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*Applied Economics Teaching Resources (AETR)* is an online, open access, and peer-reviewed professional publication series published by the Agricultural and Applied Economics Association (AAEA).

The aim is to provide an inclusive outlet for research, teaching and Extension education scholarship encompassing but not limited to research articles, case studies, classroom games, commentaries, experiential learning, and pedagogy. The goal is to support and advance teaching and Extension education within the scholarly areas of agricultural and applied economics, and agribusiness economics and management. AETR seeks to publish articles that are diverse in both scope and authorship. It serves as a platform for addressing and contributing to our understanding of important societal issues, including inequality and discrimination, as well as how shifts in pedagogy (e.g., growing reliance on remote and hybrid learning modalities) may impact accessibility and inclusion.

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4. Teaching and education commentaries (e.g. notes on pedagogy, evaluations of teaching effectiveness, evaluation and review of applied economics textbooks, curriculum development and educational methodology).

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**Extension Education**

# On the Strategic Creation of Extension and Outreach Content in a New Media Environment

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**Abstract**

Colleges of Agriculture across the world have been forced to rapidly adapt new media solutions to confront the challenge of educating and community building in increasingly digital spheres. With prospective and current students, program participants, alumni, and stakeholders at home, the COVID-19 pandemic was a catalyst to creating educational and connection opportunities through new media such as podcasts. Podcasts, like all digital content, require strategic planning and perform best when integrated into an overall communication or teaching strategy. This article uses podcasts as a case study as to discuss how new media can be a complement to the communications and learning goals of agricultural and applied economics departments. We develop a conceptual framework that provides a template for best practices for integrating podcast content into research-based community building and strategic communications development. Our article then utilizes the conceptual framework to describe the development of the Michigan State University Closing Bell podcast, which was implemented as a livestream on College of Agriculture and Natural Resources social media platforms in response to ongoing crises during the early stages of the pandemic.

## 1 Introduction

Shrinking personnel and travel budgets in the future will continue to force agricultural Extension and outreach programs to rely increasingly on new technology as a platform for knowledge dissemination and stakeholder engagement. This article discusses podcasts as an example of new media development that might complement the communications and learning goals of agricultural and applied economics educational institutions. We discuss best practices and provide ideas on integrating podcast content into communications development and community building. Podcasts have become popular in the United States; over a third of all Americans listen to a podcast at least once per month with some estimates forecasting that podcast listeners will increase substantially in the following years (HubSpot 2020; Soto Reyes 2021).<sup>1</sup> With the increasing popularity of podcasts, this media form represents an attractive addition to higher education communications and marketing strategies. However, with over 30 million podcast episodes available, any new podcast is likely to compete for attention (HubSpot 2020). This paper provides guidance and examples for educational institutions hoping to implement a podcast into their communications and/or teaching strategy.

Podcasts, like all digital content, require strategic planning and perform best when integrated into an overall communication or teaching strategy. It is imperative to identify overall communications goals or course learning goals and how incorporating a podcast would achieve those goals. Once you've determined that a podcast would align with intended outcomes, strategic planning for the podcast can

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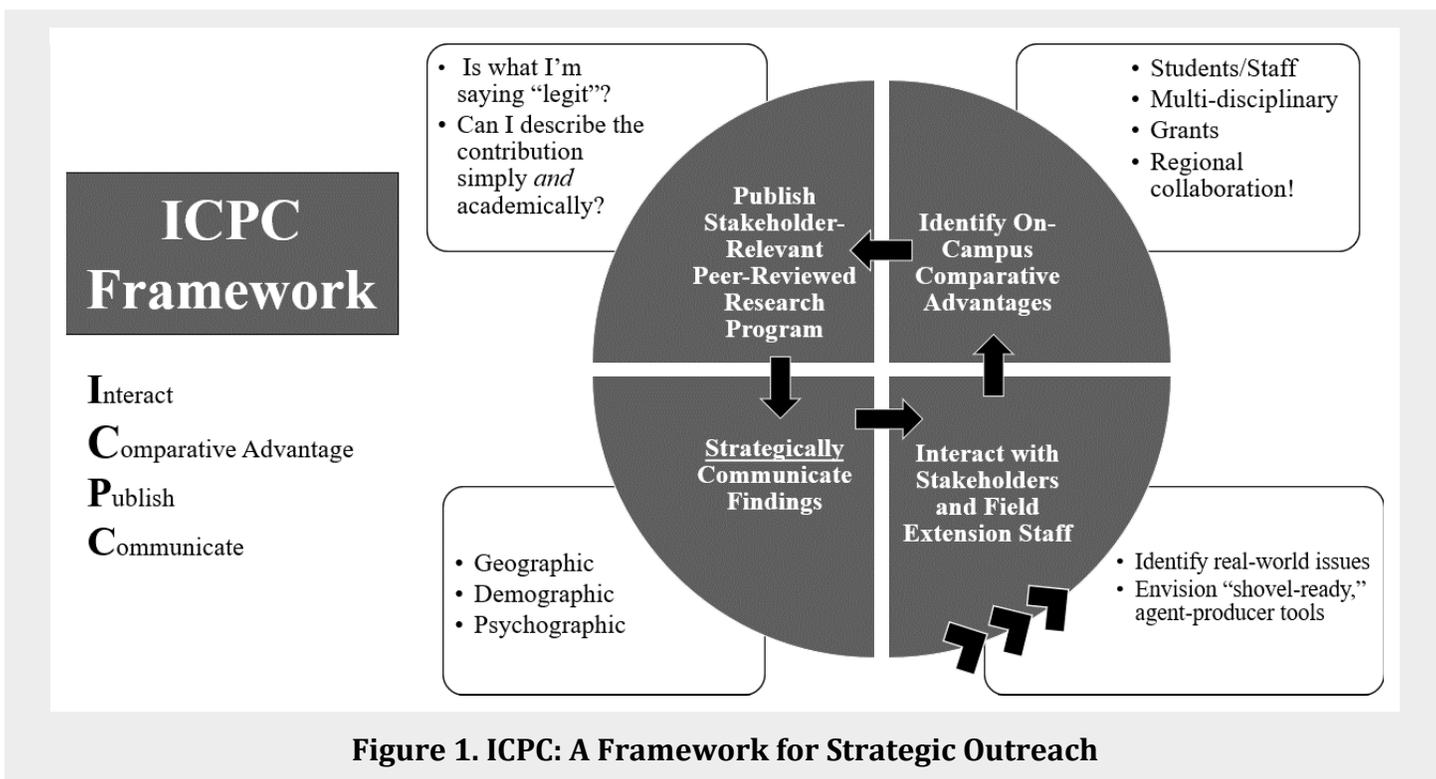
<sup>1</sup> Following Lonn and Teasley (2009), we define podcast as "any digital media file, or series of files, distributed over the internet for playback on portable media players and personal computers."

begin.

The remainder of this article is organized as follows. First, we provide a conceptual framework of how to incorporate new media content into an integrated research and outreach program. Dubbed the “ICPC Framework,” we describe how to interact with stakeholders and field Extension staff, identify on-campus comparative advantages, publish stakeholder-relevant peer-reviewed research, and strategically communicate the findings. We then discuss each step necessary for strategically developing a podcast to communicate with the stakeholders of interest. The third section provides a case study of new media content development. Titled “MSU Closing Bell,” this video podcast series originally streamed on the Facebook page of the Michigan State University College of Agriculture and Natural Resources for the first year of the COVID-19 pandemic. The final section concludes with a discussion of the limitations of new media content and recommendations for integrating old-world Extension programming into a more constructive outreach program.

## 2 Conceptual Framework

Before developing any new media content, it is important to think strategically about how the content will fit into a broader strategic vision for integrated research, education, and outreach. Figure 1 displays an example of a conceptual framework that might promote the development of a strategic outreach program, that is, the “ICPC Framework.” Like the Ignatian pedagogical cycle of context, experience, reflection, action, and evaluation (Pousson and Myers 2018), each step along this framework seeks to build into a repetitive, longer-term outreach-focused research program. Indeed, the tenants of land-grant Extension programming require a strong relationship between research and outreach content, making it crucial to maintain an integrated program (Tonsor 2018). Integrated educational offerings for agricultural policy have even been explicitly requested via U.S. Department of Agriculture funding, such as grants related to the 2014 Farm Bill (Ellison et al. 2017).



The ICPC Framework can start at any place within the cycle, but for our purposes we will begin with “I,” or “Interact with Stakeholders and Field Extension Staff.” The primary goal of these interactions is to gain insights on the “real-world” issues confronted by the stakeholders of interest. Starting with stakeholder interaction is particularly helpful for early career Extension economists who are still developing their in-state stakeholder relationships (Hagerman et al. 2022). Within those interactions, a focus on “shovel-ready” agent-producer tools should be emphasized. These tools vary dramatically across stakeholder groups, but prime examples include the *TelFarm* Project (Werth 1965), the *Farmdoc* Project (Irwin et al. 2004), and the Kansas State University Research and Extension service programming for the 2014 Farm Bill (Taylor and Tonsor 2019).

Following the initial stage of stakeholder interaction, an important next step is to identify the on-campus comparative advantages. This stage is especially important as the funding and development of new agricultural technology research has shifted toward private agribusiness firms, inducing a greater need for understanding how the land-grant system can provide support to these off-campus developments (Fuglie et al. 2017). Each university has a unique consortium of resources for developing outreach content, including students, staff, and multidisciplinary teams.

Leveraging those pre-existing resources to respond to stakeholder needs can create a rapid and effective new media response to an ongoing concern. Furthermore, because one state’s stakeholder needs are likely to overlap with those of stakeholders in other states, multistate collaboration teams also represent a strong strategy for leveraging the resources of the university to address ongoing stakeholder concerns. An example of multistate team programming is the *Cattle Market Notes Weekly* newsletter (Maples, Mitchell, and Burdine 2021), which is a collaboration between Mississippi State University Extension, the University of Arkansas Extension, and the University of Kentucky Extension.

The third step of the ICPC Framework is to publish stakeholder-relevant peer-reviewed research. Including peer-reviewed research as a part of outreach programming allows for a more comprehensive understanding and discussion of each topic (Brorsen 1987; Parcell et al. 2020). Structuring each real-world issue into an academic article format forces you to think systematically about how to create the most relevant, accurate agent-producer tool. Used correctly, the peer review process creates an important feedback loop with other experts in the field, allowing you to be more confident about your outreach content.

The remainder of this article primarily focuses on the final step of the ICPC Framework: to *strategically* communicate your findings to relevant audiences. Given the time lag between submission and publication in agricultural economics journals, it is important to begin your strategic communications planning process prior to journal publication. A strong dissemination strategy requires opportunities for relevant stakeholders to see your outreach content. As such, consider the psychological concept of the “mere exposure effect,” which poses that people tend to develop a preference for things that are more familiar than others (Fang, Singh, and Ahluwalia 2007). That said, dissemination of research findings must be mindful of the geography, demography, and psychology of the relevant stakeholders. This strategy might require communication with topic-specific journalists but also might involve collaboration with agricultural communications faculty and staff.

Your communications strategy might also require the development of new media content such as podcasts. In the following section, we describe podcasting as one mechanism for strategic communication in an integrated research and outreach program.

### 3 Strategic Considerations for Podcast Creation

New media plays an increasingly important role for content branding and consumer engagement (Holt 2016; Malone and Cripps 2021). Though adoption of new media has lagged for certain stakeholder groups such as commercial agricultural producers (Zahn 2020), podcasts have carved a growing market share for decades. The higher education literature has been particularly mindful of podcasting in student learning,

leading to many articles on the effectiveness of podcasts in complementing on-campus education (Fernandez, Simo, and Sallan 2009; Lonn and Teasley 2009; McGarr 2009; Swanson 2012; Lin, Zimmer, and Lee 2013; Fernandez, Sallan, and Simo 2015).

Over half of U.S. consumers over age 12 listen to podcasts, and the number of listeners is increasing every year (Edison Research 2021). This trend became particularly salient for Extension programming with the onset of the global pandemic where higher education institutions were faced with the challenge of educating and community building in increasingly digital spheres. The pandemic was a catalyst to creating educational and connection opportunities through new media as prospective and current students, program participants, alumni, and stakeholders remained at home. Despite those opportunities, few articles have described a strategic approach to new media development in Extension and outreach programming. The following section describes important considerations for effectively implementing a podcast into an integrated research and outreach program in agricultural and applied economics.

### 3.1. Strategic Consideration for Podcast Creation

The first step in developing a podcast is to create a strategic plan. Spending time on the front end of podcast development is an investment in the podcast's full potential. Additionally, make sure you are involving and getting input/feedback from people with diverse backgrounds and experiences.

During a strategic planning process, you decide who you are trying to reach, what they are interested in, why they would care about your content, and how and where you are going to connect to your audience. It is imperative that you build your podcast on a foundation of accessibility.

In other words, establish the audience and the goal of your podcast that accomplishes your overall communications or course learning goal, and engage in some primary and secondary research. In other words, think about the *who*, *what*, and *why* of your podcast:

- Who are you specifically trying to reach?
- What are they interested in?
- Why will they care?
- What action do you want your audience to take once they listen, or what do you want them to take away?

To use an example from above, perhaps your goal is to reach and recruit prospective students (audience). This will guide your content development to focus on prospective students and the content that would inspire them to apply and the things they need to know about becoming a student. Perhaps that process involves interviews with other students, enticing majors, and information about social student life on campus. Perform online (secondary) research about topics and trends, but also perform primary research, perhaps sending a survey to current students asking about the information they wish they had, and prospective students about what questions they have.

In the realm of secondary research, search industry best practices, but also identify groups or organizations offering similar podcasts or content. This is a great way to view content in action and to build ideas. Here are some questions to think about while doing secondary research:

- What are organizations like yours doing and doing well? Where are they missing the mark?
- What topics are already being covered? What unique perspectives can you offer to the conversation?
- What areas are missing that you can speak to?

**Table 1. Give People What They Want**

Goal and Audience	Examples of Topics	Primary Research
Recruit prospective students  Increase content knowledge for students/participants in an academic class or Extension course  Build employees’ diversity, equity, and inclusion resources	Interviews with current students about life on campus.  Information about careers.  Inspiring alumni stories.  How to write college entrance essays.  Interviews with professionals in the field.  Interview researchers on current research. Speaker series—authors, activists, DEI professionals.	Survey current and prospective students to determine helpful information and topics.  Survey class participants to learn about what they are interested in.  Survey industry professionals about topics they want their pool of applicants to know for the job.  Survey employees about areas of growth or perspectives outside of their experiences.

**Tip:** If you send a survey out to your target audience, provide an option for participants to add their email address if they’re interested in hearing from your organization when the podcast is launched.

### 3.2 Creating the Podcast

Once you have mapped out your goals, your audience, and their interests, and performed important research, you can move onto the “nuts and bolts” of bringing your podcast to life. Here are some questions to get you started:

**Who:**

- Who will host the podcast? Do they represent the diverse members of your audience or area of expertise?
- Who are the members of the podcast team? Writing, editing, design—do you have a team of people who represent the breadth of interests and experiences of your stakeholder audience?
- Who will be interviewed? Do they represent your stakeholder audience or area of expertise?

**Where/How:**

- Where will you host the podcast? Does your website platform have the capability to host audio files? Will you do audio and video?
- Where will you record? What will you record with?
- Where will you promote your podcast? What channels do you have to reach your audiences? (We will discuss promotion in detail.)
- How will you edit your podcast?
- How will you transcribe your podcast? (This is important to make sure your podcast is accessible.)
- How long will the podcast last? Length can play a role in determining your target market.
- Is this a series with a set end date, or do you have longer term plans (6 months, 1 year, 3 years,

infinitem, etc.)?

**When:**

- How often will you release a new episode? Monthly, biweekly, weekly? (Make sure the frequency is sustainable for the duration of your podcast.)

**What:**

- What does success look like?
- What type of analytics will collect to measure whether you have reached your goals?

**Writing, Music, and Graphics:**

Now it is time to name your podcast, write and record an introduction, create a podcast cover, and select music to go along with your podcast. There are free and low-cost music sites to choose songs to play at the beginning and the end of your podcast. Additionally, there are also free and low-cost graphic design programs online if you are not able to work with a graphic designer within your organization. This visual identity will be used on streaming platforms and all your promotional materials.

If you have a format where the entire podcast is an interview with a guest, make sure you are researching your guest to write thoughtful questions, and sharing information about your audience and questions with your guest ahead of time so they can prepare relevant stories. There are plenty of best practices surrounding interviews that you can find on the internet.

Or perhaps you are choosing a journalistic style, where you are narrating and adding in audio from interviews and events to wrap into a larger story. This allows you to plan out a story arc and take your listeners on a journey. For example, perhaps you are following researchers in the field through the beginning, middle, and end of their research, and putting together the story in a podcast series.

Whatever format you use, make sure you spend time planning out the content, almost like you planned out the podcast. Things to remember:

- Why is your audience interested in this episode?
- What do you want them to do or know at the end of the episode?
- How does this fit into the larger strategic goals of the podcast?
- Whose voices/views are represented in this episode?

**Promoting the Podcast:**

Your plan to promote the podcast should also be part of the strategic planning process. What current channels do you have that already reach your audience? For example, do you reach alumni and donors regularly through email newsletters? Are your students mostly engaged with your college on Instagram? This is where you will think about your audience and your email, website, social media, and traditional media channels where you can reach your audience. Additionally, make a list of partner organizations that you think might be willing to share your podcast with their audiences.

You will want to think about promoting your podcast in three ways:

- Pre-release promotion
- Episode promotion
- Resurfacing content

**Pre-Release Promotion:**

It is important to have your audience members excited and looking for the first podcast episode to drop, and you can do that through promoting the podcast in the weeks before you have made the first episode

live. The best place to promote the podcast is to use the channels that you have already identified through your strategic planning where your audience members are active and engaged. Additionally, if you have a list from your primary research survey of people interested, you can send out an email giving them release details and offering them the chance to connect.

An example of a rounded pre-release promotion strategy would be writing and sending a press release to appropriate news contacts, including information about the launch in appropriate email newsletters, and creating engaging content to announce the podcast on your social media platforms. Additionally, asking partner organizations how they might be able to share the news of your new podcast is a great way to promote the podcast to partner audiences. They might retweet or share your post on Facebook about the upcoming podcast.

### ***Episode Promotion:***

You will also want to spend time promoting each episode as it is released. Quote cards from the episode, interviewee topic photos, and audio graphics are great ways to release rich, visual content on social media or send through email newsletters to your desired audience. If partner organizations are interested, letting them know when you're posting will give them a chance to retweet or share from their platforms.

### ***Repackaging Content:***

Perhaps you have released all the podcast episodes and have access to all the analytics on popular episodes. Think of future opportunities to resurface and reuse the content. Are there any social media holidays six months or a year from now where it might make sense to share the episode again? Or perhaps you will be reusing the podcast for each cohort of program participants. Or perhaps there is an Extension program that might enjoy sharing the podcast or episodes as learning materials with their participants. You have spent a lot of time and energy on the podcast, what are ways you can continue to use it and repurpose it? To maximize the mere exposure of each episode, one idea might be to identify those opportunities in advance, and then utilize one of the many online subscription services that allow you to record, edit, upload, schedule the release of podcast episodes to the major outlets (i.e., Apple Podcasts and Spotify), and track analytics. Using one such service would be an excellent investment, as the primary objective should be to generate frequent content, which will be posted via YouTube, Twitter, Instagram, and Facebook. A goal might be to share at least one piece of content once per day, which will be scheduled using social media management programs such as Twitter Drafts, Later for Instagram, and Hootsuite for Facebook and LinkedIn. Often, this content might be most effectively packaged as a photograph or a series of short videos to be edited and curated by the department or college communications managers and promoted with written content provided by faculty members.

### ***Analytics and Reflection:***

Keeping track of analytics is important because it will help you understand what performed well with your audience and understand who your audience is. It will also help you make decisions about what you might reuse or repurpose in the future, or even the future of the podcast. It will also be helpful to look at what did not perform well, and to learn from those episodes as well. Analytics can also tell you if you are reaching your target audience and if you need to revise your promotional strategy to reach relevant stakeholders.

It might be helpful to release a post-survey on social media and other promotion channels to gather information from your audience about what they liked and did not like, especially if you are considering continuing the podcast.

### ***Turning Research/Speaker Series/Course Material into New Media:***

Many higher educational organizations have opportunities to turn their traditional events into digital media, such as podcasts. For example, faculty and student research, department speaker series, and

recruitment or student orientation events all have elements that could be transformed into new media. For example, perhaps your department hosts a speaker series every year. Perhaps you offer that speaker series on Facebook Live and use the audio for a podcast. Or you ask the invited speaker for an interview before or after their presentation for your podcast. You can advertise their in-person event, the online event, and share content from the speaker series throughout the year, giving your audiences an even greater opportunity to engage with that content.

## 4 MSU Closing Bell

When the first reported case of COVID-19 was announced in Michigan on March 10, 2020, few could imagine the havoc that it would eventually wreak. Fewer still could imagine the expanded gap that resulting shutdown policies would create between agribusinesses and their service providers, including MSU Extension. In Michigan, farmers are distributed across mostly rural areas of two large peninsulas while Extension economists are centrally located at the land grant university campus in East Lansing. In a state of this geographic size, direct Extension contact with most agribusinesses is ordinarily difficult, expensive, and time consuming, let alone in a COVID-19 environment when such contacts came to a halt. When MSU announced the suspension of in-person instruction on March 11, 2020, and Governor Whitmer declared a state shutdown on March 23, 2020, we began planning for the implementation of a statewide e-Extension program to bridge the information gap that COVID-19 would create. Because the planned regional training and knowledge transfer programs would no longer be possible, farmers and agribusinesses would need more timely and frequent knowledge transfer and deeper expertise to directly address their pressing angst. On March 27, 2020, we launched the first episode of “Closing Bell,” a weekly online program designed to facilitate discourse between researchers/outreach personnel and stakeholders on topics relevant to today’s agricultural and food economy.

MSU Closing Bell was a weekly live video stream that broadcast through Zoom webinar onto the MSU College of Agriculture and Natural Resources Facebook page to address concerns and discuss implications of the rapidly evolving policy and economic decisions. Recordings were posted on a YouTube channel with episodes assigned as reflection options for both the Decision-Making in the Agri-Food System and Public Policy Issues in the Agri-Food System undergraduate courses. The questions (1) came from the week prior, (2) were sent directly through the webinar platform and screened by MSU Extension personnel, or (3) came directly from the hosts.

In 2020, Michigan was a political battleground state where many rural farmers and agribusiness operators were anxious about its potential economic and social challenges. We designed Closing Bell to meet several complex objectives: (1) feature knowledgeable, credible, and trusted experts from across the country, (2) facilitate real-time two-way audience-centered dialog, (3) ensure that each program is strategically informational and conveys real solutions while allowing questions on the fly, (4) give the audience a high degree of comfort, especially given the stresses of the pandemic, and make Closing Bell accessible to nationwide audiences, realizing that all universities would have the same issues.

The first session focused on the expected economic impacts of COVID-19. This left many questions unanswered. March and April were months of intense misinformation about COVID-19 and its implications for farmers, agribusinesses, markets, and the overall economy. In response to emerging concerns, the sessions focused on *Black Lives Matter*, the projected impacts of the lockdowns, the definition of essential workers, regional differentials in COVID-19 infection rates, and what Northern Michigan could expect given the limited number of hospital beds. When farmers expressed concern about whether or not the pandemic was real, or was a hoax, we brought in Dr. Felicia Wu, a Hannah Distinguished Professor and a global expert on public health risks to share the scientific facts about COVID-19. Similarly, when the audience expressed concern about their future, we brought in the current AAEA President, Dawn Thilmany, to talk about the future of food.

Regarding program scope, depth, and content, the list of topics covered to date on the weekly Closing Bell programs include resilience of the livestock industry, efficiency versus resilience in the food

system, is 2020 like the 1980s farm crisis?, grain marketing during COVID, race in rural America, systemic racism in agriculture, immigration, and trade during COVID, climate change and production agriculture, superbugs and anti-microbial resistance, bee pollination, online learning challenges of students, agricultural reporting during COVID, economics of forest fires, U.S.–China trade, agribusiness marketing using new media, the future of farm policy, the economics of Thanksgiving, COVID-19 and the mink market, and the COVID vaccine.

The most powerful feature of Closing Bell was the ability to field appropriate experts to address special topics. We featured a diverse list of guests, including economic and other university professors and Extension agents, representatives of policy and government agencies, and knowledgeable professionals from the private sector. We also prioritized diversity and inclusion. For example, 14 women and 9 people of color were highlighted as experts through the program.

The direct audience of MSU Closing Bell ranged from 30 to 150 viewers per episode. In addition to direct online participants, Closing Bell had attracted over 16,000 viewers via Facebook (12,494) and YouTube (3,563). In addition, Twitter impressions of the YouTube posting of Closing Bell totaled 7,123 while impressions of postings on the College of Agriculture and Natural Resources (CANR) Facebook page totaled 24,988, for a gross total of 32,114. The YouTube page for Closing Bell ([https://www.youtube.com/channel/UCIU6A4oDk8BX\\_FsrSuK4hjg](https://www.youtube.com/channel/UCIU6A4oDk8BX_FsrSuK4hjg)) was available for farmers and agribusinesses in Michigan.

As part of the ICPC Framework described above in Section 2, we made an effort to publish scholarly works related to the Closing Bell program (Malone, Schaefer, and Lusk 2021; Malone, Schaefer, and Wu 2021; Miller, Malone, and Schaefer 2021; Gao et al. 2021; Janzen et al., 2021; Robertson et al. 2021). News articles related to Closing Bell are also featured in a wide variety of news media, including Detroit Free Press, Lansing State Journal, ABC-13 Grand Rapids, and Crain's Detroit at the state level; and USA Today, Associated Press, U.S. News & World Report, and The Hill at the national level. Coverage in industry and news media include articles in Food and Agriculture, Michigan Farm News, Farmers Advance, Restaurant Business Online, and Eater.

Of course, perhaps the most meaningful measure of the impact of an outreach program is how participants feel about its contributions. On the novelty, relevance and impacts of Closing Bell, Audrey Sebolt, Associate Horticulture and Industry Relations Specialist at the Michigan Farm Bureau, stated:

*"I appreciated the candid, casual approach to addressing a myriad of issues that arose as a result of COVID-19. Trey and Aleks have an amazing approach to presenting information together that is admired by our organization."*

Marcia Cripps, Lead Agronomist at Lennard Ag Co., Sturgis, MI, stated:

*"I like that you can hear from a variety of professionals in the agri-food system and that it is a comfortable conversation to listen to. ... For example, I really appreciated the BLM show, and it was really good to see CANR acknowledge that it happened and not sweep it under the rug."*

Stakeholders indicated that Closing Bell made a major difference in their operations, especially their ability to manage the effects of COVID-19. For example, Sebolt states:

*"The discussion just blew me away. Several times, I referenced the discussion in my conversations to say, look, this is today's reality."*

Cripps says:

*“As a woman and person of color, I really appreciated seeing people of multiple backgrounds represented on the show... I really enjoyed hearing about the COVIDvaccine with Dr. Wu, especially since I did not know/understand much about the vaccine, and it was good to hear a professional instead of mainstream media talk about it.*”

Finally, Jayson Lusk, an AAEA fellow, Department Chair and Distinguished Professor at Purdue University summed things up by stating:

*“In the aftermath of the March 2020 shocks caused by the COVID-19 pandemic, there was an immense demand for information about the food system by the media and the food consuming public. In a model of rapid and responsive outreach and engagement, Trey and Aleks launched the Closing Bell. They brought in diverse viewpoints from the agricultural economics profession to help sort through and understand economic drivers of the food system, and subsequently broadened their efforts to help their viewers and listeners understand economic phenomena in food and agricultural markets. This is a model for how modern Extension can and should respond to emerging public demands for information.”*

In conclusion, early in the pandemic, the creation of the MSU Closing Bell podcast enabled us to maintain relevance, advance our Extension programming, and create a robust framework for effective long-term knowledge delivery to stakeholders. The podcast allowed us to address the information gap during the pandemic, tailored for a selected target audience in need of solutions (farmers, food firms, and agribusinesses), through an innovative infrastructure for the continuation of Extension education and connectivity between national and local experts and their stakeholders. The root of the program was evidence-based information not only about economics, but also about the nexus to health, public policy, education, and profitability.

## 5 Parting Thoughts

As has been made clear during the COVID-19 pandemic, questions and answers evolve rapidly, and decision making is made even more difficult in an already challenging agricultural economy. Though this article focuses on the development of new media content such as podcasts, essential to the effective publication of applied research is the dissemination of outcomes through a variety of platforms. Additional policy-relevant content new media content might also be distributed via a centralized online site with interactive graphics. Many choices that might have once been measured simply in economic tradeoffs are now being filtered through the psychology of uncertainty. This is especially disconcerting as people struggle to evaluate the trustworthiness of new information, leading to incorrect forecasts of future events and the potential for panic.

While traditional Extension and outreach outlets clearly have important merit, new media outlets have become of utmost importance and via electronic means (e.g., websites, blog posts, and podcasts) to help industry professionals become aware of and adopt current consumer perspectives. Content can also be shared via traditional outlets such as Drovers and AgWeb, and blog posts, which all might be made accessible through Extension websites. Blog posts could include links to relevant content such as Extension publications, journal articles, and conference opportunities.

That said, not all Extension programming should be pivoted to online distribution. Consistent with the traditional model of Extension, research findings must also be shared at traditional stakeholder meetings and personal interaction. We see new media such as opinion pieces, podcasts, videos, and outreach articles as a complement to the currently existing programming, which might be positioned to

reach a broader audience through outlets such as TheConversation, which publishes open-source academic content accessible for popular press outlets.

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**Extension Education****Extension Programming During a Pandemic: The Cooperative Director Foundations Program**

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**Abstract**

In summer 2020, when it became apparent that our Extension programming was not likely to be done in person in 2020/2021, a broad group of collaborators, representing universities, cooperative centers, and practitioners, began discussions to collaborate on some form of online learning platform to offer our Extension education modules for new directors on agricultural cooperatives boards across state lines and develop a program that was unavailable in most states. The objective is to describe the process, content, and lessons learned from our collaboration two years later. A legal entity was formed to develop and launch a common learning platform across our universities to handle registration fees and to pay for the development of the programs. The result is a comprehensive, peer-reviewed curriculum composed of 23 digital modules comprising 15 hours of content with a workbook written by a collaboration of 11 universities and 15 authors. We used state-of-the-art technology including storyboards, recorded lecturers, animations, vignettes, and online assessments for the digital content. In May 2022, adoption of the programming has begun slower than expected but moving in the right direction. We discuss lessons learned and about evolving new insights about future Extension programming for this largely underserved group.

**1 Introduction**

Agricultural cooperatives in the United States were made an explicit mission of the Cooperative Extension Service through the Cooperative Marketing Act enacted by the U.S. Congress in 1926 (Frocker 1933). That act also allowed the formation of federated cooperatives, some of the largest of which are known as of this writing as CHS, CoBank, GROWMARK, and Land O'Lakes, as well as marketing agencies in common, some known today as American Dairy Cooperative, Midwest Agri-Commodities, and World Wide Sires. The act created various agencies in the U.S. Department of Agriculture (USDA) to study a broad spectrum of issues associated with agricultural marketing and purchasing cooperatives. Finally, the act authorized its inclusion in state Cooperative Extension Service programs.

In 2022, university faculty with Extension responsibilities to cooperatives exist in at least nine U.S.-based universities, with many having three-way appointments in Extension, resident instruction, and research for annual evaluation purposes. Many of these faculty are more broadly thought of as agribusiness economics and management faculty. In addition, six other universities have faculty doing research in cooperatives. These faculty collaborate through the North Central Extension and Research Activity (NCERA 210) project titled "Improving the Management and Effectiveness of Cooperatively-Owned Business Organizations," which can be found at <https://www.nimss.org/seas/51862>. These

Extension programs are often done in partnership with federated cooperatives or state and regional cooperative councils, and include curriculum with modules on accounting, finance, governance, human resources, leadership, cooperative principles, and strategy. We collaborate in two national programs, Farmer Cooperatives and National Council of Farmer Cooperatives director workshops, for directors and their stakeholders. Boland et al. (2021) report that more than 4,000 directors and employees of cooperatives attended land-grant university Extension programs nationwide in 2018.

In summer 2020, when it became apparent that Extension programming was not likely to be done in person in fall 2020 or in early 2021, we began discussions to collaborate in a novel way, envisioned as an online learning platform to offer our Extension programs for new directors on agricultural cooperative boards across state lines. This was an underserved audience in more than 40 states because these types of programs are not available from Extension or state cooperative councils on a regular basis. The objective of this article is to describe the process, content, and lessons learned from our collaboration two years later.

A legal entity called the Center for Agricultural Cooperative Director Development was formed to develop and launch a common learning platform across our universities and cooperative centers and to handle operations, such as registrations, tuition, and reporting, for the distribution of the programs to cooperatives. The result is a comprehensive, peer-reviewed curriculum composed of 23 digital modules comprising 15 hours of content with a workbook written by a collaboration of 11 universities, 3 cooperative centers, and 15 authors. In April 2022, adoption of the programming, which started slowly, has begun. We discuss lessons learned from the experience at the end of our article.

## 2 Background on Extension and Research Programming in Cooperatives

Cooperatives play an important role in supporting higher education, which aligns with the cooperative principle of duty to educate members and potential members about the mutual-benefit or cooperative form of business structure. Land-grant universities have encouraged the development of classroom curriculum for high school and collegiate education on cooperatives, Extension programming, and research to better understand the cooperative business model. Boland and Barton (2013) reported that in 1976, there were more than 40 PhD agricultural economists with Extension responsibilities in land-grant universities. The majority of these were 100 percent Extension or close to it with a resident instruction component in teaching. Over the past 45 years, there has been dramatic change. In 2022, this number is eight faculty with PhDs with all but one having 50 percent Extension appointments or less. In addition, there are another six MS level cooperative Extension associates, with four being at universities with faculty and two in the same program without faculty. Two other PhD faculty with research appointments have some outreach responsibilities. All but one of these 16 MS or PhD level individuals have an endowment funded by cooperatives to support their program.

Boland et al. (2021) note that as a group of organizations, cooperatives are likely the largest contributor of endowments in departments with historical roots in agricultural economics with more than \$30 million in at least 12 universities that are used to fund faculty endowed chairs, graduate student fellowships, undergraduate student scholarships, classroom naming rights, and other similar activities. The endowments created by agricultural cooperatives have a strong preference for resident instruction through a collegiate class in cooperatives, Extension programming, and applied research.

King et al. (2010) provide an overview of cooperative research in the agricultural economics literature. These authors note that two of the nine contributions by agricultural economists in agribusiness economics and management were explicitly linked with cooperatives: (1) introduction of economic reasoning and pioneering theoretical advances in the study of agricultural marketing and management and (2) playing a key role in the design of institutions that are the foundations of agricultural credit markets. The *Journal of Economic Literature* code Q130 is entitled “Agricultural Markets and Marketing; Cooperatives; Agribusiness.” Boland and Crespi (2010) found that the two topics

identified in King et al. (2010) have been the subject of more than 100 dissertations since 1951. Extension education efforts were originally focused on income distribution by cooperative boards of directors and how income is allocated as member capital (Wells, 1935; Hedges, 1951). Koller (1952) discussed the lack of education about why patronage income is being retained by the cooperative as equity. Both topics are important components of Extension programming in accounting and finance.

Recent research projects, many of which were funded by our stakeholders, include studies focusing on cooperative finance and capitalization (Briggeman et al. 2016; Li, Jacobs, and Artz 2015), subscription projects from 21 firms on agribusiness employee occupational health and safety (Risch et al. 2014; Hanson and Boland 2020), a 2019 special issue of the *Western Economic Forum* (Boland 2019; Cook 2019; Kenkel et al. 2019; McKee, Parsons, and Kenkel 2019; Park et al. 2019), and the updating of the *Handbook of Research on Co-Operatives and Mutuals* (Elliott and Boland 2022). A team effort led to an open access collegiate textbook in English and Spanish with peer review and suitable for tablet, e-readers, audio, and a print-on-demand feature with no royalties (Boland 2017).

The U.S. Congress authorizes and appropriates funds for the USDA Rural Cooperative Development Grants, which funds centers that engage in business development in a similar matter as an Extension program. Some of those centers are associated with land-grant university Extension programs in cooperatives such as the University of Wisconsin Center for Cooperatives, The Ohio State University, or the Cornell Cooperative Enterprise program, but large centers are not the typical way Extension programming is done to our stakeholder groups. Instead, our stakeholder groups engaged with university faculty in a variety of ways.

Our key stakeholders include state and regional cooperative councils and centers; state, regional, and national cooperative and agriculture-oriented trade and technical associations; large, federated agricultural cooperatives; and cooperative-oriented legal, financial, and strategic advisors. These groups help us work with our Extension audience, which is agricultural cooperative directors. Most programs have an advisory committee that meets once or twice during the year. This advisory board commonly includes cooperative directors, cooperative employees such as Chief Executive Officers or General Managers, the state cooperative council director, and donors. Engagement with the advisory board usually includes a discussion over education plans for the coming year, budgets, and a review accomplishment of the past year. Those who do not have advisory committees often rely on interactions with their state councils and the cooperatives that work directly with them for feedback and input on educational programming and resources.

University faculty with Extension responsibilities engage with stakeholders at an annual luncheon at the National Council on Farmers Cooperatives meetings in February. The typical format is an “Educators Luncheon” where the cooperative educators, state councils, and other stakeholders meet with a program agenda that includes a short description of what we are doing in our state programs. Our multistate research group, NCERA 210, which includes a discussion of our education programs is always held as a preconference before one of the largest cooperative education programs, Farmers Cooperatives. We usually have 5 to 10 stakeholders in attendance at our meeting. The academic group consistently serve as guest speakers, moderators, and facilitators, and regularly provide input for the planning committee.

## **2.1 Motivation for an Introductory or On-boarding Program for Cooperatives Directors**

For many years, several stakeholders, including larger federated cooperatives and state and regional cooperative councils, had approached us with the idea of an introductory program for new directors that would be offered consistently, as was the case in states like Iowa, Kansas, and Nebraska. However, even in states with these programs, the number of attendees for in-person training was decreasing over time prior to the pandemic, due to consolidation of marketing and purchasing cooperatives, which has

accelerated in recent years as discussed by Boland (2020). A bimodal distribution is increasingly common in agriculture with growing numbers of very large and very small farms as discussed by Bekkerman, Belasco, and Smith (2019) and Hoppe (2014), which meant the population of potential producers to serve as directors is decreasing as well.

An examination of the USDA data on the number of farms and number of cooperatives suggests that farm consolidation has increased faster than farm supply/grain marketing cooperatives (MacDonald, Hoppe, and Newton 2018). However, Boland (2020) reports that the frequency of agricultural cooperative consolidation has increased substantially since 2000, and in areas of growth in crop yields, such as Iowa and Nebraska, consolidation has happened quickly in farm supply and grain and oilseed marketing cooperatives. Simultaneous with this decline was that the number of total boards of consumer cooperatives such as electric and telephone and mutual insurance cooperatives had not decreased, which meant more opportunities for directors who might seek to serve on only one board. Consolidation meant that directors needed to travel further for meetings, which was not conducive for attendance.

The development of directors' finance, governance, and leadership skills is a key area of focus for Extension curriculum. Cooperative boards of directors may not always reflect their membership in the sense that successful farmers, producers, or ranchers may not seek to run for the board of directors. Furthermore, a cooperative board of directors faces challenges distinct from investor-benefit firms, in that directors are selected solely from the membership. Thus, the available skill set for the board of a cooperative is more likely to be homogenous, drawing from agricultural business backgrounds, as compared to the boards of investor-benefit firms, which are often heterogeneous by design. Boland et al. (2021) reported that developing leadership skills for directors was the second most sought research priority from focus groups done with our targeted segment of cooperative directors as part of a broader self-study retreat. It took a pandemic to surface the idea of a multi-university area effort to develop common, national Extension programming for new directors of agricultural cooperatives.

### 3 The Process for Our Collaborative Program

Extension programming for agricultural cooperative directors is done in January to early March and in November to mid-December because of the nature of the marketing year in the northern hemisphere. In March 2020, on the cusp of the global pandemic reaching the United States, our universities announced that in-person Extension programming was suspended as part of overall university protocols. However, these protocols did not have immediate impact. By summer 2020, it was apparent that we would not likely be offering in-person programs in fall 2020 and winter 2021. A concept paper was written by two of the authors to discuss a potential collaboration on a digital product using an online learning program aimed at new cooperative directors. The concept paper built upon suggestions made by our stakeholder groups in past years because the audience was underserved in many states but never adopted by us due to a desire to maintain our own programs. That concept paper had the components of an Extension logic model, which we have provided in Figure 1 (Taylor-Powell and Henert 2008).

A feature of an online, collaborative multi-state Extension program was that as each director purchased a license for the program, they would be placed in a cohort, and the collaborators who contributed to the program's content would hold monthly Zoom office hours to discuss their respective modules and assist the director-learner develop a peer network across the United States. During summer 2020, a series of biweekly Zoom meetings were done to discuss the program's development. The program was nicknamed *Foundations*, referring to concepts that were considered foundational for the success of new agricultural cooperative directors on a board. Such directors typically had a high school degree and some college coursework that led to a two-year college degree. The participants in the biweekly Zoom calls included all but one of the land-grant university Extension specialists in cooperatives and others

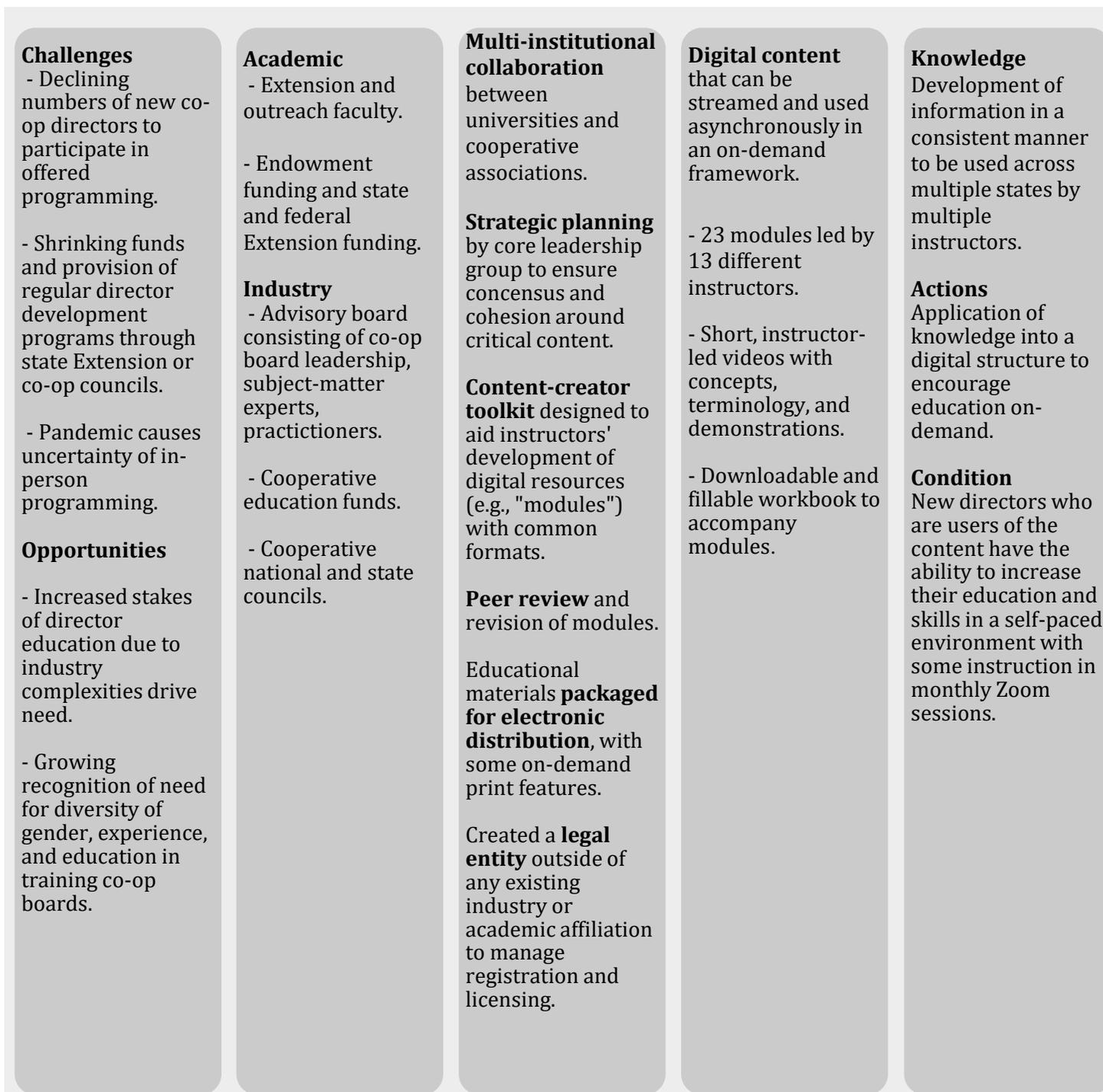


Figure 1. Cooperative Extension Logic Model for Our Foundations Program

who had active outreach and research programs in cooperatives. A public foundation provided a small grant to help us get started, and Iowa State University provided additional funding.

### 3.1 Establishing Ground Rules for Collaboration

The participants agreed to several ground rules for collaboration. First, each author retained copyright materials to their individual content, and authors would be identified by their respective universities.

However, collectively, the *Foundations* product would be owned by a mutual benefit legal entity called Center for Agricultural Cooperative Director Development (CACDD). A legal entity was advantageous to house the content so it would be available in the more than 40 states without such Extension programs. The mutual benefit entity has no fixed assets or employees but has the flexibility to handle registration fees.

A second ground rule was agreement to peer review and provide authors proper credit for each module, so it could be considered for each author's annual university evaluation. A commonly used, well-tested online learning platform *Thinkific* was chosen to house *Foundations* at <https://cacdd.thinkific.com/collections>. A third ground rule was to abide collectively in a coordinated submission and review process that ensured a common "look and feel" among the modules but allowed for creativity by each author. One collaborator, Chris Kopka, who had previous experience in building online learning content and working with various platforms volunteered to create an outline for submission of materials. Authors were to submit text without images, tables, figures, or any graphics. The author, as a content creator, was to develop a storyboard for each slide that could be used by a graphics designer to understand the intricacies and flow of the materials. Implicit with this was our desire to be inclusive and include diversity where it made sense so that it was not just our voices as authors. The mutual benefit entity, CACDD, anticipated a nominal license fee that would enable annual costs of licensing *Thinkific* to be recaptured and any additional revenue to be shared between each author's Extension program in their state where there was an Extension program.

Finally, each author as content creator submitted common components of the learning modules: (1) a list of learning objectives; (2) common and important questions that an early tenured director would feel comfortable asking fellow directors or members of management in a board meeting; (3) post-assessment questions; and (4) a sampling of publicly available publications and other resources that a director-learner could access if they wanted more information.

### 3.2 Identification of Module Topics

The authors created a list of topics deemed to be introductory and foundational for a new or early tenured director. These were built upon topics taught previously by some in their own Extension programs and from stakeholder input. The list of topics was created in a shared, collaborative document, and each participant signed up for a topic, which we called modules. Each module was assigned two reviewers from the other collaborators. Table 1 shows the 23 different modules and authors. Modules were initially grouped into these broad categories: accounting and finance, governance, cooperative basics, strategy, and cooperative principles. Much of the information was publicly available in one form or another or being used in existing Extension programming, so no new content had to be created but most of it required modification for the development of the modules. This is discussed in the next section.

## 4 The Development of Modules

*Foundations* ultimately is a collection of educational modules with integrated visual and written media developed by 15 different content creators. In addition to developing the written materials described earlier, collaborators created presentation slides, wrote scripts for their own voice-over for each slide, and developed visual images to supplement the written content. Two of the collaborators assumed responsibility as producers of *Foundations* for coordinating these materials across the content providers. On the content creation side, Michael Boland created biweekly Zoom meetings throughout the summer and early fall of 2020 and worked with each collaborator to check that the review process was implemented, established consistency among and within groups of modules, and enforced deadlines. Chris Kopka and Boland identified, interviewed, and hired an editor, graphics designer, and actors to help provide voices for vignettes in various modules, and were responsible for the final integration of materials for each digital module.

**Table 1. List of Topics and Authors for Modules in Foundations**

<b>Introduction</b>	<b>Authors (Content Creators)</b>
What is a cooperative?	Hannah Scott and Tom Worley
The uniqueness of cooperatives?	Greg McKee
Prime Board Directive	Chris Kopka
Introduction to board terminology and procedures	Keri Jacobs
Legal rationale for cooperatives	Chris Kopka
Officers and committees	Frayne Olson
Serving as an ambassador for your cooperatives	Courtney Berner
Basics of financial statements	Brian Briggeman
What is patronage?	Brian Briggeman
Income and profit distribution	Michael Boland
Evolution of law for cooperatives	Chris Kopka
Duties of directors' part 1	Michael Boland
Duties of directors' part 2	Michael Boland
Policy governance	Kristi Schweiss
Director effectiveness	John Park and Diane Friend
Strategic thinking part 1	Will Secor
Strategic thinking part 2	John Park
Principles of equity management	Phil Kenkel
Board evaluation	Courtney Berner
CEO evaluation	Chris Kopka
Financial benchmarking for cooperative directors	Phil Kenkel
Summary of basic cooperative finance and financial management	Keri Jacobs
Property rights in cooperatives	Matthew Elliott

## 4.1 Module Storyboards

To organize the full set of module materials and assist the graphics designer in understanding the collaborator's vision for their module, each author was required to develop a storyboard, which is a way to organize material to help a graphics designer to visualize the digital content, images, and transitions between each slide. Collaborators used graphical content or images from Creative Commons or purchased licensed images to mitigate the risk of potential copyright issues. Similarly, ideas for creating an animation or vignette to illustrate a concept were included along with suggestions for a script, dialogue, and key learning message.

Here is an example of how one storyboard came together. The content creator of Governance and Duties of Directors had 15 slides, which were just text with no graphics, images, or figures. These were peer-reviewed for consistency in language, correctness, and adherence to learning objectives. The learning outcomes, questions, storyboard, and other materials were reviewed by Boland and Kopka to ensure all the pieces were in place for production. Each slide had instructions for the graphics designer or editor on what that slide might look like digitally. For example, a slide in the governance module had a list of Director Duties. The creator had suggestions for an image such as a picture of legal documents, which might be found in Creative Commons, or licensed for a fee, and could be used on the "Duty of Obedience" slide. Similarly, an introductory slide suggested that the four Duties of Directors be written as text be placed into a table or some other graphic.

Finally, the storyboard for this example suggested that an animation or vignette of 30 to 45 seconds be done with actors describing a situation where the director is pondering a situation related to a member and board confidentiality that would require the director to think about their duties of loyalty. The content creator wrote the dialogue for the actors, and in turn, the producer created or animated that content in a vignette. Throughout the modules, screen images were used to prompt the director-learner to pause the video and complete an activity or task. These were done as a way for the director-learner to check their understanding of a concept or idea.

## 4.2 Creation of Digital Content

Chris Kopka worked with the editor, graphics designer, and actors to create a draft of the digital content. The management of material collection, design, and integration required intense focus on deadlines. Our group benefited from hiring an outstanding editor who has significant expertise and a graphic designer who has depth of knowledge and access to the co-publisher that resulted in teamwork and collaboration. Teamwork and collaboration among the production team was key. As a draft of a module was undergoing production, the early versions were made available to the content creator to ensure that their storyboard ideas were developed as envisioned. Some modules were straight forward, notably in accounting and finance, because the concepts were similarly straight forward and lent themselves to production. Other modules, such as property rights, had more elaborate content, which resulted in more time and creativity in generating digital content to match the storyboard.

## 4.3 Creation of a Workbook

We understood from our own Extension experiences that director-learners desired hard copy content to write notes or "pull off the shelf" to consult before a board meeting. Therefore, we worked with our graphic designer to create a workbook that would also be available electronically in each module. The workbook contains a chapter for each module and the learning objectives, exercises, assessments, and suggestions for additional resources. The workbook is available online in a print-on-demand format in either softcover or hardcover, and distribution of the book included access via various online book publishers such as Amazon, Barnes and Noble, and Lulu. An Adobe Acrobat version of each chapter is available within the *Thinkific* site for each corresponding module, with the electronic file included in the overall tuition for the program. The files have the ability for the director-learner to enter content onto the

Adobe Acrobat version. Having a print-on-demand workbook was to recognize that some director-learners might be in geographic locations where broadband or internet access was limited in terms of upload and download speeds.

#### 4.4 Timetable

As many Extension colleagues experienced, there was a need to move quickly to develop programs during the pandemic. Externally we knew that to be relevant, we needed to be ready for November 2020 because our Extension programs generally begin that month. Authors began submitting draft modules for production and peer review in early September, concluding the end of October 2020. A deadline of December 1, 2020, for final drafts following peer review was used because many new directors came on board at an annual meeting that was held in the December to February time frame. Despite being in the middle of a pandemic and with resident instruction techniques being developed by virtually every author in the fall semester, the authorship, peer review, and production deadlines were achieved.

### 5 The *Thinkific* Online Learning Platform

*Thinkific* was chosen as our platform because of the functionality it offered in terms of registration capabilities, the ability to create licenses for multiple individuals or firms, and fee collection. Various internet browsers were tested to make sure the site worked for each one without any issues. A director-learner purchases a license to use the training materials, completes a registration form online, takes a pre-assessment that is designed to help us measure our learning objectives before and after completion of *Foundations*, and pays a license fee for 12 months of training access. This fee allowed us to build or update content in future years and cover our variable costs.

The modules were ordered sequentially as shown in Table 1 so that each director-learner completes each module in that order. However, other than the prerequisite pre-assessment, a director-learner can complete any module at any time without going in order. Each module begins with the director-learner playing the digital media file, which was in an MP4 format and stream the slides, digital media, vignettes, and content creator's voice and video. Simultaneously, the director-learner can open the Adobe Acrobat file for each module and print if so desired or use the print-on-demand hard copy if that had been purchased by a director-learner. At the end of the digital file, the director-learner is prompted to complete a post-assessment, which is captured and populated into a file with similar data from other director-learners. We can compare pre- and post-assessment data to measure the learning objectives.

### 6 Marketing Foundations to Extension Stakeholders

The original marketing plan relied upon working with the key stakeholders we knew from our ongoing Extension work, which were the state and regional cooperative councils. Each state has a cooperative state council such as the Kansas Cooperative Council or is a member of a multi-state regional council such as the Cooperative Network in Minnesota and Wisconsin that undertakes advocacy work on behalf of its members, who are cooperatives and, in many cases, provide educational programs or sponsor such programs with the state Extension specialist in cooperatives. Chris Kopka developed a series of promotional materials that could be used by these councils to market to their members. In addition, the *Thinkific* platform can, theoretically, have co-branding or private labeling, so that a local state or regional council be specifically identified for their membership base.<sup>1</sup>

The original marketing and pricing plan, after the variable expenses of the *Thinkific* platform, such as legal, accounting, and other fees had been paid, was to charge a \$1,000 fee that would be split between the state/regional cooperative council and the state cooperative Extension program at the land-grant

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<sup>1</sup>We found that the *Thinkific* platform has a look and feel like Canvas, which is widely used by many colleges and universities for resident instruction.

university or contributing cooperative center. With this structure, we intended to provide an incentive for the state/regional council to market and promote the product, in conjunction with our Extension programs, with the state cooperative Extension program. The marketing and pricing strategy was developed with counsel from a group of seven key state/regional council stakeholders who included the executive team of the national association of state cooperative councils to listen to our ideas and learn about *Foundations*. However, the state councils did not want any such revenue-based incentives and, instead, viewed the online learning platform and content as a potential member benefit, except in two cases where there were existing programs. There was strong, initial conceptual interest to help market and promote *Foundations*. Ultimately, a \$500 registration fee was used, which enabled coverage of annual variable costs assuming 15 directors purchased a license.<sup>2</sup>

A promotional set of materials that describe and demonstrate *Foundations* and the online learning platform were made available to state and regional cooperative council officers and the author's university Extension programs. These materials were used as a public service announcement and distributed from February through April 2021. These were used in 24 programs in 15 states in the winter and summer of 2021. Notwithstanding these efforts, and broad introduction from a spectrum of cooperative stakeholders, in April 2022, we have three groups of cooperatives in different states using the program this summer and fall. What have we learned?

## 7 Lack of Distribution Success and Lessons Learned

A few factors, in and outside our control, contributed to the initial lack of distribution success within the first year of launch in 2021. We describe them here.

### 7.1 The Responsibility for Director Education

Chris Kopka told us that, "The Education Principle is the great, unfunded principle of cooperation." Even within a cooperative and across cooperatives, there is no clear mandate about who is responsible for ensuring that a board of directors understands its roles and responsibilities. Best practices would say that this should be a board function. Yet, we knew that many cooperatives delegated this function to their Chief Executive Officers or General Managers. Risch et al. (2014) mentioned that these individuals, in general, have more direct reports than their counterparts in investor-oriented firms. Thus, for some of these cooperatives, education for new directors as they onboard, while important, may not surface as a priority until the day that director shows up in the board room. We could have done a better job working with this key stakeholder, but we knew they were dealing with employee and regulatory issues related to the pandemic.

### 7.2 Collaborating with State Cooperative Councils

The choice of collaborating with state and regional cooperative councils was appropriate given that they are among the most important, strategically well-positioned stakeholders for our Extension programs. To be sure, not every agricultural cooperative is a member of their state's council. Furthermore, a cooperative council's primary mission is typically advocacy, with state legislatures meeting in the winter and spring. While it was possible to provide demonstrations for the cooperative council staff, we inferred that the advocacy function was preeminent for their members, particularly during the pandemic. While councils were encouraged and interested in the online learning platform, the initiative did not remain among their key priorities at that time as the pandemic developed and their members were dealing with supply chain, regulatory, cybersecurity, and labor challenges.

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<sup>2</sup>The range of resident student, in-state tuition for a one credit class at the authors' universities in 2020 ranged from \$400 to \$790. *Foundations*, at 15 hours of content, is like a one-credit course.

### 7.3 Underestimation of the Preference for In-Person Learning

The pandemic brought virtually all education into an asynchronous or remote type format for some period. We expected that our targeted audience of early tenured agricultural cooperative directors, too, would seek similar learning opportunities. However, we consistently found from one-on-one discussions during and after launch that farmer-directors expressed preference for in-person learning in a peer, interactive, networking-oriented framework. While often expressing conceptual interest in an online format such as *Foundations*, as a practical matter few signed up to leverage and learn from the online platform.

### 7.4 Lack of Adoption in Our Own Extension Programs

While a collaborative group of authors developed the program, none of the authors decided to replace or complement their specific, existing in-person programs. Furthermore, individually and collectively, we did not use it to create a new Extension offering in states where there was no such product. Notwithstanding efforts in launching *Foundations*, each of the authors, individually, found themselves responding to near-constant changes in teaching modalities, family considerations, and more, inhibiting time, attention, and further resources from being dedicated to the fledgling online learning platform and the *Foundations* training content.

### 7.5 Boards Desire a Site License

We considered a new or early tenured director as the primary learner and primary purchaser. However, we soon learned that on the relatively rare occasion when an agricultural cooperative expressed interest, it revolved around purchasing *Foundations* through an all-board site license that would be available to all directors on a board. We have found, colloquially, that cooperatives are “hacking” the initial service launch idea, with the intention of using individual modules at monthly or quarterly board meetings as a shared educational component. In addition, we are now receiving requests for one or more of the creators to serve as a facilitator-instructor of the content with the full board. To date, this is our most positive indication of a beneficial use-case for *Foundations* going forward. As such, we have made modifications to the online platform to provide for full-board annual site licenses at \$2,000 and are experimenting with offering facilitation for an additional fee.

## 8 Green Shoots for the Future

Attendance at our in-person state meetings was high in winter 2022, and some incorporated components of the digital content into director education programming, especially from the governance modules. A typical program in January 2022 included in-person attendance for directors and instructors, panelists and some speakers brought in via Zoom, and digital media from the modules streamed with instructor facilitation. It is too soon to know whether attendance was higher due to lack of in-person meetings in 2021 or if the format brought in more directors. We have learned some things that bode well for the future.

### 8.1 The Need to Blend Digital and In-Person Learning

Early evidence from the change in teaching modalities caused by the pandemic suggests that a hybrid module with some in-person, remote, and asynchronous teaching is likely to have greater interest, with higher rates of adoption by farmer-directors serving on agricultural cooperative boards for subject matter like *Foundations* modules where examples, peer-to-peer learning environments, and “learning by doing” via facilitated case studies may be more appropriate (Black 2020; Pruitt, Tewari, and Mehlorn 2020). Our thought was that the online office hours in Zoom done remotely would help with this, but the reality is that *Foundations* looks too much like an online undergraduate class offered asynchronously. We have since made some changes in formatting.

## 8.2 Need for Advanced Material

It may be that the material in *Foundations* is perceived as too basic for some cooperative directors who believe they are “above-average” and want advanced material. We have been discussing a collaboration to offer content in a hybrid manner, along with more advanced material. This will occur in spring 2023. Anecdotally, we hear from directors serving on the more sophisticated federated cooperative boards that *Foundations* is the right level at which training is needed, but the value is in the discussions that happen when a group uses *Foundations* collectively.

## 8.3 Seeking Out Additional Partners

Some federated cooperatives own retail locations that once were cooperatives but have now merged into the federated cooperative. These merged entities maintain a board of directors with modified responsibilities. Much of our content in background, strategy, governance, and some accounting apply to these cooperative boards. As of May 2022, some federated cooperatives are actively considering a broad, multicooperative site license. If engaged, *Foundations* would also be tested for use across larger board and employee cohorts.

The issue of certification has been discussed. The National Association of Corporate Directors (NACD) provides a certification process. Before the pandemic, certification was done based upon a certain number of credits for attendance at their programming. Only several cooperative directors were members and had achieved NACD certification. One of the collaborators (Boland) has been active with NACD, and some of their content is principally designed for directors of public-benefit or investor-benefit firms. Three state cooperative councils provided similar certification based on attendance. These three state cooperative councils offer a beginning agricultural director certification program, where certification is achieved by attending the requisite offerings, which comprises 20 hours of instruction.

In 2022, NACD moved their certification to a 3.5-hour exam with a \$4,900 fee and additional coursework including a 15-hour set of materials like our *Foundations*. One of the authors, Boland, is taking the exam in summer 2022 and we will learn more about the process of certification. Our stakeholders have not asked for a certification, but we are studying what NACD is doing to learn more for our advanced training.

## 8.4 Collaboration Success Among Extension Specialists Amid Distribution Failure

The clear success was the ability to collectively pivot quickly and initiate a multi-university, cooperative center, and practitioner collaboration during a pandemic. Few of the authors before the pandemic had undertaken online learning production, complete with storyboards, animations, video modules, and online platforms. The success in publishing *Foundations* encouraged most of the collaborators to undertake a second project of significance, namely a new *Handbook of Research on Co-Operatives and Mutuals* (Elliott and Boland, 2022). Eleven of the 15 *Foundations* collaborators contributed to this effort. At the same time, building on the success of U.S.-focused collaborative publishing, the base of contributors for the handbook was expanded to include global co-authors. Many of the production steps learned via *Foundations* were leveraged for the handbook, including the decision to appoint two co-producers (co-editors in the context of the handbook), conduct weekly Zoom sessions with authors around the world, and institute an enhanced peer review process for the 30 chapters. We also negotiated with the book publisher in a similar way as we did our legal entity. Each author maintains copyright for their chapter, and the book publisher agrees to let students have access to each chapter if a university library purchases the handbook. This collaboration would not have been possible without building upon the momentum from the collaboration begun with *Foundations*.

## 9 Summary and Conclusions

We formed a legal entity called the Center for Agricultural Cooperative Director Development to have a common learning platform across our universities to handle registration fees to pay for the development of the programs. There is some cautious optimism that we will get more adoption in the future given that some of the in-person training is being brought back, but no one is saying we will do everything the way we did pre-pandemic. We did not achieve our goals in 2021, but 2022 has started out with more optimism.

At least four lessons were learned in this process. First, after years of discussing it, we decided to, in fact, work more formally across the state in a way that allows us to maintain the identity of our own universities, Extension programs, and cooperative centers, and bring learning products and services to market as one entity and serve underserved audiences in more than 40 states. A second lesson was that we were able to pivot to include facilitation once we understood how the directors wanted to use the information. The evaluation process with our modules did not provide that knowledge, but our engagement with stakeholders made that evident to us, and we had the flexibility to go ahead and move in that direction. Third, our educational programs are now being integrated into existing regional and national education programs. We have attended and been involved in planning committees for these programs but are now being more intentional and strategic in that process. Finally, it is evident to us that our stakeholder groups value and appreciate what we are doing collectively. The best evidence of this has been increased attendance and visibility to our programs coming out of the pandemic by our stakeholder groups.

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## Extension Education

# Can We Foster the Future of Extension through (Friendly) Competition? The Past, Present, and Future of the Graduate Student Extension Competition

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JEL Codes: A23, Q00, R00

Keywords: Extension mentorship, Extension pedagogy, adult education, outreach

**Abstract:** The year 2022 is the 15th anniversary of the AAEA Graduate Student Extension Competition (GSEC). The GSEC provides an opportunity for applied economics MS and PhD students to develop Extension and/or outreach programs based on their graduate work, present their proposals to a group of outreach experts, and gain feedback. It also serves as an opportunity for networking, informal mentorship, and enhancing professional relationships and collaboration. This competition is one way to encourage applied economics graduate students to enter into Extension careers, or at least better inform them about those careers. We evaluate the competition and its outcomes for both student competitors and judges through historical information and survey data. We find that the GSEC enhances the ability of graduate students to translate research to lay audiences and can serve as a key pipeline for future Extension economists and others in outreach roles. This case study can be used to inform similar efforts for career education and mentorship efforts in Extension and outreach fields of economics.

## 1 Introduction

Formally, the Agricultural and Applied Economics Association (AAEA) Graduate Student Extension Competition (GSEC) invites MS and PhD students in agricultural economics and related fields to present an Extension or outreach program based on their graduate work. Informally, the competition serves as an entry point to Extension careers or other positions that involve outreach work by providing practice in communicating findings to general audiences as well as networking opportunities.

Despite nearly 15 years of hosting this friendly competition, the official record of whether the GSEC hits its target is limited. That is, while the Extension (EXT) Section and Graduate Student Section (GSS)—the two AAEA sections that co-sponsor the competition—recruit participants and judges, evaluate project proposals, and provide feedback to students, they do not observe final project outcomes nor competitors' career choices. More broadly, little is known about how academic Extension faculty, or others involved in outreach work, are educated about such careers.

Learning to provide effective Extension programming topics, methods of engagement, and responding to the changing needs of stakeholders and other clientele can be challenging for new hires. Extension teaching is diverse in its methods but in general, participants are adult and often “nontraditional” learners. Wedemeyer (1981) defined “nontraditional” learners as having some education obtained through a formal education system in addition to knowledge gained from learning activities that are outside of it. Providing relevant programming to these groups can require specialized expertise that is also typically not derived from traditional classroom learning. Moreover, Elliott-Engel et al. (2021) discuss the lack of diversity in the Extension workforce pipeline that has led Extension systems to require training in cross-cultural competencies. While calls for agricultural economics departments to include Extension in their graduate training have been made (e.g., Martin 2002), few programs offer anything formal. Faculty-student and peer-to-peer mentoring and networking can be particularly important pieces of training for new or soon-to-be Extension and outreach faculty and staff.

Challenges faced by new Extension hires are particularly important to address as Extension funding declines (Wang 2014), Extension positions are fewer, and those in the remaining positions must become more efficient. At the same time, agricultural Extension work, in particular, is important to the economic sustainability of the agriculture industry. For example, Alston et al. (2011) find that 7.3 percent of the annual agricultural productivity growth from 1949 to 2002 could be attributed to Extension, while Wang et al. (2012) find that Extension personnel density can yield increased benefits from public research and reduced production costs. In addition, Extension economists work on a wide range of societal issues and can play a vital role in enhancing the welfare of rural communities across the country.

We use survey data to evaluate the GSEC and consider how lessons learned can be applied to other ways of recruiting and supporting agricultural economics students interested in Extension and outreach careers. Specifically, we draw from a past survey administered by the GSS in 2021, combined with our own survey of past GSEC participants from 2011 to 2021 as well as competition judges from 2007 to 2021. We use these three survey data sets to understand the role of the GSEC within the Cooperative Extension community, to learn about the judge and participant experience, and to ask for feedback to improve future competitions.

By summarizing the foundation and evolution of the competition, reviewing the current state of the competition, and highlighting areas for improvement, we make three contributions to the agricultural economics profession. Primarily, we seek to improve upon the planning, organization, and execution of future GSECs. Using our survey data, we offer insights on ways to improve the recruitment of participants and judges, enhance evaluation and feedback mechanisms, and boost participant satisfaction. As such, this analysis may be used as a case study for other student competitions such as the AAEA Policy Communications Competition hosted by the GSS; the AAEA Case Study Competition co-sponsored by the Agribusiness Economics and Management (AEM) Section and GSS; and the AAEA Academic Bowl hosted by the Undergraduate Student Section. Second, we speak to the GSEC's contribution to graduate student interest in careers involving Extension or outreach. Over half of the past competitor respondents reported holding positions involving Extension or outreach, and most of the respondents stated they believe that the competition fostered an environment where they could improve upon their soft skills and believed the competition helped with job prospects. Last, we speak to areas where the competition could be improved and suggest endeavors to bolster networking and mentorship opportunities. These suggestions could be applied to other efforts to build the Extension and outreach career pipeline within the applied economics profession.

The remainder of this article is structured as follows. Section 2 provides background on the rules and logistics of the annual competition while Section 3 offers a glimpse into the competition's history, discussing its foundation and evolution as well as the commonly addressed research topics. In Section 4, we analyze the survey data from competition participants and judges from the past decade. Section 5 discusses the future of the GSEC by offering areas of improvement, and Section 6 concludes.

## 2 Background: Rules and Logistics of the Competition

After a call for applications has been distributed to AAEA members through a variety of communication channels, graduate students interested in participating in the GSEC must first submit a packet of materials to the GSEC Chair.<sup>1</sup> The packet includes a personal biography statement and a summary of the Extension/outreach program. Applicants are also required to identify an Extension "mentor," someone who has provided guidance on their Extension or outreach program or plans. This person does not need to have an Extension appointment but often does. The proposals are then sorted by a panel of five judges made up of AAEA professional members with Extension and/or outreach experience. Judges are recruited early in the calendar year at the discretion of the Chair. Preference is given to those who have served the year prior to keep judging consistent since the learning curve for judging can be steep. In

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<sup>1</sup> Copies of the 2021 and 2022 GSEC calls for applications are included in the Appendix accompanying this manuscript.

addition to past GSEC judging participation, current criteria include representing a diversity of identities, Extension position types, and topic area expertise. These volunteers must have some familiarity with the Cooperative Extension system but come from different backgrounds and may not currently have an Extension appointment. Judges commit to reviewing applications to select ten finalists in the late Spring, attend a six- to seven-hour presentation session while at AAEA, and provide written feedback to competitors following the competition. Despite this time commitment, volunteers for judging often outnumber available spaces.

More recent competitions sort the top ten and invite those applicants to present their work at the AAEA Annual Meeting. Finalists typically present their program on the Sunday before the conference. They also have the opportunity to attend a networking luncheon held by the EXT section, at the expense of EXT. The competition typically begins with introductions of the judges, chair, and competitors, and a random drawing to establish presentation order. The presentations follow, each of which is fifteen minutes plus five minutes of questions from judges. Judges use a rubric provided by the Chair to keep score and take notes.<sup>2</sup> The Chair does not score participants. Finalists are permitted to view presentations that follow their own but not those that fall before their presentation. This way, later presenters do not have the advantage of seeing previous speakers' presentations and hearing questions from judges, which could allow them to make final adjustments to their slides or script before their presentation. Often, an adjacent room with refreshments is available for participants waiting for their turn to present. This room can serve as an informal networking opportunity. Once presentations are complete, the judges tally scores, and the top three places are decided. These competitors are typically notified at the AAEA Awards Ceremony or the EXT Luncheon and are required to be available to present in a track session devoted to competition winners. The top placeholder receives \$1,000 and a plaque; the second and third placeholders receive a certificate and \$300 and \$200, respectively.

Competitors are currently offered the opportunity to request feedback from judges after the conference is complete. Methods of reporting feedback have changed over time. Some years, an hour was set aside at the end of the competition to provide feedback; finalists could return to the competition room to receive verbal feedback from the judges. The verbal feedback was provided in broad terms to the general group about elements of the competition the judges felt had gone well and components that could use improvement. However, the on-site feedback has not been possible in all years as sometimes there are unavoidable delays in the competition agenda, such as longer-than-anticipated internal discussion among judges and other logistical issues. Currently, finalists can email the GSEC Chair to indicate their interest in receiving comments. The Chair compiles comments from judges, who are instructed to take notes that could be used to report back to students after the competition, and emails the notes to individual students.

### **3 The Past: History of the Extension Competition**

We obtained the history of the competition from the minutes of the Extension Section meetings dating from 2004 to 2011 and personal recollections.<sup>3</sup> The idea for the GSEC started several years before it was implemented in 2007. The EXT Section was committed to enhancing the visibility of graduate students interested in Extension work and collaborating with the AAEA GSS. Originally, the goal of the competition would "involve developing an Extension program based on the student's thesis or dissertation project" (Edwards 2004). The 2004 proposal sent to the AAEA Board proposed that the competition would start in 2006 and that it be categorized as an AAEA award. However, it took one extra year to materialize and was then categorized as an EXT Section award. The original committee that drafted the report included Larry Sanders, Don Ricks, Margot Rudstrom, Wendy Umberger, John Brandt, and Kamina Johnson. The

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<sup>2</sup> A copy of the 2021 competition day scoring rubric is provided in the Appendix.

<sup>3</sup> Meeting minutes of the Extension Section dating from 2004 to 2011 can be found at <https://www.aea.org/membership/sections/extension/archive>.

committee that selected the graduate student who won the first award consisted of Larry Sanders, Margot Rudstrom, and Don Ricks.

The first GSEC took place in 2007 at the AAEA Annual Meeting in Portland, Oregon. The 2007 competition had eight finalists and nine judges. Many of the logistics of the competition as it is currently held were established that year, including narrowing the applicants down to finalists (originally eight, now 10) who are invited to present at AAEA and having the top three finalists present in a track session (Extension Section Minutes, 2007). The awards for the three winners were presented at the EXT Section Luncheon. The initial awards to the winners were \$500, \$300, and \$200 for first, second, and third place, respectively, and the funds were provided by the Farm Foundation. The first winner of the GSEC was Tonya Hansen from the University of Minnesota. Tonya Hansen went on to a faculty position, became a judge for the 2010 competition, and continued to be involved in the GSEC for many years.

In 2008, Jim Novack chaired the competition for the 2009 AAEA Meeting in Milwaukee, Wisconsin. That year, leadership decided that all finalists would receive a certificate. In 2009, Margot Rudstrom and Frayne Olson led the GSEC for the 2010 AAEA Meeting in Denver, Colorado. The first-place award was increased to \$1,000. The chairs also attempted to expand the geographic representation of participants and the topical representation of judges. Margot Rudstrom continued to chair the GSEC for EXT from 2010 to 2013. As of 2010, the winners of the GSEC began to be officially recognized at the AAEA Awards Ceremony, a practice that continues to this day. Maria Marshall chaired the GSEC from 2014 to 2017, when Kate Fuller took over and is the current Chair.

Throughout the history of the competition, proposal topics have ranged widely. Figure 1 highlights common themes of student presentations over the past decade of presentations, where the size of the font corresponds with its frequency.<sup>4</sup> As anticipated, topics related to food and agriculture are common throughout, and there is a general theme toward assisting producers with on-farm finance as well as product marketing. Specific applications include cattle production, specialty crop production, local food system development, and farm finance; several students also focused on rural development.

Over time, the number of applicants has varied substantially, with a general upward trend. Earlier years tended to have fewer applicants than total allowable finalists (i.e., those invited to present at AAEA) while more recent years have seen more than ten applicants in each year, including in 2020 when AAEA was held entirely virtually. Some of the participation growth over time may be attributed to increased awareness about the competition within AAEA and in graduate student circles from listservs and promotion by AAEA in their newsletter. Recent invitations to apply from the current Chair (Fuller) have stressed both the cash prizes and the friendly nature of the competition, placing it in contrast to recent findings of the harshness of economics seminars, particularly for women and minorities (e.g., Dupas et al. 2021). One mechanism to spread information regarding the competition is from past competitors to their current students, as many mentors in recent years were competitors in the competition's early years. However, much remains unknown about how competitors learn of the competition and how they decide to apply. We explore these questions through our surveys and survey data.

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<sup>4</sup> To construct this word cloud, we used the students' presentation titles. As the titles are composed of many common words, such as "the," "as," etc., we collapse titles to a series of keywords. We then used the Pro Word Cloud add-in in Microsoft Word to construct a word cloud with the 75 most commonly referenced keywords.

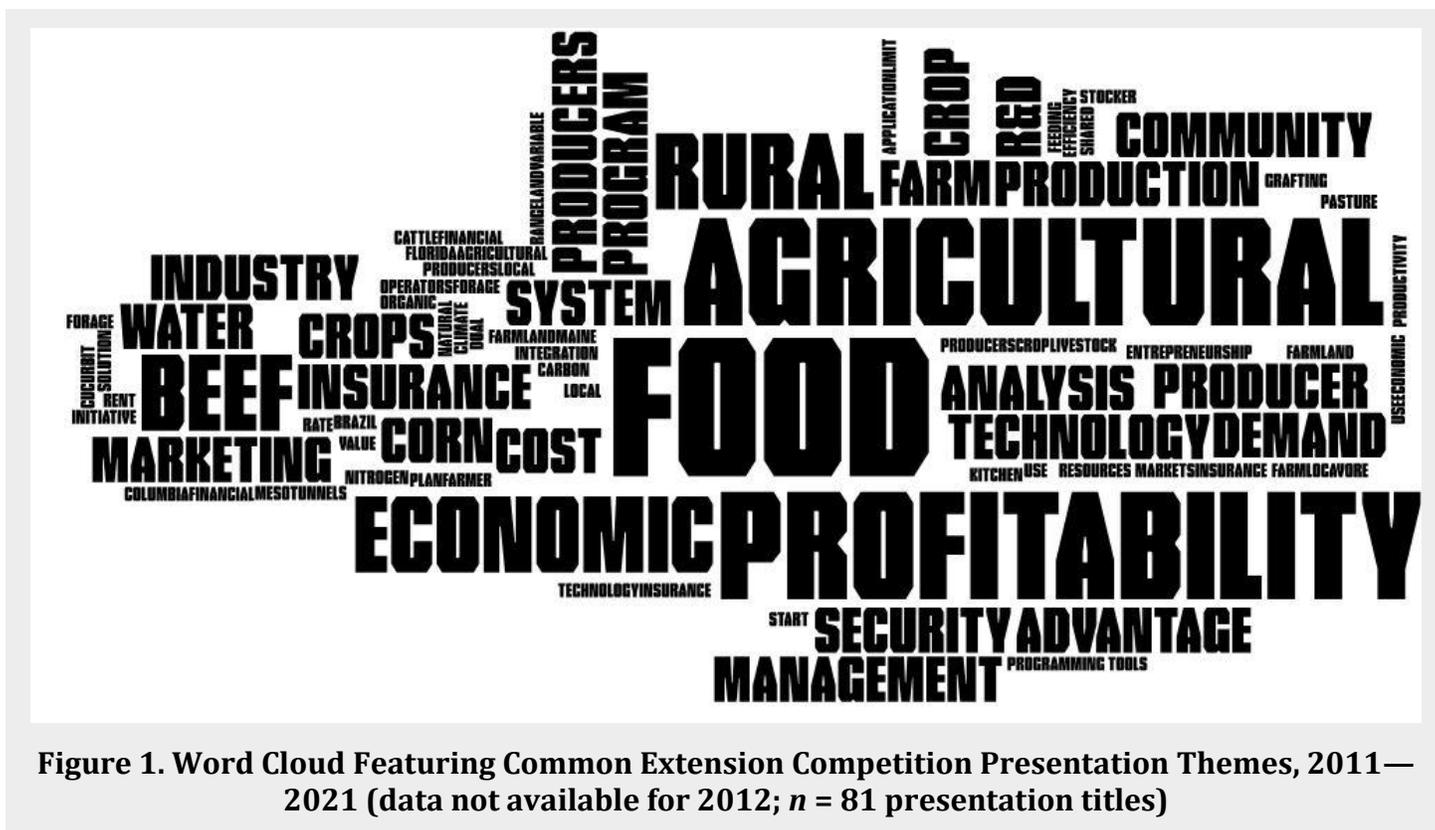


Figure 1. Word Cloud Featuring Common Extension Competition Presentation Themes, 2011—2021 (data not available for 2012;  $n = 81$  presentation titles)

## 4 The Present: Understanding the Current State of the Extension Competition through Survey Data

To improve the planning, organization, and execution of the annual GSEC, we constructed a series of surveys targeting different groups of competition participants. The first survey was distributed to 2021 GSEC participants approximately one month following the competition. The second survey was distributed to past GSEC participants dating to 2011. Finally, for an alternative perspective, we surveyed individuals that have served as judges for the GSEC from 2007 to 2021.<sup>5</sup> The second and third surveys were distributed in the Fall of 2021.

The three surveys were constructed using Qualtrics and distributed by email. Prior to the survey, respondents were informed that: (i) competition organizers were seeking to improve the functionality and efficiency of the annual event; (ii) their responses would remain anonymous; (iii) the feedback would allow us to improve future competitions to meet the expectations of members; and (iv) the survey would take approximately five to ten minutes to complete. Each survey received IRB approval from Montana State University (IRB Exempt Protocol #KF111821-EX), and the survey instruments used in our analysis are available as supplemental material accompanying this manuscript. The key results of each survey are described in turn.

### 4.1 2021 Participants

The 2021 GSEC took place on August 1, 2021, at the AAEA Annual Meeting. To accommodate both graduate students and judges that were unable or did not desire to attend the conference in person, a

<sup>5</sup> We lack competitor information for the year 2012, except for those participants listed on the AAEA GSEC webpage. We recovered competitor email addresses through past applications and through Google searches (e.g., “competitor name” + “economics”). We have complete judge information from 2014 to 2021. We also contacted several judges who participated in years prior to 2014 identified by EXT section minutes and personal recollections. Chairs were not surveyed.

hybrid format was used. Both judges and graduate student competitors were offered the option to participate in person or virtually. Most students (8/10) opted for in-person, while most judges (4/5) participated virtually. For those attending in person, the competition went largely as usual. Those participating virtually presented earlier in the week.

As a part of a larger effort by the GSS to improve graduate student annual competitions held at AAEA, 2021 GSS leadership surveyed GSEC participants. Following the competition, participants received an invitation to respond to the Qualtrics survey, and survey data were collected from September 13, 2021, to September 17, 2021. They were asked about their level of (dis-) satisfaction with various components of the competition and were asked to provide written feedback on how the organizers could improve the competition moving forward. Specifically, respondents were asked to rate their level of satisfaction or dissatisfaction—ranging from *extremely dissatisfied* to *extremely satisfied*—with the following components: (i) competition planning; (ii) competition execution; (iii) rules and procedures; (iv) feedback from judges; (v) monetary prize; (vi) award distribution; and (vii) communication.

Of the ten finalists, six completed the survey. On average, participants showed a general level of satisfaction with each component of the competition (see Appendix Table A.1). After completing the Likert questions, respondents were asked to provide open-ended feedback on the various aspects of the competition, and a few themes emerged. First, related to the logistics and execution of the competition, participants found it beneficial to have all communication and correspondence coming from one individual (i.e., the GSEC Chair) and thought the hybrid nature of the competition was well-organized. Second, respondents provided mixed feedback on the rules and procedures of the competition. While one competitor found the rules and criteria to be clear, others felt that the level of research required must be specified in the call for applicants. In other words, participants felt that the current guidelines invite proposals that are at different project stages: some projects are more developed with tangible output while others are in the early stages. Competitors felt that these differences make it difficult to judge across presentations. Third, participants felt that they received the feedback fairly quickly, which competitors appreciated. However, respondents also thought that there was significant variability in the usefulness of comments, where some judges left thorough and helpful comments and others left broad feedback. Finally, prize communication and distribution were the most criticized components of the GSEC. Prizes, which include a plaque and check for the first-place winner as well as a certificate and check for the second- and third-place winners, had taken longer to distribute than participants would like.

To summarize, competitors found it beneficial to have one individual that communicated with the teams and responded to questions efficiently. Competitors also thought that the competition ran smoothly, and they appreciated the feedback from judges. The two primary complaints were: (i) lack of clarity on the grading rubric regarding the level of research required to compete; and (ii) prize distribution.

We also asked respondents how likely or unlikely (based on a five-point Likert scale) they are to compete in a GSS-sponsored competition next year as well as how likely they are to recommend a GSS-sponsored competition to a peer. Concerning an individual's likelihood to participate in a GSS-sponsored competition next year, three of six respondents stated they are somewhat likely to compete, while the remaining respondents stated they were somewhat or extremely unlikely to compete or are no longer eligible to compete (i.e., would graduate before the 2022 GSEC). As for the likelihood of recommending a GSS-sponsored competition to a peer, five of six respondents stated that they were somewhat likely or extremely likely to recommend a competition to a peer.

## 4.2. Past Participants (2011–2021)

Responses from the GSS survey of 2021 participants prompted the authors to explore further into the reaches of the history of the competition. The GSS survey highlighted areas for improvement but also demonstrate a general level of satisfaction among participants. We were interested in how those perceptions have changed over time. We were also interested in learning how the competition has

evolved as a networking institution within AAEA for those in, or interested in, Extension and outreach careers; we needed to look farther back into competition history.

For the purposes of this article, a separate survey was distributed to 70 past finalists from the years 2011 to 2021 on November 19, 2021, and a reminder email was sent on November 30, 2021. Data collection concluded on December 3, 2021, and in total, 26 participants completed the survey, a response rate of 37 percent. The data are likely subject to self-selection, which could bias the results presented below (Bethlehem 2010).<sup>6</sup> Nonetheless, surveying and understanding the perspectives of past participants serves as a way to understand the benefits and outcomes generated by the competition while also identifying areas for improvement. Table 1 presents the demographics and additional characteristics of the sample.

The majority of our sample identified as female (73 percent), and the majority of participants (81 percent) were domestic students at the time they competed in the competition. Approximately 70 percent of respondents were PhD students when they competed in the competition while the remaining 30 percent were master's students. The majority of respondents only participated in the competition once, with three individuals (12 percent) competing in multiple GSECs.

We also asked respondents to recall how they initially heard about the competition. Here, they were presented with a list of four communication channels commonly used to disseminate promotional material and an option for *other*, in which they could write in their response (Table 1). Participants were encouraged to select all channels that applied. The overwhelming majority of respondents recall hearing about the competition from a faculty member (77 percent)—likely their advisor or committee member—with the next most popular channels being the EXT Section's email listserv (19 percent) and GSS's email listserv (19 percent). This statistic highlights the reliance on faculty and staff to share opportunities with their students, while simultaneously indicating the need to improve communication efficiency across a diverse set of communication channels.

Respondents were also asked to list their current professional status and indicate whether their current position involves Extension or outreach. Of the 26 past competitors to complete the survey, 42 percent report now being a professor or faculty member, 12 percent report being a governmental employee, and 12 percent are involved in industry. The remaining respondents are still graduate students. When asking the respondents whether their current position involves Extension or outreach, over half of the respondents (58 percent) stated that it does.

We cannot say whether the competition provides a pipeline into academic and/or Extension positions or if those already interested in such work are more likely to participate. However, understanding the outcomes generated by the competition for the participants can lend insight into these questions. By asking past participants about the outcomes that were generated from their competition project proposals, we can also improve future promotional material and cater feedback to meet these goals. In the survey, respondents were provided with a list of five project outcomes as well as an option to write in any additional outcomes, and they were informed to select all outcomes that applied. The listed outcomes include: (i) Extension presentations; (ii) Extension publications; (iii) peer-reviewed publications; (iv) student-to-faculty networking; and (v) student-to-student networking. Figure 2 reports the frequency of each outcome.

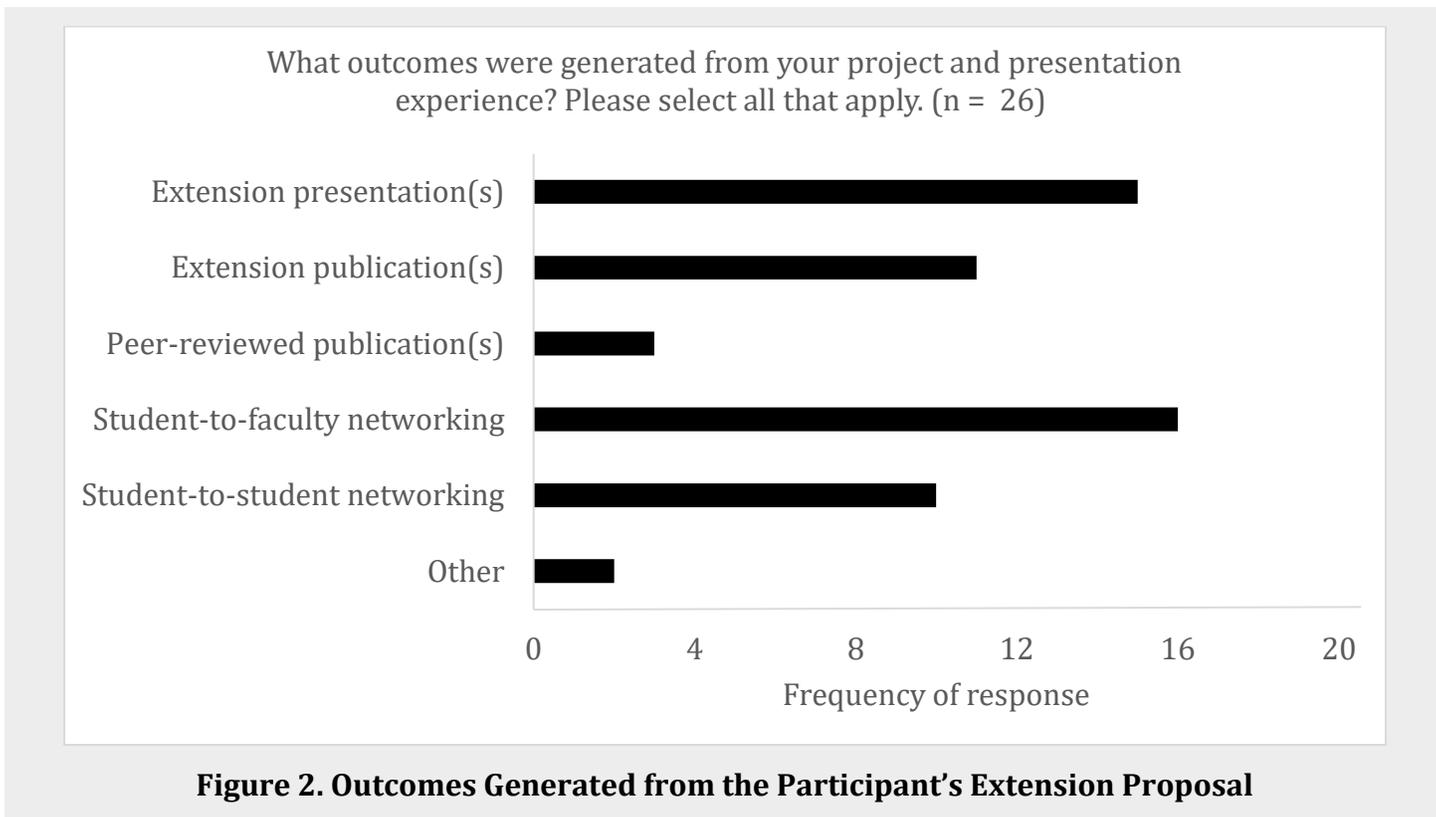
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<sup>6</sup> The direction of the potential bias is unclear. It could be possible that individuals who had better experiences with the competition (i.e., placed well in the competition and received a monetary prize and certificate/plaque) were more likely to complete the survey. However, it is also possible that students who had negative experiences were more likely to participate so they could voice their concerns, as well.

**Table 1. Demographics and Characteristics from the Sample of Past Competitors**

Variable	% of Respondents ( <i>n</i> = 26)
<i>Gender</i>	
Female	73.1%
Male	26.9%
All other gender categories	0.0%
<i>Race</i>	
Asian	11.5%
Black or African American	7.7%
White	84.6%
All other race categories	0.0%
<i>Ethnicity</i>	
Hispanic or Latino/Latinx	7.7%
Not Hispanic nor Latino/Latinx	92.3%
<i>Domestic or international</i>	
Domestic	80.8%
International	19.2%
<i>Participation frequency</i>	
Once	88.5%
Two or more times	11.5%
<i>Degree objective at time of participation</i>	
MS	30.8%
PhD	69.2%
Other	0.0%
<i>Hear of competition (select all that apply)</i>	
EXT Section email listserv	19.2%
Faculty member (e.g., advisor)	76.9%
GSS email listserv	19.2%
Peer	7.7%
Other	3.8%
<i>Current professional status</i>	
Government employee	11.5%
Graduate student	34.6%
Industry member	11.5%
Professor/faculty member	42.3%
Other	0.0%
<i>Does current position involve Extension?</i>	
No	42.3%
Yes	57.7%

The most commonly reported outcome was student-to-faculty networking (62 percent), where finalists developed a professional relationship with participating faculty at or following the competition. Indeed, at least one past participant—now a professor—reported collaborating on projects with judges from their competition. Relatedly, several other participants indicated the benefit that the competition had on their job prospects because of the networking. Participants commonly cited competition participation as a CV booster and signal of interest in Extension work to potential employers while others reported that competition participation—and more specifically, winning the competition—may have contributed to job offers. Several respondents stated that conveying their Extension proposal and



describing results to a panel of experts helped in their job interviews and could have influenced the position they hold today. Another respondent explicitly mentioned judges reaching out after the competition to discuss Extension openings at their university. Outside of student-to-faculty networking, the next most common outcomes were Extension presentations (58 percent) and Extension publications (42 percent).<sup>7</sup> These findings suggest that the competition can lay a pathway to Extension careers and professional networks.

Respondents were next asked about whether the competition helped improve a variety of soft skills, or traits and abilities that characterize interpersonal relationships such as communication, critical thinking, and leadership. A list of 11 soft skills, selected based on group discussion by the authors, was presented to the respondent. There, respondents were asked to indicate on a five-point scale ranging from *definitely not* to *definitely yes* whether they believe the competition helped improve the respective soft skill. Table 2 reports the findings, where communication, confidence, creativity, and receiving (constructive) criticism are viewed as the soft skills most improved by participation in the competition.

When we asked for open-ended feedback later in the survey, several respondents indirectly referenced soft skills that they improved through the competition. For instance, multiple respondents indicated that presenting their Extension-style talk in front of a group of experts was beneficial for their communication skills and confidence. Given that Extension talks are tailored to a lay (non-economist) audience, graduate students must learn different methods for conveying sometimes complex economics research and modify their communication to disseminate their information to adult learners from various backgrounds. The past participants believed that the written, verbal, and visual communication required for participation in the GSEC was beneficial, and several participants reported this experience to be useful to them today. Additionally, one individual reported having an interest in Extension research while working with a faculty advisor that did not have an Extension appointment. The competitor viewed

<sup>7</sup> Notably, Hannah Shear (2020) reviews the experience of preparing a program, competing, and winning the 2020 GSEC in a 2020 commentary published in *AETR*.

**Table 2. Soft Skills Fostered by the Extension Competition as Reported by Competitors**  
 % of Participants (*n* = 26)

Soft Skill	Definitely Not	Probably Not	Neutral	Probably Yes	Definitely Yes
Active listening	0.0	7.7	38.5	30.8	23.1
Communication	0.0	3.8	15.4	26.9	53.8
Confidence	0.0	0.0	19.2	38.5	42.3
Creativity	0.0	3.8	15.4	38.5	42.3
Critical thinking	0.0	3.8	19.2	42.3	34.6
Leadership	0.0	19.2	30.8	30.8	19.2
Persuasion	0.0	7.7	34.6	26.9	30.8
Problem solving	0.0	3.8	23.1	50.0	23.1
Receiving criticism	0.0	0.0	26.9	30.8	42.3
Resilience	0.0	3.8	30.8	50.0	15.4
Time management	0.0	15.4	34.6	30.8	19.2

the competition as a way to force themselves to think critically and creatively, developing an Extension plan that was ultimately used in their dissertation. Research question development and project planning are two key soft skills for those interested in a career in research, and it appears that the GSEC is fostering an environment for graduate students to hone these skills.

To improve the planning and execution of future competitions, we asked the respondents about their level of satisfaction or dissatisfaction with various components of the competition. Divided into seven components, respondents indicated their response on a five-point scale ranging from *extremely unsatisfied* to *extremely satisfied*. Response rates vary by question, ranging from 22 to 26 responses per competition component.<sup>8</sup> Table 3 summarizes the satisfaction and dissatisfaction levels of our sample.

**Table 3. Level of Satisfaction or Dissatisfaction with Various Components of the Competition by Student Competitors**

Competition Component	<i>n</i>	% of Respondents				
		Extremely Unsatisfied	Somewhat Unsatisfied	Neither Satisfied Nor Unsatisfied	Somewhat Satisfied	Extremely Satisfied
Competition planning	25	0.0	0.0	8.0	40.0	52.0
Competition execution	26	0.0	0.0	3.8	34.6	61.5
Rules and procedures	25	0.0	4.0	8.0	36.0	52.0
Feedback from judges	26	0.0	7.7	7.7	42.3	42.3
Monetary prize	22	0.0	0.0	4.5	27.3	68.2
Award distribution	23	0.0	0.0	8.7	30.4	60.9
Communication	25	0.0	4.0	4.0	40.0	52.0

<sup>8</sup> The variation in response rates may be driven by two factors. First, it could be driven by insufficient recall given the duration of time since some competitors have competed. Second, it may be driven by the irrelevance of the component in question. That is, a given component may not be pertinent to the competitor. For example, only three competitors each year receive an award. Therefore, the component *award distribution* may not be applicable to some of the participants.

Overall, respondents reported a general level of satisfaction for each component of the competition. The monetary prize for the top three winners is favored by respondents and likely serves as an incentive for graduate students to participate. The segments of the competition that require more attention moving forward are (i) feedback from judges, (ii) the competition rules and procedures, and (iii) general communication; these were the only three segments of the competition where a past participant stated a level of *somewhat unsatisfied*. Using the open-ended feedback as a way to improve future competitions, respondents recommend (i) having a system in place to ensure they receive feedback promptly; (ii) clarifying the stated objectives of the Extension proposal; and (iii) improving communication about eligibility criteria with a consistent year-to-year rubric.

### 4.3. Judges

We were also interested in learning about the competition from the judges’ perspective and exploring methods to improve the judging experience. Thus, a third survey was sent to past judges of the GSEC. The survey was distributed by email to 17 judges that have served in any of the competitions between 2007 and 2021, and data collection coincided with that of past participants (November 19, 2021, to December 3, 2021). Nine judges responded to the survey (a 53 percent response rate). Over half of the responding past judges identified as white and male. Judges identifying as Asian, Black, and Hispanic were not well-represented among the respondents, suggesting there is room for improvement in judge diversity.<sup>9</sup> Nearly equal numbers of judge respondents pursued their graduate studies as international students as those that did so with domestic student status. Most judges reported having more than 10 years of experience in the profession; two judges had 10 or fewer years of experience. In addition, all respondents had participated as a judge in at least two competitions, with the majority reporting that they had participated more than three times. Likewise, six out of eight respondents indicated their willingness to serve again as a judge in a future GSEC. Demographics of the respondent judges are presented in Table 4.

**Table 4. Judge Demographics and Other Characteristics**

Variable	# of Respondents (n = 9)
<i>Gender</i>	
Female	4
Male	5
All other gender categories	0
<i>Ethnicity</i>	
Hispanic or Latino/Latinx	1
Not Hispanic or Latino/Latinx	8
<i>Race</i>	
Asian	2
Black or African American	1
White	6
All other race categories	0
<i>Status when attending graduate school</i>	
Domestic	4
International	5
<i>Years as an applied economist</i>	
10 or less	2
11 to 20	4
21 to 30	1
30 or more	2

<sup>9</sup> It may be useful to note that in recent years, judge competition has become more diverse. In 2021, over half of judges were women and over half were nonwhite.

The aspects of the competition addressed in the survey included the quality of the students’ proposals, the competition schedule, the grading rubric and process of selecting winners, and the involvement of mentors. Additionally, judges were asked about the expectations for the judging commitment, guidance on the judging process, and networking opportunities. These questions on judges’ perceptions of the competition were mostly presented using a five-point Likert scale ranging from *strongly disagree* to *strongly agree* and were complemented with open-ended questions where judges could provide comments, suggestions, or recommendations about the competition components. The feedback received from the judges was mostly positive. However, one respondent reported a negative perception for each of the aspects evaluated. Provided that no negative comments, responses, or suggestions accompanied that response, it is difficult to infer whether the respondent misinterpreted the Likert scale or simply did not have a pleasant experience with the competition. A summary of the survey results is presented in Table 5.

**Table 5. Judges’ Perceptions about Various Aspects of the Competition (n = 9)**

Question	Neither				
	Strongly Disagree	Somewhat Disagree	Agree nor Disagree	Somewhat Agree	Strongly Agree
The proposals submitted by students were creative and well-thought-out	1	0	0	4	4
The schedule for the competition was appropriate	1	1	0	0	7
The grading rubric provided an effective tool for evaluating submissions and presentations	1	0	1	1	6
The selection process for choosing the competition winners was fair and objective	1	0	0	2	6
Mentors seem to be actively involved in student proposals to the competition	1	0	1	7	0
Expectations regarding the judging commitment were clear	1	0	0	2	6
Sufficient guidance was provided on the judging process	1	0	1	1	6
Serving as a judge has provided networking opportunities for me	1	0	0	1	7
Based on my previous experience(s) as a judge, I would be interested in serving as a judge again <sup>a</sup>	1	0	1	1	5

<sup>a</sup>One judge did not respond to this statement (n = 8).

When asked about the quality of student proposals, judges generally agreed that students submitted high-quality proposals. Four respondents strongly agreed that proposals were creative and well-thought-out, while the other four somewhat agreed with that statement. Even though proposals are expected to be submitted by the students, the responses from the judges indicate that mentor involvement in the proposals could be improved. Most of the respondents (seven out of nine) somewhat agreed that mentors seem to be actively involved in the proposals for the competition; one neither agreed nor disagreed, and one strongly disagreed.

As 10 proposals and presentations need to be evaluated in the final round of the competition, and time is limited during the day of the competition, judges were asked about the logistics and the schedule of the competition. Most of the respondents (seven out of nine) strongly agreed that the schedule for the competition is appropriate. Respondents' suggestions and comments on competition logistics focused on the starting time of the competition, the competition timeline, and the need for a semi-final round prior to the final competition. Adjusting the starting time of the competition could offer some flexibility on the arrival time of the judges, as many may travel late the day prior. A semi-final round prior to the finals, perhaps held by regional associations, could offer some flexibility to the competition. Another suggestion referred to the possibility of viewing the presentation slides ahead of time so the judges could study them in advance.

As judges devote their time and expertise to the competition, it is relevant to learn whether the expectations and guidelines are clear for them while serving the competition. The first question on this topic is related to expectations for the judging commitment. The majority of respondents (six out of nine) strongly agreed that expectations regarding the commitment were clear; two indicated they somewhat agreed with that statement. A similar pattern was observed for the guidance on the judging process. Here, six respondents strongly agreed that there was sufficient guidance, while the other two either somewhat agreed with the statement or were indifferent. Even though most of the feedback on these two areas was very positive, there are some opportunities for improvement. These could be handled through increased email communication from the Chair to the judges or by holding meetings before the competition.

Judges recognized the communication efforts of the competition organizers but suggested that better engagement was needed from the members of the EXT section on the distribution of the GSEC application information through their campuses. Respondents also suggested past competitors and mentors as potential sources to echo the call for proposals and to increase participation.

We asked two questions about the guidelines for proposal evaluation, the scoring rubric, and the fairness of the selection of winners. Six out of nine respondents strongly agreed that the current rubric was an effective tool for evaluating submissions and presentations. One judge strongly disagreed, and the other two either somewhat agreed or were indifferent, indicating that the scoring rubric could use improvement. A similar pattern was also observed for the perception of the selection process of winners as fair and objective.

Suggestions for the evaluation of proposals focused on: (i) handling conflict of interests; (ii) flexibility on the rubric criteria; and (iii) strategies to evaluate the proposal. Conflict of interest between a judge and a student competitor arises when the judge is either the mentor of the student or has worked with the student. Currently, this conflict is handled by the judge not submitting scores for that student's proposal. Even though this strategy prevents a judge from directly affecting the score of the student, it can affect scoring indirectly. The overall score from each judge is subjective and submitted independently of other judges. As some judges may offer generally higher scores than others, some student competitors may have an advantage (or disadvantage) if the judge with whom there is a conflict of interest scores lower (or higher) than others on average.

Judges had several suggestions surrounding the scoring rubric. Sharing strategies for approaching the rubric prior to the competition could help judges form a consensus on how to evaluate the proposals. More flexibility on the rubric is needed as different Extension programs have components that are not included in the rubric. Respondents also offered some additional insights on what criteria must be

included or tested in the rubric. One judge suggested placing a larger weight on identifying the target audience, recognizing the actual or anticipated benefits the audience will receive from the program, and emphasizing the timeliness of the project. Another judge suggested that the content of the outreach materials be included as requisite as well as providing a score in the rubric for previously delivered materials versus hypothetical materials.

In conclusion, judges reported considering the GSEC to be a useful event that needs to continue. Judges stated that the competition allows graduate students to (i) demonstrate Extension and outreach competency; (ii) become a part of the Extension community; and (iii) gain connections through networking.

## 5 The Future: Fostering Friendly Competition

There is always room for improvement, and we highlight three areas of the competition that can be improved to enhance participant experience and increase awareness of the annual competition, including: (i) promoting the event; (ii) competition scoring consistency and research specificity; and (iii) prize distribution.

One component of the competition to refine is the recruitment process and promotional content to capture a more diverse set of competitors. Historically, the recruitment of competitors has come from listserv emails and word-of-mouth. Indeed, former participants have served as faculty advisors on more recent presentations, which is evidence of the reliance on word-of-mouth in addition to our survey finding that approximately 75 percent of respondents heard of the competition from their faculty advisor. Given the significant turnover in GSS membership, the listserv must be consistently updated to account for new membership. One shortcoming to the GSS listserv is that graduate students may choose not to become an AAEA member until they attend their first annual conference. Without membership in AAEA, the graduate student cannot be a member of EXT or GSS, and so they will not receive listserv emails regarding the competition. Thus, we encourage faculty to share AAEA listserv emails with their department's graduate students, and we also suggest that competition organizers diversify their promotional content. One way to do so is through sharing materials on Twitter or other social media platforms. Several AAEA sections have professional Twitter accounts (e.g., @AAEA\_GSS for the GSS; @CWAE\_AAEA for the Committee for Women in Agricultural Economics) where they share promotional content, highlight members, and communicate information about upcoming events. By sharing the call for applicants on social media platforms, we would enable peers and colleagues to share this content with their network and could increase awareness of the competition.

A second area that we hope to enhance is the development of consistent grading rubrics to score initial applications and presentations. Creating an improved scoring rubric that incorporates the central features of an Extension/outreach project plan will be a core task of the organizers before the 2022 GSEC. To achieve this objective, we will incorporate the feedback we have received from past judges in our recent survey. Specifically, we have drafted and shared a rubric to assist judges in selecting finalists from the pool of applicants and added clarification on the importance of mentor participation in the existing rubric.<sup>10</sup> The finalized grading rubrics will be shared with the call for competitor applications, allowing participants access to the scoring criteria months before the competition takes place. In doing so, participants will have a better understanding of the scoring criteria, which should in turn improve the competition experience for presenters, judges, and organizers. We have also suggested a weighting mechanism to correct for differences in the composition of judges due to conflict-of-interest-based scoring abstentions.

Next, a streamlined process to distribute competition prizes (i.e., plaques, certificates, and checks) is required. Based on the authors' email correspondence with past competition winners as well as the

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<sup>10</sup> Both rubrics are included in the Appendix. The new rubric for selecting finalists appears as part of the 2022 call for applications; the competition day rubric stands alone.

survey feedback presented above, prizes have taken longer to distribute than participants expect. Competition organizers must work in conjunction with the AAEA Business Office *ex ante* and *ex post* to ensure a smooth distribution of awards. By working with competition winners and the Business Office, we will better understand the needs of each party and seek to increase the efficiency of the award distribution process.

## 6 Conclusion

The GSEC provides an outlet for graduate students to demonstrate how they have or would present their research to an Extension audience. It also provides an opportunity for prospective Extension candidates, established Extension faculty, and others in outreach positions, to connect. The objective of this article was to reveal whether the goals of the competition are being met and to describe what could be done to improve the experience and outcomes for students who participate. This is the first time in the 15-year history of the GSEC that the goals and impact of the competition have been evaluated.

A series of surveys targeting GSEC participants and judges were conducted to (i) improve the planning, organization, and execution of the competition and (ii) determine the impact of the competition. We found that students and judges were predominantly satisfied with the competition. Students stated that not only did the competition improve their soft skills but that it also led to increased student-faculty networking. Finalists and competition winners stated that the competition led to job opportunities. The GSEC judges felt that proposals and presentations were of high quality and concurred with students that the competition provided opportunities to network. Thus, it seems that the GSEC is achieving its goals.

However, there is room for improvement. Three areas of the competition that can enhance participant experience and increase awareness of the annual competition include: (i) promotional content of the event; (ii) competition scoring rubric consistency and specificity; and (iii) prize distribution. Timing was an issue for both students and judges. Students wanted more prompt feedback and for awards to be distributed more quickly, while judges wanted the timing of the competition to be streamlined.

Overwhelmingly, students stated that they learned about the competition from a faculty member. It is important to market the competition to all potentially interested faculty and to improve communication through graduate student outlets to enhance the diversity of proposal topics and prospective Extension faculty. If the competition can be considered as a pipeline to future academic positions, then GSEC should be marketed broadly to applied economic associations and beyond existing Extension networks.

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## Extension Education

# Nurturing International Graduate Students for a More Diversified and Inclusive Extension Workforce

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**Abstract:** The United States exports over 20 percent of its agricultural products; thus, agricultural trade and understanding global markets and partner countries' agricultural policies is increasingly important to its continued success. International graduate students represent a significant portion of agricultural economics students at many land-grant universities; however, many international graduate students do not receive exposure to Extension. We argue this creates an untapped resource to integrate graduate education and Extension services; thus, Extension misses opportunities to recruit top talent to serve the agricultural industry, and international graduate students have less job market success. Leveraging a survey of department heads and Extension economists in agricultural economics departments, our research documents the status of international Extension agricultural economists, identifies hidden and perceived barriers for international graduate students pursuing academic Extension careers, and provides insights into appropriate education and training programs in university graduate curricula to increase international graduate students' awareness of and interest in Extension.

## 1 Introduction

The United States exports more than 20 percent of its agricultural products (USDA-FAS 2018), making agricultural trade critical for the well-being of the U.S. agricultural economy and farmers and ranchers. International markets provide additional opportunities for many U.S. agricultural products, and trade is a topic of interest for both producers and policy makers, especially since the World Trade Organization's (WTO) formation and NAFTA (North America Free Trade Agreement) negotiations (Glauber 2021; Sumner 2000; Sumner 2003). Understanding global markets and key partner countries' consequent agricultural policies is important for the U.S. agricultural industry's continued success.

Heightened demand for trade-related knowledge creates opportunities and challenges for land-grant university (LGU) Extension and outreach services in agriculture. Using research-based knowledge, agricultural Extension provides nonformal education and learning opportunities for the general public, farmers, and rural and urban residents (Lawrence, Hadley, and Henderson 2019). Globalization is increasingly important for U.S. agriculture and increases the need for Extension to facilitate the exchange of trade-related information. There are relatively few studies on the integration of graduate education and Extension, yet it is critical to LGUs (Bagdonis and Dodd 2010).

We argue that integrating international graduate student education and Extension services at LGUs is a critical untapped resource. International graduate students, who typically require an F-1 or J-1 visa to study in the United States, represent a significant and sometimes dominant portion of the graduate student population in many LGUs' agricultural economics and economics departments (FWD 2021). However, many international graduate students do not receive exposure to Extension, though it is arguably the hallmark of the tripartite goals of U.S. LGUs (Taylor and Zhang 2019). We argue this creates a missed opportunity for Extension services to recruit top international graduate students to serve the needs of the agricultural industry, especially in the areas of trade, nutrition and health, and agriculture

and the environment. This missed opportunity also results in less job market success for international graduate students in U.S. academia.

Leveraging two separate surveys of department heads and Extension faculty in agricultural economics departments, our research helps document the status of international Extension agricultural economics professionals, helps identify the hidden and perceived barriers for international graduate students who would like to pursue academic careers in the United States, and provides insights into the appropriate education and training programs in university graduate curricula to increase international graduate students' awareness of and interest in Extension. International graduate students' increased interest in Extension could create the workforce that LGUs need to continue the Extension mission. Even though our research focuses on international graduate students studying in U.S. graduate programs, it applies to similar challenges and opportunities for students from non-English speaking households and nontraditional students.

## 2 Explaining the Profession of Agricultural Economics Extension and Outreach

The Morrill Acts of 1862 and 1890 established LGUs. In 1914, the Smith-Lever Act created the U.S. Cooperative Extension Systems, which is a federal (U.S. Department of Agriculture), state (LGUs and state governments), and local (city or county governments) partnership (Wang 2014). In 1994, tribal colleges and universities were added to the LGU systems. The LGU system in the United States includes 112 universities or colleges, including 57 units of the 1862 public universities, 19 units of 1890 historically black colleges and universities (HBCUs), and 36 units of the 1994 tribal colleges and universities. The tripartite mission of LGUs includes research, teaching, and Extension.

Extension, sometimes referred to as Outreach, directly interacts with the public and distributes vital and practical research-based knowledge to address public needs and create positive changes (Taylor and Zhang 2019). The Extension mission requires Extension professionals to translate science or research findings into understandable and applicable formats that the general public can use to improve their lives and/or livelihoods. Extension usually includes Extension specialists (faculty members, researchers, regional educators, etc.) and county Extension agents and staff. In the rest of this article, we refer to faculty, agents, and staff working in Extension as Extension professionals, and we refer to specialists in agricultural economics as Extension economists.

### 2.1 What Are Extension Economists' Job Responsibilities?

The primary role of Extension economists is to provide scientific research-based information and education covering topics from production to risk management, trade, agricultural policy, crop insurance, environmental and resource issues, agribusiness, finance, farm management, and rural communities and development to empower producers and policy makers to make more economically informed decisions and improve the resilience of agricultural operations. Extension economists work closely with a diverse set of audiences and stakeholders, including agricultural producers, agribusiness, policy makers, and researchers at local, state, national, and international levels.

Applied research is a critical part of Extension professionals' responsibilities. Extension professionals use a bottom-up research approach, where they identify research questions through discussion with stakeholders and then apply research conducted by Extension economists to solve real-world challenges. Successful Extension professionals must respond quickly to emerging issues and provide the information their target audiences need. They must also be able to educate themselves on a new topic and deliver necessary programs in a timely manner, which requires a broad knowledge base that mirrors the evolving needs of stakeholders (Burkhart-Kriesel, Weigle, and Hawkins 2019). Accountability and trustworthiness are key—through this trust relationship, Extension professionals are able to develop long-term relationships and expand their networks.

There are both free and fee-based Extension programs developed by Extension professionals with sufficient understanding of how target audiences learn and receive information. County delivery systems, in which Extension agents disseminate information from Extension economists to the general public, are a powerful tool, as are traveling and in-person training. Furthermore, new communication technologies have increased information dissemination, making it more accessible to farmers (Norton and Alwang 2020). In the modern era, Extension professionals deliver education and applied research programs to clientele and stakeholders through multiple delivery mechanisms, such as presentations, webinars, Extension and journal article publications, web-based materials, video recordings, PowerPoint slides, and computerized decision aids.

## 2.2 Extension's Challenges Recruiting Agricultural Economics Talent

Agricultural economists should consider how to continue attracting talent needed to fulfill the mission of LGUs. As the focus of the LGU mission moves toward research and teaching, Extension suffers from disciplinary divisions and downsizing (McDowell 2001). This downsizing lowers the visibility of Extension and the chances for Extension professionals to mentor graduate students and be involved in graduate education. However, mentorship and apprenticeship are important factors for career trajectory, as mentors or advisors serve as most students' role models. Moreover, graduate education focuses almost exclusively on teaching and research, with less focus on training students to translate and disseminate research results to the general public or involving graduate students in Extension efforts (Bagdonis and Dodd 2010). This brings a challenge for continuing to nurture talents to fill the needs of Extension systems in the field of agricultural economics (Lawrence et al. 2021).

In addition, traditional Extension workforce recruitment focuses on domestic U.S. students; however, those students show declining interest in pursuing a PhD in agricultural economics. Domestic agricultural economics PhD students face various career choices, and many choose to work in nonacademic settings as they feel those jobs offer better pay and less stress. International graduate students focus more on PhD program rankings, dominated by program research outputs, when applying for doctoral programs in their home country. Many international graduate students choose to return to their home country for various reasons. However, for the international graduate students who would like to peruse academic positions in the United States, many international graduate students are unaware of Extension throughout their studies (Taylor and Zhang 2019). Consequently, universities must meet the challenge of filling vacant agricultural economics Extension positions from limited, and sometimes unqualified, applicants.

## 3 Methods

Our data come from an online survey of department heads and Extension economists at U.S. LGUs from December 1 to 21, 2021. We conducted two rounds of surveys; the first asked department heads about Extension resources in their department and how they incorporate Extension into graduate programs. The second asked Extension economists about Extension resources within their department and student involvement in Extension. This study aims to compare insights from department heads and Extension economists about growing international graduate students' interest in Extension and preparing them with the necessary skills.

We sent the first survey to 55 department heads and received 22 valid responses (a 40 percent response rate). We chose department heads by searching agricultural economics programs at public universities, HBCUs, and tribal colleges and universities identified as LGUs by the 1862 and 1890 Morrill Acts and the 1994 Equity in Educational Land-Grant Status Act, respectively. In addition to standard demographic data, we collected information about the current number of faculty with and without Extension appointments, the number of Extension faculty with international backgrounds, and the current number of graduate students with and without international backgrounds. We also asked about

the number of graduate students placed in Extension positions in the past five years, the strength of the Extension program, and the actions taken in training graduate students pursuing a career in Extension.

We sent the second survey via generic web link to the Extension economist listserv within agricultural and applied economics organizations. In total, we collected 54 valid responses from Extension economists with formal Extension responsibilities. We asked about formal appointment split among research, teaching, and Extension, graduate students advised with and without international backgrounds, and job placement in Extension for graduate students. We also asked Extension economists about the strength of Extension programs in their department, the training taken to prepare graduate students in Extension, and the role international graduate students could play in Extension.

## 4 Results

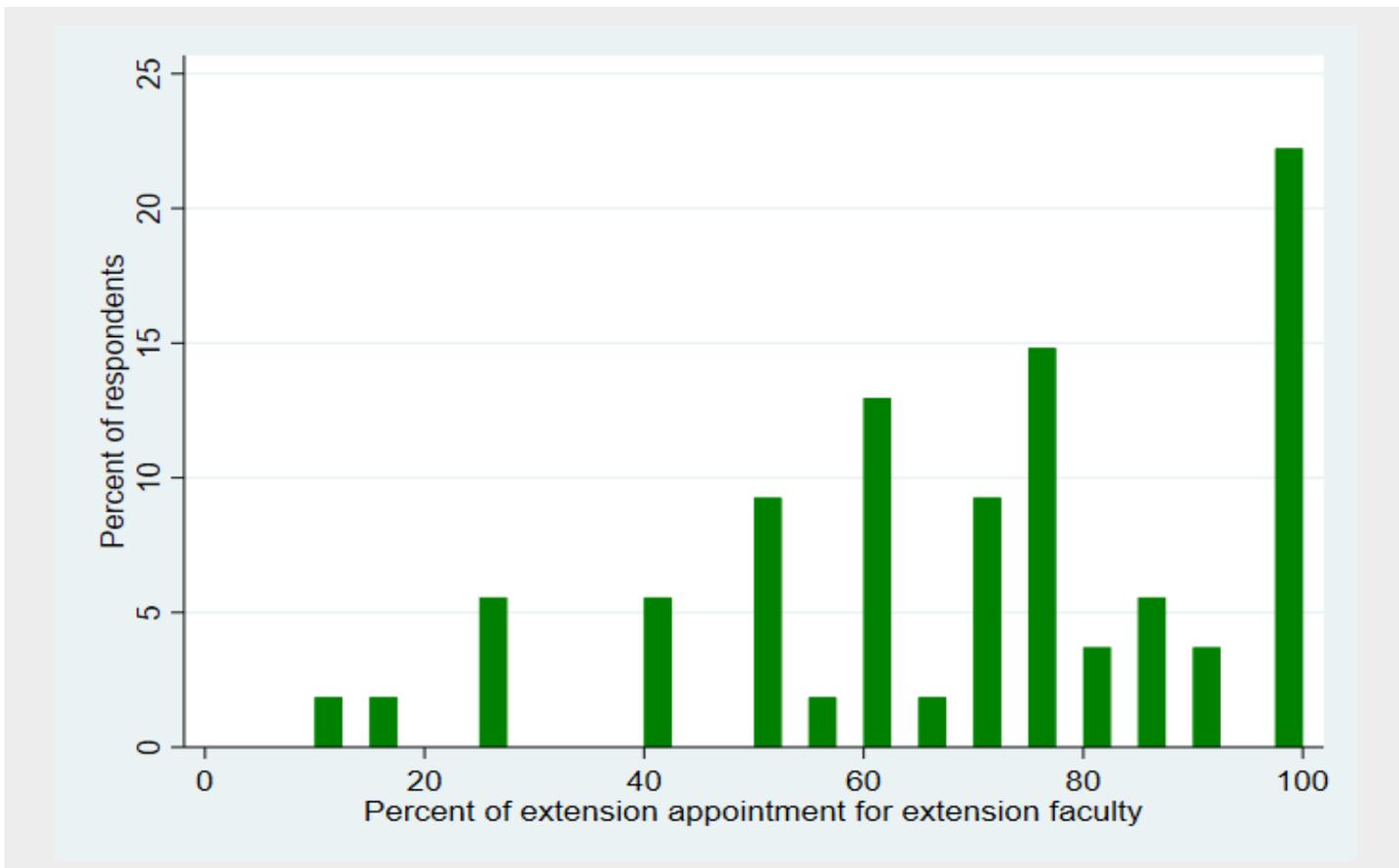
Among the 22 department head respondents, 21 are from LGUs identified in the 1862 Act, and one is from an LGU identified in the 1890 Act. Respondents are a good representation of the LGU system and cover the geographic regions of the United States, with one respondent from the Northeast region, six from the Midwest region, nine from the South region, and six from the West region. Supplemental Table S1 shows summary statistics of department head responses.

Supplemental Table S2 shows summary statistics of Extension economists' survey results. Of the 54 respondents, 38 Extension economists advise MS students in agricultural and applied economics with an average of 1.5 students per respondent, and 39 advise PhD students in agricultural and applied economics with an average of 0.7 students per respondent. Eight and 11 surveyed Extension economists reported that their PhD or MS students, respectively, successfully obtained an Extension faculty or staff position. On average, Extension economists have 11 years of experience in their current department.

### 4.1 Current Employment Situation in the Agricultural Economics Profession

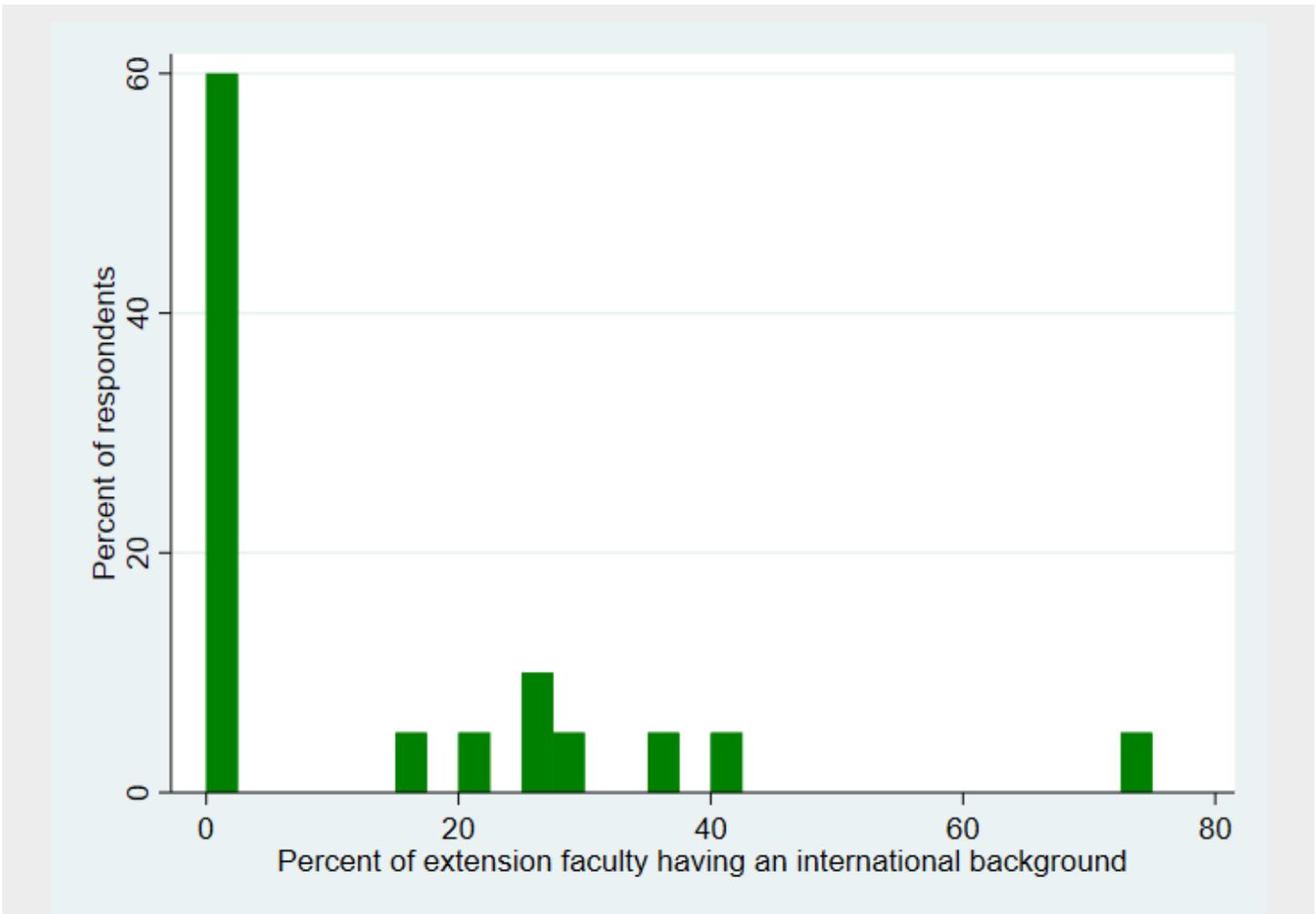
Among the 54 Extension economists who responded with their formal split between research, teaching, and Extension, 24 percent (13 respondents) have 100 percent Extension appointments, 22 percent (12 respondents) have a two-way split between Extension and research, 22 percent (12 respondents) have a two-way split between Extension and teaching, and 26 percent (14 respondents) have a three-way split between Extension, research, and teaching. Six percent (three respondents) have administrative duties. The difference in appointment splits is largely due to the philosophy and needs of the department (Boland 2009).

As Figure 1 shows, for those who have Extension appointments, Extension is often the predominant responsibility and accounts for at least half of the appointments. Extension economists without formal research appointments mentioned that research is still a job responsibility. Extension economist's appointment split is the basis for annual evaluation of their work performance, with some additional expectations on research outputs. At many LGUs, the funding stream for Extension economists might not match their appointment split. When their appointment split directs an Extension economist's focus away from their original funding source, it might result in them exerting less effort for Extension activities.



**Figure 1. Percentage of Extension Appointment Reported by Extension Faculty**

Supplemental Table S1 shows that LGUs have an average of 20 tenure-track positions with 4.4 (21 percent) including Extension appointments, 4.5 non-tenure-track positions with 1.1 (22 percent) including Extension appointments, and 7 professional or scientific staff positions with 1.6 (33 percent), including Extension appointments. For tenure-track positions, including Extension appointments, on average, 71 percent have Extension as the primary responsibility, 23 percent are female, and 13 percent have international backgrounds. Female employees tend to hold more Extension staff positions than tenure-track or non-tenure-track Extension faculty positions—females hold 23 percent of tenure-track Extension positions and 38 percent of non-tenure-track Extension positions, but constitute 52 percent of Extension staff. International scholars constitute a small portion of agricultural economics Extension professionals, holding 13 percent of tenure-track Extension faculty positions, 15 percent of non-tenure-track Extension faculty positions, and 8 percent of Extension staff positions. Figure 2 further illustrates faculty with an international background and their participation in Extension, which highlights the missed opportunities for LGUs to leverage and utilize the talents of international graduate students and scholars in Extension. Sixty percent of the department heads that responded to our survey indicated all current tenure-track Extension faculty are from the United States.

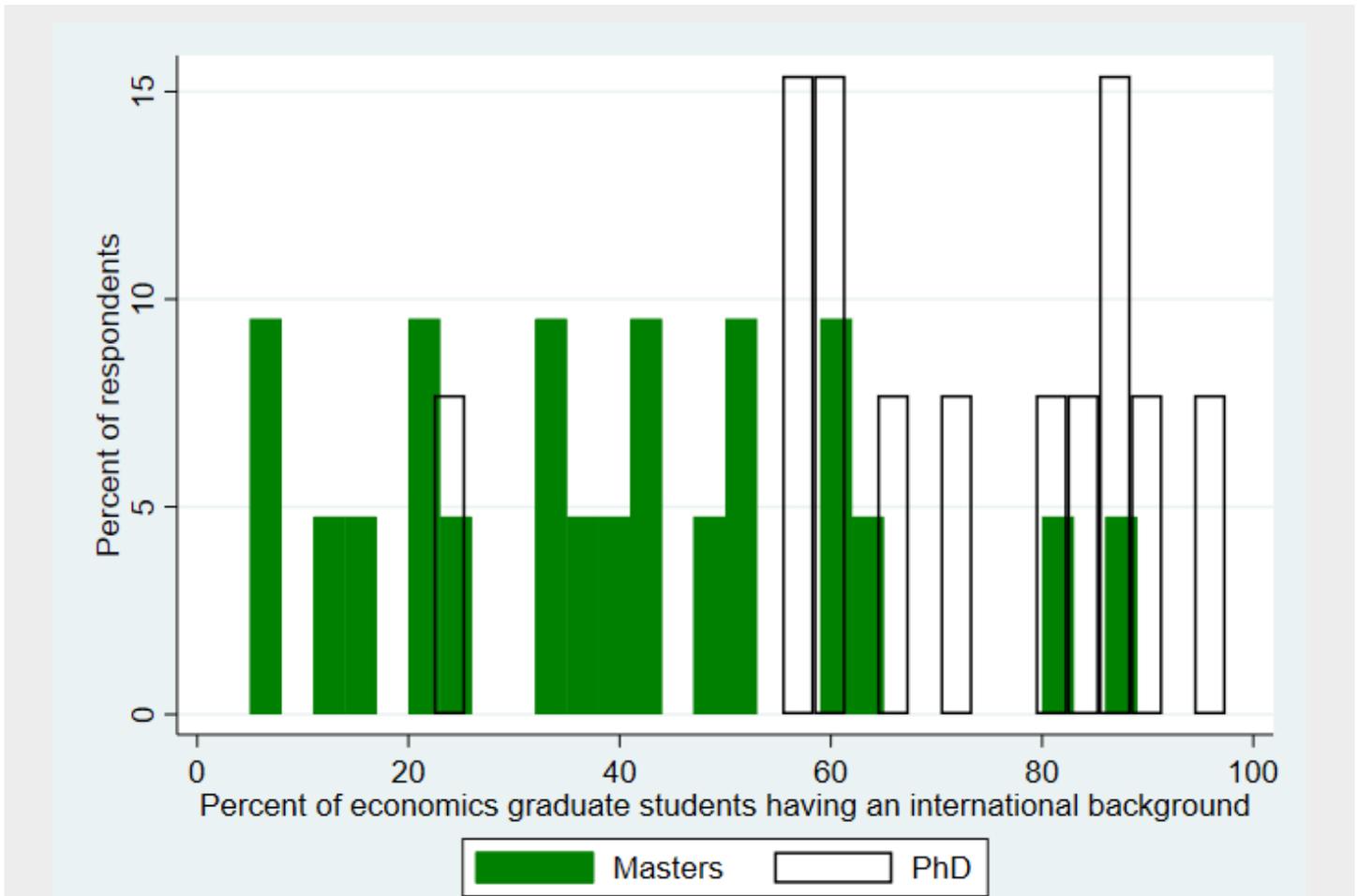


**Figure 2. Percentage of Extension Faculty with International Backgrounds in an Agricultural and Applied Economics Department**

#### 4.2 Current Graduate Student Pool in the Field of Agricultural Economics

Figure 3 shows the proportion of international graduate students in the current graduate student pool in the field of agricultural economics. Although there is a larger variation in the share of MS students with an international background, in most departments, over 60 percent of economics or applied economics PhD students are international. On average, 71 percent of agricultural and applied economics PhD students are international, compared with 39 percent of MS students (Supplemental Table S1).

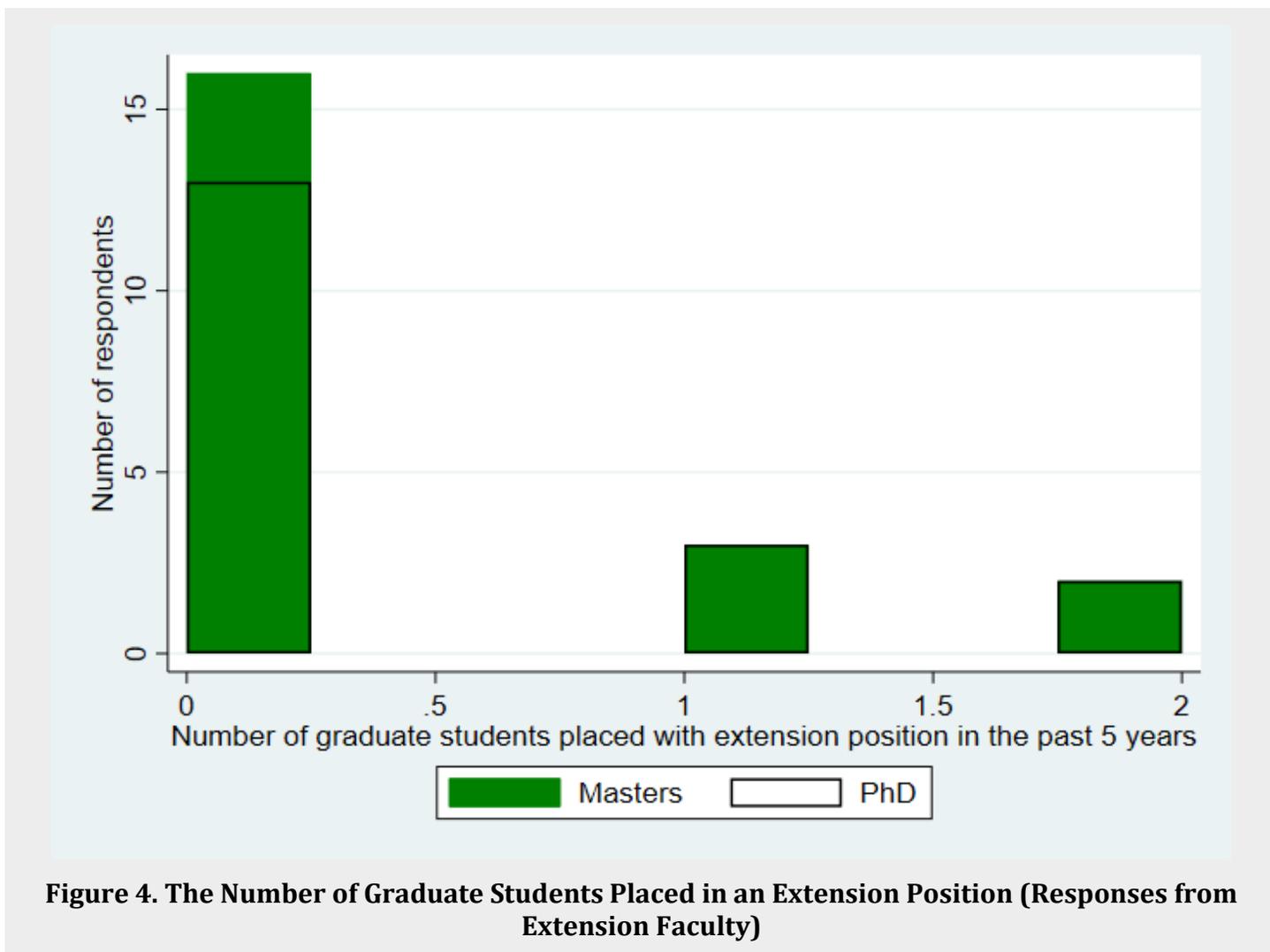
However, only 65 percent of PhD students advised by Extension economists are international graduate students (Supplemental Table S2). Note that, in terms of percentage, Extension economists advise more international PhD students than international MS students. On average, 38 percent of MS students advised by Extension economists are international (Supplemental Table S2). The percentage of international graduate students in the field of agricultural and applied economics is higher than the percentage of international graduate students mentored by Extension economists, which implies few international graduate students receive exposure to Extension. Self-selection of international graduate students as research advisors instead of Extension advisors could be the cause, as Boland and Crespi (2010) find that graduate students’ areas of research have moved away from traditional farm economics to more general and applied agricultural economics topics, such as natural resources and environmental economics. Extension faculty tending to work with domestic students could also be the cause.



**Figure 3. Percentage of Graduate Students with International Backgrounds in an Agricultural and Applied Economics Department**

This creates additional challenges for international graduate students in the U.S. job market: although international graduate students account for the majority of graduate student populations in many agricultural economics departments, they do not always receive the training and mentoring to effectively compete for Extension positions. Extension faculty do not necessarily teach graduate classes and are sometimes detached from department research and teaching functions. Many international graduate students that graduated from LGUs do not know what Extension is, let alone participate in Extension activities, which means that departments and universities underutilize the talents and experiences of international graduate students when creating an inclusive and enriching experience.

Despite the low percentage of international graduate students mentored by Extension economists, on average, they constitute 65 percent of PhD students and 38 percent of MS students mentored by Extension economists. International graduate students mentored by Extension economists are a potential Extension workforce, which partially explains LGUs’ challenges recruiting tenure-track and non-tenure-track faculty in the fields of agricultural and applied economics, as recruitment efforts mainly focus on domestic students. Figure 4 shows that few Extension economists report success placing graduate students in positions with Extension appointments. As Supplemental Table S2 shows, only 8 extension economists indicated successfully placing PhD students in Extension positions, with an average placement of 1.1 PhD students. Furthermore, only 11 Extension economists indicated success placing MS students in Extension positions, with an average placement of 2.6 MS students. As a profession, we are



**Figure 4. The Number of Graduate Students Placed in an Extension Position (Responses from Extension Faculty)**

training the future Extension economist workforce. LGUs need to adjust recruiting efforts for Extension economists to recruit a more diverse pool of international graduate students.

### 4.3 Efforts to Expose Graduate Students to Agricultural and Applied Economics Extension

In both surveys, we specifically asked about the strength of Extension in each department and departments’ efforts to help graduate students pursue Extension careers. When we surveyed Extension economists, we asked about the changes that they would like to see in their department to further help graduate students pursue Extension careers.

Table 1 summarizes the categories department heads and Extension economists consider as the strengths of Extension programs. Extension economists stressed strong college/university support and Extension funding support (both public and private funding) as strengths. Some department heads report a strong Extension program supported by a large number of Extension faculty, allowing them to cover all the important subject areas needed by their stakeholders. However, other department heads noted a lack of Extension positions to support Extension efforts or the loss of Extension positions at their university as current Extension challenges. Strong Extension leadership and organizational structure at both the college and departmental level is critical for the success of Extension programs. Universities with a strong focus on Extension tend to have stronger Extension programs, and departments with active Extension

**Table 1. Categories Department Heads and Extension Faculty Consider Extension Program Strengths**

**Extension Program Strengths Reported by Department Heads**

Relevance and visibility to the industry in the state, addressing real-world and community-based programs and local issues, close connection and support of stakeholders, engagement and collaboration with county agents, modern communication and information dissemination methods in Extension, scholar basis of the Extension program, strong and active research programs in support of Extension efforts, multistate programs in Extension and research, interdisciplinary projects and programs, sponsored funding support for Extension, real-world credibility in teaching by Extension faculty, the informal line between Extension and outreach/engagement, strong Extension program supported by a large number of Extension faculty.

**Extension Program Strengths Reported by Faculty**

Good relationship with growers and industry partners, stakeholder engagement, strong reputation across the state, knowledge of agricultural systems, strong ties with agricultural producers to address relevant issues, a critical mass of faculty to develop in-depth programs, specializations in Extension topics, strong relationship with county Extension agents to meet local needs, strong support for Extension across the college and university, strong funding support in Extension at the college level, integration of the land-grant mission (research, Extension, and teaching), strong and active research programs in support of Extension efforts, multidiscipline collaboration, branding of Extension program supported by a hosting website and strong online presence, a mix of online deliverables with in-person meetings.

coordinators participating in faculty meetings helps increase the visibility of department Extension programs.

As Table 2 shows, department heads and Extension economists stressed the importance of allowing and encouraging graduate students to present at Extension or stakeholder meetings and publish Extension outputs. Some departments reported funding graduate student participation in the Agricultural and Applied Economics Association's (AAEA) Extension graduate competition, and some potentially offer Extension-track graduate assistantships.

However, department heads and Extension faculty both reported the lack of a systematic program to expose graduate students to Extension career opportunities. Seven of the 17 department heads who responded to this question stated that they currently do not have a systematic program to do so. Three department heads stated they have started putting more effort into exposing graduate students to Extension—efforts that range from a formal class to an Extension-based track graduate program and more targeted and individualized graduate student mentoring. Sixteen of the 37 Extension faculty that responded to this question reported no formal department-level graduate student training for Extension careers. Extension faculty also noted changes they would like to see at the department level in training graduate students to pursue an Extension career (Table 3). One way of including Extension curriculum and training is to recruit field specialists working in Extension and county Extension agents to the graduate program. Their involvement on campus would bring a different aspect to the graduate program and expose the other graduate students with Extension.

**Table 2. Department-Level Efforts Reported by Department Heads and Extension Faculty to Train Graduate Students to Pursue Extension Careers**

**Graduate Student Training Efforts Reported by Department Heads**

Student present at Extension meetings, student publishes Extension output, student participation in the editing process of Extension publications, mentorship and collaboration with Extension faculty, encourage and fund participation students in AAEA Extension competition.

**Graduate Student Training Efforts Reported by Extension Faculty**

Involve students in Extension and outreach projects, take students to Extension events and on field trips, student present at Extension events, mentorship and collaboration with Extension faculty, Extension assistantships and professional development grants, curriculum development focused on Extension, incorporating Extension-focused topics in thesis/dissertation, Extension internship programs.

**Table 3. Suggested Changes at the Department Level in Training Graduate Students in Pursuing a Career in Extension Reported by Extension Faculty**

**Changes in Graduate Student Training Suggested by Extension Faculty**

Invite graduate students to Extension programs and events, offer seminars or courses on Extension work and methods, more graduate student exposure to Extension faculty, continued and/or expanded graduate student funding in Extension, emphasize the need for dissemination of research results, formal Extension track for graduate programs, involve graduate students in applied research with Extension outreach and stakeholder engagement opportunities, educate students in translating research in layman’s terms, more active recruiting of graduate students interested in Extension, networking opportunities for Extension, opportunities to publish Extension publication, and present at Extension events.

Our survey also reveals an interesting gap in the challenges reported by department chairs and Extension economists (Table 4). In particular, department heads noted the challenges in recruiting Extension faculty and balancing the needs of stakeholders and integrating with the research and teaching functions of LGUs. Many surveyed Extension faculty commented that departments and LGUs often undervalue Extension and their work. Under appreciation of Extension faculty makes it less appealing to graduate students, which could create challenges in filling future Extension positions.

**4.4 International Graduate Students’ Roles in Agricultural and Applied Economics Extension**

We asked Extension economists about perceived roles international graduate students could play in Extension and to offer advice for graduate students, especially international graduate students, interested in Extension careers. Fifteen out of 34 Extension faculty stated that international graduate students could play the same Extension role as domestic students. However, Extension faculty did recognize international graduate students’ lack of expressed interest working in Extension, making it difficult to identify and cultivate potential future Extension professionals.

Extension faculty also recognized the challenges facing international graduate students, from limitations in language and culture to a lack of knowledge of agricultural practices, agricultural community systems,

**Table 4. Select Comments from Department Heads and Extension Faculty about Challenges Faced by Extension Professionals**

**Select Comments from Department Heads**

*“At many universities, Extension can be overly bureaucratic and tradition-bound to be truly relevant to the modern needs of stakeholder groups; at other places it is often too disassociated with the main research and teaching missions of the university, leaving Extension faculty on an island.”*

*“This is an important issue. Finding applicants for Extension faculty positions who understand Extension and U.S. agricultural/rural institutions has become a significant challenge.”*

**Select Comments from Extension Faculty**

*“Extension is an undervalued core area of the land-grant mission across the United States. It is a critical area that distinguishes land-grants from other higher education entities. It provides those institutions with a comparative advantage with stakeholder engagement and grassroots impacts.”*

*“It is challenging to cultivate future Extension professionals when there are many states/institutions with either limited agricultural economics Extension programs or limited graduate programs. There are relatively few with both a strong, vibrant grad program and a strong, productive cohort of Extension agricultural economists.”*

*“I was a domestic PhD student with no farm background when I graduated. I knew very little about what our Extension faculty did since I never saw them in class nor read their materials. So it’s not just foreign students who lack awareness. I’d say most graduate students are not exposed to Extension programming.”*

local/state/federal institutions, and U.S. laws and regulations. This is particularly important because many Extension positions expect successful candidates to impact farmers and agricultural or food sector stakeholders in that particular state or region.

## 5 Tips for International Graduate Students Interested in Extension Careers

As for tips for international graduate students interested in Extension careers, many Extension economists stressed the importance of understanding U.S. agriculture and production systems to be able to meet the needs of agricultural community stakeholders. Extension economists suggest that increasing international graduate students’ interactions with stakeholders can help increase their understanding of U.S. agriculture and provide training for applying economic theory to U.S. farms. Extension faculty also suggest exposing international graduate students to Extension activities, such as writing Extension publications, going on field trips, presenting at county production meetings, and facilitating workshops, to increase their understanding of U.S. agriculture and Extensions functions (Table 5). International graduate students can actively seek opportunities to collaborate and work on grants with Extension faculty. Doing so will enable Extension faculty to provide personalized mentoring.

Extension faculty noted the importance of investing in communication skills and training for international graduate students. Communication skills are a key to Extension professionals’ success—Extension professionals must be able to talk to and relate to target audiences and adjust their delivery methods to meet the needs of clientele.

**Table 5. Roles Extension Faculty Feel International Graduate Students Could Play in Extension****Roles International Graduate Students Can Play in Extension**

Innovation in applied research that is relevant to producers, serving growers from different culture and language backgrounds, providing insight and lessons from other countries for U.S. agriculture, bringing different perspectives in engaging diverse audiences, Extension programs focusing on trade and international agriculture, assisting in Extension publication and data analysis, potential partnerships and market channels at the international level for U.S. agriculture.

**Selected Quotes from Extension Faculty**

*“Extension work comes down to personality more than anything and the ability to make a connection with stakeholders.”*

*“The key variable is whether any student, foreign or domestic, has a background in agricultural production and/or working with agricultural producers.”*

*“International students can be just as competitive as domestic students for Extension jobs as the most important defining characteristic of Extension training is assisting with the development of an ag background.”*

*“As many lack any experience and understanding of U.S. (let alone state) agriculture and farming practices as well as the laws, regulation, and code, it is one thing to be taught the theory, and even using case studies surrounding the fundamentals of agribusiness and economics, it becomes more difficult for them to handle the application to U.S. farms and those farms within the state. This severely limits their usefulness to bringing impact to the state’s farmers and ag/farming industry.”*

*“Having graduate students receive training from Extension faculty would help them understand U.S. ag better. This training could occur by having graduate students go with Extension faculty to educational meetings. During these meetings, the international students could provide some perspective by giving an international perspective or by teaching on some of the latest economic ideas.”*

Good oral and written English communication skills are critical for working in Extension—Extension professionals are liaisons between academia, government, and private industry. Interpersonal skills increase Extension professionals’ success and effectiveness with stakeholders, their collaboration with research colleagues, and their ability to create value for the agricultural community. Extension professionals need the ability to build strong personal relationships with stakeholders to be a trusted source of information and increase the success of building and delivering Extension programs.

It is also important for international graduate students to acquire key skill sets in applied economic research, which facilitates their ability to respond rapidly to important issues from stakeholders. Facing multiple sources of sometimes conflicting information, stakeholders seek unbiased, research-based information from credible sources (Taylor and Zhang 2019). Extension professionals can provide unbiased research and Extension programming, which will help producers and consumers make informed decisions. Stakeholder engagement is a good venue to identify and define research questions with real-life application, pilot appropriate test tools, engage in data collection, and receive constructive feedback (Monroe, Ireland, and Martin 2015). Oftentimes, to address the needs of stakeholders, Extension professionals need to assemble research groups and work with both within- and cross-discipline researchers, and they need the ability to work with a diverse group of researchers and be a part of multistate or multidisciplinary teams to tackle the complexity of agricultural production systems.

As noted by several Extension faculty, bias is present and probably more salient for female, minority, and international Extension professionals. Many respondents also stressed the importance of international graduate students assembling and showcasing the “right signals” when pursuing an Extension position. The suite of “right signals” include knowledge of what Extension is and is not, evidence-based understanding of the U.S. agricultural and food sectors (preferably a specific region or state), solid oral and written English communication skills, strong interpersonal skills, and experience presenting at Extension meetings and/or writing Extension publications.

## 6 Conclusion

Our research leverages two rounds of surveys of department heads and Extension faculty in agricultural economics departments to shed light on understanding the current challenges faced by Extension and the methods for training talent as the future Extension workforce. Currently, international students in agricultural economics graduate programs outnumber domestic students. Even though a large proportion of graduate students in the field of agricultural and applied economics are international, on average, only 13 percent of the Extension faculty at LGUs have international backgrounds. Our research identifies a need to change perceptions about involving international graduate students in Extension and providing Extension career opportunities to international graduate students.

Our research also identifies the hidden and perceived barriers preventing international graduate students from pursuing academic Extension careers, and we provide tips for appropriate education and training programs in university graduate curricula to increase international graduate students’ awareness of and interest in Extension. The challenges international graduate students face for successful Extension job placement range from limitations in language and culture to a lack of understanding of agricultural practices and agricultural community systems, local/state/federal institutions, and U.S. laws and regulations. Extension faculty suggest taking efforts to expose international graduate students to Extension opportunities to increase their understanding of U.S. agriculture and production systems, training students to apply economic theory to U.S. agriculture, and exposing students to Extension activities to increase understanding of Extension functions. In addition to working with agricultural producers, there are many other Extension opportunities (such as working with policy makers, consumers, etc.) for international graduate students in agricultural economics to peruse, and awareness of the other opportunities is needed to be raised among graduate students and LGUs. These efforts will increase international graduate students’ awareness of Extension and provide possible Extension career opportunities.

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**Extension Education**

# Cross-Hedging in the Classroom: Engaging Students in Developing Scholarly Extension Output

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JEL Codes: A20, A22

Keywords: Cross-hedging, Extension education, undergraduate teaching

**Abstract**

Topics covered by undergraduate agricultural economics courses often overlap with Extension educational needs. This paper describes an undergraduate class project that involved students in producing an Extension report. The project was designed as a collaboration between undergraduate instructors and Extension economists. The instructors targeted a set of concepts and skills for the students to practice, and the Extension economists advised the instructors on a particular issue using those skills relevant to local agriculture. This process resulted in analyzing the potential to cross-hedge peanuts with futures contracts from different commodities. Students were introduced to peanut marketing, cross-hedging, regression analysis, and how to write an Extension publication. In groups, students analyzed data and wrote a report. Group reports were evaluated by Extension economists, and one project was chosen to be published as a peer-reviewed Extension publication.

## 1 Introduction

Cooperative Extension provides practical training and education to agricultural producers. Many of the topics covered by Extension materials are also taught in undergraduate agricultural economics or agribusiness courses. Undergraduate courses, for example, commonly train students in enterprise budgeting or the principles of using futures markets for price risk management. Despite this overlap, agricultural economics undergraduates are often not included in the production or consumption of Extension materials.

This paper presents a model of collaboration between undergraduate agricultural economics instructors and Extension economists. The collaboration took the form of an undergraduate group project. Students used linear regression to determine cross-hedging possibilities for peanut producers and wrote an article summarizing the concepts and their findings to an Extension audience. The articles were evaluated by Extension economists, and one was selected and revised for publication as a peer-reviewed Extension article by the Alabama Cooperative Extension System (ACES).

The class project had two overarching objectives. First, the project was designed to introduce students to Extension economics. While Extension is one of the three missions of the land-grant system, many students are unaware of the work that Extension does. As the rural population continues to decline and the number of students with no agricultural background continue to enter agricultural or applied economics, fewer students have come into contact with Extension. As a result, fewer undergraduates become Extension specialists or educators (Taylor and Zhang 2019). Engagement with students potentially interested in careers in Extension may be crucial for training the next generation of Extension economists (Lawrence et al. 2019; Shear 2020). One way to engage with students is to integrate Extension with classroom education, as prior work has done (e.g. Loveridge 2003; Haines 2002). For example, Ebner et al. (2017) use a study-abroad service-learning course in which students learned about the mission of cooperative Extension, culminating in students delivering a series of Extension workshops

on animal production. Experiential learning opportunities related to Extension agribusiness include producing enterprise budgets and business plans (Barnard 2003; Curtis and Mahon 2010a; Curtis and Mahon 2010b), studying price analysis through hands-on activities (Beck 1970), and evaluating economic impact (Fannin and LeBlanc 2007). Our class project built off these prior projects in that it sought to introduce undergraduate students to the types of problems Extension economists solve and to develop the ability to communicate results to a stakeholder audience, but with an added econometric exercise.

Our second objective was to present undergraduate students with a realistic data-driven decision faced by agricultural producers and allow them to explain a solution to a non-economist audience. Empirical applications are frequently used in economic education (e.g., Marshall and Underwood 2019; Hoyt 2021; Swinton 2021) and student training in data work is increasingly important for undergraduates in agribusiness (Elliott and Elliot 2020). To our knowledge, however, few course-based data activities have been published that teach agribusiness students about Extension activities that also result in the production of actual Extension output.

## 2 Project Description

The project entailed collaboration between two course instructors and two Extension economists as well as collaboration between students in two classes. The classes involved were an upper-level (junior and senior) course on Agricultural Prices with 36 students and a mid-level (sophomore and junior) course on Quantitative Methods in Agricultural Economics with 21 students. Eleven of the students were registered in both courses concurrently. Many of the students in Agricultural Prices had taken Quantitative Methods previously, so the project served as a review of their prior knowledge.

### 2.1 Learning Objectives

The end goal of the project was for students to write an Extension publication that explains cross-hedging and uses real-world data to make recommendations for Alabama farmers. Through the written report, students demonstrated the ability to:

- 1) Describe cross-hedging concepts;
- 2) Interpret ordinary least squares regression coefficients and diagnostics (especially  $R^2$ );
- 3) Use knowledge of cross-hedging and regression to provide action-oriented recommendations for farmers; and
- 4) Write for a less technical audience of stakeholders.

### 2.2 Project Preparation

The two course instructors and two Extension economists first compared course syllabi with Extension needs. Possible project topics were narrowed down based on the feasibility of students completing the project in one semester, and the team decided to focus on testing possible ways to use futures contracts to mitigate spot market peanut price risk.

Row-crop producers can use several tools to manage price risk, including forward contracts, crop insurance, and hedging. Hedging of agricultural commodities usually involves selling contracts in the futures market for the commodity in question to protect against crop prices falling before harvest. Futures markets, however, do not exist for all crops. Peanuts - a major crop in Southern agriculture - is an example of a crop without a futures market. While producers of crops without a futures contract cannot hedge their crop directly, they can cross-hedge, or hedge using the futures contract for another commodity. To determine whether a commodity would be appropriate for cross-hedging, producers need to examine the relationship between the cash price of the crop and the futures price in question. The

evaluation of whether a commodity's futures contract is potentially a valid cross-hedge can be done with linear regression, a tool regularly taught to undergraduates in agribusiness programs.

To evaluate the possibility of cross-hedging for peanut producers, students need a series of cash market peanut prices over time and a series of prices for at least one futures contract over the same period of time. The Extension team provided weekly peanut prices covering 2006–2021. The peanut prices represent the current price paid by first handlers and were obtained from the National Agricultural Statistics Service.<sup>1</sup> In addition, the Extension team regularly collects prices for the nearby futures contracts for wheat, corn, and soybeans for a weekly report for Alabama producers (“Profit Profiles”). Thus the Extension team was able to provide a weekly series of nearby wheat, corn, and soybean futures prices over the same period of time. For tractability, the team decided to restrict the data to weekly prices in the years 2017–2018.

Prior to implementing the project, the course instructors randomized students to project groups. Each group consisted of 4–5 students and had at least one student from each class. The students were given the email addresses and names of the other group members.

## 2.3 Project Implementation

Implementation of the group project proceeded in three stages.

### 2.3.1 Stage 1: Student Preparation

Students were given materials introducing them to cross-hedging and to regression analysis. This material consisted of three guest lectures and one reading assignment. One Extension economist gave a guest lecture on peanut production and marketing to the Agricultural Prices course, and a recording of that lecture was made available to students in both classes. In addition, the Agricultural Prices instructor recorded a lecture on cross-hedging, and the Quantitative Methods instructor recorded a lecture on regression analysis. The recordings were made available to students in both classes. Finally, the students were directed to read a section on cross-hedging from Peterson (2018).

### 2.3.2 Stage 2: Data Work

After being introduced to the basics of peanut marketing, cross-hedging, and regression analysis, the students were given an Excel worksheet with 2017–2018 weekly cash peanut, wheat futures, corn futures, and soybean futures prices. The students were also given a worksheet with step-by-step instructions on how to use the dataset to obtain information necessary for making cross-hedging decisions. In particular, the students were instructed to create new columns consisting of the first differences of each price series. They were then instructed to use the first-differenced prices in a simple ordinary least squares regression using Excel. The students were finally instructed to use the regression  $R^2$  to evaluate the effectiveness of each potential cross-hedge and the regression coefficient to calculate the optimal hedge ratio and the number of futures contracts they would need to hedge their entire expected harvest (600,000 pounds).

### 2.3.3. Stage 3: Report Writing

The data work gave each group the information needed to provide a set of recommendations for farmers. In the final stage of the project, the groups were given instructions on how to write a brief Extension article. Specifically, the students were told that their report had to:

- a. Introduce farmers to the idea of cross-hedging using futures contracts.
- b. Explain how to determine the best contract.
- c. Describe the results for determining the best contract.

<sup>1</sup> <https://usda.library.cornell.edu/concern/publications/5t34sj58c?locale=en>

- d. Explain how to determine the optimal hedge ratio and the number of futures contracts to use.
- e. Describe the results on the optimal hedge ratio and the number of futures contracts to use.
- f. Explain how to determine whether a specific cross-hedge is a good strategy.
- g. Describe the results on the best of the available futures contracts that provide an acceptable hedge.
- h. Summarize what the results mean for peanut farmers seeking to mitigate price risk.

Reports were to be two pages of text, with additional tables or figures encouraged but not necessary. Grades were assigned based on both the accuracy of the analysis and the quality of the report. The two parts of the rubric are displayed in Tables 1 and 2.

**Table 1. Rubric for Accuracy of the Analysis (10 points total)**

	Correctly Identified	Not Correctly Identified but Steps Were Clearly Followed	Not Correctly Identified and No Evidence of the Steps
Best contract	2 points	1 point	0 points
Optimal hedge ratio	2 points	1 point	0 points
Optimal number of futures contracts to use	3 points	1 point	0 points
Whether to cross-hedge using futures at all	3 points	1 point	0 points

**Table 2. Rubric for Quality of the Report (10 points total)**

	Completely	Partially	Not at All
Report specifications were followed <sup>a</sup>	2 points	1 point	0 points
All items (a)–(h) are included	4 points (0.5 point for each item)	0.5-3.5 possible points	0 points
Explanations of the concepts are correct	2 points	1 point	0 points
Explanations of the concepts are understandable to a non-economist	2 points	1 point	0 points

<sup>a</sup>Two pages of Text, single-spaced, 12-point Times New Roman

## 2.4 Post-Implementation

Students were informed at the beginning of the semester that the Extension economists would choose one group’s report to serve as the basis for a peer-reviewed published Extension article with ACES. The students were told that this would occur after grades were assigned and would have no impact on their project grades but would be a great item to display on a resume. After the instructors assigned project grades based on the rubric in Tables 1 and 2, student names were removed from the reports, and the instructors sent the anonymized group reports to the Extension economists. The Extension economists read through them and chose one group’s report to be the start of an Extension publication through ACES. Together with the students, the Extension economists revised the report and submitted it to ACES

for peer review and formal publication. After a round of reviews, the report was published on the ACES website (<https://www.aces.edu/blog/topics/farm-management/marketing-tools-cross-hedging/>).

### 3 Project Evaluation

We used a quiz to evaluate how well the project improved student understanding of cross-hedging (learning objective 1) and interpretation of regression coefficients and diagnostics (learning objective 2). Project grades based on the rubric allowed us to evaluate students' ability to provide appropriate recommendations to farmers (learning objective 3). At the end of the project, students were also able to provide written feedback. The subsequent reach of the Extension publication is an ongoing evaluation metric beyond the semester of the class as the article remains accessible on the ACES website.

#### 3.1 Quiz

The course instructors designed a quiz that evaluated student knowledge of ordinary least squares regression and of cross-hedging. The quiz was given as an online assignment to all students both prior to the start of the project and after all groups' reports had been submitted. The same 14 questions appeared on the quiz both before and after the project. Appendix Table A1 provides a complete list of all questions. Quizzes were graded on completion (5 points for a completed quiz), and students were informed that the accuracy of their answers would not impact their course grades. After grades were assigned for the semester, the course instructors graded the quizzes. Since students were not assigned grades based on quiz accuracy, students could have put in very little effort and simply randomly chosen answers. We believe this is not a concern for two reasons. First, we are only interested in the pre- vs. post-project changes, not the levels of the grades. Students putting in no effort and randomly selecting answers would add to the noise of this comparison, but would likely not systematically bias the comparison. Second, grading a pre-project quiz on accuracy would penalize students for not knowing what they were not yet taught. This may also create perverse incentives for students to use outside resources to improve a pre-project quiz grade, contaminating any pre/post comparison. We believe the downsides of not providing course grades for quizzes based on accuracy far outweigh the additional noise in our estimates that this introduces.

We implement a paired sample  $t$ -test to determine whether the difference between pre- and post-test scores is significant. To implement the paired sample  $t$ -test, we code each response as 1 if the answer is correct and 0 otherwise. Therefore, the full score of the quiz is 14. The term  $d_{ij}$  is defined as the difference between any matched pair of responses  $x$  from student  $i$  to question  $j$  such that  $d_{ij} = (x_{post,ij} - x_{pre,ij})$ . The null hypothesis is that the population differences ( $\mu_{d_j}$ ) between the pre- and post-test to a single question  $j$  is zero. We test this null hypothesis against the one-sided alternative hypothesis that the difference in responses is positive (i.e.,  $H_0: \mu_{d_j} = 0$  vs.  $H_a: \mu_{d_j} > 0$ ).

Table 3 displays the mean pre- and post-quiz scores as well as  $t$ -statistics of the paired sample  $t$ -test for each question, as well as the overall number of correct answers. The mean scores of all questions were higher in the post-test than in the pre-test; overall, the number of correct answers jumped from 9.881 pre-quiz to 12.04 post-quiz. The difference between the mean number of correct answers is statistically significant ( $t$ -statistic of 8.740). For 12 of the 14 questions, we reject our null hypothesis ( $H_0$ ) in favor of the alternative hypothesis ( $H_a$ ) that the class project is an effective tool for enhancing students' understanding of both linear regression and cross-hedging.

**Table 3. Summary Statistics and Paired Sample *t*-Test Results (*N* = 42)**

Topic	Question	Pre-Quiz Score (Mean)	Post-Quiz Score (Mean)	<i>t</i> -statistics
Regression	1.a	0.548	0.929	5.023*
	1.b	0.857	0.952	2.077*
	1.c	0.524	0.714	3.106*
	1.d	0.667	0.905	3.580*
	2.a	0.810	0.881	1.776*
	2.b	0.738	0.786	1.432
	2.c	0.714	0.929	3.343*
	2.d	0.571	0.762	3.106*
	2.e	0.690	0.786	2.077*
	3	0.548	0.714	2.864*
Cross-Hedging	4	0.690	0.905	3.344*
	5	0.762	0.833	0.724
	6	0.643	0.857	3.344*
	7	0.810	0.929	2.354*
Overall Score	1–7	9.881	12.048	8.740*

Note: \*Statistically significant at 5 percent.

### 3.2 Rubric-Based Grades

There were 10 groups in the semester this project was implemented. Tables 4 and 5 show the number of groups out of 10 that received full points for each rubric component. Almost all groups identified the best contract and the optimal hedge ratio, and all groups were able to accurately inform farmers whether to use wheat, corn, or soybean futures contracts to hedge peanuts. Most of the groups included all of the necessary parts of an Extension report, and all groups were able to explain the concepts in language that is understandable to farmers without a background in agricultural economics.

**Table 4. Number of Groups Receiving Full Credit for the Accuracy of the Analysis**

	Number of Groups Out of 10 That Received Full Points
Best contract	9
Optimal hedge ratio	8
Optimal number of futures contracts to use	6
Whether to cross-hedge using futures at all	10

**Table 5. Number of Groups Receiving Full Credit for the Quality of the Report**

	Number of Groups Out of 10 That Received Full Points
Report specifications were followed <sup>a</sup>	8
All items (a)–(h) are included	9
Explanations of the concepts are correct	9
Explanations of the concepts are understandable to a non-economist	10

<sup>a</sup>Two pages of text, single-spaced, 12-point Times New Roman

### 3.3 Student Feedback

Students were given the opportunity to comment on three questions: (1) What did you like about the project?, (2) What could be improved for future semesters?, and (3) How well did your group work together? Twelve students submitted written feedback on the project. We include all student responses to the first two questions in the Appendix. We used the third question as a way to let students inform us of any interpersonal conflicts in their groups, and thus do not report this feedback.

In general, students liked that it was a practical application of the course materials:

*[The project] presented a practical way to use what we've learned.*

*I liked how this applied to the real world, and we could use real-world examples to better understand both the futures and cash markets, as well as what we are learning is being applied to the real world.*

There were mixed feelings on the collaboration between students in two courses:

*I liked the combination of two classes to work on the project.*

*[What could be improved?] Having the project based solely off of one class.*

A source of frustration for some students in Quantitative Methods at the time was that students in the upper-level course did not recall the Quantitative Methods material. This made it hard for groups to figure out the best way to work together:

*...it was difficult for some of my group members to remember things from other classes they had taken in previous semesters.*

*Having some members only be in [Agricultural Prices] or only in Quant did bring some difficulties in how to divide the work and the level of understanding.*

### 3.4 Reach of Publication

Once the article was published on the ACES website, we were able to begin evaluating the outreach to stakeholders. There is a long history concerning the evaluation of Extension programming that can range from documenting efforts, describing the nature of those involved in the program, and determining the response to programming. This can be further distinguished into immediate and long-term impacts, some of which requires additional resources to obtain evidence for a particular program (Bennett 1976). We focused our evaluation on the reach of the publication, because publishing the article on the website was the final objective of the class project. Website content can be evaluated using pageviews, which is a count of the number of times a page was loaded in a browser. Pageviews are readily available information that can provide valuable metrics of impact (Karisich and Parish 2013; Patton and Kaminski 2010). During the first ten months the article was available there have been 639 pageviews, with a monthly peak of 120 pageviews during the eighth month after publication. This gives indication of the continued impact the class project has beyond the end of the class meeting. Evaluation of the reach of the article is an ongoing process as it continues to remain relevant in the future.

## 4 Modifications and Extensions

The project improved student understanding of cross-hedging and regression, while also introducing students to writing Extension publications. Almost all of the students who provided written feedback liked the practical application. Students in the group whose report was chosen to become an Extension

publication worked closely with Extension economists to publish the report. Through this project, students were thus introduced to a small part of the work of Extension and the land-grant mission.

This project can be modified and extended in a number of different ways. Our application (cross-hedging peanuts with standard futures contracts) resulted in findings that some students found confusing - though many agricultural economists would not be surprised. Wheat, corn, and soybean futures contracts provide almost no protection against peanut price risk, and the published report advises farmers against using these contracts to mitigate peanut price risk. Thus, a simple modification of this project would involve using a commodity that has more cross-hedging potential with common futures contracts. Another modification of this project would be to include students from only one course. This is most feasible if that course covers all the topics necessary to complete the project or has the necessary prerequisites (e.g., quantitative analysis).

Outside of modifying the current project on cross-hedging, this teaching-Extension model of collaboration can be extended to many different topics of interest to agricultural producers. Undergraduate programs in agricultural economics and agribusiness cover topics that overlap with Extension programming, such as enterprise budgeting, commodity marketing, agricultural finance, and risk management. Undergraduate projects can be centered around producing Extension materials on these overlapping topics.

## 5 Conclusion

The undergraduate project presented here provides multiple opportunities for engaging undergraduate agricultural economics and agribusiness students in an active learning environment while also providing exposure to Cooperative Extension. Thus, the activity serves multiple pillars of the land-grant mission. We found that this activity improved student understanding of both regression analysis and cross-hedging. Students also generally enjoyed the chance to use the course material to contribute to real-world decision-making. Furthermore, the publishing of an Extension article expands the lifetime of the student project and potential impact on the targeted community.

Collaboration between teaching and Extension faculty can help bring greater exposure to the real-world application of classroom materials. This collaboration can also introduce students to the work of Extension. This paper presents one model of this collaboration in the form of a cross-hedging exercise; there are many other opportunities to apply this type of learning and application. Students also receive benefits beyond the classroom experience with potential outputs that can be listed on their resume and used to help secure future employment.

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**Extension Education**

# Engaged Learning: Linking Course Instruction and Extension Programming

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Keywords: Cooperatives, engaged learning, Extension programming, undergraduate teaching

**Abstract**

Engaged learning projects can effectively complement Extension programming goals and course learning objectives that enrich outcomes for both components. A cooperative business management class at Cornell University provides an evaluation of the fundamental principles, structure, finance, and governance associated with the cooperative business model. In so doing, students analyze contemporary issues facing modern cooperatives. In collaboration with Extension programming, contemporary issues are emphasized through projects with actual cooperative businesses. Students benefit from applying principles learned in class, while cooperatives benefit from fresh, new perspectives they receive from people outside their organization. Both value the highly interactive nature of this engagement and to which work plans and expected deliverables can and often do change throughout the course of the projects. This paper synthesizes the obstacles and benefits associated with engaged learning projects from the learned experiences of the class instructor, professional Extension staff, and cooperative industry clients. Recommended best practices are elucidated to better inform faculty interested in implementing this dynamic approach combining Extension and classroom education.

## 1 Introduction

Faculty at institutions of higher education recognize engaged learning improves student outcomes, and its implementation can distinguish academic programs (Bowen 2005; Middlecamp 2005; Hamerlinck and Plaut 2014; Avila-Linn, Rice, and Akin 2021). This pedagogy may be particularly emphasized at public institutions and land-grant universities, where engagement, service learning, and a public purpose are codified in institutional objectives (Dann and Payne 2002; Jacoby and Musascio 2010; Mehta et al. 2015). Arguably, Extension program delivery is as much out-of-classroom teaching as it is an engaged learning activity. The ability to connect Extension programming and student instruction provides an opportunity for enhancing the mutuality of teaching and Extension.

Despite an emerging emphasis on engaged learning, it is interpreted differently depending on the focus of engagement; that is, engagement with whom or with what and in what context (Bowen 2005). Utilization of business simulation software as a part of or in addition to course instruction is interpreted as engagement with a learning process or object of study. Guest speakers and case studies are another form of engaged learning, where “real-life” examples of firm decision making are illustrated, but generally occur over a relatively short time (e.g., one class period).

Community engaged learning is also a term used to describe this pedagogy, particularly when partners are defined more specifically to groups or organizations associated with various constructs of communities; that is, school boards, city councils, municipal committees or agencies, food pantries, and nonprofit organizations (Muhlestein and McCann 2019). Learning takes place in and with communities, where diverse skill sets from universities (i.e., faculty, staff, and/or students) work collaboratively with community members to address the issues of relevance to them. Regardless of the terminology, engaged learning includes working with and learning from a community partner (generally defined) that connect

and integrate community-engaged experiences with educational content (David M. Einhorn Center for Community Engagement 2021).

We define engaged learning specifically as a tool by which students take concepts learned in the classroom and apply them to “real-world” issues through ongoing and interactive engagement with a firm or community group. In this way, engaged learning projects are different from traditional student projects, more comparable to business consulting than an end-of-semester project or paper. As such, they require special attention, dedication, and mindfulness to be personally and professionally successful.

Below we describe the experiences of an ongoing engaged learning effort that combines an undergraduate course on cooperative business management with Extension programming dedicated to improving the governance and operations of farmer-owned cooperatives. We synthesize the obstacles and benefits associated with administering engaged learning projects from the learned experiences of the faculty instructor, an Extension associate, and a cooperative client. We close with recommended best practices to better inform faculty interested in implementing this dynamic approach combining Extension and classroom education.

## 2 The Class

Cooperative Business Management (AEM 3260/5260) has been taught at Cornell since 2013, with engaged learning projects commencing in 2017. The course provides an evaluation of the fundamental principles, structure, finance, and governance associated with cooperatively structured businesses, with an emphasis on agricultural cooperatives. Analyses of the cooperative business organization within the modern economy are emphasized through a mix of lectures, case study discussions, and engaged learning projects.

Learning outcomes are assessed each year based on class performance and student reflections. Specifically, students will be able to do the following by the end of the semester: (1) identify economic justifications for the cooperative as a business entity; (2) illustrate unique characteristics of the governance, finance, and management of cooperative businesses; and (3) analyze contemporary issues facing modern cooperatives. An extensive reading list is curated from academic, industry, and Extension resources, as well as texts that demonstrate the uniqueness of the business model (i.e., Cobia and Anderson 2000; Zeuli and Cropp 2004; Merrett and Walzer 2004; Boland 2017). While emphasizing agricultural cooperatives, students from across majors enroll, including both undergraduate and graduate students. Engaged learning projects contribute strongly to final course grades, not only as an incentive for students to take the work seriously, but also to the projects’ ability to contribute strongly to student learning and long-term value.

Course faculty and Extension staff work with cooperative industry stakeholders prior to the beginning of the semester to develop general project parameters and proposed deliverables. Students self-select into projects, subject to reallocation by the instructor emphasizing the value of diversity across several characteristics (e.g., class year, background, major, gender, career interests, etc.). Students work directly with their cooperative client to develop a timeline of work, set up meeting schedules, and formulate specific project deliverables.

Students must sign and adhere to a *Student Engagement Agreement* that establishes minimum expectations and emphasizes respectful discourse, active listening, confidentiality, and leadership. In addition to the course instructor, an Extension Associate and two student teaching assistants (TAs) provide significant human capital resources to help the students and clients navigate the journey.<sup>1</sup> Regular meetings with the students’ assigned TA and instructor are required. The cooperative client also receives *Client Guidelines* that clarifies their expected time commitment, roles, and tips to successful

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<sup>1</sup> In Spring 2022, the class had 40 students enrolled: 33 undergraduates and 7 graduate students, and 10 cooperative industry clients.

student collaborations.<sup>2</sup>

Given the nature of these projects, final project grades are not assigned based on the specific deliverables they develop with their client. While the general scope of deliverables is established up front, the specific content and format of deliverables are developed collaboratively between the client and students throughout the semester. The scope and format of deliverables can and often do change through refined focus and/or pivoting of effort based on consensus with their client. Accordingly, grades are largely process-based; that is, how well students work with their client and with other students, and the level of attention, leadership, and contributions they make to defined deadlines. Formally, grading is based on the quality of their final written report and class presentation (rubrics available), peer assessments, and client feedback. The written report and presentation comprehensively describe the client's issues and how the specific deliverables they developed best address them for ongoing use by their client once the semester is over. Individual grades for students within groups are adjusted by peer and client assessments of them.

### 3 The Extension Program

Cornell's Cooperative Enterprise Program (CEP) was founded in 1982 as an Extension program in response to the financial stress of agricultural cooperatives during the 1980s farm crisis. Today, the mission of the CEP is to enhance the performance of existing cooperative businesses and facilitate the development of emerging cooperative enterprise through teaching, research, and Extension programming. Specifically, the objectives of the CEP are to:

1. Develop effective, action-oriented, knowledgeable, and ethical directors, managers, and members of cooperatives who can help their organizations grow,
2. Assure access to program participation by all groups of individuals interested in the cooperative form of business, including those interested in starting new organizations,
3. Offer learning experiences that emphasize current and future needs and solutions to the business issues facing cooperatives, and
4. Provide undergraduate and graduate student educational opportunities on the cooperative business model through interaction with cooperative industry firms.

The third and fourth objectives of the CEP align seamlessly with engaged learning projects involving students and cooperative partners. CEP staff include a full-time Executive Director (Extension Associate), Faculty Director, Administrative Assistant, and undergraduate and graduate student research, Extension, and teaching assistants.

### 4 Learned Experiences

Since 2017, 28 projects have been completed involving 19 different cooperative, cooperative development, and cooperative professional service firms. Cooperatives have included farmer-owned, customer-owned, and worker-owned businesses. Local and national cooperatives have participated, including five listed on the National Cooperative Bank's 100 largest cooperatives in the United States (National Cooperative Bank 2021). Project topics have ranged from cooperative development feasibility analyses, financial analyses of equity management and patronage refund programs, member education, director education, and governance issues of all flavors.<sup>3</sup> We summarize the projects, by year, below and highlight the evolution of curating and facilitating the projects from ongoing learned experiences.

The first year of projects (2017) started relatively small—three projects with one food

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<sup>2</sup> Current versions of the course syllabus, *Student Learning Agreement* and *Client Guidelines* are available from the authors upon request.

<sup>3</sup> Project descriptions and general deliverables for each year are available from the authors upon request.

cooperative business (Table 1). The cooperative assigned separate staff to work with each of the student groups based on their association with the business. Deliverables presented to clients at the end of the semester included focused written reports, member fact sheets, and Excel-based financial modeling tools.

**Table 1. Engaged Learning Projects: Clients, Topics, and Deliverables, 2017**

Client	Co-op Type	Topic(s)	Products Delivered to Clients (Format)
GreenStar Project 1	Consumer	Community solar	<ul style="list-style-type: none"> <li>• Review of alternative community solar models (case study write ups)</li> <li>• Cost estimation and funding options (Excel-based financial model)</li> <li>• Enumerating timeline of important events and potential obstacles (written report)</li> </ul>
GreenStar Project 2	Consumer	Revisions to patronage refund policy	<ul style="list-style-type: none"> <li>• Member information flyer (paper handout)</li> <li>• Financial modeling spreadsheet (Excel-based financial model)</li> <li>• <a href="#">YouTube promotional video</a> on policy changes.</li> </ul>
GreenStar Project 3	Consumer	Cooperative business expansion	<ul style="list-style-type: none"> <li>• Financial projections of alternative scenarios (Excel-based financial model)</li> <li>• Financing options (written report)</li> <li>• Recommended next steps (written report)</li> </ul>

Student learning agreements were not yet established, nor were there written client guidelines. Initial project descriptions were relatively short (4–5 sentences), leaving students much liberty in envisioning project deliverables with their client. Too little direction likely contributed to slow initial progress; however, the largest barrier to project advancement accrued to the high number of students assigned to each project group (8) and difficulty in finding common meeting times. Project mentoring was limited to the instructor (i.e., no Extension Associate nor TAs were yet involved). Particularly advantageous to project progress was the cooperative’s local location and the ability of clients to visit the business and meet in person, as necessary.

Growing course enrollments and a desire to reduce group size resulted in six projects in 2018 (Table 2). Improved outreach by course staff increased the number of cooperatives participating and an Extension Associate and a TA took on mentoring roles and client communications in collaboration with the instructor. With assistance of the University’s Office for Engagement Initiatives, a *Student Learning Agreement* was developed.

Projects involved member participation in leadership roles, communications, and financial management. The format of products presented to clients increased in variety from not only written reports and financial spreadsheet tools but also videos, detailed product guides, and suggested by-laws and member agreement revisions. In-person meetings with clients were preferred, and for clients more distant, course staff worked with clients and students to arrange at least one in-person meeting on campus during the semester.

**Table 2. Engaged Learning Projects: Clients, Topics, and Deliverables, 2018**

Client	Co-op Type	Topic(s)	Products Delivered to Client (Format)
GreenStar	Consumer	Member engagement, leadership	<ul style="list-style-type: none"> <li>• Board and member surveys on leadership (survey and analysis of it)</li> <li>• Infographic on self-awareness and leadership (fact sheets)</li> <li>• Promotional materials on member involvement (flyers)</li> </ul>
Ocean Spray	Farmer	Member education, board trust	<ul style="list-style-type: none"> <li>• Industry analysis (written report)</li> <li>• Member education governance materials (written documents)</li> <li>• <a href="#">Rap video on cooperative governance (You Tube video)</a></li> </ul>
Upstate Niagara	Farmer	Equity management	<ul style="list-style-type: none"> <li>• Comparative peer analysis (financial written report)</li> <li>• Board educational handout (written reports)</li> <li>• Recommendations to board of directors (written report)</li> </ul>
Upstate NY Growers & Packers	Farmer	Member communications	<ul style="list-style-type: none"> <li>• Marketing agreement revisions (revised written agreements)</li> <li>• Online inventory and member communications (web-based communication platform for members)</li> <li>• By-laws revisions (revised written by-laws)</li> </ul>
Eden Valley Growers	Farmer	Pricing, participation requirements	<ul style="list-style-type: none"> <li>• By-laws revisions (revised written by-laws)</li> <li>• Non-member business protocols (written marketing agreements)</li> <li>• Member participation, equity requirements (written report)</li> </ul>
National Grape/Welch's	Farmer	Member participation, leadership	<ul style="list-style-type: none"> <li>• Member informational brochure (flyers)</li> <li>• Educational video and program series outline (detailed written guide)</li> <li>• Member education stipend proposal (written report)</li> </ul>

Interest of cooperatives to take part in engaged learning grew further in 2019 (Table 3). By this time, some cooperatives had participated more than once providing sound empirical evidence of the value to them. Student enrollments also increased in large part to student enjoyment of the projects as a new way to learn. Two TAs and the Extension Associate now provided project support. Member education and governance efforts continued to be important topics, but issues of risk management, supply control, and feasibility of new cooperative efforts were gaining traction. Formats of client products included written reports, survey analysis, interactive PowerPoints, and specific suggestions on by-laws and member revisions. Improving time management skills to the projects was emphasized during the semester, and students were increasingly utilizing distance communication methods. Project numbers were maintaining group sizes to no more than four students and reducing (albeit not eliminating) conflicts for students in assembling group meetings.

**Table 3. Engaged Learning Projects: Clients, Topics, and Deliverables, 2019**

Client	Co-op Type	Topic(s)	Products Delivered to Clients (Format)
Upstate NY Growers & Packers	Farmer	Marketing agreement, risk mgt.	<ul style="list-style-type: none"> <li>• Member supply survey and analysis (written report)</li> <li>• Governance changes, capital plan (written report)</li> <li>• Member marketing requirements (marketing agreements)</li> </ul>
National Grape, Welch's	Farmer	Supply control, heterogeneity	<ul style="list-style-type: none"> <li>• Industry analysis (written report)</li> <li>• Comparative peer assessment (written report)</li> <li>• Addressing member heterogeneity issues (written report, suggested next steps)</li> </ul>
Railroad Ave. Supply Company	Worker (new)	Governance, worker education	<ul style="list-style-type: none"> <li>• Employee handbook (written guide)</li> <li>• Director responsibilities handout (fact sheets)</li> <li>• Governance scenario exercises (scripted scenarios)</li> </ul>
Dairy Farmers of America	Farmer	Board size and composition	<ul style="list-style-type: none"> <li>• Member and management interviews (written report)</li> <li>• Comparative peer assessment (written report)</li> <li>• Proposed board changes (by-laws revisions)</li> </ul>
Ocean Spray Co-op	Farmer	Equity mgt., member education	<ul style="list-style-type: none"> <li>• Comparative peer assessment (written report)</li> <li>• Interactive member equity training guide (interactive PowerPoint)</li> <li>• FAQ guide/glossary for members (member guide)</li> </ul>
Capital District Co-op	Farmer	Cooperative marketing	<ul style="list-style-type: none"> <li>• Institutional customer assessment (written report)</li> <li>• Membership survey and analysis (written report)</li> <li>• Member communication recommendations (written guide)</li> </ul>

Specific issues of member heterogeneity surfaced in the 2020 projects, along with projects focused on new cooperative development; that is, worker and farmer cooperatives (Table 4). Unfortunately, by early March, issues surrounding the COVID-19 pandemic were growing, students were sent home, and classes were paused as instruction shifted to online. Adding in the abrupt change to business operations of our clients necessitated substantial revision and downsizing of deliverables. Surveys planned to be administered were instead delivered to clients, along with instructions to administer them; however, fact sheets and member guides continued to be preferred products by clients. The need to enhance effective communication and project progress through virtual means was apparent.

**Table 4. Engaged Learning Projects: Clients, Topics, and Deliverables, 2020**

Client	Co-op Type	Topic(s)	Products Delivered to Clients (Format)
Eden Valley Growers	Farmer	Member heterogeneity	<ul style="list-style-type: none"> <li>• Member survey (analysis and reporting)</li> <li>• Capital management (financial model)</li> <li>• Proposed governance changes (by-laws revisions)</li> </ul>
Ithaca Farmers Market	Farmer, Vendor	Member engagement, communication	<ul style="list-style-type: none"> <li>• Member interviews—full and associate (written summary report)</li> <li>• Communication platforms (member guide)</li> <li>• Social media, brochure, websites (brochures, web)</li> </ul>
OWN Rochester	Worker (new)	Organization planning	<ul style="list-style-type: none"> <li>• Employee handbook (written report)</li> <li>• Employee Stock Ownership Plan roles/responsibilities of worker-owners (handbook/guide)</li> <li>• Governance exercises (scripted exercises)</li> </ul>
Tongore Brook Farm	Farmer (new)	Feasibility assessment	<ul style="list-style-type: none"> <li>• Cooperative needs assessment and analysis (survey administration and written report)</li> <li>• Paths to consensus (practitioners guide)</li> <li>• Recommended next steps (written report)</li> </ul>
Upstate NY Growers & Packers	Farmer	Marketing agreements, heterogeneity	<ul style="list-style-type: none"> <li>• Industry analysis (written report)</li> <li>• Member survey and analysis (written report)</li> <li>• Draft marketing agreements, by-laws revisions (written)</li> </ul>

Due to the ongoing COVID-19 pandemic and online-only instruction, the 2021 engaged learning projects focused internally on developing online learning modules for the CEP useful for Extension programming delivery (Table 5). While students were disappointed in not being able to work directly with an external client, the focus to direct engagement with an existing Extension program showcases flexibility of the engaged learning model through Extension efforts.

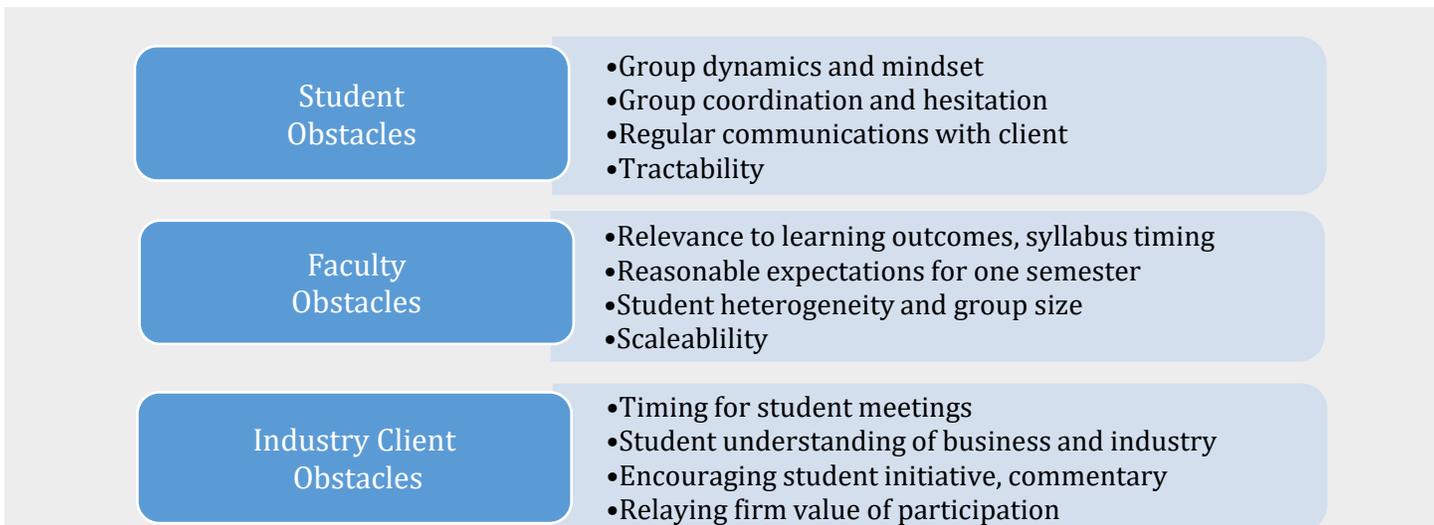
Each student group was tasked to develop a learning module to inform members, directors, and employees of cooperatives. An industry mentor (i.e., a cooperative director, manager, or service provider) was assigned to each group to help guide their project, provide insight, and ground truth their outputs. Since all students were working with one client (i.e., the CEP) on a set of learning modules, coordination both within and across the project teams was important (and challenging). Dedicated class time and office hours were used to share project progress, address common linkages, and provide consistency across groups. The deliverables from these projects are currently in editing for use in an aggregate online delivery platform in 2023. Modules will be used, in whole or in part, in ongoing in-person and online Extension programming.

## 5 Obstacles

Figure 1 enumerates the obstacles to engaged learning, unique to but related among, students, faculty, and industry clients. The primary obstacles are importantly informed by student reflections and client feedback on the projects each year; that is, what worked well, what didn't, and recommendations for improvement.

**Table 5. Engaged Learning Projects: Clients, Topics, and Deliverables, 2021**

Client	Mentor	Topic	Content Areas of Learning Module
Cooperative Enterprise Program	Attorney, Bond, Schoeneck & King	Choosing the right business model	<ul style="list-style-type: none"> <li>• Differences in business models</li> <li>• Traditional and hybrid cooperatives</li> <li>• Steps in forming a new co-op</li> </ul>
Cooperative Enterprise Program	Former Director, Dairy Farmers of America	Responsibilities of members, directors, and managers	<ul style="list-style-type: none"> <li>• Fiduciary responsibilities</li> <li>• Board composition</li> <li>• Director training</li> </ul>
Cooperative Enterprise Program	Former CEO, St. Albans Co-op Creamery	Understanding and using financial statements	<ul style="list-style-type: none"> <li>• Financial statements</li> <li>• Differences by co-op function</li> <li>• Financial ratios</li> </ul>
Cooperative Enterprise Program	Relations Manager, CoBank, ACB	Choosing a member equity management plan	<ul style="list-style-type: none"> <li>• Sources of equity</li> <li>• Alternative equity programs</li> <li>• Choosing the right plan(s)</li> </ul>
Cooperative Enterprise Program	Certified Public Accountant, Dopkins & Co.	Managing profits (and losses) in your cooperative	<ul style="list-style-type: none"> <li>• Managing and distributing returns</li> <li>• Member, nonmember business</li> <li>• Income taxation</li> </ul>
Cooperative Enterprise Program	Former Chair, Farm Credit East, ACA	Board evaluation	<ul style="list-style-type: none"> <li>• Board alignment</li> <li>• Choosing the right Board Chair</li> <li>• Board and director evaluation tool</li> </ul>
Cooperative Enterprise Program	Director, Farm Credit East, ACA	Hiring and evaluating the CEO	<ul style="list-style-type: none"> <li>• Developing a position description</li> <li>• Evaluating performance</li> <li>• Succession planning</li> </ul>
Cooperative Enterprise Program	Principal, Stamm Advisory Group	Positioning the cooperative for future success	<ul style="list-style-type: none"> <li>• Cooperative life cycle</li> <li>• Strategic planning</li> <li>• Cooperative restructuring</li> </ul>



**Figure 1. Obstacles to Engage Learning Through Extension: Student, Faculty, and Industry Perspectives**

## 5.1 Student Obstacles

Engaged learning requires considerable interaction among fellow students and their client that emphasize active listening, respectful discourse, and student leadership. Accordingly, poor group dynamics and traditional project mindset stymie development and hinder interaction. Students are generally resistant to work through troublesome dynamics up front, preferring rather to change groups. Students often find difficulty in finding common meeting times and a resistance to adapt their current personal schedule to accommodate group work. For students, the projects represent a very different kind of group project. A student mentality of pushing things off until the last minute and then cramming to finish the project regularly surface.

Students are often nervous or hesitant to initially approach their client, commonly senior management personnel or cooperative board members. They are concerned that they don't know enough about cooperative businesses to have a conversation and don't want to look "stupid." Historically, few clients have been local enough whereby in-person interaction serves as the primary communication mode. Even with local clients, clients and students are busy such that finding frequent in-person meetings throughout a semester is, at best, difficult and, perhaps, unnecessary. Defining up front a timeline and plan of work (subject to amendment with consensus) is often unfamiliar to students, preventing proper tracking of project progress over the semester.

## 5.2 Faculty Obstacles

Projects are curated considering application of course concepts and needs of the cooperative client. While cooperative businesses have existing and emerging issues irrespective of their business type (e.g., market influences, regulatory compliance, new product development), projects developed must be "co-op" so as to reinforce course objectives and contribute to learning outcomes. Designing projects that provide value to the client irrespective of the course are relatively easy, ensuring that the projects simultaneously reinforce learning outcomes requires additional attention.

The projects developed must also have reasonable expectations given the one-semester format. It does no good to anyone to develop a project that will realistically take a year to complete for a one-semester course. Relatedly, faculty must consider the timeline of course projects with the timeline of course concepts as defined in the syllabus. Students are often apprehensive to begin work on a project if the underlying concepts have yet to be covered in the classroom.

Heterogeneity among students assigned to groups is advantageous to bring forward multiple perspectives and accentuate the value of diversity but may also cause unnecessary disruptions and stall project progress. Differences in groups by class year, student major, and past experiences may contribute to problems with understanding of course concepts, group dynamics, and voluntary contributions of group members.

Scaling project-based courses is difficult. Assigning the same project to multiple groups increases the demand on clients that may be difficult, if not impossible, to replicate or differentiate. Increased enrollments, with a commitment to limiting the number of students per group, necessarily implies developing more projects with more clients, thereby constraining the bandwidth of faculty.

## 5.3 Industry Client Obstacles

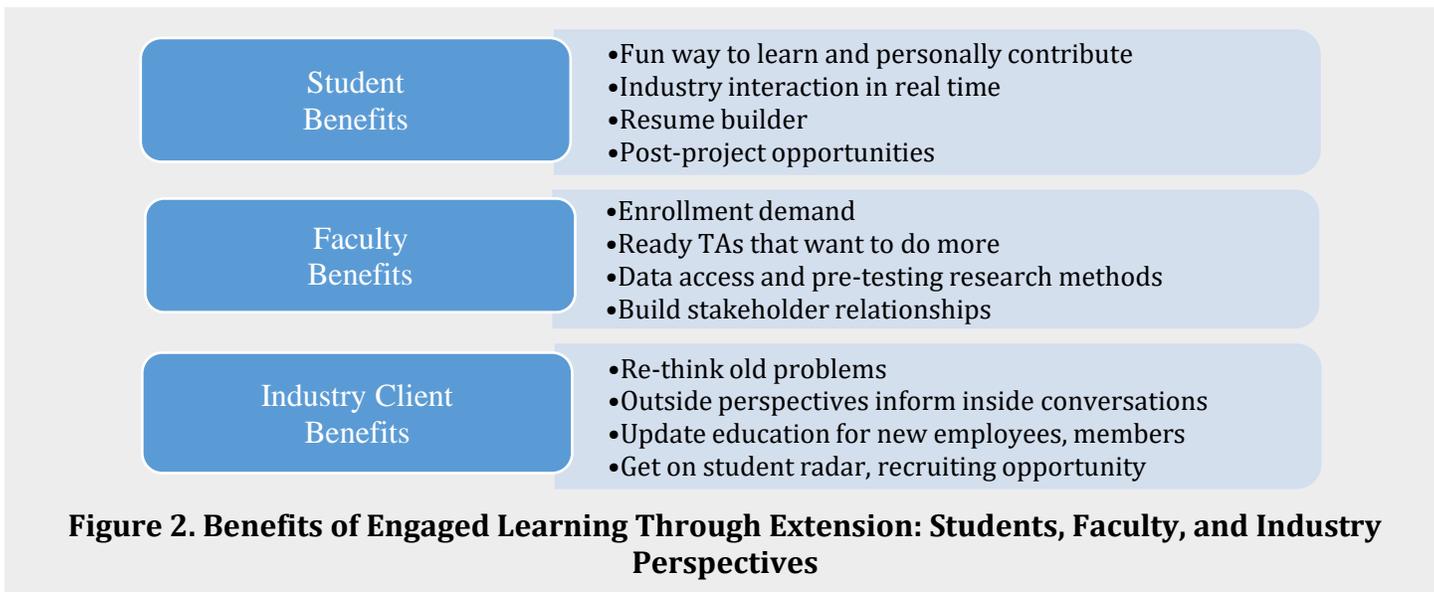
Finding time for clients beyond their already full workday to participate in engaged learning can be challenging. Some clients have more time than others, and some projects require more time than others. Failure of clients to constructively respond to student inquiries and in a timely fashion necessarily delays project progress and diminishes the value of engagement. Often the only time students can get together for a group call or video session with their client is at night or on the weekends. Those are prime times for students to work and collaborate but not for the client.

Clients have expressed frustration with the lack of beginning knowledge students have of their

business and/or the industry it operates in. In so doing, clients focus considerable time at the beginning of the projects getting students “up to speed” on who they are. Relatedly, students’ hesitation in communicating with them early on leaves the client uncertain if they should provide more or less details in establishing the baseline of information before moving on to the objectives and proposed deliverables of the project. Finally, clients may perceive their participation as merely support to student learning but not to creating outcomes of value to their business. Indeed, relaying the value to the business of their time committed to these projects is essential in promoting continued interaction and involvement.

## 6 Benefits

Figure 2 highlights the benefits of engaged learning, unique to but related among students, faculty, and industry clients. As with the obstacles identified above, they are importantly informed by student reflections and client feedback received each year.



### 6.1 Student Benefits

Students regularly find engaged learning projects to be the best part of the class; they appreciate mutual learning through peer interaction. In short, they find this is a fun way to learn. They also appreciate the ability to provide their own personal contributions to a group effort. Students are open to explore their own ideas, as encouraged by their peers and client, in addressing project objectives. Delineating responsibilities and contributing to the group’s collective efforts is rewarding to students. Affirmation by their client to their individual and collective efforts is doubly rewarding.

Without question, students appreciate applying concepts in real time with real-world implications. They particularly appreciate that the deliverables they bring to their clients will inform decision making and/or be implemented in the firm’s operations going forward. Interactions with industry leaders through an engaging experience contributes to long-lasting learning and application.

It is not uncommon for students to include project work on their resumes to emphasize specific firm/industry interactions and products they developed for their clients. On occasion, post-project opportunities have emerged through continued work after the class has finished. The experience also gives students a unique advantage when applying for future internship and employment opportunities.

## 6.2 Faculty Benefits

Engaged learning opportunities are appreciated and increasingly sought out by students. In so doing, conversations among students of engaged learning experiences promote continued enrollment. Positive experiences by nongraduating students also present informed, experienced TAs for the following year. Requests for TA openings are quickly satisfied by prior students interested in participating in more engaged learning experiences, albeit in a different role.

Engaged learning projects are designed around contemporary issues and needs faced by cooperative businesses (i.e., see topics and products delivered in Tables 1–3). As such, they allow for pre-testing of industry/firm surveys and applied research methods. They also provide access to firm data not available from other sources. Confidentiality and nondisclosure agreements are utilized, where necessary, but for most projects, confidentiality disclosures through the *Student Learning Agreement* are sufficient.

Finally, and most importantly, integrating engaged learning projects with extension stakeholders supports and builds relationships. Extension faculty find out, firsthand, the most pressing needs and issues of their priority stakeholders. The projects are also a unique way to bring new stakeholders into Extension programming that complement existing programming goals and industry outreach. Class projects can advance larger applied research initiatives that are known relevant to Extension audiences based on prior engaged learning experiences. Accordingly, engaged learning projects in the classroom both inform and are informed by Extension priorities and ongoing programming activities.

## 6.3 Industry Client Benefits

Some issues faced by cooperatives are longstanding and/or evolving over time. As such, clients have expressed the benefits of these projects as a way to re-think old problems; e.g., enduring issues of member heterogeneity, capital constraints. They appreciate new perspectives from personnel not currently affiliated with their organization and/or without experience and background in the industry their firm operates in. In this way, outside perspectives inform inside conversations.

Another benefit cooperatives have expressed is the ability to interact with students as proxies for new members or employees of the cooperative or the next generation of members who are just learning how the cooperative works. This allows the cooperative to test drive, refine, and improve communication methods and messages to an audience that more closely represents the knowledge base of their own emerging members. As an example, one client enjoyed learning how students on their team would react when presented with a proposed cooperative policy and compared them to that of their own members.

Finally, clients see the interaction with students as an easy way to get their business on students' radars when thinking about internship and employment opportunities. Many students in the Applied Economics and Management major at Cornell are interested in finance, accounting, and marketing but don't necessarily see cooperatives, particularly farmer cooperatives, as potential job outlets to apply these skills and advance their careers. An opportunity to both consult with students on a project of value to their firm while also expanding their recruiting net is doubly rewarding.

## 7 Recommended Best Practices

We demonstrate how combining engaged learning of students with priority Extension stakeholders advances the learning for each internally and provides additional external benefits. We close with some recommended best practices to better inform faculty interested in implementing this dynamic approach combining Extension responsibilities and classroom education.

### 7.1 Emphasize Commitment Early and Often

Throughout the projects, reinforce to students that everyone has something to contribute, regardless of their beginning knowledge of the industries represented and businesses participating. Emphasize that no

one expects them to know the answers on day one, nor is there necessarily just one right answer. New ideas, programs, or policies may surface that the client may never have thought of. From the client's perspective, treating students as new members of the cooperative and asking them to come to the group with that mindset promotes buy in from students.

The impulse to accommodate requests by students to change groups early on needs dissuasion and to a focus on what's wrong with existing group dynamics and how they can be addressed. Emphasizing to students that group projects and interactions are common in the workplace is useful to encourage them to find resolution as a career enhancing skill. Students should be reminded that one part of engaged learning is learning from each other, which includes their clients and their peer students.

Engaged learning projects require consistent and dedicated effort, so tractability and assessment of progress is essential. Recommend to students and clients to build in specific deadlines over the course of the semester to keep a consistent effort level and with implications if they are missed. Students that set up a work plan early on with their client that includes specific deadlines and presentation of initial and revised deliverables are more likely to be successful. Identifying next steps and assigned leadership of them at the end of each meeting guides progress between meetings.

Students must utilize multiple forms of communications (e.g., in person, phone, Zoom, email) regardless of client location to productively advance through their project. However, even one in-person meeting with the client (or a client representative) can be incredibly valuable to cement student understanding and engagement. Encourage a minimum of two in-person meetings (early and late in the semester) when possible. Faculty must be flexible to accommodate these interactions. Regular meetings with the client should be scheduled early and adhered to, with additional communication through written updates.

Extension clients must also understand and accept a minimum level of time commitment, responsiveness, and involvement in working with their student groups, including some meeting times outside of normal working hours. When faculty teaching responsibilities are co-mingled with Extension programming, this necessarily imparts extra attention by faculty and Extension staff in clearly communicating expectations up front.

## 7.2 Project-Course Alignment

Start early in promoting course projects with Extension audiences. Provide examples of prior projects; oftentimes the same types of projects are relevant across prospective clients. Limit cooperative businesses to one project if there is only one client representative. Multiple projects with a cooperative business work well and can be efficient for project administration, but only if different client representatives are assigned to each. Discuss the possibility of sequential projects with clients where the outputs of one project can be used as inputs to the next one the following year.

Reinforce to students that work on a project can begin even if the underlying concepts of the project have not yet been formally introduced in the classroom. All projects require understanding the cooperative business, its operations, its objectives, and the industry it operates in. Students are welcome to read ahead, get additional help from the instructor and TAs, and focus on other elements of the project until subjects are covered in class.

While one semester is a relatively short time to begin and complete an engaged learning project, resist the urge to assign students to projects right away. Allow for the natural ebb and flow of student enrollments to pass before student-client interactions begin. Abrupt changes to students in groups delays group cohesion and engagement with clients.

## 7.3 Recognize Human Resource Constraints

Engaged learning projects are incredibly rewarding when done correctly, but also require a large time commitment in and out of the classroom. If included as part of a class, progress reports facilitate feedback

for students and promote consistent progress. Additional support for instructors of engaged learning classes is essential. Extension professionals already familiar with prospective clients provide efficient facilitation of project development and candid, useful conversations with clients throughout the semester. TAs who have experienced engaged learning are seen as a valuable first resource to current students working through their own projects and provide important intel for faculty.

Alternatively, consider a standalone engaged learning, projects-based course. An initial, more traditional course (without projects) can be administered followed by a projects-only course where the base course is a prerequisite. This may be a useful strategy for faster, comprehensive project progress if a large proportion of students are unfamiliar with the core objectives and concepts of the baseline course. A two-class sequence does not reduce the overall effort of faculty, but it does spread out the daily workload. University administrators must also recognize the unique and beneficial learning opportunities of engaged project-based learning, particularly when combined with Extension responsibilities, and provide appropriate incentives for delivery and expansion, where feasible.

#### **7.4 Reinforce Tipping Points**

To enhance the value that faculty, students, and clients get out of these projects is to acknowledge and plan for “tipping points” as the semester goes on. Early on, much of the communication with the client is one sided—from the client to the student. This is necessary to understand the operations and goals of the business and why the issues students will be working on are important to them. This should take around two to three weeks of dedicated effort. In addition, background information can be provided as a pre-read to initiating the project or to joining a particular team.

From there, students provide their initial, informed feedback to the client regarding data needs, methodologies to employ, and forms of project deliverables. This is the first tipping point and, necessarily, one-sided—from the students to the client. Enough effort early in the project should get students past this tipping point within another two to three weeks. This is not the final form of their deliverables, but rather a process they propose to the client to get them there.

After suitable time for the client to consider their initial efforts and react to their proposed activities moves the project past the second tipping point to two-sided communications. At this stage, the back-and-forth exchange of ideas, pivoting of effort, and revision of deliverables through consensus propels the project to its final outcomes. Time management is crucial to allow enough time for exchange, review, feedback, and edits by the end of the semester.

#### **7.5 Utilize Input and Resources for Continuous Improvement**

Critical reflection by students on what worked well, what didn't, and how they would improve the projects serve as vital information for faculty in improving learning outcomes associated with the projects and promoting meaningful interactions and value to project clients. Accordingly, require student reflections as a necessary part of the engaged learning experience. As some students may be hesitant to provide critical advice to their instructor, reflections should be delivered anonymously to the instructor. Sharing student reflections with clients also helps promote long-term client participation.

There is a delicate balance between telling students what they need to do and allowing students the freedom to develop their own deliverables consistent with project ambitions. Some prefer the directed nature of the former, but the latter promotes ownership of deliverables and student buy-in to the process of engaged learning. Provide enough direction early on to get them moving, and then stand back and let them curate deliverables through engagement with each other and their client. Provide comprehensive and timely feedback and mentoring. The limit to the form of their products rests with the extent of their own imaginations and ideas, while grounded in course concepts and client engagement.

Finally, take advantage of existing resources. There is a growing literature on engaged learning far beyond the recommended best practices developed through our learned experiences (e.g., Jacoby and

Musascio 2010; Hamerlinck and Plaut 2014; Mehta et al. 2015; Avila-Linn, Rice, and Akin 2021). Many universities are expanding institutional efforts and encouraging engaged learning opportunities for students, faculty, and staff, regardless of formal faculty appointments. For land-grant universities, utilizing campus and off-campus cooperative Extension staff and resources can effectively contribute to student and client value. Reflections from clients on the value they received from the projects and how they can be improved for them is as vital as that from students. Doing so will effectively contribute to Extension programming goals and promote long-term participation of Extension stakeholders in and out of the classroom.

When done right, engaged learning is win-win-win: clients find resolution on contemporary issues that matter to them, faculty infuse their teaching, Extension, and research with diverse perspectives and ways of knowing, and students learn in new and exciting ways that build a greater sense of belonging (David M. Einhorn Center for Community Engagement 2021). In this way, engaged learning projects can effectively complement Extension programming goals and academic course learning outcomes.

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