Death on the Farm: Characteristics and Contextual Stressors in Farmers and Agricultural Worker Suicides in Georgia

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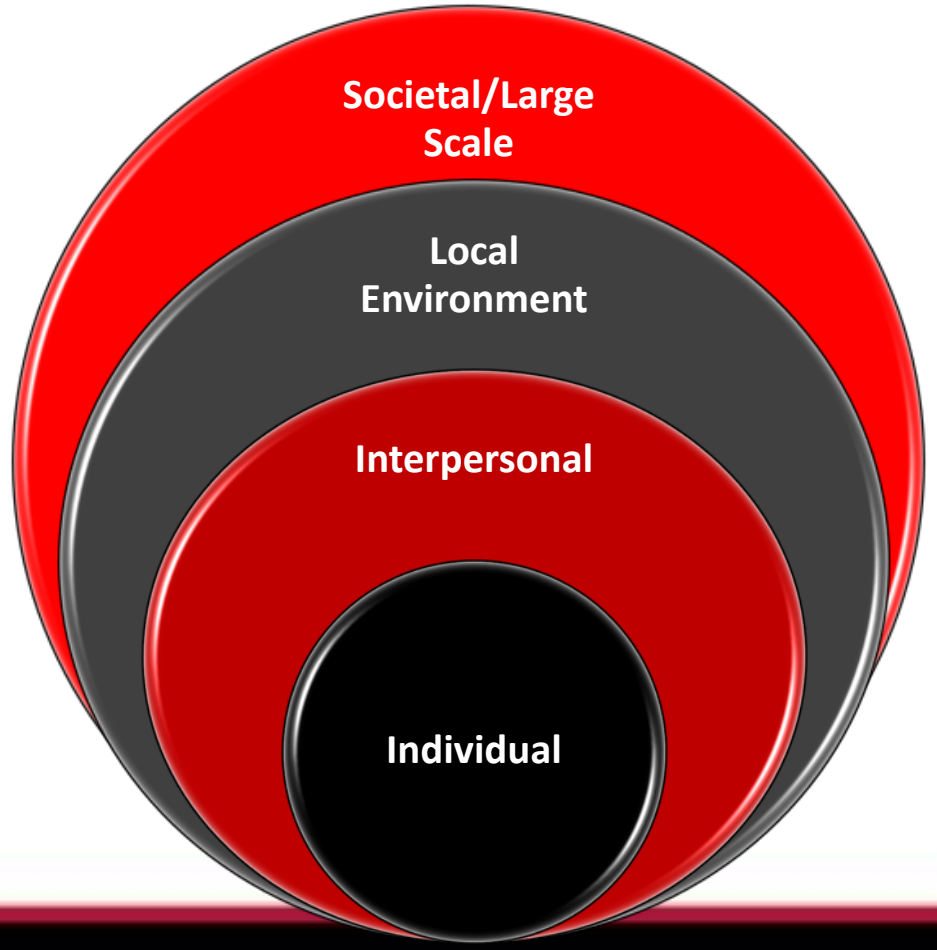
Based in part on Scheyett, A., Bayakly, R., & Whitaker, M. (2019, March 14). Characteristics and Contextual Stressors in Farmer and Agricultural Worker Suicides in Georgia From 2008–2015. *Journal of Rural Mental Health.* Advance online publication. http://dx.doi.org/10.1037/rmh0000114

A Crisis in Farmer Well-Being

- CDC study revealed Farming, Fishing, Forestry had 3rd highest suicide rate of any occupation (CDC, 2018)
- In Georgia, rate was nearly 51 per 100,000, compared with 14.9 per 100,000 for overall population of workers (Lavender et al., 2016)

How do we Conceptualize This?
Social Ecological Framework



Individual Factors Identified in the Literature

- Depression and mental illness may be elevated in farmers (Arnautovska, et al., 2016; Reed & Claunch, 2020)
- Health challenges and injuries (Kunde, et al,, 2017)
- Stress (Kutek, Turnbull & Fairweather-Schmidt, 2011)
- Demographic risk factors: age and gender

(Garnham & Bryant, 2014)

- Challenges to identity (Roy, Tremblay, Robertson & Houle, 2017)

Interpersonal Factors

- Social isolation (Kennedy, Maple, McKay & Brumby, 2014)
- Increased dependence on smaller network of relationships (McLaren & Challis, 2009)
- Stress impacts in couple relationships (Rayens & Reed, 2014)

Local Environmental Factors

- Cultural (Broffman, et al., 2017; Judd, et al., 2006)
  - Pride in independence
  - Stigma in help-seeking
  - Lack of awareness of mental health issues
- Physical
  - Ease of access to firearms (Kunde, et al., 2017)
  - Link between depression and pesticide exposure (Onwuameze, Paradiso, Peek-Asa, Donham, & Rautiainen, 2013)
  - Lack of adequate health/behavioral health services (Byrne, Happell, & Reid-Searl, 2017)

Societal/Large Scale Factors (Perceval, Kolves, Ross, Reddy, & De Leo, 2018)

- Weather
- Fluctuation in crop prices
- Changing regulations
- Changes in policy and legislation

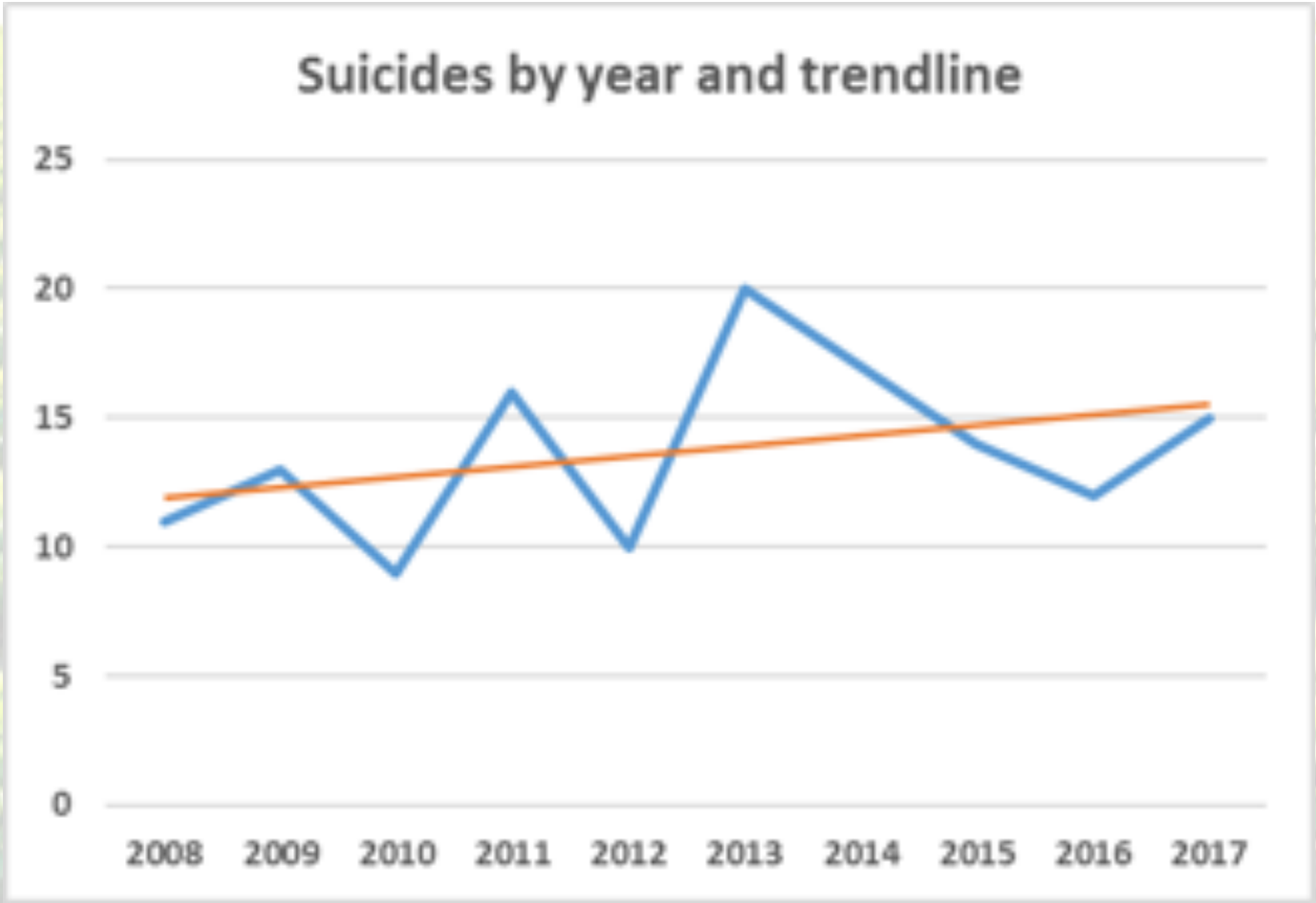
This Study: What is happening in Georgia?

- Bulk of research done outside the US
- Patterns vary geographically
- Findings are statistical, or interviewing those with suicidal ideation
- *What are the characteristics of farmers and agricultural workers who have died by suicide in Georgia, and what factors are associated with these deaths?*

Method

- Used GA VDRS data from 2008-2017
- Extracted all cases positive for variable Cause of death: Suicide
- Reviewed all cases containing the terms “farm,” “farmer,” “agricult” “poultry,” or “cattle” and extracted all case with indication that the individual was an agricultural worker or farmer. N=137 out of 12,453
- Quantitative: Death per year, demographics, means of death, presence of substances
- Qualitative: thematic analysis of coroner/ME report and law enforcement report summaries

Results: Numbers and Trend



Results: Demographics

- Male 97.1%
- White 92.0%
- Non-Hispanic 84.7%
- Marital Status
  - Married 40.2%
  - Never married 29.9%
  - Divorced 20.4%
  - Widowed 5.1%
- Education
  - < 12th grade 21.2%
  - High School/GED 36.5%
  - Some college 3.7%
  - Bachelor or more 9.5%
  - Unknown 29.2%
- Mean age years (STD) 53.2 (19.49)

Results: Presence of Substances

- Was toxicology report available?
  - Yes 46.0%
  - No 32.1%
  - Not documented 21.9%
- Were substances present or an issue? (Toxicology or noted in reports)
  - Toxicology: 13 alcohol 6 other substance
  - From reports: additional 7 alcohol 2 polysubstance
  - TOTAL: 28 (20.4%)

Results: Means of Suicide

		n	%
Gunshot wound		106	77.37%
	Head	80	58.39%
	Chest	19	13.87%
	Other	7	5.11%
Carbon monoxiode		1	0.73%
Hanging		23	16.79%
Stabbing		2	1.46%
Poison		2	1.46%
Jump in front of car		1	0.73%
Disconnect medical device		1	0.73%
Jump out window		1	0.73%

Results: Factors Associated with Suicide (C/ME or LE)

- So much missing data from reports

Unknown	48	35.04%
missing	23	16.79%
no factors noted	25	18.25%

Results: Factors Associated with Suicide (C/ME or LE)

		Of total (n=137)	Of data (n=89)
Relationships	34	24.82%	38.20%
conflict	20	14.60%	22.47%
loss	14	10.22%	15.73%
Health	31	22.63%	34.83%
Finances	11	8.03%	12.36%
Mental Health Problems	26	18.98%	29.21%
current	13	9.49%	14.61%
history	13	9.49%	14.61%
Prior S attempts/threats	18	13.14%	20.22%
Current S threats/ideation	18	13.14%	20.22%
MH Tx current/recent	7	5.11%	7.87%
Suicide signs	19	13.87%	21.35%
words and behaviors	9	6.57%	10.11%
"been depressed"	10	7.30%	11.24%
CJ	5	3.65%	5.62%

Relationship Issues

- Conflicts with wife/girlfriend

"Victim and his [primary relationship] were fighting about Victim's heavy drinking, [with the primary relationship] wanting Victim to get help for his drinking…[primary relationship]stated that they cooked dinner and they were still fighting about his drinking and the Victim stated he would just kill himself…then she heard the gun go off."

- Conflict with other family
- Loss

  "The Victim was upset because his relationship] was placed in an out-of-state assisted living home"

Health Struggles

- Chronic health problems and lost of functioning

  Victim with a history of diabetes and cardiac problems reported told his family he was "tired of being a burden to them" because of his need for personal care assistance.

- New diagnosis

  "[the] Victim was agitated about his condition and started talking suicide after his lung surgery [which revealed cancer]."

- Chronic pain

  "The Victim's [close relative] advised that the decedent was depressed and voiced suicidal ideation in the past month because he was 'hurting so badly and did not want to live anymore'…The Victim's medical history included cardiovascular issues, chronic pain, degenerative arthritis, knee replacement, shoulder surgery, and ostomy due to colitis."

Suicidal Threats and Signs

- Prior suicidal threats

  "Law enforcement had been called to the residence numerous times for past suicide attempts by the Victim."

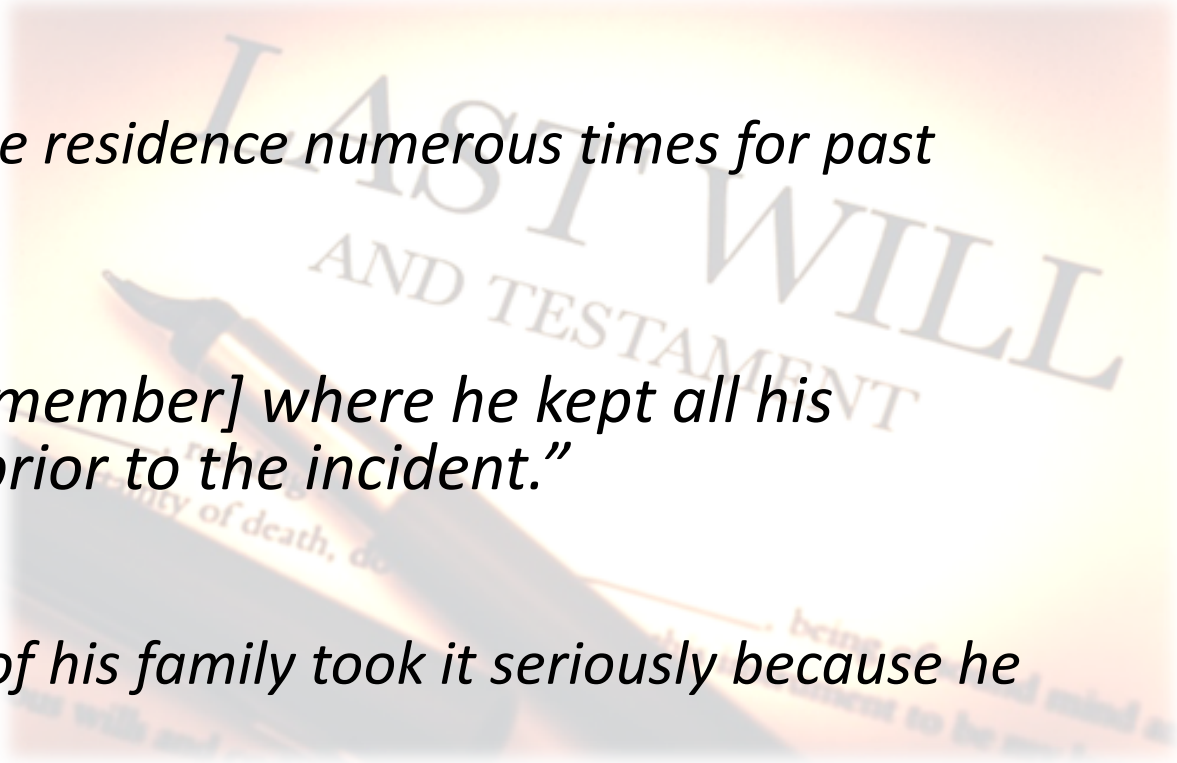
- Behavioral signs

  "[the] Victim showed [a close family member] where he kept all his important papers and will the night prior to the incident."

- Family dismissal

  "He threatened to kill himself but none of his family took it seriously because he had made similar threats in the past."

  In 18 cases family was aware of threats; in only 3 of these was it noted the individual was taken for mental health services in response.



Financial Stress

Farm foreclosure sale, ca. 1933. National Archives.

- Loss of job

  "Victim was out of work and couldn't support his family."

- Financial problems linked with health problems

  "Victim was depressed because of financial problems & declining health. Victim had a heart attack 3 months prior. V[ictim]'s [primary relationship] had lost her job and there were hospital bills."

In over a third of the cases multiple factors, such as health and finances, were present.

Discussion and Implications

- Health and the inability to work as a precipitant
- Financial stress less frequent than expected (but must remember financial stress could underlie other issues such as health concerns)
- Suicidal threats (20%) and family (in)action
- Suicidal signs (21.4%)and lack of recognition
- Mental health problems noted in only 29% of cases

Future Directions

- Targets for intervention
  - Health: primary MD and rural health clinics
  - Relationships and loss: faith leaders, divorce lawyers, assisted living facilities, funeral homes
  - Financial stress: banks, extension agents
- Need to know much more
  - National data
  - MISSING DATA, esp. related to substances and C/ME reports
  - Voices, not secondary data

Extension Agents (Holt, Crosby, Lamm, Borron, Lamm, 2019)

- Survey of Georgia extension agents (N=281) in early 2019

- *What is your comfort level addressing rural stress/mental health issues in your county*?
  - 1=low, 5=high level of comfort
  - **Mean= 2.79**

Georgia Farm Bureau Convention Survey, 2019

- What do farm community members say?
- Surveyed participants in a two day convention of Georgia Farm Bureau in December 2019

Demographics (N=118)

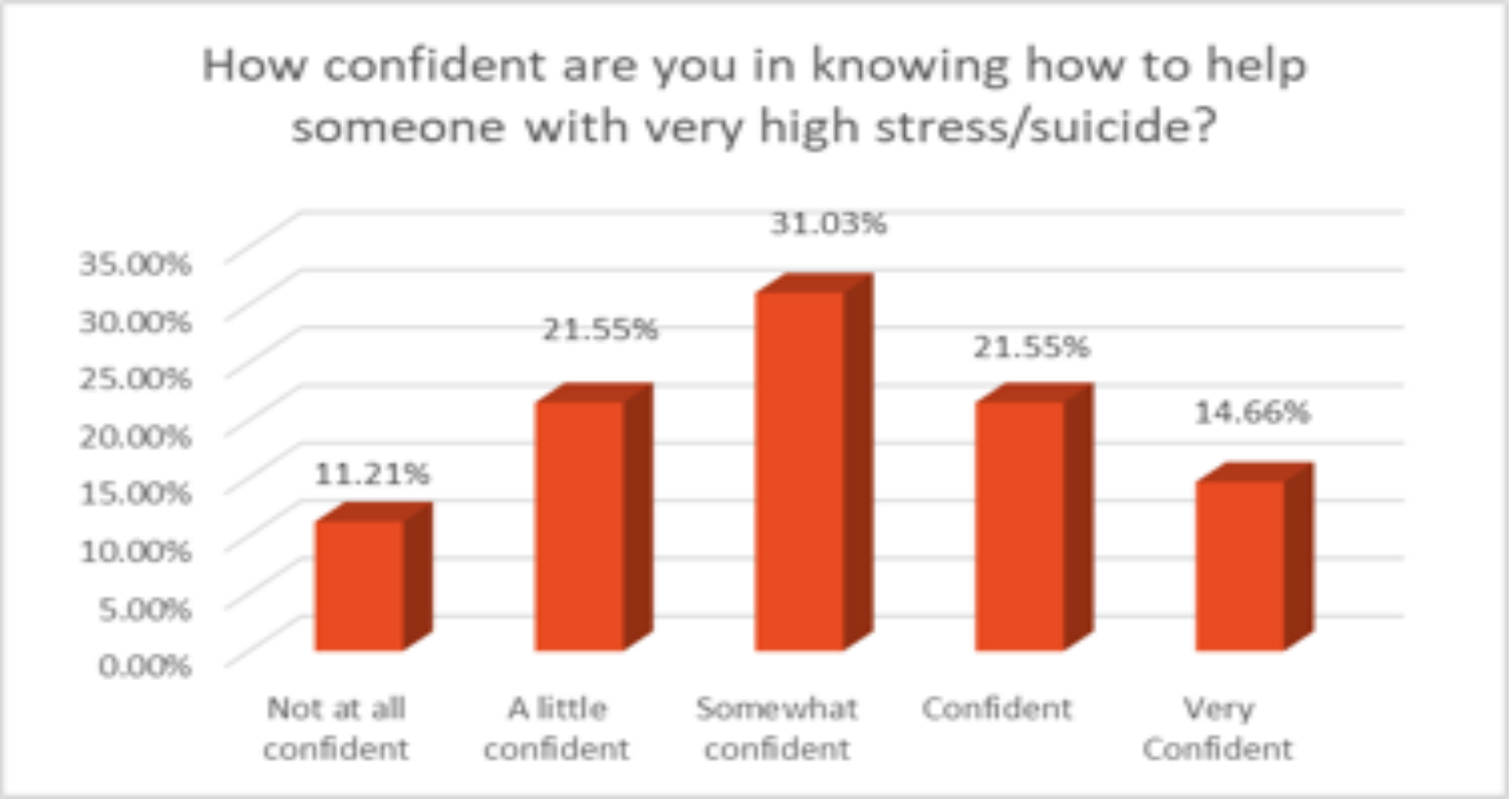
	N	%
Gender		
Male	35	29.66%
Female	80	67.80%
Prefer not to answer/Missing	3	2.54%
Race		
White	107	90.68%
Black	2	1.69%
Other	1	0.85%
Prefer not to answer/Missing	8	6.78%
Ethnicity		
Non-Hispanic	59	50.00%
Hispanic	0	0.00%
Prefer not to answer/Missing	59	50.00%

Assessment of GA Farmer Stress Levels

Assessment of Stress Levels in Georgia Farmers (N=118)

	Mean	StD
I think that the stress levels in Georgia Farmers are:	4.13	0.66
(1=very low, 3=average, 5=very high)		
Compared to one year ago, I think that stress levels in Georgia farmers are:	3.81	0.79
(1=much lower, 3=the same, 5=much higher)		

Do We Know How to Help Each Other?



Do Responses Vary by Gender?

Comparison of Response Means by Gender

	Male	Female	t (2-tailed)	df	p-value
Stress Levels in GA Farmers	3.89	4.21	2.5021	113	0.0138*
Stress Levels are Higher than 1 year Ago	3.51	3.94	2.6641	113	0.0088*
Confident Would Know How to Help	2.80	3.18	1.5388	111	0.1267

What are the Top Stressors for Farmers in GA?

Stressors	N	%
Weather	82	71.93%
Finances	38	33.33%
Commodity prices and sales	33	28.95%
Farm operating costs	31	27.19%
Government: legislation, regulations, aid	22	19.30%
Prices (not specifically defined)	14	12.28%
Crop production and failure	11	9.65%
Trade, tariffs, and market competition	10	8.77%
Labor	9	7.89%
Time	8	7.02%
Debt and loans	7	6.14%
Family	5	4.39%
Taxes	5	4.39%
Lack of support	5	4.39%
The economy	4	3.51%
Pests	4	3.51%
Health and health insurance	4	3.51%

What are the Best Ways to Get Information about Stress to Farmers and Farm Communities?

Best Ways to Provide Information to Farmers and Farming Communities on Taking Care During Times of High Stress (N=118)

	N	%
Social Media	77	65.25%
Newsletter/Magazine	69	58.47%
Classes	66	55.93%
Website	47	39.83%
Brochures	36	30.51%
Radio	30	25.42%
Podcasts	13	11.02%
Other	14	11.86%
Interpersonal contact	12	10.17%
Not specified	1	0.85%
Farm Service Agency	1	0.85%

Conclusion

- Farmers and agricultural workers demonstrate strength and resilience in the face of many challenges and hardships.
- Many factors—weather, commodity prices, farming costs—exacerbate the stress this population feels.
- Women may be experiencing this stress differently than men.
- A large number of people are not confident they could help someone under great stress/thinking of suicide.
- There are multiple points of leverage in rural communities that can be used to prevent death by suicide among farmers and agricultural workers.
- There are many promising avenues to reach farmers and farm communities with information on stress management and promoting suicide prevention strategies.

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