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Is Extension Still Reaching Stakeholders? An Assessment of Minor Crop Producers' Educational Needs and Use of Cooperative Extension Services

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Stakeholder engagement is critical for extension education to fulfill the land–grant mission of extending the university to the public. A survey of a stratified random sample of minor crop producers in Oklahoma determined how and from whom producers obtained crop production information. Findings indicated the land–grant university remains relevant and is accomplishing its mission of extending research–based knowledge to its intended audience. Field days were the most frequently attended event and a majority of the producers worked with university personnel to learn about new production practices. Most producers (67%) used Cooperative Extension Service (CES) to obtain crop production information; however, many other sources were also used, including crop consultants. Extension specialists were contacted; however, extension educators had not sufficiently engaged stakeholders to assess their preferences of receiving educational programs and materials, indicating producers seek deeper knowledge than what is provided by county educators. It is recommended that the university continue to host field days and workshops for producers and CES educators continuously strive to engage minor crop producers and devise relevant workshops, programs, and publications which address their preferred method of receiving information from the land–grant university.

Introduction

Cooperative Extension Service (CES) has a rich history of providing producers with research–based knowledge for improving production practices through demonstration and educational programs (Seevers, Graham, Gamon, & Conklin, 1997). CES was established to solve practical problems in everyday life. Nearly 100 years after the founding of the Cooperative Extension Service, the Internet and for–profit companies vie for producers' attention with the CES by offering production–related information (Ilvento, 1997), begging the question, what is the role of CES in a knowledge–based economy? Is CES relevant when producers can Google™ a topic and download high quality information quicker and more efficiently than phoning or driving to the county CES office to consult with the county educator? Will private industry, including seed suppliers and dealers and crop consultants, replace the role of county CES educators?

Typically, CES educators survey producers to ensure they are meeting their research and educational needs (Kotile & Martin, 2000). To accomplish the land–grant mission of providing cutting–edge and relevant research and educational support, it was important for Oklahoma State University to discover the extension education delivery needs of producers to determine if CES was meeting their needs for crop production information. Since many options for obtaining crop production information exist, extension educators must strive to engage producers via needs assessment to ensure proper programming and delivery

methods are used for continued success of CES in the twenty–first century.

Purpose and Objectives

Given the need for land–grant universities to engage stakeholders by way of needs assessment and identification of appropriate delivery methods of research–based information, this study sought to elucidate where minor producers obtained crop production information. The specific objectives of this study were to:

1. Identify the types of events minor crop producers attended to learn about crop production
2. Determine the type of professionals producers communicated with to acquire crop production information
3. Discover producers' preferred delivery methods to obtain CES crop production information.

Theoretical Framework

The use of CES by minor crop producers varies since producers rely on the adaptation of various communication strategies to learn new knowledge (Lionberger & Gwin, 1982; Rogers, 2003). Rogers identified the need for change agents, extension educators and land–grant university faculty in this case, to interact with opinion leaders in order for an innovation, or new farming technique, to be adopted. Opinion leaders must be actively engaged with change agents to obtain knowledge about the innovation once change agents understand there is a need for the innovation. Therefore, stakeholder engagement and needs assessments are used to verify proper programming and delivery methods to producers. The theoretical framework for this study was rooted in the stakeholder engagement literature.

Greene (1988) defined stakeholders as persons who have a legitimate stake in the outcome of a program. They may be agents, beneficiaries, or victims. In this study, stakeholders were defined as all minor crop producers in Oklahoma (N= 6,870) who grew soybeans, sorghum, cotton, peanuts, and/or field corn.

Providing extension educators with producers' views and needs for program planning will allow stakeholders to influence the direction of the programs and the method of program delivery to ensure participation and success (Lionberger & Gwin, 1982). Stakeholder engagement in the decision–making, planning, and implementation processes (Altschuld & Zheng, 1995) will help meet the needs of stakeholders and provide them with a voice in regard to CES education programs and the dissemination of land–grant university and CES publications. Incorporating stakeholders in program planning processes is "inconvenient, costly, and time consuming, [yet] it is essential for fulfilling the land–grant mission" (Kelsey & Mariger, 2003, ¶30). Needs assessments of stakeholders are essential to establish gaps between what information producers need and what CES information delivery methods are available (Altschuld & Witkin, 2000; Bowe, Smith, Massey, & Hansen, 1999; Kaufman & English, 1979).

A county staff member in Franz, Peterson, and Dailey's (2002, ¶12) study noted "an engaged university, including partnership with Cooperative Extension, …is responsive to the issues and needs of citizens in the state or county/area they serve." CES must continuously develop strategies to communicate and meet the learning needs of stakeholders to maintain their role in providing high quality research–based information (Bull, Cote, Warner, & McKinnie, 2004).

This study adds to the literature by testing Kelsey and Mariger's (2003) model for gathering stakeholder input to discover priority research and teaching areas and delivery methods needed by stakeholders. Extension educators should discover situations to engage stakeholders to resolve problems they face in order to "conduct research with the people, not just for the people" (Kelsey, 2002, ¶20).

Land–grant university professors tend to believe county extension educators or specialists distribute their findings to appropriate stakeholders (Kelsey, Mariger, & Pense, 2001), which places more emphasis on the extension

educator to interact with research faculty to obtain information to distribute to appropriate stakeholders locally. Kelsey (2002, ¶20) declared, "the time has come for extension to reengage with communities to build partnerships that truly reflect the spirit of solidarity that the land–grant university was founded upon."

Methodology

A two phase survey method (Dillman, 2000) was used to collect data. The target population was composed of 6,870 recorded producers, received from a state agricultural agency, who grew one or more of the following crops in 2006: cotton, soybeans, field corn, sorghum, or peanuts. A stratified random sample of producers (n = 1,899), based upon the crops grown, was drawn from the population (N = 6,870) (Creswell, 2005). The researcher–designed questionnaire was developed after consulting with CES faculty who had expertise in entomology, plant pathology, and plant and soil sciences. The self–administered, mailed questionnaire was analyzed for face, content, and construct validity by a panel of experts, consisting of faculty with expertise in entomology, plant pathology, and plant and soil science. An expert panel was used to prevent measurement error which occurs in survey research (Lindner, Murphy, & Briers, 2001). After Institutional Review Board clearance for protection of human subjects was secured, surveys were mailed to the sample along with a cover letter and postage–paid return envelope. One week following the mailing, a reminder postcard was sent to the sample.

Of the 1,899 surveys mailed, 471 were returned (25%) of which 223 surveys were usable, thus providing a usable response rate of 12%. To protect the confidentiality of respondents, no follow up of non–respondents was conducted (sample frame was provided by a state agricultural agency under the condition of anonymity). Data were analyzed using Microsoft Excel ® and SPSS 17.0. A comparison of late and early respondents was completed to control non–response error (Lindner et al., 2001). An independent sample t–test was performed to check for equal variances between early and late respondents (alpha=0.05). No significant differences were found; therefore, the results of this study may be generalized to the population (Lindner et al.).

Findings

Producers most frequently (53%) attended land–grant university field days to learn about crop production practices, followed by crop consultant programs and visits (38%). Cumulatively, a total of 124 events related to CES were attended while 124 events related to seed/crop consultants or advisors were attended to learn about crop production information. Table 1 lists the top five events attended most by producers to learn about crop production.

Table 1
Events Attended to Learn about Crop Production

Event	*f*	%
Land–grant university sponsored field days	119	53
Crop consultant programs/visits	85	38
Commodity group programs	76	34
Certified crop advisor (CCA) programs/visits	38	17

Besides attending events, 118 (53%) producers indicated they worked with CES personnel to learn about new production practices. However, one producer stated he worked with CES personnel "very little because the land–grant university doesn't do any meaningful research on no till farming." Another producer noted he worked with CES personnel "in the past" but "we no longer have an extension office in our county." When asked which CES personnel they communicated with about crop production, most producers indicated

they contacted their local county extension educator (48%) followed by their area extension specialist (32%). Table 2 lists the top seven crop production personnel producers communicated with about

Table 2
Personnel Communicated with About Crop Production

Personnel	*f*	%
My local County Extension Educator	106	48
Area Extension Specialist (i.e. Agronomist, Ag Economist, Horticulture)	71	32
Faculty from the Plant and Soil Sciences Department (Agronomy)	42	19
State Extension Specialist	33	15
Faculty from the Entomology & Plant Pathology Department	31	14
Faculty from the Agricultural Economics Department	23	10
Other	12	5

Producers reported they used 32 sources of crop production information. The top 15 sources are listed in Table 3. One hundred and forty–nine (67%) producers noted they used CES to obtain information, followed by seed suppliers (*f* = 144; 65%).

Table 3
Sources Used to Obtain Crop Production Information

Source	*f*	%
Cooperative Extension Regional or State Contacts or publications	149	67
Seed suppliers	144	65
Friends/Family/Other producers	134	60
Newsletters	130	58
Chemical dealers	129	57
Land–grant university Publications, i.e. fact sheets	111	50
Newspapers	102	46
County Extension Educator	93	42
Crop consultant	89	40
Local Producers' Cooperative	89	40
Trade or technical journals	82	37
Internet	80	6
Radio	63	28
Wheat Growers' Association	61	27
Other states university Cooperative Extension	47	21

In an open–ended question, producers were asked to identify two sources they used most often to find crop production information. A variety of sources were listed, yet the most frequently used sources were seed suppliers/dealers (18%) and crop consultants (15%). One respondent noted he is a crop consultant and "can't access current land–grant university research data soon enough." Eighty–three additional sources were listed as sources used most often by producers. Table 4 lists the top ten sources used most frequently by respondents.

Table 4
Sources Used Most Often to Find Crop Production Information

Source	*f*	%
Seed suppliers/dealers	41	18
Crop consultant	33	15
Other producers	24	11
Internet	24	11
Chemical dealers	21	9
Local producers cooperative	20	8
Trade & technical journals	17	7
Cooperative Extension	17	7
Newsletters	15	6
Friend/family/other producers	11	4

Producers were asked to identify listed resources which would help improve communication between them and the land–grant university. Newsletters were noted to be most helpful (58%) followed by a weekly bulletin on crop production issues (35%). However, one producer noted, "We pretty well have all of these resources now available to my county's producers." Yet one producer stated, "Get county extension people out into the country to meet producers and discuss issues. Hold more meetings in local communities." Table 5 lists suggestions made by respondents for improving communication between the producer and the land–grant university.

Table 5
Suggestions for Improving Communication between the Producer and the Land–Grant University

Resources	*f*	%
Newsletters	130	58
A weekly bulletin on crop production issues	77	35
More field day workshops and programs	69	31
Make sure crop production information is readily available at my county extension office	66	29
Programs on crop production practices downloadable from a website	64	28
An interactive website	64	28

Conclusions

The typical minor crop producer attended land–grant university sponsored field days to learn about crop production practices, communicated with his/her local county extension educator to learn about production practices, and preferred receiving newsletters and bulletins from CES to improve communication of crop production information.

Minor crop producers attended field days most often; however, other major sources used were private industry contact visits and extension and land–grant university personnel. A variety of sources were used by producers to obtain crop production information, yet they generally referred to CES, seed suppliers, friends, family, and other producers, newsletters, chemical dealers and university publications. Kelsey and Mariger (2003) also found producers consulted with family, friends, and other producers when solving crop production problems, as well as seed suppliers and chemical and fertilizer dealers.

Over time, as consultation for crop production information increases in avenues outside of CES, the use of CES may decrease. In order to prevent this from occurring, CES change agents, extension educators and land–grant university faculty must work with local opinion leaders in communities to diffuse crop production information to stakeholders (Rogers, 2003). Rogers indicated opinion leaders have an advantage of working with stakeholders as a result of homophily, or mutuality in the farming business. Furthermore, providing opinion leaders and stakeholders with enough knowledge to understand a new crop production technique will aid in adopting practices. For instance, not only do producers need to be aware of a practice, they also need to know how to utilize the practice and have principle knowledge in order to decrease uncertainty. Thus, producers may be persuaded to adopt a new practice by CES as a result of knowing the relative advantage, compatibility, trialability, complexity, and observing the practice to see if it works (Rogers). In this study it was found that producers interacted with other producers, family, and friends to learn about crop production practices. Therefore, teaching producers to implement a practice and emphasizing the value of sharing knowledge will aid extension educators in disseminating land–grant university information.

Sources used most often by minor crop producers in this study were seed suppliers and dealers and crop consultants. Therefore, extension educators should discover why producers seek out crop consultants over extension educators for crop production information. Kelsey and Mariger (2003) posited crop consultants, newspaper reporters and other media may obtain their research information from CES, yet not cite CES as their source. In this study, one respondent, a crop consultant, noted he "could not obtain land–grant university research information quick enough." As seed suppliers and dealers and crop consultants are profit motivated, they aggressively *push* research–based information out to producers in the hope of landing a sale, positioning the land–grant university as a source of information which must be *pulled* by producers (Harrison, Lee, & Neale, 2003). In the *push* strategy, information is pushed to consumers unsolicited, where as the *pull* strategy relies on the consumer to request information. Only after the consumer is aware of a need for information will they *pull* for more information. If the CES is to survive in a market–driven economy, it must adopt some of the *push* strategies used by industry to grow a customer base.

Most producers preferred receiving mailed newsletters and bulletins, which are an excellent opportunity to push new information out to the target audience. This finding is consistent with Kelsey and Mariger (2003) who found crop bulletins were a preferred source for receiving crop production information among stakeholders. While more expensive than email or other electronically delivered media, which again requires a pull method of delivery, newsletters can improve communication with stakeholders and deliver new research practices and updates for producers using push strategy. "Knowing producers' preferred sources of information gives CES educators a powerful tool for information dissemination" (Kelsey & Mariger, ¶27) and capitalizes on push strategies for disseminating new technologies.

Though producers mentioned they preferred receiving mailed newsletters for improved communication with CES, they attended field days sponsored by the university and noted they preferred face–to–face interactions, which is parallel to findings of Kelsey and Mariger (2002). Johnson, Carter, and Kaufman (2008, ¶21) also found producers preferred "hands–on demonstrations." However, producers also see the need and efficiency of looking up information on the Internet; thus, it is necessary for extension personnel to continue communicating with producers through their preferred methods in order to spread new crop production practices and research findings.

Engaging stakeholders continuously using a variety of media strategies will ensure the land–grant university fills the gap between educational need and information production and delivery.

Implications/Recommendations

Are the voices of producers being heard? Are they actively involved with program planning and implementation? This research did not answer these questions specifically; however, extension educators should engage local producers and conduct formal needs assessments before developing programs to reach the largest possible audience and to ensure appropriate delivery methods are used (Altschuld & Witkin, 2000; Greene, 1988; Kaufman & English, 1979). Needs assessments should determine gaps in knowledge or training and the preferred methods of information exchange and training (Kelsey & Mariger, 2002). Furthermore, extension educators must invest in producing crop production materials in formats to meet producers' preferences.

Assessing seed suppliers and dealers and crop consultants may unveil sources of information they distributed to producers. Trainings should be conducted for extension educators to teach them how to actively engage stakeholders and to identify needs to develop educational programs in their counties with the assistance of local stakeholders. The results of this study suggest business as usual will not do and innovative methods of engaging stakeholders must be practiced, least the land–grant university become information providers to crop consultants and seed supplies who appropriate the information for profit motives.

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