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Editor: Bindu Poudel-Ward, PhD

Yates, M.[1], Scheyett, A.[2], Hand, L.[3]

[1]Graduate Research Assistant, Department of Crop and Soil Sciences, Tifton, Georgia, 31794

[2]Professor and Extension Rural Stress Specialist, Department of Agricultural Leadership, Education, and Communication, Athens, Georgia, 30602

[3]Assistant Professor and Extension Cotton Agronomist, Department of Crop and Soil Sciences, Tifton, Georgia, 31794

Bite-Sized Damage, Big-Time Stress: *Deer Pressure in Cotton is Relentless*

Abstract

White-tailed deer are a growing concern for Georgia cotton producers. Their feeding habits increasingly damage crops and create significant financial and emotional strain. While the economic impact of deer predation on cotton has been documented, little work has examined its effect on the health and well-being of cotton farmers. We assessed the levels of sleepiness, fatigue, and stress experienced by farmers due to deer-related crop damage. Standardized scales and open-ended responses were analyzed to quantify physical and emotional impacts. Results indicate that deer damage is not only an agronomic crisis but also a significant issue affecting the health and well-being of farmers. Many growers report feeling burned out, helpless, and considering stopping cotton production. These findings suggest the urgent need for holistic solutions that address both crop protection and farmer well-being.

Introduction

Deer and Georgia cotton

The white-tailed deer (*Odocoileus virginianus*) is the most widely distributed and best-recognized large mammal in North America (Craven and Hygnstrom, 1994). The positive economic value of deer through license fees, meat, and hunter expenditures for equipment, food, and transportation can be measured in hundreds of millions of dollars. Despite their economic and aesthetic values, deer also have a variety of negative economic impacts; they damage crops and personal property, and harbor diseases common to humans and livestock (Craven and Hygnstrom, 1994). These factors often make deer damage control a complex social and political problem as well as a biological and logistical one.

Financially, farmers in the U.S. are experiencing a period of great stress. Farming has become more expensive, and crop prices have not kept pace with the increased cost of production (Gratas, 2023). And lately, farmers in Georgia and other agricultural states have been raising the alarm about white-tailed deer, which can cause millions of dollars' worth of damage to the state’s most profitable crops. The number of deer feeding complaints specific to cotton has risen sharply in the last five years; however, these cases are relatively isolated to fields that regularly encounter noticeably high numbers of deer and fields close to preferred bedding habitats (Collins and Edmisten, 2018). New information suggests deer could now be Georgia cotton's number one economic pest (Haire, 2024). Based on survey information from producers, professional agricultural consultants, and county extension agents, deer in 2023 cost cotton farmers more than any other major pest, including more than pigweed, nematodes, and stink bugs. It is a major agronomic issue with no traditional management tools available.

White-tailed deer cause the most significant damage to cotton following planting, as feeding below the cotyledons can kill seedlings, necessitating replanting (Collins and Edmisten, 2018). Feeding preference is primarily directed towards younger plants, and

they will feed on the growing point, thereby causing a loss of apical dominance. This results in reduced plant height and a significant portion of the harvestable bolls appearing on multiple monopodial branches. The relationship or balance between vegetative and reproductive growth of a cotton plant during the season is one of the more important factors that affects a crop's response to harvest-aid application (Walhood and Addicott, 1968; Snipes and Evans, 2001). Any agronomic practice or environmental factor that promotes vegetative growth rather than reproductive growth can lead to problems during harvest preparation and reduced efficacy of harvest aids. Feeding preference is primarily on the terminal bud, leading to loss of apical dominance (Collins and Edmisten, 2018. When deer cause damage, the most harvestable bolls appear on multiple vegetative branches in the deer-damaged cotton.

Deer and Farmer Mental Health

White-tailed deer have a significant impact not only on Georgia cotton production but also on Georgia cotton farmers. White-tailed deer damage is common for cotton producers in the Southeastern United States, but in 2023, deer feeding on cotton and other crops was abnormally high (Hand et al., 2024). Most growers stated they had utilized Department of Natural Resources depredation permits (70.6%), replanted cotton (64.2%), and applied repellents (52.1%) (Haire, 2024).

A study by the Centers for Disease Control and Prevention (CDC) found that the occupational group farming, fishing, and forestry was in the top five of the highest rates of suicide (Sussell et al., 2023). The prevalence of mental health disorders and suicide amongst agricultural producers is a global problem (Younker, 2021). Farmers and agricultural workers, that is, those who operate, own, or work on an agricultural enterprise involving livestock or crops, are at elevated risk of suicide, both in the United States and internationally (Scheyett, 2019). For two decades, the rate of suicide has been higher in rural areas than in cities, and that rate continues to rise. With high risks and, often, thin profit margins for family-owned farms, social isolation, the vagaries of weather, and the burden of a multigenerational family legacy, the work can wreak havoc on mental health (Salerno, 2024).

Farming is a career that involves long hours, a hectic work environment, and is physically and mentally demanding (FarmProgress, 2022). When all of these are added up, the job of a farmer can take its toll. Fatigue and stress can cause substantial safety issues in all trades, and farming is no exception. Chronic stress among farming communities has resulted in higher rates of physical problems (e.g., headaches, sleep problems), mental problems (e.g., anxiety, anger, depression), and cognitive issues (e.g., memory loss, inability to make decisions) (Daghagh Yazd et al., 2019). Farmers have also been more likely to report that life was not worth living than non-farmers. Mental problems among farmers can affect their lives in different ways, and the impact of stress factors varies among them. These include reduced interest in pleasure, reduced concentration, loss of appetite, weight changes, tiredness, irritability, difficulty sleeping, fatigue, loss of control, and anxiety.

The link between high work demands and psychological health is complex and requires consideration of the type of demand, as well as potentially mediating variables such as fatigue (Dolbec et al., 2024). These work demands, of relevance to farmers, can be classified into categories including the work environment (e.g., the need to work physically), work-related factors (e.g., workload), work schedule arrangements (e.g., the need to complete work early to care for animals or crops), operational and management practices (e.g., operational decision-making), technological changes (e.g., farm automation), and other factors (e.g., economic conditions or trade agreements) (Dolbec et al., 2024).

Work demands and chronic fatigue lead to work-related chronic stress (Daghagh et al., 2019). It has been revealed that work-related chronic stress, defined as a conflict when the demands of work are high, and the worker cannot manage, control, or cope with that stress, has a significant influence on well-being and health. Stress has been a dominant topic in literature as one of the most widely researched psychosocial constructs, particularly in the area of work-related stress. Work-related stress is stress that has specifically been associated with an increased prevalence of mental disorders, such as depression and anxiety (Daghagh et al., 2019).

In addition to the stress felt by all farmers, cotton farmers must now struggle with deer predation. One can imagine the specific health and emotional impacts of deer predation, but literature offers little insight into the full extent of this problem. If we do not address the health and emotional damage in addition to the crop/financial damage, Extension is not fully addressing the impact of deer predation. Therefore, this study is a preliminary examination of the impact of deer predation on the well-being of cotton farmers, specifically focusing on its effects on sleep, fatigue, and stress. To capture the experiences of cotton farmers accurately and thoroughly, we gathered data using a survey that includes both psychometrically validated instruments and space for open-ended responses.

To build a sustainable future for agriculture for our nation and our world, we must promote the well-being of our nation's farmers and ranchers.

Materials and Methods

Data Collection

A survey was conducted to gather information on the sleepiness, fatigue, and stress experienced by farmers resulting from deer predation on cotton crops. The survey used the standardized and validated Epworth Sleepiness Scale (Cronbach's alpha 0.82) (Johns, 1997), Fatigue Severity Scale (Cronbach alpha 0.93) (Amtmann et al., 2012), and four-item Perceived Stress Scale (Cronbach alpha 0.72) (Cohen et al., 1983). In addition, respondents were asked to estimate the percentage of their fatigue and sleepiness, and the percentage of their stress, due to deer cotton predation. Demographic data and data on acres farmed, acres rented, and length of time farming were collected via the survey. Finally, an open-ended question was included in the survey, asking "Please tell us anything else you want us to know about how deer are impacting your well-being and stress levels."

Surveys were distributed at the Georgia Cotton Commission Mid-Year Meeting in Georgia and collected at the end of the meeting. Growers who do not attend received

the survey through county agents via phone, with an identical online version available. Surveys were anonymous and took approximately five minutes to complete. A total of 56 farmers completed the survey, and 23 (41%) provided additional written comments. The study was reviewed and approved by the University of Georgia Institutional Review Board PROJECT#00009736.

Data Analysis

All quantitative analyses were completed in SPSS Version 29.0.1.0. Data analysis includes frequencies or measures of central tendency. In addition, multivariate linear regressions were used to identify demographics, farm, and score variables predicting high sleepiness, fatigue, and stress. All variables were tested to ensure they meet assumptions for regression, with no high multicollinearity found. Qualitative data were reviewed by a researcher who had not attended the Cotton Commission meeting and thus had no preconceived ideas regarding the responses. Each response was line-by-line coded, with codes then collapsed into larger themes. A second and third researcher reviewed the codes and themes, and any areas of disagreement were discussed to reach a consensus.

The qualitative comments were reviewed and analyzed by one of the researchers who was not directly involved in data collection. Given that over half of the respondents did not provide additional written comments, and that the comments that were provided averaged two sentences in length, a full qualitative analysis was not completed. However, researchers agreed that valuable additional insight was provided by these comments, and therefore, a simple analysis should be done. One researcher, who was not directly involved in data collection, coded all comments, and then the codes were organized into larger thematic areas. Codes and themes were shared with a second researcher, who worked closely with respondents; the two researchers discussed these and came to a consensus on themes and their implications.

Sample

The sample consisted of 56 respondents. As is shown in Table 1, respondents were predominantly married white men, in their mid-forties, with one child.

Table 1. *Sample Characteristics*

	N	%
Male	55	98%
Married	53	95%
White	53	98%
Have children at home	35	62.5%
Children < 11 at home	17	30.4%
	Average	STD
Age	44.1	12.44
Number of children	1	1.03
Years farmed	20	12.93
Acres owned	712.3	1347.16
Acres rented	816	1067.4

Results

Epworth Sleepiness Scale (ESS)

In multivariate analysis, when considering age, number of children, acres rented, years farming, stress score (PSS-4), Fatigue score (FSS), and percent of fatigue due to protecting cotton from deer, the total stress score (PSS-4) ($p<0.001$), total fatigue score (FSS) ($p=0.002$), and years farmed ($p=0.010$) were significantly and positively associated with total sleepiness score (ESS), and the number of acres rented ($p=0.017$), was significantly and negatively associated with the total sleepiness score (ESS) (Model adjusted $R^2=0.360$, $p<0.001$).

Table 2. *Epworth Sleepiness Scale (ESS)*

Model		Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	95.0% Confidence Lower Bound
1	(Constant)	5.731	3.617		1.585	0.120	-1.541
	Age	- 0.095	0.075	-0.227	-1.262	0.213	-0.246
	Number of Children	-0.288	0.578	-0.057	-0.499	0.620	-1.450
	Years have you farmed	0.196	0.073	0.487	2.696	0.010	0.050
	Acres you rented	-0.001	0.001	-0.298	-2.483	0.017	-0.003
	% fatigue due to protecting cotton from deer	0.008	0.026	0.039	0.315	0.754	-0.043
	TOTAL Fatigue	0.843	0.241	0.420	3.501	0.001	0.359
	TOTAL Sleep	0.189	0.056	0.409	3.365	0.002	0.076

Fatigue Severity Score (FSS)

In multivariate analysis, when considering age, number of children, acres rented, years farming, total sleepiness score (ESS), percent of fatigue due to protecting cotton from deer and total stress score (PSS-4), percent of fatigue the grower said was due to protecting cotton from deer ($p=0.022$) and total Sleepiness score [ESS] ($p=0.002$) were significantly and positively associated with their total Fatigue Severity score (FSS). The number of years a grower had farmed was significantly ($p=0.037$) and negatively associated with FSS (Model adjusted $R^2=0.271$, $p=0.002$).

Table 2. *Perceived Stress Scale Four-Item (PSS-4)*

Model		Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	95.0% Confidence Lower Bound
1	(Constant)	10.651	8.440		1.262	0.213	-6.319
	Age	0.303	0.171	0.335	1.769	0.083	-0.041
	Number of Children	0.877	1.333	0.081	0.658	0.514	-1.804
	Years have you farmed	-0.369	0.172	-0.424	-2.146	0.037	-0.715
	TOTAL sleep	1.010	0.300	0.466	3.365	0.002	0.407
	Acres rented	0.001	0.001	0.131	0.971	0.337	-0.001
	% fatigue due to protecting cotton from deer	0.133	0.056	0.300	2.370	0.022	0.020
	TOTAL PSS	-0.401	0.621	-0.092	-0.645	0.522	-1.649

Perceived Stress Scale Four Item (PSS-4)

In multivariate analysis, when considering age, number of children, acres rented, years farming, total sleepiness score (ESS), the percent of fatigue due to protecting cotton from deer and total fatigue score (FSS), total sleepiness score [ESS] ($p=0.001$) and the number of acres rented ($p<0.001$) were significantly and positively associated with their total perceived stress score (PSS-4). The number of years a grower had farmed was significantly ($p=0.037$) and negatively associated with FSS (Model adjusted $R^2=0.262$ $p=0.002$).

Table 3. *Fatigue Severity Score (FSS)*

Model		Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	95.0% Confidence Lower Bound
1	(Constant)	2.639	1.949		1.354	0.182	-1.280
	Age	0.045	0.040	0.217	1.120	0.268	-0.036
	Number of Children	0.128	0.310	0.051	0.414	0.681	-0.494
	Years have you farmed	-0.085	0.040	-0.426	-2.144	0.037	-0.166
	Acres you rented	0.001	0.000	0.431	3.538	<.001	0.000
	% fatigue due to protecting cotton from deer	0.011	0.014	0.110	0.821	0.416	-0.016
	TOTAL Fatigue	-0.021	0.033	-0.093	-0.645	0.522	-0.088
	TOTAL Sleep	0.241	0.069	0.484	3.501	0.001	0.103

Qualitative

Four major themes were identified in the analysis: 1) emotional harm; 2) constant, relentless worry; 3) concern about losing the farm; and 4) we are working so hard already.

Emotional Harm

A number of participants expressed great frustration with the damage deer were causing to their crops, feeling high stress that made them feel disheartened, hopeless, and discouraged, to the point where it was nearly unbearable to continue. One participant wrote

> *It is just hard when you spend time planting and taking care of a crop that ultimately a deer eats and destroys. It works on me physically and mentally to know that you are ultimately just growing a food plot. After putting in the time, it makes you want to give up, and the motivation to continue goes down the drain.*

Another grower described deer as causing damage and defeat, saying, "*Deer are one of the only things that can take away all hope within a matter of a couple of days… plant damaged to the point of little or no possible production, you walk away completely defeated."*

Constant Relentless Worry

Not only was the deer problem causing significant emotional harm, but participants described it as a constant, grinding concern, a sense of relentless worry, and a continual feeling that they needed to protect the crop. One participant described it by saying, "*Deer pressure is relentless. It is terrible knowing you have planted a crop to sustain your livelihood, and deer are destroying it all night - EVERY NIGHT! It works on you mentally and physically,"* while another simply and resignedly stated, "*They are a constant threat."*

Concern About Losing the Farm

Part of the constant sense of worry and concern that was expressed by many respondents was the very real fear that the loss of this year's cotton crop could put them out of business. In 2025, the cost of producing cotton is significantly higher than the price growers receive for it, which already puts growers at a financial disadvantage when planting the crop. A grower expressed that deer damage could be the factor that caused the farm's failure. The participant wrote, *"Deer are one of the most invasive pests on my farm. If we cannot figure out a way to control them in the very near future, I am afraid they will single-handedly put me out of business.* Not only did deer damage risk the business, but it also risked farmers' legacy and sense of the future, destroying what they had hoped their children would inherit. As one grower poignantly said, *"I may very well lose the farm that I should share with my children. After all these years of hard work, sacrifices, and overcoming almost insurmountable odds."*

We Are Working So Hard Already

Among some participants, there was a sense that the damage caused by deer was, in a way, adding insult to injury. They noted that cotton farming was already very difficult, and that this problem with deer made any success impossible. This was communicated by one farmer, writing, *"Farming is very tough as it is with high inputs and low prices. Then you lose whole fields due to deer or maybe a whole farm…"* A second farmer expressed frustration at having to work so hard and still not be able to make any money; *"It is hard enough growing cotton at the price we have to now, and when you throw deer damage in the mix, it is like we are working our tails off to lose money.*

Discussion

Agriculture has been identified as a stressful industry, and there is evidence that chronic stress may contribute to the development or progression of mental health disorders, specifically anxiety and depression (Rudolphi et. al., 2020). This study revealed clinically significant levels of fatigue, sleepiness, and stress among Georgia farmers due to deer damage in cotton, mirroring previous research that has documented heightened

stress within agricultural communities. Importantly, we found that sleep, fatigue, and stress were predictive of one another, which is consistent with existing literature on the relationship between sleep deprivation and mental health. Animals and humans experiencing partial sleep restriction usually exhibit detrimental physiological responses, while total and prolonged sleep loss could lead to death (Nollet, 2020). If the functions of sleep remain unclear, it has been proposed to play a key role in optimizing the conservation and utilization of energy by reallocating energy reserves to essential biological processes, such as cellular maintenance, anabolism, immune function, and neural plasticity, rather than wake-related features like vigilance, foraging, and reproduction. In humans, sleep deprivation and fragmentation alter stress reactivity, anxiety, and despair behavior.

Key findings were related to the number of years of farming experience and the number of acres rented. While more experienced farmers reported higher levels of sleepiness, they were less fatigued and stressed overall, suggesting that farming experience may buffer the psychological toll of farming despite physical exhaustion. A study done by Dr. Basey documented heightened stress and suicidal ideation risk among newer farmers. These results highlight a potentially protective effect of experience, with newer farmers remaining a critical at-risk group for mental health concerns (Basey et al., 2022).

The issue of rented acres also emerged as a significant concern. Farmers who rent more acres may face barriers, such as being unable to harvest deer on rented land. While this may result in more sleep due to fewer hours spent managing deer populations, it may also increase stress levels. This distinction underscores the complex interplay between farm management practices, wildlife management in crop fields, and mental health.

Our qualitative findings aligned with quantitative data, revealing profound emotional harm and an ongoing sense of threat. The burden of farming is not sporadic but chronic and cumulative. For these farmers, their futures, and the future of all cotton growers in Georgia are at stake. A farmer who completed the survey concerning deer damage in cotton reported, “*I think it is making a lot of people, including myself, want to quit*

growing cotton altogether. It is hard enough to grow cotton at the price we have now, and when you throw deer damage in the mix, it is like we are working our tails off to lose money. During planting season, we are already working around the clock, and as soon as it is over, we are in the fields trying to protect what crops we can at night. I have a 2-year-old and a wife at home, I would much rather spend my time with them, but I cannot afford to let deer eat up my crops. As much as we go on our farm on permits, we still have big problems. Not only does it affect my income on my farm, but it also affects my life at home. Our way of life is at stake, and something must change, or the cotton industry will be behind us in our area."

Limitations of this study

One limitation of our study was its limited generalizability since the sample was not random and only from one state. Applying findings to other states should be done with caution. Additionally, qualitative data were collected in written form, which could have discouraged elaboration and made replication more difficult. Another limitation is the limited sample size, as the majority of the surveys were completed at an in person meeting, where not every cotton grower in Georgia attended. The 5-year average for cotton growers in Georgia is 3,200 (T. Sills, personal communication), meaning less than 2% of cotton growers in Georgia completed the survey, which is also a form of limited generalizability. In-person interviews might have yielded richer findings and allowed researchers to probe more deeply into the issue. Future research should include qualitative interviews with cotton growers. Finally, we did not collect data on grower fatigue and stress levels at different time points, so we could not compare fatigue and stress during times of deer predation versus other parts of the year. While farmers' estimates of the percentage of their fatigue and stress due to deer are informative, producers may be overestimating because of the overall stress they experience during challenging times. Future research should consider multiple data points to better examine cotton growers' stress and fatigue related to deer.

Conclusion

White-tailed deer have long been a part of the rural landscape in Georgia. Their increasing presence in agricultural fields has transformed them from a wildlife resource into an economic and emotional burden for farmers. As they rise to become the number one economic pest of cotton in Georgia, deer threaten not only crop yields and farm profitability but also the mental health and well-being of the farmers who sustain the industry. This study reveals that deer depredation is not merely a challenge for production or pest management; it is an urgent crisis that affects farmers' fatigue, sleep, and stress at clinically significant levels. The emotional toll is evident: long nights, failed mitigation efforts, and the fear of losing one's livelihood weigh heavily on cotton producers. While research and extension efforts are underway to quantify the problem and identify solutions, the lack of viable agronomic tools has left many growers in a state of chronic stress. If the future of the Georgia cotton industry is to be ensured, deer damage must be treated as more than just a wildlife issue; it is a mental health and economic crisis. Addressing this challenge will continue to require various efforts to protect not only the crops that fill Georgia fields, but also the people who grow them.

Literature Cited

Allison Salerno, By, Salerno, A., & Walljasper, M. (2023, July 24). *Georgia's largest industry faces a mental health crisis*. Atlanta Magazine. https://www.atlantamagazine.com/great-reads/georgias-largest-industry-faces-a-mental-health-crisis/

Basey, S., Montgomery, A., West, B., Scoggins, C., & Baucom, L. (2022, June). *Farmer's Mental WellBeing Project: Statewide Survey Report*. Georgia Rural Health Innovation Center. https://www.georgiaruralhealth.org/programs-and-events/farmworkersurvey/

Collins, G., and Keith Edmisten. "Evaluating Damage from Deer Feeding on North Carolina Cotton." *NC State Extension Publications*, 2018, content.ces.ncsu.edu/evaluating-damage-from-deer-feeding-on-north-carolina-cotton#:~:text=Reports%20of%20deer%20feeding%20complaints,dominance%20(c%2C%20d).

Craven, Scott, and Scott Hygnstrom. "DEER." *Https://Digitalcommons.Unl.Edu/*, 1994,

digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1045&context=icwdmhandbook.

Daghagh Yazd, S., Wheeler, S. A., & Zuo, A. (2019). Key risk factors affecting farmers' Mental Health: A Systematic Review. *International Journal of Environmental Research and Public Health*, *16*(23), 4849. https://doi.org/10.3390/ijerph16234849

Dolbec, D., Dubreuil, P., & Larouche, L. (2023). Farmers' Mental Health: The mediating role of chronic fatigue. *Journal of Agromedicine*, *29*(3), 307–320. https://doi.org/10.1080/1059924x.2023.2289967

How farmers can keep fatigue and stress levels under control. (2022). https://www.farmprogress.com/farm-life/how-farmers-can-keep-fatigue-and-stress-levels-under-control

Gratas, S. "Many Farmers Are Feeling Powerless against Deer Causing Damage." *WGLT*, 23 Oct. 2023, https://www.wglt.org/2023-10-23/many-farmers-are-feeling-powerless-against-deer-causing-damage.

Haire, B. (2024, May 20). *Study confirms cotton farmers face major deer problem*. FarmProgress. https://www.farmprogress.com/cotton/new-study-confirms-cotton-s-major-deer-problem

Hand, L. C., Roberts, P. M., & Taylor, S. (2024b). Growers, consultants, and county agents perceive white-tailed deer to be the most economically impactful pest of Georgia Cotton. *Crop, Forage & Turfgrass Management*, *10*(2). https://doi.org/10.1002/cft2.70007

Nollet M, Wisden W, Franks NP. (2020). Sleep Deprivation and Stress: A Reciprocal Relationship. Interface Focus 10:20190092.http://dx.doi.org/10.1098/rsfs.2019.0092

Rudolphi, J.M., Berg, R.L. & Parsaik, A. Depression, Anxiety and Stress Among Young Farmers and Ranchers: A Pilot Study. Community Ment Health J 56, 126–134 (2020). https://doi.org/10.1007/s10597-019-00480-y

Scheyett, A., Bayakly, R., & Whitaker, M. (2019). Characteristics and contextual stressors in farmer and agricultural worker suicides in Georgia from 2008–2015. *Journal of Rural Mental Health*, *43*(2–3), 61–72. https://doi.org/10.1037/rmh0000114

Snipes, C. E., & Evans, L. P. (n.d.). INFLUENCE OF CROP CONDITION ON HARVEST-AID ACTIVITY (Chapter 4). In *Cotton Harvest Management: Use and influence of harvest AIDS* (Vol. 5).

Sussell A, Peterson C, Li J, Miniño A, Scott KA, Stone DM. Suicide Rates by Industry and Occupation — National Vital Statistics System, United States, 2021. MMWR Morb Mortal Wkly Rep 2023;72:1346–1350. DOI: http://dx.doi.org/10.15585/mmwr.mm7250a2.

Younker, T., & Radunovich, H. L. (2021). Farmer Mental Health Interventions: A systematic review. *International Journal of Environmental Research and Public Health*, *19*(1), 244. https://doi.org/10.3390/ijerph19010244