qualification requirements for aerial pesticide applicators, specifically that pilots hold a pilot's licence with an agricultural rating and that they either hold a certificate of approval under the Spray Safe Accreditation Program run by the Aerial Agricultural Association of Australia or equivalent.

## Other legislation

Other legislation that affects the use of pesticides, and competency requirements associated with pesticide use, includes:

- Occupational Health and Safety (Hazardous Substances) Regulation 1996
- Occupational Health and Safety (Pest Control) Regulation 1988
- Occupational Health and Safety Regulation 2001.

## Existing competency requirements and training practices

### Workplaces using hazardous substances

The WorkCover NSW *Code of Practice for the Safe Use of Pesticides including Herbicides in Non-Agricultural Workplaces* (WorkCover NSW 1998a) and the *Code of Practice for the Safe Use and Storage of Chemicals (including Pesticides and Herbicides) in Agriculture* (WorkCover NSW 1998b) specify that workers must store, prepare and handle pesticides with due diligence and caution. A comparison of these codes of practice to the proposed Regulation reveals that Workcover NSW does not require a specific level of training or competency in regard to pesticide use. In other words, there is no conflict between existing Workcover NSW Regulations and the proposed Regulation.

## **People operating as pest controllers or fumigators**

Commercial pest control operators are required to be licensed by WorkCover NSW under the Occupational Health and Safety (Pest Control) Regulation 1988. Applicants for a pest control licence are required to undergo competency-based training to nationally agreed units of the National Pest Management Competency Standards. This can be done either through registered training organisations such as TAFE, which have developed pest control courses in accordance with the required competency units, or through evaluation in the workplace by a qualified assessor. There are currently 1,624 pest control operators licensed in NSW.

Fumigators must hold a permit under the Occupational Health and Safety (Pest Control) Amendment (Fumigators and Pesticides) Regulation 1997. As a precondition to receiving a permit, WorkCover NSW requires applicants to undergo both practical and theoretical examinations. There are currently 280 fumigators holding permits in NSW. Under the proposed Regulation, fumigators and pest controllers holding current permits will not be required to undertake any further training.

## **Aerial applicators of pesticides**

As described above, aerial pesticide applicators must sit and pass an examination for accreditation under the Spray Safe program or equivalent before the EPA will grant a licence for aerial pesticide application. Under the proposed Regulation, aerial applicators holding a current licence will not be required to undertake any further training.

## **Primary producers**

Current workplace regulations do not require mandatory training for primary producers who use pesticides. It is estimated that up to 40% of primary producers have some formal recognition of competence in pesticide use (the majority obtained from either Farmcare or *ChemCert* courses).

Overall, competency levels appear to vary significantly between different industries within the agricultural sector, although detailed information about individual industries is difficult to obtain.



## 6 Objectives

The overall objective of the proposed Regulation is to ensure that commercial users of pesticides have competencies that:

- 1 Reduce the human health and environmental impacts** of the use of pesticides through improved understanding of the potential negative impacts of pesticides and the means of mitigating these impacts.

This contribution can be made by developing competencies that enable the user to avoid cases of acute or chronic human chemical poisoning or environmental impacts from pesticide use.

- 2 Reduce current risks or avoid future risks to agricultural trade.**

This contribution can be made by providing pesticide users in agriculture with a greater understanding of how their pesticide use may have consequences for trade. For example, through increased understanding of the importance of the pesticide label, producers may avoid using inappropriate chemicals on their crops or avoid failing to adhere to harvest withholding periods.

- 3 Assist in achieving the objectives of the *Pesticides Act 1999*.**

This contribution can be made by helping users to improve their chemical use practices and allowing for better understanding of use practices and patterns, which will help to achieve the general health and environmental objectives<sup>6</sup> of the Pesticides Act.

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<sup>6</sup> The objectives of the *Pesticides Act 1999* are set out in section 5 of this RIS.

## 7 Proposed competency levels

In general terms, achieving the objectives for competency in pesticide use requires considering:

- who should achieve competence in pesticide use?
- what level of competence is desired?
- how quickly should this level be achieved?
- what steps should be taken to maintain or update competency levels?

The types of competencies or skills considered necessary to meet the requirements of the *Pesticides Act 1999* regarding the safe use of pesticides include:

- choosing appropriate chemicals for the job (or alternatives to pesticides)
- interpreting the label directions so that appropriate mixtures can be made up at the correct rate for the pest targeted for treatment
- applying the appropriate withholding period for that chemical
- demonstrating ability to look after and calibrate pesticide application equipment
- storing pesticides correctly
- knowing what to do if a pesticide is spilt or if a container leaks, and
- demonstrating understanding of how to apply pesticides so that spray drift beyond the target area is avoided.

These points are discussed in more detail below.

### Who should achieve competence in pesticide use?

The proposal is that all commercial users of pesticides, including farmers, landlords, public authorities, greenkeepers, landscapers, foresters, horticulturalists or those applying pesticides in aquaculture or plant nurseries should have appropriate training in the use of pesticides.

The proposed Regulation does not require the demonstration of competency in pesticide use by licensed Pest Control Operators or fumigators, or by pesticide users in possession of a pilot (pesticides rating) licence. These groups of pesticide users are already required to undertake training under their respective licence regimes.

The proposed Regulation does not apply to non-commercial pesticide applications by domestic users, home gardeners or hobby farmers who do not sell their produce. The Pesticides Implementation Committee, established under the *Pesticides Act 1999* (the 'Pesticides Act'), specifically requested that the EPA invite comment on whether it is appropriate that these groups **should not** require training under the proposed Regulation.

The requirements to demonstrate competency outlined in the proposed Regulation apply to:

- anyone, whether they are an employee, contractor or principal, who is using pesticides as part of a business, educational institution or hospital
- the use of a pesticide in connection with any agricultural, horticultural, forestry or farming operation, including aquaculture
- the use of pesticides for, or on behalf of, a public authority
- the use of pesticides on a golf course or bowling green, and

- anyone using pesticides when acting as, or on behalf of, a landlord of any premises.

An exemption is provided for pesticide use of a minor, domestic type nature as defined in part 7A(3) of the proposed Regulation.

## What level of competence should be achieved?

Commercial pesticide users should, as a minimum, be competent to use pesticides in a way that meets the broad objectives of the Pesticides Act. Specifically, users should be competent to successfully consider and act on the following:

- the nature of the pest problem and the available chemical and non-chemical control methods
- the legislative framework for pesticide use
- occupational health and safety issues
- the most suitable application method and details about how the application should be made, and
- possible impacts on adjacent crops, people and environments, and means of mitigating these impacts.

The intention is that all commercial pesticide users will have sufficient competency to be able to make informed and responsible choices in their use of pesticides. However it should be recognised that the mandated requirements represent a **minimum** level of competence. The National Registration Authority currently requires basic training for several types of pesticide applications and may require higher levels of training for certain pesticides in certain use situations.

## How can increased levels of competence be achieved?

Raising the level of competence in pesticide users can be done by a number of methods. These include on-the-job training, completing a relevant training course or individual study.

The proposed Regulation will establish performance-based outcomes for demonstrating specific competencies. The means of attaining the required level of competence will not be dictated. This will provide a flexible system allowing users to choose the means of attaining competence they find most suitable for their circumstances. For example, competencies could be met by attending a relevant course or by users demonstrating to an accredited assessor that they already have the necessary skills and expertise (commonly known as ‘recognised prior learning’).

However, documentary evidence that a suitable level of competence has been attained will be required. This will mean all commercial pesticide users will need to be assessed by an appropriate training provider to determine whether or not they are competent in the required areas.

## When should this level of competence be reached?

The proposal is that all pesticide users who are required to demonstrate competence should be able to do so within two years of the commencement of the proposed Regulation.

Representatives of the two major relevant training providers, *ChemCert* NSW and TAFE NSW (in association with NSW Agriculture), have indicated that this provides adequate time to arrange additional training courses. Pesticide users with a recognised qualification will have that qualification recognised as valid for a period of five years from the date of issue.

This time frame provides a balance between the need to improve the competency of pesticide users as quickly as possible, in order to expedite the improvement in pesticide use, and the need to give individual users time to undertake training and demonstrate competence. It also allows training providers to upgrade their training material and capacity if necessary, and to undertake the additional training and assessment.

## **What steps should be taken to maintain this level of competence?**

Given that there are significant changes and developments over time in:

- the number of pesticides available
- application technology
- community expectations regarding pesticide management, and
- pesticide legislation

it is considered essential that users undergo periodic assessment of their competence.

If pesticide users are not periodically reassessed or retrained there is a risk that some users may develop poor practice or remain unaware of new techniques to manage pests. The existing *ChemCert* and *SMARTtrain* courses have a provision for a refresher course every five years.

A period of five years between training reassessment is suggested in this proposal as a reasonable time period for the updating of skills and knowledge. This is considered to provide an appropriate balance whereby pesticide users are asked to demonstrate their competence periodically without imposing an overly onerous requirement.

The proposed Regulation does not require full training every five years—merely that the prescribed qualification is renewed at least once every five years. How this is done would be up to individuals and their registered training provider to determine, but could range from a short half day reassessment of competencies through to full retraining. The training providers maintain a database of participants who have completed training. Reminder letters could be sent to participants advising them of the need to renew their qualifications several months before the five-year expiry date.

Attached to the proposed Regulation are the Units of Competency (see Appendix 4). Users will need to demonstrate they have successfully attained these Units in order to be recognised as ‘trained’ under the Regulation. The eight Units of Competency have been chosen from the National Agriculture Training Package and the National Horticulture Training Package, in consultation with the Pesticides Implementation Committee and relevant training providers and industry training advisory bodies, on the basis of their relevance to meeting the objectives of the Pesticides Act.

The EPA recognises that the Units of Competency are regularly reviewed under the National Training Framework. If the Units of Competency that are attached to the proposed Regulation change as a result of these broader review processes, the EPA will consult with the Pesticides Implementation Committee (during its term), training providers, relevant industry training advisory bodies and other relevant stakeholders prior to gazetting any changes.

## 8 Other methods of achieving objectives

This section describes three approaches that could be used to achieve the proposed objective:

- Option 1 ('Do nothing' also known as the base case) is an approach principally based around voluntary achievement of competencies
  - Option 2 (Licensing) would require the EPA to establish compulsory licence conditions for all commercial pesticides users, while
  - Option 3 (the proposed Regulation) would set competency standards and make their achievement mandatory before pesticides could be used commercially.
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### A Do nothing (base case)

The base case is the situation that would occur if no action were taken. In this case, the base case means that no additional regulations, education or guidance material would be provided to improve pesticide use competency or set minimum competency standards.

The 'do nothing' option does not mean that nothing would be done, but means that no additional action would be taken beyond the current licensing requirements for some groups of commercial pesticide users, education and guidance provided by industry, NSW Agriculture and WorkCover NSW via its codes of practice, and requirements of industry quality assurance programs arising from market pressure.

Around 37,000 people in NSW have voluntarily undertaken formal pesticide use training programs since 1992. Examination of numbers trained each year since 1992 suggests that numbers reached a plateau in 1996 and have fluctuated around an average of 6,000 per year since then. In the absence of any new initiatives or any discernible trend, it is assumed that, under the base case, 6,000 people would continue to receive training each year. Although the turnover of people entering and leaving the industry is unknown, a proportion of those trained would be new people entering the industry, and a proportion leaving the industry would be people who have been previously trained.

On current costs of \$180–\$220 per course, plus an allowance of two days of time at \$200 per day, this means that under the base case there would be voluntary expenditure of between \$3.48 million and \$3.72 million per year on pesticide use training.

The negative impacts described previously would continue to occur because a substantial proportion of commercial pesticide users would not develop the competencies proposed to reduce risks. These impacts include:

- incidences of human chemical poisonings for workers in agriculture
- community concerns about potential health impacts
- production losses (e.g. crop damage) on-farm
- impacts on native flora and fauna, including aquatic life, and
- produce or food residue level violations and consequent trade impacts.

Adopting a ‘do nothing’ approach would result in the risk that the majority of pesticide users would never be fully trained. It could conservatively take over 10 years<sup>7</sup> to train all potential pesticide users if relying on voluntary training measures and assuming that the numbers of people needing training remains static. This represents an unacceptable risk to the environment and would not meet the objectives of the Pesticides Act.

## **B Licensing**

The option of licensing could provide a means of closely regulating pesticide use.

### **How could licensing work?**

Under a licensing system commercial pesticide users would be granted permission to apply pesticides provided they hold a licence. Licensees would need to meet specified competencies under the National Training Framework. Applicants would need to demonstrate they have attained the required level of competency by submitting a copy of the appropriate certificate or Statement of Attainment in pesticide use.

Standard licence conditions could apply to all users and would relate to competency attainment. They could include the need to keep records of pesticide use as suggested under the proposed Pesticides Amendment (Records) Regulation. Individual licence conditions would not normally be prescribed, however in sensitive environmental areas, special conditions could be set to ensure extra precautions are taken.

Another sub-option that may be considered is for training to be required of certain groups of pesticide users, not via a generic regulation but via a targeted licensing regime. In this context, in finalising the Pesticides Act, many stakeholders indicated some support for compulsory licensing of ground rig pesticide applicators. This support was based on the view that licensing would bring particular record keeping and training benefits.

This sub-option could be implemented by exempting commercial or contractor ground rig operators (operators who charge clients to ground apply pesticides) from the requirements of the generic regulation, and instead requiring these operators to be licensed. One condition of such a licence would be for operators to be trained. Extending licensing to ground rig operators would require amendment to the Pesticides Act, as it is beyond the scope of the Act’s regulation making powers.

Such an approach could reduce the potential for competitive advantage to flow to ground rig operators in competing for pesticide application business with aerial applicators (aerial applicators are currently licensed). It could also create an advantage for unlicensed operators (such as a farmer helping a neighbour) that otherwise would not exist. That is, targeted licensing of ground rig operators may not create the ‘level playing field’ sought by some stakeholders. Targeting also raises issues of how to best define the target group. Should all ground rig operators be licensed, including farmers who may normally use ground rigs on their own land but occasionally use the equipment on a neighbour’s property? Or, should ‘farmer’ operators be excluded? If included, this may cover a relatively high proportion of total users, thus not offering substantial savings while adding significantly to the complexity of the scheme. If excluded, how could such an exclusion be defined and made to work? What benefits would flow from such a distinction and what risks?

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<sup>7</sup> Assuming that on average 6,000 people continue to undertake voluntary training and that around 60,000 people require first-time pesticide training. This estimate is uncertain, as the number of people entering the industry without training is unknown and a core of people may never seek training under voluntary measures.

It is not apparent that the benefits that could arise from using a licensing approach to require ground rig operators be trained would override the costs associated with implementing, administering and complying with a licensing regime. There is a further risk that adopting different methods for different categories of users to achieve the same outcome (training) could cause confusion and lead to problems with compliance.

## Cost of licensing

Establishing and implementing a licensing system for pesticide users would require considerable resources. The following costs would need to be considered:

- Administration by the EPA would require establishing a database of all pesticide users across the State, and recording relevant details such as address, type of pesticide regularly used and competency level achieved. Assuming that there are approximately 100,000 potential pesticide users across NSW, the EPA would need to allocate approximately 20 administration staff<sup>8</sup> to process and issue licences during the first year. This equates to an annual salary cost of \$1.1 million<sup>9</sup>. Ongoing salary to maintain administrative functions is estimated for 5 staff at \$280,000 pa (including on-costs). Information Technology staff would also be required to establish and maintain the database. This is estimated to cost around \$61,000 in establishment costs for the first years, plus \$20,000 in ongoing database management costs. Computer equipment, printers and other appliances required for processing and issuing licences is estimated at approximately \$100,000 pa.
- Administration by applicants would require each pesticide user to complete an application form noting relevant details and forward this with a copy of their training certificate. Conservatively assuming this takes around 1 hour, the opportunity cost of time would be valued at around \$25/hour (see Appendix 2 for derivation of this value). Added to this is the cost of postage and stationery taking the total cost to the applicant of \$30.
- Enforcement of the licensing system by the EPA could be via incident investigation and audits. Based on targeted audit programs, the additional cost to the EPA over and above current enforcement expenditure<sup>10</sup> is likely to be around \$11,000 pa.
- Compliance with standard licence conditions would require each pesticide user to complete the training in order to obtain the necessary competency levels. The annual training costs determined under the proposed Regulation would therefore apply to this licensing option. The annual cost of licensing has been assessed at between \$6.0 million and \$7.2 million pa (see alternative 3 'Proposed Amendment Regulation' for further details on derivation of this cost).

Adding these costs over the first year gives a total cost of over \$11 million with ongoing costs in subsequent years of around \$7.6 million. Over a five-year period the present value of adopting a licensing regime for pesticide users would be equivalent to a cost of around \$35 million (discounting future costs at a rate of 7% pa).

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<sup>8</sup> This estimate is based on comparable ratio of admin. staff to total licences for licensing dangerous goods vehicles and drivers. The staff estimate assumes that it takes on average 20 minutes to process and issue each licence.

<sup>9</sup> Estimated by average salary of EPO 4 officer @ \$43,000 pa plus 30% on-costs.

<sup>10</sup> The EPA currently spends around \$2 million on all pesticide-related activities, including enforcement, prosecutions, audits, education, consultation, policy development and administration. Of this total figure around 80% (\$1.6 million) could be reasonably considered to be directly related to enforcement activities, principally comprised of pesticide inspector salaries, scientific analysis, operational support and managerial and administrative support.

## Benefits of licensing

Under a licensing regime, pesticide users could be required to achieve the required competency standards more quickly than under a voluntary system of training. A licence would enable the commercial pesticide user to apply pesticides with an understanding of best practice and legislative requirements. Applications of pesticides without a licence by commercial users would be an offence.

Licensing would enable the EPA to apply individual licence conditions if special circumstances required (such as in environmentally sensitive areas). A licensing system would enable the EPA to readily and directly contact commercial pesticide users in order to provide new information or advise of education courses or changes in management practices.

## Assessment of costs and benefits

At present 1,624 urban pest controllers and 280 fumigators are licensed by Workcover NSW, while 325 aerial applicators are licensed by the EPA. If the EPA were to extend licensing requirements to all people who commercially apply pesticides, then up to 100,000 licences may need to be issued to individual pesticide applicators (see Appendix 1 for breakdown of stakeholder groups). To licence all pesticide applicators would therefore represent a large increase in total licensing administration for the EPA and consequent pressures on resourcing.

Comparing the costs and benefits of a licensing regime as compared to a generic training regulation yields the following points:

- Licensing would be more costly than a training regulation due to administration and compliance costs. It is likely to impose additional administrative costs without delivering commensurate additional environmental benefits. Total costs for licensing are estimated at approximately \$35 million over the next five years.
- If standard licensing conditions were to change, each licence would need to be reissued at considerable cost to the EPA. Under the proposed generic regulatory approach, there is more flexibility if competency standards were to change.
- Although a licensing system enables the EPA to closely monitor and readily contact pesticide users directly, improving competency standards can be achieved at a lower cost via generic regulation.
- A generic regulation as proposed may provide greater opportunities for effective enforcement. Under a regulation, enforcement resources can be targeted to sensitive areas or known offenders using resources not required for processing licensing paperwork.
- If a partial licensing approach were adopted then establishing licence conditions for one industry sector, while others were under a generic regulation, could lead to inconsistencies and over-regulation of some groups.
- Licensing provides information on names and addresses in addition to the competency requirements (required by regulation or licensing). There are other ways of effectively contacting these pesticide users, for example, by way of farming industry newsletters, trade magazines, or lists of ratepayers from Rural Land Protection Boards. The proposed Pesticide Amendment (Records) Regulation 2000 will also require records be kept by land owners/occupiers which will include name and contact details of pesticide users.
- Concerns are frequently raised that without licensing, users will avoid training, risking non-compliance on the basis that they will not be caught. While this is a significant risk it would be similar under the proposed Regulation or licensing.



- In summary, licensing all commercial pesticide users is likely to cost pesticide users, the EPA and the community more without being any more effective in meeting the objectives of the Pesticides Act.

Given the significant up-front resource requirements, potential problems and inflexibility with licensing, this option is not considered viable and consequently has not been assessed further as part of this regulatory impact analysis.

## C Proposed amendment Regulation

The proposed Regulation would set competency standards for the use of pesticides and would require people who apply pesticides commercially to be able to demonstrate their ability to meet those standards before pesticides could be used.

The proposed Regulation includes transitional provisions that will recognise training undertaken with *ChemCert*, Farmcare and SMARTtrain programs before the commencement of the proposed Regulation as adequate for complying with the proposed Regulation. This recognition will last for five years from the time the training was successfully completed. The required competency standards would generally be in line with Australian Qualification Framework Level 3 for the National Agricultural and Horticultural Training Packages. The National Training Framework is summarised in Appendix 3.

It is likely that compliance with the proposed Regulation would be promoted using a mix of information and education about requirements, and would be enforced during incident responses and through routine inspections and industry compliance audits carried out by the EPA.

The proposed Regulation defines the people who would be required to demonstrate competence before applying pesticides. They are people using pesticides:

- a) in the course of acting as, or on behalf of, the landlord of any premises
- b) in the course of acting for, or on behalf of, a public authority
- c) in the course of carrying out pest control operations on a golf course, sporting field or bowling green
- d) in connection with any agricultural operations (including farming, horticultural or aquacultural) or forestry, or
- e) in the course of carrying on, or working in, a business, educational institution or hospital (whether as principal, contractor or employee, and regardless of whether, in the case of a business, the use of pesticides is a purpose of the business concerned).

Demonstrating competence would not be required for use of pesticides in any public baths, swimming pool, or spa. Further, a person would not require pesticide training if they:

- hold a licence under the Pesticides Act, or
- holds a relevant certificate of competency or qualification under the Occupational Health and Safety Regulation 2001, or
- is a trainee who holds a certificate of competency or recognised qualification in relation to use of pesticides under the Occupational Health and Safety Regulation 2001, or
- holds a former authority under the Occupational Health and Safety (Pest Control) Regulation 1988.

A demonstration of competence would not be required for use of a pesticide that:

- is ordinarily used for domestic purposes (including home gardening), and

- is widely available to the general public at retail outlets (for example, at supermarkets), and
- is applied by hand or a hand-held applicator, and
- is being applied in a quantity that
  - for outside use, is appropriate for outside domestic purposes (so long as it does not exceed 20 litres or 20 kilograms of ‘ready-to-use’ product or 5 litres or 5 kilograms of concentrated product), or
  - for inside use, is appropriate for inside domestic purposes (so long as it does not exceed 5 litres or 5 kilograms of ‘ready-to-use’ product or 1 litre or 1 kilogram of concentrated product).

Concentrated products, referred to above, may be diluted to larger volumes if this is in accordance with the directions on the specific product label.

The proposed Regulation also includes provisions for offences and enforcement options, including Penalty Notice offences for failing to have the appropriate qualification and employing someone without the appropriate qualifications.

The expected outcome of the proposed Regulation is that it would rapidly raise the level of training relative to the base case, to near 100% within two years. Achieving this high level of compliance will require that pesticide users understand and accept the value of mandatory training, and that training costs are not excessive.

## 9 Impact analysis

This section sets out the impacts, costs and benefits of the proposed Regulation with reference to the 'do nothing' option. The costs and benefits are therefore calculated by reference to the base case, which is the outcome that will occur if the 'do nothing' option is taken.

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### Impacts

The proposed Regulation would require that around 63% of pesticide users<sup>11</sup> would have to undertake training and/or demonstrate their competence for the first time.

Appendix 1 indicates the number of pesticide users, within each affected group, who will potentially need to demonstrate competence. From Appendix 1, it can be seen that the estimated total number is made up of approximately 85% of users in the farming category, 1% relating to public authorities and 14% for the remaining categories. Groups for whom training is already a legal requirement are excluded from this list. This estimate is subject to some uncertainty, as described later (under 'Uncertainties').

The EPA would be required to provide education and guidance about the proposed Regulation, and will include a training component in future audits and routine investigations.

### Costs

#### Costs to industry

The resource costs to industry fall into two basic categories:

- 1 costs to training organisations to develop and run courses
- 2 costs to pesticide users to attend training.

#### Costs to training organisations to develop and run courses

There are currently two dedicated training courses available in NSW, the *ChemCert* Farm Chemical User Course and the SMARTtrain course. Discussions with the providers of these courses suggests that the courses would need little change to meet the proposed requirements. Both *ChemCert* and SMARTtrain have specifically designed their future training courses to deliver the key requirements of the proposed Regulation and provide courses compliant with the National Training Framework. To the extent that changes are required as a result of the proposed Regulation, rather than as a result of internal review, then the cost of making those changes is estimated at between \$10,000 to \$50,000 for both training providers. Both the major training providers, *ChemCert* and SMARTtrain, expect to see an increase in the number of trainers across the State to make courses available to all commercial pesticide users.

The training courses offered by the training providers generally comprise half, one and two-day courses. *ChemCert* and SMARTtrain have both indicated that they are able to make courses

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<sup>11</sup> This is based on assumption of around 37,000 existing pesticide users currently holding some form of competency out of the estimated 100,000 users.

available throughout regional NSW. Providers have suggested that courses can be conducted on farms, in sheds and in the workplace. However, the most significant challenge is the amount of free time that pesticides users are able to devote to training.

## **Costs to pesticide users to attend training**

Discussions with course providers reveal a range of recommended course costs that registered training organisations may wish to charge to recover their costs. Training providers generally structure courses into three course types:

- full two-day course
- one-day refresher
- half-day (3 hour) assessment.

The estimated cost of providing a full two-day training course is between \$180 and \$220 per person. It is estimated that up to 60,000 people would require this type of training during the first two years of the commencement of the proposed Regulation. The current training organisations have capacity to train 30,000 people over that period. However, it is expected that there would be an increase in the capacity of the existing organisations, that would be sufficient to train all potential 60,000 pesticide users as well as some increase in the number of registered training organisations providing training programs. Additional resources would also be required to provide training to pesticide users from non-English speaking backgrounds (NESB).

Assuming the course attendees (for the two-day course) divide evenly between the first two years, and that 12,000 people would have undertaken training anyway (under the base case scenario of 6,000 people pa), then the incremental costs of providing two-day courses is between \$4.8 million and \$5.4 million per year (over the first two years only).

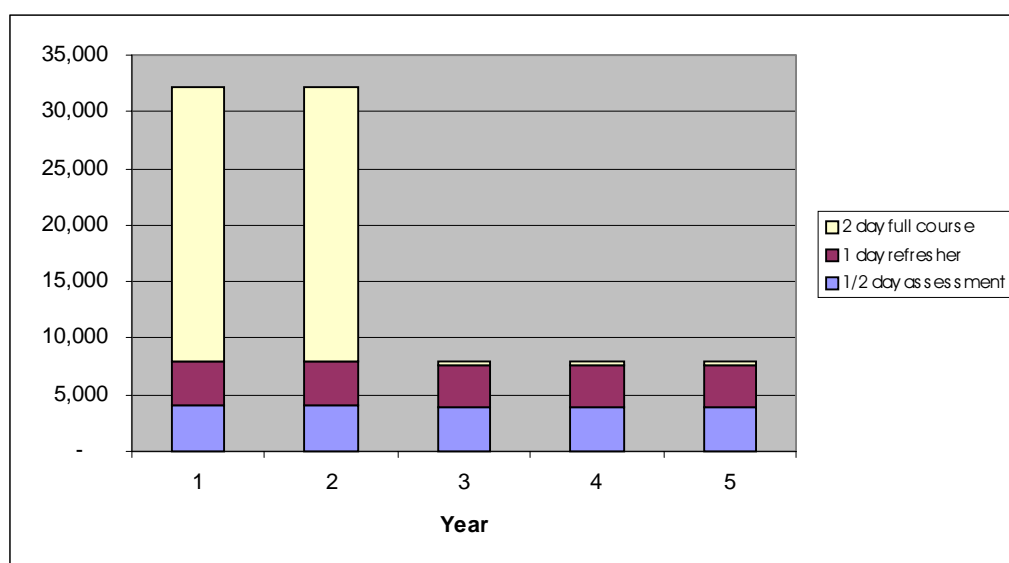
One-day refresher course costs are estimated at around \$100 to \$130 per person and assessment-only costs are estimated at \$70 to \$100 per person. Over the third to fifth years after commencement of the proposed Regulation, it is expected that around 40,000 people would require assessments or refresher courses to achieve re-certification at pesticide use competency levels.

The Chart 1, below, shows all existing industry participants needing two-day training are included in the first two years. This has the effect of increasing the costs of training more in the early years, as training providers will need to gear up for training larger numbers. It is assumed that those leaving the industry (over the next five years) will balance new entrants into the industry. It is estimated that new entrants into the industry coming from agricultural and horticultural college or via a career change could be around 1% to 2% pa. For the purposes of this assessment it is conservatively assumed that up to 5% of new industry entrants (i.e. new trainees) will require the full two-day training between years 3 to 5. Chart 1 below shows these assumptions graphically.

The course providers believe there is sufficient capacity among registered training organisations to meet this level of demand. For the purpose of this analysis, it is assumed that 50% of people re-certifying choose to do so by assessment only, and 50% choose to take a refresher course. The costs to training providers is therefore estimated at between \$0.4 million and \$0.5 million per year for the one-day refresher courses and between \$0.3 million and \$0.4 million per year for the half-day assessments.

Discounting costs that occur over the next five years, and using a discount rate of 7%, the total present cost to training organisations for providing all three types of courses is estimated at between \$10 million and \$13 million.

**Chart 1 Assumptions on number of people requiring training over next five years**



Attendance at training and assessments represents an investment of time by participants, and as such carries an opportunity cost (the value of alternate uses to which that time could be put). There will also be a direct cost of travel to training locations, and potentially the cost of accommodation if attendance requires an overnight stay.

It is difficult to estimate the value to participants of time dedicated to training and assessments. This is examined in Appendix 2, where it is estimated that the value of time, based on average labour productivity in Australia, is around \$25/hour. [This is a conservative assumption when compared with the average hourly earnings of around \$13/hour for employees in the agriculture, forestry and fishing sector (ABS 2000a)].

Advice from course providers is that registered training organisations providing training and assessment courses are widespread throughout NSW. For the purpose of estimating costs to attend, the following assumptions are made:

- Average travel time for participants is 1 hour in each direction, incurring a time cost of \$50 in total and travel costs of \$50 (low) to \$100 (high). However, it is further assumed that some participants will use the trip to take care of other business as well, so avoiding a separate trip at a later date. On this basis, costs attributable to the proposed Regulation are halved.
- Two-day courses are run with several days in between each course day, and no overnight accommodation is required by participants.
- Each day of a one and two-day course is 7 hours long.
- Assessments are 3.5 hours long.

Taking these assumptions and applying the estimated costs of travel and opportunity costs produces the following results.

**Table 3 Costs of attending courses**

	<b>Annual cost to participants</b>	<b>Present value of costs over 5 years</b>
2-day course	\$4.8 m – \$5.4 m	\$8.9 m – \$10.0 m
1-day course	\$0.8m – \$0.9 m	\$3.2m – \$3.6m
½-day assessment	\$0.4m – \$0.5m	\$1.8 m – \$2.2 m

Note: Annual costs are higher in the first two years due to a larger number of people undertaking the full two-day training course.

### **Costs to Government**

The EPA is committed to working with pesticide users to improve use practices so that risks to people, property, trade and the environment can be reduced. The proposed Regulation will play a significant part in this process. Accordingly the EPA intends to strongly enforce the Regulation. This enforcement will cover a range of related actions that includes:

- education
- preparing and distributing guidance materials
- auditing user practices
- investigating complaints and incidents
- using warnings and issuing Penalty Notices/fines or prosecutions where these are warranted, in accordance with the EPA's Prosecution Guidelines
- ongoing policy assessment and review of the effectiveness of the proposed Regulation in achieving the objectives of the Pesticides Act.

It should be noted that mandatory requirements are not proposed to commence until 2004 (two years from the proposed gazettal of the Regulation), to allow time for users to become trained.

The EPA currently spends around \$2 million (2000/01) on all pesticide-related activities. Of this total figure around 80% (\$1.6 million) could be reasonably considered to be directly related to enforcement activities, principally comprised of pesticide inspector salaries, scientific analysis, operational support and managerial and administrative support. The implementation of the proposed Regulation is only likely to add a small marginal cost to existing EPA pesticide management activities.

The principal costs to Government would be the costs of advising people about the new requirements of the proposed Regulation during the implementation phase, and carrying out audits of compliance with the proposed Regulation.

Communication costs for the proposed Regulation include printing, media advertising, mail-outs and presentations to stakeholder groups. Most of these costs would occur in the first two years of the proposed Regulation becoming operational.

Compliance with the proposed Regulation would be checked through routine inspections and investigations, and also through periodic audits. The costs of audits have already been fully ascribed to the proposed Pesticides Amendment (Records) Regulation, and were calculated as \$24,000<sup>12</sup> per year. Adding an additional line item for auditing competency standards is assumed to have a negligible impact on time and cost. The Pesticide Inspector would simply need to sight the certificate (Statement of Attainment) in pesticide training and verify it is still

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<sup>12</sup> This estimate represents the additional cost over and above current expenditure on pesticide enforcement activity as a result of introducing the proposed Record Keeping Regulation.

current. In the event that the proposed Records Regulation was not made, the audits would still proceed and the costs of those could instead be ascribed to this proposed Regulation. This auditing cost represents the extra cost of around 1.5% of existing enforcement activities undertaken by the EPA.

As initial communication costs, investigations and audits occur in different years, their costs can only be compared by changing them into present day values. This is done by discounting future costs by 7% for each year they occur. With discounting, the present value of implementation costs over five years is estimated at \$134,000. In annualised terms, this is \$33,000 per year.

## **Total costs**

The total costs of the proposed Regulation, taking into account the additional costs to training organisations, participants and government, are estimated at between \$25 million and \$29 million<sup>13</sup> over the next five years. On an annualised basis the discounted incremental cost of the proposed Regulation is estimated at between \$6.0 million and \$7.2 million pa.

## **Benefits**

### **Reduced risk of trade impacts**

Increasing the competency of commercial and government operators should help to reduce the risk of pesticide contamination in agricultural production and thereby reduce the likelihood of impacts on export trade and domestic consumers. Improved competency may also help maintain the profile and quality of Australian exports in the minds of overseas markets. Consumers are easily scared away from purchasing imports that may contain any trace of contamination.

For example, recent incidents of contamination of exported meat products have been shown to have an immediate and dramatic reduction on the level of exports. Concern over a possible link between the so-called 'mad cow' disease (bovine spongiform encephalopathy, BSE) in the UK and the human disease variant Creutzfeldt-Jakob Disease (vCJD) led to a significant loss in consumer confidence in beef throughout much of Europe. In March 1996 the European Union introduced a ban on the export of any UK beef and beef products. This has had a very serious impact on the entire European beef sector and has resulted in financial hardship for European farmers and for those engaged in related businesses.

Similarly, recent outbreaks of foot and mouth disease in the UK have led to extensive quarantine procedures around the world and a significant loss of meat exports for the UK. Although these diseases are not attributed to pesticide use, the dramatic international market reaction to breaches of quality control is of serious concern if Australia were to experience contamination incidents.

### **Reduced risk of lowered agricultural production value**

Pesticide misuse can lower the value of agricultural production in two ways:

The first is where a residue violation occurs. If pesticide training can increase competency to the point where agricultural produce is not rejected at the processing or storage site, this provides a benefit to the individual business of avoiding the cost of having that produce condemned.

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<sup>13</sup> These figures represent the present value of costs over the next five years discounted at 7% pa.

The second is where problems occur with diseases or blemishes on crops. Over-use or under-use of pesticides may cause these problems. NSW Agriculture advises that its staff are often called on to determine why crops are damaged. It is sometimes difficult to determine whether the pesticide application has caused the problem, or whether a biological agent is responsible and pesticide use has been ineffective. Operational training can help prevent these problems by helping businesses to identify the appropriate pesticide product or strength required for effective pest control. The values of these benefits could not be quantified for this analysis.

The potential economic damage from pesticide contamination could be significant given the substantial value of agricultural production in NSW. Conversely, preventing contamination incidents before they occur, through improved pesticide training, could result in significant cost savings. For example, assuming that training could help prevent a potential contamination event of just 0.1% of NSW production of livestock slaughtering valued at \$1.8 billion pa, then the potential cost saving is at least \$18 million pa. Viewed in this light, pesticide user training provides a cost-effective form of insurance for agricultural production.

Contamination does not only affect the individual production of the contaminated produce but can also affect the whole industry through consumer reactions to reports of contamination. Such impacts are difficult to quantify.

### **Reduced incidence of health effects from pesticide use**

One of the major concerns regarding pesticide use is its potential for adverse impacts on human health and the environment.

Pesticides have been linked with a number of medical conditions. Relatively minor conditions include headaches, dizziness, nausea, rashes and itching. More seriously, pesticides have also caused burns, gastro-intestinal, respiratory and neurological problems, skin diseases, blindness and death from acute poisoning. It is also possible that pesticide exposure may be linked to conditions such as reproductive disorders and cancers.

There is less information on the health impacts of broader environmental (rather than occupational) exposure to pesticides. However, health surveys undertaken at Gunnedah in 1996 in response to community concern about pesticide use led to the conclusion that a number of health problems appeared to have been triggered or aggravated in susceptible people by exposure to pesticides or their odour. Symptoms of rhinitis, asthma and headaches were assessed as having a probable or uncertain relationship to cotton pesticides in Gunnedah (Fragar et al. 1996).

As described earlier, there are on average 0–2 deaths from chemicals on NSW farms each year, and an average of 28 non-fatal chemical accidents requiring 12.3 weeks off work each year per incident.

### **Reduced incidence of environmental impacts from pesticide use**

As described in Section 2, pesticides can have adverse effects on the environment beyond those intended in the control of target pests. Inappropriate pesticide use has been linked to contamination events and extensive fish and bird kills. The primary environmental benefits from pesticide training are expected to include reduced acute and chronic toxicity to both aquatic and terrestrial ecosystems, such as impacts on the food chain for aquatic ecosystems and avifauna.



## Uncertainties

The major uncertainties of this impact analysis include:

- current level of competency in pesticide use
- number of people requiring training, and
- future training costs.

### Current level of competency in pesticide use

The current level of competency was estimated through discussions with training providers and individual stakeholder groups. It was found, not surprisingly, that the agricultural industry was the single largest user of pesticides, followed by plant nurseries, landscape gardeners, golf courses and bowling clubs. The ABS estimates there are 84,698 people employed (employees, proprietors and partnerships) in agricultural establishments with an estimated annual value of agricultural operations (EVAO) over \$22,500<sup>14</sup>. The above analysis has adopted a conservative approach and assumed that **all** employees in the agricultural industry use pesticides and will therefore require training under the proposed Regulation. Voluntary training has been estimated at a rate of around 6,000 people pa and a significant proportion of this figure would be agricultural employees.

Without undertaking a broad scale survey of each stakeholder group, it is difficult to determine the existing level of competency with precision. However, based on information from training providers and stakeholder groups on existing pesticide users, it was estimated that on average around 63% of users will need first-time training. This leaves around 37% that have already obtained some form of competency with pesticide use but may need to undertake a refresher course or an assessment to update their skill base.

### Number of people requiring training

As noted above, this assessment has attempted to identify the full extent of commercial pesticide users across NSW. It was conservatively estimated that around 100,000 people may potentially apply pesticides on a commercial basis. However, the proposed Regulation may have an impact on the number of people that choose to apply pesticides. Some businesses may choose to rationalise the number of people applying pesticides to avoid the cost of training. For example, a golf course with a total of 10 greenkeepers all applying pesticides may currently have only 5 people qualified to use pesticides. Rather than send the remaining 5 greenkeepers to obtain pesticide training, the golf club may choose to maintain the competency of the 5 through refresher courses or assessment, leaving 5 other greenkeepers who would now not apply pesticides. In similar situations, employers may decide to restrict the number of employees applying pesticides to comply with the proposed Regulation.

### Future training costs

The preceding analysis has assumed a range of costs for running training courses based on advice from the major training providers. These costs are expected to be reasonably stable given that course content is currently being updated to reflect the competency requirements specified by the proposed Regulation and the National Training Framework. Although this regulation may prevent some training providers not accredited under the National Training Framework from entering the market, competition is likely to ensure there are always at least two providers.

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<sup>14</sup> ABS 2000.

## Assessment of costs and benefits

The 'do nothing' approach does not mean there would be no change to behaviour, but that the existing approach of industry quality assurance programs, preparation of educational material, commercial pesticide applicator licensing and WorkCover NSW Codes of Practice would continue. The 'do nothing' approach is therefore largely a mix of education and market pressure directed towards increasing and improving pesticide training on a voluntary basis. As described under the base case discussion, it is likely that voluntary training will continue to accrue at around 6,000 people per year. This was estimated to generate a voluntary expenditure of around \$3.5 million pa on pesticide use training. As such, taking no action is still likely to lead to an improvement in pesticide training and a consequent reduction in risks over the five-year period for which this analysis is conducted.

However, there would continue to be businesses that did not seek to update training or undertake any training at all in some cases. This would be a decision taken by the business operator that the costs of training outweighed whatever private benefits the business might gain from training. This decision could be based on a number of factors, such as an assessment of cost relative to business turnover, personal preference to maintain current approaches, belief that training is an unwarranted intrusion, doubt about the suggested benefits, concern about appropriate methods, or simply lack of understanding.

These businesses would therefore not obtain the private benefits of training in relation to pesticide use. However, in the event of a pesticide use problem arising, such as damage to neighbouring properties or environmental harm, it would be difficult for those businesses to prove they were not responsible, given the absence of pesticide training. Businesses that chose not to undertake appropriate training could impose uncompensated external costs on businesses that were complying with the proposed requirements.

It is therefore expected that the 'do nothing' approach would result in private costs and equivalent private benefits. However, in order to ensure that the social benefits are delivered, it is necessary to ensure that there is comprehensive industry-specific training. We consider that this is not possible under a voluntary approach. The base case therefore poses higher risks than the proposed Regulation of not meeting the objectives.

The annual cost of the proposed Regulation is between \$6.0 million to \$7.2 million a year more than the base case, derived by annualising the five-year present cost of the proposal. At an industry level, the proposed Regulation would impose a cost equivalent to about 0.085% (i.e. less than 0.1 of one percent) of the total annual value of agricultural output in NSW, which totalled \$7.7 billion in 1998/99 (ABS 2000). Alternatively, the proposed Regulation would impose a cost equivalent to 0.376% of the total value of agricultural exports from NSW being \$1.752 billion for 1999/2000 (ABS 2001).

For most agricultural businesses affected by the proposed requirements, and not already first-time trained, the proposed Regulation should result in new costs of between \$250 to \$400 per business over five years. However, given that training costs would be a business expense (or in the case of an individual employee a work-related expense), the costs of the course plus travel and accommodation would be likely to be tax deductible, thereby reducing the financial impact of the proposed Regulation.

Against these costs are the following benefits:

- reduced risk of export trade impacts or welfare impacts on domestic consumers of agricultural produce through better compliance with pesticide use
- reduced risk of loss of value of agricultural production that can result through rejection by processors or through contamination incidents, and

- reduced risk of harm to human health, property and the environment, resulting from improved compliance with the Pesticides Act through more effective enforcement and hence deterrence, thereby achieving objectives of the Act.

Quantifying these benefits is a difficult and complex task and has not been undertaken for this RIS due to a lack of relevant primary research data.

Benefits such as reduced risks to human health, environment and trade, are likely to be significantly more valuable but are also more difficult to quantify. These benefits are expected to occur because pesticide users will be more aware of application requirements and will have a better understanding of the environmental impacts of pesticide use. This is expected to lead to reduced risks of residue violations in produce, thereby reducing the risks of domestic consumers receiving contaminated produce and the risks of domestic and export trade impacts.

Health benefits are expected to include reduced risks of health effects and reduced risk of death. Environmental benefits are expected to include reduced acute and chronic toxicity to both aquatic and terrestrial ecosystems, such as impacts on the food chain for aquatic ecosystems and avifauna. In essence, the proposed Regulation provides a form of ‘insurance’ for the environment, human health, trade and production.

The *Subordinate Legislation Act 1989* provides that where costs and benefits of a proposal cannot be equally quantified, then the alternatives should be presented in such a way to facilitate comparison, and the alternative with the least net cost be chosen. For this RIS, the benefits of the proposed Regulation have been described qualitatively, while the costs have been quantified as far as possible. The proposed Regulation provides the least cost method of achieving the objectives of the Pesticides Act compared to doing nothing and licensing.

## **Assessment of the impact of uncertainties**

The greatest area of uncertainty is the number of people who require training over the next five years. Given that around 37% are already trained, the remainder could choose to:

- not apply pesticides
- employ someone else to apply pesticides
- undertake pesticides training, or
- apply pesticides unlawfully without training.

It is expected that there may be some rationalisation in the number of people applying pesticides as a result of the regulation although the extent cannot be known at this point. The preceding impact assessment has adopted a conservative approach by assuming that all potential users will undertake training, which maximises the cost of the proposed Regulation.

It is concluded that the uncertainties in the estimation do not alter the conclusion of the analysis, which is that the proposed Regulation provides the least cost result and should be made.

## National Competition Policy Assessment

The NSW Government has agreed that proposals for new legislation that restrict competition will be accompanied by evidence that the legislation is consistent with clause 5(1) of the 1995 Competition Principles Agreement. That clause states that:

*The guiding principle is that legislation (including Acts, enactments, Ordinances or Regulations) should not restrict competition unless it can be demonstrated that:*

- (a) the benefits of the restriction to the community as a whole outweigh the costs; and*
- (b) the objectives of the legislation can only be achieved by restricting competition.*

(NCC 1998)

The EPA has assessed the competition policy implications of the proposed Regulation using guidelines developed by the Centre for International Economics (CIE 1999). Evaluation under the guidelines involved:

- assessing and classifying the objectives of the proposed Regulation
- identifying and assessing the nature of restrictions to competition
- carrying out a benefit-cost analysis of the proposed Regulation, and
- assessing whether the objective of the proposed Regulation could be achieved by more efficient, pro-competitive means.

The objectives of the proposed Regulation and the Pesticides Act are set out in previous sections of this RIS, with the principal objective being to maximise the public benefits achievable from the demonstration of competence in the use of pesticides in connection with environmental, trade and health issues.

Potential competition restrictions under the proposed Regulation are:

- prevention of suppliers of pesticide application services (those who are not at the proposed competency standards) from entering the market for provision of those services
- restriction of the range of trainers who can provide competency training (by excluding all trainers who are not registered training organisations under the National Training Framework)
- imposition of costs upon businesses (assessment or training costs)
- giving some firms an advantage over others (the advantage being to businesses in other States where meeting competency standards for pesticide use is not compulsory and hence the business cost base is lower).

Training requirements were considered in a National Competition Review of Agricultural and Veterinary Chemicals control-of-use legislation in Queensland, Victoria, Tasmania and Western Australia, as described earlier. In those States, commercial pesticide applicators must be licensed. ('Commercial' in this context is more limited and applies to aerial and ground spray application businesses.) The review team recommended that licensing be retained for those operators and, because it is 'strongly associated with good practice', the issue of a licence be subject to the operator holding an accreditation of appropriate competencies and operating at that competency level (PWC & FAL 1999, p89). Commercial pesticide applicators in NSW will therefore face similar competency standards as their colleagues in other States, but will not face the requirement to obtain and hold a licence.

The review team also recommended retaining an exemption from pesticide use licensing for primary producers, but clearly specified that the exemption did not apply to generic controls on use. The principal example of generic controls given was the requirement for Farmcare accreditation in order to access Schedule 7 chemicals in Victoria (PWC & FAL 1999, p90). As described above, primary producers will have to meet competency standards that are not required of their colleagues in all other States at this stage. However, this is clearly within the scope of the recommendations made in the National Competition Review of control-of-use legislation.

The potential competition restrictions are real and may impose some costs. However, as shown in the previous section of this Regulatory Impact Statement, it is believed that the private and public benefits of the restrictions will outweigh the private costs of compliance.

The Competition Principles Agreement provides an extra test, which is, that despite the proposed Regulation showing a net public benefit, the restriction should still not be imposed unless it is necessary to achieve the objectives. In other words, if there is a more efficient, pro-competitive way of achieving the outcome then that way should be taken.

The principal alternatives to the proposed Regulation have already been assessed. That assessment showed that the principal alternatives (voluntary achievement of competency standards or licensing) would not achieve the objective of the proposed Regulation or would achieve it at significantly higher cost respectively. This would prevent the objective from being achieved because public benefits available from pesticide users operating at specified competency standards would not be maximised.

It is therefore considered that, in this case, the restrictions on competition are necessary to achieve the objective of the proposed Regulation and will bring about a net public benefit. The requirements of the Competition Principles Agreement are therefore met and the proposed Regulation is consistent with the National Competition Policy.

## 10 Conclusion

This RIS finds that the benefits of the proposed Regulation are likely to exceed those of the alternatives, principally because the proposed Regulation will achieve a high level of pesticide use competency at a lower cost and in a much shorter time than will the alternatives of voluntary measures and licensing.

Although many of the benefits of the proposed Regulation could not be quantified, training provides a form of 'insurance' against the human health and economic risks of pesticide contamination. Misuse of pesticides could result in a very significant damage bill such as direct harm to people, community confidence in food quality and loss of export markets.

Adopting a 'do nothing' approach and relying on voluntary measures would not adequately achieve the objectives of the *Pesticides Act 1999* (the 'Pesticides Act'). Doing nothing would result in leaving a significant proportion of pesticide users untrained, which represents an unacceptable risk to the environment, human health and trade.

Licensing all relevant commercial pesticide users may also achieve the objectives of the Pesticides Act in a short time frame. However, the administrative cost and complexity of licensing make this option uneconomic to implement. Licensing was estimated to cost over \$11 million in the first year with a total cost of \$35 million over five years. This option is \$6 million pa more expensive as compared to the proposed Regulation.

Quantified incremental costs of the proposed Regulation compared with the base case are estimated at between \$6.0 million and \$7.2 million per year, equivalent to a present cost of between \$25 million and \$29 million over five years at a discount rate of 7%. The costs of the Regulation were determined on a conservative basis and represent the maximum potential cost of the proposed Regulation. This is because the analysis assumes that a significant proportion of existing pesticide users will require first time training. It is likely that the actual cost will be lower than the figures estimated in this analysis, as many firms may choose to rationalise the number of people who apply pesticides.

Valuing the benefits of the regulation is difficult given the diffuse nature of pesticide use and the lack of appropriate primary valuation research. However, the principal unquantified benefits of the proposed Regulation are likely to include:

- reduced risk of trade impacts
- reduced risk of lowered agricultural production value
- reduced likelihood of residue violations
- reduced incidence of environmental or health effects from pesticide use
- more efficient application of pesticide use from improved practices and understanding of environmental impacts.

The major benefits for NSW as a whole are reduced risk to trade and consumer welfare, and reduced risk of harm to human health and the environment through improved compliance with the Pesticides Act.

Pesticide users are likely to gain private benefits through greater confidence that agricultural production meets produce quality standards, better understanding of best practice requirements in pesticide use and purchase requirements, and more appropriate and efficient use of pesticides or alternatives to address common farming problems.

At an industry level, the proposed Regulation would impose a cost equivalent to about 0.085% (i.e. less than 0.1 of one percent) of the total value of agricultural output in NSW, which totalled \$7.7 billion in 1998/99 (ABS 2000). Alternatively, the total annualised cost of the proposed

Regulation would impose a cost equivalent to 0.376% of the total value of agricultural exports from NSW, being \$1.752 billion for 1999/2000. The recent catastrophic impact of foot and mouth disease on the agricultural sector in the UK highlights the importance of maintaining best practice standards in NSW production and protecting our valuable export markets.

At an individual business level, it is estimated that the cost to most agricultural businesses or operators affected by the training requirements will be between \$250 and \$400 per business, with the cost principally occurring as an opportunity cost of time that could be dedicated to other activities.

These costs could be considered a small premium to pay to insure protection of the environment, agricultural production and the NSW economy. The total costs of pesticide training will be significantly outweighed by benefits from better pesticide use and application decisions, improved compliance with the Pesticides Act and a reduced risk of residue violation.

It is therefore concluded that the proposed Regulation should be made.

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# Appendix 1

## Assumptions and methodology used to calculate number of people requiring training and training costs

The EPA identified the main types of groups likely to be affected by the proposed Regulation due to their use of pesticides for commercial purposes. Estimates of the number of pesticide users in the agricultural industry were drawn from NSW Agriculture and the Australian Bureau of Statistics information. Numbers of ground rig operators, golf courses and bowling clubs were obtained from industry associations. The information obtained is shown the table below.

**Table A1.1 Estimated pesticide users by industry**

Stakeholder group	No. stakeholders	No. people using pesticides	% of total	Data source
Agriculture	43,302*	84,698 <sup>#</sup>	84.3%	NSW Agriculture, ABS
Government sector:				
NPWS		100		NPWS
State Forests		140		State Forests
DLWC		75		DLWC
NSW Agriculture		550		NSW Agriculture
Sydney Catchment Auth.		12		Sydney Catchment Authority
Sydney Water		5		Sydney Water
RTA		100		RTA
Schools		175		Schools
Electricity Association		50		Electricity Association
Bicentennial Park		12		Bicentennial Park
Centennial Park		4		Centennial Park
Total Govt. sector**		1,253	1.2%	
Councils	177	885	0.9%	LGSA
Rural Land Protection Boards	48	110	0.1%	RLPB
Golf courses	401	1,200	1.2%	Golf Course Association
Bowling clubs	665	1,050	1.0%	NSW Royal Bowling Association
Ground rig operators	250	400	0.4%	Ground Rig Association
Nurseries	1,500	4,500	4.5%	Nursery Industry Assoc. NSW
Flower & vegetable growers	2,000	4,000	4.0%	NSW Agriculture
Landscape gardeners	2,400	2,400	2.4%	Landscape Contractors Assoc.
<b>Total</b>	<b>50,750</b>	<b>100,496</b>	<b>100%</b>	

**Table A1.1 Estimated pesticide users by industry (cont'd)**

Stakeholders that hold a licence under the *Pesticides Act 1999*, or from Workcover under the Occupational Health and Safety (Pest Control) Regulation 1988 or a trainee permit and therefore do not require training include:

Stakeholder group	No. stakeholders	No. people using pesticides	% of total	Data source
Aerial applicators	325	325		NSW EPA
Pest controllers	1624	1624		WorkCover
Fumigators	280	280		WorkCover

\* Total number of agricultural establishments in NSW

# Total number of people employed in agriculture establishments in NSW

\*\* City Rail, Rail Access Corporation, Public Works, Darling Harbour Authority and RTA also contract out pesticide work.

Key assumptions for calculating the costs of the proposed Regulation are presented below.

Key assumptions	%	
Total no. needing training		100,496
No. requiring full training (2 days)	60%	60,298
No. requiring 1 day course	20%	20,099
No. requiring ½ day course	20%	20,099
Total	100%	100,496

Base case no. of people voluntary training 6,000

	Low	High
Opportunity cost of time (\$/day)	175	175
Cost of travel	50	100
Cost of providing full 2 day course	180	220
Cost of providing a refresher (1 day)	100	130
Cost of providing assessment (½day)	70	100

In addition it is also assumed that:

- people requiring the full two-day course are all trained in the first two years
- others only doing one-day or half-day courses are evenly spread over five years
- travel costs are reduced by half as people conduct other business en route to the training course.

Given these assumptions and costs, cost estimates were derived using spreadsheet analysis.

## Appendix 2

### Training costs and the value of time

Attendance at training and assessments represents an investment of time by participants, and as such carries an opportunity cost (the value of alternate uses to which that time could be put). There will also be a direct cost of travel to the training location, and potentially the cost of accommodation if attendance requires an overnight stay.

Evaluating the full costs of training requires an estimate of the opportunity cost to each pesticide user of the time taken to undertake the training. Opportunity cost occurs when an alternative opportunity is not taken. For example, if training were not required, a pesticide user could instead use the time to carry out equipment maintenance, deal with finances or engage in a recreational activity. The first two examples involve an alternative use of commercial time, while the latter is a case of recreational time being given up for commercial time.

As such, it is difficult to determine what value to use for the opportunity cost of time, since the value of commercial time differs across industries, and the value of recreational time differs between people. One method is simply to use the average hourly rate given by the average weekly ordinary time earnings divided by average weekly hours worked. For Australia, these figures are \$791 (May 1999)<sup>15</sup> and 41.1 person-hours per week (average for 1998/99)<sup>16</sup>. This gives a cost of \$19.25/hour.

This can be compared to the average hourly earnings for employees in the agriculture, forestry and fishing sector<sup>17</sup> which averaged around \$13/hour (\$14.02 for women and \$12.33 for men) (ABS 2000a). This analysis therefore takes a very conservative approach to estimating the opportunity cost of time by taking the higher national average wage rather than the industry specific wage.

This cost of \$19.25 may not be equal to the opportunity cost or hourly income for participants in each industry involved, as it is likely that the opportunity cost of time varies significantly across different agricultural enterprises, local government, commercial pesticide applicators and other public authorities. Because of the difficulty of disaggregating income data into those groups, the average figures for the Australian workforce have been used instead.

It is then normal to increase this figure to represent overhead and fixed costs incurred by each group. For example, there are requirements to provide for superannuation and there may be payroll taxes and workers' compensation insurance payments. In addition, hourly costs need to reflect business overheads (for example rents, vehicles, electricity, computers and telecommunications). The usual factor to apply is a loading of 30%. This raises the hourly cost to \$25/hour.

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<sup>15</sup> Average total weekly earnings, full-time employed persons, ABS 2000, 'Australia now: a statistical profile'/Labour: <http://www.abs.gov.au>, 10 July 2000.

<sup>16</sup> Average weekly hours, full-time employed persons in agriculture, forestry and fishing, ABS 2000, 'Australia now: a statistical profile'/Hours of work and work patterns: <http://www.abs.gov.au>, 10 July 2000.

<sup>17</sup> ABS 2000, *Australian Social Trends, Income Distribution*, ABS Cat. no. 4102.0, Average hourly earnings of male and female employees, August 1999.

# Appendix 3

## The National Training Framework

The National Training Framework is administered by the Australian National Training Authority (ANTA), a statutory body set up under the *Australian National Training Authority Act 1991*.

The National Training Framework provides an integrated approach to vocational education and training in Australia, and provides for portability of qualifications across State boundaries.

The National Training Framework has two key elements:

- Training Packages
- Australian Recognition Framework.

Training Packages are developed by national industry training advisory bodies (and a small number of other recognised industry bodies and enterprises) with extensive involvement by industry.

Each training package includes the following endorsed components:

- industry competency standards (also called units of competence), which are the competencies each industry needs its workers to have
- the different national qualifications a person can receive when they are assessed as competent against the standards, and
- guidelines for assessing competence in the industry.

There is a national specified format for all competency standards. All draft standards, together with qualifications and assessment guidelines, must also be endorsed by the National Training Framework Committee (part of ANTA) and subsequently by all Ministers for vocational education and training.

Qualifications are linked to the Australian Qualifications Framework, which provides for six vocational education and training qualifications: Certificates I to IV, Diploma and Advanced Diploma. A Training Package specifies which combinations of competency standards make up the qualifications for the industry.

The Australian Recognition Framework creates a national registration process for training and assessment organisations, and allows registered training/assessment organisations to operate nationally and have their qualifications recognised nationally.

Organisations are registered to provide:

- training and assessment products and services, or assessment products and services only
- products and services that are based on Training Packages or other products and services for a general area of vocational education and training if there are no relevant training packages for that area
- products and services up to a specified qualification level.

Registered training organisations must operate in accordance with the national principles, standards and protocols that make up the Australian Recognition Framework. Registration of a training organisation by one State or Territory authority is then recognised by all other States and Territories. Qualifications and Statements of Attainment awarded by a registered training organisation are issued under the authority of the State or Territory authority that first registered that organisation and are recognised nationally.

# Appendix 4

## Units of competency

### Summary of the proposed Units of Competency

The EPA understands that these Units of Competency are currently being reviewed by the Rural Training Council of Australia under the National Training Framework. If these Units change as a result of these review processes before this proposal is finalised, the EPA will consult with relevant stakeholders including training providers, relevant industry training advisory bodies, industry and environmental representatives to ensure equivalent competency units are selected.

Unit	Title	Issues covered
RUA AG 2005CH A	Maintain supplies of chemical and biological agents	Transport Storage Manifests
RUA AG 2006CH A	Determine chemicals and biological agents	Choose appropriate chemicals for the job Implement integrated pest management strategies
RUA AG 2007CH A	Prepare chemicals and biological agents	Select correct chemicals Prepare chemicals for application Fill application equipment properly
RUA AG 2008CH A	Maintain chemical equipment	Application equipment assessed for suitability PPE assessed for suitability
RUA AG 2009CH A	Apply chemicals and biological agents	Most appropriate application equipment selected Suitable PPE used Application equipment used in a manner which minimises potential and actual hazards
RUA AG 20010CH A	Clean up following application of chemicals	Appropriate clean up equipment and methods used Suitable PPE used
RUA AG 20011CH A	Manage a chemical spillage/leakage	Implement correct procedures in response to a spill/leakage Suitable PPE used
RUA AG 2012CH A	Notify authorities of a chemical spill	Appropriate authorities are notified in event of a spill/leakage

## Units of Competency: full version

**Note:** These selected competencies are taken directly from the National Agriculture Training Package and the National Horticulture Training Package.

### ***Unit RUA AG 2005CH A***

#### ***Maintain supplies of chemical and biological agents\****

##### **Element 2005.1 Transport chemicals and biological agents**

<p><b>2005.1.1</b> Transportation methods prevent damage to or deterioration of containers or their contents and prevent leakage or spillage of chemicals.</p>	<p>Inspect and ensure containers undamaged at delivery. Secure containers as per label and MSDS.</p>
<p><b>2005.1.2</b> Transportation methods do not allow containers in proximity to people, human or stock food.</p>	<p>Keep passenger vehicles free from chemicals. Transport chemicals following label and MSDS guidelines.</p>
<p><b>2005.1.3</b> Safe working practices are employed according to enterprise policy and regulations and legislation relevant to the situation are observed.</p>	<p>Interpret chemical label and MSDS relevant to transport of chemicals. Comply with Dangerous Goods (DG) legislation regarding transport of chemicals. Follow COP for the safe use and storage of chemicals in agriculture.</p>

##### **Element 2005.2 Store chemicals and biological agents within the workplace**

<p><b>2005.2.1</b> Storage methods are consistent with relevant regulations and legislation</p>	<p>Interpret chemical label and MSDS relevant to storage of chemicals. Comply with DG legislation regarding storage of chemicals. Follow COP. Utilise dedicated storage consistent with COP and Australian standards.</p>
<p><b>2005.2.2</b> Safe working practices are employed according to enterprise policy ,and regulations and legislation relevant to the situation are observed.</p>	<p>Comply with enterprise policy. Comply with label and MSDS requirements, especially with respect to PPE. Follow COP.</p>
<p><b>2005.2.3</b> Store chemicals and biological agents according to label and instructions.</p>	<p>Comply with label and MSDS requirements. Utilise dedicated storage consistent with COP and Australian standards.</p>



<p><b>2005.2.4</b> Storage area and facilities are maintained to statutory or enterprise requirements.</p>	<p>Follow COP and Australian standards for maintenance.</p> <p>Inspect containers regularly to ensure in good order, correctly stored and segregated, and labels legible.</p> <p>Utilise dedicated storage consistent with COP and Australian standards.</p>
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\*Note: In this context 'biological agents' means biological pesticides which are derived from natural materials such as bacteria (*Bacillus thuringiensis* – Bt), fungi (metarrhizium) and viruses (Gemstar – nuclear polyhedrosis virus).

**Element 2005.3 Record chemical purchase details**

<p><b>2005.3.1</b> Records of purchases and storage manifests kept and are consistent with relevant regulations and legislation.</p>	<p>Maintain register/manifest in accordance with COP.</p> <p>Notify WorkCover of any serious injury/fatality involving chemicals.</p>
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**Unit RUA AG 2006CH A**  
**Determine chemicals and biological agents**

**Element 2006.1 Determine chemicals appropriate to the identified problem**

<p><b>2006.1</b> Chemicals determined are consistent with label specifications, with regard to dosage and application rates.</p>	<p>Interpret relevant information on label.</p> <p>Follow recommendations from industry chemical management strategies.</p>
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**Element 2006.2 Determine chemicals which are consistent with user requirements and capabilities**

<p><b>2006.2.1</b> Chemicals determined are cost effective and minimise environmental and human impact.</p> <p>Phytotoxicity, compatibility and detrimental impacts to end product are also determined.</p>	<p>Interpret relevant information on label.</p> <p>Follow recommendations from industry chemical management strategies, particularly in respect of resistance management and IPM.</p>
<p><b>2006.2.2</b> Hazards of available chemicals to health and safety (toxicity levels) are identified, risk assessed and level of OHS risk is taken into account in selecting chemical for use.</p>	<p>Interpret chemical label and MSDS relevant to health and safety.</p> <p>Comply with control measures required as a result of risk assessment according to Hazardous Substances Regulation and COP.</p>
<p><b>2006.2.3</b> Correct formulation is selected.</p>	<p>Where more than one formulation is available for the product selected, choose formulation which satisfies efficacy, environmental, host safety and health criteria (2006.2.1-2).</p>
<p><b>2006.2.4</b> Weather conditions are assessed as suitable for the application of determined chemical.</p>	<p>Application will only commence when weather conditions are suitable for the task, and application will discontinue if weather alters unfavourably.</p>

<b>2006.2.5</b> Regulations and legislation relevant to the situation are observed.	Comply with COP.
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**Element 2006.3 Implement Integrated Pest Management (IPM) strategies**

<b>2006.3.1</b> Beneficial organisms are identified when they occur.	Identify beneficial organisms, and monitor and record levels.
<b>2006.3.2</b> Pest organisms are identified.	Identify pest organisms, and monitor and record levels.
<b>2006.3.3</b> Levels of pest infestations tolerated by the markets and IPM program are determined.	Identify threshold levels from industry recommended IPM programs.
<b>2006.3.4</b> Most effective control strategy is determined consistent with the IPM program.	Given results from identification and monitoring of beneficials and pests, select industry recommended control from range of options listed in industry IPM strategy, considering local factors affecting pest populations.
<b>2006.3.5</b> Control methods are implemented.	Implement control method, chemical and/or non-chemical.
<b>2006.3.6</b> Control methods are monitored to minimise side effects to crop or environment.	Monitor and record efficacy of control methods for adverse affects to host and environment.
<b>2006.3.7</b> Effectiveness of control methods are monitored to a standard accepted by the markets and quality assurance program.	Monitor levels of beneficials and pests to compare with industry recommended thresholds.
<b>2006.3.8</b> Correct IPM practices are employed as determined by enterprise or local industry standards or code of practice.	Maintain all records required by industry recommended strategies.  Follow reviewing procedure given in industry strategies.
<b>2006.3.9</b> Control measures comply with relevant legislation and industry standards.	Check all application records required by Pesticides Act and Hazardous Substances Regulation have been kept.  Follow reviewing procedure for risk management in COP.

**Unit RUA AG 2007CH A**  
**Prepare chemicals and biological agents**

**Element 2007.1 Select correct chemical**

<b>2007.1.1</b> Chemical and biological agents selected are as determined or prescribed and are consistent with user requirements.	Read and interpret label, having regard to pest-host combination and other relevant factors, e.g. restraints, protection statements, WHPs.
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**Element 2007.2 Prepare application requirements**

<b>2007.2.1</b> Mixing procedures comply with label direction, or MSDS instructions, or enterprise policy and/or relevant regulations.	Select correct mixing rates and methods from product label (and permits where applicable).
<b>2007.2.2</b> Compatibility of products and quality of water is determined.	Identify and follow label recommendations relating to compatibility and water quality.
<b>2007.2.3</b> Calculations comply with label directions.	Interpret and calculate correct label rates for mixing active ingredients and diluent (usually water).

**Element 2007.3 Fill application equipment**

<b>2007.3.1</b> Measurement and decanting of substances complies with label directions and accepted industry or enterprise practice.	Mix and load chemicals according to label directions, MSDS instructions, enterprise policy and control measures as a result of risk assessment according to Hazardous Substances Regulation and COP.  Ensure mixing/loading site conforms with COP.
<b>2007.3.2</b> Tools, equipment and personal protection equipment appropriate to the task are selected and used to industry or enterprise standards.	Mix and load chemicals according to label directions, MSDS instructions, enterprise policy and control measures as a result of risk assessment according to Hazardous Substances Regulation and COP.  Ensure mixing/loading site conforms with COP.
<b>2007.3.3</b> Safe working practices are employed, and regulations and legislation relevant to the situation and mixing site are observed.	Mix and load chemicals according to label directions, MSDS instructions, enterprise policy and control measures as a result of risk assessment according to Hazardous Substances Regulation and COP.  Ensure mixing/loading site conforms with COP.

**Unit RUA AG 2008CH A  
Maintain chemical equipment****Element 2008.1 Check and maintain application equipment for chemical and biological agents**

<b>2008.1.1</b> Application equipment is prepared and adjusted for use appropriate to the situation.	Carry out pre-operational checks and perform routine maintenance according to enterprise policy and operator's manual.
<b>2008.1.2</b> Damage, wear or malfunctions of equipment are identified and repaired/replaced or reported to the appropriate person.	Identify and maintain damaged, worn or non-functioning equipment and replace according to enterprise policy.
<b>2008.1.3</b> Pre- and post-operational checks/maintenance on application equipment are carried out according to operator's manual.	Carry out pre- and post-operational checks and perform routine maintenance according to enterprise policy and operator's manual.

**Element 2008.2 Check and maintain personal protective equipment**

<b>2008.2.1</b> Personal protective equipment is selected, prepared and adjusted for use appropriate to the situation.	Select and use PPE according to label and MSDS.
<b>2008.2.2</b> Damage, wear or malfunctions of personal protective equipment are identified and repaired/replaced or reported to the appropriate person.	Damage and wear to or malfunctions of PPE reported.
<b>2008.2.3</b> Pre- and post-operative checks. Maintenance on personal protective equipment are carried out according to operator's manual.	Replaceable items, eg respirator filters/canisters, changed as per manufacturer's schedule, COP and standards.  Routine washing, decontamination and storage carried out as per manufacturer's schedule, COP and standards.  Records of use and replacement maintained as per COP.

**Unit RUA AG 2009CH A  
Apply chemicals and biological agents****Element 2009.1 Select application equipment**

<b>2009.1.1</b> Application methods/equipment appropriate to the chemicals/biological agents and situation are selected, adjusted and calibrated to industry or enterprise standards.	Ensure application equipment is appropriate to pest-host combination.  Check nozzle type and condition, pressure setting, nozzle height, and similar are appropriate. Change or adjust where necessary.  Calibrate both hand-held and power-operated equipment and test for accuracy.
<b>2009.1.2</b> Application methods/equipment comply with label directions, or MSDS instructions, or enterprise policy and/or relevant regulations.	Check that application equipment for pest-host combination is allowed by label.

**Element 2009.2 Use personal protective equipment**

<b>2009.2.1</b> Tools, equipment and personal protection equipment appropriate to the task are selected and used as determined by label directions, material safety data sheet and industry or enterprise standards.	Select and use PPE according to label and MSDS.
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**Element 2009.3 Use application equipment**

<b>2009.3.1</b> Potential and existing hazards are identified and minimised safely in a manner consistent with accepted industry practices and/or reported to supervisor or an appropriate authority.	Comply with control measures as required by OH&S and environmental risk assessments carried out as per COP for Hazardous Substances Regulation and Pesticides Act.
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<p><b>2009.3.2</b> The workplace is maintained to an accepted industry standard and appropriate steps to ensure public safety are selected and used.</p>	Comply with control measures required by OH&S risk assessment as per COP for Hazardous Substances Regulation.
<p><b>2009.3.3</b> Safe working practices determined by industry or enterprise are employed, and regulations and legislation relevant to the situation are observed.</p>	Comply with control measures required by OH&S risk assessment as per COP for Hazardous Substances Regulation.
<p><b>2009.3.4</b> Application equipment is used to accurately and effectively apply the required dose to the target.</p>	Operate both hand held and power operated equipment according to label directions, equipment operator's manual, industry best practice and control measures required by the risk assessment per COP.
<p><b>2009.3.5</b> Application details are recorded in accordance with enterprise policy, legislative requirements and industry practice.</p>	Record application as per requirements of COP, Recording Regulation of Pesticides Act, and industry/enterprise, e.g. QA schemes.
<p><b>2009.3.6</b> Weather conditions are assessed as suitable for the application of selected chemical.</p>	Weather conditions prior to, during and after application are considered and restrictions on application implemented.
<p><b>2009.3.7</b> Re-entry, withholding, plant back and restocking periods are observed as determined by label directions.</p>	Read and interpret label, having regard to WHPs (harvest and grazing), plant-back periods and re-entry (including necessary PPE).

### **Unit RUA AG 2010CH A**

#### **Clean up following application of chemicals and biological agents**

##### **Element 2010.1 Empty and clean equipment and containers according to label directions**

<p><b>2010.1.1</b> Tools and equipment and clean up methods appropriate to chemicals/biologicals agents are selected and used.</p>	Follow label directions, MSDS, COP and best management practices in selecting clean-up equipment, e.g. pressure rinse nozzles for containers, methods, e.g. pit drains for rinsate as per COP, and decontamination site as per COP.
<p><b>2010.1.2</b> Methods are consistent with label directions.</p>	Follow label directions for decontaminating application equipment.
<p><b>2010.1.3</b> Disposal of containers and unused chemicals/biological agents are consistent with health, safety and environmental legislation, label directions and/or regulations.</p>	Follow label directions, MSDS, COP and best management practices to dispose of unused spray material and rinsates.

##### **Element 2010.2 Use personal protective equipment**

<p><b>2010.2.1</b> Personal protective equipment appropriate to the task is selected, calibrated and used as determined by label directions, material safety data sheet or industry or enterprise standards.</p>	Select and use PPE according to label and MSDS.
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<p><b>2010.2.2</b> Safe working practices are employed, and regulations and legislation relevant to the situation are observed.</p>	<p>Clean up application equipment and containers according to label directions, MSDS instructions, enterprise policy and control measures as a result of risk assessment according to Hazardous Substances Regulation and COP.</p>
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**Unit RUA AG 2011CH A**  
**Manage a chemical spillage/leakage**

**Element 2011.1 Implement correct procedures following a chemical spillage/leakage**

<p><b>2011.1.1</b> Chemical spillage is isolated from stock, vehicles and people as determined by industry or enterprise standards.</p>	<p>Comply with control measures required by OH&amp;S risk assessment as per COP for Hazardous Substances Regulation.</p>
<p><b>2011.1.2</b> Chemical spill/leak is contained as determined by industry or enterprise standards or regulator authorities.</p>	<p>Comply with control measures required by OH&amp;S risk assessment as per COP for Hazardous Substances Regulation.</p>
<p><b>2011.1.3</b> Chemical formulation is identified and appropriate decontamination method followed.</p>	<p>Comply with control measures required by OH&amp;S risk assessment as per COP for Hazardous Substances Regulation.</p>
<p><b>2011.1.4</b> Chemical spill is decontaminated using approved method.</p>	<p>Comply with control measures required by OH&amp;S risk assessment as per COP for Hazardous Substances Regulation.</p>
<p><b>2011.1.5</b> Chemical is cleaned up and disposed of in approved manner.</p>	<p>Comply with control measures required by OH&amp;S risk assessment as per COP for Hazardous Substances Regulation.</p>
<p><b>2011.1.6</b> Procedures follow Material Safety Data Sheet information</p>	<p>Comply with control measures required by OH&amp;S risk assessment as per COP for Hazardous Substances Regulation.</p>

**Element 2011.2 Use personal protective equipment**

<p><b>2011.2.1</b> Tools, equipment and personal protective equipment appropriate to the task are selected, calibrated and used as determined by label directions, material safety data sheet or industry or enterprise standards.</p>	<p>Make emergency response to spill using PPE recommended by label and MSDS, and spill/emergency kit.</p>
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**Unit RUA AG 2012CH A**  
**Notify authorities of a chemical spill**

**Element 2012.1    Notify authorities of a chemical spill**

<b>2012.1.1</b> Appropriate authorities notified.	Notify either or both EPA and WorkCover, depending on whether persons, property or flora/fauna is at risk.
<b>2012.1.2</b> Spillage extent assessed and appropriate chemical spill/leakage report developed.	Record incident and revise control measures as per COP.

**Acronyms used in Appendix 4**

DG	Dangerous Goods
COP	Code of Practice
IPM	Integrated Pest Management
MSDS	Materials Safety Data Sheet
OH&S	Occupational Health & Safety
PPE	Personal Protective Equipment
QA	Quality Assurance
WHPs	Withholding periods





## **APPENDIX 5 - Pesticides Amendment (User Training) Regulation 2001**

under the

Pesticides Act 1999

### **Explanatory note**

The objects of this Regulation are as follows:

- (a) to require individuals who use pesticides for commercial or occupational purposes, or in connection with agricultural or forestry operations, to undertake the training necessary to acquire certain competencies approved by the Environment Protection Authority in relation to the use of pesticides,
- (b) to create offences relating to the employment of unqualified persons to use pesticides in the circumstances referred to above, and to the misuse of documents evidencing the achievement of competencies (and to provide for penalty notices to be issued in respect of some of those offences),
- (c) to provide for certain transitional arrangements in relation to the matters referred to in the preceding paragraphs.

This Regulation is made under the *Pesticides Act 1999*, including sections 75, 78, 117 and 119 (the general regulation-making power).

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Pesticides Amendment (User Training) Regulation 2001

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## **Pesticides Amendment (User Training) Regulation 2001**

### **1 Name of Regulation**

This Regulation is the *Pesticides Amendment (User Training) Regulation 2001*.

### **2 Commencement**

This Regulation commences on 1 June 2002.

### **3 Amendment of Pesticides Regulation 1995**

The *Pesticides Regulation 1995* is amended as set out in Schedule 1.

### **4 Notes**

The explanatory note does not form part of this Regulation.

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Pesticides Amendment (User Training) Regulation 2001

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## Schedule 1 Amendments

(Clause 3)

### [1] Part 3

Insert after Part 2:

## Part 3 Compulsory training for certain pesticide users

### 7 Definitions

In this Part:

*Australian Qualifications Framework* means the Australian Qualifications Framework developed under instructions from the Ministerial Council on Education, Employment, Training and Youth Affairs.

*evidence of a prescribed qualification* means:

- (a) a document that is issued to a person as a prescribed qualification achieved by that person, or
- (b) a document (including a card) that is issued to the holder of a prescribed qualification by a registered training provider or ChemCert (NSW) Ltd as a record or evidence (or both) of the person's achievement of that qualification.

*prescribed qualification* means a qualification with respect to the use of pesticides that is granted to a person by a registered training provider:

- (a) in accordance with the Australian Qualifications Framework, and
- (b) in recognition of the person's satisfactory achievement of specified units of competency (being units of competency that, at the time the prescribed qualification is issued, are approved by the Environment Protection Authority under clause 8).

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**registered training provider** means a training provider registered under the *Vocational Education and Training Accreditation Act 1990*.

**Note.** It is expected that registered training providers will also be registered training organisations for the purposes of the Australian Qualifications Framework.

**7A Only qualified persons to use pesticides in certain circumstances**

- (1) An individual must not use a pesticide in any of the following circumstances unless he or she holds a prescribed qualification:
- (a) in the course of acting as, or for or on behalf of, the landlord of any premises,
  - (b) in the course of acting for or on behalf of a public authority,
  - (c) in the course of carrying out pest control operations on a golf course, sporting field or bowling green,
  - (d) in connection with any agricultural (including farming, horticultural or aquacultural) or forestry operations,
  - (e) in the course of carrying on, or working in, a business, educational institution or hospital (whether as principal, contractor or employee, and regardless of whether, in the case of a business, the use of pesticides is a purpose of the business concerned).

Maximum penalty: 200 penalty units.

- (2) Subclause (1) does not apply to any person who:
- (a) holds a licence under the Act, or
  - (b) holds a certificate of competency or recognised qualification (within the meaning of Part 9.1 of the *Occupational Health and Safety Regulation 2001*) in relation to the kind of work referred to in clause 11 (Application of pesticides) or 12 (Use of fumigants) of the Schedule to clause 266 of that Regulation, or
  - (c) is a trainee doing work of the type referred to in paragraph (b) and who is excepted under clause 271 of that Regulation from the requirement of that Regulation to hold a certificate of competency or recognised qualification in relation to that work, or

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- (d) holds a former authority (being a pest control operator's licence, or a fumigation permit, in force under the *Occupational Health and Safety (Pest Control) Regulation 1988* immediately before its repeal) that is taken to be a certificate of competency under clause 268 of the *Occupational Health and Safety Regulation 2001*.
- (3) Subclause (1) does not apply in relation to the use of a pesticide that:
  - (a) is ordinarily used for domestic purposes (including home gardening), and
  - (b) is widely available to the general public at retail outlets (for example, at supermarkets), and
  - (c) is being applied by hand or hand-held applicator, and
  - (d) is being used in a quantity that:
    - (i) in the case of outdoor use, is appropriate for outdoor domestic purposes (so long as it does not exceed 20 litres or 20 kilograms of "ready-to-use" product or 5 litres or 5 kilograms of concentrated product), or
    - (ii) in the case of indoor use, is appropriate for indoor domestic purposes (so long as it does not exceed 5 litres or 5 kilograms of "ready-to-use" product or 1 litre or 1 kilogram of concentrated product).
- (4) Subclause (1) does not apply in relation to the use of a pesticide in public baths or in any swimming pool or spa.
- (5) A person must not employ or engage a person to use a pesticide in any circumstance referred to in subclause (1) unless the second mentioned person holds a prescribed qualification and evidence of the prescribed qualification.

Maximum penalty: 200 penalty units (in the case of an individual) or 400 penalty units (in the case of a corporation).
- (6) A person who, under subclause (1), is required to hold a prescribed qualification must, if requested to do so by an authorised officer, produce evidence of the prescribed qualification for inspection by the authorised officer.

Maximum penalty: 200 penalty units.

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- (7) For the purposes of this clause, a prescribed qualification ceases to have effect in relation to a person at the end of 5 years after the person obtained the qualification.

**Note.** In order to remain qualified, a person will therefore need to requalify every 5 years.

- (8) This clause commences on 1 June 2004.

## **7B False representations and fraudulent misuse of evidence of prescribed qualifications**

- (1) A person must not forge or alter evidence of a prescribed qualification.

Maximum penalty: 100 penalty units.

- (2) A person must not falsely represent, whether by word or by conduct, that he or she is the holder of a prescribed qualification.

Maximum penalty: 100 penalty units.

- (3) This clause commences on 1 June 2004.

## **8 Approval of units of competency for prescribed qualification**

- (1) The Environment Protection Authority may from time to time approve of units of competency for the purposes of the definition of *prescribed qualification* in clause 7.

- (2) The Authority may only approve of units of competency that are specified in a current Training Package endorsed by the National Training Framework Committee of the Australian National Training Authority (being an Authority established under the *Australian National Training Authority Act 1992* of the Commonwealth).

- (3) Before granting an approval under this clause, the Authority:
- (a) must consult relevant groups, including registered training providers and environmental and industry representatives, and
  - (b) must be satisfied that the proposed units of competency are relevant to the objects of the Act.

- (4) An approval under this clause:

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- (a) must clearly identify all units of competency required to be achieved for the issue of a prescribed qualification, and
  - (b) may specify that particular units of competency must be achieved by particular pesticide users or classes of pesticide user (including, for example, the users of a particular type of pesticide).
- (5) An approval under this clause takes effect on the day that it is published in the Gazette or on such later date as may be specified in the approval.
- (6) The Authority must ensure that copies of any approval in force under this clause are available for public inspection, without charge and during ordinary business hours, at each of its offices.

## **8A Transitional provision concerning ChemCert, Farmcare and SMARTtrain Programs**

- (1) A person who holds:
- (a) a certificate of completion under the ChemCert (NSW) Ltd Farm Chemical User Training Program (also known as the Farmcare Australia Farm Chemical User Training Program), or
  - (b) a statement of attainment on completion of the SMARTtrain Chemical Application Course or the SMARTtrain Managing Chemical Use Course,

that is current immediately before 1 June 2002 is taken to hold a prescribed qualification for the purposes of this Part until the expiration of 5 years from the date of issue of the certificate or statement of attainment, as the case may be.

**Note.** Accordingly, before the date that such a certificate or statement ceases to be a prescribed qualification for the purposes of this Part, the person who holds the certificate or statement must ensure that he or she undertakes the training and assessment necessary for the award of a prescribed qualification.

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**[2] Schedule 1 Penalty notice offences and short descriptions**

Insert at the end of the Schedule:

<b>Column 1 Provision of this Regulation</b>	<b>Column 2 IPB Code (indivs)</b>	<b>Column 3 IPB Code (corpns)</b>	<b>Column 4 Short description code</b>	<b>Column 5 Penalty \$ (indivs)</b>	<b>Column 6 Penalty \$ (corpns)</b>
Clause 7A (1) (a)	[TBA]	[TBA]	use pesticide as/on behalf of landlord without prescribed qualification	400	
Clause 7A (1) (b)	[TBA]	[TBA]	use pesticide for public authority without prescribed qualification	400	
Clause 7A (1) (c)	[TBA]	[TBA]	use pesticide on golf/bowls course/sports field without prescribed qualification	400	
Clause 7A (1) (d)	[TBA]	[TBA]	use pesticide in agriculture without prescribed qualification	400	
Clause 7A (1) (e)	[TBA]	[TBA]	use pesticide in business/ educational institution/ hospital without prescribed qualification	400	



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Clause 7A (5)	[TBA]	[TBA]	employ/engage person to use pesticide without prescribed qualification and proof	400	800
Clause 7A (6)	[TBA]	[TBA]	not show proof of prescribed qualification to authorised officer	400	