COMMUNITY PERCEPTIONS OF INTEGRATED PEST MANAGEMENT IN COTTON

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INTRODUCTION

The concept of IPM is complex and adoption by agricultural producers has proceeded slowly. In a major review, Wearing (1988) has listed the obstacles to IPM implementation under a number of interrelated headings: Technical, financial, educational, marketing/social and organisational. Value systems within society clearly influence the behaviour of producers and several authors have recognised that the socio-political and socio-economic environment play an important part in adoption of complex technology such as IPM (Allen & Rajotte, 1990; Tait 1987; Prokopy 1988).

As a first step in developing a community education program about IPM it was decided to assess the knowledge and perceptions of members of the rural community to the pest management practices. The project "Assessment of the Potential for Community Based Education Programs on Integrated Pest Management (IPM) in Cotton", was funded by the Cotton Research and Development Corporation and results of the survey are reported in this paper.

METHODS

A questionnaire was developed to gather information about community knowledge of IPM, community attitudes to chemical pesticides in cotton, community perceptions about access to information and perceptions relating to community health. Names of growers, community organisation representatives, agricultural industry personnel and school teachers were provided by DPI extension officers based in the respective country centres. Selection of interviewees was not random and this was a deliberate decision aimed at involving individuals who were active in the community and/or industry based groups.

The districts surveyed were Dalby, (including Chinchilla and St George), Emerald (including Biloela and Theodore) and Goondiwindi (including Mooree and Mungindi). The responses to the questions were entered into computer data files and analysed with SPSS cross tabulation tests.

RESULTS

The response from cotton growers and community representatives to the project was universally very positive. One hundred (100) growers and 273 members of the community (including 180 senior high school students) completed questionnaires.

The survey generated a considerable quantity of information but aspects relating to community knowledge about IPM and community attitudes to chemical pesticides in cotton are of immediate interest.

Community Knowledge of IPM

The first question "What does the term "Integrated Pest Management" or IPM mean to you?" was assessed according to whether the response fell into one of four categories:

- Did not know the meaning of the term i.e. responses such as "never heard of it", "using pesticides", "control of pests" or the response was unclear
- Limited understanding i.e. had heard of using more than one method e.g. chemical and cultural or chemicals and biocontrol agents, reducing pesticides to prevent harm to the environment
- Stage I IPM i.e. an understanding of scouting and spraying only when necessary
- Conceptual understanding i.e. using more than one method in a coordinated way with reference to management and/or systems.

Figure 1a shows that the majority of respondents (61%) do not know the meaning of the term integrated pest management. Some have heard about several different methods of pest control and some know about scouting to check pest levels before spraying (Stage I IPM) but few (12%) of responses showed a conceptual level of understanding. When these results were separated into broad categories i.e. students, growers and other members of the community it

could be seen that more growers have a conceptual understanding than other members of the community.

When asked "When did you first hear about IPM?", the majority within each group of respondents replied that it was a new term (figure 1b); many remarked "from this questionnaire". Some growers, however, have known about IPM for more that five years.

Another question asked "What are some of the methods used to control insect pests which damage crops?" Many of the responses within each group stated "pesticides" although an encouraging number included cultural methods and also listed biological control agents such as predators and parasites. Once again growers were the most likely to list a combination of all three aspects of control.

Community attitudes to use of pesticides in cotton

Respondents were asked: "To what extent are you concerned" about the use of pesticides in cotton and the use of aerial spraying of cotton. The majority of respondents, including growers, expressed some level of concern.

In the case of concern relating to the aerial spraying of pesticides on cotton (figure 1c) the anecdotal responses were categorised according to whether respondents expressed confidence in the control of application (figure 1c Not concerned), made mildly negative statements relating to unknown or long term effects of pesticides (figure 1c Unknown), made statements relating to drift and its prevention (figure 1c Drift) or expressed strongly the dangers of pesticides and their overuse (figure 1c Dangerous). As shown in figure 1c, the responses relating to the issue of drift and the perceived dangers were of importance to many respondents in each of the groups.

Gender differences in responses

Studies in other states, notably Victoria and Western Australia, have established that health and safety issues relating to the use of chemicals in agriculture are important to rural women some of whom have called for the cessation of aerial spraying. When the responses which show the level of understanding of the term IPM within the grower group are separated by gender, it appears that more of the men have a conceptual understanding of the term than the

women (figure 1d). There is also a difference in the levels of concern shown by men and women growers in response to questions about aerial spraying; some men indicated they were not concerned about aerial spraying (figure 1e). Within the community group, the distribution of the different levels of concern is similar for men and women (figure 1f).

Male growers appear to be better informed about pest control methods and have a deeper understanding of IPM. This raises the question: Is a lower level of concern related to a greater knowledge about pest management methods and/or a better understanding of IPM? Tests of association were attempted but the data had not been collected to assess these types of relationship and there were too many categories and too few respondents, particularly of women growers, to make any definitive statements.

CONCLUSIONS

There is some evidence to suggest that the more knowledge people have of pest management practices and the alternatives to pesticides, the less likely they are to be extremely concerned about the use of pesticides and associated aerial spraying. If this linkage can be established, then the value of a community based education program could be measured in dollars. To date the costs to Queensland DPI of responding to a concerned community has been in the order of $1.4 million for the Emerald district alone.

Anecdotal responses as to where to begin a community education program invariably suggested that the schools were the place to start. Within the adult community people commented that it was married couple with young children who were the most interested in knowing more.

A comic booklet which explains IPM, has been developed as a educational tool. While it is aimed at upper primary/lower secondary school children it is hoped it will also appeal to their parents. The comic is presently being trialled in some Queensland schools.

ACKNOWLEDGMENTS

I would like to thank all the growers and industry representatives who gave time to fill out the questionnaire and to be interviewed. I am very grateful to several of the high school teachers who surveyed the senior students on my behalf. Suzanne Rayner, Lisa Halvorsen, Peta Frampton and Kim Cannon have helped with the collection, collation and interpretation of results. I thank them for their interest and contributions.

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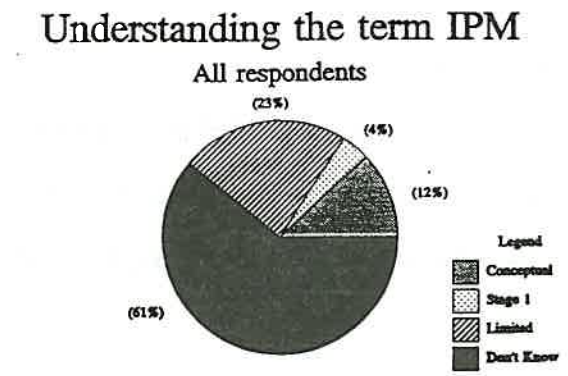

Figure 1(a). Responses to the question, "What does the term IPM mean to you?", categorised according to level of understanding. (Refer to text)

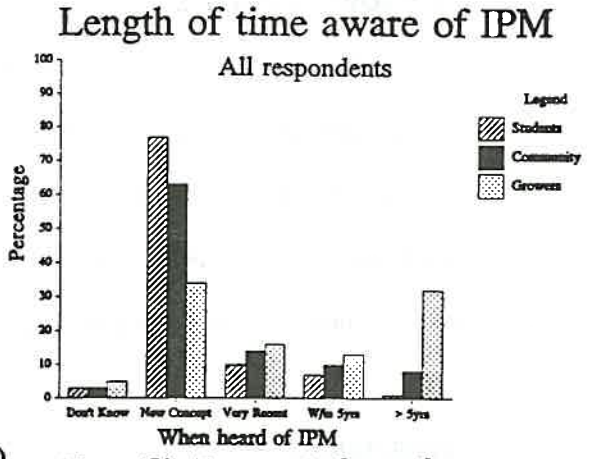

Figure 1(b). Responses to the question, "When did you first hear about IPM?"

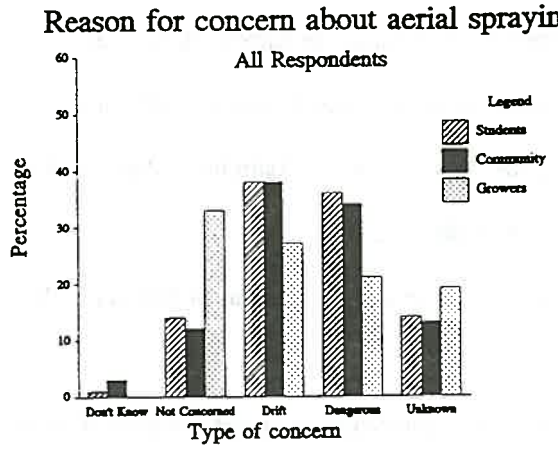

Figure 1(c). Anecdotal responses relating to concern about aerial application of pesticides on cotton grouped into five main categories. (See text)

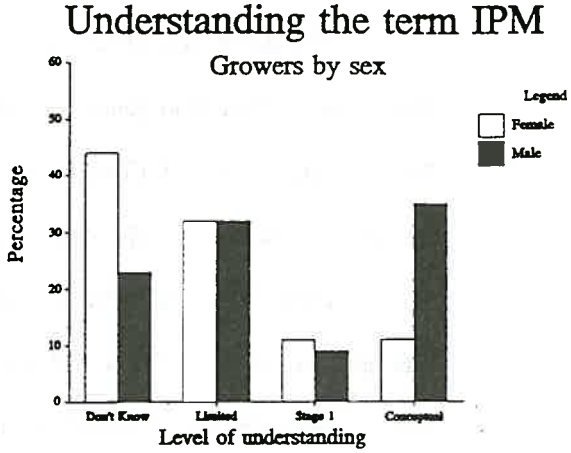

Figure 1(d). Responses to the question, "What does the term IPM mean to you?", categorised by male and female growers. (Refer to text)

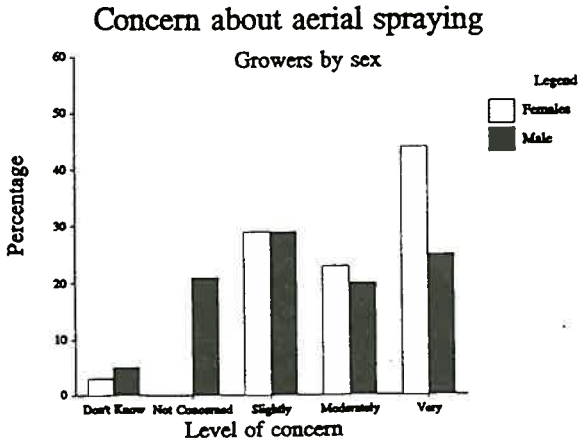

Figure 1(e). Levels of concern to aerial application of pesticides given by male and female growers.

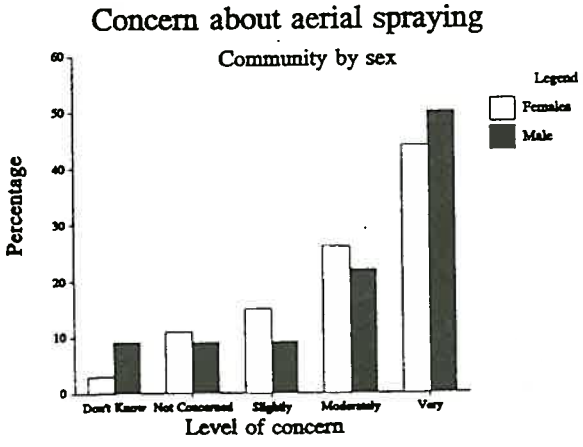

Figure 1(f). Levels of concern to aerial application of pesticides given by men and women in the community.