

## Research Article

# Changing Health Practices Through Research to Practice Collaboration: The Farm Dinner Theater Experience

Deborah B. Reed, MSPH, PhD, RN, FAAOHN<sup>1</sup> 

Debra McCallum, PhD<sup>2</sup>

Deborah T. Claunch, BBA<sup>1</sup>

*Production agriculture ranks as one of the most hazardous occupations in the United States, with older producers suffering 3.5 times the fatalities compared with their younger counterparts. Previous interventions have not significantly improved the health or work behaviors of farmers. Through careful collaboration among academics and Cooperative Extension agents, we developed, tested, and expanded a unique educational experience, Farm Dinner Theater (FDT), for farmers aged 45 years and more and their families across three states (n = 8 communities, 573 participants). More than 50% of the participants made health or safety changes following the theater. Communities requested more theater events, noting the realism and applicability of the content and the engaging atmosphere for discussion. Participants remarked that the theater should be used across all age-groups. The FDT project created a community of “champions” that synergized the initial research project and fostered expansion and sustainability of the intervention. Process evaluation guided refinement of the theater intervention and built trust, respect, and further cooperative work among all collaborators. Members of the FDT partnership have received national recognition and funding to upscale the concept. The number of FDTs has expanded under local leadership. A toolkit that resulted from the project is available to the public and is constantly updated as more adopters contribute insight and scripts. This article describes the collaborative theater concept and demonstrates how sustained translation from research to practice can be accomplished through continued community engagement, collaboration, and outreach.*

**Keywords:** agriculture; health behavior; safety; family; community health education; arts; public health; creative arts; arts in public health; farmers; theater; cross-sector collaboration

The Farm Dinner Theater (FDT) is a novel intervention, designed for farmers aged 45 years and older, addressing health and safety behaviors through the voices of farmers in local community settings. Grounded in community-based participatory research, this article details the carefully planned collaborative process that enabled FDT to be more widely adopted and sustained. FDT focused on preventing injuries to

<sup>1</sup>University of Kentucky, Lexington, KY, USA

<sup>2</sup>University of Alabama, Tuscaloosa, AL, USA

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older farmers, one of the vulnerable worker populations described in the National Occupational Research Agenda (National Occupational Research Agenda Agriculture, Forestry, and Fishing Sector Council, 2008), and addressed the concept of Total Worker Health (Schill & Chosewood, 2013). Its aim was to improve health and safety behaviors among farm families and empower their communities through sustained collaboration and outreach to improve health and well-being as farmers age in place.

## ► BACKGROUND

### *Agricultural Context*

Production agriculture ranks as one of the most hazardous occupations in the United States, with older farmers suffering excessive injury, illness, and fatality rates (Goldcamp, 2010; Myers et al., 2009). Senior farmers also exhibit excessive rates of suicide (Peterson et al., 2018). The average age of the U.S. farmer is 59.8 years (U.S. Department of Agriculture, National Agricultural Statistics Service, 2019), placing thousands of farmers in this high-risk category.

Nearly 95% of the 2 million U.S. farms are owned and operated by family units and are exempt from many Occupational Safety and Health Administration regulations that safeguard workers in other industries (Applicability of Standards, n.d.). Agricultural work is learned primarily through oral and experiential learning, often starting in childhood. Injuries and chronic health conditions, such as arthritis and hearing loss, are considered by farm communities to be acceptable and expected (Cole, 2002; Colémont & Van den Broucke, 2006; Reed & Claunch, 2015). Indeed, senior farmers define health simply as the ability to work (Reed et al., 2012). Historically, interventions to prevent occupational injuries and health problems among agricultural workers have focused on increasing awareness about occupational hazards and presenting safety rules and guidelines (Cole, 2000, 2002; Petrea, 2001). Results of these efforts reveal that simply showing or telling someone what to do is insufficient to influence behavioral changes. Research specific to older farmers is lacking. A review of interventions to reduce injuries among older agricultural workers, published between 2000 and 2013, revealed only three interventions that had been evaluated; just one of those was in the United States (Nilsson, 2016).

Farm families are slow to accept change (Neufeld, 2005); however, Cole and Donovan (2008) noted that aging farmers can and do adapt. To effect change more readily, the local agricultural community's beliefs, values, culture, and environment must be considered, and the community must be involved in planning and

implementing these efforts (Behringer et al., 2018; Huy, 2010; Mitchell et al., 2008; Neufeld, 2005; Rose et al., 2018; Thompson & Kinne, 1999). Content that helps individuals perceive the relevance of knowledge to their daily life, social norms, and self-efficacy improves effectiveness of prevention programs (Cole, 2000, 2002; Colémont & Van den Broucke, 2006; Seiz & Downey, 2001).

Part of the culture of agriculture is storytelling and information gathering in the local context (Cole, 2002; Jones & Siegrist, 1999). In a study of the work and safety culture of senior farmers, participants asserted that the usual forms of health and safety education were not acceptable; they wanted messages delivered in their voice, using stories and humor (Reed & Claunch, 2015). In response, an innovative strategy, FDT, was successfully piloted (Reed & Claunch, 2017), and then fully developed for implementation in the current study.

### *Arts and Health*

Music, visual arts, and drama have been used to promote health across the globe for many years. The arts have been particularly employed with communities in developing nations and groups that rely heavily on oral traditions (Bosompra, 2008; Massar et al. 2018). The intersection of the arts and public health to promote healthy communities represents a growing movement in the United States (Sonke et al., 2019). A review by Archibald and Kitson (2019), examining use of the arts for communication and knowledge transmission among older adults, noted that performance theater was the most commonly employed art form. In agriculture, theater has been explored briefly as a learning tool, but scant evaluation was reported, and the interventions faded away (Elkind et al., 2002; Perry, 2017; American Farm Bureau, 2009).

Cross-sector collaborations bolster the ability to craft interventions that are acceptable, applicable, accessible, adaptable, and affordable—all criteria for adoption (Penchansky & Thomas, 1981). Programs with strong partnerships among health care providers, academia, and local communities promote a culture of health (Martsolf et al., 2018). This cross-sector collaborative research project was launched in 2014 to develop and test the FDT concept among older farmers and their families.

## ► METHOD

### *Developing the Intervention*

*Theoretical Background.* Engagement in the learning experience and one's ability to retain, recall, and comprehend knowledge are affected by learning style, background, and life experiences (Bryan et al., 2009). Adults

learn best through experiential learning, a method that allows them to incorporate their life experiences in real time (Manheimer, 2005). Development of the theater intervention and subsequent community curricular materials was based on adult learning theories (Cole, 2002; Knowles et al., 2015), whereby the learner processes new information within the context of their current knowledge and experience and constructs a new mental model. The person then acts on that model to achieve the desired goal. It rests on Ajzen's (1991) theory of planned behavior, developed to explain and predict human behavior in specific contexts. The theory incorporates individual beliefs, self-efficacy, and the perceived influence of social norms.

*Theater Design.* Readers' theatre (English spelling) is a type of performance requiring familiarity with the script but not memorization, putting focus on the words and ideas being communicated, rather than on the performance itself (Coger & White, 1973). Reading from a script, actors are encouraged to use articulation and gestures appropriate to their characters and their words. This injects humor and relaxes the audience (Hewer et al., 2019). Vocal expression enhances audience understanding of the story rather than relying on visual storytelling that typically involves multiple sets, costumes, and complex stage movement. Theater is cost-effective as it delivers messages to groups, and it can focus on local issues and specific groups, using their own social context, thus bringing realism and practicality to the stage (Eldredge et al., 2016). It resonates well with older populations who can apply the information to their own situations (Feldman et al., 2011).

One valuable use of theater is to help audiences recognize the importance of certain behaviors and beliefs through discussion. This form of theater, labeled didactic theater, introduces interaction with the audience following the presentation. Open discussion allows the audience to reflect on the content, incorporating the information within their own experiences and the group's social norms (Ajzen, 1991). Through these discussions, new information becomes available, and participants are empowered to make change. Readers' theatre and didactic theater concepts were combined in the FDT. Thus, FDT provides a safe environment for farm communities to discuss their health and safety concerns and engage in problem solving.

*Collaborative Framework.* The community-based participatory action research (CBPR) framework was used to design, deliver, and evaluate the FDT intervention. CBPR is a collaborative process involving three interconnected goals: research, action, and education,

by which health can be improved through community change (Wallerstein & Duran, 2003). The combined efforts of all parties strengthen community capacity to improve health. Acknowledging the expertise of the community, CBPR provides the landscape for change *by* the community rather than change imposed *on* the community. This integral participation of the community in the research process develops capacity and, in turn, sustainability and translatability of the project.

Collaborators included a university-based occupational health nurse research team; Extension agents from Kentucky, Tennessee, and Virginia; and an academic survey research center to collect participant data used to evaluate the FDT. Institutional review board approval was obtained from the participating institutions before commencement of the project.

Cooperative Extension provides programs across the United States and is particularly recognized in rural areas as a conduit for local education for families and agriculture. A recent environmental scan conducted by Extension noted that Extension personnel often hesitated to develop health-related programs because they lacked confidence about the topic or did not have time (Prevedel et al., 2018). This project provided the expertise in health and safety to launch the new initiative and person power to share responsibility. Extension agents became the local "champions," working with the research team to develop all local aspects of the theater event and contributing insight and support for other sites as the research progressed. Eight FDT sites were identified in a rolling fashion over the life of the project, usually by referral from a previous site or another Extension agent.

*Planning Process.* Careful planning is necessary for success. As each site was identified, a meeting was held to discuss the aims of the project, goals of each collaborator, and what each partner could contribute and gain from the project, modeling the give/get grid framework (Figure 1; Southerland et al., 2013). This process clarified the expectations and roles of each collaborator.

The FDT was designed and delivered jointly by the collaborators. The 2-hour production included a meal followed by three short plays. This time frame was agreed on as adequate for the intervention and acceptable to the community. Many farm meetings include a meal, and continuing this tradition created the atmosphere of a dinner theater, making the intervention resemble a social event for the participating couples. Community farmers performed the scripts, and the research nurse led a short discussion after each play, allowing the audience to reflect on the content and incorporate the information within their own experiences and the social norms of the group.

GIVE		GET	
Research team	Extension	Research team	Extension
1. Theater scripts	1. Access to participants	1. Participant data	1. Expertise in theater intervention
2. Theater discussion leadership	2. Local “actors”	2. Process evaluation data	2. Increased awareness/knowledge of health and safety
3. Funding for event	3. Local issues/stories	3. Expansion of issues	3. Aggregated depersonalized data from their event
4. Guidance on logistics	4. Publicity/select venue and meal	4. Completion of project event	4. Toolkit
5. Data collection/analysis	5. Theater event		

**FIGURE 1** Initial Give/Get Grid for Farm Dinner Theater

The research team worked closely with the local collaborators to develop scripts that were realistic and applicable to local farm families, incorporating stories from the actors related to their own farm life, family, farm injuries, close calls, or health challenges. Scripts were reviewed by the Extension agent and local actors before the final version was produced. Scripts ranged between 10 and 15 minutes in length, allowing time for discussion after each presentation.

Twelve health and safety topics were addressed through the scripts: fatigue, falls, multitasking, arthritis, stress, hearing loss, skin cancer, cataracts, dehydration, medicine implications, work transfer, and communication. Other topics identified by the farm community were added to personalize the scripts and increase local ownership. While some of the incidents and issues presented were sensitive (i.e., stress, intergenerational work, dementia), the scripts were laced with humor, providing a relaxed nonthreatening atmosphere.

Each community advertised the theater to active farmers aged 45 years or older and their spouses or partners, using methods including radio, newsletters, local newspapers, word of mouth, flyers, and social media. Potential attendees preregistered for the event at their local site.

Location, date, and time of the event were chosen by the local community. Facilities included a church, club, Extension Service, schools, and an agriculture expo center. Each community designed its own stage sets ranging from a simple table and chairs to more elaborate choreography. In several cases, local businesses loaned items for the set. Volunteers decorated tables with handmade items. Local establishments catered

the event. Some locations included youth groups (4-H [an after-school program sponsored by the Extension Service], Future Farmers of America) to seat participants and serve the meal.

### ***Evaluating the Intervention***

FDT participants completed surveys at three time points to provide data for evaluating the impact of the theater experience. At the FDT, following the informed consent process, they completed a written survey providing background information and brief ratings scales following each of the plays. They completed telephone interviews 2 weeks following the event and again 2 months following the FDT. In addition to an overall analysis combining sites, data were summarized by site to provide a site-specific report to the local Extension agents. Complete results can be found in Reed et al. (2019).

## **► RESULTS**

### ***Theater Evaluation***

All phases of data collection were completed by 553 theater participants (96.5% completion). The sample was 54% male, and 46% female, with average age at 63.2 years.

Data collected at the theater event revealed that 78% of the attendees felt the plays captured the reality of aging in farming “extremely well.” Nearly all (96%) said the content made them “stop and think” or motivated them to “take action.” More than 80% stated that they could apply the theater messages to their lives



"It was both entertaining and informative."
"Community event. Everyone knew each other and it was funny. Good message while being entertained."
"Very realistic and talked about stuff that actually goes on on the farm."
"Everything they (actors) said was right on target. . . . My husband needs to stop doing some things and this gave us a way to talk."
"It wasn't your story but it was. You could identify but not be threatened . . . allowed you to get involved."
"This [theater] helped me realize we're not alone. Others are experiencing the same things we are going through."
"We've never had such positive feedback from any other programs." (Extension agent)

**FIGURE 2** What Participants Liked About the Theater

and family. When called 2 weeks later, 53% reported at least one health or safety-related change that they had made since attending the FDT. This effect continued till the 2-month follow-up, with 60% reporting at least one change since the previous report. Messages from the FDT were also shared with family, friends, other farmers, and employees. Many of those persons also made changes (25% at 2 weeks; 38% at 2 months). In the final year of the project, an FDT was offered to younger adult farmers and their families ( $n = 66$ ). Results corresponded to the older group, supporting the broader application of the intervention. Participants' comments reflected their satisfaction with the event (Figure 2).

### **Collaboration Outcomes**

Qualitative process evaluation across the life of the intervention (2014–2018) and 2 years post the program yielded valuable data. Regular communication with Extension agents and planning committees allowed collaborators to share their posttheater experiences and insights. Theater materials and planning were revised based on these evaluations. Extension agents reported increased community interest in the health and safety of farmers and their families. With nudging from their local planning boards, the theater sites have planned or produced another theater, health, or safety event.

Agents noted that the event took more time to plan and deliver than their usual programs, viewing theaters as "special events" that should be delivered in alternating years. They said that their knowledge and awareness of health and safety issues had increased, and since the theater began, they regularly incorporate health and safety into their programs. Some agents reported that they had changed the promotional materials that they

offer to reflect better health choices (i.e., brimmed hats, sunscreen, and hearing protection).

In some sites, two or more counties worked together to conduct the theater. At one site, Extension leaders expressed that it was the first time that they had collaborated on an event. They found out that they enjoyed the process, and it bolstered their confidence for doing future projects together. Additionally, attendees said that they felt the broader geographic reach made the event more special.

In addition to the original expectations of project outcomes, there were unanticipated rewards (Figure 3). New collaborators were discovered as the research team was invited to participate in other farm programs (AgrAbility, Beginning Farmers, Farm Health, and Wellness), fostering the spread of the theater. National program recognition and the ensuing popular press was the catalyst for funding from a private foundation to expand the reach of the theater concept (Rockwood, 2019). Interactions between the nurse researcher and Extension resulted in a new Extension Community Health Nurse position at one university, which is now held by the lead researcher who works across Extension programs to support health and safety.

Extension agents reported that their client base increased due to the theater, and they now do more collaborative programming with Extension agents across disciplines. Agents used the theater concept for other topics (e.g., caregiving, stress) too, sometimes using only a short play incorporated into a larger program. All agents reported their theater project experience through organizational processes and word of mouth with their constituents. Agents became mentors for other Extension staff who wanted to use theater. Several agents submitted abstracts to professional organizations, resulting in national recognition for their innovative work.

Research	Extension
1. New collaborators	1. New clients
2. New job	2. Expanded collaboration
3. Program recognition	3. Access to other health/safety resources
4. New funding	4. Program recognition

**FIGURE 3 Unanticipated Rewards**

Partnerships developed and maintained throughout the project fostered new relationships across communities and supported dissemination of the theater concept. Sustained networking among community service agencies, agriculture commodity groups, local health departments, area health education centers, high school agriculture programs, local press, local businesses, and across university settings are examples of the growing web of relationships. These collaborations, initially formed to produce the theater, led to heightened interest in health and safety across the communities. Further networking was established through webinars, conference presentations, and collaborative submission of abstracts. Presentation of the theater concept sparked interest in farm health and safety among groups that had never considered these issues, thus building capacity for stronger and expanding networks to improve health and safety across agriculture.

A primary product of the project was development of a readily accessible toolkit for planning and conducting a theater event. Process evaluation and reflections from the collaborators after each theater event became toolkit tips. Collaborators provided feedback on the toolkit until all agreed on its final version. The toolkit, coupled with initial training provided by the collaborators for other interested Extension agents, provided the foundation for community-led FDTs. Three community-led theaters held since Fall 2018 were evaluated for fidelity to best practices in health and safety messages, community acceptance, and community evaluation—all with positive outcomes. An event held in Ireland based on the FDT concept was well received (Teagasc, 2019). The toolkit is free to download by contacting the lead author or at [https://uky.az1.qualtrics.com/CP/File.php?F=F\\_4T9TyPMPaDhjhcX](https://uky.az1.qualtrics.com/CP/File.php?F=F_4T9TyPMPaDhjhcX). Currently, online trainings are being developed.

## ► DISCUSSION

Collaborations are beneficial and rewarding for each party involved: researchers, service providers, and most

important, the intended audiences. However, once funding ends, interventions, even if promising, are often lost. Outlining with our community partners the full plan for research, dissemination, and community ownership at the onset of the project provided a clear and firm foundation for trust, sustainability, and growth (Rose et al., 2018). The resultant effects in health and work behavior changes, as well as the high participation rate, can be viewed as a team success. However, the Extension collaborators comprised highly motivated early adopters, so one might obtain different results with other groups. Discussions were led by a nurse with expertise in agricultural health. Nurses are the most trusted profession, and this may have influenced audience response (Reinhart, 2020). Theater requires more local creative effort and time than many other programs; however, evaluations from community-led theaters provide support that the intervention is effective under local ownership. Funding obtained after the initial research period enables us to broaden dissemination of the intervention and is crucial to attaining a critical mass of adopters to upscale the theater concept.

Extension has long had a commitment to health and safety, but only recently did they begin to reframe their approach to work more closely with health-related organizations (Buys & Koukel, 2018). The timing was ripe to create a new culture for health with the agricultural community cocreated by research and service providers. Service providers, such as Extension agents, need evidence-based programs to use in their work, but few agricultural health and safety interventions have been rigorously tested (Nilsson, 2016; O'Connor et al., 2014). The FDT provides a platform to build an evidence-based program and offer it to others.

The FDT is a unique health and safety tool for agricultural populations. The “standard of care” for this group has been lectures, educational brochures, and instructional videos (Cole, 2002; Petrea, 2001). The U.S. Department of Agriculture Cooperative Extension service delivers messages to farmers using these formats; but they do not include the larger family unit, are not interactive, and may not produce change. FDT used a theory-based approach to support learning in a more social and immersive fashion, using theater as the medium. It provided a forum for farmers and their families to address health and safety issues as farmers age in place. Older farmers desire to remain productive and are able to adapt, given an acceptable culture to make changes (Cole & Donovan, 2008). This was clearly reflected by the large percent of farmers and family members reporting health and behavior changes.

The FDT proved to be accessible, acceptable, applicable, affordable, and adaptable for the local communities (Penchansky & Thomas, 1981). FDT is *accessible*

to communities as it is easily delivered in a local and familiar place. It is *acceptable* to the farm community via the reality of the stories and messages, the relaxed atmosphere of the event, the use of local farmers as actors, and the *applicability* of the messages to their own lives (Reed & Claunch, 2015). The interactive approach resonated with participants and aided the effectiveness of the theater interventions (Cole, 2002; O'Connor et al., 2014; Knowles et al., 2015). The theater served as a conversation starter among farm households and became the pivot point for families to process changes in health and work behaviors. One participant noted, "It helps you talk about difficult issues that you couldn't talk about before." The diffusion of ideas as participants shared within their families and community supports the oral learning tradition of agriculture (Cole, 2002), creating a locally based culture of health and safety for farm families. Theater is *affordable* and promotes cross-sector collaboration, effectively building new contacts and resources (Eldredge et al., 2016). Each theater site easily *adapted* the scripts and logistics to meet their needs.

Sustained communication with the partners from each theater site created energy and synergy throughout the life of the project and beyond. The network was strengthened as partners worked together on presentations and became mentors to others who wanted to host a theater in their community (Behringer et al., 2018; Buys & Koukel, 2018; Sonke et al., 2019). Dissemination of project results yielded a rich tapestry of multidisciplinary exposure. Using multiple platforms, we were able to reach a broader audience of potential adopters. FDT adoption was bolstered through trainings offered by the research team in conjunction with the Extension collaborators using a "train the trainer" approach. The toolkit is currently available and further training is offered, supported by new funding.

## ► IMPLICATIONS FOR PRACTICE

The FDT concept empowers communities to change the culture of health through cross-sector collaboration. The importance of early identification of project aims and expectations with all collaborators provides a strong foundation for trust and sustained partnerships during and after the project period. The goal of any health promotion project should be to provide a "win-win" situation—that is, not just successful health outcomes but also building expanded and sustained relationships among collaborators. Sustained relationships across disciplines involved in the research strengthened trust and empowered collaborators to create new relationships in their communities that can foster health and

safety. Academic and service communities discovered new ways to approach health and safety.

The theater has been tested with younger farmers with results similar to the older group. Evaluations of community-led theaters that used the toolkit have demonstrated that the concept has moved successfully to local ownership. Furthermore, the theater concept can be adapted to other occupational and nonoccupational groups. It may be especially effective for groups with low literacy or work cultures where most knowledge transfer relies on oral tradition. The health and safety behavior changes made by farmers and their families who participated in this project decrease their risks for illness and injury, improving their safety and health outcomes as they age in place. The FDT concept empowers individuals and communities to improve health and well-being, providing broad applicability across potential topics and audiences.

## ORCID iD

Deborah B. Reed  <https://orcid.org/0000-0003-4808-8323>

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