

# Technology Transfer

## Iowa State University Extension: Evaluation of Programs and Services Offered to Iowa's Turfgrass, Nursery, and Landscape Plant Installation and Maintenance Industries

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**SUMMARY.** A survey was conducted to evaluate the effectiveness of Iowa State University (ISU) extension programs and services to the turfgrass, nursery, and landscape plant installation and maintenance industries in Iowa. Completed questionnaires were received from 294 individuals (55% response rate). Respondents indicated they have a continuing need for pest identification and management information and that ISU extension is an important source for this information. In general, most respondents said quality of

information provided by ISU extension was better than that offered by horticultural consultants or product suppliers; however, only 48% said extension was doing very well delivering programs and information in a timely manner. Demand for on-site visits with extension specialists was greater than that for distance learning opportunities, suggesting that extension must do a better job of marketing and making relatively new communication technologies palatable.

Throughout the land-grant system, considerable effort is underway to determine how public service or outreach, the cooperative extension system, might be more effective (Fretz, 1992). Although there is ample evidence that extension has been highly effective as a major educational force in productive development of American agriculture (Larsen, 1988), recent questions about its mission, future, and effectiveness have raised concerns about the viability of extension. Specifically, what differences or impacts is extension having on targeted clientele groups given the resources invested? Impacts may be documented changes in behavior or changes in production system design or management, but ultimately should be expressed in economic terms (Ingram, 1996).

Turfgrass, nursery, and landscape plant installation and maintenance businesses are highly specialized and rapid adopters of new technologies, and their need for production, cultural, marketing, and business information is substantial. In Iowa, the traditional conduit for information flow between Iowa State University (ISU) and commercial ornamental horticulture enterprises has been the extension specialist. But reduced federal funding and a growing urban population have placed a strain on this partnership. Shrinking budgets and an increasing demand for horticultural information and programming from homeowners and other noncommercial audiences have raised questions about extension's capacity to communicate and serve commercial enterprise. Therefore, a study was conducted to gauge the effectiveness of extension to service the turfgrass, nursery, and landscape plant industries in Iowa.

The objectives of this study were to 1) survey extension clients to learn of their perceptions and experiences with extension staff and programs, 2) evaluate the perceived value of information dispensed by extension, 3) document benefits resulting from contacts with extension, and 4) identify future needs of extension clients.

### Materials and methods

Data were collected using a questionnaire. Survey questionnaires were sent by first-class mail on 26 Aug. 1996 to 558 randomly chosen members of the Iowa Turfgrass Institute and participants of past ISU horticulture programs and events sponsored by ISU extension. Of the 558 questionnaires mailed, 535 were deliverable. Mailed questionnaires included a cover letter explaining the objectives of the research and instructions for returning the completed questionnaire. On 9 Sept. 1996, a follow-up reminder postcard was sent to individuals who had not yet responded, and on 17 Sept. a second copy of the questionnaire was mailed to nonrespondents.

The questionnaire contained 23 numbered questions in closed-end and open-end form. Incomplete data for questions unanswered were not adjusted, and percentage

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**Table 1. Reported type and usefulness of horticulture information received by clients of Iowa State University extension.**

Information type	Usefulness of information (% response)		
	Very useful	Somewhat useful	Not useful
Disease and insect management (n = 210) <sup>a</sup>	60	39	1
Plant selection (n = 172)	53	40	7
Turf management (n = 169)	62	36	2
Landscaping (n = 162)	49	51	0
Pesticide training (n = 161)	50	43	7
Plant maintenance (n = 144)	50	48	2

<sup>a</sup>Number of respondents requesting an information type.

results presented in tables are based on reported totals. Frequency distribution of respondents was tabulated for each question by using the Statistical Package for Social Sciences (SPSS).

## Results and discussion

**GENERAL INFORMATION.** Completed questionnaires were received from 294 individuals (55% response rate). Most of the questionnaires were completed by business owners or managers (37%), municipal employees (city foresters, parks and recreation directors, etc.) (23%), and school groundskeepers and golf course superintendents (23%). Respondents averaged 42 years of age, 52% reported earning a college degree, and during the past year respondents averaged 13 d of professional development.

**VALUE AND BENEFITS OF ISU EXTENSION INFORMATION.** Respondents were asked to consider the last 2 years and indicate type and value of information received from extension staff in 10 subject matter areas. Seventy-five percent of respondents said they received insect and disease management information and diagnostic assistance from extension staff, and 60% of this group reported the information was very useful (Table 1). Extension clients also received information on ornamental plant selection (62%) and turfgrass management (61%); 53% and 62%, respectively, categorized this information as very useful.

Respondents were asked to review names of state and field extension specialists affiliated with departments of entomology, horticulture, and plant pathology and comment on their contacts with these individuals. Seventy-seven percent reported attending meetings where extension staff delivered a presentation, 69% read an article or report either authored by or in which extension staff were quoted, and 54% had face-to-face or telephone contact with an extension specialist. When asked to characterize quality of information received via various contact methods, 68% indicated they were very satisfied. Only three respondents (1%) said they were not satisfied.

Respondents also were asked about specific outcomes resulting from their interaction with ISU extension specialists. Eighty-one percent stated that information received from extension improved their knowledge base and allowed them to serve their customers better. Another 45% said contacts with extension bolstered their credibility and reputation and helped increase their business profitability and efficiency, and 24 of those respondents estimated the annual value of their contacts with ISU extension to be worth an average \$14,553 per business. Sixty-three percent claimed

they either adopted or recommended practices and strategies to their customers that better protect the environment, such as integrated pest management (IPM), as a result of contacts with extension specialists.

There are many sources of horticulture information for turfgrass and landscape plant professionals in Iowa. In this study, respondents were asked to compare information from ISU extension to other sources. Compared with horticultural consultants, 61% believed information from extension was better, 33% said the information was the same, and 6% said information from a consultant was better. More than half of respondents (54%) said information from extension was better than from horticulture product suppliers and other industry representatives, 36% said information was the same, and 10% believed industry information was better. Only 3% believed information from neighboring state universities was better than provided by ISU extension.

When asked how well ISU extension was assisting their business with programs timely to current horticulture industry trends, 69% responded very well. Another 58% indicated extension was doing very well by offering programs up-to-date with the latest technology. But less than half (48%) said extension was doing very well delivering these programs in a timely manner. This finding suggests that some businesses are not receiving important information from extension when it is most needed and are presumably receiving information from other sources or making uninformed decisions.

Efficient transfer of information can occur through newsletters, particularly if the information provided is concisely written and timely to the geographic area of the audience. Such is the case with the ISU extension newsletter, the *Horticulture & Home Pest News*. Published weekly during the growing season (April through September) and monthly from October through March, this newsletter features short articles devoted to seasonal problems under broad headings of entomology, horticulture, and plant pathology. Only 48% of respondents in this study said they receive this newsletter. Therefore, increased awareness and use of this publication by extension clients could help remedy the languid pace of information delivery.

**TRENDS AND NEEDS.** Respondents were asked to indicate their need and how much they would be willing to pay for several extension services (Table 2). In greatest demand were publications, slide sets, and videos (92%) followed by conferences, meetings, and symposia (91%). Of those indicating need for these services, 71% and 85%, respectively, said they would be willing to pay at least a nominal fee (\$25

**Table 2. Reported demand and value to client for various Iowa State University horticulture extension services.**

Service	Respondents willingness to participate (% response)			
	No need for service	No cost to client	Nominal fee (\$25 or less)	Full cost recovery <sup>z</sup>
Conferences, meetings, symposia (n = 245) <sup>y</sup>	9	14	41	35
On-site visits <sup>x</sup> (n = 243)	21	32	35	11
On-site training <sup>w</sup> (n = 243)	25	14	41	20
Publications, videos, slide sets (n = 241)	8	27	40	25
Diagnostic services (n = 240)	11	25	46	18

<sup>z</sup>Cost paid by the client covering all materials, travel, and professional staff time.

<sup>y</sup>Number of individuals responding to a category.

<sup>x</sup>On-site consultation between business owner and extension specialist.

<sup>w</sup>On-site training session conducted by an extension specialist for several business owners or their employees.

or less). Diagnostic services also were in demand (89%) and 72% said they would pay at least a nominal fee.

Studies conducted in Colorado (Panter, 1994) and Georgia (Garber et al., 1995) indicate that professionals in the ornamental plant industry desire on-site training. But in this study, a larger than expected number of respondents said they had no need for on-site training sessions (25%) or on-site visits by extension specialists (21%), and 14% and 32%, respectively, would participate only if there were no cost to the client (Table 2). Yet, when questioned about the importance of several teaching and learning methods, a large percentage of respondents gave moderate emphasis (26%), high emphasis (37%), and very high emphasis (25%) to on-site visits by extension specialists (Table 3). Mixed signals from clientele are a source of frustration for extension administrators, but in this case they are particularly problematic because decreasing federal resources makes it highly unlikely that an adequate number of readily accessible extension experts will be available (Gerber, 1989).

Because of pressing social, economic, and time constraints, many extension audiences prefer newer ways of receiving information (Richardson et al., 1996). But the tepid response from respondents to distance learning via satellite and fiber optics network indicates acceptance may be slow in coming for new or innovative methods of program delivery (Table 3).

Respondents were asked to suggest subject matter

topics for workshops, symposia, and printed materials that would help them with their jobs. The most frequently mentioned topic was plant pest identification and management (40%). The need for IPM or plant health care (PHC) training was reinforced by respondents in several survey questions.

When asked about length of extension programs, 56% preferred 1-d meetings, while 24% said 2-d sessions were most beneficial. Respondents were asked to consider the distance they must travel to attend extension meetings. The largest percentage (48%) said they would travel 2 h maximum (one way) to attend a meeting, while 30% said 1 h was their travel limit. Only 22% said they would travel 3 h to attend a meeting. Reluctance by extension clients to travel 2 or 3 h to a program or event has led to an increased number of duplicate programs offered at several locations around the state instead of one-time, state-wide offerings based in Ames (central Iowa).

**IMPLICATIONS FOR EXTENSION.** Results from this study indicate that Iowa's turfgrass, nursery, and landscape maintenance professionals have a continuing need for pest identification and management information and that ISU extension is an important source for pest management information and diagnostic services. These results are similar with those from a national greenhouse and nursery industry survey that identified extension as the primary source of information on nonchemical pest control measures (Garber et al., 1996).

**Table 3. Reported importance of several teaching and learning methods used by Iowa State University horticulture extension.**

Method	Importance to client (% response)				
	Very high	High	Moderate	Low	Very low
Certification programs, for-credit courses (n = 275) <sup>z</sup>	23	30	34	9	4
Conferences, meetings, symposia (n = 275)	31	37	25	5	2
Technical bulletins and manuals (n = 275)	22	44	29	3	1
On-site visits with specialist (n = 274)	25	37	26	7	5
On-site demonstrations (n = 273)	24	38	26	9	3
Telephone contact with specialist (n=273)	15	32	36	11	6
How-to videos (n = 269)	15	39	32	10	4
Distance learning <sup>y</sup> (n = 268)	13	25	33	21	9
On-the-job assistance (n = 266)	16	30	36	12	6

<sup>z</sup>Number of individuals responding to a category.

<sup>y</sup>Programs offered at sites throughout Iowa via satellite and fiber optics transmission.

Extension has traditionally used a variety of communication methods to deliver information and educational programs. Demonstrations, on-site visits, newsletters, meetings, technical bulletins, and telephone consultations will continue as important media for information exchange; however, smaller budgets and greater demands on extension specialists' time will mandate use of new communication technologies. Distance learning technology may never completely replace traditional on-site visits or local grower meetings, but these results indicate ISU extension must do a better job of marketing and making these communication innovations palatable to clientele.

Perhaps, most importantly, this study provides useful information that documents ISU extension's impact on industry. Evaluating effective transfer of information, influencing sustainable or environmentally sound production practices, and estimating profitability and efficiency are difficult parameters to quantify. Economic benefits may be the most difficult indicator to measure as evidenced by comments from respondents like, "It was difficult to put a monetary value on information received from extension." But for it to survive in the new age of accountability, extension must communicate all of its high-impact results to its myriad clientele groups (Ingram, 1996).

ISU extension continues to foster positive change and make significant contributions to the turfgrass and landscape plant industries in Iowa. The future of this relationship is contingent on the combined strengths of each participant. An extension service that is adequately funded and involved in the development of new information will remain relevant

to the dynamic industry it serves (Gerber, 1989). And financially strong, innovative, knowledge-rich businesses that attribute their success, in part, to ISU extension, will continue as supportive and valuable allies.

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