

Challenges and Barriers to Commercial Beekeeping Programs in Florida

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Introduction

Agriculture plays a pivotal role in Florida's economy, as it is the second highest grossing economic industry in the state (Florida Department of Agriculture and Consumer Services (FDACS), 2017)) and utilizes 9.70 million acres of land for ranches and farms for agricultural production (USDA, 2020). Honey bees are vital to Florida agriculture, ranking third in the nation in number of colonies (USDA-NASS, 2019), and pollinate a variety crops such as melons, blueberries, squash, cucurbits (FDACS, 2019). Since Florida's agriculture industry relies heavily on the production and services of honey bees (Calderone, 2012), the state's Extension agents need to be prepared and equipped (Cooper & Graham, 2001; Harder et al., 2010; Seevers & Graham, 2012) to work with and educate Florida's 520 commercial beekeepers. Many Florida Extension agents conduct educational programs for hobbyist (or backyard) honey beekeepers; however, many agents do not conduct commercial beekeeping programs (S. Mukhtar, personal communication, July 21, 2020). Due to the importance honey bees contribute to Florida agriculture, it is critical to understand the barriers and challenges Florida Extension agents face to conducting commercial beekeeping programs.

Conceptual Framework

Program development "is a process designed to bring about effective programming" and is a "system of interrelated parts, all of which work together to achieve defined goals" (Seevers et al, 1997, p. 102). The Program Development Model (PDM) is made up of three primary components: (a) program planning, (b) program design and implementation, and (c) program evaluation (Seevers et al., 1997). Program planning guides the formation of a program, such as identifying needs, setting program priorities, and developing goals and objectives. Within the program design and implementation component, Extension agents create curriculum and presentation materials, identify and choose appropriate program delivery methods (i.e. field day, group workshop, webinar, etc.). Lastly, program evaluation refers to the planning and implementing of evaluation measures to ensure outcome were achieved (Diaz et al., 2019). When linked together with thoughtful and intentional planning, these components provide the foundation for successful Extension programming. However, a breakdown within one of the PDM processes can be a challenge for Extension professionals to effectively educate their clientele (Boone et al., 2002).

Purpose & Research Questions

The purpose of this research was to understand the challenges and barriers of Florida agriculture Extension agents to conducting commercial beekeeping programs. The three research questions guiding this study were: (a) How do Florida agriculture Extension agents describe commercial beekeeping? (b) What are the challenges Florida agriculture Extension agents face regarding implementing commercial beekeeping programs? (c) What resource and professional development needs would help Florida agriculture Extension agents conduct commercial beekeeping programs? This study aligned with priority three of the 2016-2020 National Research Agenda - Sufficient Scientific and Professional Workforce that Addresses the Challenges of the 21st Century (Roberts et al., 2016).

Methods

The Honey Bee Extension Education Team (HBEET) is a working group of 11 Florida Extension agents with the purpose to develop and conduct education programs to commercial beekeepers. A focus group was conducted with HBEET to understand the challenges and barriers to conducting commercial honey bee education programs in Florida. Focus groups allow participants the opportunity to share opinions and engage in feedback with others, and therefore promote discussion and deeper thought into an issue (Morgan, 1998). A semi-structured interview guide was created by the researchers consisting of five questions to satisfy the research questions, such as “What is commercial beekeeping?” and “What challenges exist to conducting commercial beekeeping programs?” The interview guide was reviewed by a four-member panel for face and content validity (Morse et al., 2002). The study received approval from the Institutional Review Board (IRB) prior to being conducted, and each participant consented to participate in the study. The focus group, which lasted 47 minutes, was audio-recorded and the researchers took notes during the focus group. Once the audio recording was transcribed, the data was analyzed using the constant comparative method where first the researchers analyzed and coded the data individually before comparing together (Krueger & Casey, 2000; Morgan, 1998).

Results

Regarding the first research question, participants described commercial beekeeping in seven various ways: (a) bee products and pollination services, (b) FDACS definition of commercial beekeeping, (c) USDA definition of beekeeping, (d) money, (e) number of bees/hives, (f) uncertainty about classification, and (g) tax/IRS/laws.

Regarding the second research question of understanding the challenges and barriers to implementing commercial beekeeping programs, seven themes emerged: (a) agent’s lack of resources, (b) agent technical/subject matter experience, (c) clientele misinformation, (d) state policies and plans of action, (e) lack of trust with Extension from clientele, (f) understanding clientele needs, and (g) other agent job responsibilities take priority demands.

The last research question, identifying resources and professional development of agents regarding commercial beekeeping programs, three themes emerged from the focus group: (a) standard beekeeping knowledge, (b) commercial beekeeping practices, and (c) commercial beekeepers’ needs.

Conclusions & Recommendations

The majority of participants indicated they did not feel comfortable with conducting commercial beekeeping programs because they did not know enough about both standard beekeeping knowledge and commercial beekeeping practices. Additionally, participants were not using a singular description to define and understand commercial beekeeping, adding to the narrative of not being knowledgeable and potentially misinformed about beekeeping. Extension agents need to be technically competent in order to serve the needs of their clientele (Cooper & Graham, 2001; Harder et al., 2010; Seevers & Graham, 2012). Regarding the PDM, many of the challenges and barriers fell within the program planning component, such as agents’ lack of information, understanding commercial beekeeper needs, and knowing who the target audience was (i.e. “who are the commercial beekeepers in my county?”). UF/IFAS Extension needs to better prepare Extension agents to conduct commercial beekeeping programs, utilizing both in-service trainings and hiring agricultural Extension agents with knowledge (Benge et al., 2011) of beekeeping and commercial beekeeping practices.

References

- Benge, M., Harder, A., & Carter, H. (2011). Necessary pre-entry competencies as perceived by Florida Extension agents. *Journal of Extension*, 49(5), Article v49-5a2. <https://www.joe.org/joe/2011october/a2.php>
- Boone, E. J., Safrit, R. D., & Jones, J. (2002). *Developing programs in adult education: A conceptual programming model* (2nd ed.). Waveland Press.
- Calderone, N. W. (2012). Insect pollinated crops, insect pollinators and US agriculture: Trend analysis of aggregate data for the period 1992–2009. *PLoS ONE*, 7(5). <https://doi.org/10.1371/journal.pone.0037235>
- Cooper, A. W., & Graham, D. L. (2001). Competencies needed to be successful county agents and county supervisors. *Journal of Extension*, 39(1), Article 1RIB3. <https://www.joe.org/joe/2001february/rb3.php>
- Diaz, J., Kumar Chaudhary, A., Jayaratne, K. S. U., & Warner, L. A. (2019). Program evaluation challenge and obstacles faced by new Extension agents: Implications for capacity building. *Journal of Extension*, 57(4), Article v57-4a1. <https://www.joe.org/joe/2019august/a1.php>
- Florida Department of Agriculture and Consumer Services. (2017). *Florida agriculture overview and statistics*. <https://www.fdacs.gov/Agriculture-Industry/Florida-Agriculture-Overview-and-Statistics>
- Harder, A., Place, N. T., & Scheer, S. D. (2010). Towards a competency-based Extension education curriculum: A Delphi study. *Journal of Agricultural Education*, 51(3), 44–52. doi:10.5032/jae.2010.03044
- Krueger, R. A. & Casey, M. A. (2000). *Focus groups: A practical guide for applied research* (3rd ed.). Sage Publications.
- Morgan, D. L. (1998). Planning Focus Groups. In D. Morgan, & R. Krueger, (Eds.), *The focus group kit*. (Vol. 2). Sage Publications.
- Morse, J. M., Barrett, M., Mayan, M., Olson, K., & Spiers, J. (2002). Verification strategies for establishing reliability and validity in qualitative research. *International Journal of Qualitative Methods*, 1(2), 13-22. <https://doi.org/10.1177%2F160940690200100202>
- Roberts, T. G., Harder, A., & Brashears, M. T. (Eds). (2016). *American Association for Agricultural Education national research agenda: 2016-2020*. Gainesville, FL: Department of Agricultural Education and Communication.
- Seevers, B., Graham, D., Gamon, J., & Conklin, N. (1997). *Education through Cooperative Extension*. Delmar Publications.
- United States Department of Agriculture, National Agricultural Statistics Service (2020). *Florida Agricultural Overview*. https://www.nass.usda.gov/Statistics_by_State/Florida/Publications/Annual_Statistical_Bulletin/2020/A1thru10Over-2020.pdf
- United States Department of Agriculture, National Agricultural Statistics Service. (2019). *Honey bee colonies*. <https://usda.library.cornell.edu/concern/publications/rn301137d?locale=en>
- United States Department of Agriculture, National Agricultural Statistics Service (2020). *Other Agriculture*. https://www.nass.usda.gov/Statistics_by_State/Florida/Publications/Annual_Statistical_Bulletin/2020/F1thru5-2020.pdf