

# What Do Farmers Need for Suicide Prevention: Considerations for a Hard-to-Reach Population

Anna Scheyett<sup>1,2</sup>, Ian Lee Marburger<sup>2</sup>, Andrea Scarrow<sup>1</sup>, Stephanie M Hollifield<sup>1</sup>, Jennifer Ward Dunn<sup>1</sup>

<sup>1</sup>College of Agricultural and Environmental Sciences, University of Georgia, Athens, GA, USA; <sup>2</sup>School of Social Work, University of Georgia, Athens, GA, USA

Correspondence: Anna Scheyett, School of Social Work, University of Georgia, 279 Williams St, Athens, GA, USA, Email amscheye@uga.edu

**Purpose:** Farmers have suicide rates much higher than the general population, with elevated mental health symptoms and high stress levels. Farmers are a hard-to-reach population due to occupational demands and a culture where conversations about mental health are often stigmatizing. This study explored ways to tailor suicide prevention strategies to unique characteristics of farmers by speaking with groups close to farmers who were open to discussing stress and suicide prevention: women married to farmers and agricultural Extension agents.

**Methods:** Focus groups with women married to farmers (N=29) and interviews with agricultural agents from the university's local Cooperative Extension offices (N=13) from rural Georgia counties explored effective ways outreach and education about suicide prevention, mental health, and coping could be provided to farmers. Using a thematic analysis approach, qualitative coding was completed by two researchers (Cohens kappa=0.86), with initial codes collapsed into common themes.

**Results:** Four themes were identified: 1) Barriers due to the nature of farming, including time demands of farming and cultural stigma in help-seeking; 2) Acceptable messaging, including framing conversations as part of general health; 3) Make information accessible by making it brief, clear, and omnipresent through multiple media; and 4) Elements of effective information and education, including emphasizing "you're not alone" and connection, how to access supports and crisis services, educating people close to farmers, and motivating farmers by emphasizing that they could help another farmer with the information.

**Conclusion:** Due to farmers' stoic identities and reluctance to admit mental health struggles, speaking with those close to farmers may help us better understand what is needed to tailor farmer suicide prevention strategies. The insights shared by participants suggest that culturally responsive outreach and education strategies, strengthening relationships through peer support, and gatekeeper training with specific trusted others are important ways to tailor suicide prevention strategies for this hard-to-reach group.

**Keywords:** agricultural stress, agricultural suicide, rural suicide prevention, farmer culture, mental health stigma, rural mental health

## Introduction

Farmers have a suicide rate much higher than the general population, with some estimates in the United States as high as three times the national average.<sup>1-3</sup> This phenomenon is not limited to the United States but is a global phenomenon with varying, yet always elevated, rates in countries as disparate as India,<sup>4</sup> Australia,<sup>5</sup> and France.<sup>6</sup> In addition to suicide rates, farmers have been shown to have higher levels of mental health symptomatology associated with suicide. The Hordaland Health Study, a large population-based study out of Norway, demonstrated that when compared to non-farmers, farmers had higher levels of depression, particularly in the male subpopulation. Additionally, farmers of both genders had higher anxiety levels when compared to non-farmers.<sup>7</sup> A more recent Norwegian study used Trøndelag Health Study data containing one of the world's most extensive longitudinal population surveys. Results demonstrated that farmers have high odds of having symptoms of depression when compared to other occupational classes and that farmers have higher odds of having symptoms of depression when compared to their siblings.<sup>8</sup>

The nature of farming, including economic and occupational hazards, isolated geography, and rural culture, presents unique risk factors for suicide, particularly elevated rates of chronic stress, a known risk factor for suicide.<sup>9</sup> Farming is

a highly stressful occupation, with elevated stress from factors such as extreme and damaging weather, high input costs, variable commodity prices, high potential for accidents, the need for loans and financial risks, and complex policies and programs, as noted in studies from both the US and Ireland.<sup>9–11</sup> Carpenter-Song and Snell-Rood<sup>12</sup> note that many rural communities have experienced rapidly declining wages in the past several years, partly due to a reduction in the agricultural sector. Farmers, frequently self-employed, are very vulnerable to fluctuations in market prices and economic downturns.<sup>13</sup>

Other studies have identified environmental factors that put farmers at elevated risk of suicide. Zanchi et al<sup>14</sup> found that pesticide exposure may exacerbate depression, impulsivity, and suicidal ideation, with implications that exposure to pesticides may be a contributing factor to farmers' poor mental health and thus increase the risk of suicide. Firearms, which are often involved in suicides, are common in farm environments. It is, therefore, not surprising that this environmental hazard is very frequently involved with suicides within the farming population.<sup>15,16</sup>

Agricultural values and culture are additional important considerations when exploring risk factors for suicide among farmers. Farmers often have great pride in their occupation, show a strong bond to their often multi-generational farms, and feel a sense of responsibility to their families to continue their work. The risk of farm failure, which means disappointing family and often losing the work of prior generations, looms large.<sup>3</sup>

Views commonly held by farmers complicate these risks and stressors. Farmers often do not accept the concept of mental health vulnerability.<sup>13</sup> This perception leads to stigma toward mental health care and help-seeking behaviors and reinforces the presence of traditional masculine norms and self-reliance.<sup>16</sup> Typically, these more traditional masculine beliefs include ideals of not showing emotion, putting on a façade of independence, and remaining strong in the presence of others,<sup>17</sup> which can lead to worse health outcomes for men.<sup>18</sup> While the number of women in farming is growing, representing 14% of principal operators and 37% of secondary operators on the farm, the majority of principal farmers are men. Given the higher proportion of farmers who are men, these norms are particularly potent.<sup>19</sup>

In addition to farmer culture and mental health stigma, the geographic challenges of rurality contribute to farmers' risk of suicide. People residing in rural communities often live much further away from potential mental healthcare resources than they might in an urban location.<sup>20</sup> Rural residents are disproportionately affected by behavioral health issues with this limited availability of mental health providers. These findings of disproportionality are global, with similar observations made in countries in Africa, Australia, and North America.<sup>21–23</sup> In a study surveying farmers from Ontario, Canada, farmers indicated both geography and culture were significant barriers and felt that even when mental health practitioners were utilized, there was often a disconnect between providers and their understanding of the culture of farming, leading to a lack of “farm credibility.”<sup>24</sup>

Interventions to address farmer suicide risk and mental health are limited. While evidence suggests various programs are promising, rigorous evaluations are still needed.<sup>25</sup> Preliminary research with pilot programs indicates that mental health literacy education and peer support may mitigate farmers' poor mental health and bolster social support. Mental health literacy programs in both the US and Canada hold promise to improve help-seeking behaviors, attitudes, and knowledge in both farmers and those close to farmers and may serve as protective factors regarding farmer mental health.<sup>26–29</sup>

Farmers have high rates of suicide, increased mental health symptomatology, experience tremendous occupational stress, and have few options for mental health care—all embedded within a culture where mental healthcare and help-seeking are stigmatized. Due to the characteristics of farming and farm culture, activities and interventions designed to improve farmer mental health outcomes or prevent suicide must be carefully and precisely tailored to meet their unique characteristics and needs. Given farmers' reluctance to seek help, discuss emotions, and lack of confidence in mental health providers, it is often difficult to discuss ideas for acceptable intervention strategies with farmers themselves. It may thus be particularly productive to explore the perceptions of those who are close to and trusted by this population. We, therefore, examined the ideas and views of two groups trusted by farmers—spouses and agricultural agents in local Extension offices who work closely with farmers<sup>30</sup>—asking for their thoughts and opinions on effective suicide prevention, mental health, and coping with stress information and education strategies for farmers. This information is crucial to developing effective, acceptable, culturally responsive interventions for suicide prevention among farmers.

## Methods

### Participants

Two sources of data were used for this study: one from focus groups with women married to a farmer and the second from interviews with agricultural agents from the university's local Cooperative Extension offices (offices that "extend" the university's agricultural research findings out to local farmers). These two groups were selected because they knew farmers well and were trusted by farmers.<sup>30</sup> Additionally, based on researchers' prior experiences, these two groups were open to discussing farmer mental health and stress. All data collection occurred in counties where Extension agents had begun local conversations about farmer suicide risk and stress. This was also done to increase the likelihood of participants being open to discussing these difficult topics.

The focus group data were part of a larger study where women married to farmers were asked about a range of farm mental health and stress topics, including how they felt information about suicide prevention, mental health, and coping with stress could most effectively be shared with farmers. Six focus groups were conducted in six rural counties in Southwest Georgia. Three groups had six participants each, two groups had four participants, and one group had 3 participants. Counties were selected if their Extension Office had hosted conversations on farm stress in the prior year and if the Extension agent was able to and agreed to help with the study. Participants were recruited by sending invitational flyers and following up expressions of interest with a phone call. One of the authors then contacted interested participants and scheduled the focus groups. Participants were informed that all discussions were confidential, and all signed written consents to participate and consent for publication of anonymized responses. Additional criteria for participation in the focus groups were: 1) married to someone who farmed; 2) living on the farm currently; and 3) 18 years of age or older. In total, 29 women participated in these focus groups.

The second data source came from interviews with 13 Extension agents working in a county where they had engaged in preliminary conversations on farmer stress and suicide risk. Interviews focused on agents' thoughts on the impact of these conversations on the community and how they felt information about suicide prevention, mental health, and coping with stress could most effectively be shared with farmers. One of the researchers contacted the agents in these counties to invite them to participate in a confidential Zoom or phone interview. All contacted agents gave verbal consent to participate.

Focus group participants (N=29) were all White women with an average age of 48.9 years (SD 14.4). Nearly 62% worked outside the home and farm, and over one-third of participants cared for children under 18 at home. On average, participants had been married to a farmer for over 26 years. Extension agent interviewees (N=13) were 69% men and 31% women, all White, 92% Non-Hispanic, and 8% Hispanic. The agents' average age was 30.4 years (SD.8.01). This work was reviewed by the University of Georgia Institutional Review Board, Project #00005555, and also complies with the Declaration of Helsinki.

### Data Collection and Analysis

The focus groups were led by one of two researchers with lived farming experience, with support from an additional researcher. Questions asked participants to discuss mental health, stress, and coping strategies in their farmers, their children, and themselves and what could be done to help by providing information and support on these topics. Focus groups lasted 60 to 90 minutes. All groups were recorded using a digital recorder and transcribed by an external service for analysis.

The same researcher conducted Interviews with Extension agents for all 13 participants by Zoom or telephone. Participants were asked if they thought prior program conversations on farm stress had any impact on farmers and ways information about suicide prevention, mental health, and coping with stress could be most effectively shared with farmers. Interviews lasted 20 to 30 minutes and were recorded and transcribed for analysis.

We completed a thematic analysis of both focus group and interview transcripts,<sup>31</sup> with the sensitizing concept of effective communication with farmers on suicide prevention, mental health, and coping with stress. Our key research question was "What are effective ways to provide suicide prevention and coping with stress interventions and education to farmers?" We aimed to identify the essential elements of suicide prevention and coping with stress interventions

needed to address the unique needs and characteristics of farmers. Our specific objectives were 1) to identify elements of effective suicide prevention and coping with stress interventions that are acceptable to farmers and 2) to understand potential barriers farmers might experience to receiving these interventions.

Transcripts were independently line-by-line coded by two researchers, one of whom had co-facilitated the focus groups and completed all the interviews. Then, researchers consulted and generated a commonly agreed-upon set of 24 initial codes. These codes were used to recode the data, with excellent initial inter-rater reliability (Cohen's kappa of 0.86). Researchers discussed code disagreement until a consensus was reached. Codes were then organized into broader themes, which are described below. Each participant's transcript was given a unique alphanumeric code to protect anonymity; this code was used in quoting a participant when reporting results below.

## Results

In both focus groups with women married to farmers and interviews with Extension agents, the same four themes emerged repeatedly regarding information and education for farmers regarding suicide prevention, mental health, and coping with stress. These were: 1) Barriers due to farmer identity; 2) Acceptable messaging; 3) Make information accessible; and 4) Elements of effective information and education.

### Barriers Due to Farmer Identity

When discussing farmer stress and mental health, participants discussed two barriers that they felt were significant and closely linked with the role and identity of being a farmer—farmers' reluctance to discuss emotions and admit a weakness or need for help and the considerable time demands of farming. They were adamant that any stress management or suicide prevention programming had to be crafted in such a way as to address these barriers, or they would not be successful.

One participant emphasized that typical education strategies would not work with farmers, saying

They're not going to pick up a pamphlet and read it or attend some special class (Participant ES3).

Farmer's reluctance to discuss emotions was stated repeatedly, echoing findings in the literature.<sup>3,13</sup>

A group of wife participants giggled when thinking about their spouses admitting a vulnerability, one stating,

... a man is not going to sit at a table and say, Oh, I am stressed. I am so stressed. And then the one across from him will go, "Me too." [laughter]. (Participant CS5)

Another participant simply said

I'm thinking my husband wouldn't call [a help line] in a million years. (Participant CS3)

An Extension agent echoed this sentiment, noting

Pride was a very big issue. And I think that when a farmer admits that he's under stress, in his mind, he feels weak, and he can't let his peers or his family see that. (Participant SS2).

Another Extension participant expressed frustration at farmers' reluctance to seek help, reflecting,

What they won't do is go get help. They'll talk about it [farm problems] all day, but they won't go get help if they need it. Especially somebody that's in really bad shape. (Participant LS1)

In addition to a reluctance to discuss stress or to seek help for distress, participants noted that farming is sun-up to sundown (and beyond) work and that time is one of farmers' most precious resources. Other tasks are put aside because of the urgent time demands of farming, particularly during planting and harvest; as one Extension participant said,

And so I think a lot of times, they put those things on the back burner because 'We don't have time for that. We don't have time for that. We got to get ready for the harvest season. We've got to do this. (Participant ES3)

One wife described the constant demands by saying

And our phone never stops ringing. It starts ringing at 6: 00 AM and it can ring to 10:00 PM, 11:00 PM. And I was very surprised by this when we first got married...I said, Matt? He said, Baby, this is the farm life. I mean, farmers don't have hours. (Participant SS2)

The intense time demands of farming result in farmers de-prioritizing their well-being. One Extension agent described it by saying

They don't have time. And that's why they don't get to the doctor like they should. And especially in areas like ours that don't really have a-- I mean, you've got to drive an hour to go see a doctor. And so, they're too busy taking care of their livestock's health. I mean, they take better care of their cattle's health than they do their own personal health. I mean, they take better care of the soil than they do their own health. We just need to-- if there's a way to get them to prioritize their health, that's what we need to do. And it's easier said-- I mean, easier said than done, but if we could figure out a way, that'd be great. (Participant LS1)

## Acceptable Messaging

Given the barriers to engaging with farmers regarding suicide prevention, mental health, and coping with stress, participants were insistent that messages needed to be framed in ways that were culturally acceptable to farmers and respected their needs and values. To address farmers' reluctance to talk about stress and mental health, several participants recommended that the conversation be embedded within the larger concept of "health" in general.

An Extension agent recommended linking mental health and physical health: I think something else that might be useful is to talk about how poor mental health can affect you physically, too. (Participant TS1)

One wife specifically discussed the stigma around the term "mental health" and stated

I feel like if you focus it more on health, it would be a better-- sometimes, mental health seems more taboo, and people are like, Oh, I'm fine. Because people don't want to talk about that or share that, and I think that goes back to the manliness. No. I'm fine. I don't need-- so gearing it more towards health, overall health, versus mental health. (Participant ES3)

In addition to using language acceptable to farmers, participants discussed the importance of making discussions about suicide prevention, mental health, and coping with stress permissible by communicating through individuals trusted by farmers.

One trusted group identified by participants was spouses. Participants who were wives described how their farmer spouse confided anxiety and frustration to them and how often they were the ones who were called on to be positive and emotionally "uplifting" (Participant CoS7) and help the farmer cope with stress. Extension agents stated that wives were a trusted group and farmers would listen to them; an agent strongly encouraged this idea, saying,

I think if you focus on farmer's wives probably more than the farmer, you'd probably get farther. (Participant BS1)

A second trusted group that the participants felt could help move forward the conversation on suicide prevention, mental health, and coping with stress was other farmers. One participant described a leader in the farming community who was vocal in his support of mental health by saying

And he has been a huge, huge help. And somebody that is a huge advocate for mental wellness and mental awareness and everything like that. And I think by him stepping in and kind of doing that, it makes them (farmers) feel like, okay, he's doing it. He's one of us. So maybe we can talk about it. (Participant CS1)

An Extension agent talked about another community leader who is a farmer and is open to discussing mental health

Yes, he's excellent, and he's a farmer. He can relate to farmers. So, finding more of those locally to our industries, or our regions of the state type thing, finding a few of those that are willing to share their story, on the video, having an actual farmer in the video helps relate to farmers. Farmers want to talk to farmers. They don't want to talk to a therapist. They don't want to talk to a doctor. They want to talk to a farmer. So, having a farmer relay those messages will definitely go a lot farther too. So, if you're able to find any of those people that are willing to be that voice for us as well, it helps spread messages. (Participant MS1)

Contrary to the agent quoted above, who said farmers did not want to talk to a doctor, several participants thought farmers might trust and listen to doctors on the topic of stress management and health. One wife noted,

He does talk to his doctor... And doctors, they see so many (farmers). Yeah. I think that might be a really good thing to do, is to talk to physicians in the area (Participant KIS1)

Some Extension agents believe that farmers might also trust and talk with them but noted that they would want additional information and training before trying to provide more than very general support. An agent stated,

But I do think sometimes people may feel that they can confide in their agent. They're asking them about other things, and so sometimes it gets to a more of a personal level...I'm just not sure what other resources (to give). (Participant SS1)

## Make Information Accessible

Participants were adamant and articulate in emphasizing the importance of making information on suicide prevention, mental health, and coping with stress easily and quickly accessible to farmers. Having accessible information was seen as a way to respect farmers' time. If messages could be infused across a range of events and locations frequented by farmers, it was also seen as a strategy to normalize discussions about suicide prevention, mental health, and coping with stress. The three strategies they suggested were multifaceted information placement, infusion, and brevity.

When asked about the best ways to make information on suicide prevention, mental health, and coping with stress easily accessible, participants recommended that messages be located in multiple places where farmers are likely to be so that they would see posters, flyers, and cards at supply stores, agricultural equipment dealers, even the restaurants they frequent. One Extension agent described this as ...in front of them constantly, so it was kind of directly in their face all the time. Could not really avoid it, almost. So more of those to place strategically would be useful (Participant TS1). Another agent listed a number of potential locations

Yeah. And I think maybe at other places that they frequent, too, like the FSA (Farm Service Agency) office and the John Deere place in town...So different places like that that they walk into all the time, they have to be in. So at least they see it. (Participant TS1)

Another way to make information readily accessible to farmers was through media, particularly media they already use. Participants suggested all sorts of media, including radio and television (particularly local shows on agriculture), podcasts, blogs, videos, phone texts, newsletters, agricultural magazines, email, and print material. One participant explained

It would need to be kind of multifaceted, I think. I mean, definitely some social media. Something you can put out on Facebook every once in a while, just to kind of keep the message there. And also, we put out blogs or newsletters and things, maybe pop something in there every couple of months or something. (Participant LS1)

Interestingly, participants reported seeing farmers use very different kinds of electronic media. Some reported that farmers they knew preferred written materials, others said they saw farmers online looking things up, and others reported farmers using various social media forms. When pressed about the connection between age and media preference, many participants disagreed and reported older farmers using social media and reading on their tablets. One specific medium all agreed would be valuable was to have information printed on a calendar for farmers. As one wife noted,

Something else a farmer loves is a stick-on calendar for the inside of their truck, you know what I'm talking about? (Participant CS2)

Participants believed it was important for media and written messages to be brief and concise. As one participant noted,

Most farmers, if it's a long thing, you're going to lose them. So that's why I think just little snippets and things along the way. (Participant MS2)

while another warned,

Farmers really don't have a lot of extra time on their hands. And so you can bombard them to a point to where they'll eventually turn you off. (Participant LS1)



Participants felt that a concise and clear message would be most effective; one said that the calendar should simply have a crisis line number and say,

‘For help, call this number’, is what goes on the top, for help, for help Call this number for help Do not try to beat around the bush...Just be upfront and direct. (Participant CS5)

Given that farmers are reluctant to talk about emotions and stress and that they have little available time, participants did not think that they would attend special programs specifically on coping with stress or suicide prevention. They strongly encouraged infusing suicide prevention, mental health, and stress management content into existing events for farmers. A wife suggested that

The information can be disseminated through something that they’re already doing or a part of... Like the Extension production meeting (where a brief discussion on stress had been included in their counties), they didn’t have to go out of their way for that. It was already available. (Participant ES3)

An Extension agent commented similarly and suggested

Just being where they are, any of these association meetings, like the Pecan Growers Association, the Forestry Association. All of these associations have conferences. So being in front of them at those type places (Participant MS1)

While another agent recommended considering the agricultural industry, noting that

Retailers and consultants, they have meetings on the growers or they have contacted growers. So that’s just their avenue to get the word out. (Participant JeS1)

## Elements of Effective Information and Education

In addition to discussing ways to make information about suicide prevention, mental health, and coping with stress acceptable and accessible to farmers, participants discussed at length what the actual content of the message should be. Several participants discussed the importance of conveying to farmers that others recognize that their profession is stressful and that when they experience stress, they are not alone. One wife stated,

I think just recognizing that they have stress and communicating that to them helps them a lot. (Participant CoS6)

Another Extension agent noted

I know they internalize it and they think, “I’m the only one that’s feeling this amount of pressure. So, when someone stands in front of them and says, You’re not the only one. And probably the man to your left and the man to your right is feeling the same thing that you’re feeling,... another farmer’s going to understand and, If it’s not just me, then it’s not that I didn’t work hard enough.” That’s exactly it. It’s not [his] fault. (Participant CS1)

A second part of the message you’re not alone that participants emphasized was the importance of staying connected with others. A wife articulated this by saying the message should include

Don’t forget to stay connected. Don’t forget to talk to somebody about what’s going on. Don’t put everything on yourself. And when disaster does strike, know that there are avenues to take after that that will keep you afloat. (Participant CoS7)

Both wives and Extension agents emphasized the importance of providing information on services and support, both informal and formal. A participant recommended that messaging include

Here’s the people you could talk to. Talk to your friends. Talk to your pastor. Talk to your extension agent. Just talk to somebody. (Participant CS3)

Others emphasized the importance of giving the 988 crisis line phone number or the number for the local mental health center. In addition to ways to find support, participants believed it would be helpful for messaging to include simple skills for coping with stress. One Extension agent asked for

... a word, a map, or if there's research, top five ways to help your body cope with stress, whether that's getting enough sleep, or— Whatever the research says is the best way to cope with it, if we could have the top three ways, or top five ways. (Participant GS1)

Participants also talked about the importance of getting information to those who care about farmers, like spouses and Extension agents. One wife asked for information on

Here's what to look for, here's what to do, here's what not to do. Here's what to say, here's not what to say. Just very simple, something that people can remember. (Participant CS7)

Similarly, several Extension agents asked for information about what to do if they had concerns about a farmer or if a farmer confided their distress to the agent. One summed it up by saying,

...having some resources for the agents of, not only when they do come to us, where to go with that, but what do we ask if we can tell something's off but we don't know how to approach it? (Participant MS1)

while another wanted guidance if his concerns about a farmer became serious

It would be good to just have an established protocol...It would be good, yeah, to know just exactly what I need to say. If it's something serious [who can] I call or something. (Participant BS1)

Finally, participants talked about conveying information in ways that would motivate farmers to pay attention to stress management, mental health, and suicide prevention. As discussed above, participants believed that farmers would be reluctant to admit emotional distress and want to protect their privacy. However, both Extension agents and wives believed that if the message could be framed as something they needed to pay attention to for the good of others, that would be a strong motivator. Reminding farmers that their stress impacts their families, particularly their children, was seen as an excellent motivator. In addition, participants discussed how a farmer might not recognize or admit warning signs of stress in himself but could see it in others and be motivated to help them. A wife described this by saying

And what's going on is your husband is going, "I don't need that. I don't need that." But your farmer or your husband, he recognizes it in a friend or his son or son-in-law, and he realizes that they're suffering. So, they may be trying to help them out, but sooner or later, that farmer may say something to the wife or something. Or he may walk into the FSA office and go take out his phone and take a picture of that number and send it to the wife or someone. He's not going to recognize it in his own self, but in today's time, he may recognize it, like I said, in his son or grandson or his neighbor... (Participant CS5)

## Discussion

Farming is a difficult and stressful occupation, and farmers have significantly elevated rates of suicide compared with the general population. Effective suicide prevention strategies are needed to address this issue. However, for cultural and pragmatic reasons, farmers are a hard-to-reach population. Our study provides insight into the unique characteristics of farmers that must be considered when developing suicide prevention and coping interventions. Using information from two groups who are trusted by farmers and who know them well, we can begin to provide specific recommendations for how to build interventions to help farmers manage stress, learn the risks of high stress up to and including suicide, and suicide prevention.

## Study Limitations

As with all studies, this study had several limitations. First, in order to obtain a meaningful volume of information, we chose to gather data from two groups trusted by farmers—women married to farmers and Extension agents who work closely with farmers—rather than farmers themselves. It may be that farmers themselves would have different views and ideas on suicide prevention and stress coping skill information. Additional research is needed to engage farmers in these discussions.

An additional study limitation was geography. We spoke with participants from one region in Georgia in the United States. These findings may be very different from the thoughts and views of those in another state or another country. Also, the counties in which we gathered data were ones where farm stress conversations were already beginning, so participants were sensitized to the concepts, which could potentially influence their discussion. Finally, while most researchers had lived experience with farming, they were not specifically from these farming communities and were thus



“outsiders.” Participants may have been cautious or selective in their responses when talking with unknown researchers. Despite these limitations, our study is a valuable first step in considering how to design a culturally acceptable, accessible, and effective suicide prevention strategy for farmers.

## Implications for Suicide Prevention Programs

In conceptualizing the implications of these findings for suicide prevention strategies designed specifically for farmers, we used a culturally responsive lens,<sup>32</sup> the Centers for Disease Control and Prevention (CDC) suicide prevention strategies of teaching coping and problem-solving skills, promoting healthy connections, and identifying and supporting people at risk,<sup>33</sup> and the Social-Ecological theory of suicide prevention, focusing on individual, relational, and community levels.<sup>34</sup>

### Considerations for Individual-Level Interventions

Farming is a unique culture, with strong values of self-sufficiency and strength and reluctance and stigma in admitting weakness or asking for help.<sup>16</sup> Given the information provided by participants, suicide prevention efforts must be tailored to farming culture and values. In addition, because of the considerable time demands of farming, interventions must be brief and convenient. Participants clearly indicated that farmers would be unlikely to attend specialized programming on coping and problem-solving skills. Therefore, at the individual level, mental health literacy education and skill building for coping and mental wellness should be framed as part of building health and strength.

Given the stigma surrounding admitting stress or emotional distress, information on suicide risk, stress, and coping skills should be folded into events that farmers already attend, such as commodity growers’ conferences—both to normalize the concepts and to use farmers’ time effectively. All materials developed for training and information sharing should be brief, to the point, pragmatic, specific to farmers, and normalize (even valorize) building skills for coping and positive mental health. Messages in education and materials should provide information on supports and services and clearly state where to get help in a crisis.

### Considerations for Relational-Level Interventions

Participants in our study repeatedly emphasized the importance of connecting with others for the well-being of farmers. Creating opportunities for farmers to connect with others and encouraging them to do so was seen as crucial to farmer well-being. Connection with others who understand their stress, where farmers feel “seen” and know that others are experiencing the same stresses, was seen as particularly important. This would normalize their experiences of stress and emotional distress, decrease shame (“It’s not just me, it’s not my fault”), and increase the likelihood that they would begin to talk about stress, coping, mental health, and suicide prevention.

Agricultural communities are often close-knit, and farmers are more likely to connect with and trust those close to them in their communities—family, other farmers, and helpers who understand the realities of their occupation, such as Extension agents.<sup>30</sup> These relationships provide valuable and protective social support; suicide prevention efforts should build on them.<sup>35</sup> Peer support has been noted as a positive intervention for suicide prevention.<sup>32</sup> Using this model to develop farmer-to-farmer peer support could be a powerful way to strengthen farmer social support networks.

Education for families on coping with stress and supporting farmers during difficult times, through information and education in places spouses and children may frequent such as libraries and schools, could help strengthen farm families. Since spouses of farmers are their primary support and confidant, providing them with information and skills on how to recognize signs of high stress, how to intervene if they are concerned about suicidal ideation, and where to turn for help are particularly important interventions in farmer suicide prevention. In addition, interventions to support the mental health of wives themselves as they experience their own stresses on the farm will be an important aspect of farm family wellbeing.

An additional aspect of relationships that should be considered in suicide prevention efforts is farmers’ willingness to help others. As noted by participants, farmers may not see or admit high levels of stress and suicide risk in themselves but would be motivated to listen to or take information about coping skills, mental health, or suicide risk for another farmer. The message “Learn to help a friend” could be influential in encouraging farmers to learn about suicide prevention and coping skills.

## Considerations for Community-Level Interventions

At the community level, multi-component approaches to suicide prevention have shown effectiveness.<sup>36</sup> For farmer suicide prevention efforts, our findings suggest that components should include community education campaigns, champion spokespersons, and gatekeeper training efforts to identify and support at-risk farmers. Broad education in agricultural communities is needed about the risk of farmer suicide, risk factors, protective coping strategies, and how to access help. Our participants emphasized the importance of getting this information out through multiple online and other media forms, particularly through avenues frequently used by farmers, such as agriculturally focused print, radio, and television, as well as locations where farmers often go, such as feed stores and equipment dealerships. In addition, identifying farmers who are willing to champion the issue of farmer mental health, coping, and suicide prevention could be a powerful strategy. As noted by several participants, having a farmer stand up and discuss the topic of mental health and suicide prevention is an impactful way to decrease the stigma of the topic and open the door to discussion and learning.

In our study, we found that both women married to men who farm, and agricultural Extension agents were eager to learn more so they could help support farmers. Participants were particularly interested in learning more about warning signs of suicide, things to say or not to say if they suspected a farmer was at risk, and how to find support and help during a crisis. In addition to these caring individuals who could serve as gatekeepers, primary care physicians could serve in this role. Using a research-based gatekeeper training program such as Question, Persuade, Refer (QPR)<sup>37</sup> to build a cadre of gatekeepers in rural communities who are aware of the specific risks farmers face could be an effective part of a prevention strategy.

## Conclusion

Farmers have unique stressors, needs, beliefs, and values, which shape their risk of suicide and their openness to prevention strategies. Effective suicide prevention strategies must be tailored to these factors. Using the insights of those who know farmers well, this study was successful in answering our research question: What are effective ways to provide suicide prevention and coping with stress interventions and education to farmers? Farmer suicide prevention initiatives should include education, skill training, and materials integrated into events that farmers attend and use language they find acceptable, brief, and non-stigmatizing. Initiatives should include actions that will connect farmers with others, particularly with other farmers who are mental health champions or through peer support networks. Finally, suicide prevention initiatives for farmers should include family, community, and community-based multi-component education as well as gatekeeper training. More research is needed to evaluate these strategies.

Everyone who eats food or wears fiber should care deeply about the well-being of farmers. They have a demanding and stressful profession and are at high risk of tragic and preventable deaths. Thoughtful, intentional, and tailored interventions are needed to prevent these unnecessary deaths.

## Acknowledgments

The authors would like to thank the participants of the focus groups and the Extension agents, who all generously gave their time and provided thoughtful and candid information for this work.

## Disclosure

The authors report no conflicts of interest in this work.

## References

1. Peterson C, Sussell A, Li J, Schumacher PK, Yeoman K, Stone DM. Suicide rates by industry and occupation—national violent death reporting system, 32 states, 2016. *MMWR*. 2020;69(3):57–62. doi:10.15585/mmwr.Mm6903a1
2. Norrod PE, Sanderson WT, Abner EL, Seals J, Browning S. Farmer suicides among states reporting violent deaths, 2003–2017. *Rural Mental Health*. 2023;47(3):139–151. doi:10.1037/rmh0000232
3. Purc-Stephenson R, Doctor J, Keehn JE. (2023) Understanding the factors contributing to farmer suicide: a meta-synthesis of qualitative research. *Rural Remote Health*. 2023;23(3):8189. doi:10.22605/RRH81899
4. Milner A, Spittal MJ, Pirkis J, LaMontagne AD. Suicide by occupation: systematic review and meta-analysis. *BR J Psychiatry*. 2013;203(6):409–416. doi:10.1192/bjp.bp.113.128405
5. Perceval M, Kolves K, Ross V, Reddy P, De Leo D. Environmental factors and suicide in Australian farmers: a qualitative study. *Arch Environ Occup Health*. 2018;74(5):279–286. doi:10.1080/19338244.2018.1453774

6. Bossard C, Santin G, Guseva Canu I. Suicide among farmers in France: occupational factors and recent trends. *J Agromedicine*. 2016;21(4):310–315. doi:10.1080/1059924X.2016.1211052
7. Sanne B, Mykletun A, Moen BE, Dahl AA, Tell GS. Farmers are at risk for anxiety and depression: the Hordaland health study. *Occup Med*. 2004;54(2):92–100. doi:10.1093/occmed/kqh007
8. Torske MO, Bjørngaard J, Hilt B, Glasscock D, Krokstad S. Farmers' mental health: a longitudinal sibling comparison – the HUNT study, Norway. *Scand J Work Environ Health*. 2016;42(6):547–556. doi:10.5271/sjweh.3595
9. L P-R, Gomez J, Miranda R, Jeglic E. Stress-related symptoms and suicidal ideation: the roles of rumination and depressive symptoms vary by gender. *Cognit Ther Res*. 2016;40(5):606–616. doi:10.1007/s10608-016-9782-0
10. Brennan A, Hennessy T, Meredith D, Dillon E. Weather, workload, and money: determining and evaluating sources of stress for farmers in Ireland. *J Agromedicine*. 2021;27(2):132–142. doi:10.1080/1059924X.2021.1988020
11. Chengane S, Beseler CL, Duysen EG, Rautiainen RH. Occupational stress among farm and ranch operators in the midwestern United States. *BMC Public Health*. 2021;21(1):2076. doi:10.1186/s12889-021-12053-4
12. Carpenter-Song E, Snell-Rood C. The changing context of rural America: a call to examine the impact of social change on mental health and mental health care. *Psychiatr Serv*. 2017;68(5):503–506. doi:10.1176/appi.ps.201600024
13. Hopkins N, Proctor C, Muilenburg JL, Kershaw T. “It’s easier to go to the beer store than ask for help”: a qualitative exploration of barriers to health care in rural farming communities. *Rural Mental Health*. 2023;47(2):104–113. doi:10.1037/rmh00002244
14. Zanchi MM, Marins K, Zamoner A. Could pesticide exposure be implicated in the high incidence rates of depression, anxiety and suicide in farmers? A systematic review. *Environ Pollut*. 2023;331(Part 2):121888. doi:10.1016/j.envpol.2023.121888
15. Miller CDM, Rudolph JM. Characteristics of suicide among farmers and ranchers: using the CDC NVDRS 2003–2018. *Am J Ind Med*. 2022;65(8):675–689. doi:10.1002/ajim.23399
16. Ringgenberg W, Peek AC, Donham K, Ramirez M. Trends and characteristics of occupational suicide and homicide in farmers and agriculture workers, 1992–2010. *J Rural Health*. 2018;34(3):246–253. doi:10.1111/jrh.12245
17. Courtenay WH. Constructions of masculinity and their influence on men’s well-being: a theory of gender and health. *Soc Sci Med*. 2000;50(10):1385–1401. doi:10.1016/S0277-9536(99)00390-1
18. Kantar A, I Y. Masculinity and seeking psychological help: a review based on social identity theory. *Curr App Psych*. 2023;15(4):677–686. doi:10.18863/pgy.1227948
19. Whitt C, Todd J, MacDonald J. *America’s diverse family farms*. Economic Information Bulletin Number 220. U.S. Department of Agriculture; 2020. Available from: <https://www.ers.usda.gov/webdocs/publications/100012/eib-220.pdf?v=2429.3>. Accessed February 19, 2024
20. Walters JE, Jones AE, Brown AR. Work experiences of rural social workers in the United States. *J Soc Serv Res*. 2019;46(6):770–788. doi:10.1080/01488376.2019.1658030
21. Batterham PJ, Brown K, Trias A, Poyser C, Kazan D, Caele AL. Systematic review of quantitative studies assessing the relationship between environment and mental health in rural areas. *Aust J Rural Health*. 2022;30(3):306–320. doi:10.1111/ajr.12851
22. Esu EB, Chibuzor M, Aquaisua E, et al. Interventions for improving attraction and retention of health workers in rural and underserved areas: a systematic review of systematic reviews. *J Public Health*. 2021;43(Supplement\_1):i54–i66. doi:10.1093/pubmed/fdaa235
23. Harris BR, Gallant KC. In their own voice: behavioral health care delivery barriers in rural New York. *Rural Mental Health*. 2023;47(4):221–231. doi:10.1037/rmh0000237
24. Hagen BNM, Sawatzky A, Harper SL, O’Sullivan TL, Jones-Bitton A. “Farmers aren’t into the emotions and things, right?”: a qualitative exploration of motivations and barriers for mental health help-seeking among Canadian farmers. *J Agromedicine*. 2022;27(2):113–123. doi:10.1080/1059924X.2021.1893884
25. Younker T. Farmer mental health interventions: a systematic review. *Int J Environ Res Public Health*. 2021;19(1). doi:10.3390/ijerph19010244
26. Cuthbertson C, Brennan A, Shutske J, et al. An effective mental health literacy program for farm financial service providers. *J Agromedicine*. 2023;28(2):127–135. doi:10.1080/1059924X.2022.2058666
27. Cuthbertson C, Eschbach C, Shelle G. Addressing farm stress through extension mental health literacy programs. *J Agromedicine*. 2023;27(2):124–131. doi:10.1080/1059924X.2021.1950590
28. Brumby SA, Willder SJ, Martin J. The sustainable farm families project: changing attitudes to health. *Rural Remote Health*. 2009;9(1):1012.
29. Jones-Bitton A. Tailored mental health literacy training improves mental health knowledge and confidence among Canadian farmers. *Int J Environ Res Public Health*. 2020;17(11):3807. doi:10.3390/ijerph17113807
30. Scheyett A, Johnson L, Bowie M, Garcia A. Who do farmers trust? *The Journal of Extension*. 2023;61(3). doi:10.34068/joe.61.03.08
31. Joffe H. Thematic analysis. In: Harper E, Thompson AR, editors. *Qualitative Research Methods in Mental Health and Psychotherapy: A Guide for Students and Practitioners*. Chichester: John Wiley & Sons, Ltd; 2011:209–223. doi:10.1002/9781119973249.ch15
32. National Academies of Sciences, Engineering, and Medicine. *Strategies and Interventions to Reduce Suicide: Proceedings of a Workshop*. 2022. Washington, DC: The National Academies Press; 2022. doi:10.17226/26471
33. CDC. *Suicide prevention resource for action: a compilation of the best available evidence*. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention; 2022. Available from: <https://www.cdc.gov/suicide/pdf/preventionresource.pdf>. Accessed February 19, 2024
34. Cramer R, Kapusta N. A social-ecological framework of theory, assessment, and prevention of suicide. *Front Psychol*. 2017;8(1756). doi:10.3389/fpsyg.2017.01756
35. Struszczyk S, Galdas P, Tiffin P. Men and suicide prevention: a scoping review. *J Ment Health*. 2017;28(1):80–88. doi:10.1080/09638237.2017.1370638
36. Baker S, Nicholas J, Shand F, Green R, Christensen H. A comparison of multi-component systems approaches to suicide prevention. *Australas Psychiatry*. 2018;26(2):128–131. doi:10.1177/1039856217743888
37. Aldrich R, Wilde J, Miller E. The effectiveness of QPR suicide prevention training. *Health Educ J*. 2018;77(8):964–977. doi:10.1177/0017896918786009

**Neuropsychiatric Disease and Treatment****Dovepress****Publish your work in this journal**

Neuropsychiatric Disease and Treatment is an international, peer-reviewed journal of clinical therapeutics and pharmacology focusing on concise rapid reporting of clinical or pre-clinical studies on a range of neuropsychiatric and neurological disorders. This journal is indexed on PubMed Central, the 'PsycINFO' database and CAS, and is the official journal of The International Neuropsychiatric Association (INA). The manuscript management system is completely online and includes a very quick and fair peer-review system, which is all easy to use. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <https://www.dovepress.com/neuropsychiatric-disease-and-treatment-journal>