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Assessing an Extension Plant Pest Diagnostic Center for Commercial Clients: Satisfaction, Savings, and Success

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Assessing an Extension Plant Pest Diagnostic Center for Commercial Clients: Satisfaction, Savings, and Success

Abstract

The descriptive-correlational study reported here sought to assess the effectiveness of the Extension Plant Pest Diagnostic Center (PPDC) for Tennessee's commercial clients. These clients are served through one-on-one consultation regarding their individual plant or household and structural pest problems through submitted samples. The results from a mailed questionnaire showed that the majority of PPDC clients felt that the information was quick enough for their needs. While one-third of the 61 respondents stated that the PPDC recommendations saved them money, only one in 10 estimated the amount of money they saved. Suggestions for future PPDC evaluation studies are discussed.

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Introduction

" . . . one-on-one consultations are of great use to Extension clients, beneficial change is made, and there is an opportunity to have measurable impact."

(Petrzelka, Padgitt, & Wintersteen, 1999)

The value of Extension's one-on-one consultations, or personal contact, has been labeled the

"keystone" of high-quality, effective Extension work (Hagerty & Evans, 1994). Strategies for evaluating one-on-one instruction are varied and include client satisfaction surveys and estimates of the program's monetary benefits. Client satisfaction surveys provide Extension with both accountability measures and program improvement data (Radhakrishna, 2002; Rennekamp, Warner, Nall, Jacobs, & Maurer, 2001; Warnock, 1992). Richardson and Phillips (2004) propose estimating monetary benefits by inquiring how much the client is willing to pay for the education provided.

A valuable resource for one-on-one consultations conducted by the University of Tennessee Extension is its Plant Pest Diagnostic Center (PPDC), located on the grounds of Tennessee's Ellington Agricultural Center in Nashville. Tennesseans primarily utilize the PPDC by asking their local Extension agent for a plant or pest diagnosis and/or recommended treatment. If the agent is unsure or wants to confirm his/her initial diagnosis and/or recommended treatment, the agent sends the plant pest sample to the PPDC. Samples may be mailed, sent electronically as a digital image, or brought personally to the PPDC.

PPDC clients can be dichotomized as commercial, such as farmers and pest control operators, and non-commercial or homeowners. Nearly all services are provided at no cost to the client. Recommendations are sent directly from the lab technicians to the local Extension agent, who then contacts the client. This allows for quick, tailored advice for the individual client, yet it also allows the agent to be better prepared for future individual consultations in their local community.

In 2003, the PPDC handled approximately 4,000 samples, diagnosing and recommending treatment for various plant pests (weeds, diseases, and insects). PPDC recommendations may or may not include pesticides, consistent with the most cost-effective treatment and/or stipulations of the client. A major goal of the PPDC is to share pesticide and other control recommendations that will control plant and household and structural pests while ensuring that pesticide users and the environment remain safe.

Quantifying and qualifying Extension's one-on-one impact is complicated due to the plethora of insects, weeds, and diseases diagnosed and treated. The commercial clients include nurseries, greenhouses, landscaping firms, household and structural pest control operators, retail garden centers, and commercial fruit and vegetable producers as well as producers of other crops such as corn, cotton, soybeans, wheat, pastures, and turfgrass. The Tennessee Pest Management industry is estimated to represent revenues of approximately \$150 million annually. Knowledge of commercial client satisfaction, including willingness to pay, was needed to evaluate the PPDC.

Purpose and Objectives

The study reported here sought to more accurately define client satisfaction for PPDC commercial clients. The specific objectives were to describe:

1. The clients' satisfaction with the PPDC's speed and quality of information.
2. The clients' monetary savings, if any, from following PPDC recommendations.
3. The clients' success with pesticide and pesticide-free control methods.
4. The clients' perception of environmental safety when using Extension pesticide recommendations.
5. The relationship between information continuing to be of value to the client and the client's willingness to pay a fee for PPDC educational service.

Methods

An instrument composed of 12 questions was created to achieve the objectives of the study. The instrument was reviewed for both face and content validity by three faculty members in the UT Department of Entomology and Plant Pathology, and changes were made to reflect input from these experts. Questionnaires, with an accompanying cover letter, made use of the Total Design Method (Dillman, 1978; Salant & Dillman, 1994), and questionnaires were mailed to 83 randomly selected commercial clients (no homeowners) of the PPDC. The address list was compiled from submitted samples. All samples are taken with a form that delineates the client's name and address. The same form is used regardless of how the samples are received (electronic, surface mail, or personal visit to the lab).

Of the 83 commercial clients, 61 completed questionnaires were received for a 73.5% response rate. Because the response rate was less than 80% (Lindner & Wingenbach, 2002), the early respondents were compared to the late respondents to control for nonresponse error. The latter 50% of surveys received were classified as late respondents (Lindner & Wingenbach, 2002), and the early and late respondents did not differ.

Data Analysis

The Statistical Package for the Social Sciences version 12.0 (2004) was used for data analysis and Chi-square with the Phi correlation was used to determine relationships between variables. Most answer categories were "Yes," "No," and "Don't Know," with most of the "No" and "Don't Know" responses collapsed into a single category for data analysis. The magnitude of relationships was described using conventions by Davis (1971) and considered significant at the 0.05 level.

Results

Respondents represented Tennessee's three grand geographic divisions. Location was described using postmarks. About one-fifth of the respondents' locations (n=12; 19.7%) could not be identified by postmarks, and the remainder of the respondents were from the Central Region (n=29; 47.5%), followed by the Eastern Region (n=17; 27.9%) and Western Region (n=3; 4.9%).

Objective 1: Describe the Clients' Satisfaction with the PPDC's Speed and Quality of Information.

Of the 61 respondents, the vast majority felt the information was quick enough for their needs (83.6%) and continues to be of value to them (85.2%) and that comparable information was either not available ("no" answer) or the respondent was not aware of the availability ("Don't Know" answer) from another university, business, or agency (78.8%) (Table 1).

Table 1.
Characteristics of the Information Received from the Plant Pest Diagnostic Center

	Yes		No or Don't Know ¹		All Cases	
	N	%	N	%	N	%
Was the information quick enough for your needs?	51	83.6	10	16.4	61	100
Does the information continue to be of value to you?	52	85.2	9	14.8	61	100
Is comparable information available to you from another university, business or agency?	13	21.3	48	78.7	61	100
¹ Collapsed data						

Of the 13 respondents (21%) who said that comparable information was available elsewhere, 12 respondents provided the following 15 responses:

- Commercial labs (6),
- Land Grant University other than the University of Tennessee (5),
- Non-Land Grant University (2), and
- Other answers (2).

Objective 2: Describe the Clients' Monetary Savings, if Any, from Following PPDC Recommendations.

Most respondents (65.5%) felt that the information they received from the PPDC did not save them any money (Table 2). Clients who did indicate savings from PPDC recommendations were asked to estimate the amount of money they saved from the information they received. While one in three respondents (34.4%) felt that the information they received had saved them money, only seven (11.5%) completed the question asking them to estimate the amount saved. Estimates ranged from \$200 to \$10,000, with a mean of \$3,300 and a median of \$800.

Table 2.
Client Savings from PPDC Diagnosis and Treatment Information

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Did the environment stay safe in using pesticides?	42	68.9	17	27.9	2	3.3	61	100
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Objective 5: Describe the Relationship Between Information Continuing to Be of Value to the Client and the Client's Willingness to Pay a Fee for PPDC Educational Service.

A low, positive relationship was found ($\Phi = 0.29$; $p \leq .02$) between the client having a continued value from the Extension recommendation and their willingness to pay a modest fee for the service. Of the respondents, 35 were willing to pay for the service. Of these 35, 94.2% reported that the information they received from the PPDC continues to be of value to them, contrasted with 73% of those unwilling to pay for the service (Table 5).

Table 5.
Continued Value of Information by Client Willingness to Pay for Diagnostic Services

Does information continue to be of value to you?	Willing to Pay		Not Willing to Pay/Don't Know ¹		All Cases	
	N (35)	% (100%)	N (26)	% (100%)	N (61)	% (100%)
Yes	33	94.2	19	73	52	85.2
No	2	5.8	7	27	9	14.8
Phi = 0.29; $p \leq .02$						
¹ Collapsed data						

Conclusions and Implications

The descriptive-correlational study reported here sought to more accurately assess the satisfaction of PPDC commercial clients. It can be concluded that the PPDC is effective in several regards because over three-fourths of clients felt that the information was quick enough for their needs, continued to be of value to them, and was not available elsewhere.

The majority also followed the PPDC recommendations to control pests (68.4%) and were willing to pay for the consultation they received (57%).

To evaluate the PPDC's monetary benefits, the study inquired if commercial clients were willing to pay for the PPDC educational service. The term used in the survey, "modest fee," could mean very different things to the diverse commercial clients served by the PPDC. This diversity was shown by the \$9,800 range in the amount of estimated savings from following the lab's recommendations. One recommendation is that future research should ascertain a more definite fee by using, for example, a scale of possible fees. Additionally, if fees were charged in the future, the continuing value of the information may need to be part of the marketing strategy because willingness to pay was correlated with the PPDC information continuing to be of value to the client.

While 34% of clients felt that the information saved them money, only 11% estimated how much they had saved. This could indicate an unwillingness to disclose financial information. The client may not know the monetary savings or may not know how to estimate monetary savings from pest control. The results of a small, descriptive study such as this should lead to larger studies that more fully evaluate PPDC clients' monetary benefits. An investigation of monetary savings may not be well suited to a study using mailed questionnaires.

Different research protocols should be pursued for measuring pesticide safety, overall pest control effectiveness, and cost-benefit analysis. This research design was limited to clientele perceptions. These perceptions are valuable for understanding client satisfaction, but are not as valuable for measuring pesticide safety. The degree to which lab recommendations help pesticide users to keep themselves and the environment safe when using pesticides should be explored using a

control group and/or protocols for observation. Because just under one-quarter of respondents (23.3%) did not know if their pest was controlled, research designs other than questionnaires should be explored. Additionally, a cost-benefit analysis is recommended to determine the monetary effectiveness of Extension one-on-one consultations and the benefits provided.

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