

# OBJECTIVES

- **Provide an overview of Guam's agricultural industry** and preventive efforts against mental health stigma.
- **Identify strengths and stressors that impact farmer mental wellness** in Western Pacific communities through national, regional, and local collaborative efforts.
- **Raise awareness of agricultural behavioral health** through outreach efforts with community partnerships.





# Guam, Guåhan

Geographically, Guam is located in the Western Pacific Ocean

- borderline to Philippine Sea
- Spans 8 miles at its widest and almost 32 miles long.

Land area of approximately 135,000 acres with an ethnically diverse population of almost 170,000.

Two (2) distinct seasons: Wet and Dry

- Mean high temperature of 86°F or 30°C
- Mean low temperature of 76°F or 24.4°C
- Common tropical storms, and occasional typhoons.

Politically, Guam became a US Territory in 1950.





# Common Challenges for Small Islands Developing States

Small developing countries that face unique social, economic, and environmental challenges.

- *high import and export costs for goods*
- *remote geography and small population sizes*
- *International markets, high transportation costs, fragile land and marine ecosystems*
- *vulnerable to biodiversity loss and climate change*

Guam's location and size make it strategically important.

Only island with both a protected harbor and land





# Literature Review

## Environmental Stressors

Charlson, F., Ali, S., Benmarhnia, T., Pearl, M., Massazza, A., Augustinavicius, J., & Scott, J. G. (2021). Climate change and mental health: a scoping review. International Journal of Environmental Research and Public Health, 18(9), 4486.

- **Vulnerability to increasing temperatures, heat, humidity, rainfall, wildfires, drought, and floods**

## Social Stressors

Bjornestad, A., Cuthbertson, C., & Hendricks, J. (2021). An analysis of suicide risk factors among farmers in the Midwestern United States. International journal of environmental research and public health, 18(7), 3563.

- **Emergence of self-blame, internalizing difficulties, and maladaptive self-criticism.**

## Economic Stressors

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.

- **Hardship for finances in general, including input prices, income, profit and market conditions.**

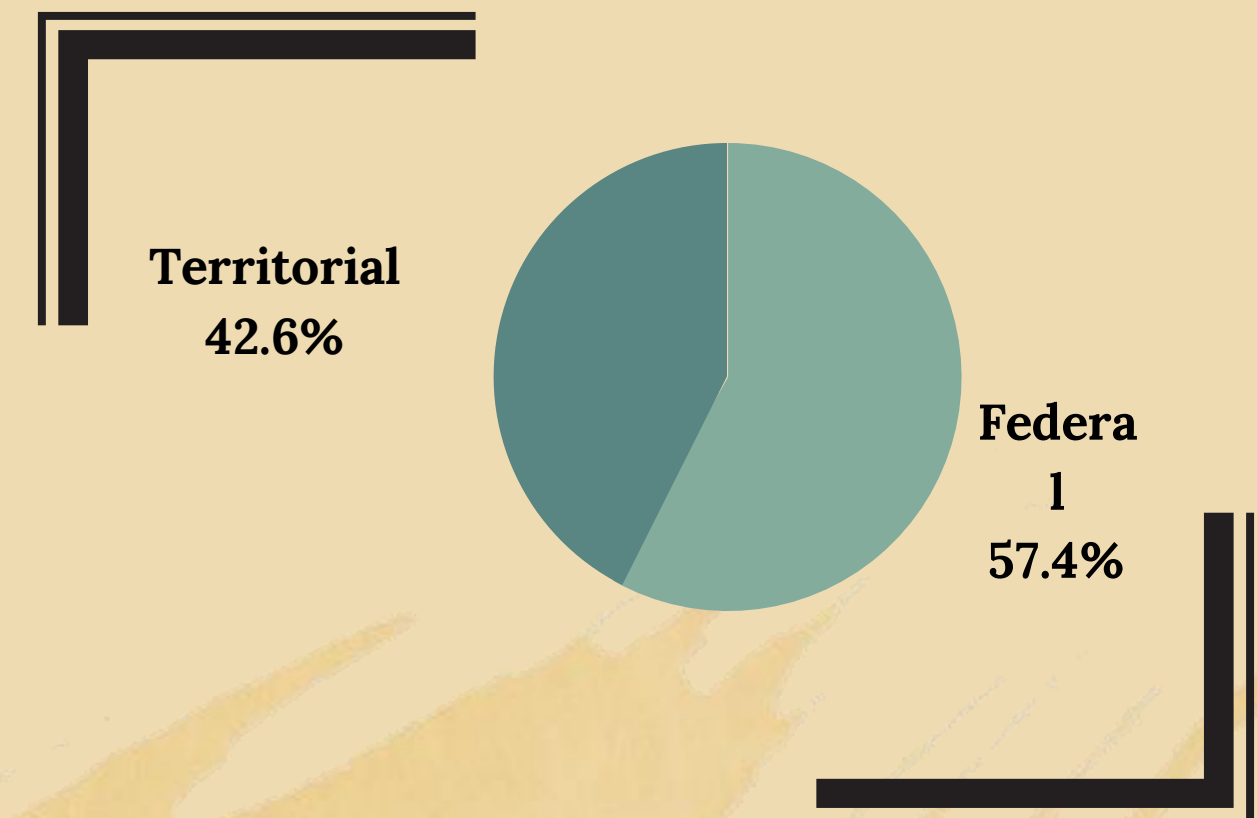
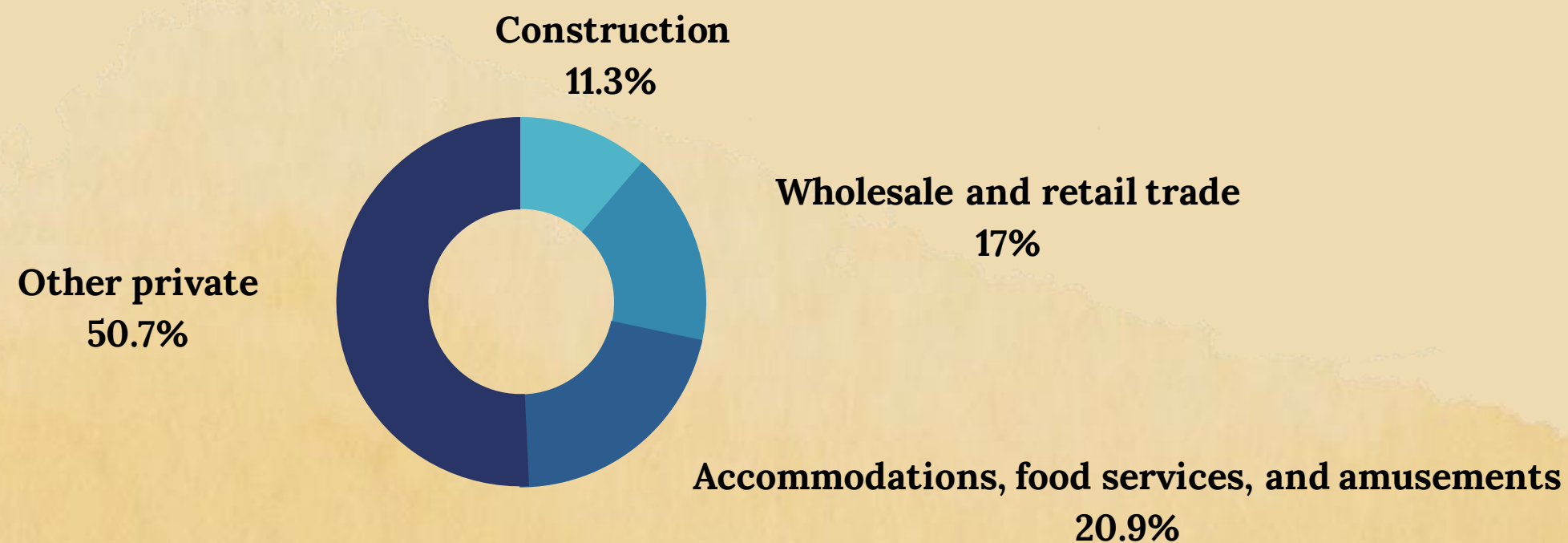
# Guam's Economy

- **2019**

- GPD was **\$6.37B**, a **5.12% increase** from 2018.
- Guam GPD growth rate was **2.60%**, a **3.39% increase** from 2018.

- **2021**

- Guam's economy resumed a positive growth rate of **1.1%** after **decreasing by 11.4%** in 2020.
- Guam's economic growth in 2021 was **3.4%**





# Hafa Adai Spirit!

**Main Market: Japan, Taiwan, South Korea, United States, and China**

FY 2019, Guam Visitors Bureau (GVB)

- \$1.75 billion, visitor spending reach
- \$260 million, government tax revenue
- \$1.85 billion, tourism economy sales
- 21,091 tourism-related jobs

FY2021, Guam Visitors Bureau (GVB)

- Total Visitors = 61,607
- Total Occupancy Tax = \$12,870,699
- COVID-19 Pandemic,
- 12,000 employees affected.
  - Sub-contracts from various industries (Infrastructure, recreation, agriculture, etc.)

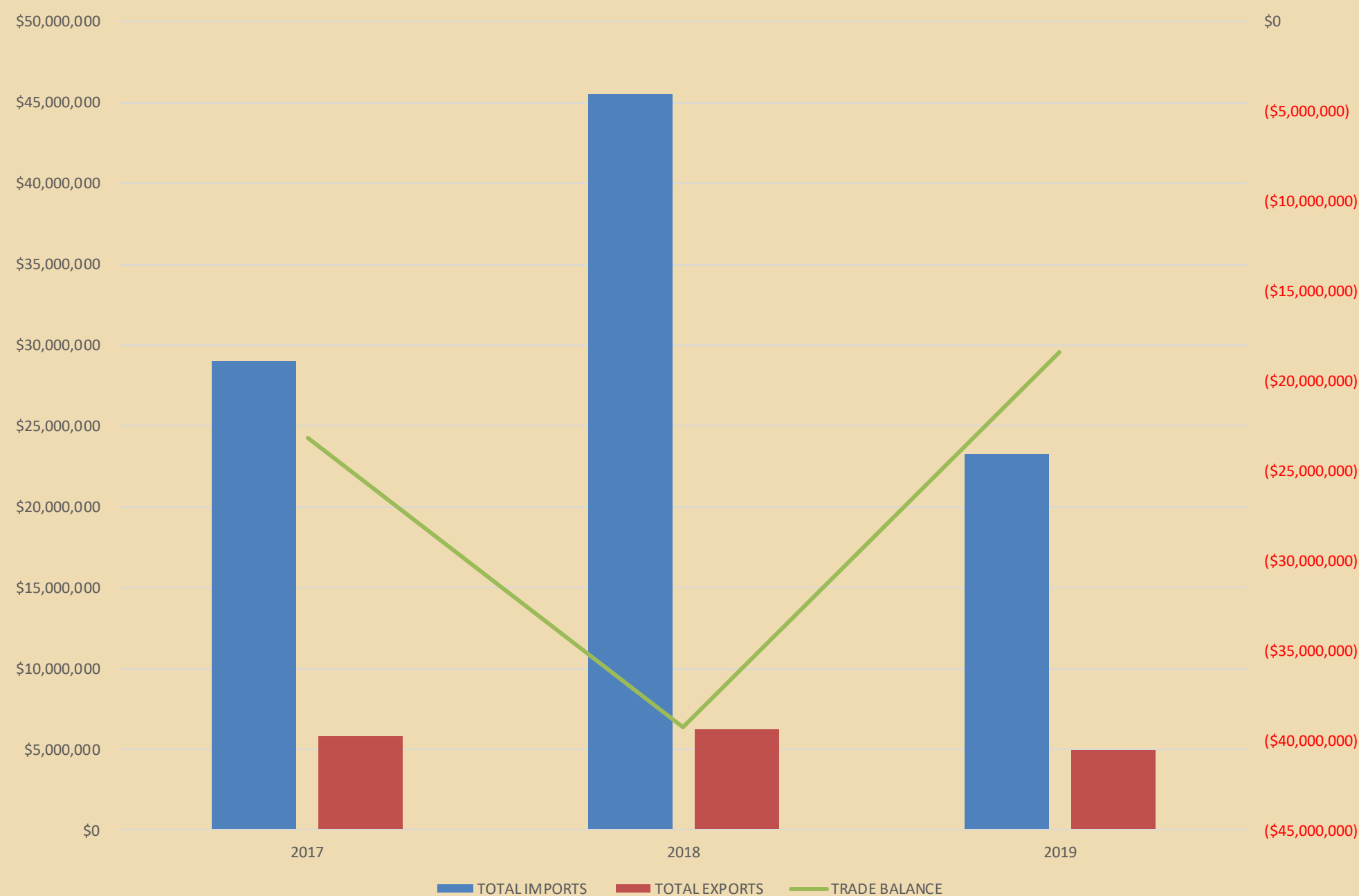


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# 90% of Guam's food supply is imported

*Net Food & Non-alcoholic Beverage Exports of Guam: 2017-2019*



\* Food Security Issue arises where Guam imports of food & non-alcoholic beverages are greater than total exports.

- Rising Prices and shipping costs
- Availability due to “shipment”
- Negative Trade balances



# Agriculture Industry

## • Farms and Farmland

	<u>2007</u>	<u>2018</u>	<u>% change</u>
Number of farms	104	264	154%
Land in farms (acres)	1,000	2,441	144 %
Average farm size (acres)	9.6	9.2	-4 %

## • Farm Counts by Size

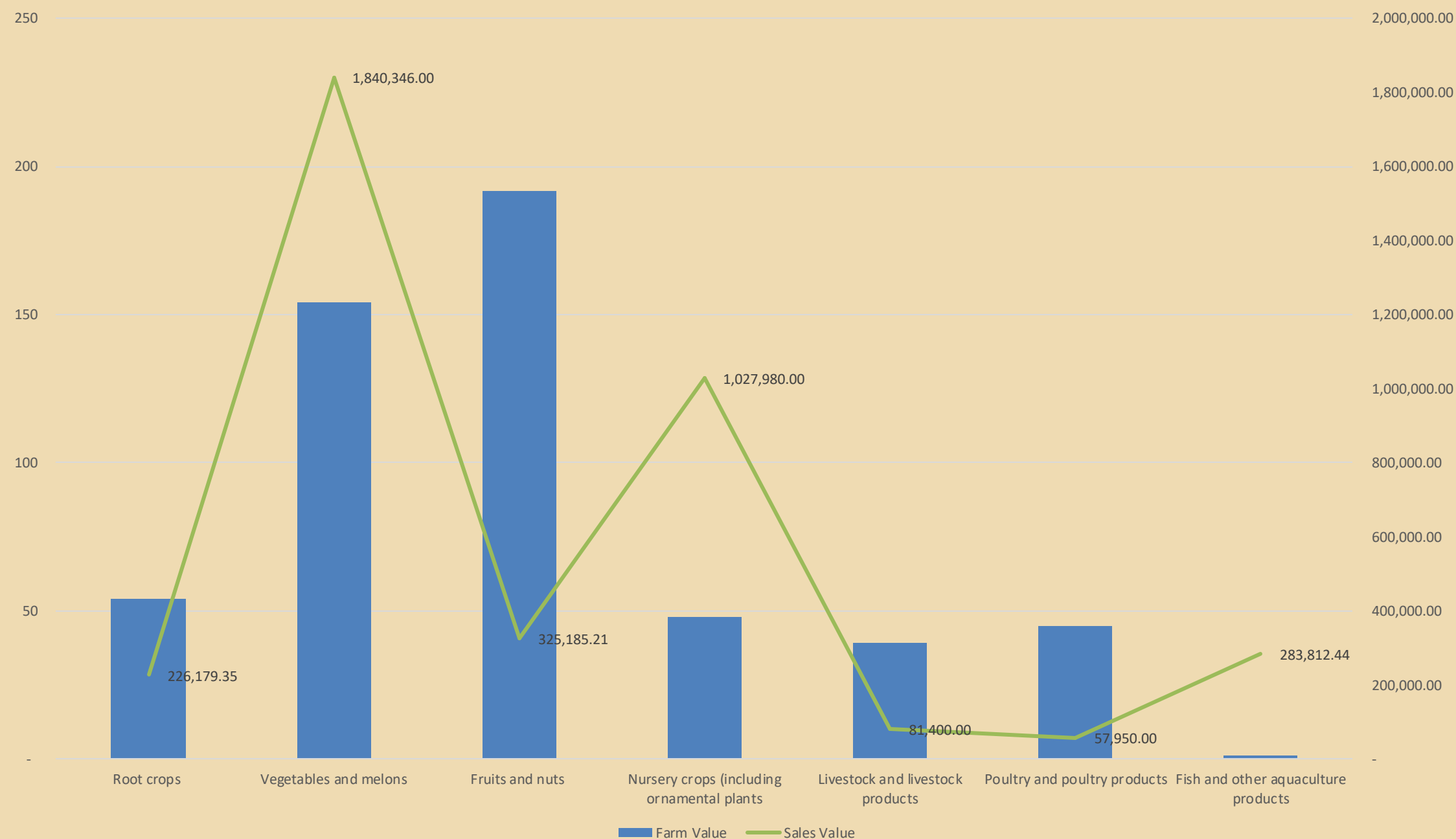
	<u>2007</u>	<u>2018</u>
• < 1 acre	13	55
• 1-2 acres	27	84
• 3-4 acres	13	35
• 5-9 acres	19	44
• 10-19 acres	15	16
• 20+ acres	17	30





# Market Value of Agricultural Products Sold

- The largest share of farms by type of crops:





# Agriculture sector in Guam (5 Year Average)



- There is an average 8% growth for production workers, but sharp volatility affects stability within the sector. (*avg. -26% decline in years 2019 and 2020*).
- Timeline of farm capitalization and profitability may take months to years which may entail slow returns.





# Agriculture Sector

According to Guam BLS, the Agriculture Sector is the third lowest paid for services.

Less availability in farm labor

Intensification of farm workloads

Deterred perception due to difficult living

Average Hourly Earnings by Sector	
Transportation & Public Utilities	\$20.99
Manufacturing	\$17.90
Construction	\$17.68
Finance, Insurance, & Real Estate	\$15.10
Wholesale Trade	\$12.92
Agriculture	\$12.49
Retail Trade	\$12.31
Tourism & Hotel Services	\$11.20

Source: Guam Bureau of Labor & Statistics, (Years 2016 – 2021)





# Impact of COVID-19

Guam's first COVID-19 case was declared on March 15, 2020.

Over 60,000 COVID-19 cases, and 400+ deaths due to COVID-19.

Various levels of lockdown were declared over the two-year period, ranging from mandated hotel quarantine to in-home quarantine measures.

Like the rest of the world, students were forced to attend classes from home and the workforce was sent to telework.

The need for mental health care and the shift in the workforce to the home, gave Guam the opportunity to pivot and stand-up various crisis service needs- including the hotline and mobile crisis response team services.

*Source: Guam Behavioral Health and Wellness Center*

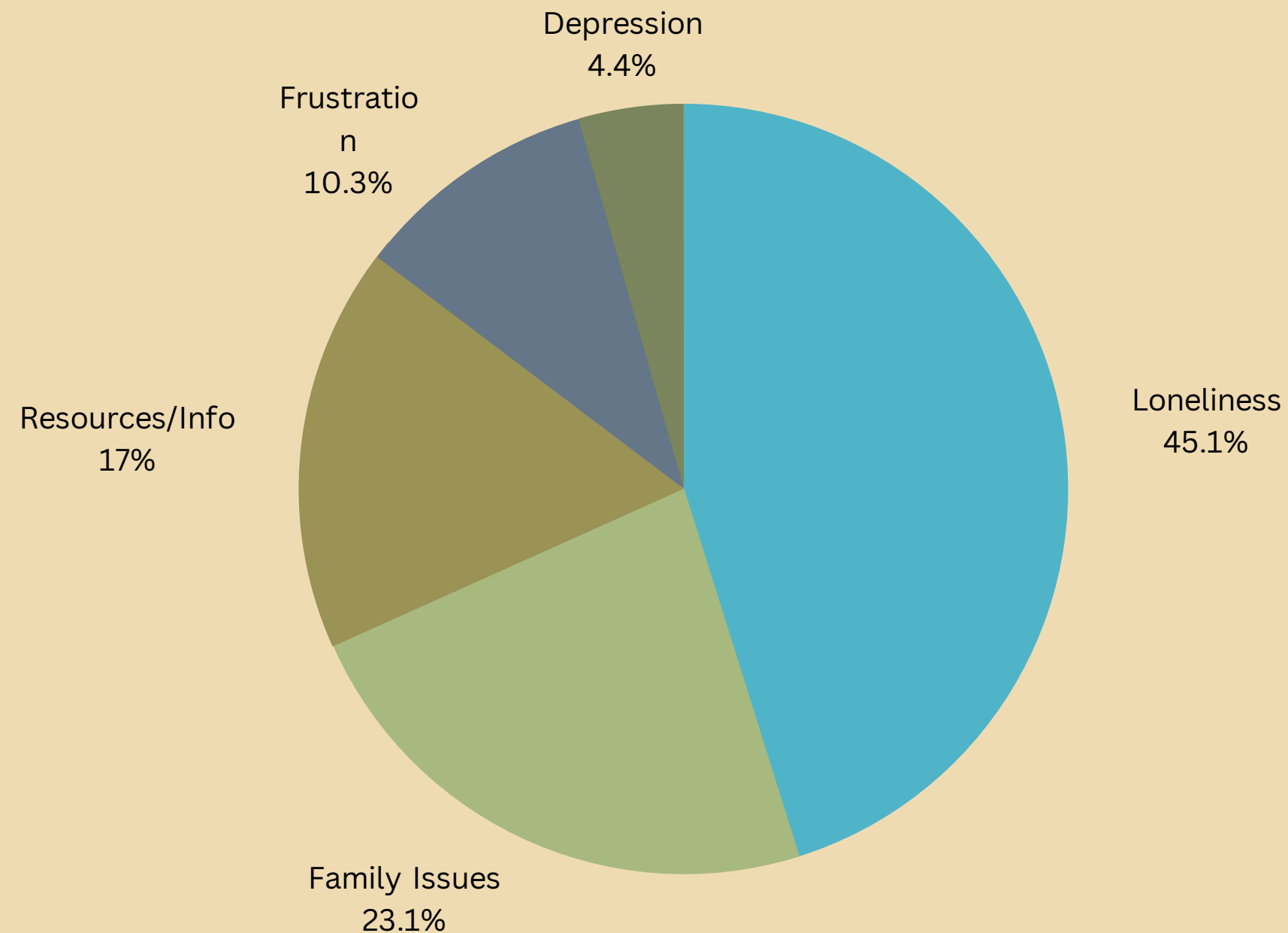


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# 988 Suicide & Crisis Lifeline

- Prior to the pandemic, the calls to Guam Behavioral Health's Crisis hotline averaged 25-30 calls per month.
- As COVID-19 reached Guam in March 2020, calls increased more than 1,100% as people sought additional information about the virus and support related to depression, anxiety, and suicidal ideation.
- The Crisis Hotline transitioned to the 988 Suicide & Crisis Lifeline in 2022.
- This transition allows local callers to dial only digits to reach mental health support. Services can also be reached through text and chat.

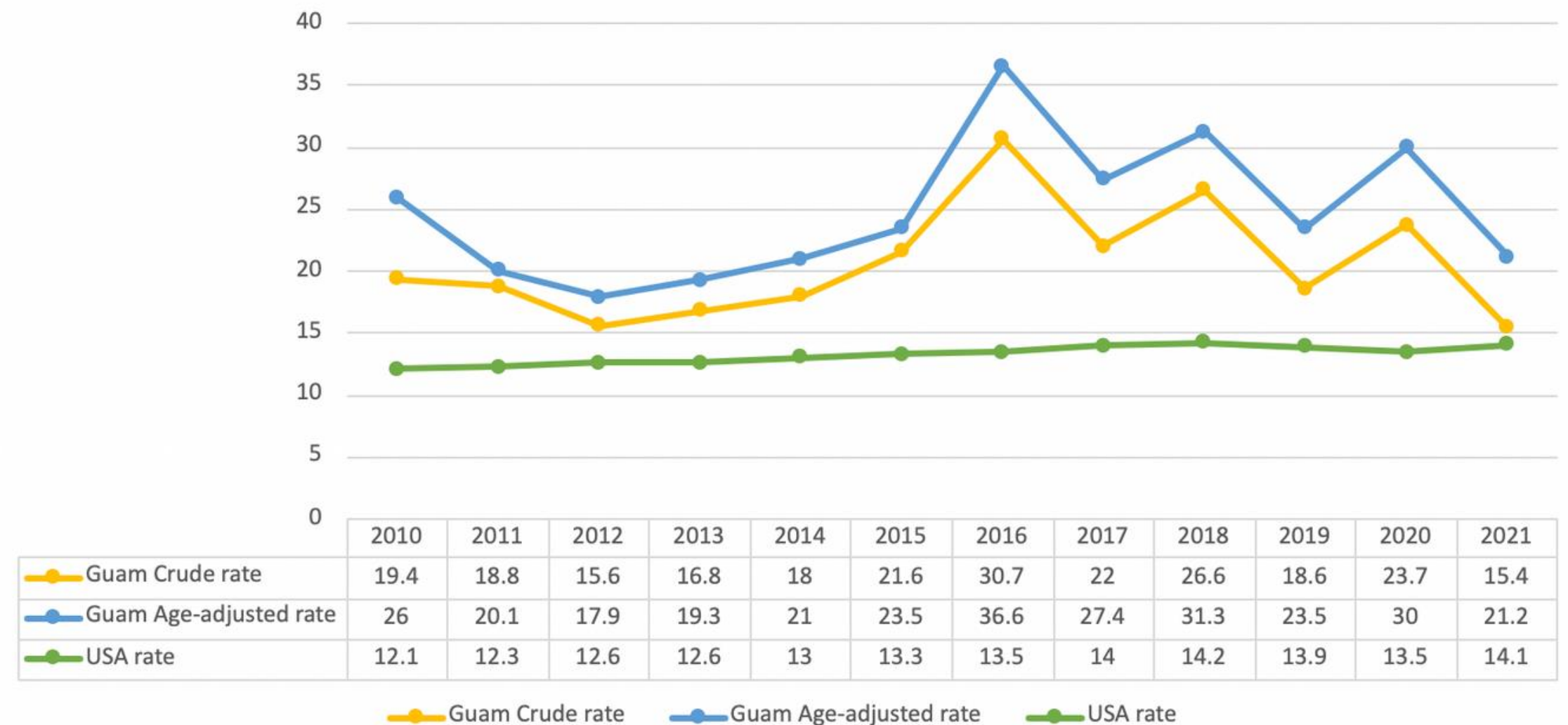




# Suicide on Guam

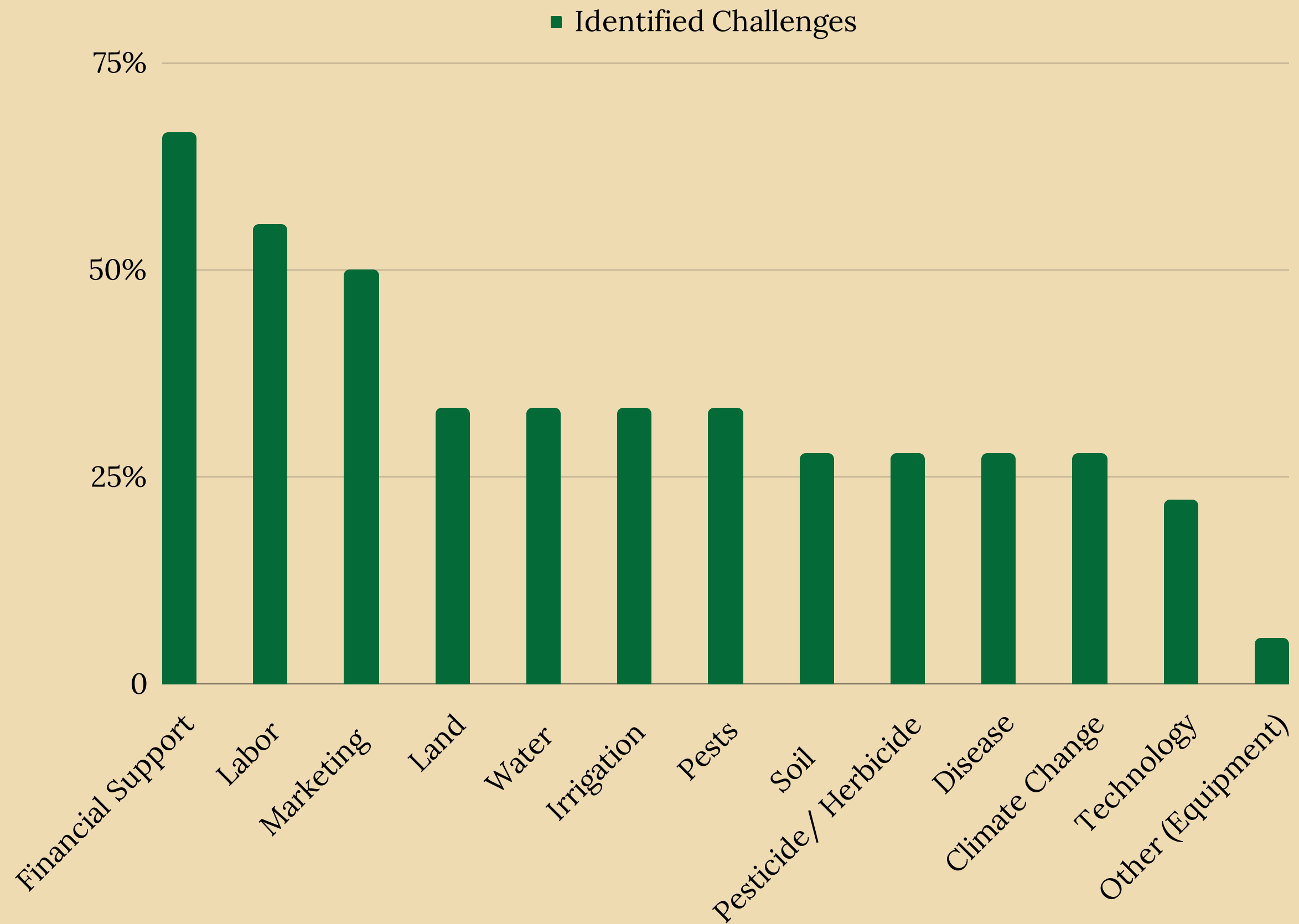
- Suicide ranks among the top causes of death in Guam, and the suicide rate is markedly higher than in the continental United States.
- The age-adjusted suicide death rate in 2018 was 31.3 per 100,000, more than double the rate (14.2) in the continental United States.

Annual Trend of Suicide death rates, crude, and ageadjusted on Guam (2010-2021)



[Source: Guam State Epidemiological Profile](#)





# Critical needs to address within Agriculture Sector

- Identified farmer challenges (COVID-19 affecting production)
- From a Focus Group in 2021, farmers indicate top challenges in financial support, Labor, and Marketing.
- From the WRASAP Baseline Survey (2022), major stress factors related to production costs, pests, and COVID-19. Farmers also indicated a high interest for financial support.







### Western Region Agricultural Producer Stress Survey

We are asking you to participate in this research study to learn about the various stressors that agricultural producers in the Western states face, as well as what type of information they would most like to receive to help them manage their stress.

Information gathered from this research will help researchers from across 13 western states and 4 US territories develop education and outreach materials to help agricultural producers better manage their stress and obtain additional resources if/when needed. However, the survey itself is being carried out by a smaller team of researchers from Montana State University, Colorado State University, and the University of Nevada, Reno.

#### **PARTICIPATION IS COMPLETELY VOLUNTARY.**

If you agree to participate you will be asked to complete a survey that should take approximately 15 minutes of your time. You can choose to not answer any questions you do not want to answer and/or you can stop the survey at any time.

This study is considered to be minimal risk of harm. This means the risks of your participation in the research are similar in type or intensity to what you encounter during your daily activities. You may experience minor discomfort due to thinking about stress. Although all the benefits of this research are not certain, we hope to learn more about the mental health of agriculture workers as well as the stressors that they face. The direct benefit to you is that we will use the information we collect in this survey to develop free educational and outreach programs to help farmers and ranchers across the Western Region of the US minimize their stress. We also plan to use these developed programs to contribute to scientific knowledge.

We will treat your identity and the information collected about you with professional standards of confidentiality and protect it to the extent allowed by law. Your responses to this survey cannot be traced back to you, and you will not be personally identified in any reports or publications that may result from this study.

Upon completing the survey, you will be asked if you would like to be entered to win a \$50 online gift card (ten \$50 cards are available per U.S. state/territory). you will also be invited to participate in Phase 2 of this project, which involves a 30-45 minute phone interview with someone on our research team. If you are interested, and are randomly selected, you will automatically receive a \$75 online gift card.

# Western Regional Ag Producer Stress Survey

- The survey comprised of 23 questions including the (1) Perception Stress Scale, (10) questions about indicators of Stress and Management/Resources, and (12) Demographics.
- There were 83 respondents from Guam
- 95 responses from FSM, and 36 participants from NMI.



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# Ag Producer Stress Survey Participant Summary

<b>Total Responses</b>	83
<b>Gender</b>	
Male	46
Female	37
<b>Ethnicity</b>	CHamoru
<b>Education</b>	Some college
<b>Gross Revenue</b>	\$1,000-\$39,000





# Perceived Stress Scale

10-Item Perceived Stress Scale

Widely used to help measure individual stress levels (Cohen, et al 1988).

(N%)	Low Stress	Medium Stress	High Stress
Overall	29 (35%)	51 (61%)	3 (4%)
Mean Age	58	56	69
Gender			
Male	16 (19%)	29 (35%)	1 (1%)
Female	13 (16%)	22 (27%)	2 (2%)
Ethnicity			
Chamorro	14 (17%)	21 (25%)	2 (2%)
Filipino	7(8%)	11 (13%)	-
Chuukese	-	1 (1%)	-
Micronesian	-	1 (1%)	-
Pacific Islander	-	1 (1%)	-
Chinese	1 (1%)	7 (8%)	-
White	4 (5%)	1 (1%)	-
Other	2 (2%)	7 (8%)	1 (1%)

Within the last year,  
please indicate how  
often the following  
led you to  
experience stress...



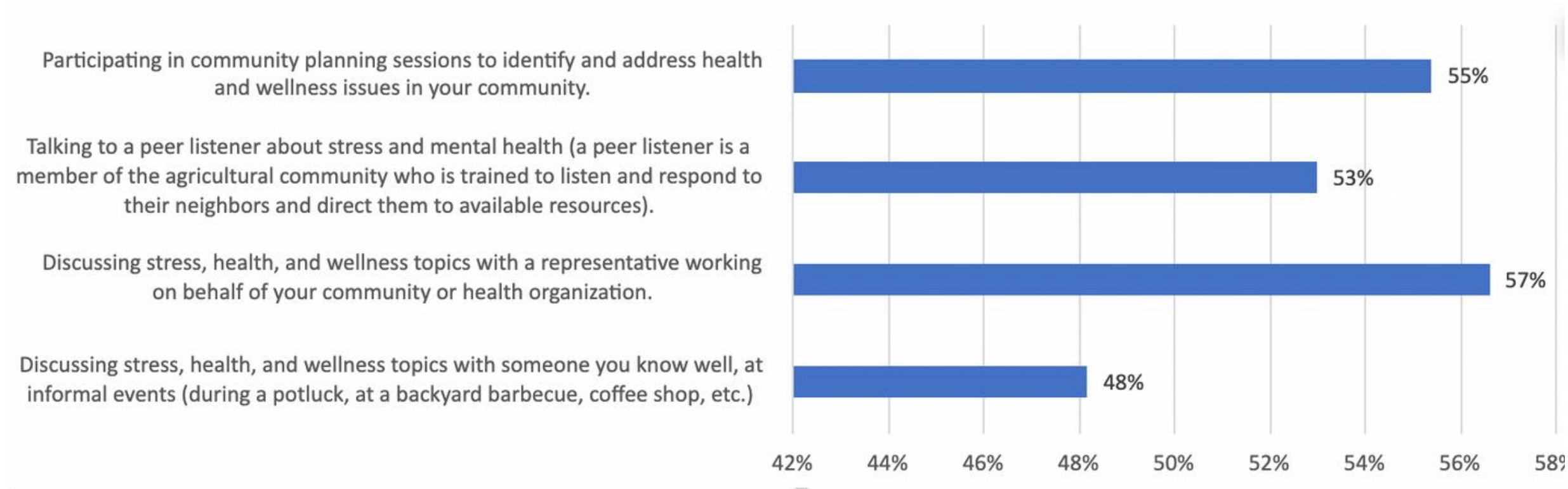
Stressor	Low Stress	Medium Stress	High Stress
Ability to sell produce	8 (10%)	27 (33%)	2 (2%)
Cognitive/Emotional disability	3 (4%)	8 (10%)	2 (2%)
Commodity prices	20 (24%)	24 (29%)	1 (1%)
Crop/plant disease	14 (17%)	31 (37%)	3 (4%)
Family succession of the farm	11 (13%)	20 (24%)	2 (2%)
Financial worries	14 (17%)	31 (37%)	1 (1%)
Grief	7 (8%)	16 (19%)	2 (2%)
Increased labor cost	16 (19%)	32 (39%)	3 (4%)
International trade policy	2 (2%)	7 (8%)	-
Lack of time	15 (18%)	33 (40%)	3 (4%)
Legislative issues	5 (6%)	11 (13%)	-
Livestock disease	2 (2%)	10 (12%)	-
Pests	20 (24%)	33 (40%)	3 (4%)
Physical disability	7 (8%)	12 (14%)	2 (2%)
Physical injury	7 (8%)	12 (14%)	1 (1%)
Physical isolation	1 (1%)	6 (7%)	-
Production costs	21 (25%)	37 (45%)	2 (2%)
Social isolation	4 (5%)	5 (6%)	2 (2%)
Technology (machinery breakdown etc.)	4 (5%)	15 (18%)	1 (1%)
Travel	7 (8%)	1 (1%)	1 (1%)
Weed control	5 (6%)	16 (19%)	3 (4%)
Wildfire	5 (6%)	-	-
Work/family	10 (12%)	2 (2%)	2 (2%)
Workload	14 (17%)	2 (2%)	2 (2%)



# Available Resources

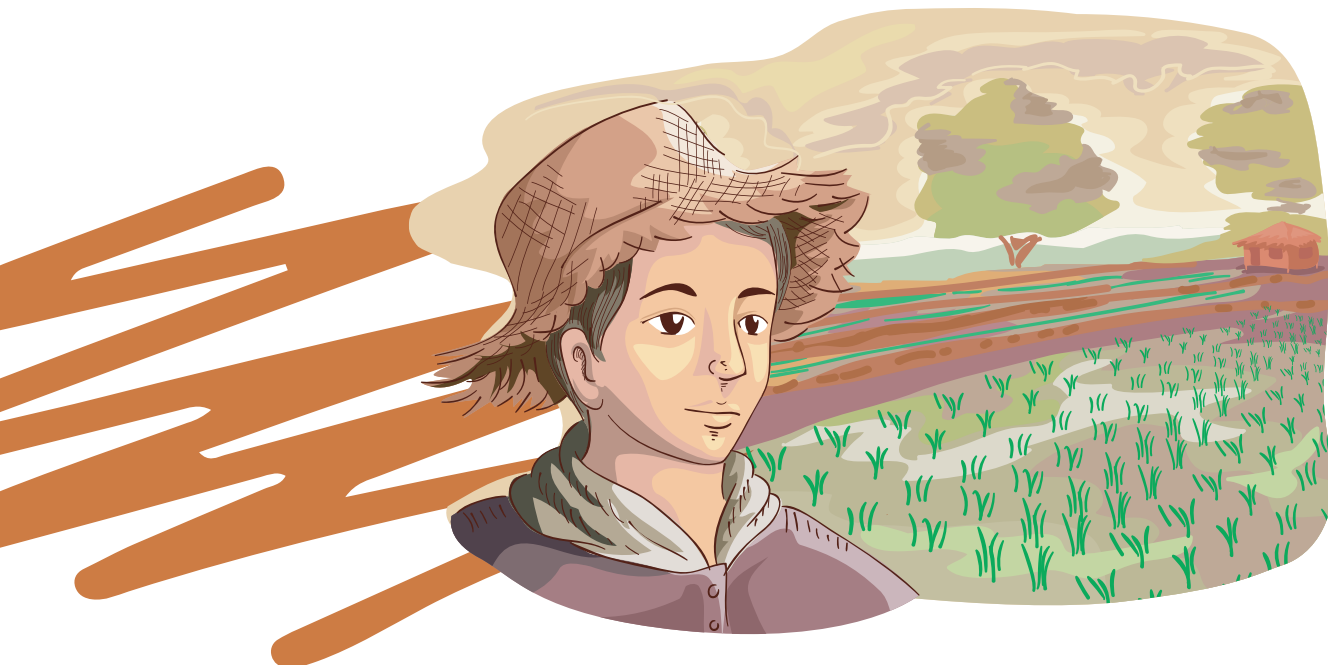
- Respondents show great interest in community events such as discussions with representatives and health organizations.
- Self-paced learning, online, and virtual discussion groups were NOT popular choices.
- This provides outreach opportunities with existing programs at the Guam Behavioral Health and Wellness Center and the University of Guam (e.g., I'Pinangon, P.E.A.C.E)

Method of Receiving Behavioral Health Resources for Guam Ag Producers



# WRASAP Impact for Guam

- 2022 Farmer Focus: Cultivating Health and Wellness with our Farming Community
- Local, regional, and collaborator partnerships
- WRASAP, GBHWC, DOAGuam, as well as FSM and NMI





# WRASAP Impact for Guam



## Mental Health First Aid Training (MHFA)

- 20 participants were certified
- 13 are Cooperative Extension personnel who do outreach
- Participants varied in programs (I'pinangon Suicide Prevention Group, StoryTime Tellers, EFNEP, ANR) and agencies (DoJ Elderly care, GMH)





# Collaborating for *Metgot y* *Lanchero* - Farmer Focus





# Guam Behavioral Health and Wellness Center



Focus on Life is Guam's Garrett Lee Smith youth suicide prevention grant, administered by Guam Behavioral Health & Wellness Center and made possible through SAMHSA funding.

- Target group is Guam's youth and young adults ages 10-24 years old.
- Multiple goals, including training natural supports and developing the workforce capacity to recognize the signs and symptoms of suicide.

**Promotion of the 988 Lifeline is also a key component of the Focus on Life grant.**





# I'Pinangon Campus Suicide Prevention Program



- I Pinangon - an ancient CHamoru word that means **“awakening”**
- Targets college students and other at-risk groups, to increase awareness of suicide risk, ways to intervene, and provide information on community resources.



# I'Pinangon - Campus Suicide Prevention Program

- Resource and Informational materials available include suicide prevention pamphlets, brochures for individuals and families, wellness guides, and community resource directories.
- Provides presentations, training, and educational seminar
  - **Stress Management**
  - **Self-care**
  - **Mental Health Awareness**
  - **Peer to Peer Support for Suicide Prevention**
- I Pinangon also holds an annual suicide prevention forum to address suicide risk and prevention, attracting participants from the university and community.





# Family Resiliency Program



Cooperative Extension program which incorporates outreach activities with Family & Consumer Sciences Unit, and community organizations/cross collaboration across extension units.

- Priority Populations
- Farmers, farm workers and their family members
- General population (youth, senior citizens, special populations)

## Program Goals

- To increase awareness/skills in managing behavioral health issues impacting the farming community through resources, support and education.
- To increase awareness/skills in addressing behavioral health issues in the general population utilizing planting/plant-based activity
- To incorporate the benefits of farming/gardening in addressing overall wellness and mental health via horticultural therapy activities.



# Farmer Focus Project

## Community-based workshops

- Host regional conference on Farmer Stress (May 2022, Guam and June 2023, Pohnpei)
- Mental Health First Aid TOT to staff/profession
- Stress management, anxiety, suicide prevention, skills building related to increasing professional capacity
- Mental Health First Aid (MHFA) trainings to general population/farming community
- Horticultural therapy like workshops to general population



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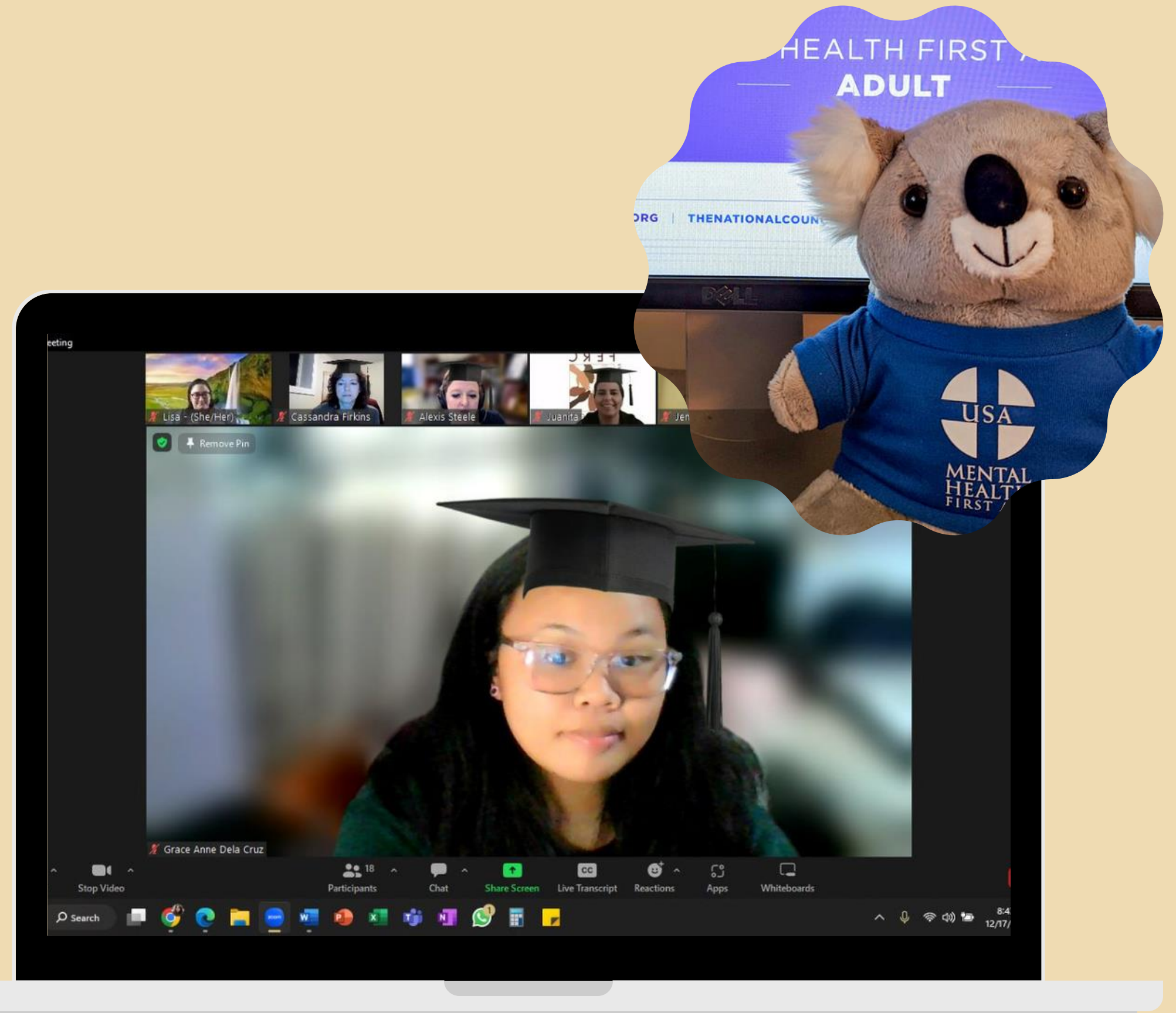
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# Farmer Focus Project...

## Resources

- Increase agricultural behavioral health publication
- Capacity building/professional development opportunities for staff and community partners (e.g., QPR, MHFA ToT)



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# Farmer Focus Project..

## Online Social Marketing Campaigns

- Highlight achievements of farmers/farm community
- Focus on behavioral health tips
- Spread awareness of behavioral health resources



## Strengthening Partnership

- Seek expertise of behavioral health specialist/entities to help shape, inform outreach efforts
- Partner organizations include:
  - Guam Behavioral Health & Wellness Center
  - WRASAP
  - Department of Agriculture
  - College of Micronesia
  - Northern Marianas Community College
  - University of Guam psychology program and suicide prevention program



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# Response from Farmers...



*For retired farmer Angelita “Angie” Mendiola, she found her first wellness workshop beneficial.*

***"People think farmers are very strong"***

*“It is nice to know that someone is paying attention to us because it can be easily forgotten that we do have wellness problems that stem from the theft of our crops, lack of pest control, and other factors,” she said. “I am so happy I was invited to the workshop because **people think farmers are very strong** and they don’t have problems, but they do and they need help.”*

*(Farmer Focus: Information Session for Disadvantaged Farmers and Ranchers Workshop)*




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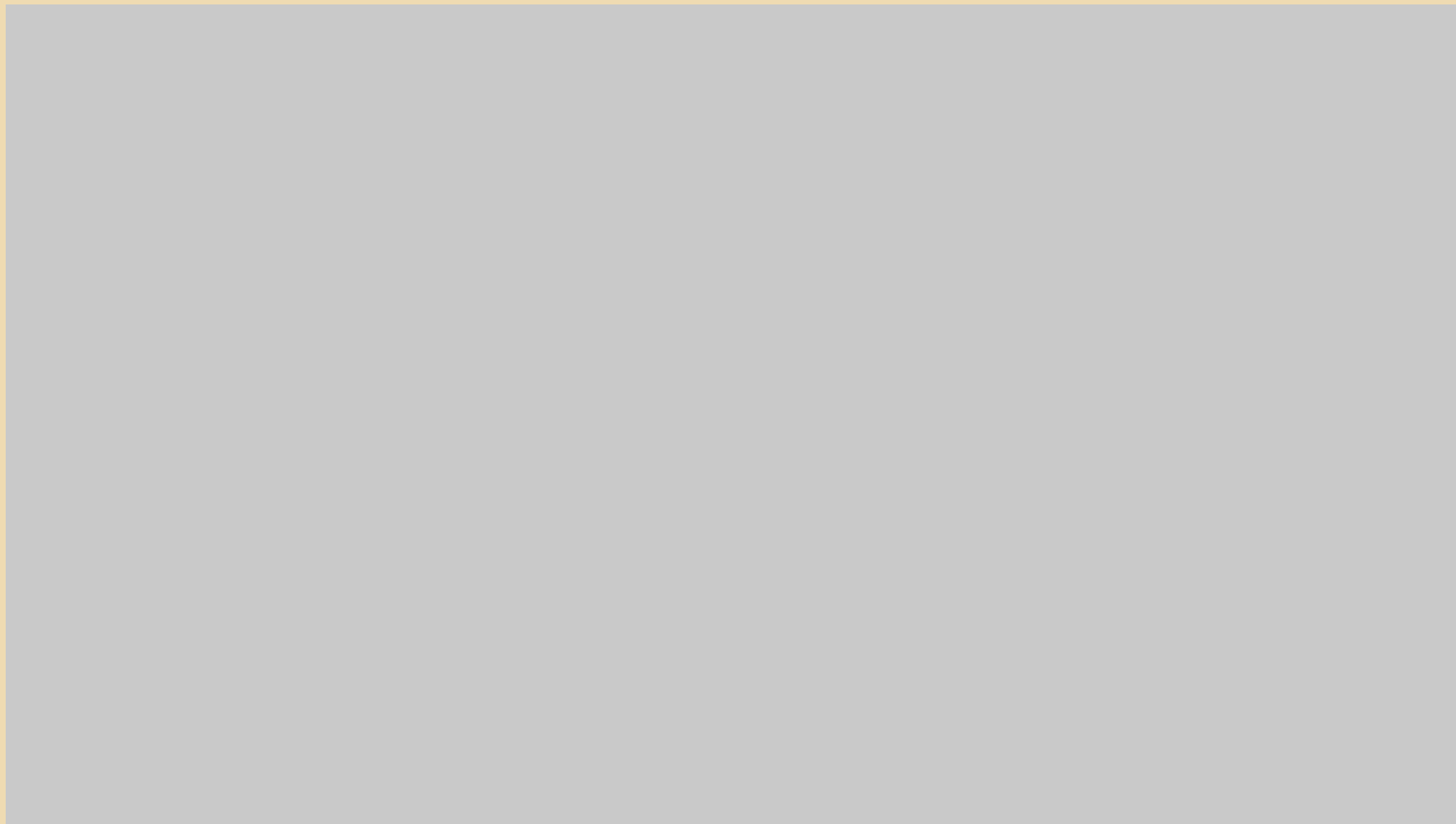


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# Reinforcing A Sustainable Guam





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# Si Yu'os Ma'ase

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