

## Extension Education

# Extension Program Development for Early Career Faculty

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### Abstract

Early career Extension economists seeking advice on Extension and research program development and mentorship have fewer places to turn due to the declining number of Extension economists in the profession. As such, we conduct a survey of Extension economists that ask about research and Extension integration, funding models, challenges to the profession, mentorship of graduate students, and philosophies of developing Extension programs. We find that networking with stakeholders to design research and Extension programs is viewed as a key element to a successful career. We also find that there is an insufficient level of formal mentorship and training occurring for preparing graduate students for Extension work. In the authors' opinion, results of the study suggest that formal mentoring programs that teach networking and communication skills to graduate students would greatly benefit them in their professional pursuits in Extension.

## 1 Introduction

Early in one's career it is wise to seek advice and mentoring from those who have been in the profession for a few years. Getting advice and mentorship can help early career professionals avoid mistakes, get their career on track faster, and more effectively navigate promotion and tenure. However, during the period 1980 to 2010, Extension full-time equivalents (FTE) declined by 22 percent due to declines in state and federal support (Lawrence, Hadley, and Henderson 2019; Wang 2014). This leaves many new Extension economists with fewer mentors in their own department to look to for assistance.

Unfortunately, most new Extension economists also have little formal training in Extension skills. A career in Extension is unique to the academic world because not only are technical skills needed to conduct applied research, but good communication skills are essential for connecting with stakeholders. In particular, many Extension economist positions require firsthand experience in agricultural production and agribusiness (Taylor and Zhang 2019). However, there are limited formal Extension training programs for graduate students or Extension assistantships that allow students to learn about Extension while training for their masters or doctorate. Many students are not even aware of Extension as a professional field until they enter the job market.

Given these conditions, many new Extension economists are looking for advice on how to start successful programs. As such, a survey of Extension economists offers the opportunity to hear different perspectives from professionals at various career stages regarding their ideas and advice for starting an Extension program today. This information has the potential to help new Extension professionals build their programs and position themselves for a successful promotion and tenure process.

The purpose of this paper is to highlight the advice and insights offered by Extension faculty working primarily with U.S. audiences to Extension economists entering the profession. Specifically, we focus on funding models, working with graduate students, and challenges faced by Extension professionals today. We also ask about their Extension philosophy and strategies for integrating research, teaching, and Extension. Finally, we summarize the advice offered to new Extension economists as they develop their programs for today's audiences and topics of interest.

## 2 Methodology and Data

We used an online survey to query agricultural and applied economics Extension professionals' views regarding their Extension program and philosophy, as well as advice for those considering a career in Extension. The authors wrote the survey instrument and revised it based on feedback from a panel of four Extension professionals at varying career stages. The study is exempt (2ii) under Michigan State University IRB STUDY00004892. The complete survey instrument is provided in the Supplementary Appendix.

We administered the survey online in August and September 2020 using the Qualtrics® platform. We sent an email with a URL to access the survey to members on the Agricultural and Applied Economics Association (AAEA) Extension section listserv. Furthermore, participants were encouraged to send the survey to colleagues with Extension appointments that were not on the listserv; therefore, we do not know the exact response rate. We received 37 usable responses, plus the responses from the four panelists, for a total sample of 41 Extension professionals.

The survey consisted of a mix of question types including multiple choice, multiple selection, Likert scale, sorting, and open-ended response questions. The multiple choice, multiple selection, Likert scale, and sorting questions are analyzed using basic frequencies and summary statistics in Excel.

We follow the iterative process suggested by Taylor-Powell and Renner (2003) to analyze the open-ended responses. First, we collectively decided on a list of potential themes for each open-ended question for the first round of coding. Next, we each individually categorized comments into one or more themes, depending on the length and content of the comment. Then we compared the thematic coding from all the authors, discussing discrepancies and assigning responses to their corresponding theme(s) based on group consensus. During the discussion, new themes emerged that better summarized the respondents' comments. Next, we checked the open-ended responses again for these new themes. After these steps, we created a master dataset that classified all the open-ended responses into the final themes for each open-ended question. Finally, we used frequencies of themes and example responses to analyze the open-ended questions.

## 3 Results and Discussion

### 3.1 Sample Description

The demographic information of the sample is in Table 1. Demographics data of the AAEA Extension section listserv, about 214 members in 2020 (Thilmany 2020), are unknown. However, Hilsenroth et al. (2021) reports demographic information from a department head survey of AAEA's agricultural and applied economics departments list (United States and Canada), that we use as a proxy of population statistics. All respondents in our sample hold at least a master's degree with the majority (87 percent) holding a doctorate. Nearly two-thirds of the sample identify as male, one third as female, and one respondent preferred to not specify. This is similar to Hilsenroth et al. (2021) where department heads reported 69 percent of their faculty (tenure and nontenure) were male. They also found that for those with majority Extension roles, there were increasingly fewer females in higher ranked positions than lower ranked positions. Our sample was majority white (87 percent), with 8 percent reporting as Asian, and two respondents preferred to self-described (described as other) or did not specify. We did not have any respondent identify as Black/African American, American Indian/Alaska Native, and Native Hawaiian/Pacific Islander. This is similar to Hilsenroth et al. (2021) that reported about 7 percent of faculty in responding agricultural and applied economics departments were from underrepresented minorities (Black, Hispanic, Asian, Two or more races, and Other). They also found that those in full or associate professor ranks with a majority of Extension appointments were mostly white. Only one respondent is of Hispanic, Latino, or Spanish origin. The majority of respondents were born in the United States with 10 percent being born outside the United States and 5 percent not specifying where they

**Table 1. Respondent Demographic Information**

Demographic Information	Frequency	Percent
<b>Highest level of education (n = 39)</b>		
Master's degree (MS or MA)	5	13%
Doctorate degree	34	87%
<b>Gender identity (n = 39)</b>		
Male	25	64%
Female	13	33%
Prefer not to specify	1	3%
Prefer to self-describe	0	0%
<b>Race (n = 39)</b>		
White	34	87%
Black or African American	0	0%
American Indian or Alaska Native	0	0%
Asian	3	8%
Native Hawaiian or Pacific Islander	0	0%
Prefer to self-describe	1	3%
Prefer to not specify	1	3%
<b>Ethnicity (n = 36)</b>		
Hispanic or Latino or Spanish Origin	1	3%
Not Hispanic or Latino or Spanish Origin	33	92%
Prefer to not specify	2	6%
<b>Where were you born? (n = 39)</b>		
Born in the United States	33	85%
Born outside the United States	4	10%
Prefer to not specify	2	5%

were born. Home countries from those born outside the United States include Argentina, Australia, China, and Taiwan.

Although our sample was somewhat consistent in terms of gender with agricultural and applied economics departments reported in Hilsenroth et al. (2021), the sample is notably less diverse than the U.S. population, which is 13 percent Black/African American, 6 percent Asian, and 4 percent other races. Furthermore, 18.5 percent of the U.S. population identifies as Hispanic or Latino (U.S. Census 2021). The low diversity in our sample could point to issues of recruiting Extension professionals from underrepresented populations, and echoes calls for our profession to be inclusive and prosocial (Thilmany 2020). Brunsma, Embrick, and Shin (2017) state that “Underrepresented minorities in academia do not receive good mentorship in comparison to their white counterparts” (Segura et al. 2011; Noy and Ray 2012; Spalter-Roth et al. 2013), and a majority of mentors are more likely to hold “colorblind” views of their students and dismiss the idea that social identities shape their students’ academic experiences.

Respondents come from all career stages across academia and the private industry, with 17 years of experience on average, ranging from one to 40 years (Table 2). Over 55 percent are in tenure-track positions with 20 percent being assistant, 15 percent associate, and 22 percent full professors. More than 20 percent are in non-tenure associate (7 percent) or full (15 percent) professor positions. Five percent of the sample are Extension educators. One respondent was in a private industry role, the 15 percent that

**Table 2. Survey Respondents' Appointment Description (n = 41)**

Which of the following best describes your role?	Frequency	Percent
Private industry	1	2%
Assistant Professor, tenure track	8	20%
Assistant Professor, non-tenure	0	0%
Associate Professor, tenure track	6	15%
Associate Professor, non-tenure	3	7%
Full Professor, tenure track	9	22%
Full Professor, non-tenure	6	15%
Extension educator/agent	2	5%
Other (please describe)	6	15%
<b>Appointment split</b>	<b>Average</b>	<b>Range</b>
Research	14	[0,60]
Extension	68	[0,100]
Teaching	11	[0,70]
Administration	6	[0,100]
Other	2	[0,40]
<b>Years involved with Extension in career</b>	17	[1,40]

indicated other roles, including Extension specialist ( $n = 2$ ), nonprofit center, Extension administrator, research scientist, and retired. Appointment splits vary across research, teaching, Extension, and administration, with Extension being the highest percent on average, 68 percent, ranging from 0 to 100 percent. Responsibilities reported under "Other" included lobbying and service. Respondents ( $n = 38$ ) indicated where they worked; 39 percent were from the South region of the United States, 37 percent Midwest, 19 percent West, 3 percent Pacific, and 3 percent from a U.S. territory.

### 3.2 Program Description

Respondents describe their focus area in an open-ended question that we coded into themes (Table 3). Note that responses could fit into multiple focus area themes. The top three focus areas are commodity

**Table 3. Focus Area (n = 41)**

Theme (Could Have More Than One)	Frequency	Percent
Commodity specific	11	27%
Marketing	10	24%
Farm management	9	22%
Agriculture policy	8	20%
Risk management	8	20%
Agribusiness	7	17%
Production	5	12%
Rural and regional development	5	12%
Food systems	3	7%
Trade	2	5%
Environmental	1	2%

Note: The authors coded responses into themes; responses could span multiple themes.

specific, marketing, and farm management, with over 20 percent of respondents focusing on each of these areas. Other common focus areas include agricultural policy, risk management, and production. The least common focus areas are trade and environmental.

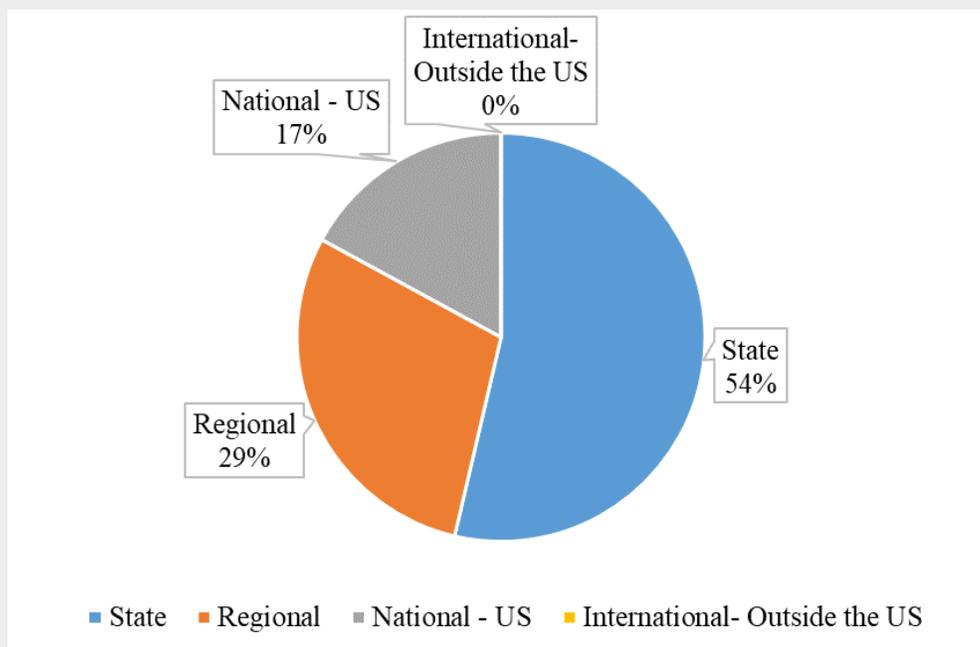
Next, we ask respondents about their primary audience through three questions. First, an open-ended question, “Who do you consider your primary audience?” Note that when coding responses into themes, there could be more than one theme per response (Table 4). Overwhelming, producers are the primary audience. The next three most common audiences are Extension agents/educators, policy makers, and agricultural stakeholders, such as industry leadership. Other audiences (17 percent) include lenders, academics, media, and consumers. These findings align with anecdotal evidence from Plastina, Leibold, and Stockton (2019).

**Table 4. Responses to: “Who Do You Consider Your Primary Audience?” (n = 41)**

Theme	Frequency	Percent
Producers	27	66%
Extension agents/educators	11	27%
Policy makers	10	24%
Agricultural stakeholders	10	24%
Agribusiness	7	17%
Other Extension specialists	4	10%
Community	3	7%
Other	7	17%

Note: The authors coded responses into themes; responses could span multiple themes.

The second question about respondents’ audience relates to the primary geographic scope of their programming (Figure 1). Over 50 percent of respondents consider their state as their primary geographic scope, followed by regional (29 percent) and national (17 percent). Note that no respondents indicate international—outside the United States—as their primary geographic scope. Potentially, this is due to only asking about primary scope or a function of our sampling strategy.



**Figure 1. Primary Geographic Scope (n = 41)**

In the third question related to audience, we ask respondents how often they coordinate with specified groups to develop/deliver Extension programming on a scale of “yes, often,” “yes, occasionally,” or “no” (Table 5). Over three-quarters of respondents report working with Extension educators/agents often, and 22 percent at least occasionally with none reporting they do not work with this group. The next most common collaborator is colleagues in other states, with 70 percent reporting often and 27 percent occasionally. Following closely, 68 percent report working often with state-based producer/commodity organizations and 32 percent occasionally. Nearly all respondents report collaborating with local and state government/policy makers and regional producer/commodity organizations either often or occasionally. Nearly half of respondents occasionally coordinate with national producer/commodity organizations, and national government/policy makers. The least common collaborators are consumer groups and the eXtension platform. Respondents could also list other groups with which they coordinate. These include agribusiness, lenders, Chamber of Commerce, Department of Tourism, economic development councils, nonprofits, international audiences, media, and research colleagues.

**Table 5. Responses to: Do You Coordinate with Any of the Following Groups to Develop/Deliver Your Extension Program?**

Group	Yes, Often	Yes, Occasionally	No
Extension educators/agents ( <i>n</i> = 41)	78% (32)	22% (9)	0% (0)
Colleagues in other states ( <i>n</i> = 37)	70% (26)	27% (10)	3% (1)
State-based producer/commodity organizations ( <i>n</i> = 41)	68% (28)	32% (13)	0% (0)
Local and state government/policy makers ( <i>n</i> = 41)	49% (20)	46% (19)	5% (2)
Regional producers/commodity organizations ( <i>n</i> = 37)	46% (17)	49% (18)	5% (2)
National producer/commodity organizations ( <i>n</i> = 41)	32% (13)	56% (23)	12% (5)
National government/policy makers ( <i>n</i> = 41)	17% (7)	63% (26)	20% (8)
Consumer groups ( <i>n</i> = 40)	13% (5)	45% (18)	43% (17)
eXtension platform ( <i>n</i> = 36)	3% (1)	28% (10)	69% (25)

Overall, Extension professionals in our sample communicate and collaborate with multiple types of audiences and stakeholders. From the authors’ perspectives, this highlights the importance of proactive networking, teamwork, and communication skills. Working with county agents/educators requires different skills than working with state government/policy makers or consumers on social media, for example.

### 3.3 Funding

Given the aforementioned decreases in state and federal lines, we inquired how respondents fund their Extension programs (Table 6). Over 50 percent fund their program using nationally competitive grants (68 percent), state or university grants (58 percent), and state budget line items (53 percent). Over 40 percent fund their program using commodity organizations (47 percent) and registration fees (47 percent). The least common funding sources are national budget line items, fee for service, and foundation donations. Other funding sources (13 percent) include membership dues/assessments, subscription fees, sponsors (like businesses), and regional and county grants. Thus, overall, we find that Extension professionals must seek funding from multiple sources to finance their program. Therefore, communication and grant writing skills are necessary to articulate the importance and impact of your

**Table 6. Responses to: How Do You Fund Your Extension Program? Select All That Apply (n = 38)**

Funding Source	Frequency	Percent
Nationally competitive grants	26	68%
State or university grants	22	58%
State budget line items	20	53%
Commodity organizations	18	47%
Registration fees	18	47%
National budget line items	11	29%
Fee for service	10	26%
Foundation donations	8	21%
Other	5	13%

proposed work to attract funds. Interestingly, with the exception of sponsorships, no respondents mentioned funding from the private sector, private foundations, or nonprofit organizations.

### 3.4 Working with Graduate Students

Anecdotally, in graduate school, students receive more training in research and teaching. However, rarely do they receive Extension training unless they work directly with an Extension professional as an advisor or mentor. Thus, to understand current training of future Extension professionals, we ask respondents a series of questions about working with graduate students (Table 7). Nearly all respondents report currently (64 percent) or previously (26 percent) training graduate students. Of the 25 respondents currently training graduate students, over half have graduate students work with them on Extension projects, and 44 percent sometimes have graduate students working on Extension projects. Most of the graduate students are funded externally (68 percent yes, 24 percent sometimes). On average in the last five years, respondents trained nearly three MS students, one MA/MBA, and one PhD student. Thus, masters level students, whether MS or MA/MBA, seem to be the preferred type of graduate student to work with Extension professionals. We hypothesize this could be the result of more universities having master level programs compared to PhD programs and that there are more master level students overall. Furthermore, working with master's level students may fit better into Extension type projects that generally have tighter timelines—matching the length of master's programs—and require less sophisticated methods to answer research questions. This gap in mentoring PhD students could indicate future or continued shortages of recruiting talented Extension professionals into state specialist-type positions.

We asked respondents an open-ended question, “How do you train graduate students for Extension” (Table 8). We coded responses into themes where one response could have multiple themes. Of the 22 respondents, over half bring graduates students to meetings/events with 45 percent also having graduate students give presentations. Other common training tools include applied research (36 percent) and coauthoring Extension publications or tools (27 percent). Additionally, mentoring or open conversations were also important (27 percent). Some (9 percent) have graduate students work with Extension educators. Other responses include not having a formal plan, having students participate in the AAEA Extension competition, and internships. Overall, no formal programs through the department/unit, such as a course on Extension communication, were mentioned, nor were formal Extension assistantships.

**Table 7. Graduate Student Training (n = 39)**

Question	Frequency	Percent
<b>Are you training graduate students?</b>		
Yes, currently	25	64%
Not currently but have in the past	10	26%
No	2	5%
Not applicable	2	5%
<b>Do your graduate students work with you on Extension projects? (n = 25)</b>		
Yes	14	56%
Sometimes	11	44%
No	0	0%
<b>Are you using external funds to employ graduate students on Extension projects? (n = 25)</b>		
Yes	17	68%
Sometimes	6	24%
No	2	8%
<b>For how many graduate students have you served as their primary adviser in the last 5 years? (n = 25)</b>	<b>Average</b>	
MS	2.68	
MA/MBA	1.08	
PhD	1.08	

**Table 8. Responses to: How Do You Train Graduate Students for Extension? (n = 25)**

Theme	Frequency	Percent
Bring to meetings/events	12	55%
Doing presentations at meetings/events	10	45%
Applied research	8	36%
Co-author on Extension pubs/tools	6	27%
Mentoring/open conversations	6	27%
Working with/meeting Extension educators	2	9%
Other	3	14%

Note: The authors coded responses into themes; responses could span multiple themes.

### 3.5 Extension Philosophy and Strategies for Integrating Research and Extension

To better understand why Extension economists set up their programs the way they do, we asked about their Extension philosophies (Table 9). The top responses were addressing stakeholder needs with applied research (70 percent) followed by being timely with relevant information (53 percent) and integrating research, teaching, and Extension (43 percent). These responses suggest that engagement with stakeholders beyond delivery of educational material is key to most Extension economists' programs. In the authors' opinion, the provision of timely and relevant information indicates that engagement with stakeholders requires Extension economists to continually update educational materials and work simultaneously with those same stakeholders to determine what problems are of the utmost interest to their businesses.

**Table 9. Responses to: What Is Your Extension Philosophy and/or Approach to Outreach? (n = 30)**

Theme	Frequency	Percent	Response Examples
Applied/Addressing Stakeholder Needs	21	70%	<ul style="list-style-type: none"> <li>• To deliver an Extension program that is driven by applied research and input from industry stakeholders.</li> <li>• Engage frequently, directly with stakeholders in order to accurately assess their informational/educational needs and then address those needs with timely, objective, research-based programs delivered through a variety of means.</li> </ul>
Relevant/Timely/Current Issues	16	53%	<ul style="list-style-type: none"> <li>• Timely, visually appealing, and easy-to-understand dissemination of analysis to stakeholders. Listening to the needs and frequently engaging with stakeholders.</li> <li>• To be as timely as possible with the most relevant information.</li> </ul>
Integration of Research, Teaching and Extension	13	43%	<ul style="list-style-type: none"> <li>• I focus my research on applied, policy-relevant questions often derived from my state and national Extension work. In this way, my research and Extension programs are fully integrated.</li> <li>• That engaging communities helps me gain more context to do relevant research and allows me to share it more effectively once we have findings to share.</li> <li>• I have blended my major role as an Extension specialist with on-campus teaching, research, international programs, and consulting drawing from each to support the others.</li> </ul>
Multiple Points of Contact	6	20%	<ul style="list-style-type: none"> <li>• Extensive live presence via numerous presentations in county Extension meetings coupled with intensive, hands-on workshops, and in-depth online resources.</li> <li>• Integrate intensive hands-on workshops and in-depth online resources with extensive, traditional live presentations.</li> </ul>
Education	6	20%	<ul style="list-style-type: none"> <li>• Provide meaningful, relevant education.</li> <li>• Education. We focus on talking about long-term trends, key drivers that would produce different outcomes.</li> </ul>

**Table 9 continued.**

Theme	Frequency	Percent	Response Examples
Collaborative with Other Educators and Specialists	5	17%	<ul style="list-style-type: none"> <li>• As a specialist, my number one client is the county agent.</li> <li>• Proactive and reactive to requests with county Extension agents and clientele.</li> <li>• State specialists as the knowledge center, I work with county Community Economic Development faculty for engagement.</li> </ul>
Output-Oriented	4	13%	<ul style="list-style-type: none"> <li>• Extension faculty should deliver science-based information to their clients (producers, consumers, Extension agents, industry partners, etc.) to help them make informed decisions.</li> <li>• Be output- vs. input-oriented.</li> </ul>

Note: The authors coded responses into themes; responses could span multiple themes.

Efficiency of program development through the integration of Extension, research, and teaching responsibilities is also important for a successful Extension economist (Table 10). Respondents identified feedback loops as the primary way in which they structure their programs, with comments such as “I make sure there is an Extension and research activity associated with every program I deliver.” Feedback loops are the preferred method of program integration (43 percent) followed by working on applied research (37 percent). To accomplish the aim of performing applied research that is relevant to stakeholders, one respondent noted that they “work closely with an advisory board of industry leaders” to determine the topics of highest interest. Multidisciplinary work (10 percent) was also mentioned in the responses as a way to integrate research and Extension.

## 2.6 Challenges Facing Extension

Using challenges mentioned by Langemeier and Shockley (2019); Lawrence, Hadley, and Henderson (2019); Plastina, Leibold, and Stockton (2019); and Taylor and Zhang (2019), we developed a list of nine potential challenges facing Extension. We asked respondents to rank the challenges as either a major challenge, a minor challenge, or not a challenge, and to include other challenges not listed (Table 11). Furthermore, in Appendix A, Table A.1, we report correlations between views on major challenges, gender, and years of experience (less than 10 years vs. 10 plus years). Nearly all, 95 percent, view budget as a major challenge. Training of Extension economists and people interested in Extension careers are ranked as major or minor challenges by nearly all participants, motivating the need for this study and continued discussion of how to develop upcoming Extension professionals. Women and those with less than 10 years of experience more frequently reported training of Extension economists as a major challenge. The view of those with less than 10 years of experience may indicate that more recent graduates are aware of the skills they develop in graduate school and that those skills may not match well with the requirements of Extension positions. Additionally, those with less than 10 years of experience were more likely to report interest in Extension careers as a major challenge.

**Table 10. Responses to: What Are Your Strategies for Integrating Your Research and Extension Program? (n = 30)**

Theme	Frequency	Percent	Response Examples
Feedback loops between research and Extension	13	43%	<ul style="list-style-type: none"> <li>• I use my Extension education programs to understand the priority issues facing my clientele. I use this information to identify potential research questions.</li> <li>• I make sure there is an Extension and research activity associated with every program I deliver.</li> </ul>
Applied research	11	37%	<ul style="list-style-type: none"> <li>• Engage with stakeholders to identify needs that call for research-based solutions. Engage with colleagues to identify research topics, methods, and current results that are applicable to the needs of Extension stakeholders.</li> <li>• Extension is defined as applied research. When I encounter a good question in Extension, I attempt to find the resources to research the question. Usually, simple economic analysis is sufficient to answer most Extension questions, and the audience appreciates not being snowed under with technical jargon.</li> </ul>
Stakeholder needs	8	27%	<ul style="list-style-type: none"> <li>• Conduct research that is relevant to industry stakeholders. To do so, I spend a great deal of time asking questions about what is “top of mind” for industry. I also work closely with an advisory board of industry leaders.</li> <li>• My research is based on the needs surfaced by stakeholders.</li> </ul>
Extension first	6	20%	<ul style="list-style-type: none"> <li>• Focus on Extension first and do research to support.</li> <li>• Be aware of their needs and then do research or find the already done research to address their issues.</li> </ul>
Relationships	6	20%	<ul style="list-style-type: none"> <li>• I also have lots of interdisciplinary interactions as well as frequent contact with industry, to identify research problems.</li> <li>• Building relationships and communicating.</li> </ul>
Partner organization	5	17%	<ul style="list-style-type: none"> <li>• Utilize information from Extension Program Advisory Committees and frequently asked questions from Extension educators, area specialists, and public to build projects and programs.</li> <li>• Use of materials and other resources from partner organizations.</li> </ul>

**Table 10 continued.**

Theme	Frequency	Percent	Response Examples
Multidisciplinary	3	10%	<ul style="list-style-type: none"> <li>I take a multidisciplinary research approach to covering a variety of important issues for agricultural producers.</li> </ul>
Graduate students	1	3%	<ul style="list-style-type: none"> <li>Putting grad students on Extension-research projects.</li> </ul>

Note: The authors coded responses into themes; responses could span multiple themes.

**Table 11. Responses to: What Do You View as the Major Challenges Facing Extension? Please Rate the Following Items as a Major Challenge, Minor Challenge, or Not a Challenge**

Item	Major Challenge	Minor Challenge	Not A Challenge
Budget ( <i>n</i> = 38)	95% (36)	0% (0)	5% (2)
Training of Extension economists ( <i>n</i> = 37)	46% (17)	46% (17)	8% (3)
People interested in Extension careers ( <i>n</i> = 37)	43% (16)	51% (19)	5% (2)
University administration support ( <i>n</i> = 36)	42% (15)	39% (14)	19% (7)
Demands for tenure ( <i>n</i> = 36)	39% (14)	42% (15)	19% (7)
Delivery methods ( <i>n</i> = 37)	30% (11)	43% (16)	27% (10)
Changing audience demographics ( <i>n</i> = 36)	25% (9)	53% (19)	22% (8)
Industry consolidation ( <i>n</i> = 36)	19% (7)	47% (17)	33% (12)
Consumer interest in ag ( <i>n</i> = 35)	6% (2)	40% (14)	54% (19)

Nearly 80 percent ranked university administration support and demands for tenure as major or minor challenges. Delivery methods, changing audience demographics, and industry consolidation are largely viewed as minor challenges. Females and those with less than 10 years of experience were more likely to report delivery methods as major challenges. Females also more frequently viewed changing audience demographics as a major challenge. This viewpoint may reflect recent changes in the type of delivery methods employed by Extension economists in the wake of the pandemic and the challenges this presents to engaging audiences as well as competing with other types of information platforms.

Views are mixed on consumer interest in agriculture with over 50 percent not viewing it as a challenge. Other challenges listed by participants include competition from other information sources, changing technology, changing county educator/agent roles, and overemphasizing the importance of on-campus tenure track roles compared to other valuable position types.

### 3.7 Advice for Early Career Extension Professionals

The final survey question focused on what three pieces of advice the respondents would offer to early career Extension economists (Table 12). This question was open-ended and gave respondents the opportunity to discuss strategies not covered by previous survey questions. The most common advice theme in the responses is networking and relationships (40 percent). Examples of this theme include “look for professional partners (Extension and research) and industry partners” to work with on development of their program, and “invest in county, regional, and statewide agents” as a component of relationship building. This theme ties back to the answers on the Extension philosophy question, which identify understanding stakeholder needs as important for developing a program. It also demonstrates the need for solid communication and networking skills by Extension economists to build their programs around input from stakeholders.

**Table 12. Responses to: What Are Three Pieces of Advice You Would Offer to an Early Career Professional Getting Started in or Considering Working in Extension? (n = 84)**

Theme	Frequency	Percent	Response Examples
Relationships/connections/network	34	40%	<ul style="list-style-type: none"> <li>• Look for professional partners (Extension and research) and industry partners.</li> <li>• Engage. The most successful programs are ones that come from the ground up. You have to know what people are thinking about, where their concerns lie, and how you can help address needs. You can start with just calling people.</li> <li>• Invest in your county, regional, and statewide agents. These are folks you need on your team.</li> </ul>
Applied research and Extension integration	16	19%	<ul style="list-style-type: none"> <li>• Do not see research and Extension as competing; they are complementary.</li> <li>• The integration of research and Extension programs is very important for navigating the tenure process. The Extension also needs solid scientific research to support what we deliver to target audiences.</li> <li>• Don't ever stop doing research. Applied research is the foundation of a strong Extension program, not to mention the key to your own professional marketability.</li> </ul>
Be relevant for your stakeholders	14	17%	<ul style="list-style-type: none"> <li>• Produce relevant, research-based information that is directly applicable to producer decision making or agricultural producers, policy makers, professionals, etc.</li> <li>• Assume that the stakeholders you work with already know more than you do. They will definitely understand their decision environment better than you do. Focus on figuring out what their challenges are. In doing this, you identify ways to be helpful, and you will get a lot of great research and program ideas from listening to them.</li> </ul>
Listen	10	12%	<ul style="list-style-type: none"> <li>• Spend the beginning of your appointment on a listening session with key stakeholders around the state and nationally so that you can get a better sense of on-the-ground needs (make sure to negotiate for travel funds in your start-up budget to do this).</li> <li>• Meet with and listen to your clientele (talk less, listen more).</li> </ul>

**Table 12 continued.**

Theme	Frequency	Percent	Response Examples
Communication	8	10%	<ul style="list-style-type: none"> <li>• Acquire the hard skills and equip with knowledge for your subject area is important, and people soft skills in Extension are also important.</li> <li>• Treat your audience like partners and encourage bidirectional communication.</li> </ul>
Passion/Want to help others/curious	6	7%	<ul style="list-style-type: none"> <li>• Keep your mind intrigued. Consider changing your focus after a few years. Don't rest on what has been done in the past but look for a new question and a new way to address it.</li> <li>• If you like working with people, Extension can be very rewarding.</li> </ul>
Get a mentor	5	6%	<ul style="list-style-type: none"> <li>• Seek mentors and be the driving force that pushes and maintains that relationship. You may feel like you are bugging the person, but most are willing to help if they feel you want help.</li> <li>• Don't rely on formal mentoring. Find your mentors and seek advice and collaboration with established faculty with careers you respect.</li> </ul>
Work across state lines	5	6%	<ul style="list-style-type: none"> <li>• Connect with your Extension colleagues in other states or regions. Learn from them.</li> <li>• Seek out collaborative opportunities with colleagues across state lines.</li> </ul>
Know tenure/job requirements	4	5%	<ul style="list-style-type: none"> <li>• Work hard to meet your university promotion targets but realize your program will evolve. Give yourself a few years to find your stride. And then it will keep evolving.</li> </ul>
Miscellaneous/Other	15	18%	<ul style="list-style-type: none"> <li>• Seek outside funding from grants.</li> <li>• Take calculated risks and learn from your failures.</li> <li>• Develop good working relationships with other disciplines in your university. Most programs are improved with interdisciplinary perspectives.</li> <li>• Keep up your analytical skill set.</li> </ul>

Note: The authors coded responses into themes; responses could span multiple themes.

Another common piece of advice is to conduct applied research that is highly integrated with the Extension program (19 percent). Respondents with this theme note that “Extension needs solid scientific research to support what we deliver to target audiences.” Somewhat pragmatically, the integration of research and Extension is also cited as important for navigating tenure and keeping a person marketable in the profession.

Respondents also said relevancy to stakeholders is a key piece of advice (17 percent). One quote that summarizes this advice is:

*“Assume that the stakeholders you work with already know more than you do. They will definitely understand their decision environment better than you do. Focus on figuring out what their challenges are. In doing this, you identify ways to be helpful, and you will get a lot of great research and program ideas from listening to them.”*

This theme emphasizes that you must get stakeholder input when developing an impactful Extension program; you cannot develop the technical knowledge in isolation and then deliver content. Feedback loops as discussed earlier are necessary. Relatedly, themes on listening and communication jointly made-up 22 percent of advice. Several of the advice themes center around the need for Extension economists to be extensively networked with their stakeholders and let their voices be the driver for research and Extension activities. This requires going out into the community, meeting stakeholders, and having an open mind when listening to their business challenges and opportunities.

Missing from the common advice themes is the encouragement to seek external funding. Although many Extension economists seek external funding for their programs, as noted above, this was not among the top themes of advice for early career professionals. This likely signals that while external funding is important, establishing a network of stakeholders and gathering information on their needs for research and Extension projects is a higher priority or even a precursor to attracting funding.

## 4 Implications and Conclusion

While the objective of this article is to provide new Extension economists with advice on how to best conduct their applied research and Extension programs, as well as navigate promotion and tenure, the results of the survey also form the basis of a call to action for agricultural and applied economics departments across the country. There is a need for recruitment and retention of more diverse individuals into Extension. In addition, more training is needed for graduate students to develop the skills needed for Extension work and implementing research programs that are integrated with Extension.

In the past, it was common for agricultural economists to come from a farm background with approximately 30 percent of non-Extension economists and 40 to 50 percent of Extension economists having lived on a farm as a young person (Foltz and Barham 2009). However, the decline in rural populations in the United States means fewer students will come from a farm or ranch. There is also an increase in foreign-born students in agricultural and applied economics graduate programs. This lack of firsthand experience with U.S. rural issues should not deter these students from entering Extension careers. Instead, graduate programs should emphasize training in communication and engagement with farmers alongside technical skills to attract and retain these individuals in Extension roles.

Formal training in Extension does not necessarily have to come from the departmental level. It would be possible to conduct a regional or national training program for graduate students that reflects both the commonalities and differences in Extension programs that students might encounter in their first job. As emphasized in the survey results, communication and networking skills are essential for Extension economists engaging with their stakeholders. This includes the feedback loops and co-production of knowledge that comes from working with stakeholders to develop a research and Extension program. Possibly a certificate could be awarded to students who complete the program as a signal to future employers of their applicable skill development.

Finally, we encourage the continuation of the AAEA mentoring program for young professionals. This one-on-one mentorship gives highly useful insights to new Extension economists and allows them to hear from people outside their department and at different stages of their career. All these efforts

combine to promote exceptional service to stakeholders and the recruitment and retention of talented Extension economists, which is highly valued in a land-grant institution.

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## Appendix A

**Table A1. Correlations Between Gender or Years of Experience and Viewing the Following Issues as Major Challenges Facing Extension**

Major Challenges Facing Extension:	Gender		Correlation (Male = 1)	Years of Experience		Correlation (10 plus years = 1)
	Male (%)	Female (%)		Less than 10 years (%)	10 plus years (%)	
Interest in Extension careers	43%	45%	0.00	62%	29%	-0.27
Changing audience demographics	17%	45%	-0.31	31%	21%	-0.11
Tenure demands	39%	45%	-0.08	38%	38%	-0.01
Training of Extension economists	39%	64%	-0.20	77%	25%	-0.46
Administration support	43%	36%	0.05	31%	46%	0.15
Delivery methods	22%	45%	-0.20	46%	17%	-0.26
Industry consolidation	17%	18%	0.03	15%	17%	0.07

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