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2900 100th Street, Suite 309, Des Moines, IA 50322-3855, USA

Nicole L. Arnold,[1]* H. Lester Schonberger,[2] Angela Ferelli,[3] Sarah I. Murphy,[4] and Lily L. Yang[5]

[1]Dept. of Nutrition Science, East Carolina University, Health Sciences Building 2435B, Greenville, NC 27858
[2]Dept. of Food Science & Technology, Virginia Tech, 401 HABB1, 1230 Washington Street SW, Blacksburg, VA 24061
[3]Dept. of Plant Science & Landscape Architecture, University of Maryland, 2125 Plant Sciences Building, College Park, MD 20742
[4]Dept. of Population Medicine & Diagnostic Sciences, College of Veterinary Medicine, Cornell University, S1-020 Schurman Hall, Ithaca, NY 14853
[5]The Acheson Group (TAG), 2748 Cloyster Court, Kalamazoo, MI 49008, USA

Revitalizing the Future of Food Safety Extension

ABSTRACT

Originally established to address agricultural needs by applying research and education in U.S. communities, the Cooperative Extension System (CES) has become increasingly involved in food safety through the supply chain. CES plays an integral role in food safety through consumer education, food employee training, regulatory guidance, and agricultural education for youth and students. CES food safety efforts have evolved to respond to current events and evolving public needs; subsequently, CES personnel communicated a myriad of challenges, including overextension within their roles, dwindling financial support, and pedagogical shifts. As a result, CES personnel have opted for creative, innovative, and timely solutions that can be harnessed by others with ties to CES. This article is based on a roundtable with Extension experts on "Revitalizing the Future of Food Safety Extension," held at the 2019 International Association for Food Protection Annual Meeting detailing this imperative. This article serves as (i) a consolidated framework resource for educational purposes, (ii) an invitation to collaborate with food safety CES personnel, and (iii) a call for support and advocacy for CES and those within it. It also highlights the value and impact CES has, and will continue to have, in making food safer and more equitable.

INTRODUCTION

The Cooperative Extension System (CES) was formally established in 1914 via the Smith-Lever Act to address rural agricultural needs through research and education in the United States *(19)*. From these roots, CES has contributed significantly to the transformation of U.S. agriculture and expanded to influence global agriculture systems as well. CES started as a "boots-on-the-ground" service, primarily involving CES personnel supporting farmers to increase production efficiency to ensure a safe and reliable food supply. Subsequently, CES has evolved into a wide-reaching organization, through targeted programming (e.g., soil management, integrated pest management, agriculture marketing) in rural and urban areas for diverse stakeholders.

*Author for correspondence: Phone: +1 252.744.1026; Email: nlarnold@vt.edu

Over the past century, CES has become increasingly involved in the promotion of food safety through the supply chain *(38)*. Initially, the role of food safety training in the food industry was the responsibility of industry professionals. For example, in preparation for the 1973 low-acid food processing regulations issued after *Clostridium botulinum* outbreaks from canned foods, Pillsbury taught the first hazard analysis (and) critical control point (HACCP) courses to U.S. Food and Drug Administration (FDA) inspectors in 1972 *(7, 51)*. In 1994, the International HACCP Alliance, based at Texas A&M University, was founded to establish a more uniform food safety program for meat and poultry operations to improve product food safety, bringing together industry, academics, and government collaborators with a common goal *(49)*. Just a few years later, in 1998, the FDA published the "Guide to Minimize Food Safety Hazards for Fresh Fruits and Vegetables," serving as the standard for voluntary market access audits—the Good Agricultural Practices (GAPs) certification *(42)*. To assist farmers in passing audits, many universities received grants from the U.S. Department of Agriculture's (USDA's) Cooperative State, Research, Education, and Extension Service's National Integrated Food Safety Initiative (CSREES is now known as the National Institute of Food and Agriculture [NIFA]) to develop GAPs educational programs. Most notable of these was the creation of the National GAPs Program in 1999, based at Cornell University *(6)*.

Considered the most sweeping change to food regulation since the 1938 Food, Drug and Cosmetic Act, the Food Safety Modernization Act (FSMA) (2011) further emphasized the value and importance of CES. Broken into seven major principles, FSMA outlines the minimum standards for food suppliers: human food, animal food, produce, third party audit verifications, protection against intentional adulteration, and sanitary transportation *(39, 44)*. This reform catalyzed many opportunities for CES to provide regulatory literacy to producers, while advancing their compliance with the legislation. Since then, CES continues to collaborate closely through industry, government, and academic consortia to tackle educational opportunities such as Foreign Supplier Verification Programs for Importers of Food for Humans and Animals; Current Good Manufacturing Practice and Hazard Analysis and Risk-Based Preventive Controls for Human Food; Current Good Manufacturing Practice and Hazard Analysis and Risk-Based Preventive Controls for Animal Food; Mitigation Strategies to Protect Food Against Intentional Adulteration; and Standards for the Growing, Harvesting, Packing, and Holding of Produce for Human Consumption (Produce Safety Rule) to further align the regulations set by government, industry needs, and academic research. For instance, the Produce Safety Alliance (PSA), a cooperative agreement (grant 12-25-A-5357) between Cornell University, USDA, and FDA, provides produce safety education and technical assistance to producers who must comply with the Produce Safety Rule *(32)*. The PSA also has leveraged its regulatory literacy to serve as an educational resource repository for applying Produce Safety Rule regulation. For example, the first pilot PSA "grower training" for the Produce Safety Rule was held for 33 growers in 2015 *(29)*. Since then, the PSA Grower Trainings, often taught by CES educators in collaboration with state departments of agriculture, have educated more than 40,000 domestic and 20,000 international participants *(34)*.

Importantly, CES also provides food safety training for food handlers and consumers. In recent years, changes made to the 2017 FDA Food Code indicate that the Person in Charge of a foodservice operation must be a Certified Food Protection Manager *(43)*. In addition, a Certified Food Protection Manager must pass a food safety exam approved by the American National Standards Institute and the Conference for Food Protection *(1, 41)*. This significant shift in training expectations requires involvement of CES in outreach and training to these audiences in recognized education programs such as ServSafe, Safe Plates, and others *(23, 37)*. CES also spearheads an assortment of educational opportunities for consumers such as the Master Food Volunteer program, Cooking for Crowds, and home preservation courses.

CES promotes food safety nationally and internationally through consumer education (e.g., home food preservation, safe food handling practices), training and assistance for the food industry and regulators (e.g., FSMA training, HACCP certifications, food entrepreneurship initiatives), 4-H youth programs, targeted research, and the dissemination and adoption of science-based resources and technologies for various audiences. CES continues to evolve to address the needs of the public, meeting the critical food safety challenges that exist within our global food and agriculture systems. However, to adapt, progress, and effectively serve its clientele in an ever-evolving world, challenges facing CES must be recognized and appropriately addressed. By adopting new tools, learning new skills, and reallocating limited resources, CES personnel continue to embrace opportunities and overcome challenges. Based on a roundtable with CES experts on the topic of "Revitalizing the Future of Food Safety Extension" held at the 2019 International Association for Food Protection Annual Meeting, this article details this imperative. Experts in this discussion included Dr. Melissa Chase (Consumer Food Safety Program Manager and Extension Specialist, Virginia Tech), Dr. Courtney Crist (Assistant Extension Professor, Mississippi State University), Dr. Catherine Cutter (Professor and Assistant Director of Food Safety & Quality Programs-Penn State Extension, The Pennsylvania State University), Dr. Connie Fisk (Produce Safety Program Manager, Washington State Dept. of Agriculture; Former Produce Safety Alliance Northwest Regional Extension Associate, Cornell University), and Dr. Channah Rock (Professor and Extension Specialist, The University of Arizona).

CHALLENGES FACED BY EXTENSION LEADERS

Over the past century, CES has undergone many systemic changes, expanding its reach to impact a range of stakeholders from farmers to consumers. Through this evolution, CES has

faced several challenges. In this section, we address significant challenges CES educators currently face, including increased workload and job responsibilities, limited public awareness of CES, restricted financial resources, and changed education needs.

"Overextension" of Extension educators

CES educators, including panelists and CES-affiliated session attendees, shared their experiences and overall feelings of being "spread thin" within their occupations. Speakers raised specific financial concerns (e.g., reduced funding, hiring freezes) that ultimately reduced programming. Consequently, CES educators are increasingly required to take on multiple responsibilities (often referred to as "wearing many hats") to support their stakeholders in pursuit of meeting benchmarks. Furthermore, with increasing changes to food safety regulations, CES educators often find themselves overwhelmed by increased training needs from constituents. This phenomenon has led to a shift from in-person programming to regional and online programming. Although regional and online programming can expand stakeholder access, such programming limits rapport between CES educators and individual stakeholders. CES programs also have responded and adapted to increased needs by engaging with community members to develop and manage programs such as Master Food Volunteer and Master Gardener programs *(45, 46)*. This style of programming involves recruiting volunteers already immersed within their communities and has been shown to have advantages such as reaching stakeholders that CES educators may otherwise have had difficulty reaching.

CES educators expressed concerns over the transition of CES to requiring educators to have multiple responsibilities that may be outside one's area of expertise. During the roundtable, panelists reflected upon the shrinking numbers of CES educators with expertise in a specific subject area (e.g., Agriculture and Natural Resources, Family and Consumer Sciences, 4-H Youth Development) paired with the increased necessity to be a generalist. Panelists discussed "struggl[ing]" to prioritize work and programming when also requested to work outside of their original job description/title, with little or no funding. This issue is coupled with the increasing number of nontenured CES professionals and faculty who also may need to partially or fully self-support financial aspects (e.g., through grant funding, industry partnerships, community relations/fundraising, and/or food entrepreneurship initiatives) of their program and programming.

In addition to the activities and programs being implemented in-person, there is an increased "emphasis to have an online presence." Although the rise of the Internet has enabled stakeholders to access information easily, and for CES educators to engage with a broader range of stakeholders, these initiatives increase the job responsibilities of CES personnel. In the session, panelists discussed distributing and disseminating food safety information via different mechanisms, including online. Panelists described how, over time, dissemination methods have evolved as has their understanding of online pedagogy for diverse audiences. An online presence is essential in our hyperconnected world to increase accessibility, reach varied audiences, and manage the demands of multiple programs; to be "relevant" CES educators also must be proficient with all media trends. To better use online resources, panelists frequently self-taught themselves content creation, including Drs. Crist, Rock, and Fisk, who have both self-taught and sought out professional development opportunities to develop skills such as photography, website building, blogging, and running social media campaigns.

Panelists explored solutions to increase their support of food safety programs in response to being overextended. The importance of interdisciplinary food safety teams was emphasized; Dr. Cutter shared Penn State's CES model of grounding Extension activities in interdisciplinary program teams through the Product Development Process in which needs assessments of clientele are conducted. All panelists agreed that being a CES professional was akin to being a small business owner, requiring leveraging of partnerships with public and private businesses, educational institutions, and government regulators.

Increasing awareness of CES

As CES needs have changed, so, too, has awareness of CES offerings to local communities. Panelists described the necessity of increasing CES presence with varying stakeholders and documenting impact to non-Extension faculty and grant-making agencies.

Information created and distributed by CES is for everyone; however, because of the historical associations of CES with agriculture, people outside of agriculture may not seek CES services because they may not believe they are the primary audience. To address this discrepancy, CES programs are designed with the intent of connecting educators with audiences to evaluate their needs and subsequently adapt programs. Panelists and attendees suggested working with their institution's communications teams to transition from using email listservs as a primary method of communication to also using media platforms (e.g., local news, Facebook, Instagram) and online promotions to magnify reach. Media platforms are more interactive; they allow CES professionals to convey enthusiasm, share upcoming programs, and inform participants of available opportunities. However, panelists noted that program marketing is an additional responsibility for which they are not typically trained.

Panelists described the importance of "get[ting] the story out there" to express the value and impact of programs (like 4-H's impact on youth development and agricultural career preparation), which results in more engagement with their communities. Panelists also discussed the value of "networking" with state departments of agriculture and health to communicate available services. Coordinated relationship

building and collaborations have led to increased positive reputation and awareness within communities. Overall, panelists highlighted the importance of becoming embedded in their community to impactfully engage and develop trust with members, including by serving on local and regional policy councils.

In addition, panelists expressed they are continuously justifying the necessity of CES to grant-funding organizations, colleagues, and universities' upper administrations. As universities shift toward performance-based budgeting models, there is not an equivalent measurement-budget plan within CES. As such, although funding organizations are particularly interested in data documenting the impacts of CES, documentation takes away time and resources from program delivery. Similarly, university-guided performance-based metrics are more difficult to measure in community settings compared with the evaluation and performance metrics of teaching and research.

Monetary challenges

Access to sufficient and consistent financial resources has proven challenging for CES educators. The original funding model, in which costs were shared among federal, state, and local governments, has shifted to primary reliance on public-private partnerships, private philanthropy, and revenue-generating programs *(3, 10, 20, 21, 50)*. Panelists, having previously relied on fewer, larger streams of money are now relying on a combination of soft-funded sources and public-private partnerships. Now, monetary sources include smaller streams of funding from grant-making agencies, unspent money from other programs at the end of the fiscal year to fund the next year of programs, or one or two primary revenue-generating programs per year; this results in multisource funding made up of smaller amounts of money, but with increasing deliverables. Resources that could otherwise be spent on delivering impactful programs are instead allocated to managing the stress of keeping programs financially solvent.

Delivery and educational challenges

CES educators are continuously adopting new best practices for connecting with communities and sharing educational materials. Previously, when CES educators' efforts were primarily focused on agricultural production, in-person support was offered (e.g., via on-farm visits and in-person instruction). Although these practices still occur and continue to meet a vital need to specific audiences, CES currently provides less in-person services because of increasing training and educational needs (and increase in topics and subject areas covered) coupled with fewer individuals employed by CES. At the same time, an increase in Internet connectivity and access to digital technologies allows and creates opportunities for online-only and on-demand programs to maximize resources *(16)*. CES operations have leveraged online technologies through online courses that have been effective for PSA training with farmers, because many farmers are unable to attend an 8-h in-person course. Although a shift to digital technologies allows participants to complete a program in their own time, it is neither a perfect nor ideal solution because of the lack of live engagement and focused learning. Panelists deliberated on "ideal" platforms for online engagement and the limits of adapting a program to a technology that will likely change or become obsolete. As discussed previously, it becomes incumbent upon the educator to learn how to use digital technology (e.g., online learning platforms) and adapt materials accordingly; both actions are time- and labor-intensive for an already occupied group. However, panelists cautioned against going so far as to solely offering online-only educational experiences, because Internet connectivity remains limited in many rural U.S. areas, internationally, and within specific communities that avoid technology (e.g., Plain communities, including Amish and Mennonite). Even when Internet connectivity is available, clientele may not have access and/or adequate resources to support a stable or reliable Internet connection needed for activities such as video streaming and taking online assessments. Although there has been a push toward maintaining an online presence, panelists often face the need to justify to funders that online technology is "not the silver bullet" for education; in fact, it is imperative to continue developing hands-on and in-person content to "meet more people where they are."

ADDRESSING CHALLENGES AND RESPONDING TO CHANGE

CES educators have responded to challenges with a variety of creative solutions including adapting personnel roles, fostering and facilitating inclusivity, and evaluating successes to increase interest and awareness in CES and to adapt to the changing world.

Personnel shifts

As a means of addressing shrinking personnel in specialized subject areas, Area Specialized Agent (ASA) roles were established by CES administrators. Rather than focusing on multiple program areas as many Extension educators do, ASAs are responsible for a "specific content area over a designated multicounty area" *(12)*. For example, in recent years, North Carolina Cooperative Extension hired two ASAs to assist in food manufacturing and processor training and three ASAs to focus on consumer and retail food safety *(14, 22)*. In addition, Virginia Cooperative Extension (VCE) created a food safety ASA initiative after an influx of food safety and food entrepreneurial questions that diverted time from CES specialists. Faculty in the Virginia Tech Department of Food Science & Technology drafted a proposal for additional food safety-based personnel and justified the request using program and evaluation data (including Virginia-specific food-related outbreak data, subsequent medical costs, employee work time lost, and other data) *(5)*. District directors approved three ASA

positions; each individual was appointed a specific food safety niche with one agent focused on food safety programming and food entrepreneurship, another on food preservation, the third agent with on-farm food safety initiatives.

Moreover, the shift of CES toward a regional structure has affected the day-to-day roles and responsibilities of CES educators. On-site stakeholder visits (e.g., meeting a dairy farmer at their farm) and program offerings for individual counties or townships have been reduced or eliminated to focus on regional programming. To minimize costs, fewer numbers of CES personnel are responsible for covering large swathes or geographic regions. Although there are advantages to having a centralized regional structure, such a structure minimizes direct interactions between individual stakeholders and CES personnel, which further impacts programming distribution.

Becoming more inclusive

As communities diversify, CES faces challenges in developing multilingual resources and recruiting educators to deliver programs and training in various languages and contexts. Within the United States, Spanish-speaking individuals constitute a large portion of those handling, growing, preparing, harvesting, and packing food; there is a growing need for food safety materials and programs to be developed for Hispanic/Latinx populations. To address the need for accessible and culturally relevant resources, panelists described increased recruitment of Spanish-speaking CES educators to coordinate resource development and training for Spanish-speaking communities. Spanish-language materials are offered for different CES programs. For example, Penn State constructed a full complement of Spanish produce safety topics used for training including articles, fact sheets, and videos *(11)*. In addition, in 2019, PSA launched "PSA en Español," the Spanish-language sibling webpage that includes the Spanish grower training manual in print and online, resources, and contact information *(30)*. In 2018, PSA prioritized hiring a Spanish Language Extension Associate, and because of increased need, hired a second Spanish Language Extension Associate in 2020. PSA currently has 183 registered Spanish-speaking PSA trainers (27 are Lead Trainers and 9 are Trainer of Trainers) in the United States, allowing for fully immersed Spanish grower training courses to occur *(31)*. Translations of the PSA curriculum and supporting resources also are being developed in other languages as need arises. Culturally relevant adaptations take time, dedication, and specialized personnel.

Effective evaluation in documenting and measuring success

Measuring the success of CES and its programs has changed over time. Although the use of quantitative measurements (e.g., financial measurements, number of program participants, pre- and post-tests) is valuable, participants discussed alternative measurements of "success." Evaluation of programming, a form of measurement, has become a universal precursor to receiving funding for many national programs. CES personnel are increasingly expected to provide evidence of program success through short-term, intermediate, and long-term evaluation (e.g., USDA NIFA grants). However, there are obstacles and barriers to measuring success and evaluating programs *(9)*. Because CES programs are unique in themselves, it is imperative to gather accurate, specific, measurable, and feasible data to complement and meet objectives.

CES educators must also "tap into [their] network[s] for participant feedback," whereas developing programs to "get meaningful data" and document a positive impact. Dr. Fisk highlighted a standardized, program-specific evaluation tool PSA trainers are required to use for the PSA grower training course. Panelists also noted that informal evaluation measures can often preempt and contribute to formal results; informal measurements included participant feedback through quotes, kudos, and thank-you notes. Documentation of personal feedback can qualitatively document client satisfaction, impact and can be used for program adaptation in the future.

Increasing interest in CES

Panelists described the importance of student involvement and university personnel cross-collaborations to facilitate interest in CES programs. Interest can later be converted into a recruitment tool for future CES educators. Although these networks may be difficult to cultivate, because CES faculty often have teaching or research appointments coupled with their Extension appointments, Dr. Chase encouraged research faculty to include and collaborate with nonresearch Extension faculty on their projects. Using herself as an example, Dr. Chase (who does not have a research appointment) stated that she serves on multiple graduate research committees with students conducting Extension-serving projects.

Land-grant universities also must demonstrate the value of CES to students. Because graduate students are often evaluated solely on their research productivity, students' teaching and CES efforts may not contribute to fulfilling degree requirements. Academic departments can show their commitment to Extension by having an Extension/outreach expectation for all graduate students (students learn how to effectively communicate their research to be understood by public audiences). Dr. Chase served on a dissertation committee with a published research output in the *Journal of Extension*. In this publication, authors highlighted how CES educators can use Extension publications to discuss food processing technologies with clientele *(2)*. This Extension-based project provided the student with experience and support when deciding how CES would be a part of their future career.

Inclusion of undergraduate students in Extension-related activities can further cultivate interest in CES. Students can become more involved through paid apprenticeship programs

or other grant-related activities. Because undergraduate students enrolled at land-grant universities are oftentimes unaware of the services and careers associated with CES, Dr. Crist discussed how a colleague at Mississippi State University received a USDA NIFA Agriculture and Food Research Initiative Education and Literacy Initiative–sponsored Research and Extension Experiential Learning for Undergraduates Fellowships Program grant to develop and implement an undergraduate Extension apprenticeship program in the areas of agriculture and natural resources, family and consumer sciences, community resource development, or youth development *(8, 15)*. Dr. Crist herself had previously applied for and been awarded three undergraduate student apprenticeships, through this program, in the past three summers. Apprenticeships, while increasing student involvement, can build upon a central project each year or be tailored to a specific programmatic, community, or stakeholder need. Dr. Crist submitted different topics each year, ranging from farmers market food safety, impact of water quality on processed meat products, and cooking with functional foods for health for youth 4-H programs. Each apprentice is able to explore CES and food-related careers through an integrated research and outreach experiential learning experience. Student apprentices engage with CES personnel, work with various stakeholders, visit different field offices and food processing facilities, attend national conferences, and develop and present outputs (e.g., seminars, posters, modules, Extension publications, radio segments, webinars). Upon completing their apprenticeships, students often remark on the positive impact and awareness CES and the apprenticeship have provided them.

Role of CES in an evolving world

As our food system becomes more globalized, CES should be taken to a global platform to engage with international stakeholders through capacity building and shared experiences. Doing so will promote dialogue and collaborations to shape the next generation of globally minded food safety professionals. Panelists shared their experiences with international CES initiatives ranging from targeted short courses to partnerships with defined goals.

To develop the next generation of global citizens, study abroad and work abroad programs have increased. Dr. Rock spoke about an international student–mentoring experience between the United States, Australia, and New Zealand leveraged through CES, the Center for Produce Safety, and the Australian Research Council's Training Centre for Food Safety in the Fresh Produce Industry. Through this mentorship program, graduate students traveled between industry partners to participate in workshops and engage with international food businesses for later placement as food safety professionals in industry jobs abroad.

Pre-existing short courses, originally taught through CES for an American-centric audience, also have been adapted with the commonality of shared experiences, to meet the needs of diverse international audiences. Dr. Chase spoke about consumer-based international CES efforts in Senegal through a partnership with agricultural collegiate departments affiliated with Virginia Cooperative Extension. She has trained and prepared agents and other personnel for adapting and delivering international programming focused on home food safety and preservation practices to audiences with varied economic, physical, and infrastructural resources.

Global collaboration not only increases knowledge but also increases collaborative engagement and adaptation to address present and emerging public health issues. Panelists described the success of multicollegial and departmental university partnerships. One such partnership between Penn State and Virginia Tech resulted in the development of the International Food Safety Initiative (IFSI) in the College of Agricultural Sciences (Penn State). With funding from U.S. Agency for International Development, the IFSI was responsible for the development and dissemination of a month-long "food safety systems management" program in Armenia in 2017 *(25)*. With assistance from the National University of Life Sciences and private funding (Woskob Century Fund, Penn State), a 5-week "food safety short course" was offered in Ukraine. In both instances, participants increased knowledge in food safety and hygienic principles and practices *(24, 26, 28)*. Upon completion of the course, enrolled individuals could leverage this experience to pursue food science and industry careers. The IFSI also has been active in Ethiopia, Uganda, and Mozambique. It has been critical in training the next generation of food safety industry professionals *(26)*. The IFSI also received funds from USDA-Foreign Agricultural Service for international FSMA education in Central America. To build capacity, self-efficacy, and maximize program longevity, the IFSI has trained in-country instructors to continue carrying the courses forward, ensuring the sustainability of the course, the program, and its people. As the global food economy grows and becomes increasingly interconnected, there are increasing opportunities for sharing training techniques, gaining global perspectives, and addressing global food safety needs.

Through both collaborations and support, the food, agriculture, and public health also benefit greatly from the presence and involvement of CES. CES programs, such as Virginia Tech's Food Innovations Program, support food entrepreneurs in the product development process while providing consultation and guidance pertaining toward specific regulations. In addition, depending on their qualifications, CES personnel can serve as the Process Authority for certain food and processing industry organizations. CES also can provide USDA- or FSMA-aligned food safety trainings (e.g., ServSafe for food service and restaurants, PSA training for growers and producers, HACCP trainings for the meat and seafood industries), mock audits or assessments (or in some cases, are directly involved in the audit process, itself), and be part of the regulatory or public health process as an advocative

body for forthcoming policies and legislations. CES also frequently acts as a liaison between academic institutions and industry through consultancy and applicability of new technologies and new research areas to bolster and increase safety within the food and agricultural industries.

LOOKING AHEAD: REVITALIZING THE FUTURE OF FOOD SAFETY EXTENSION

In crises, CES quickly fills gaps that impact food systems and safety within the global community. At the start of the coronavirus disease 2019 (COVID-19) pandemic, CES responded quickly to the disruption in the global food supply and food safety misinformation. CES efforts have shortened personal food chains through Master Gardener programs, facilitated the distribution of donated foods, offered individual guidance to the food industry, and disseminated food safety resources for best practices on grocery shopping and ordering food for consumers *(4, 13, 40)*. Penn State Extension and VCE developed COVID-19-specific resource webpages with programming and publication information in multiple languages for food industry professionals, retail and food service employees, and consumers *(27, 47)*. As with many other Extension programs, VCE administration directed educators to convert programs to an online format because of public health guidelines; many remain online as regulations ease as a result of increased accessibility. The PSA also moved their grower and trainers' trainings online *(33)*. It is yet to be determined how much programming will remain online in the medium- to long-term post COVID-19 pandemic, compared with how much will return to in-person formats.

CES educators also are engaging in critical reflection to determine how programs may have previously contributed to social injustices and how programs can inclusively and equitably reach, empower, and serve diverse audiences. For example, VCE has named an Extension Leader for Inclusion and Diversity to lead professional development and promote inclusive practices *(48)*. The Safe Plates Food Safety Information Center, housed at North Carolina State University, has made a similar commitment to conduct internal evaluation of their work through the lens of inclusion and equity, with public-facing follow-up for accountability *(35, 36)*. Furthermore, Michigan State University Center for Low-Moisture Food Safety convened a Diversity, Equity, and Inclusion Advisory Team to strategically inform their efforts *(18)*. Each of these programs have committed to the long-term program and professional development necessary to truly serve all who can benefit from CES.

CES has endured for over a century; its merit and potential are known to those involved with it and impacted by it. With concurrent evolutions in community outreach, higher education, shifting social discourse, and governmental regulations, CES must be revitalized to better serve national and global communities, with "revitalizing" meaning to "give new life or vigor to" *(17)*. We must continue to assess the health of CES to respond accordingly to optimize our impact and ensure the longevity of CES. This article does not seek to address and resolve all CES issues; its purpose is to highlight major challenges and demonstrate practices that CES personnel involved in food safety efforts have faced and overcome. The authors intend for this article to serve as (i) a consolidated framework resource for educational purposes, (ii) an invitation to collaborate with food safety CES personnel, and (iii) a call for support and advocacy for CES and those within it. We also aim to highlight the value and impact CES has, and will continue to have, in making food safer and more equitable by bringing "evidence-based science and modern technologies to farmers, consumers, and families" *(19)*.

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In Memory

W. Payton Pruett, Jr.

We extend our deepest sympathy to the family of Payton Pruett, Jr. who recently passed away. Mr. Pruett joined the Association in 1990. IAFP will always have sincere gratitude for his contribution to the Association and the profession.