PESTICIDE USE AND ABUSE - THE NEED FOR TRAINING

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Summary. Changes in Australian agriculture have led to enormous increases in pesticide usage. However, overuse and misuse have resulted in resistance problems and greater environmental concerns. These issues threaten the future of the agricultural chemical industry. Current legislation is inadequate due to the lack of understanding by users. We should urgently address these problems and insist on a scheme of training, education and licensing for all who handle, use and advise on chemicals. Such a programme needs to be coordinated by an umbrella association with which the many industry groups can be affiliated.

INTRODUCTION

Australian agriculture in the 1980s has undergone a period of rapid change which has increased dependence on agricultural chemicals.

These changes can be attributed in part to three influences:

(a) the current economic climate has reduced profitability of traditional crops and farming methods. Farmers have been forced to intensify production and diversify into non-cereal crops such as rapeseed and lupins. This has increased the demand for insecticides and fungicides;

(b) the concerted efforts by scientists, farmers and politicians towards preservation of the nation's soil resources via conservation farming methods has involved greater use of herbicides for seedbed preparation and weed control; and

(c) local governments and other authorities such as the Department of Main Roads, the State Rail Authority, the Water Resources Commission, and the National Parks and Wildlife Service have also become increasingly reliant on herbicides for the control of noxious weeds, and weeds interfering with the provision of essential services.

EMERGING ISSUES

The misuse of agricultural chemicals has resulted in problems of resistance. This occurred initially with insecticides and more recently with herbicides (4). Herbicide resistance in particular threatens the entire conservation farming effort in Australia (5).

Public perception of the environmental and health concerns surrounding pesticides use and residues has intensified. We are all aware of the emotional content of the environmental lobbyists' protests, but nevertheless it has vote-catching appeal. In the U.S.A., draconian legislation is threatening agriculture by restricting the freedom of farmers to use agricultural chemicals (2). In Australia, the environmental movement is potentially powerful enough to have a similar impact on the agricultural and horticultural industries by having key chemicals banned, or their use curtailed.

As scientists we decry the emotionalism and lack of factual information. However, as an industry, we should share legitimate concerns and do all in our

power to protect the environment by adopting a professional approach to the use of pesticides.

PESTICIDES LEGISLATION IN N.S.W.

The Pesticides and Allied Chemicals Act 1978 in N.S.W. was introduced to protect people and the environment by controlling the sale, use and possession of pesticides. Under the provisions of the Act the user is legally required to read, or to have read, all the instructions contained on the label. It is an offence to wilfully or carelessly disregard these instructions. This presupposes that the user understands the terminology and is able to correctly interpret label instructions. Our experience with short courses at the School of Agriculture of R.M.I.H.E. indicates that many end-users do not have sufficient background knowledge to fully comprehend what is written on the label.

In addition to this Act which is administered by the Department of Agriculture, there are numerous items of legislation with which users must comply. For example, the Departments of Health, Industrial Relations, and Transport, as well as the Standards Association of Australia, also have regulations relating to the handling and use of chemicals. The regulations of one Department sometimes overlap and conflict with those of another.

Legislation controlling chemical registration and usage differs between States, adding considerably to the cost of products. Consequently, some desirable chemicals remain unregistered and thus denied to farmers. There is an urgent need for consistency of legislation and regulation between Departments and between States (1, 6).

While the motives of the legislation are commendable, the communication is ineffective and the final result falls short of that desired. All those concerned with the sale and use of agricultural chemicals need to be appropriately trained. This needs to be supported by legislative changes. Uniformity of legislation would simplify training requirements and facilitate a concerted effort towards improving proficiency within the industry.

TRAINING PROPOSALS

A large number of people are involved in the agricultural chemical industry. Many of them have no training in the use of pesticides and therefore we suggest that Weed Societies should urgently address this issue.

Current requirements and proposals for future training of the various groups are as follows:

1. Research workers. Professionals employed by private companies, Departments of Agriculture, CSIRO, and tertiary academic institutions will normally have tertiary qualifications and will be well versed in pesticide use. Those in private companies will be working under their company's code of ethics and legal liability. Researchers in government organisations (often those enforcing the relevant legislation) will have organisational constraints with regard to safety. Those in academic institutions have postgraduate qualifications and the added responsibility of training the professionals, and are therefore aware of the dangers involved. In N.S.W., however, the Pesticides and Allied Chemicals Act 1978 requires that those evaluating new chemicals, or new uses for old chemicals, must obtain a separate permit for each chemical in each research programme. The need for such permits is questioned. We propose that this be replaced with a system whereby

professionally qualified people would be licensed to use unregistered chemicals. They would maintain that licence provided they operated in accordance with accepted practice. Authorised tertiary institutions with appropriate expertise could act as examining bodies (as happens in some States in the U.S.A., e.g. Illinois (A. Leys, pers. comm., 1987), or a Postgraduate Diploma in Crop Protection such as offered by the Queensland Agricultural College and R.M.I.H.E. (from 1988) may suffice. An analogy is drawn between research with agricultural chemicals and research with radioisotopes where researchers are licensed on the basis of their professional qualifications.

2. Advisory officers and consultants. These officers will usually have tertiary qualifications and be employed by Departments of Agriculture, so most possess considerable expertise in pesticide use. They are legally restricted to advising in accordance with the registered label. However, unofficial advice is often given. Although permits for use of non-registered chemicals can be obtained in special circumstances, a case can be made for advisory officers to have more freedom in their recommendations, e.g. the use of reduced rates of pesticides.

3. Spray contractors. Contractors operating ground application equipment are not required to be licensed or registered in N.S.W. unlike other States. Because many of these operators are also in a position to give advice on chemical use, it is of concern that many are untrained. All spray contractors should have appropriated qualifications and be licensed. The Aerial Agricultural Association of Australia has provided a useful example of what needs to be done through their "Operation Spray-Safe" which emphasises education, accreditation and research (3).

4. Aerial operators. Aerial operators are usually well trained and a recent innovation has been the requirement for agricultural pilots to undertake an examination to test their competency to apply pesticides. Successful completion qualifies them for a Pilot (Pesticide Rating) Licence (J. Reynolds, pers. comm., 1987).

5. Pest exterminators. There is no training requirement for pest exterminators although legislation is proposed. A certificate level course for these operators is available through Sydney College of TAFE, but rural-based exterminators are clearly disadvantaged.

6. Council weeds officers and employees of other organisations. Supervisors should be licensed and appropriately educated, preferably with tertiary qualifications related to pesticide usage. Operators should undergo thorough in-service training.

7. Resellers and retailers. No training or registration requirements exist for salesmen even though they offer advice to farmers on products. This advice is often naively accepted. Again, our experience with pesticide short courses indicates that many salesmen are unaware of the importance of vital considerations such as the accurate identification of target weeds, timing of application, weather conditions, and the effects of plant stress on herbicide performance. All those selling and giving advice on the use of chemicals need to be trained and licensed.

8. Farmers. As the main users of agricultural chemicals, it would seem desirable that farmers should have some training in chemical use and spray application technology, although it is unrealistic in the short-term to expect them to obtain qualifications. Pressure from the industry on governments to facilitate education of farmers would considerably improve farmer expertise

and minimise the risks associated with chemical usage. The provision of more short courses, perhaps with industry and government sponsorship, is essential.

A CO-ORDINATED APPROACH

For any education, training and licensing programme to be effective it needs to be consistent and co-ordinated. There is justification for the establishment of an umbrella organisation or association such as AVCA with which the many industry groups can be affiliated. This Association should have responsibility for co-ordinating training requirements and courses. With a charter and code of practice to which all parties must subscribe, professionalism and self-regulation within the industry will be promoted.

Such a unified association would also be a very potent lobby group to ensure accurate information is publicised and to also ensure legislation is uniform and constructive.

CONCLUSION

The agricultural chemical industry needs to insist on training to improve the levels of knowledge and skill of all who handle, use and advise on chemicals. We must be professional. It is our responsibility to ensure that appropriate safety standards operate in our industry and that chemicals are used efficiently. We need to establish a blueprint nationally for the uniformity of legislation.

If we do not act now it will be taken out of our hands. Desirable pesticides may be banned and pesticide resistance may become rampant. It behoves us all to play a constructive role in improving the efficiency and image of pesticides, as they are vital to the success of agriculture in the decades ahead.

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