What is the likely impact of farmer training?
D.L. Evans¹ and J.L.E. Karlsson²
¹Agriculture Western Australia, Denmark, WA, 6333.
²Agriculture Western Australia, Katanning, WA, 6317.
Email: devans@agric.wa.gov.au

Summary
With increasing concerns relating to the use of pesticides by the agricultural sector, there has been a strong focus on providing farmers with formal training in the safe and responsible use of chemicals. The status of training varies in different states including being a legal requirement or voluntary participation to achieve certification. There has been limited evaluation of formal farmer training particularly in relation to impact on farming practices.

A farmer training course has been developed to assist wool growers to implement IPM to reduce reliance on chemicals for lice and fly control. This course may provide valuable assistance for growers to minimise residues but formal evaluation should be carried out to determine the impact of such training.

Keywords
Training, farmer, chemical, IPM, evaluation

Introduction
With increasing community interest regarding the high level of pesticide usage by the agricultural sector and occupational health and safety concerns of people in rural areas, formal training of those at risk in the responsible use of chemicals has been proposed as an effective strategy to address these problems.

The use of chemicals on farms has come under intense scrutiny in the last ten years and with the emergence of alternative non-chemical systems such as organic and biodynamic farming, questions about how much chemical actually ends up in food and the environment have been a major focus. Overseas there has been increasing restrictions and controls placed on farm management including the legal requirement to keep appropriate records and demonstration of specified skills and competencies before purchasing particular chemicals.

During the 1980s in Australia, several instances of product misuse resulted in the deregistration or voluntary withdrawal of specific products including, Lucijet® (which contained fenthion), dieldrin which was only registered to control black beetle on potatoes but was used for many other illegal purposes and Jetamec® (which contained ivermectin), which was registered as a blowfly jetting treatment but was diluted and used as a worm drench.

In Australia, the first restrictions on access and use of chemicals were introduced over 50 years ago. This related to obtaining strychnine to control feral animals on private land. Conversely, restrictions on the use of farm chemicals for general agricultural purposes have only emerged in the last twenty years.

In the last few years, there has been a developing divergence in legislation on pesticide usage in different states. For example, in 1996 in Victoria new regulations, under the Agricultural and Veterinary Chemicals (Control of Use) Act 1992, were introduced which required users of schedule 7 poisons and other specified compounds to first obtain an Agricultural Chemical Users Permit. Chemcert, a national farmer training organisation, has provided formally assessed chemical training courses to Victorian rural people to help increase awareness of changes in legislation.

In July 2000, the NSW Pesticides Act 1999, which contains stronger provisions than the previous Act, became fully operational. In parallel with the new legislation, a comprehensive chemical training program called SMARTtrain was introduced as a joint initiative between NSW Agriculture and TAFE NSW (Bourke, pers. comm.).
Currently there are four different course levels from a basic introduction to chemical safety through to an instructor level with all being accredited with the NSW Vocational Education and Training Accreditation Board (VETAB) and aligned with units of competence in the Agriculture and Horticulture Training Packages. Bridging courses are also offered for participants who have previous knowledge and experience. Courses can only be delivered by registered training organisations (RTOs).

Other states have not moved as quickly but the general trend is for stricter legislation to be introduced in the near future. This will place a greater emphasis on farmer training programs.

In addition, several surveys investigating the relationship between on-farm chemical usage and wool residues have identified several practices that require a greater extension focus (Plant, 1995; Horton et al., 1997; Ward & Armstrong, 1998).

The Woolmark Company over the last three years has helped fund a national farmer training program, the ‘Clean Wool’ course. Early course development was done in collaboration with Rural Industries and Skills Training (RIST) in Victoria. Over the past 12 months, Woolmark has worked with Chemcert Australia (formerly Farmcare Australia) to develop new course notes with plans to promote the course through Chemcert in each State.

Chemcert Australia is a national body that coordinates the National Farm Chemical User Training Program which was introduced in 1991 by the National Farmers’ Federation and the Rural Training Council of Australia (Kent & Smith, 1997).

Chemcert was chosen as a collaborative partner for the ‘Clean Wool’ course based on several perceived benefits including:

- a strong training network in most States;
- courses complying with national agreed industry competencies and meet Australian Quality Framework criteria;
- providing recognised certification which must be renewed every five years; and,
- being recognised by several established quality assurance programs.

Course content and structure

It is recommended that the ‘Clean Wool’ course be offered as a one day training course to participants who have already completed recognised basic chemical training. The main areas covered are;

- fly and lice biology;
- legislation;
- residues;
- integrated pest management (IPM);
- chemical groups;
- chemical application;
- the vendor declaration;
- environmental safety; and,
- occupational health and safety.

Course assessment focuses on a demonstration of understanding and application of IPM principles through participants developing their own property IPM plan.

Training evaluation

There has been limited research on the impact of formal farmer training in Australia. However, some studies have identified several interesting findings. A study by Kilpatrick and Rosenblatt (1998) identified why farmers preferred informal to formal learning experiences including being uncomfortable in a controlled formal learning setting, and having a preference for independent learning where confidence has been established in relation to the source and relevance of the information.
These results provide an insight into perceptions that may need to be changed to improve attendance at formal training sessions. The alternative is to develop methodologies that farmers prefer to achieve the same objectives of formal training courses. This is a challenge for regulators, government extension personnel and rural educators.

A further study by Kilpatrick (1996) demonstrated a positive link between participation in education and training and greater farm profitability through making successful changes in their business.

Other studies suggest that changes in chemical handling can be expected by those who participate in formal training (Sunderland, 1993; Northey et al, 1995).

Most formal training programs (especially those that receive a government subsidy) require participants to complete a course evaluation sheet at the conclusion. However these types of evaluations tend to be superficial and relate mainly to the performance of the presenter and course materials, with possibly some probing of the likelihood of participants to implement changes in the future. Only limited information can be gained from such evaluations as to the true impact of a training course.

Further appreciation of the possible impact of a training course might be gained from the course assessment i.e., score achieved by participants/number of failures etc. Again, this may provide an indication of a participant’s level of knowledge and skills (if a practical assessment is included) but does not predict the changes in on-farm management practices.

In order to be confident in the effectiveness of formal chemical training courses a series of evaluations should be undertaken including an assessment of changes in attitude and beliefs and ongoing changes in farm practices. Kilpatrick (1997) outlined the framework used when she conducted five interview case studies of formal and non-formal training as part of a report commissioned by the Tasmanian Rural Industry Training Board.

Surveys that have identified specific high risk practices which contribute to excessive wool residues (Plant, 1995; Horton et al, 1997; Ward & Armstrong, 1998), could form the basis for an assessment of the prevalence of such practices which could easily be incorporated into an impact evaluation of the ‘Clean, Wool’ course.

**Discussion**

It appears that a formal training course offered on a national basis may assist State extension efforts to encourage the adoption of IPM approaches to manage sheep lice and blowflies and to minimise wool residues.

The advantages of a national program include courses being offered by qualified independent training providers, content and materials being consistent in each State, the opportunity for woolgrowers to apply IPM principles to their own enterprise and to receive recognised certification. However, some caution exists as to the expected overall impact of formal chemical training particularly for medium to long term changes in farm practice. This doubt can be addressed by determining if course participants implement IPM strategies several months or a year after undertaking the course.

**Conclusion**

The ‘Clean Wool’ course has the potential to greatly assist wool growers to implement IPM strategies for the control of external parasites and to subsequently reduce the level of pesticide residues in the Australian wool clip. However, it is strongly recommended that a series of evaluations is conducted to ascertain the level of effectiveness of the course and to gather information to modify the course as required.
References


