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Conducting a Statewide Dual-Purpose Program for Pesticide Applicators and County Extension Agents

Abstract

The University of Florida Cooperative Extension conducted a statewide program with a dual role during 2013 and 2014 to enhance efficiency. The program provided in-service training to county Extension agents and provided continuing education to meet requirements needed by licensed pesticide applicators. Using Polycom distance technology, the event was hosted by various county Extension offices and Research and Education Centers. Pre- and post-test results indicate that participants increased their knowledge. A survey administered showed a positive perception of the value and satisfaction with such a program and helped to identify future programming needs.

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Introduction

Like many states, the Florida Cooperative Extension Service employs Extension agents with a diverse range of educational and experience backgrounds. These Extension agents are expected to serve a varied clientele, many having very specific needs. Although our Extension agents have completed academic degree programs having excellent subject matter training, they are at times challenged with a lack of opportunities to acquire new subject matter skills (Bennett, 1979).

A fundamental obligation of Extension specialists with statewide responsibilities is to provide training opportunities for county Extension agents to learn new subject matter. Varied approaches have been used at practically all land-grant universities to accomplish training of Extension agents (Brown, Gibson, & Stewart, 2008; Lakai, Jayaratne, Moore, & Kistler, 2012; McCann, 2007). University of Florida Cooperative Extension has used both traditional and distance learning formats in providing in-service training to its county Extension agents (Brodeur, 2009).

Distance technology using Polycom or Blue Jeans has been well documented in Florida for educating pesticide applicators (Fishel, 2014; Fishel, Ferrell, Vallad, Price, Cherry, Mizell, & Duncan, 2010; Fishel & Langeland, 2011). This format has been identified to reduce the amount of travel time and expense for county faculty and state specialists for professional development training programs for county

Extension faculty in Florida (Vergot, 2004). Because certain aspects of the same subject matter that is relevant to agricultural pesticide applicators is also applicable to agricultural and horticultural Extension agents, our goal was to offer a distance education program to meet the objectives of both audiences.

Methodology

Each year, our efforts were to design an agenda with agricultural/horticultural topics appealing to the professional development needs of our Extension agents and meet state requirements for continuing education of licensed pesticide applicators. Solicitation for host sites, either at county Extension offices or Research and Education Centers, and publicizing the event were conducted from November through January. Pesticide applicators registered for the program by contacting their local host site to make reservations, and county Extension agents taking the class for in-service training enrolled through the University of Florida IFAS Program Development & Evaluation Center on-line system. Campus faculty and invited faculty from other universities served as instructors. All speaker presentations were delivered via Polycom or Blue Jeans to University of Florida county Extension offices and Research and Education Center host sites using PowerPoint format. On February 27, 2013, and February 26, 2014, the program was delivered to either 19 (2013) or 12 (2014) satellite host sites throughout the state.

To determine knowledge change, a pre- and post-test with either 13 (2013) or 11 (2014) multiple-choice questions relevant to topic content was developed. All questions contained four possible responses, with only one correct response. The pre-test was administered by host site coordinators to all audience members immediately preceding and the post-test immediately following the program. Pre- and post-tests were paired and graded to obtain means, standard errors, and percentage score improvement (Table 1). Because program content and questions were different each year, data are presented by year.

Table 1.
Difference in Knowledge Scores

2013 (n = 68)		
Pre-Test (%)	Post-Test (%)	Difference (%)
62.7	81.3	+18.6
Sd = 2.6	Sd = 2.0	
2014 (n = 65)		
Pre-Test (%)	Post-Test (%)	Difference (%)
66.7	79.0	+12.3
S2 = 2.3	S = 1.8	
2		

A separate two-part survey was developed with the first section's objective to measure the attendees' perception of program satisfaction and value. This section used a 5-point Likert scale (5 = very satisfied, 4 = satisfied, 3 = unsure, 2 = dissatisfied, and 1 = very dissatisfied) to ascertain opinions (Table 2). A second portion of the survey included a segment for determining future programming needs of this audience (Table 3). Data for both sections are presented combined for both years. This article reports and discusses selected findings from the survey.

Table 2.
Value and Satisfaction Perceptions

Element	Response Mean ¹	S ²	n
Time Use	4.1	0.8	136
Topics	4.0	0.7	135
Presentations	4.0	0.7	137
Handouts	4.1	0.9	128
¹ Mean was based on a 5-point scale where 5 = very satisfied, 4 = satisfied, 3 = unsure, 2 = dissatisfied, and 1 = very dissatisfied. ² Standard deviation.			

Table 3.
Future Agricultural/Horticultural Program Priority Needs

Responses	Rank	Topic
53	1	Importance of timing and placement of fertilizers for vegetables
50	2	Disease control
47	3	Interaction of nutrients with each other and with soil moisture, pH
45	4	Pest control in organic vegetable production
43	5	Overview of commonly used commercial fertilizer blends

Results and Discussion

Pre-test scores (>62%) of this audience participating both years indicate that they have some baseline level knowledge of current agricultural/horticultural production technology. A comparison of pre- and post-test scores serves as a measure of this audience's short-term learning of agricultural/horticultural technology that was presented during each 1-day event. Their post-tests scores clearly indicate that by the end of the program they had increased their knowledge of the presented information. The

improvement in their test scores were 18.6% and 12.3% for 2013 and 2014, respectively. Although this is a measurement of short-term learning, a follow-up evaluation would be needed to better determine any long-term benefit. Pre- and post-tests are relatively easy assessment tools to develop and collect data and are commonly used by Extension professionals in diverse programs (Chapman-Novakofski, DeBruine, Derrick, Karduck, Todd, & Todd, 2004; Guion, Turner, & Wise, 2004; Lippert, Plank, & Radhakrishna, 2000). They also document impact, which is necessary for satisfying both administrative and funding agency purposes.

The majority of the participants expressed satisfaction in the time they invested by attending the program (mean = 4.1). Likewise, they had a positive reception of the topics and the presentation content and delivery (mean = 4.0). Apparently, participants perceive receiving handout materials as a positive (mean = 4.1). This may be due to the fact that handouts assist their learning during the program, but, from an Extension educator's view, it is encouraging to think they may use the information for future reference.

This portion of the survey asked the attendees to mark their top five choices for the next in-service training program. Respondents were also given an option to list other topics they felt needed to be addressed. Of 23 potential choices, the five most popular topics are presented. These five topics were ranked more highly by a relatively large margin over the 18 other potential choices. The highest ranking topic, the importance of timing and placement of fertilizers for vegetables, was identified as a key component of the 4R nutrient stewardship program (Norton & Roberts, 2012; Snyder, Bruulsema, Casarin, Chen, Jaramillo, Jensen, Mikkelsen, Norton, Satyanarayana, & Tu, 2010). Extension personnel have long used such needs assessments to address local audience issues (Etling, 1995).

In summary, it is an efficient use of resources to conduct an Extension program that addresses more than a single audience, when possible, and this can provide benefit to all participating. Extension agents benefit in several ways: a savings of travel time and expense, the opportunity to learn new knowledge from Extension specialists, and an opportunity to make clientele contacts by hosting a program site for their local audiences. In the case with this program, pesticide applicators also gain new knowledge while earning continuing education to meet state licensing requirements.

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