Measuring the Success of School IPM in Texas
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Introduction
Texas has one of the most comprehensive set of laws and regulations in the U.S. requiring public schools to implement integrated pest management (IPM) for pest control. The law, which took effect in 1995, requires all Texas public schools to use less toxic pesticides and requires licensing of all applicators. The law requires that all schools in Texas adopt a school board-approved IPM policy and to appoint and train a school district IPM coordinator. We conducted a retrospective survey to evaluate progress in IPM awareness since implementation of the law. Prior to the law’s implementation, a statewide survey of IPM practices in Texas was conducted in 1993 (Shodrock, 1994). Our new survey was designed to evaluate progress since 1993 and study the impact of mandatory IPM legislation on pest control budgets, pest complaints, pest-related complaints, pesticide use, and other indicators of IPM program success. Results of the survey should provide useful information about the impact of mandatory school IPM legislation and its effectiveness in reducing pest and pesticide risks. This information should be useful to federal and other state legislators considering such legislation.

Materials and Methods
A twelve-page questionnaire was developed using elements of the Total Design Method (Dillman, 1978). The survey was designed to include a mixture of multiple choice and open-ended questions. Some multiple choice questions asked for responses based on modified-Likert scales. The survey form was designed on Teleform® Designer (CardiffSoftware, http://www.cardiff.com/products/teleform/index.html) then copied and bound in booklet form. Each survey carried a special identification number to facilitate tracking of completed forms. A pre-notification letter was sent to school districts from the Texas Association of School Boards in October. Surveys were sent to 1,037 Texas school IPM coordinators in late November 2005. Surveys were sent to IPM Coordinators (if known) or the district Superintendent. Postage paid return envelopes were included with the survey and a school IPM training class discount was offered as a reward to all recipients who completed a survey.

A Fujitsu duplex scanner with automatic document feed was used to scan all returned surveys. The Teleform® software used optical character recognition to read results and send output to SPSS statistical software for analysis.

Results and Discussion
In 1993, Texas school districts were only slightly familiar with the impending school IPM law and were unsure how IPM would affect their district finances and ability to control pests. According to Shodrock, approximately 83% of the schools felt that mandatory IPM would negatively financially impact their district. Ten years later, 75.4% are “very” to “mostly” familiar with the current Texas laws and regulations governing pest control practice and pesticide use in public schools.

80.2% of coordinators are “mostly” to “very” familiar with the concept of integrated pest management.
98.3% of districts have a designated IPM Coordinator who oversees all pest management activities.
68.8% of respondents correctly identified a defined concept of IPM (managing pests with multiple control tactics (including pesticides)).
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Under the Texas school IPM regulations schools must notify parents annually if they periodically apply pesticides and must develop a scheduled monitoring program, maintain records of pesticide use, use selection of pest control programs, and follow a 12-hour re-entry rule after most pesticide applications. In addition, the law requires that all schools in Texas adopt a school board-approved IPM policy and to appoint and train a school district IPM coordinator. We conducted a retrospective survey to evaluate progress in IPM awareness since implementation of the law. Prior to the law’s implementation, a statewide survey of IPM practices in Texas was conducted in 1993 (Shodrock, 1994). Our new survey was designed to evaluate progress since 1993 and study the impact of mandatory IPM legislation on pest control budgets, pest complaints, pest-related complaints, pesticide use, and other indicators of IPM program success.

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Despite initial fears, there is no evidence that IPM implementation has cost Texas school money more in 1993. 48%, schools spent $5,000 or less on enforcement (compared to $70 in 2005). However, 56% of respondents said that they felt that IPM had reduced long-term costs of pest control. Only 16% felt that IPM had increased the cost of pest control. When asked if IPM had reduced the cost of pest control across the past 3 years, nearly 50%, said it had stayed about the same, compared to 32% who said it had increased. This suggests that despite rising costs of pest control for some districts, most coordinators do not attribute increases to mandatory IPM. The widespread availability of training programs for schools is an important part of school district governance. An IPM program is an important part of school district governance. An IPM program is an important part of school district governance. An IPM program is an important part of school district governance. An IPM program is an important part of school district governance.

Conclusions
Ten years after implementation of Texas school IPM laws and regulations, most districts have complied with state requirements, and school IPM coordinators have a better understanding of IPM. It is apparent, however, that there is room for improvement with respect to IPM understanding and implementation. Over 30% of respondents, for example, did not correctly identify the best definition of IPM.

When asked if their baseline data for comparison is limited, it appears that the Texas law has reduced the amount of conventional residual insecticides in favor of baits and other, less-toxic methods. Only 15.4% of respondents indicated use of baits in Texas compared to 42% in California. Only 1-2% of respondents often used herbicides or pesticides bearing a “warning” or “noxious” label compared to 43.8% and 13% of districts, respectively.

When asked about changes in pesticide use, 74.4% said they thought they used less pesticides under IPM.

When schools adopt IPM they generally achieve better pest control results. Among respondents, 75% felt they had achieved better pest control since implementing IPM. Only 10.9% felt that there had been no improvement in pest control results. These responses were substantially higher than results from a survey of California pesticide applicators. This difference may be due to the limited use of conventional insecticides in Texas compared to California’s 4 years, or may be due to training or differences in legal requirements between the two states.

Approximately 72% of respondents were mostly satisfied with their ability to manage indoor pest problems. Satisfaction was slightly lower (63%) for success in controlling weed problems. Only 10% of school districts do all their pest control in-house. There was a generally high satisfaction level among schools with their outside pest control contractors (86% mostly satisfied or mostly satisfied).

5.7% of respondents to the public survey said they had improved pest and pesticide risks. This information should be useful to federal and other state legislators considering such legislation.

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References

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