

Original Research

**North Central Farm and Ranch Stress Assistance Center: 2020-2023:
Outcomes, Lessons Learned, and Recommendations for the Future**Josie M Rudolphi ^{1,*}, Courtney Cuthbertson ¹, Kimberly Keller ², Rebecca Mott ²1. University of Illinois, Champaign, IL, US; E-Mails: josier@illinois.edu; cuthbert@illinois.edu2. University of Missouri, Columbia, MO, US; E-Mails: kellerkj@missouri.edu; mottr@missouri.edu* **Correspondence:** Josie M Rudolphi; E-Mail: josier@illinois.edu**Academic Editor:** Lorann Stallones**Special Issue:** [Cultivating Well-being on Farms and Ranches](#)*OBM Integrative and Complementary Medicine*
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doi:10.21926/obm.icm.2402037**Received:** April 26, 2024**Accepted:** June 21, 2024**Published:** June 28, 2024**Abstract**

Agricultural producers (i.e., farmers, ranchers) and agricultural workers (i.e., hired labor, farmworkers) have worse mental health than the general population and often lack access to mental healthcare. In response, the United States Department of Agriculture's National Institute of Food and Agriculture funded four regional Farm and Ranch Stress Assistance Networks in 2019. In the north central region, the *North Central Farm and Ranch Stress Assistance Center (NCFRSAC)* was created in 2020 to develop, deliver, and expand stress and mental health assistance to agricultural producers, workers, and families in 12 states. Since 2020, the NCFRSAC has expanded a telephone helpline for agricultural producers and workers and published a clearinghouse website. In addition, the network has trained over 11,000 agricultural supporters in mental health programming, trained over 18,000 agricultural producers in stress management and mental health awareness programming, engaged over 850 farmworkers in support groups, and delivered more than 1200 hours of professional behavioral health services. As circumstances and conditions within agriculture change, such as commodity prices and export policies, NCFRSAC can continue to be responsive by modifying approaches and offering new resources to agricultural communities.



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Keywords

Agricultural producer; mental health; stress; programming; resources

1. Introduction

Agricultural producers (i.e., farmers, ranchers) and agricultural workers (i.e., hired labor, farmworkers) are in crisis. Studies of agricultural producers in the Midwest suggest the prevalence of depression ranges from 7.4% to 53%, substantially higher than the 6.1% observed among the general U.S. population [1-5]. The range in depression observed among farm populations may be due to differences in timing (peak season vs. no) or population of interest (men vs. women farmers). Similarly, it is estimated that 27% to 71% of agricultural producers in the Midwest experience anxiety which is, again, notably higher than what is reported among the U.S. population [4, 6]. Among farmworkers, the prevalence of depression likely exceeds 45% [7]. Furthermore, the rate of heavy alcohol use among full-time workers in agriculture is 9.4% compared to 8.7% among all-other full-time workers [8, 9]. Illinois farmers report engaging in recent alcohol use at a higher rate than the general population (74.9% vs. 54.2%) [10].

The 12-state north central region (NCR) (Illinois, Iowa, Indiana, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin) includes some of the most agriculturally productive states in the U.S. Importantly, almost 40% of all U.S. agricultural producers operate in the NCR and the region employs over 300,000 farmworkers. Compared to the U.S., the NCR has a higher proportion of primary producers whose principal occupation is farming, a higher proportion of primary producers who are young, and a higher proportion of primary producers that are non-white [11]. In 2017, the region had 391,295 producers (primary and other) that were women, a 19.2% increase from 2012, and an increasingly important producer demographic [11].

Despite the agricultural productivity, agricultural producers and workers in the NCR experience a myriad of occupational stressors associated with adverse mental health conditions [4, 5, 12, 13]. Farmers and ranchers consistently report stress related to commodity prices, costs of production, and interest rates and these negative financial realities have been associated with depression and anxiety among agricultural producers [4, 5]. In a national poll, more than 80% of farmers and farmworkers indicated that financial issues, farm or business problems, and the fear of losing their farm had a strong negative impact on their mental health [14]. In addition to finances, farmers have cited interpersonal relationships, time pressures, and environmental conditions (e.g., natural disasters) as sources of stress [4, 5, 12, 13]. COVID-19 exacerbated financial and production-related stressors among agricultural producers [15].

Personal factors such as age, gender, and race/ethnicity also contribute to unique stressors and increased risk of adverse mental health among agricultural producers and workers. Young agricultural producers experience stress related to time pressures and financial strain [4] and in multi-generational farming operation, the younger generation experiences more stress and less support than older generations [16]. Producers of color experience stress related to access to loans and other financial support, racism, fear of displacement as are not provided culturally competent outreach [17, 18]. Hispanic/Latino farmworkers often experience significant stressors including social disruption, poor or inadequate housing, and lack access to basic medical care [7, 19-21].

Many farm and ranch communities are in mental health professional shortage areas, which impedes agricultural producers and worker from obtaining adequate care [22]. In areas where mental healthcare is available, stigma, cost, feeling misunderstood by providers, and scheduling delays often discourage agricultural producers from seeking help [7, 23]. Left untreated, mental health conditions (e.g., depression, anxiety, and substance use) can lead to reduced quality of life [24], absenteeism and presenteeism in work contexts [25], higher rates of agricultural-related injury [26], and suicidal ideation [27].

In acknowledgement of unique stressors, mental health experience, and barriers to accessing mental health care agricultural producers and workers experience, the United States Department of Agriculture's National Institute of Food and Agriculture funded four regional Farm and Ranch Stress Assistance Networks in 2019. The goal of the Farm and Ranch Stress Assistance Network program is to develop regional networks that connect agricultural producers and others engaged in agriculture-related occupations with stress assistance programs. In the north central region, the *North Central Farm and Ranch Stress Assistance Center (NCFRSAC)* was created in 2020 to develop, deliver, and expand stress and mental health assistance to agricultural producers, workers, and families in the 12 NCR states. The objectives of NCFRSAC are to: convene a network in the NCR, expand telephone helplines and hotlines, establish a clearinghouse websites, provide training programs to individuals who support agricultural producers and agricultural producers and workers, expand professional services, and facilitate support groups. Here we describe outcomes and reach related to the priorities of the NCFRSAC from September 1, 2020 - August 31, 2023, lessons learned, and recommendations for the future. Effectiveness of specific programs, such as changes in knowledge, attitudes, practices, or stigma are not described. All procedures were approved by the Institutional Review Board at the University of Illinois Urbana-Champaign.

1.1 Outcomes and Reach

1.1.1 Convening a Network

The *North Central Farm and Ranch Stress Assistance Center (NCFRSAC)* partnered with Cooperative Extension Services in each of the 12 region states; University of Illinois Extension, Iowa State University Extension and Outreach, Purdue University Extension, Kansas State University Extension, Michigan State University Extension, University of Minnesota Extension, University of Missouri Extension, University of Nebraska Extension, North Dakota State University Extension, Ohio State University Extension, South Dakota State University Extension, and University of Wisconsin Extension, as well as National AgrAbility Program, Progressive Agriculture Foundation, and the Central States Center for Agricultural Safety and Health to meet the mental health and stress management needs of the agricultural populations in the region.

Cooperative Extension Services (CES) are state-based educational networks that provide non-formal education to farmers and others to address a public need. CES are housed within the land-grant university systems and have been delivering educational programs to farmers since 1914 and remain one of the most trusted sources of information [28]. Extension services have been identified as a source agricultural producers are interested in receiving mental health information from [29] and CES can contribute to behavioral health literacy by offering workshops and resources for stress management among agricultural producers, enhancing overall community well-being [30]. Social ties within networks, such as those in Extension, play a beneficial role in maintaining psychological

well-being, which is crucial in managing stress and mental health among agricultural populations [31]. However, it is important to consider populations that may not be or feel served by Extension services. For example, inclusion of and partnerships with organizations that know and serve diverse agricultural populations, such as producers who are Black, Indigenous, and/or people of color (BIPOC) and/or lesbian, gay, bisexual, transgender, and/or queer (LGBTQ+) producers is essential to meeting the needs of all growers in a state or region. Once the network was convened, the NCFRSAC focused on delivering resources and services through the following: a) clearinghouse website, b) telephone helplines/hotlines, c) trainings programs for individuals engaged in agriculture and agricultural-related occupations, d) support groups, and e) professional services.

1.1.2 Clearinghouse Website

In 2020, the project directors established the clearinghouse website (www.farmstress.org) with the goal that the website would receive 5,000 views per project year. The website was launched in April 2021. Between the launch and January 1, 2024, the site has received 15,151 views from 6,574 visitors.

The website includes over 170 resources specific for agricultural producers and agricultural workers on the topics of stress, depression, anxiety, substance use, suicide, centers, services, and more. Visitors can use a search function to find resources specific to their state or audience, such as women farmers, youth and families, or farmworkers.

1.1.3 Telephone Helpline

The NCFRSAC partnered with the Concern Hotline, formerly the Iowa Concern Hotline, at Iowa State University Extension to provide a hotline resource for producers and workers in the region. The Concern Hotline was established by Iowa State University Extension in 1985 in response to the 1980s farm crisis, recognizing farmers and ranchers needed access to stress counseling, crisis resources, and referral. The Concern Hotline operates 24 hours a day, 7 days a week and services are available in English and Spanish. Importantly, all staff have experience or training working with farming populations, to ensure the staff can connect with callers. Hotline staff can respond to calls about stress and crises, but also legal and financial questions of callers.

In 2020, project directors estimated the helpline would receive 2,000 calls per project year. During the three-year project period (2020-2023), the Concern Hotline responded to 21,1099 contacts (calls, texts, or emails). The line received contacts from all 12 states in the NCR. The average call length was 10 minutes. In 2020, the Concern Hotline made connections with the resources and services available in all 12 NCR states so staff could refer callers to local resources, when and if available.

1.1.4 Training Programs

Collaborators of the NCFRSAC offered training programs for agricultural supporters. Agricultural supporters are defined as individuals who advocate for or surround agricultural producers personally or professionally. Examples of agricultural supporters include family members and friends, agribusiness professionals, retailers, salespeople, and lenders, to name a few. The following training programs were offered to agricultural supporters: Mental Health First Aid (MHFA), Youth

Mental Health First Aid (YMHFA), Question, Persuade, Refer (QPR), Communicating with Farmers under Stress (CFS).

MHFA is an 8-hour, evidence-based program to train nonprofessionals to identify signs and symptoms of mental health issues, improve communication skills, and to connect people to appropriate professional help [32]. YMHFA has the same goals and is designed for adults who work with youth [33]. QPR is an evidence-based suicide prevention program that trains nonprofessionals to recognize warning signs of suicide, to offer hope, and to know how to get help [34]. CFS, created by MSU Extension, is a research-based curriculum designed for professionals who work with or support producers to recognize signs, symptoms, and effects of stress; unique stressors among producers; agricultural economic trends; how to communicate with a distressed producer; warning signs of suicide, and intervention steps to refer to appropriate resources; and national, regional, and local mental health resources. CFS is effective at improving knowledge of signs and symptoms of mental distress as well as skills to communicate with distressed people [35].

The goal was to train 1,695 agricultural supports during each year of the project period (2020-2023). During the project period (2020-2023), over 11,000 agricultural supporters were trained in an evidence-based mental health literacy program (Table 1). The programs listed in Table 1 were delivered in-person and online. Due to COVID-19, many programs were modified such that they could be delivered online while maintaining program validity. Post-COVID-19, many programs were still delivered online at the preference of participants.

Table 1 Number of agricultural supporters trained by program and project year.

	2020-2021		2021-2022		2022-2023		Total	
	Number of Events	Individuals Trained	Number of Events	Individuals Trained	Number of Events	Individuals Trained	Total programs	Individuals trained
MHFA	41	628	37	618	82	1,136	160	2,382
YMHFA	29	360	20	360	26	317	75	1,037
QRP	13	207	23	256	79	1,093	115	1,556
CFS	3	39	6	236	8	540	17	815
COMET	0	0	0	0	19	258	19	258
General FRSAN Presentation	21	1,183	32	1,526	54	2,311	107	5,020
Total	107	2,417	118	2,996	268	5,655	493	11,068

Partners in the NCFRSAC delivered educational workshops for producers and their families to develop skills and competencies around identifying and managing stress. Weathering the Storm (WtS) is a research-based program created by MSU Extension that was offered to producers and their families. WtS trains participants to identify signs of stress in themselves and others, stress management techniques, and warning signs of suicide as well as ways to reach out for help for themselves or others. Partners developed and delivered programs for producers related to agribusiness and farm financial decision-making. Michigan State University Extension developed and expanded a holistic model of pairing a farm finance educator with a behavioral health educator for home visit style conversations around financial management with individual farmers. University of Wisconsin Extension developed and pilot tested a program to help producers assess their financial situation and develop appropriate financial management strategies. Other programs tailored to women and youth and families were developed and delivered, in addition to more general presentations about farm stress and mental health (Table 2).

Table 2 Number of agricultural producers reached by program type and year.

	2020-2021		2021-2022		2022-2023		Total	
	Number of Events	People Trained	Number of Events	People Trained	Number of Events	People Trained	Total programs	People Trained
Agribusiness and Farm Financial Decision-Making	6	531	31	355	29	180	66	1,066
General FRSAN presentation	18	758	36	2,765	86	7733	140	11,256
Mending the Stress Fence	2	0	13	327	13	792	28	1,119
Taking Care of You	0	0	15	244	5	113	20	357
Other	7	44	0	0	0	0	7	44
Weathering the Storm	5	38	10	588	11	388	26	1,014
Women in Agriculture Programs	4	296	13	439	8	476	25	1,211
Youth and Family Programs	8	1,112	9	659	7	382	24	2,153
Total	50	2,779	127	5,377	159	10,064	336	18,220

The goal was to provide outreach to 1,495 agricultural producers during each year of the project period (2020-2023). period (2020-2021). During the project period, over 18,000 agricultural producers were engaged in educational programming (Table 2). Outreach programs were delivered in-person and online.

1.1.5 Support Groups

The Central States Center for Agricultural Safety and Health (CS-CASH) delivered *Bienvenido*, a 9-session prevention intervention program designed to (1) increase access to and use of mental health services, (2) reduce alcohol and drug use and other risk factors, and (3) increase immigrants’ sense of belonging and participation in the community [36] for farmworker communities. The CS-CASH team has trusted relationships with several farmworker communities.

CS-CASH facilitated *Bienvenido*’s 9-session program over 3 weeks annually from July to September. Meetings were hosted in public spaces or farmworker housing sites after work, lasted 1.5 to 3 hours, and were conducted in Spanish. Administrators provided refreshments for each session.

The goal was to engage 270 farmworkers in *Bienvenido* during the project period (2020-2023). From 2020-2023, CS-CASH administered *Bienvenido* to 859 farmworkers in Nebraska (Table 3). Preliminary results suggest the 9-week program reduced alcohol and tobacco use, increased active coping and positive reframing, and positive help-seeking among participants [37].

Table 3 Number of farmworker support group events and number of attendees.

Project Year	Number of events	Number of attendees
2020-2021	5	146
2021-2022	15	343
2022-2023	36	370
Total	56	859

1.1.6 Professional Services

Several NCFRSAC collaborators worked with nonprofit and healthcare organizations to provide mental health therapies for agricultural producers and their families, acknowledging agricultural producers and workers experience barriers to receiving mental health care. University of Missouri Extension offered the evidence-based intervention Skills for Psychological Recovery (SPR), a program tailored to the needs of producers and their families. SPR focuses on strengthening coping skills to manage stress, building resilience, and supporting good behavioral health adjustment in the face of acute and longer-term crises [38]. North Dakota State University Extension partnered with a statewide nonprofit to provide no-cost counseling services to distressed farmers, ranchers, and families (Table 4). The goal was to provide up to 270 hours of professional behavioral health services during the three-year project period (2020-2023).

Table 4 Number of professional behavioral health sessions provided to agricultural producers by project year.

Project Year	Tele-psych sessions	In-person sessions	Total sessions
2020-2021	107	27	134
2021-2022	510	215	725
2022-2023	331	106	437
Total	948	348	1,296

1.2 Discussion and Recommendations

1.2.1 Partnerships & Convening a Network

A strength of the NCFRSAC is participation from all Cooperative Extension Services in the 12-state region (University of Illinois Extension, Iowa State University Extension, Kansas State University Extension, Michigan State University Extension, University of Minnesota Extension, University of Missouri Extension, University of Nebraska Extension, North Dakota State University Extension, Ohio State University Extension, Purdue University, South Dakota State University Extension, and University of Wisconsin Extension) as well as the Central States Center for Agricultural Safety and Health (CS-CASH), National AgrAbility Program, and Progressive Agriculture Foundation. Cooperative Extension is a trusted organization in each state with a presence in every county, and a productive history of delivering educational programming and resources to agricultural audiences including farm stress and mental health programming, in some states [39, 40]. The NCFRSAC brought Extension Services together and provided space for information and experience exchange, where CES with limited experience with farm stress and mental health programming could learn from and consult with CESs that had been operating in the farm stress and mental health space for decades.

Addressing mental health in agricultural populations necessitates a nuanced understanding of the specific contexts and cultures within farming communities [41]. From 2020-2023 it was increasingly obvious that some agricultural producers and their experiences were not being addressed through the NCFRSAC, this includes producers of color, specialized growers, and LGBTQ+ agricultural producers, to name a few. The intersectionality of sexuality, gender identity, and occupation plays a critical role in health outcomes, with LGBTQ+ agricultural producers experiencing unique occupational and identity-based stressors that impact their mental health [42]. Similarly, sexual minority groups face heightened mental health risks due to discrimination, a situation exacerbated in the agricultural sector where minority stress combines with farming challenges [43]. Addressing these disparities requires specific support, such as collaborating with organizations that offer tailored assistance and advocacy, which has been shown to benefit minoritized agricultural producers like Latino women farmworkers facing economic hardships [44]. Partnering with additional land-grant universities, specifically Historically black colleges and universities (HBCUs) and tribal colleges and universities could support and engagement with more diverse agricultural producers and workers. Future efforts should focus on establishing partnerships and collaborations with organizations that serve and represent the diversity of agricultural producers in the region and underserved agricultural producers and worker populations.

There are challenges to engaging organizations in this type of work, including competing priorities and capacity of staff to take on additional initiatives. Providing financial resources through subawards

and contracts is necessary to provide support to organizations without a budget to support stress and mental health outreach to agricultural producers and worker constituents. Organizations have varying numbers of staff dedicated to farm stress-related issues; one mitigation strategy would be to require partnering organizations to use some of their funding to hire new staff, thus increasing capacity. At a sector level, leadership of agricultural organizations and Cooperative Extension could make strong statements expressing the importance of work related to mental health and farm stress, followed by dedication of concrete resources to support such efforts; generating buy-in from additional sectors, such as healthcare, would help.

1.2.2 Clearinghouse Website

The NCFRSAC clearinghouse website was among the first of its kind and served as a central hub for resources, research, and support tools related to agricultural mental health and stress management. Strengths of a clearinghouse website include its extensive research pool, usability, accessibility, and its comprehensive approach through multi-component programming and targeted strategies [45]. By convening networks and sharing experiences, the clearinghouse also fosters a community of practice that enhances the reach and impact of mental health programs, addressing the needs of farming populations [46]. To ensure resource coverage, all NCFRSAC partners were asked to submit at least five resources to be included on the clearinghouse website. Website traffic exceeded expectations in the first three years.

However, despite these strengths and successes, challenges are present. Community member engagement and ensuring that farmers and ranchers interact with the site frequently and deeply enough to benefit from the resources available are concerns [47]. Site management is critical as it can negatively impact usability, reducing the user experience and learning potential [48]. Resources must be organized in a way they can be found easily and quickly, especially in a crisis. Additionally, the accuracy and quality of information must be managed carefully and updated frequently to account for best practices, as they can significantly affect user utilization and trust and subsequently the effectiveness of the resources provided [49]. Website maintenance and updating can be time and resource intensive, especially when considering the pace of which resources are created and, unfortunately, outdated. Additionally, evaluating resources to determine which belong on a clearinghouse website is complex, and protocols for resource inclusion may need to be evaluated and updated routinely. However, protocols are necessary to vet resources and services and ensure that any resources or services listed on the website meet the project objectives.

Recommendations include convening a committee of content experts and potential website users (agricultural producers and workers) to screen resources, developing a protocol or checklist to determine whether nominated resources fit within the scope of the website, and quarterly evaluation by a web manager to determine which web resources are most used and downloaded. Research to determine preferences for website content and website navigation among agricultural producers and workers could improve usability while reducing website resources. Importantly, USDA required a clearinghouse website as part of the FRSAN effort; however, there are populations and geographic regions with limited internet access. Policy recommendations include expanding broadband access to rural and remote areas as a means to increase access to information to help manage stress and mental health.

1.2.3 Telephone Helpline

The NCFRSAC benefited from and appreciated the opportunity to partner with the Concern Hotline, a long-standing agricultural-centered phonenumber available in the north central region through Iowa State University Extension. The Concern Hotline directors and staff immediately assisted in collecting relevant stress and mental health related resources and services for the 11 other states in the region as to appropriately refer callers from outside of Iowa to more local resources. Traffic to the helpline exceeded projections in the first three years of the NCFRSAC. Telephone-based interventions demonstrate potential in alleviating symptoms of depression and anxiety [50]. Telephone helplines offer immediate access to support, which is particularly important for isolated individuals experiencing acute stress or crisis situations. There are challenges to managing a helpline, including ensuring staff have the appropriate experience and background to connect with callers, ensuring the line is adequately staffed, and projecting the staffing needs, which can vary depending on environmental, political, and social disruptions in the agricultural landscape. To mitigate these challenges, we worked closely with Iowa State University Extension to scale up phonenumber staffing as traffic increased. All phonenumber staff have a background or experience in agriculture, which helps staffers relate to and connect with producer callers. It is very challenging to evaluate the effectiveness of a helpline. Calls are usually anonymous, and follow-up contact by the helpline for evaluation purposes is not feasible or appropriate. Individuals often call a phone line for the confidentiality and anonymity phonenumber offer. To ask a caller if they can be contacted for follow-up regarding their experience would be inappropriate and dissuade people from calling in. However, identifying opportunities to evaluate helplines should be a priority.

Since 2020 regional and state-specific hotlines have emerged. NCFRSAC project directors and state partners emphasize the need for commitment by regional and state lines to operate consistently and be staffed appropriately. Feedback from state partners, stakeholders, and Extension have emphasized the need for sustainable phonenumber, expressing concerns in recommending phonenumber with limited hours and/or phonenumber supported by intermittent or grant funding. Regardless of how lines are operationalized or organized, it is important that lines be staffed with people who have experience in or an understanding of agriculture and the unique challenges the communities within experience.

1.2.4 Training Programs

Training programs centered on mental health awareness, stress management, and resilience are pivotal in tackling the mental health crisis within the agricultural sector. Interventions based on mental health literacy education, such as those provided to farm financial service providers, have significantly improved both objective and self-rated knowledge, underscoring the potential of such initiatives in agricultural settings [35]. Moreover, programs designed for agribusiness professionals have demonstrated success in enhancing abilities to identify and support distressed producers, further validating the importance of specialized educational efforts [40].

NCFRSAC partners prioritized evidence-based programs including Mental Health First Aid (MHFA), Youth Mental Health First Aid (YMHFA), and Question. Persuade. Refer (QPR). Since 2020, the demand for these programs has been relatively strong as participation increased over 360% from the first to the third year of NCFRSAC. However, some challenges associated with training programs include COVID-19 and having to shift in-person programs to online formats, time commitment

required for participants, and variation in topic coverage. For example, QPR is a program that can be delivered in about an hour, but the focus is only on suicide prevention. MHFA and YMFA are much more robust in topic coverage, but require up to 8 hours of reading and instruction. To mitigate such challenges, NCFRSAC partners have prioritized training programs that are of most interest in their local communities, and some have conducted needs assessments to better understand training needs. NCFRSAC partners have found success in scheduling training programs with businesses and organizations, such as a county or state Farm Bureau, a cooperative, or a bank.

Network partners have reported that farmers and ranchers are interested in programs that are agriculturally specific. Having culturally responsive training helps participants to see themselves in material and understand its relevance, as well as improving likelihood of adopting new approaches or behaviors [51-53]. For people in supportive roles, better understanding of financial planning and management can help them to provide producers with new skills and strategies to move towards upstream solutions to farm stress [54].

To be responsive to diverse mental health needs within agriculture, practitioners could continue to develop research-based, agriculture-specific mental health trainings for populations within agriculture. To be responsive to stress from time pressures, practitioners could also format programs to be modified in depth and time required so training may be included in existing agriculture meetings, such as commodity conferences or farm shows. Making resources available online may facilitate mental health literacy and willingness to reach out for help while maintaining privacy [55]. Our previous policy recommendation related to broadband internet access would also support participation in online training programs for people who currently have insufficient or no internet access.

1.2.5 Support Groups

From 2020-2023, NCFRSAC support group initiatives were somewhat limited to farmworker communities, primarily in Nebraska. Establishing supportive social networks for agricultural populations connect and communicate, and promoting the narrative of the farming community is important in addressing farm stress and poor mental health outcomes [56]. Facilitated support groups can offer a space for sharing experiences and strategies for coping with stress. Support groups are effective in facilitating recovery for individuals with substance use disorders and mental health issues by providing a sense of community, enhancing coping strategies, and increasing participation in social and community activities, reducing stigma [57-60]. While the number of farmworkers engaged in these initiatives exceeded what was projected for the grant period, and we recommend continued investment and engagement with farmworker groups, there were some challenges to consider. In-personal support groups are time and resource intensive and require facilitation by a trained individual. To mitigate these challenges, partners implemented an evidence-based support group program, *Bienvenido*, and all instructors participated in an in-depth training.

Future initiatives should engage additional agricultural populations in support groups, including agricultural producers. Sharing personal stories can be a significant part of the healing process and provide hope to others [61] and the creation of agricultural peer support groups could utilize the lived experiences of agricultural workers to foster a community of support and understanding. Peer support programs could be integrated into established mental health services and will require collaboration with community organizations and stakeholders to expand their reach and impact [58].

The modality and facilitation of support groups should be thoroughly considered. Peer support can be applied through different methods, such as mutual support, peer-led organizations, and peer-provided services, each varying in formality and structure [58]. Peer-led formats provide group members with an alternative experience distinct from conventional mental health services [62] that fosters a common language and sense of acceptance and allows for peer observation, thus fostering encouragement and normalization of behavior. Facilitating support groups or a similar model based on type of producer or by commodity would provide producers the opportunity to engage with like-producers that share in common language and similar personal and professional experiences.

The curation of specialized peer groups catering to the needs of underrepresented agricultural workers, including minoritized and LGBTQ+ farmers is also critical and should be a priority. Culturally-responsive support groups have been found to be effective at addressing depression, anxiety, migrant farmworker stress, and hopelessness [63]. Enhancing access to and awareness of the advantages of peer support within underserved communities is the first step in tackling disparities in psychosocial outcomes among various racially or ethnically minoritized groups [64].

Integrating both online and offline peer support groups is advantageous and can enhance recovery-focused care [65]. Confidentiality and safety should be considered as anonymity in accessing mental health support fosters a supportive and non-judgmental space where individuals can openly seek help, share their struggles, and receive the support they need [66]. Online support groups may be beneficial for agricultural populations that are geographically dispersed and time and distance to meeting spaces may preclude participation. Online spaces could also purposefully connect agricultural producers from different states, should producers want to maintain some anonymity in their home and work communities. Stigma around mental health remains pervasive and may discourage producers from participating in-person. However, rural communities often lack reliable, high-speed internet, which could limit or preclude participation in online support groups by agricultural producers or workers.

1.2.6 Professional Services

Access to professional mental health services is critical and the development of such programs should be considered via engagement with the agricultural community [67]. Farmers have identified professional mental health providers as a source they are very interested in receiving mental health information and assistance from [29], however, access, availability, and cost remain barriers for many agricultural communities. Focusing on improving access to mental health care services for agricultural workers, including addressing barriers such as cost, transportation, and availability is essential to assisting farmers' mental health [68]. Several NCFRSAC partners are providing free professional behavioral health services to agricultural producers and workers. From 2020-2023, the NCFRSAC provided more hours of professional behavioral health services than expected, which is a testament to the demand for these types of services. While the programs are highly utilized, there are challenges.

Building trust, awareness, community-based recommendations and resources, place-based services, university partnerships, and telehealth are important processes within professional service development [69]. Most NCFRSAC partners operating in university setting or Extension have relied on partnerships with non-profit health organizations or federally-qualified health centers to provide mental health services. Importantly, these relationships take time to develop and cooperative

agreements between various entities often take time to get established. The time and effort required to get voucher programs set-up needs to be realized and planned for in timelines and budgets.

In the north central region, NCFRSAC partners have had success in recruiting farmers into in-person and telehealth professional behavioral health services. In-person behavioral healthcare provides a safe and secure place for an individual to receive mental health attention. However, research has found no significant differences in patient mental health outcomes between in-person and telehealth therapies [70]. Online options reduce travel times and transportation barriers for producers seeking professional services and provide additional confidentiality, however, internet-based mental health support may not be acceptable for all farmers especially those with poor internet connectivity [71].

While professional behavioral health services will continue to be priority for the NCFRSAC. Recommendations include improved evaluation of these services, although this shares challenges like those in evaluating a helpline. Practicing protocols and confidentiality clauses preclude providers from sharing information about their patients with program evaluators. Requesting patients opt into a pre- and post-service evaluation system may dissuade individuals from participating in behavioral health services at all. However, evaluation of professional behavioral health services is necessary to justify the continued investment. Like the cultural competency requested among helpline staff, mental health providers should have some understanding of agriculture to best serve their agricultural clients. Finally, policy recommendations include expanded coverage of mental health services by health insurance to reduce financial barriers among agricultural producers and workers.

2. Conclusion

Since its start in 2019, the NCFRSAC has been a successful mechanism to convene a broad group of partners to share best practices and implement programs to support stress reduction and mental wellbeing among agricultural populations. As circumstances and conditions within agriculture change, such as commodity prices and export policies, NCFRSAC can continue to be responsive by modifying approaches and offering new resources to agricultural communities. Programs and initiatives that work upstream to directly address root causes of farm stress would complement existing efforts. In this spirit, some current NCFRSAC partners are testing farm succession planning and farm financial planning programs, as previously described; future NCFRSAC efforts will continue to identify and work on upstream issues creating farm stress. Future efforts also include investigating barriers to mental health care so NCFRSAC can adapt information and resources appropriately.

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Author Contributions

Josie Rudolphi and Courtney Cuthbertson contributed to the conceptualization and data collection. Kimberly Keller and Rebecca Mott conducted data analysis. All authors contributed to writing the manuscript.

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Competing Interests

The authors confirm there are no competing interests.

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