The Journal of Extension

Volume 62 | Number 3 Article 7

9-3-2024

Learning Extension Through Firsthand Experiences of Graduate Students in an Amish Community

Raul Villanueva
University of Kentucky, raul.villanueva@uky.edu

Yaziri Gonzalez
yaziri.gonzalez@brownsvilletx.gov

Izabela Gomes
University of Kentucky, izabela.gomes@uky.edu

Recommended Citation

Villanueva, R., Gonzalez, Y., & Gomes, I. (2024). Learning Extension Through Firsthand Experiences of Graduate Students in an Amish Community. *The Journal of Extension, 62*(3), Article 7.
https://open.clemson.edu/joe/vol62/iss3/7

This Feature Article is brought to you for free and open access by the Conferences at Clemson OPEN. It has been accepted for inclusion in The Journal of Extension by an authorized editor of Clemson OPEN. For more information, please contact kokeefe@clemson.edu.

Learning Extension Through Firsthand Experiences of Graduate Students in an Amish Community

Cover Page Footnote

Funding for this project was provided by The Food Connection of the University of Kentucky. We thank the Amish Community of Trigg County, Alex Teutsch, Kaleb Tamez, and all the speakers of the field days: Drs. Ric Bessin, Edwin Ritchey, Kiersten Wise, Mr. Daniel Becker, and Ms. Amanda Martin.

JOURNAL OF Extension

Feature Article

Volume 62, Issue 3, 2024

Learning Extension Through Firsthand Experiences of Graduate Students in an Amish Community

Raul Villanueva[1], Yaziri Gonzalez[1], and Izabela Gomes[1]

AUTHORS: [1]University of Kentucky.

Abstract. Two graduate students and a faculty member of the Department of Entomology at the University of Kentucky developed and implemented a two-year extension program aimed to train Amish farmers on identification and management of their major agricultural problems. Students conducted periodical visits to the community, inquired about farmers' needs, and identified relevant issues, which were outlined to plan two field days offered in their properties. Amish farmers gained knowledge on diverse topics and were eager to receive handouts and publications. Amish farmers were open to apply new technologies and implement them without main changes in their traditional methods of agriculture. The graduate students acquired skills in developing and implementing outreach extension programs. Communication and relationship continued with this community after this program was completed.

INTRODUCTION

Delivering science-based knowledge to end users has always been a challenge. This challenge is even more evident—and even harder to address—between scientists and Anabaptists or Old Order Amish communities. The Anabaptists are orthodox Christians in any of four groups: Amish, Brethren, Mennonites, and Hutterite. The Anabaptist movement resulted from Martin Luther's break from the European Catholic church in 1521 (Bridger et al., 2001; McKernan, 2020). The Swiss Confederation suppressed and expelled the Amish and Mennonites during the 17th and 18th centuries, and many left Europe entirely (Reschly & Jellison, 1993). Anabaptists began migrating to North America in the 17th century in search of religious freedom, political stability, and fertile soils (Kraybill & Bowman, 2001). Amish have lived in the United States since the 18th and 19th centuries (Foster, 1984). In the 17th and 18th centuries, Anabaptist farming in Europe and the United States was associated with the use of soil conservation practices (e.g., manure, gypsum, and crop rotation) and innovative livestock care (improved meadows and warm stable livestock housing) (Shenton, 2021). Amish and Mennonite farmers developed alternative methods of agriculture as a response to religious oppression. Both groups earned reputations as expert farmers everywhere they went. Amish communities are based on agricultural production characterized by polyculture and the intensive use of manual labor. They remain separated from the rest of society and value community, family, and humility (Ulrich-Schad et al., 2017). Nowadays, some Amish men work in house construction, carpentry, and self-owned businesses such as nurseries and warehouses.

This study took place in an Old Order Amish community that had more traditional or conservative beliefs and practices than would a Mennonite community. These more traditional practices include the prohibition of television, radio, or internet in the home; the use of horse and buggy for transportation; and the use of mule-pulled tractors with steel wheels for farm work. In contrast, Mennonites typically allow the use of more modern technology, such as allowing vehicles, cell phones, radio, and TV in homes. Old Order Amish communities have strict guidelines for the use of technology, and this impacts their agricultural practices (Ulrich-Schad et al., 2017). Additionally, they highlight humility and nonviolence. They do not have access to digital resources of information, and this lack of communication via cell phone and email causes them to remain a largely underserved community. This lack of technology disrupts Extension's go-to efforts to conduct programs and makes it more difficult to establish a fluid transfer of information. The direct and rapid communication most Extension professionals are used to is difficult without computers, cell phones, and motorized modes of transportation. The community that took part in this study has one communal public telephone booth—comparable to the "black box phone" used by construction workers (Ems, 2002)—that they use to contact families, collaborators, or business partners.

Figure 1. Examples of farming diversity in an Amish community in Cerulean, Kentucky. [a]A mule-powered mechanical head cutter. [b]High-tunnel tomato production. [c]Enclosed cattle pastures separated from sweet sorghum. [d]Cabbage production field.

The Amish community where we completed this study is located in Cerulean, Trigg County in western Kentucky; the community migrated from Pennsylvania in the mid-1990s. At the time of the study, the community was comprised of 35 families with approximately 150 total members; this is 45% of the population of Trigg County, which had a population of 330 according to the 2020 U.S. Census. This community is heavily agriculturally oriented, and members grow vegetables (tomato, cabbage, watermelon, sweet pepper), fruit (apple, strawberry, grapes, peach), forages (such as corn or grasses), and sweet sorghum (to produce molasses). Sweet sorghum is an especially important commodity in this community, as its final product is a sweetener known as sorghum molasses or syrup. Sorghum syrup is processed, canned, and sold—generating a lot of revenue, especially when grown organically. The community also raises cattle, goats, and poultry (Figure 1).

The first contact this community had with the University of Kentucky (UK) was with a county Extension agent who transported and submitted plant and soil samples to the UK Plant Disease Diagnostic and Soil laboratories at Princeton and brought back the reports. However, there was no direct, one-on-one communication with UK Extension specialists prior to 2016. In 2016, a member of the Amish community contacted the local UK-CEA for help with severe damage to the sweet sorghum crop caused by the sorghum aphid (*Melanaphis sorghi* (Theobald), previously known as sugarcane aphid (*Melanaphis sacchari* (Zehntner)) (Hemiptera: Aphididae). The sorghum aphid is a devastating pest that causes damage in all types of sorghum (forage, grain, and sweet) and can reduce yields by 20-100% if the pest is not controlled (Villanueva et al., 2014). A UK Extension entomology specialist, co-author of this publication, visited the Amish farms and initiated a professional relationship that grew into the 2-year outreach program described in this paper.

The program's main goals were: (a) to assist Amish farmers in various farming issues through periodical visits and field days and (2) to train two graduate students on Extension and outreach programs. Ultimately, we expected to overcome the limitations of the dialogue between scientists and underserved communities.

METHODS

Two female graduate students and one faculty member of the UK Department of Entomology completed a 2-year Extension program in an Amish community. The students participated in the program as an extracurricular activity while simultaneously conducting their entomological research at the UK Research and Education Center at Princeton, Caldwell County. Their research was not related to the work presented here.

The team delivered and collected agricultural information from mid-May to mid-August in both 2018 and 2019. The students visited the Amish community biweekly for direct, one-on-one contact with farmers to identify their

main agricultural concerns. These visits were programmed alongside their research activities, such as scouting insects on soybean farms. They discussed any farming issues with relevant specialists at UK Princeton and presented any unidentified disease problem to the Plant Disease Diagnostic Clinic. Each visit lasted 1-2 hours. They conducted an annual to plan activities for the 2018 and 2019 field days. The survey consisted of the following questions:

- What are the major concerns: plant disease, soil fertility, insect pests, plant nutrition, cultural practices and weed management?
- What would you like to learn among the major concern topics indicated above?
- What were the major crops they would be interested to learn in the field days?
- How often do they receive assistance?
- After the field days, what new practices will they apply to increase production? (only in 2019)
- Who offers sources of technical support? (only in 2019)

Once the team collected the surveys, the students planned a field day. They coordinated and scheduled both events with members of the Amish community, using survey responses to guide the selection of locations, dates, times, topics, and appropriate Extension specialists to speak at the event. To minimize distractions, honor their audience, and conduct their work effectively, the students and primary author agreed to wear long pants and shirts covering their shoulders and elbows, as dictated by Amish conventions.

To allow as many community members as possible to attend, the Amish leader requested that the field days take place after working hours; as a result, they were scheduled from 18:00 until dark. As electricity was unavailable, speakers used poster displays and handouts. Each presentation consisted of a 15-minute talk and an additional 5 minutes allotted for questions. The students tasked the Amish leader with inviting the community to the field days; he did so solely via verbal, in-person communication.

RESULTS

The team planned the topics of and the speakers (Extension specialists) for the two field days according to the results of the survey. Students interacted with the Amish by visiting fields, collecting plant samples, listening, and answering questions; they worked to serve as a bridge between the Extension specialists and the farmers. Furthermore, once they identified agricultural problems, the students returned to the community with fact sheets, handouts, and bulletins that responded to farmers' inquiries and complemented the specialists' recommendations. The students visited the farms six times during each growing season.

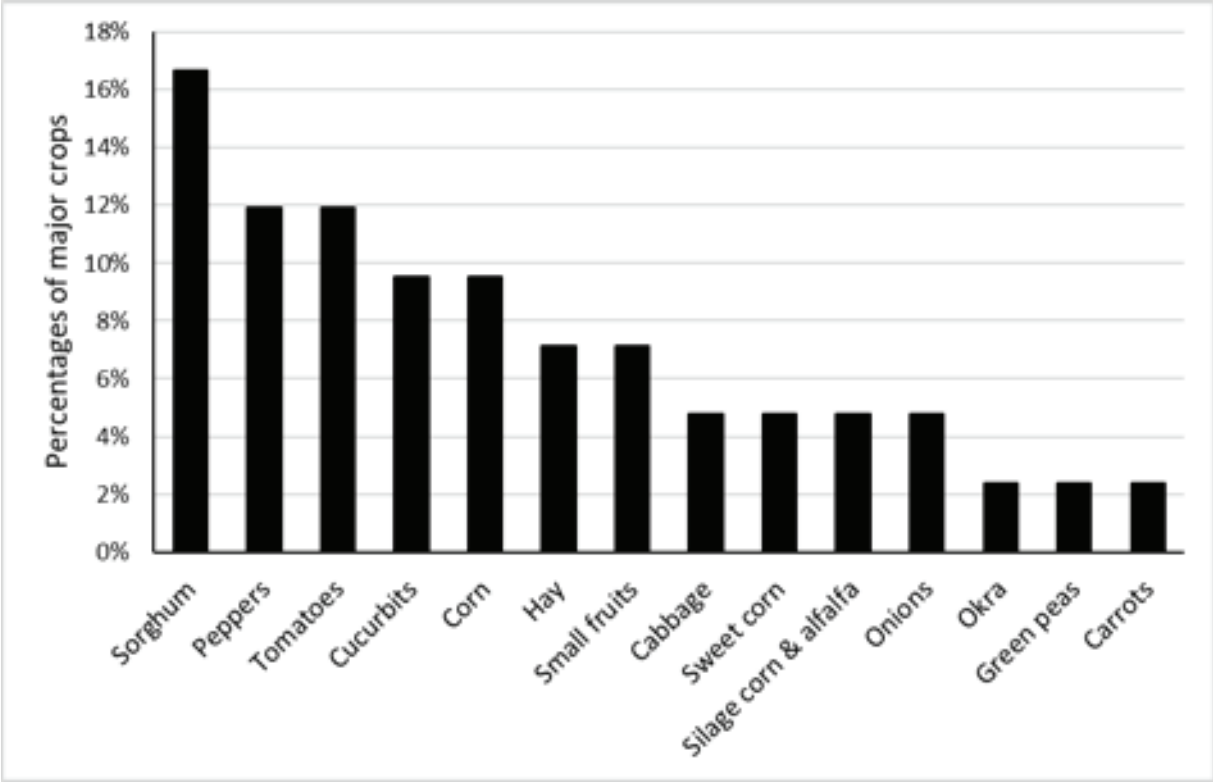

Figure 2. Percentages of major crops planted in the Cerulean, KY Amish community after the survey conducted in 2019.

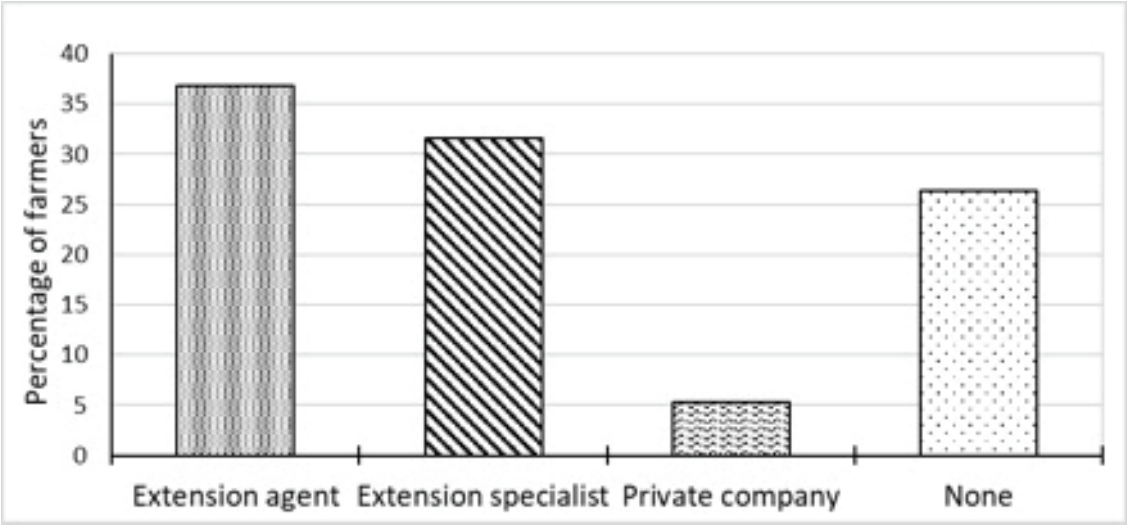

Figure 3. Sources of technical support for agricultural issues received by Amish farmers in Cerulean, KY (n=19).

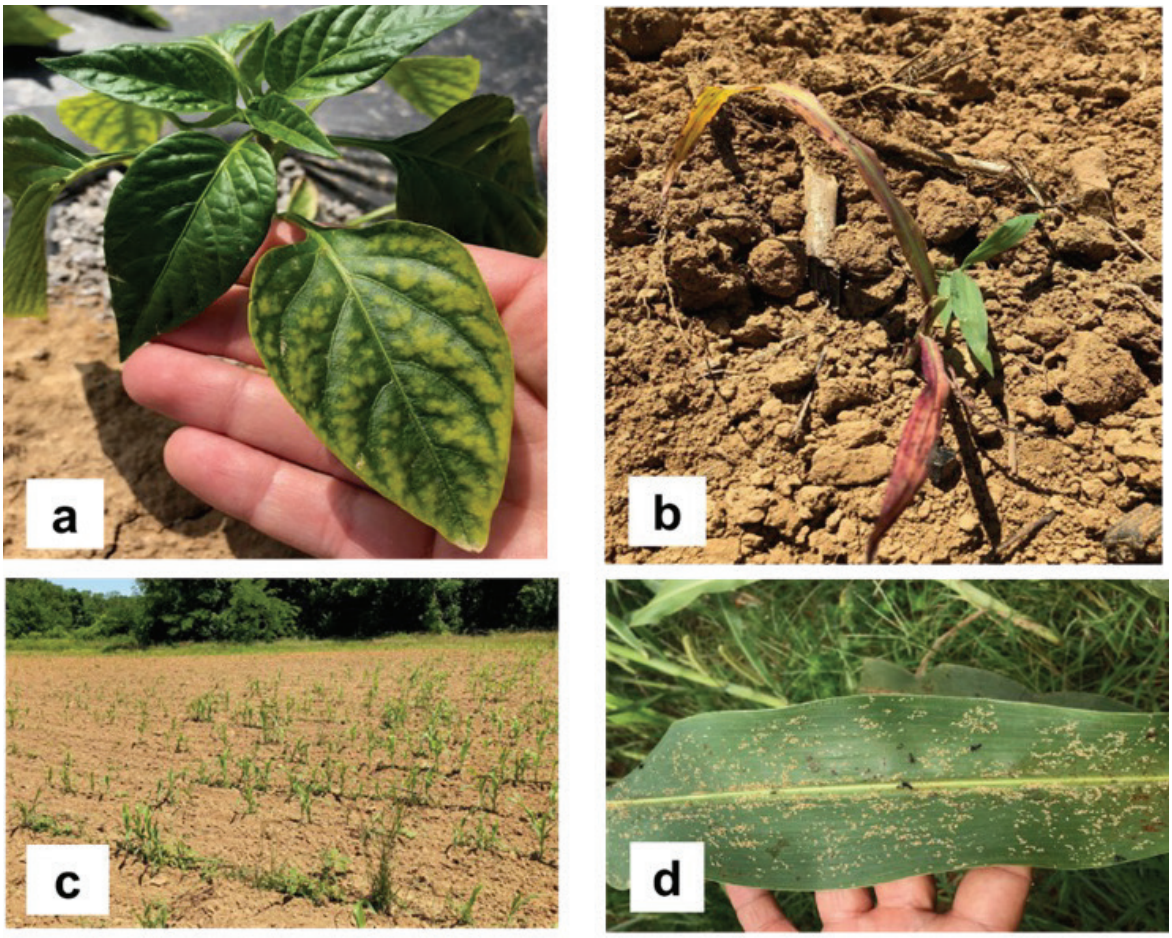

Figure 4. Pest problems observed on Cerulean, KY Amish farmland from May-August 2018. [a]Pythium spp. in bell peppers. [b]Wireworm damage on corn plant. [c]Corn field damaged by wireworm. [d]Sorghum aphid in sweet sorghum

Survey results indicated that farming diversity and polyculture were common in this community (Figure 1). Forty-two surveyed farmers listed sorghum, sweet corn, cabbage, bell peppers, tomatoes, cantaloupe, watermelon, strawberries, sweet potatoes, apples, and peaches as the most important crops of the community (Figure 2).

Regarding technical support, 5% of community members indicated that they had paid for technical services associated with the production of crops, whereas 26% had never received technical assistance (Figure 3). Most indicated that they had received assistance from Extension—either county Extension agents or Extension specialists serving as UK faculty—at least once a year or as frequently as needed. Only six farmers answered the question regarding the number of times they received assistance each year, which shows uncertainty about the opportune support to solve their agricultural problems. Proper diagnosis of pests is one key factor for successful pest control.

The students observed plant diseases, nutritional deficiencies, and insect pest problems in the fields (Figure 4); this draws a parallel to the results from the 2018 and 2019 surveys, which show that the three main topics of concern for farmers were plant diseases, soil fertility, and insect pests (Figure 5).

The two graduate students had firsthand learning experience in organizing field days to deliver science-based information through direct contact with Amish farmers and specialists from UK-REC. In addition, these students obtained their master's degrees in Entomology (in 2020 and 2021, respectively).

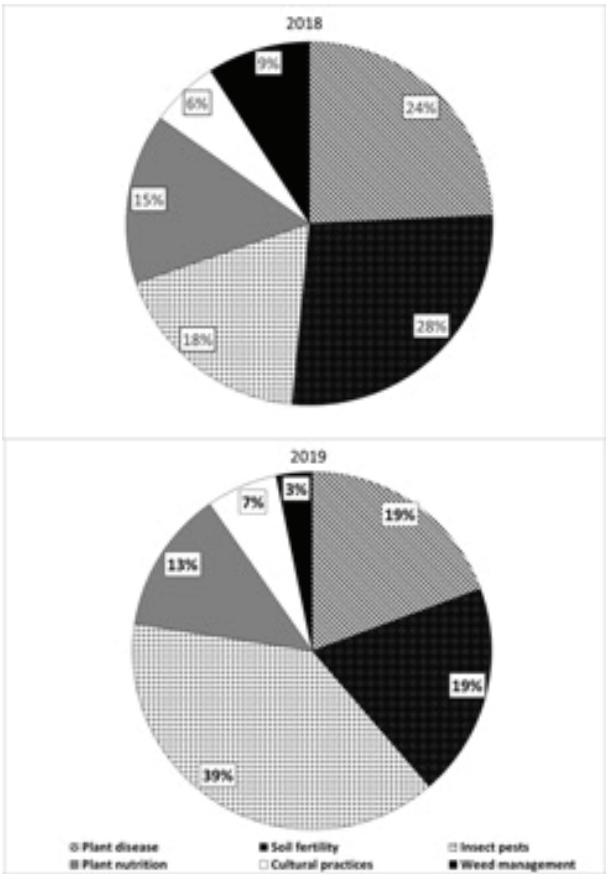

Figure 5. Percentage of farmers indicating that selected topics are of major concern on Amish farms in Cerulean, KY, in 2018 and 2019.

DISCUSSION

Tailoring any outreach program to meet the needs, traditions, and environment of the target community is essential for that community to learn and adopt new agricultural practices or technologies. This tailoring becomes more important the more removed the target community is from the source of information, making outreach to the Amish community particularly tricky. The elder of this Amish community was receptive and willing to build a relationship with the authors of this study; this personal relationship was important to the development of this program. Martin (2021), a member of the Groffdale Conference Old Order Mennonites in Pennsylvania, has a PhD in Plant Pathology and Environmental Microbiology and emphasized that personal relationships are important in all intercultural interactions, especially those that lack rapport-building commonalities.

The 2018 field day program included talks about identifying damages associated with crop pests and limiting pesticide use to labeled rates, using poultry litter as a fertilizer, recognizing diseases associated with commercial and specialty crops, and utilizing crop rotation with specialty crops. In 2019, the topics discussed in the field day included soil fertility and plant nutrition, diseases of fruit crops and ornamentals, sanitation and cultural practices, collection of soil samples for fertility analysis, and natural enemies of the sorghum aphid on sweet sorghum. A total of 33 community members attended the first field day (Figure 6) and 31 the second field day.

The use of synthetic fertilizers, manure, or other soil amendments requires knowledge of soil type, soil management, and a crop's needs if a farmer wants to achieve the highest yield possible at the lowest costs. In a diverse agricultural system, soil nutrient management is a challenge. In this case, it can be even more complex due to the lack of machinery available to prepare soil and spread the right amount of fertilizer. During the presentations, farmers inquired frequently about the use of manure, as this is a subproduct of their farms. They also queried and learned about the proper procedure to collect soil samples for analysis of macro and micronutrients at the UK-REC at Princeton. They focused on soil sampling to obtain accurate soil analyses.

As the authors' expertise is entomology, one of the main issues covered in the field days was implementing pest

Figure 6. Snapshot from the research team's first field day at the Amish community in Cerulean, KY.
Note. Picture taken with the community's consent.

Figure 7. Pressurized mule-pulled sprayer applying insecticides to control sugarcane aphids in the Cerulean, KY Amish community.

management practice for control of the sorghum aphid. Since 2016, this community was progressively learning and adopting new tools to scout and conduct management tactics to reduce the pest's population. They accepted the use of a new chemical insecticide, flupyradifurone (Sivanto®, Bayer), and developed new equipment to apply the pesticides to the affected crops (Figure 7). In this diverse crop system, plant diseases and pests may occur at lower rates than in monoculture systems. However, Amish farmers needed information on pests and natural enemies. They learned about the role and use of beneficial insects; in the summer of 2019, they implemented the use of lady beetles and lacewings for the control of pests in their high-tunnel tomato production. By 2020, they were using parasitoids and pollinators in their high-tunnel tomato system.

Active farmer participation during the two field days facilitated specialist-farmer interaction, which helped them to address their most important inquiries. Amish farmers asked the speakers many questions, which extended the event's end until late evening. Unfortunately, the allotted time per speaker and for questions from attendees was insufficient to address every concern. The mandatory daily work and the lack of electricity constrained the duration of the field days. Further studies could resolve this inconvenience by reducing the number of talks per day and scheduling more, shorter events instead of one longer, annual event. The specialists and students did not expect women and children to attend the field days (Figure 6) but welcomed them enthusiastically when they did attend. None of the women asked questions, but they listened to all of the presentations.

The Amish community have a unique culture, but agricultural Extension workers need to interact with these communities to learn their needs and traditions before they can effectively teach them new information and technology. Here, the six visits during the growing season allowed students to identify problems, provide appropriate management suggestions, and follow up on farmers' learning. The dynamic interaction between specialists and farmers in the fields mostly addressed their immediate needs. This case study shows how new professionals can engage and reach out to culturally diverse audiences.

CONCLUSIONS

Both Amish men and women welcomed the two female students, which allowed for a successful relationship. Farmers cooperated with students and facilitated their work during the two-year program. Amish farmers broadened their technical knowledge, engaged in discussion with speakers during field days, and were eager to receive written and graphic information on diverse agricultural issues. The two graduate students acquired skills in developing and implementing outreach programs through direct contact with an Amish community. The activities and interactions that made up this project may have provided the students with cultural awareness, broadened their perspective in interacting and communicating with underserved communities of different cultural backgrounds, reduced their own biases and prejudices, and provided opportunities for personal growth. It is noteworthy that the Amish tradition of low input farming (defined as optimizing the management and use of on-farm resources and minimizing the use of off-farm resources whenever feasible and practicable (Parr et al. 1990)) did not restrict students' learning experience. Students learned to identify problems, collect samples for further identification, contact specialists, and share information with farmers. These Extension experiences are useful and applicable to future Extension activities in Amish or other underserved communities. Furthermore, this outreach program has strengthened the mission of UK regarding assistance to minorities or underserved audiences. The work conducted with this Amish clientele was highly rewarding for researchers and the community. Extension specialists adjusted to the Amish working conditions, respecting cultural background and values of this religious group; the community appreciated the 2-year program that helped them to manage one of their major problems: the sugar cane aphid. As a result of this project, the entomology Extension specialist visits the Amish community at least twice a year, and the Amish have been collaborating with the invasive insect survey group by allowing annual deployment of insect traps on their properties from March-September since 2020.

ACKNOWLEDGMENTS

We thank the Amish Community of Cerulean for their warm welcome and acceptance of our technical assistance and Graham Cofield, CEA of Trigg Co., KY, for bringing us together. We appreciate the participation of the UK Extension specialists who kindly adjusted their technical talks to the Amish community: Ric Bessin (Entomology), Nicole Gauthier and Kirsten Wise (Plant Pathology), Edwin Ritchie (Soil Nutrition), Amanda Martin (Soil Laboratory), and Daniel Becker (Horticulture). Funding for this project was provided by the Food Connection grant of the University of Kentucky, obtained by the authors in 2018.

REFERENCES

Bridger, J. C., Luloff, A. E., Ploch, L. A., & Steele, J. (2001). A fifty-year overview of persistence and change in an Old Order Amish community. *Journal of the Community Development Society, 32*(1), 65-87. www.doi.org/10.1080/15575330109489693

Brock, C. (2021). Guest editor's introduction: Outreach and applied agriculture research with plain Anabaptists: Lessons learned and future directions. *Journal of Amish and Plain Anabaptist Studies, 9*(2), 108-111. https://ideaexchange.uakron.edu/amishstudies/vol9/iss2/2/

Ems, L. (2022). *Virtually Amish: Preserving community at the internet's margins.* The MIT Press. https://doi.org/10.7551/mitpress/11792.001.0001

Foster, T. W. (1984). Separation and survival in Amish society. *Sociological Focus, 17*(1), 1-15. https://doi.org/10.1080/00380237.1984.10570458

Hoorman, J. J., & Spencer, E. A. (2002). Engagement and outreach with Amish audiences. *Journal of Higher Education Outreach and Engagement, 7*(1&2), 157-168. https://openjournals.libs.uga.edu/jheoe/article/view/654

Kraybill, D. B., & Bowman, C. D. (2001). *On the backroad to heaven: Old Order Hutterites, Mennonites, Amish, and Brethren.* Johns Hopkins University Press.

Martin, P. L. (2021). Penn State Extension Services and plain people: An inside perspective on a trust-based relationship. *Journal of Amish and Plain Anabaptist Studies, 9*(2), 221-231. https://ideaexchange.uakron.edu/cgi/viewcontent.cgi?article=1212&context=amishstudies

McKernan, D. (2020, April 16). *What is an Anabaptist?* Bruderhof. https://www.bruderhof.com/what-is-an-anabaptist

Parr, J. F., Stewart, B. A., Hornick, S. B., & Singh, R. P. (1990). Improving the sustainability of dryland farming systems: A global perspective. In R. P. Sing, J. F. Parr, & B. A. Stewart (Eds.), *Dryland Agriculture: Strategies for Sustainability (Advances in Soil Science vol. 13)* (pp. 1-8). Springer. https://doi.org/10.1007/978-1-4613-8982-8_1

Reschly, S., & Jellison, K. (1993). Production patterns, consumption strategies, and gender relations in Amish and non-Amish farm households in Lancaster County, Pennsylvania, 1935-1936. *Agricultural History, 67*, 134-162. https://www.semanticscholar.org/paper/Production-patterns%2C-consumption-strategies-%2C-and-in-Reschly-Jellison/665007f36ad398ad1ea24456723084f2a9c7dc60

Shenton, R. (2021). Caring for the land and the livestock: Anabaptist agricultural practices in Europe and colonial Pennsylvania. *Journal of Amish and Plain Anabaptist Studies, 9*(2), 111-124. https://ideaexchange.uakron.edu/amishstudies/vol9/iss2/3/

Ulrich-Schad, J., Brock, C., & Prokopy, L. S. (2017). A comparison of awareness, attitudes, and usage of water quality conservation practices between Amish and non-Amish farmers. *Society and Natural Resources, 30*(12), 1476-1490. www.doi.org/10.1080/08941920.2017.1364457

United States Census Bureau (2020). 2020 Decennial Census. https://www.census.gov/search-results.html?q=Cerulean+KY+Population&page=1&stateGeo=none&searchtype=web&cssp=SERP&_charset_=UTF-8

Villanueva, R. T., Brewer, M., Way, M. O., Biles, S., Sekula, D., Bynum, E., Swart J., Crumley, C., Knutson, A., Porter, P., Parker, R., Odvody, G., Allen, C., Ragsdale, D., Rooney, W., Peterson, G., Kerns, D., Royer, T., & Armstrong, S. (2014). Sugarcane aphid: A new aphid pest of sorghum. Texas A&M Agrilife Extension (Ento-035). http://denton.agrilife.org/files/2013/08/ENTO-035-The-Sugarcane-Aphid-2014.pdf