

## EDUCATING AND TRAINING HERBICIDE APPLICATORS IN AUSTRALIA

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### ABSTRACT

*Herbicide users need to be well trained with the knowledge and skills necessary to ensure that these products are used correctly and safely to maximise their benefits while minimising any potential adverse effects. In Australia, the education and training of applicators of pesticides like herbicides, insecticides, fungicides and animal health products, takes a high priority in response to national and State regulatory obligations, community demands, market requirements, safety, environmental concerns, and the need to maximise the cost/effectiveness of using these products. A range of formal education and training programs are available from a variety of government and private training organisations. Informal local industry seminars and extension programs are provided for various industry clients by consultants, education institutions and government agencies. The agchem industry requires training of all personnel in the distribution and product sale chain. Vocational education and training sector courses in agriculture, horticulture and environmental management incorporate competency-based pesticide user training although at tertiary level, only a few university courses embrace significant studies in pesticide application technology and management. The benefits of the delivery of co-ordinated training since 1990 are being seen through improved practices, better quality agricultural produce, and reduced environmental effects. To be effective, training and education programs must be co-ordinated, well designed and based on close collaboration between both the providers and the recipients of the training.*

**Key words:** Herbicide application, herbicide safety, training, education, Australia.

### INTRODUCTION

In Australia over the past 15 years there have been great changes in training of those involved in the sale, distribution and use of pesticides, including herbicides, insecticides, fungicides and animal health products. There has been a major shift from an absence of coordinated training to the introduction of highly successful voluntary training programs, and more recently to the legislated requirement for mandatory training. Training in correct pesticide management and application is now valued as the benefits are observed. To be effective, training and education programs must be co-ordinated, well designed and based on close collaboration between both the providers and the recipients of the training.

#### **What does correct herbicide management and application involve?**

Best practice herbicide management involves doing the right thing at every step in the management chain. This includes:

- Understanding the importance of using herbicides as part of an integrated weed management program

- Being aware of the legal responsibilities of those involved in herbicide use
- Knowing the characteristics of products e.g. how herbicides work
- Being able to interpret the information on product labels
- Implementing personal safety measures
- Transporting and storing the products correctly and using good handling practices
- Being able to select, adjust and calibrate application equipment to ensure the correct dose is applied to the target
- Minimising spray drift and ensuring environmental safety
- Effectively cleaning up application equipment and disposing of waste chemical and containers
- Keeping records of use that must and should be kept

The emphasis given during training depends on the target audience. For example different aspects are given more attention depending on the type of industry in which they are involved. For example: broadacre agriculture, horticulture, environmental management, contract applicator or the distribution and merchandise sector. Generally though the principles covered are the same.

### **Why is training so important?**

There are a number of reasons why people undertake training:

1. **To improve the control of target weeds and other pests.** It is important that applicators are competent. That is they have the skills, knowledge and attitude needed for accurate use and cost effective control. Application of herbicides etc is becoming increasingly sophisticated. Those with better skills have a competitive edge and achieve better control with improved safety and reduced costs. There is an increasing demand from spray applicators for access to high quality training at both basic and advanced levels to equip them with the skills to meet their obligations as well as to enhance their application technology to improve results and minimise problems like spray drift.
2. **To comply with national regulatory requirements.** The national authority regulating pesticide sale (the Australian Pesticides and Veterinary Medicines Authority) mandates training for users of specified high risk pesticides (APVMA 2004). This requirement is detailed on product labels. As well, under the National Code of Practice for the Control of Workplace Hazardous Substances, the National Occupational Health and Safety Commission also requires training for all persons who could be exposed to hazardous substances (including many pesticides) at work, with the training to be appropriate for the level of risk to health. Employers must keep records of the training for 5 years (Comcare 2002, NOHSC 2004).
3. **To comply with State regulatory requirements.** States are responsible for legislation covering control-of-use, occupational health and safety, environmental protection, and transport and storage of Dangerous Goods. **Control-of-use** legislation varies considerably between States from no requirement to compulsory training for all users other than home gardeners. Those States which require training vary in the competency level at which this is to be undertaken. Some States require contractors to be trained and licensed, others do not. States' **Occupational Health and Safety** legislation pick up the requirements of the National Code of Practice for the Control of Workplace Hazardous Substances.
4. **Duty of Care, due diligence and better practices.** Growers and spray applicators see a range of benefits from obtaining higher levels of skills and adopting good technology. Completion of training demonstrates due diligence and helps to fulfill Common Law Duty of Care and other regulatory obligations thereby minimizing liability in the event of litigation. It also assists them to avoid spray drift incidents, to achieve better pest management, to reduce the costs of wastage and loss of quality of produce, to improve profits, and to meet market requirements and community expectations. As well as for these benefits, contractors undertake training to give them a competitive edge. In some cases training is required in order to be able to access

insurance. Spray contractors are now being required to demonstrate good practice and have documented pesticide management plans to be able to tender for contracts.

5. **To fulfill community expectations.** With heightened awareness of environmental and human health issues in the community, there comes an increased expectation that pesticides are used in a manner which protects people, the environment, and the safety of food and natural fibre. There are very active lobby groups demanding higher standards and greater accountability.
6. **To meet industry requirements.** The national agchem industry requires training of all personnel in the distribution and product sale chain to ensure they meet regulatory requirements and industry standards. Many of these people provide advice to growers and spray applicators. Industry best management practice (BMP) programs require training in pesticide use (e.g. the cotton industry). Many industry **Quality Assurance** and **Environmental Management System** schemes require those using pesticides to be trained to set standards.

### What training is available?

A range of training and education programs are provided depending on the target group.

1. **Agchem industry personnel training.** In 1987, a national farm chemical industry training program was introduced for all industry personnel who handle, sell, recommend, advise and/or take responsibility for the safety of agricultural and veterinary chemicals. This is coordinated by Agsafe, a division of Crop Life Australia (formerly AVCARE), the national farm chemical industry association, with training delivered by contracted trainers. Accreditation is based on completion of basic training and commitment to a Code of Conduct. The basic training covers: an introduction to pests and pest management; the agchem industry; the product label; safe transport of farm chemicals; toxicity, health and first aid; fire, spill and transport emergencies; and, farm chemicals and the environment. Accreditation must be renewed every three years by undertaking further training and assessment. Agsafe also requires retail and wholesale premises to meet statutory standards. The Australian Competition and Consumer Commission (ACCC) have authorised the industry to levy sanctions against companies not complying with requirements (Agsafe 2004).
2. **Pesticide user training.** Coordinated pesticide user training was introduced under the umbrella of the National Farmers Federation in 1990 with a national, voluntary industry program called *ChemCert* Australia (ChemCert 2004). Training is now also delivered by a range of other competing government and private organisations based on nationally endorsed competency standards set at levels for:
  - those working under supervision
  - independent operators
  - managers and supervisors

The level of training required under State control-of-use legislation varies although most training for growers and spray operators is delivered at the level for independent operators. A major challenge which is encountered is how to tailor training for those who are from a non-English speaking background or who have low levels of literacy and numeracy. A range of programs are in place to overcome this.

The leading *ChemCert* Australia industry accreditation program has delivered training to over 200,000 people through a national network of approved trainers. Reaccreditation is required every 5 years. While the training is tailored to the needs of participants and meets legislative requirements for trained operators, specialist programs are also available e.g.

- Spray application in Cotton and Grain
- Spray application in Vineyards
- Spray application in Horticulture

In some States spray contractors are required to complete a specialist contractor's training program.

3. **Vocational Education Sector Programs.** Most vocational education and training sector courses in agriculture, horticulture and environmental management incorporate competency-based pesticide user training at a level which ensures successful participants meet regulatory requirements. Usually this is based on a standard pesticide user training program.
4. **Tertiary Education Sector Programs.** University courses rarely embrace significant studies in pesticide application technology and management. Of the 17 Universities in Australia offering agricultural, horticultural or environmental management degrees, only Charles Sturt University has comprehensive studies in pesticide management while a further 6 have components incorporated into other studies e.g. Integrated Pest Management (DEST 2004).
5. **Informal Training Programs.** Informal local industry seminars and extension programs are provided for various industry clients by consultants, education institutions and government agencies. While these meet a demand for specialist knowledge or awareness, they do not meet regulatory requirements.

### **Designing a training and extension program**

Training programs in Australia have evolved with little co-ordination between programs for the different sectors. To maximise efficiencies and minimise costs, it would be ideal to follow a process which identified the various government and industry groups requiring training, and in collaboration with these groups, analyse their training needs and develop co-ordinated programs which met those needs. Those providing the training need to be experts in the technologies as well as adult educators. Recognition needs to be given to those completing training, for example through awarding of Certificates. Training will also be more successful if there are tangible incentives to undertake it, and it is delivered at a level that is meaningful and understandable. Provision of adequate resources is vital.

### **CONCLUSION**

Training of pesticide users, including those who apply herbicides, brings many benefits in better control of target pests, better use of the chemical products, reduced costs, improved human and environmental health, and better quality of food and natural fibre. It is an excellent investment in the future of agriculture and the community.

While the training and education brings many benefits, these will only be realized if the training programs are well designed, meet the needs of the target groups, are well resourced and well co-ordinated. It would be good if countries desiring to develop such training could learn from the successes and mistakes that we have been through in Australia.

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