Extension Education Methods

Educational Needs and Customer Service Practices of Retail Stores That Sell Pesticides in Illinois

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Summary. **A survey of 936 retail stores was conducted in Illinois to help understand how pest management recommendations are made, identify current sources of information, and assess educational needs. Overall response rate was 43%, and significant differences in the level of employee training, educational materials used, and customer referrals were noted among lawn and garden stores, home improvement centers, hardware stores, and general merchandise stores. While 72% of lawn and garden centers assigned specific employees to make pesticide recommendations, only 39% of hardware stores identified a specialized employee. Over 80% of lawn and garden centers referred customer questions to extension or Master Gardeners, while less than 20% of general merchandise stores made similar referrals. Improving customer service was the most important potential outcome of additional employee training, followed by improving the ability of sales staff to explain product labels. Reducing potential liability was identified as an important training outcome by 68% of home improvement centers. Fact sheets were identified by 60% of respondents as being very useful to store employees, while programs at educational centers were identified by less than 20% of respondents as being very useful. Retail stores that sell pesticides represent an important source of pest control information and product recommendations for the average homeowner. As store employees become more knowledgeable about integrated pest management, this should improve their ability to make recommendations and ultimately increase consumer safety.**

A national survey published in 1992 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 (U.S. Environmental Protection Agency, 1992). More recently, Kiely et al., (2004) reported that 78 million U.S. households are using pesticides, and estimated that U.S. expenditures for pesticides in the home and garden sector exceeded $2 billion in 2001.

Bass et al. (2001) suggested that many issues surrounding household pesticide use and potential human exposure are similar among different populations. They conducted a community survey of 107 households of a relatively low-income Hispanic population and reported finding more than 148 pesticides products with an average of 1.4 pesticides per household.

Proper application, handling, and disposal practices are necessary to minimize the impact of pesticides on water quality. Recently, Gilliom et al. (2006) reported the results of a national water-quality assessment program and found that some insecticides were detected more frequently and in higher concentrations in urban streams than in agricultural streams.

Although commercial applicators must be certified to apply pesticides, many homeowners have little or no training in pesticide use. Lajeunesse et al. (1997) and Sclar et al. (1997) found the majority of homeowners in their studies purchased pesticides from home and garden centers and used these outlets for pest management information.

Because retail stores that sell pesticides are an important source of information for the homeowner, many store employees are asked to make pest management recommendations. A previous survey in Illinois found that only 34% of retail stores provided any employee training related to pesticide use (Czapar et al., 1998). If training was provided, it focused on pesticide selection, while integrated pest management (IPM) concepts were seldom included. However, retail store employees appear willing to attend educational programs to improve customer service (Czapar et al., 2004).

The purpose of this study was to conduct a comprehensive survey of retail stores that sell pesticides in Illinois to identify educational needs, compare pest management recommendations among different store types, and assess opportunities for expanding educational programming.

Materials and methods

A list of retail stores in Illinois was obtained from BusinessUSA (infoUSA, Inc., 2003). From this data set, a mailing list of 977 retail stores most likely to sell pesticides for household, lawn, or garden use was generated. The list included general merchandise stores such as Wal-Mart, hardware stores such as Ace Hardware, home improvement centers such as Home Depot, and numerous

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lawn and garden centers such as Frank's Nursery. Stores ranged from small, independent sole proprietors with one to four employees to large, corporate stores with over 500 employees.

On 7 Feb. 2003, survey instruments were mailed to each business, addressed to the manager or store owner. As an incentive to complete and return the questionnaire, an insect identification guide was included with the initial mailing. The full-color guide contains information on identification and management of over 30 lawn and garden pests (Jeffords et al., 1997). On 5 Mar. 2003, a second mailing was sent to all nonrespondents.

Retailers were asked about store personnel who make pesticide recommendations, the type of training employees receive, and the references that are used to help customers with pest management decisions. Stores were also asked to identify the most common type of question and where customers are referred if questions cannot be answered in the store. They were also asked what type of educational resources would be most useful and about potential benefits of improved employee training.

Cross tabulations were used to compare survey responses and data were analyzed using a Pearson's chi-square statistic to identify significant differences among store types.

Results

Of the 977 questionnaires mailed, 41 were returned as undeliverable, resulting in a survey sample size of 936. A total of 408 questionnaires were returned, for a response rate of 43%. Of the questionnaires that were returned, 402 were complete and were used to compile response profiles. Background information from survey respondents indicated that 92% were store owners, store managers, or managers of lawn and garden centers. Consequently, survey responses should accurately reflect the perception of store management. Respondents were placed in one of the following four categories: general merchandise, hardware, home center, and lawn and garden.

As shown in Table 1, levels of employee training related to pesticide use and the practices of making customer recommendations varied significantly between store types. Lawn and garden centers were more likely to have specific employees assigned to answer pesticide questions and make recommendations than were home centers, hardware stores, or general merchandise stores. In addition, they

Table 1. Comparison of employee training and level of pesticide specialization by store type, as determined by a survey of retail stores that sell pesticides in Illinois.

	Lawn and garden (%)	Home improvement (%)	Hardware (%)	General	Chi-square[z]
Specific employee are assigned to answer pesticide questions	63	42	34	37	31.25**
Specific employees make pesticide recommendations	72	46	39	49	36.52**
Employee training related to pesticide use is provided	57	41	35	35	17.16**
Number of responses (n)	141	33	191	37	

[z]Pearson's chi-square.
**Significant at $P < 0.01$.

Table 2. References used by store employees to make pesticide recommendation compared by store type, as identified in a survey of retail stores that sell pesticides in Illinois.

Question	Lawn and garden (%)	Home improvement (%)	Hardware (%)	General (%)	Chi-square[z]
None	2.8	18.2	2.6	2.7	18.98**
Store references	38.3	39.4	29.8	48.6	NS
Ortho Problem Solver (Smith, 2003)	56.7	60.6	62.8	56.8	NS
Product labels	66.7	69.7	78.5	70.3	NS
University publications	46.8	6.1	4.7	0	107.78**
Department of Agriculture publications	23.4	0	3.7	0	44.60**
Number of responses (n)	141	33	191	37	

[z]Pearson's chi-square.
NS,**Nonsignificant or significant at $P < 0.01$, respectively.

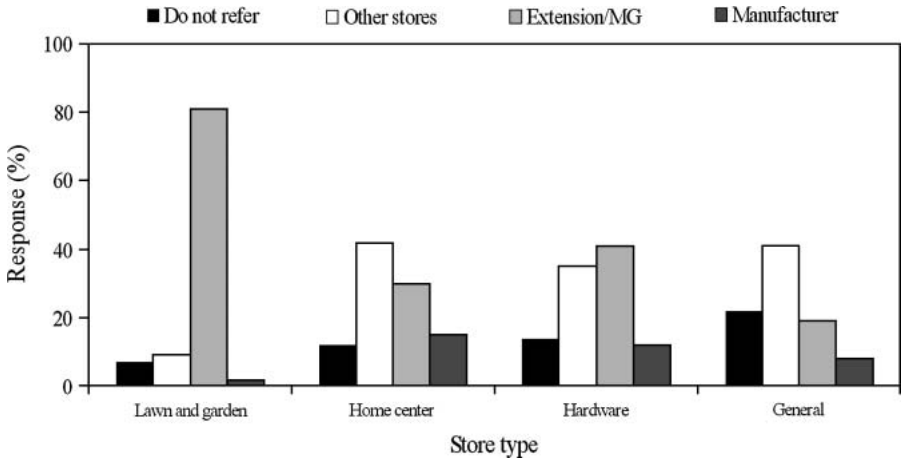

Fig. 1. Source of customer referral if questions cannot be answered in store for each store type, as indicated by a survey of retail stores that sell pesticides in Illinois (MG, Master Gardener).

were more likely to provide specialized training for their employees.

Resources and referrals. Table 2 lists the references most often used by store employees to make pesticide recommendations. Product labels were the most frequently used reference by all store types, followed by the Ortho Problem Solver (Smith, 2003). There was a significant difference in the percentage of employees using university publications among store types. Almost half of the lawn and garden centers indicated they used university publications, while less than 5% of the hardware stores and none of the general merchandise stores used them. Employees may not be aware of university publications, or they may lack the flexibility to include outside references when making recommendations. In contrast, a majority of lawn and garden centers have specific employees that make pest management recommendations and appear to be more familiar with a wider array of resources.

Differences between store types were even more pronounced when asked where they refer customers if a question cannot be answered in the store. As shown in Fig. 1, over 80% of lawn and garden stores refer customers to extension services or Master Gardeners (MGs), while less than 20% of the general merchandise stores make similar referrals. This clearly reflects a closer relationship between stores specializing in lawn and garden products and extension services/MGs. One explanation is that some lawn and garden center personnel have helped sponsor extension events, served on local planning committees, or attended educational sessions. As a result of this prior association, they appear to be more aware of available resources and programs.

Customer questions and product selection. Information was collected on the most common types of customer questions and on the factors that customers identify as important when selecting a product. Although weed control was the most common type of customer question, lawn and garden centers identified lawn and garden insect control and plant disease control as frequently asked questions (Table 3). Almost one-third of hardware stores listed household insect control as a common question, compared with a lower response from the other retail stores.

As seen in Fig. 2, product effectiveness was identified by over 70% of all store types as being very important to customers. In contrast, product safety was identified as being important to customers less frequently than

Table 3. Most common customer questions for store employees compared by store type, as indicated by a survey of retail stores that sell pesticides in Illinois.

Topic	Lawn and garden (%)	Home improvement (%)	Hardware (%)	General	Chi-square[z]
Weed control	31	57	37	49	40.2**
Lawn and garden insect control	39	13	15	19	39.1**
Household insect control	5	17	32	17	135.4**
Plant disease control	16	0	1	6	164.2**
Fertilizer questions	17	17	23	20	NS
Number of responses (n)	130	30	188	35	

[z]Pearson's chi-square.
NS,**Nonsignificant or significant at $P < 0.01$.

Fig. 2. Factors identified as being very important to customers purchasing lawn and garden products for each store type, based on a survey of retail stores that sell pesticides in Illinois.

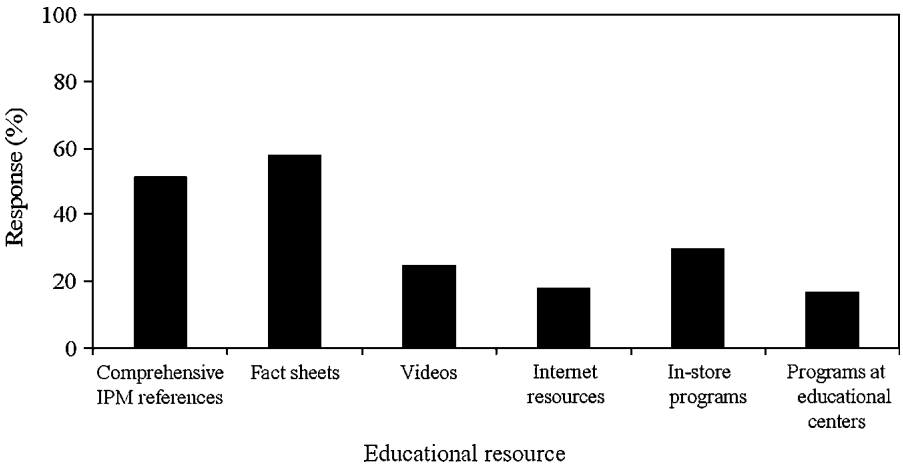

Fig. 3. Educational resources, identified in a survey of retail stores that sell pesticides in Illinois, as being very useful to store employees, pooled across all store types (IPM, integrated pest management).

all other characteristics. When considering product cost, 50% of general merchandise stores cited it as an important customer concern, but only 27% of lawn and garden centers identified cost as being very important to their customers.

EDUCATIONAL NEEDS IDENTIFIED. Because one purpose of the survey was to identify resources that would be most useful to retailers, they were asked to select the educational resource that would be most useful to store employees. Respondents indicated that fact sheets and comprehensive IPM references were most useful to store employees, while videotapes and Internet resources were deemed less useful (Fig. 3).

When asked to compare educational topics that would be of most interest, significant differences were noted between store types. As shown in Table 4, pest identification, organic pest control methods, and IPM were identified by lawn and garden centers more frequently than the other store types. In contrast, hardware stores listed pesticide recommendations as a topic of interest.

Because participating in educational programs represents a considerable investment of time and money for retailers, they were asked to identify the training outcome that would be most important. Improved customer service was listed as the most important outcome for all store types (Table 5). However, significant differences were noted in some of the other potential training outcomes. Hardware stores and general merchandise stores identified increased sales of protective equipment as important outcomes more often than did lawn and garden stores or home improvement centers. In contrast, reducing potential liability was listed as very important to over 65% of home improvement stores, which was significantly higher than the other three store types.

Table 4. Educational topics of interest to store employees as identified in a survey of retail stores that sell pesticides in Illinois; results are compared by store type.

Topic	Lawn and garden (%)	Home improvement (%)	Hardware (%)	General (%)	Chi-square[z]
Identification of insects, weeds, and diseases	76	61	74	35	26.9**
Pesticide recommendations	66	52	79	51	20.9**
Understanding pesticide labels	35	36	31	32	NS
Pesticide handling and disposal	28	36	29	16	NS
Alternatives to pesticide use	48	27	33	22	14.1*
Organic pest control methods	50	30	28	16	24.4**
Integrated pest management	39	18	21	5	25.6**
Number of responses (n)	141	33	191	37	

[z]Pearson's chi-square.
[NS,*,**]Nonsignificant or significant at $P < 0.05$ and 0.01, respectively.

Discussion

Retail stores that sell pesticides represent an important source of pest control information and product recommendations for the average homeowner. Improving the educational level of retail store employees and increasing their awareness of available resources should make them better able to provide sound pest management recommendations. Lawn and garden centers appear to be familiar with extension programs and resources, but home improvement centers, hardware stores, and general merchandise store types were not. The challenge for educators is to design programs that meet the training needs of different store types. Small retailers may have the flexibility to participate in educational programs, but larger retail stores are likely to require corporate approval to modify or supplement employee training. Another potential obstacle might be the high rate of employee turn-over experienced by some stores and the challenge of adequately training seasonal employees.

Increasing the visibility of extension/MG programs and marketing educational opportunities to general merchandise stores, hardware stores, and home centers may be one option to improve the adoption of training programs. It may take personal contact at the local level to increase awareness of existing programs.

Another approach may be the development of on-line educational programs for retail store employees. Rather than simply providing a list of

Table 5. Training outcomes identified as being very important to store personnel compared by store type, as determined by a survey of retail stores that sell pesticides in Illinois.

Outcome	Lawn and garden (%)	Home improvement (%)	Hardware (%)	General (%)	Chi-square[z]
1. Improve customer service	82.2	83.9	83.2	87.9	NS
2. Reduce potential environmental impacts	47.8	32.3	45.8	43.8	NS
3. Increase sales of protective equipment	13.7	17.2	36.4	40.6	89.9**
4. Reduce potential liability	34.1	67.7	52.6	53.1	36.5**
5. Improve ability of sales staff to explain product labels	70.5	58.1	66.9	78.1	NS
Number of responses (n)	141	33	191	37	

[z]Pearson's chi-square.
[NS,**]Nonsignificant or significant at $P < 0.01$.

Internet resources, the online training program could be structured around IPM and possibly offer a certificate upon completion. This could allow stores with a large number of seasonal employees to provide their staff with a basic understanding of pest management options.

Educational programs could also be customized to address different personnel structures in stores, expected training outcomes, and desired levels of customer service. As retail store employees become more knowledgeable about IPM, their ability to make recommendations and ultimately reduce risk to consumers and the environment should improve.

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