

**Building A Bridge for Agriculture Education Programs: Community Needs Assessment
for Agriculture and Natural Resources**

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Introduction

By 2050, there will be two billion more people on Earth today. Agriculture will need to increase 70-100% to meet the growing population demand (McKenzie & Williams, 2015). The need for food, however, is a societal concern. The understanding and knowledge of agriculture and natural resources are critical as the world population uses 50% of total habitable land for agriculture (Ritchie, 2019). Understanding citizens' perceptions and inputs on agricultural and natural resources issues could accelerate agricultural development. We conducted this statewide need assessment based on citizens' perceptions to target agricultural and natural resources and issues and address the global challenge to improve social and economic sustainability (The Texas A&M AgriLife, 2021).

Theoretical Framework

Asset-based community development theory was used to guide this study. Asset-based community development takes a holistic approach to assess the strengths and needs of an area, which produces solution-based strategies for further growth and development of an affected community (Scott et al., 2020). Further, this framework identifies reasonable solutions to enhance a community by looking at undiscovered local resources and external areas of support that foster growth (Green, 2010). Asset-based community development should include (a) a sustainable community enhancement approach, (b) a focus on the internal community, and (c) an engaged, relational society to be an effective development model (Kretzmann & McKnight, 1993). Asset-based community development served as the linchpin argument for this study because the research questions sought to explore the strengths and needs for counties, ultimately striving to make data-informed recommendations for community enhancement.

Purpose

The purpose of this statewide survey was to assess community's agricultural and natural resource assets to evaluate needs and strengths based on citizens' perceptions. This study aligns with the American Association for Agricultural Education (AAAE) Research Agenda Priority 6 focusing on building vibrant, resilient communities (Roberts, 2016). Vibrant communities should provide adequate resources and services that correspond with citizens' basic needs to enhance communities' resilience (Torjman, 2001). This study builds a bridge for agricultural education and extension programs to understand citizens' needs toward agricultural and natural resources, ultimately, to contribute sustainable agriculture developments.

Methods

Our study was conducted by a Texas land grant university (The Texas A&M AgriLife, 2021). Data were collected through Qualtrics. This study is part of a large study (Wintermute et al, 2022). The target population is citizens from all counties in Texas. The sample consisted of 18,114 participants from the Texas. An array of issues about agricultural and natural resource assets was assessed using a questionnaire. Extension experts reviewed and modified the items to meet the needs of the Texas. 26 items were included in the needs assessment about agriculture (e.g., *assisting farmers in agricultural production, agricultural marketing, farmers markets, county fairs and livestock shows, bio-security programs, veterinarian services, land lease education, and preserving farmland*) and natural resources (e.g., *protecting water quality, water rights education, water conservation education, irrigation programs, drought*

management education, protecting natural habitats and ecosystems, controlling invasive pests, protecting freshwater resources, protecting coastal environment, controlling invasive plants, composting, reducing, and recycling consumer goods, helping households reduce water use, assisting local businesses with land use decisions, protecting air quality, protecting the marine environment, assisting local government with land use decisions). Descriptive statistics (i.e., frequencies, percentages) were calculated for demographic information and to identify the needs and strength for each item (1= strength, 2 = need, 3 = not relevant, and 4 = unsure).

Results

The survey instrument assessed the need for a variety of agricultural and natural resources. The majority of the participants self-identified as white/non-Hispanic (82.5%), female (64.2%), and aged between 54 – 64 (24.2%). Further, most participants had a bachelor's degree (33.4%) and a \$100,000 or greater gross income (20.5%). Three items were rated as strengths in their communities. Specifically, 63.9% of participants rated “county fairs and livestock shows” as a strength, 58.3% of participants rated “veterinarian services” as a strength, and about half (51%) of the participants rated “wildlife (hunting/fishing, wetlands, wildlife viewing) as a strength. 11 items were rated as needs by more than half of the participants. Those items were composting, reducing, and recycling consumer goods (68.4%), controlling invasive pests (63.8%), helping households reduce water use (61.4%), protecting natural habitats and ecosystems (59.9%), protecting water quality (58.6%), water conservation education (58.4%), water rights education (57.3%), protecting freshwater resources (56.3%), controlling invasive plants (56%), assisting local government with land use decisions (54.9%), and drought management education (54.1%). Whereas 60% of participants rated “protecting the coastal environment” not being relevant to their community, and 40% of participants rated “protecting the marine environment” was not relevant. The two irrelevant items could be attributed to the state’s non-coastal geographic location.

Conclusions, Implications and Recommendations

The Texas extension agency has a long history of providing educational programs that address the most critical community issues. This needs assessment helps the extension agency better identify, target, and solve issues that exacerbate basic need deficiency within communities. Based on Texas citizens’ perceptions, the Texas should put efforts to address citizens’ needs related to agriculture and natural resources, such as composting, reducing, and recycling consumer goods, controlling invasive pests, helping conserve water, and protecting water quality. The community needs assessment provides a chance for local citizens to speak up on issues and strengths in their communities. We recommend that extension agency should provide opportunities to empower and listen to their local constituents, to engage their citizens to gain accurate information to support agriculture development, and to develop educational programs. The recommendations align with AAEE’s Research Priority 6 because it identifies the value of community enhancement by acknowledging and committing to continued development. We hope our needs assessment will be an applicable demonstration and benefit for other state extensions to modify and utilize. Demographics in our study are not reflective of statewide demographics. Also, these data must be disaggregated by region and county due to geographic climate and societal diversity.

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