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Analyzing Extension Needs of the Spanish Speakers in Florida

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Hispanics are the fastest growing minority group in the United States and Florida's largest minority group. Hispanics are also expanding into areas not previously populated by this group. While this points to growing opportunities to serve this audience, in many cases language barriers still exist, especially for recent immigrants and adults. Although many extension programs designed for Hispanics exist, little evaluation has taken place to assess their effectiveness. This study identified and assessed the need Florida extension agents have for Spanish language extension materials in natural resources and the environment. A survey was sent to University of Florida cooperative extension agents concerning perceptions and attitudes on the need, quality, and dissemination of Spanish extension materials. Results showed extension is an important information source for Hispanics after family and friends. However, extension agents and materials are not adequately prepared to outreach to this segment of the population, especially on important natural resource topics to the state, such as catastrophic events management, environmental horticulture, and arboriculture. This study shows that the need to prioritize Spanish extension outreach in Florida exists, especially in southern Florida. As Florida's population becomes more diverse, extension needs to make sure it is not leaving any group behind.

The estimated Hispanic population as of 1 July 2007 reports 45.5 million Hispanics living within the U.S., representing an estimated 15% of the total population (U.S. Census Bureau, 2008). Florida has the third largest population of Hispanics within the U.S. (U.S. Census Bureau Newsroom, 2008), representing 16.8% of Florida's population in 2000 (2,682,715 people), up from 12.2% in 1990 (Census Bureau, 2000).

Hispanics are considered the fastest growing minority group in the United States, and Florida's largest minority group, with the largest proportion of Florida's Hispanics residing in southern Florida. Although 90% of Hispanics were living in metro (urban) areas in 2000 and are among the most urbanized ethnic/racial groups in the US, Hispanic populations within rural and small-town America within the past two decade have doubled from 1.5 to 3.2 million (USDA, 2004). In 2000, Hispanics made up 7% of Florida's total rural population (USDA, 2004). In fact, today Hispanics comprise the fastest growing segment of rural residents and have expanded into nontraditional locations, especially in southeastern and midwestern counties (USDA, 2004).

Rural Hispanics often face challenges and barriers around assimilation, such as high poverty, social isolation, and limited economic mobility (USDA, 2004) and language (Farner et al., 2005). Because of these issues, rural Hispanics are more likely to live in isolated low-income areas (Atiles and Bohon, 2003; Chavez, 1998; Dale et al., 2001). With respect to language barriers, native Spanish speakers in the U.S. increased by 62% from 1990 to 2000, from 17.3 to 28.1 million (U.S. Census Bureau Newsroom, 2000). Many native Spanish-speaking adults have a limited proficiency of English (Pew Hispanic Center, 2002; Tse, 2001). This is made worse by few opportunities to increase their English skills, often due to long work days with irregular schedules, unavailable English as a Second Language (ESL) classes, or instruction in very basic English (Farner et al., 2005; Portes and Rumbaut, 1990). Additionally, Hispanics have one of the lowest formal education levels of any U.S. minority group, with 52.4% receiving high school degrees, compared to the 80.2% national average (U.S. Census Bureau, 2002). "Hispanic" and "Spanish-speaking" are not synonymous. *Hispanic* refers to those classifying themselves as Mexican, Mexican American, Chicano, Puerto Rican, or Cuban or those whose origins are from Spain or Spanish-speaking countries of Central or South America (U.S. Census Bureau, 2000). The term "Spanish-speaking audience" for the purpose of this study involved a Spanish-speaking person who has difficulties communicating in English (oral and written) and speaks primarily in their native Spanish language.

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Although this expansion of Hispanic populations makes extension's Spanish-speaking audience the largest and most geographically dispersed (Hobbs, 2004; Watson, 2001), those governmental agencies or institutions without bicultural or bilingual staff are not able to effectively reach Hispanic populations (Farner et al., 2005; Hobbs, 2004; Watson, 2001). Generally speaking, little assessment has been made on the effectiveness of institutions to deliver services to this group or understand their needs, despite the fact that programs designed specifically for Hispanic audiences exist (Farner et al., 2005).

Since extension agents are often the primary intermediary or contact point between the community and education efforts, this study surveyed natural resource extension agents on their perceptions towards needs and outreach to Spanish-speaking populations. The specific objective of this study was to identify and assess the need for Spanish language extension material on topics of natural resources and the environment. Project results will not only improve natural resource extension efforts, but will also benefit different community groups such as neighborhood associations, emergency management services, and school teachers, among others also wanting to effectively reach out to minority groups.

Methods

A statewide survey was e-mailed to 809 Extension Agents (EA) from the University of Florida's Institute of Food and Agricultural Sciences (UF–IFAS) and State Government Agricultural agencies during the summer of 2008. Prior to the survey, EAs were sent an advanced e-mail from the UF–IFAS Associate Dean asking for their participation in the survey. A follow-up post-survey e-mail was also sent to non-respondents so as to increase the response rate. The Web survey was developed using Survey Monkey and sent to all respondents via an IFAS listserv provided by the UF–IFAS Extension Associate Dean's Office. Survey Monkey is a web-based scalable survey development tool (Survey Monkey, 2007). Survey questions were pre-tested with 15 extension agents and 1 USDA Forest Service technology transfer specialist. The Total Quality Design method by Dillman (1978) was utilized in both the development and implementation of this survey.

A total of 174 EAs responded to the survey for a 22% response rate. Resources were unfortunately not available to test for the effect of bias from non-responders. Respondents were from diverse appointments and included both county and state-level extension faculty, other state and county and U.S. government employees. EAs were asked 23 questions concerning their perceptions and attitudes on the need, quality, and dissemination methods for Spanish extension materials on the Electronic Data Information System (EDIS) of the University of Florida. Responses were measured using 2- to 6-point Likert scales and data on Spanish language speaking ability were also collected. Survey results were statistically analyzed using tests of equal or given proportions for differences statewide and by "north" (north of Tampa–Orlando–Cocoa Beach) and "south" (south of, and including Tampa–Orlando–Cocoa Beach) portions of the state, using self-reported zip codes. The function "prop.test" in R statistical programming language (R Development Core Team, 2008) was used to test the hypotheses that response from northern and southern Florida were statistically different by producing confidence intervals for different categorical responses at a 95% confidence interval.

Results

Overall, Spanish-speaking audiences do not make up a large percentage of participants in extension activities in Florida, as indicated by 60% of EAs reporting no participation and 26% reporting a Spanish-speaking audience of less than 10%. In comparing differences within Florida, southern Florida had significantly more participation of Spanish-speaking audiences than northern Florida (Table 2). Despite low participation by Hispanics, only 17% of responding EAs (n=30) believe extension materials should not be developed into languages other than English (Table 1). No statistically significant differences were found between EAs from northern and southern Florida, indicating a common disposition towards developing extension materials into languages other than English. If made available, 24% of responding EAs would use these materials about once a month, with southern Florida EAs using these significantly more often (38% for southern Florida, 12% for northern Florida, $P = 0.05$).

Overall, most EAs (84%) in Florida felt the inability to communicate with their Spanish-speaking audiences was a hindrance for them ("sometimes," "often," and "very often" combined), which was considered significantly greater with southern Florida EAs (Table 3). Spanish language comprehension, speaking, and reading skills of respondents were found to be mostly basic or limited (Table 5), especially in northern Florida. Aside from other Spanish-speaking persons (e.g., family and neighbors), extension materials and events were identified as a frequent source of information used by the target audience. The top two preferred extension materials together comprising nearly 50%, in terms of effectiveness to reach Spanish-speaking audiences, were fact sheets (29%) and brochures (17%). Other extension materials included posters, slide presentations, online materials from different websites, bulletins, booklets, and handbooks.

Table 1. Do you believe that extension material should be developed in English only and in no other language?

Response[z]	Florida	Northern Florida	Southern Florida
Yes	17%	20%	15%
No	83%	80%	85%

[z]N = 174.

Table 2. The participation of Spanish-speaking audiences in Florida extension activities.

Response[z]	Florida	Northern Florida	Southern Florida
None	60%	75%	42%*
<10%	26%	21%	34%
10% to- 25%	9%	4%	12%
25% to 50%	4%	0%	10%*
50% to 75%	1%	0%	2%
>75%	0%	0%	0%

*P-value ≤ 0.05.

Table 3. An assessment on whether the inability to communicate with Spanish-speaking audiences is a hindrance for extension agents.

Response	Florida	Northern Florida	Southern Florida
Never	3%	5%	2%
Rarely	14%	21%	2%*
Sometimes	47%	53%	43%
Often	22%	12%	35%*
Very often	14%	9%	18%

*P-value ≤ 0.05.

Table 4. Information sources used by Spanish-speakers on topics related to the environment and natural resources.

Sources of information by importance	Very poor	Poor	Fairly good	Good	Very good	Don't know
1 Family/neighbors/other Spanish-speaking people	3%	12%	15%	14%	19%	37%
2 Extension events (i.e. field days, workshops, conferences)	14%	36%	14%	4%	4%	28%
3 Radio or TV	3%	12%	15%	13%	8%	49%
4 Extension publications from EDIS	13%	36%	17%	2%	4%	29%
5 Government and non-government extension publications	7%	24%	12%	9%	2%	47%
6 Commercial publications	11%	25%	11%	7%	0%	46%
7 Internet (other than EDIS)	5%	18%	13%	7%	3%	54%

Table 5. Spanish proficiency of IFAS Extension agents in terms of reading, writing, speaking, and comprehension.

	Florida				
Skill	None	Basic or limited	Working or professional	Northern Florida	Southern Florida
Comprehension	38%	50%	12%	44%	31%
Speaking	41%	49%	10%	46%	36%
Reading	44%	44%	12%	52%	36%*
Writing	61%	29%	9%	69%	53%*

*P-value < 0.1

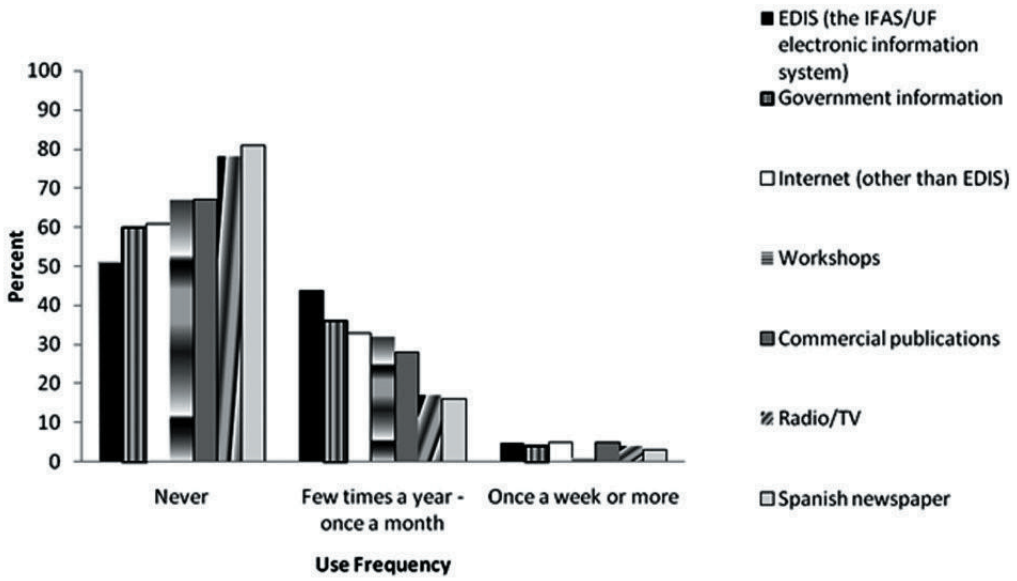

Fig. 1. Information source and use by extension agents.

EDIS, government information, the internet, and workshops were the top formats of information sources currently used by EAs, but EDIS is used as a Spanish source material more frequently than other alternatives (Fig. 1). However, extension events and publications from EDIS were ranked "poor" in meeting the needs of Spanish-speaking audiences for information (Table 4). Although the overall quality of EDIS was found to be satisfactory, the coverage of needed topics was not (Fig. 2), and found to be significantly greater in southern Florida. Lastly, catastrophic events management (i.e., hurricanes and floods), environmental horticulture and arboriculture, and agricultural production were the three major natural resource and environmental topics identified by respondents as the most important for translation (Fig. 3), with similar responses from both northern and southern Florida EAs. Other natural resource and environmental topics were natural resource management, forestry (silviculture, ecology, and fire management), urban forestry and wildland–urban interface, ecological restoration, and agroforestry.

Discussion

The results from this study indicate that natural resources and environmental extension programs could play an important role among Spanish-speaking audiences in Florida. EAs expressed a need to reach diverse audiences through the translation of existing extension materials. They also placed importance on their potential to reach this audience with extension materials and events identified as frequent sources of information used by the target audience after family and friends. However, EAs are not able to effectively communicate this important information to Spanish-

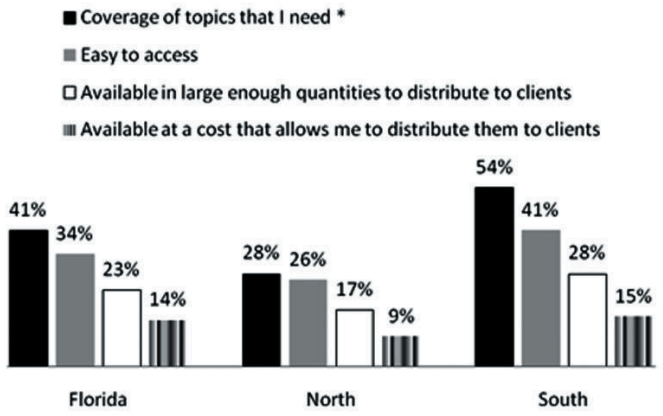

Fig. 2. Aspects about quality of extension materials from EDIS (*significant difference between northern and southern Florida, $P = 0.05$).

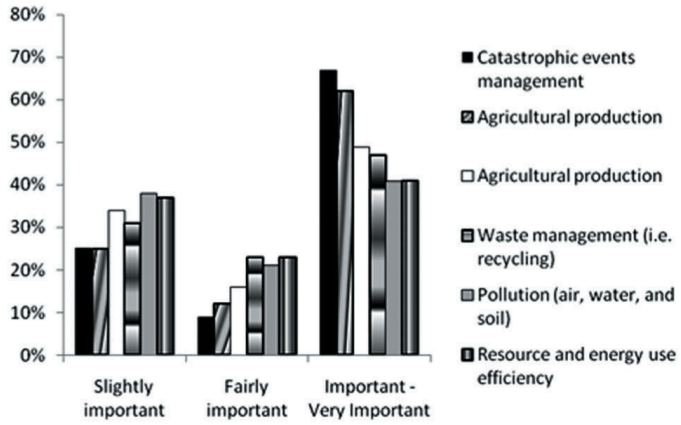

Fig. 3. Importance of natural resource and environmental topics in Spanish. Most important six topics are listed in order of importance.

speaking audiences in Florida due to the language barriers that exist, in addition to a paucity of appropriate materials.

EAs in Florida recognize the need for extension materials to be in languages other than English and consider their inability to communicate with their Spanish-speaking audiences (with only basic and limited Spanish comprehension, speaking, and reading skills) a hindrance for them, with more significant reporting from southern Florida EAs. This inability to reach Hispanic audiences may also be attributed to their low participation in extension activities in Florida. A study by Swisher et al. (2007) on Hispanic–Latino farmers and ranchers found that their clients did not know about their services or participate in their programs, and it was difficult for professionals to identify their clients.

However, a more regional look at the results might show the need for more specially designed, local, community extension programs. Despite the fact that Spanish language materials are not "important" statewide, responses from southern Florida EAs and U.S. Census results indicate the need for this type of material in southern Florida. For example, according to the 2005–2007 American Community Survey 3-year estimates, 31.6% of Hispanic households in Florida (n = 403,047) are considered *linguistically isolated households*, where all members 14 years old and over have at least some difficulty with English (U.S. Census Bureau, 2005–2007 American Community Survey) and in 2004, 61% of Florida's Hispanic population lived in southern Florida (Broward, Miami–Dade, Monroe, and Palm Beach counties) (The Metropolitian Center, 2007). The Swisher et al. (2007) study also found low Spanish language capacity by professionals to be a major barrier in working with Hispanic–Latino farmers. In addition, farmers had difficulty understanding information in English and communicating in English. In fact, the Swisher et al. (2007) study found language barriers and discrimination to be the two major cultural constraints in southern Florida for Hispanic–Latino farmers. Many Hispanic–Latino farmers felt discriminated against by other non-Hispanic farmers and government agencies, and some believe this discrimination prevents them from accessing government programs and information.

In our study, the top two preferred extension materials used effectively to reach Spanish-speaking audiences were fact sheets and brochures. However, what EAs perceive as effective may not accurately reflect Spanish speakers' preferences. Swisher et al. (2007) found discrepancies between information and services available and those that actually reach or are used by Hispanic–Latino farmers. Here, government regulations and programs were not considered constraints by extension professionals but were considered constraints by farmers. The biggest issue associated with this was farmers' lack of awareness of available government programs. In addition, Hispanic–Latino farmers in the Swisher et al. (2007) study believed that extension and land-grant universities play a regulatory role, rather than that of an education provider. In this case, Hispanic–Latino farmers who were apprehensive about government (e.g., illegal immigration issues) did not approach extension for needed educational advice.

The lack of extension materials in Spanish was also identified as a major barrier to communicating with Spanish-speaking audiences in our study, with greater need in southern Florida. The Swisher et al. (2007) study found access to information and government programs and regulations to be the number one constraint of Hispanic–Latino farmers in southern Florida. Aside from access, EA perceptions of meeting educational needs were an issue in our study. Catastrophic events management (i.e., hurricanes and floods), environmental horticulture, arboriculture, and agricultural production were the three major natural resource and environmental topics identified by EAs as being the most important for translation. However, currently Spanish language EDIS materials do not adequately meet extension needs to educate and inform their Spanish-speaking audiences. Considering Florida's vulnerability to hurricanes and the importance of these other two sectors to the state, the ability to reach diverse audiences about catastrophic events management and other important information should be a critical role of extension.

Although language was one of this study's foci, culture is connected to language and should not be overlooked (Hobbs, 2004; Watson, 2001). By understanding a target audience's culture, there will be better assessment of needed changes. In addition, current audiences will be assured that any new approaches or changes do not equate to changing missions and goals of extension, but rather, that extension is making sure it addresses the needs of the diverse population it is serving (Hobbs, 2004). Therefore, programs must consider a target audience's cultural values and traditions, in addition to language, in order to successfully engage Latino audiences, especially with first- and second-generation Latinos (Koss-Chioino and Vargas, 1999). Major cities in southern Florida and the southwestern U.S. border states maintain unique culture and language and a constant presence of non-assimilated, Spanish-speaking, non-rural, more well educated populace

(Huntington 2004). Although this was not studied, care is needed when applying results from studies of rural, agricultural, and less educated extension audiences to these urban areas and their unique characteristics.

One limitation of this study included a low response rate (22%), with only 174 out of 809 respondents, with no information of non-response justification. Additionally, only University of Florida (UF) extension agents were surveyed. Because UF is a Land Grant University, agronomists and horticulturists predominated survey respondents and might possibly not interact with urban audiences on topics related to the environment and natural resource management. Lastly, the lack of Spanish-speaking extension agents might demonstrate an inability to effectively understand their audiences. Because of this, responses may represent more 'political correctness' and best guesses or assumptions, rather than actually representing what their Spanish-speaking audience really thinks. Nevertheless, this was an important study to conduct in Florida, as little evaluation has taken place to assess the effectiveness of natural resource extension with Spanish-speaking audiences and will help justify improvements to extension for Spanish language materials in natural resources and the environment.

Conclusion

This study identified and assessed the need for Spanish language extension material on topics of natural resources and the environment with Florida extension agents. Hispanics are Florida's fastest growing minority group, with 61% of their population residing in southern Florida. Extension agents believe they were an important source of information for Hispanic residents on many natural resource topics, after family and friends. Yet, natural resource extension agents and materials are not prepared to reach out to this segment of the population on important natural resource topics to the state, such as catastrophic events management (i.e. hurricanes and floods), environmental horticulture and arboriculture.

This study shows that the need to prioritize Spanish extension outreach in Florida exists, especially in southern Florida, and as Florida's Hispanic population increases, challenges from catastrophic events and other issues need to be communicated to this audience. Thus, the importance of reaching Spanish-speaking audiences using more specialized and local Spanish language extension programs will only become more pressing. This study presents some issues for improving extension services not only in Florida, but throughout the United States and highlights the need to know the cultural and community-specific needs of the audience to address language and cultural barriers that might exist. As Florida's population becomes more diverse, so must extension programs to make sure they are effectively reaching out to the diverse populations it serve.

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