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were to first, document current levels of pest management training of employees in retail stores that sell pesticides, and second, identify educational programs and resources that would be most useful to this audience.

Materials and methods

A mailing list of retail stores in Illinois was obtained from the Dun and Bradstreet Corporation, through the Illinois Department of Commerce and Community Affairs. From this data set, a list of 656 retail stores that were likely to sell pesticides was generated. This included general merchandise stores such as KMart and Wal-Mart, hardware stores such as Ace Hardware, and lumber yards such as Builders Square.

On January 23, 1996, surveys were mailed to each retailer, addressed to the garden center manager. On March 21, 1996, a second mailing was sent to all non-respondents.

Retailers were asked about store personnel who make pesticide recommendations, the source and type of training that person receives, and references that are used to help customers with pest management decisions. Background information, including position of the survey respondent (store manager, garden center manager, or store employees) were included. Retailers were also asked what type of educational programs and resources would be most useful, and whether they were willing to participate in these programs.

Results and discussion

Of the 656 surveys mailed, 60 were undeliverable resulting in a questionnaire sample size of 596. A total of 171 surveys were returned for a response rate of 29%. Because 20 respondents indicated they no longer sell pesticides, results of 151 surveys were used to compile response profiles.

Background information from the survey indicated that 84% of the respondents were either store managers, or managers of lawn and garden centers.

Current level of employee training and available resources. As shown in Table 1, approximately one-third of the retail stores assigned specific employees to answer questions about pesticides, while 43% identified specific employees that make pesticide recommendations. Only 34% provided any employee training related to pesticide use. Further, of those individuals that receive any training, only about one-half felt that the level of training was adequate.

Survey of integrated pest management training needs among retail store employees in Illinois

George F. Czapar, Marc P. Curry, and John E. Lloyd

Interpretive summary

A survey of 650 retail stores that sell pesticides in Illinois was conducted in 1996. Retailers were asked about store personnel who make pesticide recommendations, the source and type of training provided, and resources that are used to help customers with pest management decisions. Of the retail stores surveyed, 43% identified specific employees that make pesticide recommendations. Only 34% of the retail stores surveyed provided any employee training related to pesticide use. When asked about attending a local education program on understanding pesticides, safe handling practices, and making recommendations, 83% indicated they would participate or send an employee.

Key words: IPM, pesticide, retail, store employees, training.

A recent survey estimated that 85% of all households in the United States had at least one pesticide product in storage, while 63% of all households had one to five products in storage (EPA 1992). Although commercial applicators must be certified to apply pesticides, many home owners have had little or no training in pesticide use. Lajeunesse et al. (1997) and Sclar et al. (1997) found that the majority of home owners in their studies purchased pesticides from home/garden centers and used these out-

lets as information providers for their pest management activities.

During the last 25 years, the role of integrated pest management (IPM) in production agriculture has increased. It is often included as a major component in food safety and water quality issues (National Research Council 1989; Gray 1990; Browner et al. 1993; Hollingsworth et al. 1994).

IPM for urban pest management has also been adopted in some areas (Smith 1993). Many in the agricultural profession have expanded the concept of IPM to include plant health care (PHC). This approach to landscape care is becoming increasingly prominent in the tree care and landscape maintenance industries for home and commercial landscapes (Ball 1994; Smith et al. 1995).

Since retail stores that sell pesticides are an important source of information for the homeowner, one method of transferring IPM developments to the homeowner may be to provide educational resources and specialized training to this audience. The objectives of this study

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Table 1. Training level of retail store employees that sell pesticides

	Response (%)	
	Yes	No
Specific employees assigned to answer questions about pesticides	35	65
Specific employees make pesticide recommendations	43	57
Employee training related to pesticide use is provided	34	66
If training is provided, the level is adequate	51	49

Table 2. Level of interest in educational topics

Topic	Response (%)		
	Very important	Somewhat important	Not important
Pesticide recommendations	79	17	8
Identification of insects, weeds, and diseases	70	23	7
Pesticide handling and disposal	65	29	6
Alternatives to pesticides	47	45	8
Economics of pesticide use	28	51	21

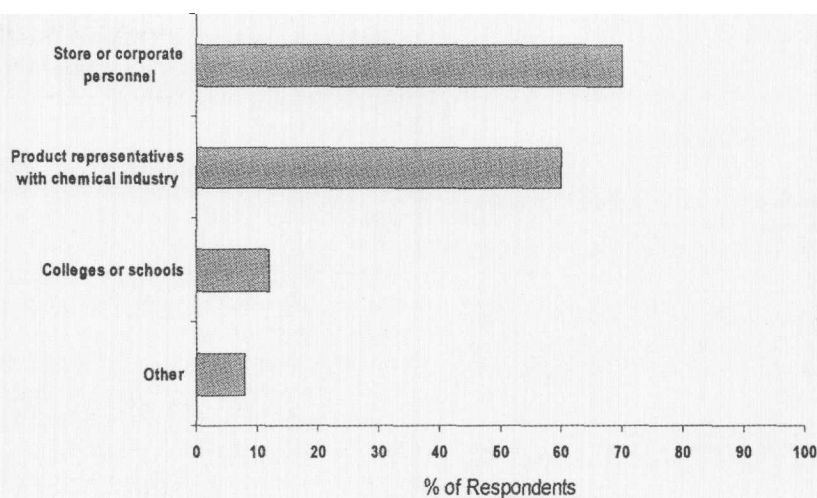


Figure 1. Current providers of pesticide training for retail store employees

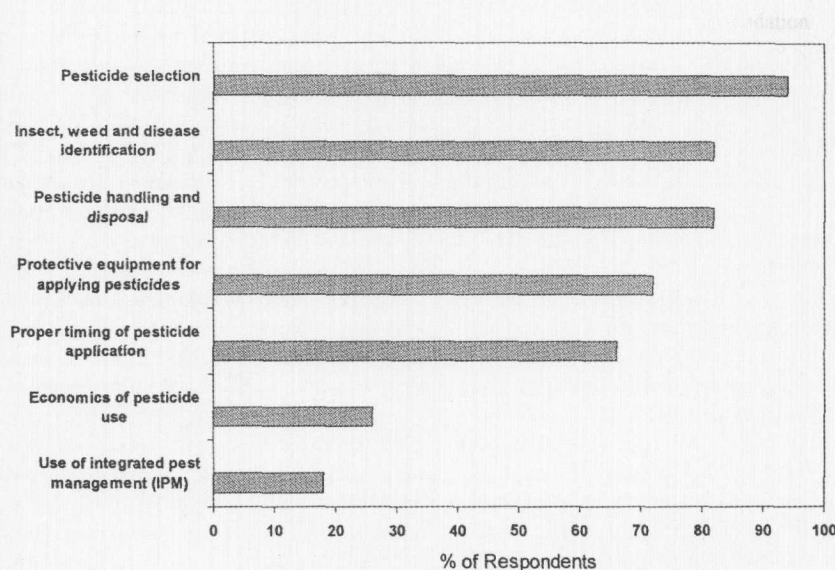


Figure 2. Topics included in current pesticide training

If training is provided, store or corporate personnel conduct most of the employee training, followed by product representatives with the chemical industry (Figure 1). In contrast, only 12% of respondents received pesticide training from colleges or schools.

Figure 2 shows the topics included in current pesticide training programs. Topics are largely related to pesticide use, with pesticide selection being the most frequently included section. In contrast, only one-fourth of the respondents identified the economics of pesticide use as a training topic, while less than 20% included the role of IPM in pesticide training programs.

As shown in Figure 3, the Ortho Problem Solver and product labels were the references most commonly used by retail store employees when making a pesticide recommendation. Only a small percentage of respondents used university or USDA publications as references. It cannot be determined if respondents were unaware of existing publications or if current university and USDA publications do not adequately address retail store needs.

Educational needs identified. Of the retailers that responded, 83% indicated they would be willing to send employees to a local, educational program on understanding pesticides, safe handling practices, and making pesticide recommendations. Table 2 shows the level of store personnel interest in potential topics for an educational program. Although making pesticide recommendations was identified as the most important topic to include, almost one-half of the respondents were interested in alternatives to pesticides.

Table 3 lists the desired outcomes of attending an educational program. Improving customer service was the single greatest outcome of a training program with 95% of the respondents identify this as being very important.

When asked to identify the type of educational resource that would be most useful to store personnel, over two-thirds of the respondents identified individual fact sheets as the preferred resource (Table 4). In-store programs for employees, comprehensive references, and videotapes were identified as being very important by over one-half of the respondents. In contrast, off-site programs at a local educational center did not appear to be a preferred option for store personnel.

Summary

In general, the current level of employee

Table 3. Desired outcomes of pest management training

Training outcome	Very important	Somewhat important	Not important
Improved customer service	95	5	-
Reduce potential environmental impacts	75	23	2
Reduced potential liability	70	25	5
Increased sales of protective equipment	64	26	10

Table 4. Type of educational resource that would be most useful to store personnel

Educational resource	Very important	Somewhat important	Not important
Individual fact sheets	67	27	6
In-store programs for employees	61	32	6
Comprehensive pest management references	58	37	5
Videotapes	52	35	12
Programs at a local educational center	32	48	20

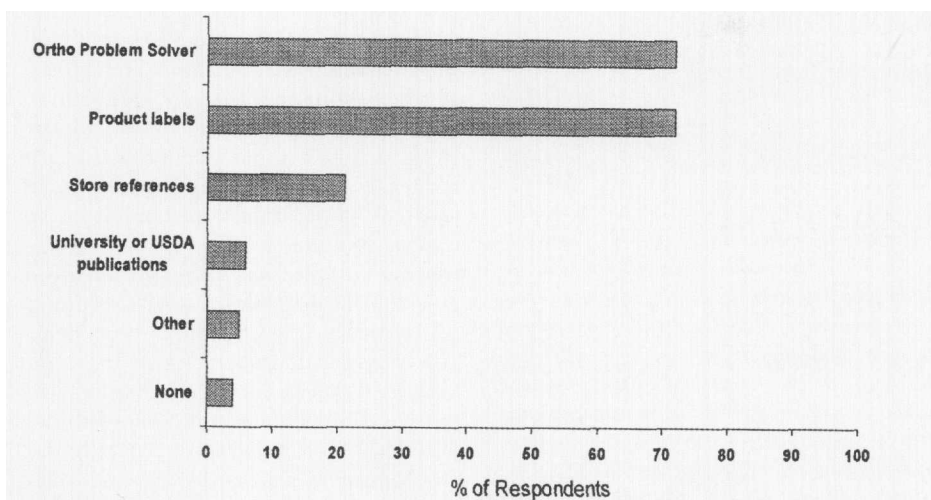


Figure 3. References used by staff when a customer needs a pesticide recommendation

pest management training in retail stores that sell pesticides appears limited. This audience, however, seems very receptive to increasing the expertise of their employees with the primary goal of improved customer service as the desired outcome. Individual fact sheets were identified as the preferred educational resources, while traditional programs at local educational centers were not as useful to store personnel.

Based on the results of this survey, pilot training programs in pest management and proper pesticide use have already been initiated in Illinois for retail and garden center employees. One immediate outcome of the pilot program was that the audience became more aware of reference materials available through the University of Illinois Cooperative Extension Service on pest management and proper use of pesticides.

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