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The Landscape of Farmer Mental Health Programs in the US Midwest

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ABSTRACT

Purpose: Agricultural sector crises have historically led to a sharp increase in resources for farmers' mental health. Yet, our understanding of the effectiveness, acceptability, and long-term sustainability of these is limited, and research rarely assesses the offering of programming within a geographic region.

Methods: We conducted online environmental scans in 2019 and 2022 (a period that encapsulates a farm income crisis and the height of the COVID-19 pandemic) in three Midwest states to understand: 1) what the mental health programming landscape looks like, 2) how it has evolved in response to crises, and 3) the progress made toward addressing major stressors and key barriers to care.

Findings: The number of organizations providing resources more than quadrupled, and the number of programs and resources more than tripled. Organizations most represented shifted from the farm sector in 2019 to the health sector in 2022. Educational material remained most prevalent, followed by programming to increase health care access. Meanwhile, the share of programming addressing key stressors was halved. Programming was overwhelmingly targeted at the farm population over service providers, with visual representations overall lacking diversity.

Conclusion: Findings around the sharp increases in programming and organizations involved hint at challenges connected to the coordination and sustainability of programming. The emphasis on addressing the manifestations of mental health challenges in tandem with limited linkages to financial resources raises questions about the efficacy and acceptability of programming. It also hints at the potential (re)enforcement of norms and stigma around mental health and help-seeking.

KEYWORDS

Agricultural and farm population; extension programming; mental health; rural healthcare; service delivery

Introduction

The high prevalence of mental health challenges in agriculture (i.e., stress, anxiety, depression, and suicide) compared to other occupations, in the United States, but also globally, has been documented for decades.^{1–5} For example, 43.2 farm/rancher manager men per 100K died by suicide in 2016, the ultimate manifestation of mental health distress, compared to 27.4 men per 100K for all occupations.⁶ As economic, environmental, and public health crises have impacted agriculture, farm organizations, farm service providers, and government agencies have sought to swiftly respond by developing programs and resources to reduce the farm sector's mental health burden.^{7–12} A recent example in the US is the allocation of over \$58 million in 2019 to develop the Farm Ranch and Stress Assistance Network

(FRSAN) in response to the farm income crisis of the late 2010s.^{13,14} While not specifically focused on the agricultural population, the easing of telehealth guidelines and regulations (e.g. increased payment parity, all clinicians can now bill for Medicare services)¹⁵ along with funding from state and federal agencies to offset the consequences of the COVID-19 pandemic temporarily increased support for mental health services in rural areas.

As much as the rapid deployment of programs and resources in times of crisis is crucial to addressing acute needs, scholars have recently noted the dearth of research on mental health programming for the agricultural population including the effectiveness, acceptability, and long-term sustainability.^{9,16–20} Looking at the literature as a whole, most studies focus on one type of

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intervention at once (i.e., mental health and crisis literacy programs; peer and paraprofessional support) in isolation from other types of interventions in that geographical area.^{17,19} Overall, this body of work points to mixed findings on the effectiveness and acceptability of these programs in the short term,^{17,19,21} concerns connected to the mismatch between the root causes of the issues and the locus of interventions,^{8,16,22,23} and outstanding questions around the long-term effects and sustainability of these programs.

In addition to needing to evaluate individual programs and resources, scholars have called for systemic approaches that consider the full range of offerings available to agricultural communities within a geographic area.^{9,17,20,23} This type of approach is needed to develop a more holistic understanding of who provides programs and resources in a given area, targeting whom, and using what approach. In other words, this type of assessment can help us understand how major sources of mental health challenges (e.g., financial issues on the farm, succession planning, weather, farm economy, markets, regulations, isolation, relationship challenges), key barriers to care (e.g., mental health stigma, lack of knowledge about services, cost, and availability of care), and variations in lived-realities and needs (e.g., based on age, gender, race/ethnicity, and occupational status) are addressed within that area.^{1,3,18,23–26} We only know of five studies covering three countries that have used a systemic approach to understand how organizations within an area responded to crises through a mix of document reviews, interviews, and surveys. One set of studies, both from the US, takes an exploratory approach to describe the set of programs and resources, including the type offered, by whom, using what mode, and targeting whom.^{27,28} Another set of studies, covering Canada and the UK, uses an explanatory approach to critically assess how agricultural mental health resources have developed, to what they are responding, and what alternate goals they may be meeting.^{7–9} While there are variations in the crises studied, this body of work notes that programming tends to emphasize awareness raising and addressing mental health stigmas, while programs to increase access to care are fewer. Only two of these studies speak to the inner workings of

organizations, finding challenges connected to a lack of resources and staffing.^{7,9} Overall, this line of work is relatively new, limited, and cross-sectional. Still, these studies provide important building blocks to continue responding to scholars' calls to adopt systemic approaches.

In this article, we leverage the existing body of work while adopting a longitudinal approach to continue assessing what the agricultural mental health programming landscape looks like in an area and how it changes in response to crises. We use data collected through two waves of environmental scans of programs and resources in three Midwestern states (Minnesota, South Dakota, and Wisconsin) and answer the following research questions: 1) What are the availability and type of agricultural mental health programming and who is offering it?; 2) How has the programming landscape evolved between 2019 and 2022 (a time period that encapsulates a farm income crisis and the height of the COVID-19 pandemic)?; and 3) What progress has been made toward addressing major sources of stress and key barriers to care? Our interpretation of the findings is grounded in the rich and rapidly growing body of the literature on mental health in agriculture. While mental health challenges are not limited to the agricultural sector, we focus on programming targeted to this population, because farmers have consistently expressed their preference for support from people with agricultural knowledge.^{24,25,29,30} Given our focus on agriculture, the Midwest is a noteworthy region to examine. This region produces 45% of all US farm sales, while it accounts for the second-largest share of farmers' suicides.^{31,32} We define the agricultural population as encompassing farmers, farm workers, and their families and note that the previous literature has already pointed to the emphasis of agricultural mental health programming toward male farmers who are white. This is despite the heterogeneity of the farm population in terms of gender, race, ethnicity, class,^{3,4,7,23,33,34} and how sources and manifestations of stress vary across these groups.^{35,36} To be clear, an environmental scan based on online searches does not produce an exhaustive listing of the universe of resources available, nor does it capture the lived realities of agricultural communities interacting with these resources. It is still a productive

approach to understand the resources visible to someone searching for help in their area given how common online searches have become in our daily lives. This approach also lays the groundwork for additional research on the landscape of programming and to understand agricultural communities' lived realities and perspectives engaging with it. Given our contemporary context around the long-term effects of the COVID-19 pandemic, ongoing economic pressures in farming, and increases in extreme weather events, our findings contribute to building the body of knowledge needed to inform the development and refinement of programs, resources, and policies to support the resilience of agricultural populations and support their well-being. In addition, our longitudinal approach, which builds on and expands previous typologies,^{7,27} can be reproduced to enable the comparison of agricultural mental health programming across time and space.

Methods

Study design and data collection

Our data come from two waves of environmental scans of mental health programs and resources targeted at the agricultural population. The first wave of data was collected between February and May 2019 (hereafter the 2019 wave) for a pilot

study in the 12-state Extension North Central Region. The second wave of data was collected between November 2022 and February 2023 (hereafter the 2022 wave) and focused on Minnesota, South Dakota, and Wisconsin. See Figure 1 for study areas. The narrower geographical focus for the 2022 wave is due to the comparative case study approach we are using for a larger 5-year mixed-methods project.³⁷ While these three states are not expected to be significantly different from other Midwestern states in terms of the prevalence and sources of mental health challenges in agriculture, they were selected to achieve maximum variation concerning the provisions of services and health beliefs which include, for example, the state expansion of Medicaid. Connecting to Andersen's behavioral model of health use services,^{38,39} this type of variation in the larger environment is expected to have an influence on the quantity and type of programs and resources available. The methods and findings from the 2019 wave have been previously published.²⁷ In this article, we expand on these methods and then compare the findings across the two waves to deepen our understanding of the agricultural mental health programming landscape.

We identified programs and resources by conducting online searches of the following keywords: "anxiety", "crisis", "crisis assistance", "coping", "depression", "mental health", "stress", "suicide", "well-being" in

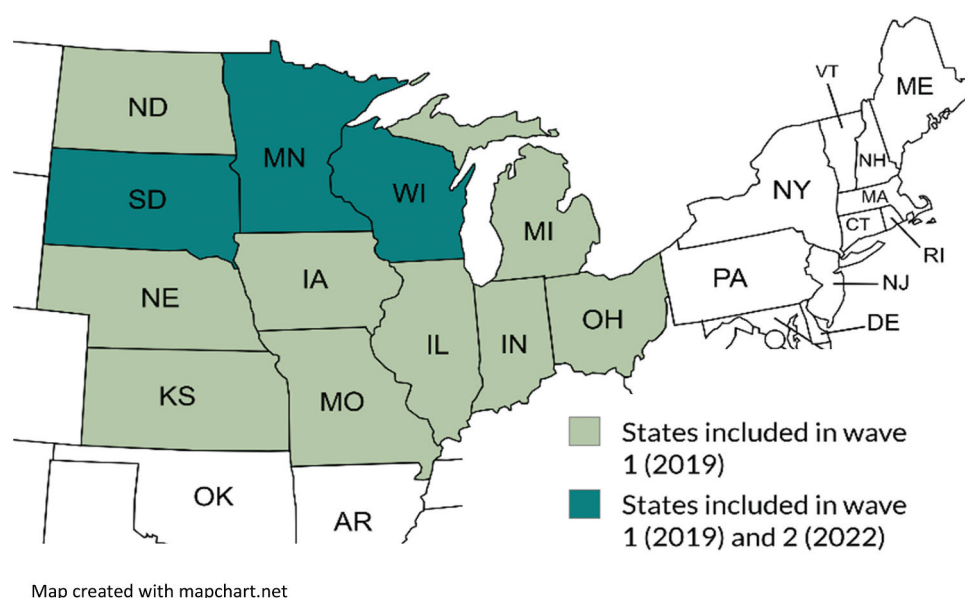


Figure 1. U.S. states included in the two waves of environmental scans.

conjunction with “agriculture” and “farm” and the study state (e.g. *coping&agriculture&Minnesota*). These keywords were selected based on words frequently used in a subset of programs or resources we reviewed prior to doing the systematic searches. We conducted these searches in the search engines, Google, and DuckDuckGo (for the 2019 wave), until we reached saturation (i.e., no additional programs or resources being identified). We chose to do the searches in Google because it is the top search engine globally. While a more obscure search engine, we initially chose to use DuckDuckGo because the search findings are not based on previous searches nor are they personalized. After assessing that the material identified met the search criteria, we recorded the state, organization, program/resources delivered, and URL in a spreadsheet. We also saved an electronic printout of relevant sections of the websites along with relevant attachments as the source material for data coding and analysis. Because we aim to develop an understanding of the programming in an area, we are defining programming broadly to include all education and information related to mental health for the agricultural population, which includes, for example, news media articles, resource and crisis hotlines, one-on-one and group counseling, fact sheets, workshops, and conference presentations. While English was not an explicit criterion in our search, we only used search terms in English and all materials identified were written in English. This is a limitation of our study that we discuss below. Another limitation of our study is our reliance on online searches to assess the agricultural mental health landscape. We discuss this limitation and related implications below. Given the three-state geographical focus of the 2022 wave, we removed resources identified through the 2019 wave that were from outside our three-state study region for 2022. Three of the authors conducted the scan for the 2019 wave. One of the authors conducted the scan for the 2022 wave. For both waves, the authors met regularly to review the process and reach agreement on the inclusion or exclusion of resources.

Data coding and analysis

Looking at both the written content and visuals of the material identified, we applied a typology covering the structure and content of the identified programming (Table 1). This typology included six

components: 1) Target audience, 2) Type of programs and resources, 3) Delivery methods, 4) Type of organization, 5) Source of provision, and 6) Programming focus. The first three components of the typology were originally developed for the 2019 wave,²⁷ and the latter three are new. All of the typology components, except for “programming focus”, were developed using an inductive approach. We initially chose this inductive approach when working on the 2019 wave given the dearth of research assessing the landscape of programs and resources within a geographic area. The “programming focus” component was developed using a deductive approach based on recommendations from key informants that we conducted in the region to address key sources of stress and barriers to care.²³ Only resources that provided specific programs to address key stressors were classified as such (as opposed to naming or discussing a key stressor). To simplify the data analysis process while accounting for programs and resources fitting in more than one category, we applied a yes/no code for each of the typology components. In addition to coding, we took notes of additional information such as demographics represented in the programs and resources, topics covered, and approaches used. Three of the authors coded the material from the 2019 wave using the original typology. One of the authors coded the material from the 2022 wave and applied the new codes to the material from the 2019 wave. The authors met regularly to discuss their approach to coding and to reach consensus on the coding approach.

We assessed the frequency of each code through univariate analysis. We also calculated the absolute change (i.e., change in the number of programs) and the percentage change between 2019 and 2022 (i.e., change in the share of programming). Finally, we reviewed our notes and developed a summary of key themes to provide context for the quantitative findings.

Results

Organizations offering programming

Across all three states, we identified 62 organizations offering mental health programs and resources to the farm population in 2022

Table 1. Typology used to code identified programming.

Typology components	Typology components categories	Approach used to develop category
Target audience	.1) Farm population; 2) General rural population; 3) Service providers.	Repeated components, based on Inwood et al., 2019
Type of programs and resources	.1) Fact sheet/web page; 2) Hotline; 3) In-person counseling; 4) Workshop; 5) Conference presentation; 6) News article; 7) Other.	
Delivery Methods	.1) Self-help (i.e., information processed and used by individuals on their own); 2) Mediated help (i.e., help available to an individual through another individual); 3) Other.	New components developed using an inductive approach
Type of organizations	.1) Farm sector: farm organizations, University extension, farm service providers, state agencies of agriculture and community-based farm organizations; 2) Health sector: healthcare providers, county and state health agencies, and community-based health organizations; 3) Other: faith groups, non-health related county departments, and news outlets.	
Source of provision	.1) Provider (i.e., an organization providing a resource directly to community members); 2) Sharer (i.e., a group sharing another organization's resource with its own constituents); 3) Other.	
Programming focus	.1) Education about mental health (i.e. to reduce stigma, increase awareness of mental health challenges, increase knowledge of existing resources); 2) Improve access to care (i.e. increase providers' knowledge of rural/agricultural lived-realities, increase the availability of crisis lines and mobile crisis units, integration of physical and mental healthcare, ease access to health insurance); 3) Address key sources of stress (i.e. financial/succession planning, diversify farms including commodities produced and market channels, counter loneliness, address structural issues underlying financial stress)	New components, based on key informants' recommendations from Henning-Smith et al., 2021

compared to 17 in 2019, nearly a four-fold increase (Table 2). In 2022, county and state health agencies and healthcare providers (23% and 19%, respectively) offered the most mental health programming. Common examples of health agencies included state and county-level departments of health and social services. Frequent examples of healthcare providers included large healthcare systems, private practice behavioral health specialists, and counseling associations. Overall, the service

area of these organizations seemed to most often be focused on a patient-serving organization area. University extension and farm service providers were the next most frequent type of organization in offering programming (13% and 10%, respectively) and seemed to most commonly have a state-wide reach. Common examples of farm service providers included for-profit organizations offering financial services (e.g., AgCountry Farm Credit Services).

Table 2. Types of organizations offering mental health programming.

	Minnesota, South Dakota, Wisconsin					
	2019 (n = 17)		2022 (n = 62)		Absolute change 2019–2022	% change in share 2019–2022
	No.	%	No.	%		
Farm sector						
Farm organization	1	5.9	4	6.5	+3	+10%
University extension	4	23.5	8	12.9	+4	–45%
Farm service providers	0	0.0	6	9.7	+6	.
State agencies of agriculture	3	17.7	3	4.8	+0	–73%
Community-based organization	1	5.9	3	4.8	+2	–19%
Health sector						
Healthcare providers	1	5.9	12	19.4	+11	+229%
County and state health agencies	1	5.9	14	22.6	+13	+283%
Community-based	3	17.7	4	6.5	+1	–63%
Other sectors						
Faith group	1	5.9	2	3.2	+1	–46%
Non-health-related county departments	0	0.0	1	1.6	+1	.
News outlet	2	11.8	5	8.1	+3	–31%

Compared between 2019 and 2022, we found an increase in the number of organizations offering mental health programming across all sectors. The increase was the sharpest in the health sector (13 additional county and state health agencies and 11 additional healthcare providers offered programming), followed by the farm sector (6 additional farm service providers and 4 additional university extension provided programming). When looking at the change in the share of organizations providing programming, programming offered by the health sector increased by the most (+283% for county and state health agencies and +229% for healthcare providers), while programming offered by other sectors decreased (−31% for news outlets and −46% for faith groups). The change in the share of programming from the agricultural sector varied as it decreased for some types of organizations (respectively, −19%, −45%, and −73% for community-based organization, university extension, and state agencies of agriculture) and increased for farm organizations (+10%).

Format and characteristics of mental health programming

Target audiences

Across the three states, we identified 93 programs and resources to support the mental health of the agricultural population in 2022 compared to 28 in 2019, an increase of more than three-fold (Table 3). The 2022 programming most often focused on the farm population (63% of programming identified), followed by the general rural population (29%), while few resources were targeted at service providers (4%). The targeting of the farm population was most often shown through images of farm landscapes, machinery, and animals. Occasionally, pictures of farmers, mostly silhouettes of men, were shown. If a face was included, expressions were mostly lacking any emotion and the skin tone was white. The targeting of the general rural population was shown through general images of office buildings, nature, infographics, and state or city identifiers. The images varied in how many people were included and in what expressions and emotions were depicted.

Table 3. Format and characteristics of mental health programming.

	Minnesota, South Dakota, Wisconsin					
	2019 (n = 28)		2022 (n = 93)		Absolute change 2019–2022	% change in share 2019–2022
	No.	%	No.	%		
Target audiences						
Farm population	20	71.4	59	63.4	+39	–11%
General rural population	5	17.9	27	29.0	+22	+62%
Service providers	3	10.7	4	4.3	+1	–59%
Combination of above	0	0	3	3.2	+3	.
Types of mental health resources						
Fact sheet/web page	8	28.6	38	40.9	+30	+43%
Hotline	2	7.1	11	11.8	+9	+66%
One-to-one counseling	6	21.4	13	14.0	+7	–35%
Workshop/conference presentations	6	21.4	18	19.4	+12	–9%
Other ^a	6	21.4	13	14.0	+7	–35%
Types of program delivery methods						
Self-help	14	50.0	50	53.8	+36	+8%
Mediated help	11	39.3	31	33.3	+20	–15%
Other ^b	3	10.7	12	12.9	+9	+21%
Sources of provision						
Provider of resource	23	82.1	63	67.8	+40	–17%
Sharer of resource	5	17.9	30	32.3	+25	+80%
Programming focus						
Education on mental health	18	64.3	56	60.2	+38	–6%
Improve access to care	5	17.9	29	31.2	+24	+74%
Address key stressors	5	17.9	8	8.6	+3	–52%

^aOther includes primary care medical services targeting farmers, support groups, financial/legal support, advocacy, and radio broadcasts.

^bOther includes referrals to other agencies and programs, awareness campaigns, mental health training for community members, and stakeholder plans.

Comparing the target audiences between 2019 and 2022, the number of programs and resources targeting the farm population increased the most (+39 programs and resources), followed by those targeting the general rural population (+22). Yet, looking at the share of programming focusing on the different audiences, the share in programming for the general population increased (+62%), while the share of programming targeting service providers and the farm population decreased (respectively, -59% and -11%).

Types of programming available

Regarding the types of programming available in 2022, fact sheets/webpages were the most frequent types of resources (41% of all resources identified), followed by workshop/conference presentations (19%), and individual counseling (14%) (Table 3). Looking specifically at the content of the programming, fact sheets and webpages often included information about recognizing and mitigating stress and employing positive coping strategies. Images included with this information were the most frequent silhouettes of farmers and farm landscapes over pictures showing the faces of farmers. These resources also incorporated links to regional hotlines and local counseling services. Common examples of workshops and conferences included seminars geared toward farm service providers like Mental Health First Aid, workshops focused on farmers about reducing personal stress and building communities, and trainings targeted toward rural community members about farm culture.

Comparing the types of programming between 2019 and 2022, the offering increased in absolute for all the types of mental health resources, but it increased the most for fact sheets/web pages (+30). However, when considering the change in the share of types of programming offered, hotlines and fact sheets/web pages were the only type of resources that saw their share increase (respectively, +66% and +43%), while the share of the other types of resources decreased (-35% for one-to-one counseling and other resources and -9% for workshop/conference presentations).

Delivery formats

In 2022, programming was most frequently categorized as self-help followed by mediated help

(respectively, 54% and 33% of all resources identified) (Table 3). Common examples of self-help included web pages, fact sheets, podcasts, and news articles that covered topics like recognizing the signs of stress, reducing the stigma around mental health, managing stress through positive coping strategies, and creating calm using breathing exercises. Mediated help included one-on-one in-person and telehealth counseling services, instructor-led trainings, information and crisis hotlines, support groups, mediation programs, and financial counseling.

Compared to 2019 and 2022, there was an increase in programming across all types of delivery methods, with the greatest increase for self-help (+36 programs and resources) followed by mediated help (+20). Yet, the share of programming increased the most for other types of delivery methods (i.e., mental health trainings for rural community members) (+21%) followed by self-help (+8%), while the share of mediated help decreased (-15%).

Sources of provision

In 2022, programming was most often shared by the original provider (67% of programming shared that way) compared to a third-party organization (32%) (Table 3). An example of a provider sharing information about their own resources includes a healthcare organization staffing a farmer hotline (e.g., Avera Health). A common example of a sharer of programming includes a farm service provider incorporating information on their website about a hotline available to farmers and rural community members (e.g., the South Dakota Bankers Association sharing information about the Avera Health hotline). In many cases, there were a handful of resources that were consistently shared by a variety of external websites. For example, in Minnesota, two rural mental health providers were consistently cited as a resource on other websites.

Between 2019 and 2022, the sharing of programming increased for the two methods (+40 programs and resources shared by providers from the health or farm sector and +25 shared by another organization). When looking at the change in the proportion of these two methods, the proportion of the sharer of resources increased

(+80%), while the proportion of providers decreased (−17%).

Programming focus

Looking at how programs and resources connect to priority areas identified by Midwest key informants,²³ programming in 2022 was most often aimed at providing education on mental health followed by improving healthcare access (60% and 31% of programming, respectively), while few sought to address key sources of stress (Table 3). Educational programming on mental health often sought to decrease stigma, encourage positive coping mechanisms, and promote wellness strategies such as cultivating a sense of peace or taking steps to improve physical health. This was frequently paired with language that normalized talking about mental health including “we are a welcoming ear” and “it’s okay to not be okay.” This programming also aimed to increase knowledge of existing services by sharing hotlines and counseling services provided by other organizations. The programming aimed at improving healthcare access was mostly focused on financially supporting access to care rather than easing the financial burden of health insurance. For example, programming in this category most often provides free counseling services including through a counselor contracted by a state agency of agriculture, a voucher program to offset the cost of behavioral health services, or free hotlines. Examples of programming to address key stressors included practical solutions to address the financial challenges of the farm business (e.g., lender mediation sessions and referrals to affordable legal assistance) or farm households (e.g., social and human service application guidance).

Compared to the programming between 2019 and 2022, there was an absolute increase in the number of programs addressing the previously identified priority areas (increase ranged from +3 for programs addressing key stressors to +38 for programs providing educational content about mental health). Meanwhile, we found a sharp increase in the proportion of programs that improve access to care (+72%) and a sharp decrease in the proportion of programs that address key stressors (−52%). The proportion of

programs providing education on mental health slightly decreased (−6%).

Discussion and conclusion

Crises impacting the agricultural sector have historically led to a sharp increase in programs and resources.^{7–12} Yet, our understanding of the effectiveness, acceptability, and long-term sustainability of these is limited, and research rarely focuses on how programs operate in tandem within an area.^{9,16–19} In this article, we respond to recent calls to adopt systemic approaches to understand the landscape of mental health programming targeted at the agricultural population.^{9,17,23} As one step of that process, we draw on data collected through environmental scans in 2019 and 2022 (a time period that encapsulates a farm income crisis and the height of the COVID-19 pandemic) focused on Minnesota, South Dakota, and Wisconsin (three states where agriculture continues to play an important role in the economy) to understand: 1) what the mental health programming looks like, 2) how it has evolved in response to crises, and 3) the progress made toward addressing gaps previously identified by stakeholders in the region.

We found a notable increase in the number of programs and resources findable online coupled with a shift in who delivers the programming. Between 2019 and 2022, the number of organizations involved more than quadrupled (from 17 to 62) and the number of programs and resources more than tripled (from 28 to 93). There are two potential explanations for this sharp increase in organizations involved and programming. First, it may be explained by the influx of funding through FRSAN and COVID-19 relief measures. If that is the case, our findings would mirror the literature, which shows attention to mental health challenges in agriculture and the availability of resources that tend to follow the ebbs and flows of crises.^{7–12} Second, and also connected to the pandemic, the inability to deliver in-person programming might have led existing organizations to adapt to the new environment by starting to have a web presence. This is something that Shortland’s⁹ also found in the UK. In other words, these programs might have already existed when we conducted the

environmental scan in 2019, but we did not identify them given our focus on online programming. While farm-sector organizations were the most numerous in delivering programming in 2019 (in absolute number and proportionally), health-sector organizations were the most numerous in 2022. We propose a two-fold explanation for this shift. First, key farm-sector organizations were already delivering programming in 2019 (i.e., university extension services, member-based farm organizations, and state departments of agriculture). There are only so many additional farm-sector organizations to get involved in, and most of these organizations have a state-wide reach.²⁷ Second, the increased involvement of the health sector through the provision of behavioral services is one of The FRSAN's priorities,⁴⁰ and this priority is likely the result of farm-sector organizations' advocacy over the years around the need to increase access to care.^{23,41,42} While health-sector organizations are most numerous in 2022, their reach overall appears more limited as, besides state and county organizations, they tended to focus on patient service areas. Our study design did not account for all types of crises and responses (e.g., programming to address financial challenges and agricultural policy responses). However, given the mismatch between the root causes of challenges frequently highlighted in the material and the responses provided, this finding potentially connects to a concern around the medicalization of mental health challenges in agriculture given that common responses do not adequately address structural issues.^{7,8,16,22,43}

While the type of organizations providing resources has shifted, the focus of programming and whether it addresses key stressors and healthcare barriers has changed less. Compared to 2019, educational programming remained most prevalent in 2022 and represented almost two-thirds of the identified material. Programming to increase healthcare access almost doubled and represented almost a third of the material, while programming to address key stressors increased nominally, but its share in the overall programming was halved. The findings on the focus of programming are consistent with the findings connected to programming type and delivery format. Two-thirds of programming were either fact sheets/webpages

or workshops/conference presentations with a focus on self-help, while mediated help through hotlines and individual counseling almost doubled. Still, its share across all types of deliveries decreased slightly. These findings are not surprising. Previous environmental scans also noted the emphasis on educational programming.^{27,28} In addition, educational programming is a FRSAN priority area and is seen as a conduit to normalizing conversations about mental health.^{17,27,40,44} The doubling of programming to ease healthcare access, albeit seemingly with a focus on short-term relief, likely connects back to increased funding through FRSAN and COVID-19 relief measures.^{13,14} The limited number and share of programs to address key stressors is likely explained by the scope of studies focused on mental health. While two of our keywords were broader in scope (i.e., "crisis" and "crisis assistance"), our search terms did not include those connected to key stressors (e.g., "financial", "transition planning", "farm economy", "poverty", "floods"). A broader search scope would reveal other types of programming though the scale and mission mismatch between programming intended to directly support individuals and the structural nature of some of the challenges is difficult to reconcile.^{7,8,23,45} Still, since financial relief for the household and farm businesses is an important avenue to ease the mental health burden in agriculture,^{10,22,46} it is somewhat surprising that few of the identified programs provide information about financial support available in the area. In that respect, our finding is different from the recent study by Porciuncla et al.,²⁸ as they found that almost two-thirds of mental health resources also included information about other topic areas including financial and legal.

The finding that two-thirds of programming was targeted at the farm population is not surprising given the focus of our study. While there was an increase in the number of programs and resources targeted to the farm population, the slight decrease in the proportion of programs and resources targeted to that population could be explained by the much greater increase in material targeted to the other groups. The finding that 4% of the programming was targeted at service providers in 2022 (both in the farm and health

sectors) and the sharp decrease in the share of programming targeted to this group compared to 2019 is, however, surprising. One of The FRSAN's priority areas is to increase service providers' capacity informed by agricultural communities' preferences.^{24,25,29,30} This includes agricultural cultural responsiveness training for health-sector service providers and mental health responsiveness training for farm-sector service providers. There are two potential explanations for this finding. First, the information about programming targeted to service providers might not be shared through public webpages, but rather is shared through professional networks (e.g., direct outreach to the membership of professional organizations and listservs). This explanation highlights a limitation of our study (more on that below). Second, some of the service providers' resources are not state-specific but rather regional or national.^{44,47} Connected to whom the programming is targeting, visuals used in programming targeted at the farm population mostly showed pictures of older men with light-colored skin in instances when faces were shown. The limited diversity in who is portrayed as belonging to agricultural communities connects back to the literature, which has noted the overwhelming emphasis on farm programming on white, male farmers.^{7,23,33,48,49} This focus has previously been explained by the need to target limited resources to the groups most at risk for death by suicide and the implicit goal of maintaining the patriarchal nature of the agricultural sector.⁷ However, the agricultural population is heterogeneous on the basis of age, gender, and race/ethnicity. Scholars have begun to note the importance of accounting for variations in lived realities and the need for support in agricultural mental health.^{23,33,50,51}

Limitations and opportunities to address them in future research

Our findings need to be considered in light of three limitations. First, our findings speak to a narrow geographical area. Still, they should be of value outside of that area, as several of our findings echo the literature and reflect FRSAN's priority areas.^{7-9,22,23,40} Additionally, our methodological approach, refined over two waves of data

collection, can be reproduced in other geographical contexts. Using the same approach would enable the comparison of agricultural mental health programming across time and space. This is important work to do given the dearth of research on the landscape of mental health programming for agriculture as noted above. Such comparisons are methodologically important to understand the intersection between programming and mental health outcomes.

Second, our search approach is based on web searches only. This means we do not capture programming shared through listservs, printed media, word-of-mouth, and, to some extent, social media. This limitation is particularly evident as it pertains to programming targeting service providers. An environmental scan such as this one can be part of a multi-component approach to developing a holistic understanding of the landscape of mental health programming. Productive approaches to build on this work could include key informant interviews to ask about the programming they offer along with asking for their input on the completeness of the listing of programming identified through the environmental scan.

Methodologically, another research avenue is to work with farmers, farm workers, and their families to gain insights into their lived realities using programs and resources and the ways in which the programming is accessible, acceptable, and affordable. This work needs to account for the heterogeneity of the agricultural sector as it pertains to socio-demographic characteristics and farm operation characteristics. While there are opportunities to build on this work, our mapping of programming within an area still represents an extension of the literature given the usual focus on one program or resource at a time.

Third, our searches in English might explain why we found that the programming appeared to mostly represent a narrow demographic group. We likely missed programming in other languages and targeted at a diversity of racial and ethnic groups. For example, the North Central FRSAN has an interest group focused on farmworkers, and it has funded the Bienvenido Program to support their well-being. A future iteration of the environmental scan should attempt to incorporate

relevant language groups into the area but should also consider which search terms are culturally relevant given the diversity of ways in which mental health is described.^{52,53}

Implications of our findings and avenues for future research

Our findings hint at challenges connected to the sustainability of programming over time and the availability of baseline support systems. Previous research has noted the chronic nature of mental health challenges in agriculture.³ Yet, the reactive stop-and-go approach noted by others⁷⁻⁹ and suggested in our findings brings up concerns about what happens when the crisis is perceived to be over. This includes continued access to resources for those experiencing mental health challenges during “non-crises” times, the loss of institutional memory when funding decreases, and efforts required to quickly ramp up resources when the next crisis inevitably occurs. These concerns are particularly important given the expected worsening of mental health challenges stemming from more extreme weather events and continuing trends of concentration in agriculture.^{46,54-57} Yet the need for FRSAN to be reauthorized every 5 years impacts the sustainability of programming. To address this, some advocacy groups, including the National Rural Health Association, have called to make the FRSAN a permanent program of the Farm Bill.⁵⁸ Meanwhile, scholars have called on the need to broaden approaches for how agricultural communities are supported by also addressing their social and economic well-being through social policies.^{46,59-62} A productive future research avenue is one that focuses explicitly on the long-term sustainability of programming. Potential approaches include revisiting the offering of programs a few years later including through a similar approach to ours to continue assessing how the landscape has changed. Primary data collection with those funding, delivering, and using programs is also needed.

Second and connected to research on programming during COVID-19,⁹ the sharp increase in the number of organizations and programs in a relatively short time period has implications connected to the coordination of programming. This

includes overlaps and gaps, along with potential competition for limited resources, and is an important area for future research. For example, our findings around the extensive focus on raising awareness about mental health challenges, addressing stigma, and encouraging people to seek help raise questions about potential bottlenecks created for the healthcare sector given that behavioral healthcare systems in rural areas are often already under pressure.^{63,64} If these bottlenecks are indeed created, there is another set of questions to explore around the agricultural population’s willingness and ability to seek help in the future if, upon encouragement, they experience major barriers to accessing help.

Finally, our findings hint at the potential (re)enforcement of norms, narratives, and stigma around mental health and help-seeking strategies in agriculture, coupled with questions about the efficacy and acceptability of programming (for a summary of these, see the references).^{24,25,33,34,65,66} For example, our findings around the continued emphasis of programming on self-help, development of coping strategies, and encouraging the farm population to seek help from professionals in tandem with limited linkages to financial resources to address key stressors bring up several questions to explore in the future research. For example, could the prevailing approach place undue responsibility on individuals to address mental health issues created by broader structural determinants of health? Albeit a small body of work, the literature notes the limited efficacy of these approaches¹⁷⁻¹⁹ and potential unintended consequences (i.e., victim blaming, sense of hopelessness, and resentment).^{33,67,68} The lack of representation of the diversity of people who work in agriculture raises questions about which sub-population(s) do not feel served and are objectively not served based on their unique needs. For example, this connects back to some of the recent work on farm women feeling underserved.^{4,35,69} Furthermore, might the focus on individual-level programming stomp efforts for collective action toward structural change? This connects back to concerns raised around the medicalization of mental health challenges in agriculture.^{8,16,22,43} Lastly, the limited information about financial resources in mental health programming brings up questions about whether the invisibility of these types of information may reinforce welfare stigma and individual

responsibility within this population, which in turn may contribute to mental health stigma in agriculture. All these questions provide fertile ground for future research.

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