

# Tinian Producer Survey, 2017

Island of Tinian,  
Commonwealth of the Northern Mariana Islands



Lawrence J. Duponcheel  
Northern Marianas College-Cooperative Research, Extension, and Education Service

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**Title:** A Survey of Local Producers as a Planning Tool for the Revitalization of the Tinian Agricultural Sector to meet a growing demand for local food commodities.

**Introduction:**

The island community of Tinian will soon be presented with a number of unique opportunities for revitalizing the island’s agricultural sectors, by way of a flurry of tourism and military related investments and developments that are expected to occur on the island within the next five to ten years, and beyond. To accompany the new developments in infrastructure, such as casinos, hotels, restaurants, and a live-fire military range complex, will be an increased capacity for accommodating larger numbers of visitors and a local workforce. Over time, the demand for locally grown meats, fruits, and produce is expected to rise significantly and should ultimately provide on-island marketing opportunities that could serve to energize local agricultural producers, processors, and retailers, as well as, influencing local agricultural businesses to start-up, grow, or expand.

This farmer planning survey will help to identify strategic interventions that may play a key role in ensuring that the developments made in the island’s agricultural sector are successful and sustainable (Snapp & Pound, 2008). This project aims to engage local producers in defining and characterizing community assets and resources, such as physical, human, social, financial, environmental, political, and cultural assets, that can be mobilized and/or contribute to the strategic planning process (Greene & Haines, 2012) at the local level.

**Purpose and Objectives:**

The purpose of this project is involve the local farming community in identifying and characterizing the current capacity of local farmers, supportive programs for producers,

community assets, and the local food systems in order to provide data that can be used for public and private decision making processes(Brooks, 2002) with respect to planning towards the development of the local agricultural sector in meeting the increased demand for fresh locally grown food commodities in the coming years. This information will be used to develop a framework or agriculture development plan, with an emphasis on educational and training opportunities.

Objective 1: Develop, administer, and document the findings of a local farmer/rancher/producer survey aimed at characterizing and identifying key community assets and resources that may contribute to an agriculture development plan framework that can be used to provide insights to farmers, consumers, investors, and others, in terms of identifying strategic interventions that should be taken to rebuild the local agricultural sector (See Appendix A).

Objective 2: Identify and attempt to define strategic interventions that may contribute to the successful develop of local food and agricultural systems.

**Need:**

Similar to the situation in many other islands throughout the Pacific region, over the last 70 years, these remote island communities have experienced a decline in the quality, availability, and access to fresh, wholesome locally grown foods in local marketplaces, giving way to a sharp rise in the consumption of less-wholesome imported food commodities, such as white rice, flour, sugar, refined foods and fatty meats, that have increasingly replaced local and traditional foods in the diet (Englberger, Marks, & Fitzgerald, 2003), giving rise to a host of negative public health consequences (Cassels, 2006) . This unfortunate shift in the local diet, in addition to other social, economic, and environmental factors, has contributed to a sharp rise in the prevalence of non-communicable diseases, such as heart disease, stroke, diabetes, and others(Ichiho, Robles, &

Aitaoto, 2013)). In essence, the overall state of health of the people living in the islands has been in decline, following, and possibly influenced by, the decline in local agricultural production and decreases in the availability of fresh, wholesome, locally-grown food commodities. Increasing local agricultural production and strengthening local food systems should improve upon the availability of fresh, wholesome foods in local marketplaces. As these healthier food choices become accessible to the general public, this should result in overall improvements in the state of health for the people on Tinian and other islands within the Marianas archipelago.

Aside from the benefits that improved food systems would have on public health, there are many other issues that could be mitigated by revitalizing the agricultural sector on Tinian. They include: 1) Decreasing operational costs for restaurants, hotels, military operations and other business operators that currently rely mostly on imported food commodities that are expensive, and often times of a less desirable quality, 2) Climate Change preparedness. That is: diversifying and strengthening local agricultural systems so they are more adaptable to changes in climate and the environment (CNMI Bureau of Environmental and Coastal Quality, 2015). 3) Greater job offerings and improved economic activity within our island community, creating a positive cash flow. 4) Raising the quality of food offerings on island has the synergistic effect of adding value to other sectors of the economy, including tourism and gaming. 5) Food Security and disaster preparedness.

For the last 15-20 years, the decline in agricultural outputs from producers on Tinian can be attributed to two main factors: 1) Diminished local (on-island) marketing outlets for agricultural commodities. Both resident and visitor population levels have dropped significantly in the last two decades as a result of the global economic recession, dwindling tourist numbers, competition from imported agricultural commodities, and the decision of the Z-Best tuna fishing fleet to no longer use Tinian as their home-base. 2) Rising transportation costs and insufficient

transportation options for getting local agricultural commodities from Tinian to off-island markets, such as Saipan and Guam, where there is considerable market demand for fresh produce and meats.

Despite the recent closure of the Tinian Dynasty Hotel and Casino, two other sets of investors have recently locked in land deals and applied for casino licenses, allowing them to build hotels and casinos on the island. The Alter City group aims to build an integrated hotel and casino with over 500 rooms, with the legislature approving their 25 year land lease. Another group, Bridge Investment, aims to build a hotel and casino with another 700 rooms. All of these developments will be taking place on the 1/3<sup>rd</sup> of the island that is outside of the Military leased lands (the top 2/3<sup>rds</sup>). Although, the United States Department of Defense is also planning on building a state-of-the-art live-fire combat range complex on the northern half of the island. Specifically, the Marine Forces Pacific (MarForPac) will build these ranges and bring up to 1,500 troops to the island for two weeks of training, with a continuous rotation of troops visiting throughout the year along with a number (about 130) of permanent staff stationed on island to manage the range complex facilities and activities. Furthermore, the U.S. Air force has recently decided to build a divergent airfield on the island, which will further contribute to the rising number for military residents and visitors coming to the island.

In essence, the demand for locally grown food products on island is going to increase significantly in the next few years along with the rise in the island's resident, guest worker, and visitor populations, creating opportunities for current and future farmers and ranchers on Tinian to grow and market agricultural products. This project aims to collect and interpret baseline data regarding farmer and industry readiness on the island of Tinian, in order that this knowledge be linked to the collective actions (Brooks, 2002) that are taken in the future in support of our local

producers in their efforts to commit to feeding and sustaining all of our civilian and military residents and guests.

## **Methods and Procedures**

The farmer survey questions were developed and review by agricultural extension staff and local producers. The survey was administered by the Tinian Agricultural Research and Extension Program Leader, Lawrence Duponcheel, by interviewing producers in person.

Producers were selected at random over a three month period from February to April, 2017, and included livestock, fruit tree, and crop producers. Currently, there are 43 cattle, fruit tree, and crop producers on island. 24 producers participated in this farmer planning survey, representing approximately 56% of Tinian's agricultural producers.

## **Results**

The results of this study are categorized according to the type of community asset, conditions, or resources that the results are related too, to include: 1) Human and Cultural Assets (production experience, perceptions), 2) Financial, Marketing, and Business Related Assets and Resources 3) Environmental and Natural Assets 4) Physical assets and resources (Infrastructure, Transportation, Land, Water) 5) Institutional Resources (Government Assistance, Extension & Research, Barriers).

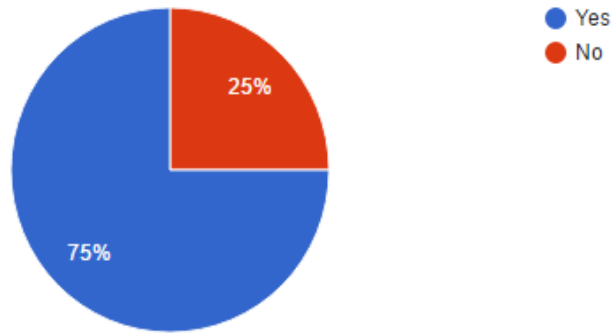
### ***Human and Cultural Assets (production experience, perceptions)***

All of our local producers speak the English language. Although, the great majority (96%) speak Chamorro as their primary means of communication. Approximately 67% of producers

have internet access in their homes, and yet, only 30% of producers have an email address that they check at least once a week.

75% of the producers surveyed reported having commercial farming experience in which they have sold their farm commodities to local stores, processing facilities, hotels, restaurants, or other public/commercial venues.

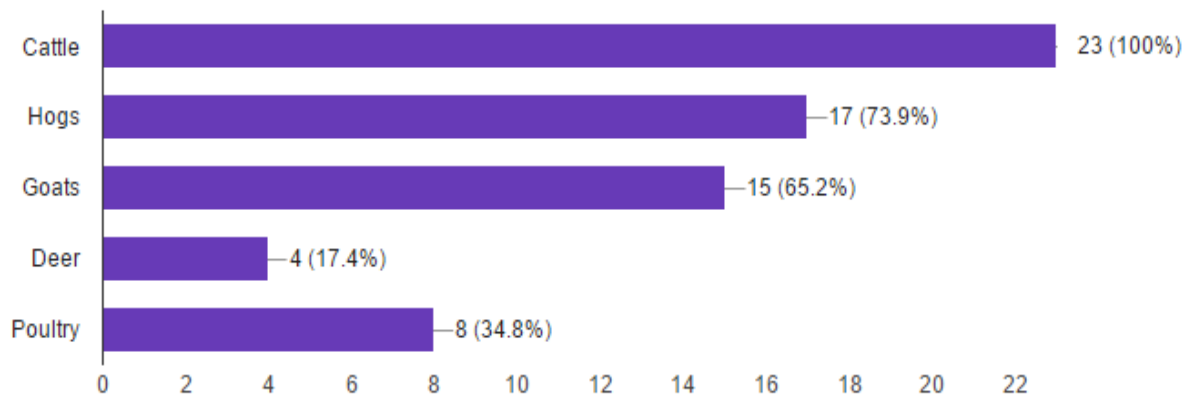
In the area of livestock production, 100% of producers have commercial cattle production experience, while 74% have produced hogs, 65% for Goats, 34% for Poultry, and 17% for Deer.



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*Graph 1(Above-Right): Respondents were asked the question- “Do you have commercial farming experience for which you have marketed to local stores, restaurants, hotels, or other?”*

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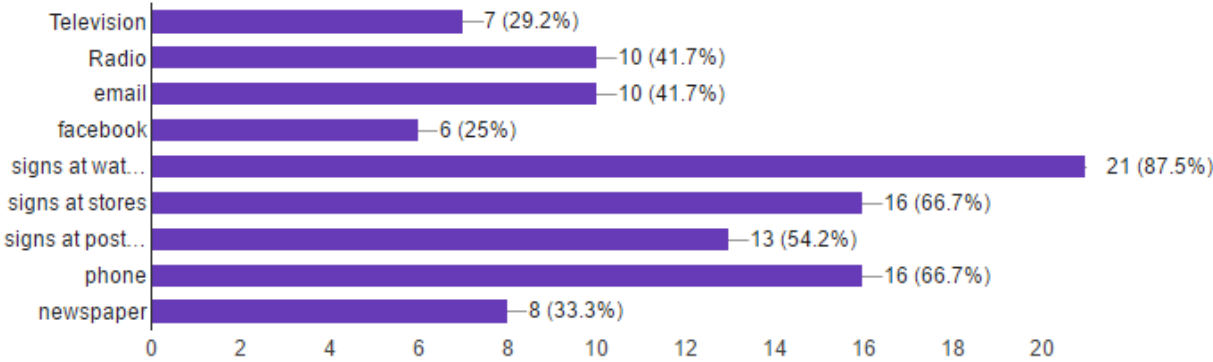


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*Graph 2 (Above)- Respondents were asked the question- “What type of livestock products do you have experience growing commercially? (23 responses)”*

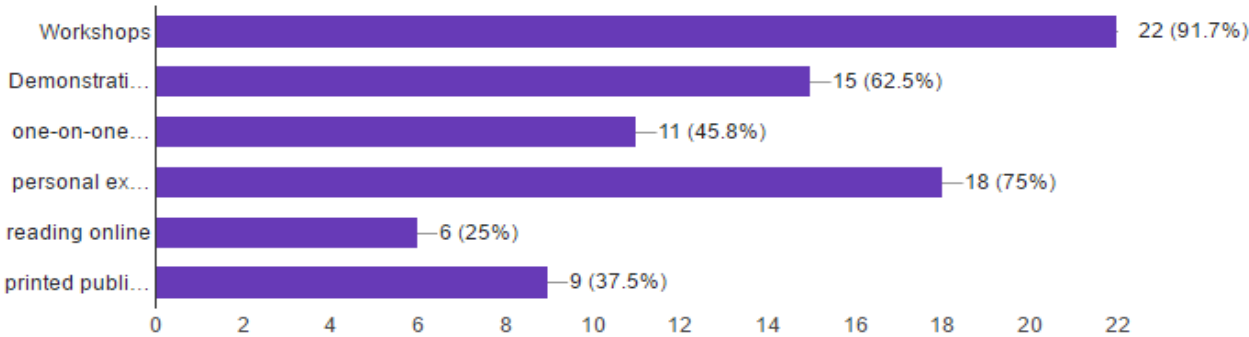
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In order to better understand how to engage, inform, or contact local producers, participants were asked what some of the best ways to let them know about events, programs, and services. The following is a breakdown of their responses: Television(29.2%), Radio(41.7%), email(41.7%), Facebook (25%), signs as water wells( 87.5%), signs at stores(66.7%), signs at post office(54.2%), phone(66.7%), and by newspaper(33.3%).



Graph 3(Above)- Respondents were asked the question- “What are some of the best ways to let you know about events, programs and services?”

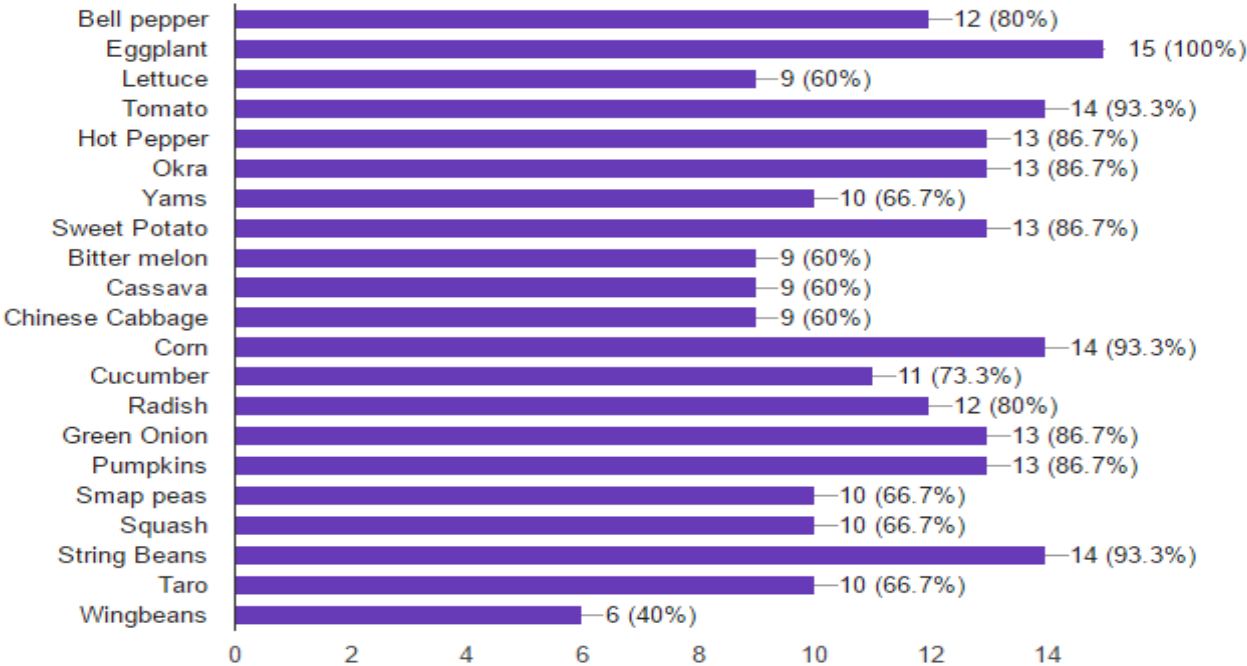
When asked “how best do you learn?”, results of the survey suggested 91.7% learn best by Workshops, 62.5% by Demonstrations, 45.8% by one-on-one consultation, 75% by personal experience, 25% by reading online, and 37.5% by printed publications.



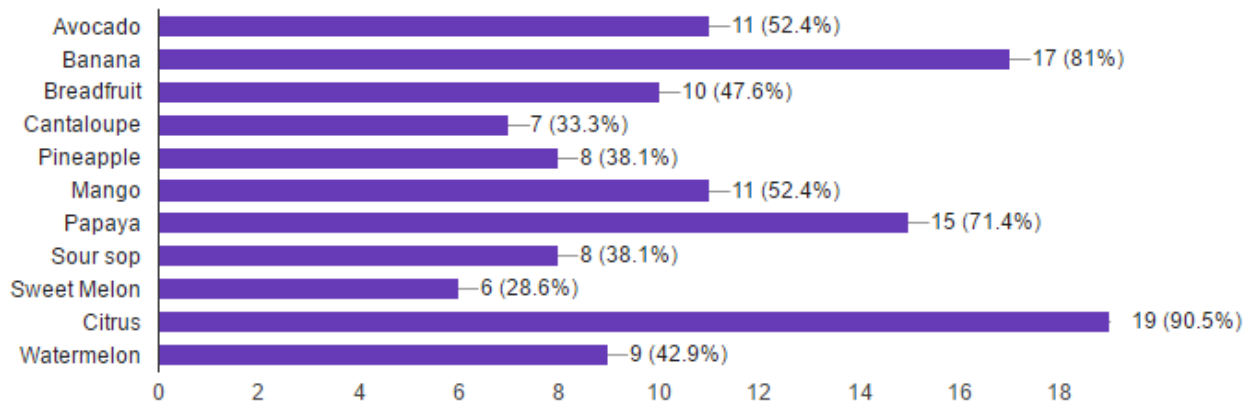
Graph 4 (Above)- Respondents were asked the question- “How best do you learn?”



To better understand the collective experience of local producers with respect to commercial production of fruits and vegetables, 21 of the top vegetable commodities and 11 top fruit types were listed and presented to participants, allowing them to select any or all species that they have experience growing commercially. 15 of the 24 respondents chose to answer this question, suggesting that 15 participants have some level of commercial production experience with crops and fruit trees. Therefore, the percentages presented are calculated based on the common denominator of 15 responses. The results are as follows:



*Graph 5 (Above)- Respondents were asked the question- “What types of produce do you have commercial experience growing?”*



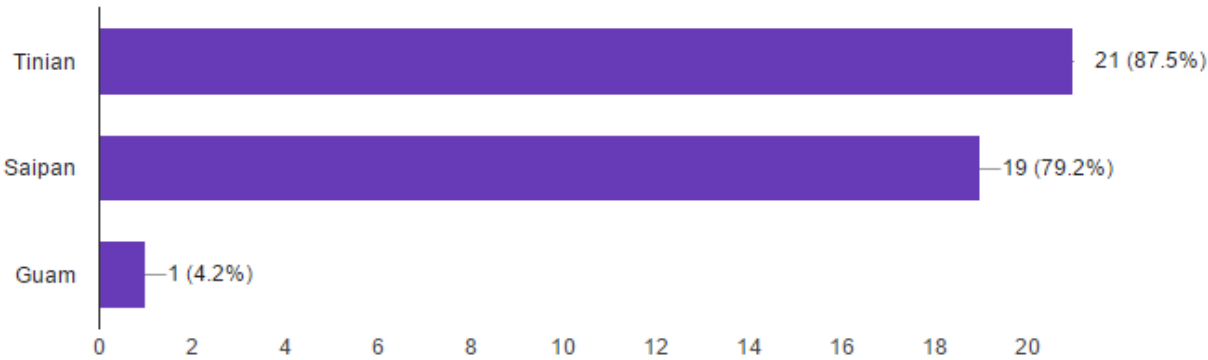
*Graph 6 (Above)- Respondents were asked the question- “What types of fruit tree products do you have experience growing commercially?”*

### ***Financial, Marketing, and Business Related Assets and Resources***

Only 3 of the 24 producers surveyed currently have a farming or agriculture- related business license and only 2 producers submit a schedule F (IRS 1050 Form) when submitting their yearly income taxes to the CNMI Department of Finance. Although, 75% of producers said that they were interested in applying for a business license for their farm or agriculture related business and all (100%) producers surveyed reported that they had made over \$1,000 in income over the period of the last 12 months. Therefore, all of the farmers surveyed meet the USDA’s definition of a farmer.

The great majority (87%) of agricultural producers market their local products on island (Tinian), with almost 80% having sold to markets on Saipan and one farmer reported reaching markets in Guam. Currently, live cattle are sold to the Marianas Meat Harvesting Corporation (MMHC) and shipped to Saipan for slaughter and USDA certification. Although, 100% of respondents believe that Tinian should have its own USDA certified slaughterhouse. MMHC currently purchases the live cattle at \$1.00 per pound. When asked if this price was acceptable,

ranchers were evenly split. For those that answered “no” to this question regarding the current price of \$1/lb., respondents offered prices of between \$1.50-\$2.50 as being more reasonable, considering their current cost of production.



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*Graph 7(Above)-Respondents were asked the question-“Where are the primary markets for your Agricultural goods?”*

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When asked the importance of markets to the successful development of the agricultural sector on Tinian, approximately 50% of responded reported that this was a high or very high priority issue.

Transportation issues were considered a high or very high priority issue by 44% of Tinian producers surveyed, with a full 30% considering transportation to be somewhat of an important issue related to the development of the agricultural sector on Tinian.

Financial assistance was a common concern among producers as 58.3% of respondents suggested that Financing was a high priority issue related to the successful development of the agricultural sector on Tinian.

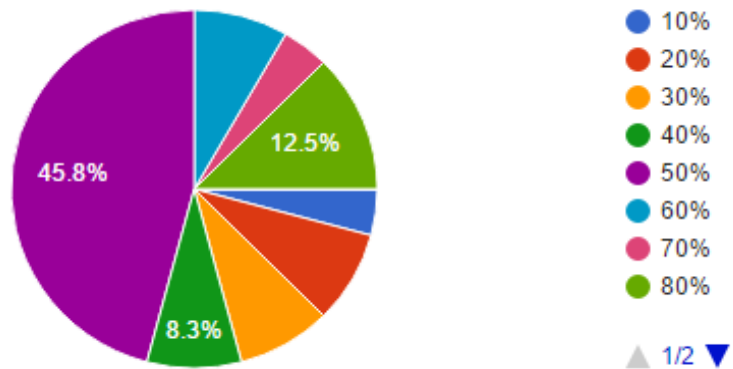
The training of youth was not deemed to be a high priority issue as it relates to the development of the agricultural sector on Tinian, with only 28% of respondents suggesting that this was a high or very high priority issue and 70.8 % suggesting that the issue was somewhat of a priority or a low priority issue.

### ***Environmental and Natural Assets***

The island of Tinian periodically experiences an extended drought roughly every 5-10 years. Although, when asked how important the issue of drought was to the successful development of the agricultural sector on Tinian, a mere 13.6% suggested that the issue was of a high or very high priority, with 72.7% reporting that the issue was a low or very low priority issue.

### ***Physical assets and resources (Infrastructure, Transportation, Land, Water)***

When asked about the source of water for their farming operations, 37.5% of producers obtain their water from the municipal water (chlorinated) distribution system, with 12.5% reporting using rain catchments, and 91.7% hauling water into their farm by pickup trucks and tanks, with many relying on the two rancher wells available on island that dispense water for farmers.



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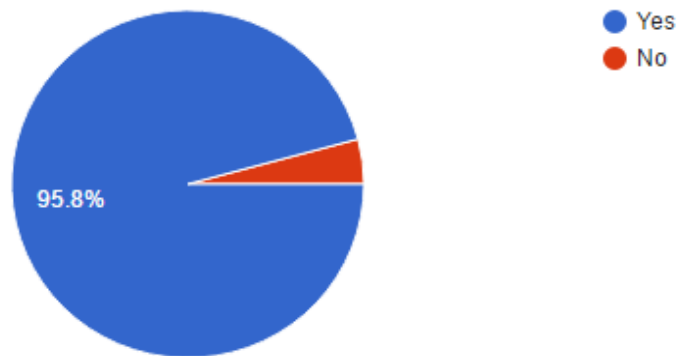
*Graph 8(Above)- Respondents were asked the question- “What percentage of your farm expenditures arrive from water related costs?”*

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Although there is no charge to farmers for the water acquired at the two rancher wells, producers are limited by the resources available to them for capturing and hauling water, which often contributes to a large portion of their cost of doing business. When asked what percentage of farm expenditures were derived from water related costs, 62.4% of producers reported that water-related cost made up between 40%-60% of their farm expenditures, while 16.7% were

between 70%-80%, and 20.8 % reported less than 30% of water derived farm expenditures. Approximately 96% of respondents felt that a farmer water rate would be important to the success of their farming operations.

Furthermore, 83.4% of respondents reported that water related issues were a high and/or very high priority with respect to the successful development of the agricultural sector on Tinian.



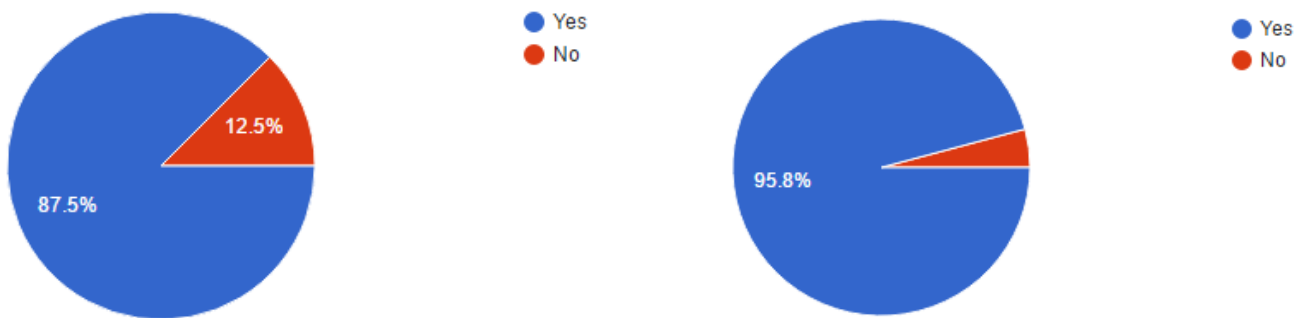
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*Graph 9- Respondents were asked the question- “Do you feel that a farmer water rate would be important to the success of your operation?”*

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Land availability was considered a high or very high priority issue by roughly 84.2% of participants. 100% of respondents felt that public land should be designated for crop production, for leasing to farmers, similar to how the old Tinian Coop was administered. 87.5% of respondents are currently leasing lands within the military retention zone. Given the potential for the construction of a military live-fire range complex within the military leased lands, plans are being discussed to relocate ranches within the military leased lands, to allow ranchers to continue to produce in areas that are within the military leased lands, but not specifically needed for the ranges. For this reason, survey participants were asked if they would be willing to relocate their farm. 85% of respondents said that they would be willing to relocate, if financial support was available for the move, with 15% answering “no”. Conversely, when producers were asked if they would be willing to relocate their farmers without financial support 19% answered “yes” and 81% answered “no”. For those that answered “no” to relocating, 61.9% of respondents said that longer lease terms would be influential in changing their position on the matter. 96% of respondents

suggested that Tinian ranchers and farmers should co-exist with the firing ranges or other military operations within the military leased lands.



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*Graph 10 (Above-Left)-Respondents were asked the question- “Do you have a farm in the military leaseback area?”*

*Graph 11 (Above-Right)-Respondents were asked the question- “Do you believe the farms in the military leaseback area could or should co-exist with the firing ranges or other military operations in the military leased lands?”*

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### ***Institutional Resources (Government Assistance, Extension & Research, Barriers)***

Of the 24 producers asked the question of whether or not they know of the United States Department of Agriculture -Natural Resources Conservation Service (USDA-NRCS) Environmental Quality Incentives Program (EQIP), all answered in the affirmative, with the exception of one.

When asked a similar question regarding the USDA-Farm Service Agency programs, such as Loans, Transportation Reimbursement Program, and Crop Protection Programs, 70% answered affirmative, while 29% answered that they did not know about USDA-FSA Programs.

Equipment services or the availability of equipment for purchasing or renting was also considered by respondents to be a critical component of farming operations on the islands, with 95.8% of respondents suggesting that equipment availability was a high or very high priority issue related to the development of the agricultural sector on Tinian.

Technical Assistance was considered to be a key issue for Tinian producers, with 41.7% of respondents suggesting this issue was high or very high priority, with 45.8% placing at a medium level of priority, and 12.5% suggesting the technical assistance was a low priority issue.

Issues related to Labor had a mixed batch of responses from producers, with approximately 40% of respondents suggesting that the issue of labor was a high or very high priority issue and approximately 25% reporting that the issue of labor was a low priority with respect to the development of the agricultural sector on Tinian. When asked whether or not producers currently have employees working for them as a part of their business operation, 16.7% (four) answered in the affirmative.

Tinian producers were asked an open ended question regarding the type of Research and Extension programs they thought that the Northern Marianas College-Cooperative Research, Extension, and Education Service (NMC-CREES) should focus their attention on. The following topics were brought up, with the number next to the topic representing the number of respondents who reiterated the same response.

List of suggested Research and Extension activities for NMC-CREES programs

- Livestock programs (such as Cattle Breed Improvement) (20)
- Fruit Tree Research (such as variety trials) (14)
- Vegetable Crop Variety Trials (12)
- Pest and Invasive Species Management and Control (8)
- Value-added processing meats, fruits, and vegetables/Quality controls (4)
- Soils testing and fertility management (2)
- Whole farm management and conservation planning (2)
- Livestock Pasture Improvement and grazing management (2)
- Access to and cost of Agricultural Supplies (1)
- Equipment availability and services (1)
- Livestock Veterinarian Services (1)
- Livestock Nutrition (1)
- Pesticide Training (1)

Producers were also asked another open-ended question in regards to what assistance they would need in order to make their agricultural business thrive. The following is a list of their responses, with the number next to the topic representing the number of respondents who reiterated the same response.

Types of Assistance that producers require in order to make their agricultural business thrive.

Equipment Services and Availability (10)  
Financial assistance, such as conservation funding, loans, crop insurance etc.(10)  
Access to water/reduced cost of water/distribution of water (9)  
Technical assistance (2)  
Transportation to Markets (2)  
Livestock Feed availability and quality (2)  
Agricultural Supplies (2)  
Pest management (1)  
Cold Storage (1)  
Labor (1)  
Land Availability (1)

Producers were asked another open-ended question regarding what they felt the top barriers were to the development of the Agricultural Sector on Tinian. The following is a list of their responses, with the number next to the topic representing the number of respondents who reiterated the same response.

List of barriers to the development of the agricultural sector on Tinian

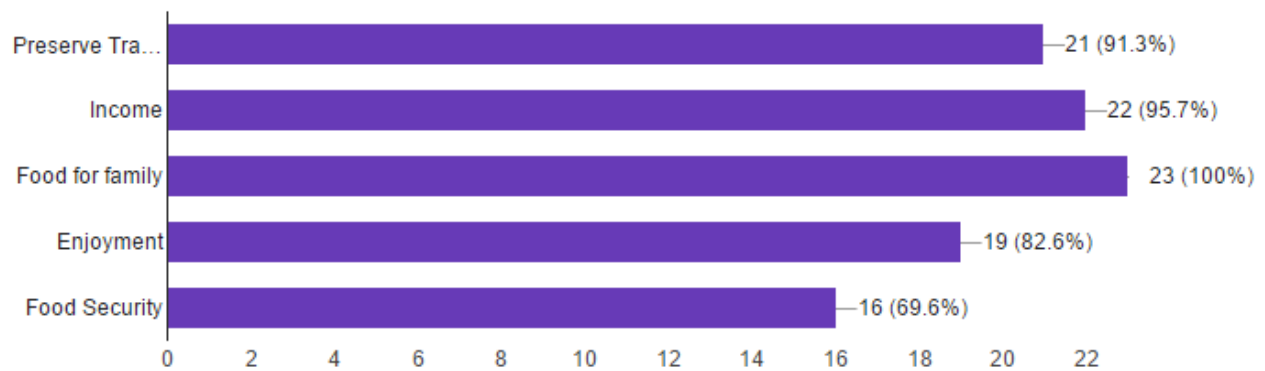
Limited Transportation/cost of transportation/ or access to markets (11)  
Limited availability of equipment and equipment services for farms (9)  
Limited availability of Land for farming and ranching (9)  
Threat of being pushed out by military build-up (7)  
Limited access to Agricultural supplies (4)  
Water Availability/Cost of water (4)  
Labor costs and availability of Labor for farming (2)  
Lack of Livestock Veterinary services and supplies (2)  
Lack of available or interested crop farmers (1)  
Lack of Government Support (1)  
Lack of technical assistance (1)  
High Cost of Production (1)

In order to better understand what drives and motivates farmers, producers were asked, "What are the primary reasons that you choose to engage in farming activities?". Below is a table



illustrating the results of their answers with the column on the left representing the motivation and the right column representing the percentage of farmers that selected that particular reason.

Participants were allowed to select as many reasons as they wanted too.



*Graph 12 (Above)-Respondents were asked the question-“What are the primary reasons you choose to engage in farming activities?”. Possible answers included 1) Preserve Traditions, 2) Income, 3)Food for Family, 4) Enjoyment, and 5) Food Security.*

## Reflection

The island of Tinian has enormous agricultural potential and the island’s agricultural experience and history has proven time and time again that the native peoples of the islands are adaptable and capable of large scale agricultural production, given the proper resources and support. Although, many factors over the past 100 years have contributed to a decline in their capacity and ability to produce food on a commercial scale. In essence, issues such as the challenges with resettling back onto the island after World War II, changing administrations, diminished institutional support for farming, and other factors have led to a decline in agricultural output on the island (Bowers, 2001). Continued inquiry into the current state of being of local producers on the islands can provide meaningful insight into the motivations, needs, barriers, and opportunities that exist for local producers, allowing planners to strategically address these issues, so as to encourage local agricultural output.

## **Recommendations**

Future surveys, strategic planning meetings, and other planning activities that involve local producers should be facilitated and documented in order that local producers are encouraged to participate in the agricultural development planning process. In this way, strategic interventions may be driven by the priorities of those that can contribute the most to the development of the agricultural sector on Tinian.

## **Extensions**

Based on the results of this survey, a number of key opportunities exist that have the potential to contribute in a meaningful way to agricultural output on the island of Tinian. The following potential concepts are possible extensions for future projects that may strategically address some of the barriers that exist to farming on Tinian, as well as, take advantage of some of the unique opportunities that will be presented to the community in the near future.

### **Project Concept #1- Assimilation of Tinian's ranches in the military range complex**

Partner organizations-

Marine Forces Pacific (MARFORPAC)

United States Department of Agriculture-Farm Service Agency

United States Department of Agriculture-Natural Resources Conservation Service

Tinian Mayor's Office

Tinian Cattlemen's Association

Tinian and Aquiquan Soil and Water Conservation District

Tinian Department of Lands and Natural Resources

CNMI Governor's Military Integration committee

Department of Public Lands

Commonwealth Utilities Corporation

Northern Marianas College-Cooperative Research Extension and Education Service

Intent: Approximately 90% of all agricultural output on the island of Tinian exists within the military leased lands. Furthermore, much of the areas within the military leased lands are prime farm lands and home to prime soils that have traditionally been highly productive and utilized for commercial food production that has benefited the entire region with agricultural

commodities being grown on Tinian and shipped out to Saipan and Guam to civilian, military, and tourist markets there. The Marine Forces Pacific leadership has shown an interest in partnering with local producers to plan towards the relocation of ranches and farms within the military leased lands, in order to ensure that agricultural production continues. Lands have already been identified for this purpose by Department of Defense (DOD) personnel in collaboration with USDA-NRCS officials. Furthermore, support for infrastructure needs, such as fencing, land clearing, re-igniting of water wells, water distribution, among other interventions have been considered. Longer lease terms have also been identified as an important component of this potential project. In essence, this project could serve to re-vitalize Tinian agriculture and would contribute greatly to the sustainable development of Tinian's agricultural Sector with the aim of producing food for civilian, military, and tourist markets.

### **Project Concept #2- A new Tinian Agricultural Park for Crop and Vegetable Production**

Partners:

Tinian Mayor's Office

Tinian Crop and Vegetable Producers

Department of Public Lands

Commonwealth Utilities Corporation

Tinian Soil and Water Conservation District

Northern Marianas College-Cooperative Research Extension and Education Service

Intent: Many of the private lands that are given out to local residents and farmers have limited agricultural productive capacity. The purpose of this project would be to identify suitable farming lands, such as areas within the *Kastiyu* or *Pina* plateaus that have high quality soils and a deep water well. With funding and support, these areas could be developed to allow interested farmers to lease small portions of these lands specifically for crop and vegetable production.

### **Project Concept #3- A Slaughterhouse for Beef cattle processing**

Partners:

United States Department of Agriculture-Farm Service Agency

United States Department of Agriculture-Natural Resources Conservation Service

Tinian Mayor's Office  
Northern Marianas College-Cooperative Research Extension and Education Service  
Tinian Cattlemen's Association  
Tinian and Aquiquan Soil and Water Conservation District  
Tinian Department of Lands and Natural Resources  
Department of Public Lands  
Commonwealth Utilities Corporation

Intent: Tinian is the Cattle production capital of the entire Western Pacific Region, producing high quality pasture-fed cattle on beautiful tropical pastures that are highly productive and fertile. The investment of a very small scale slaughter/processing unit on the island would greatly improve the marketing potential for beef products, allowing for the marketing of products to local schools, stores, restaurants, hotels, and military operations.

### **Implications**

Given the many insights that this survey provides of the perceptions, experiences, restraints and opportunities that exist among local agricultural producers on the island of Tinian, the potential for advancing the concept of the revitalization of Tinian's agricultural sector are very real and plausible. Given the collective knowledge, interest, and background of local residents in respect to commercial agriculture in practice, it is conceivable that the human capital that is currently available right here on island could be mobilized in order to initiate or kick-start agricultural production, building momentum and capacity for more stable and consistent levels of production, marketing, and local consumption of locally grown agricultural products. Combined with the appropriate allocation of resources dedicated to developing other forms of community capital, such as water infrastructure, transportation infrastructure, and equipment services, the revitalization of the island's agricultural sector is plausible and potentially game changing. The development of the agricultural sector on Tinian could serve more broadly as an economic stimulus and public health measure that could ultimately serve to improve the standard of living for all citizens on the island, and perhaps throughout the region.

## **Conclusions and Recommendations**

The results of this study should serve as an introduction to the real world dynamics of the Tinian producer. The producers on Tinian are eager to revitalize the agricultural sector here, and yet, despite their collective experiences, training, desires, and cultural knowledge, current policies and programs have fallen short in improving their productive capacity and the likelihood of their achieving overall success as a viable industry.

Tinian producers have considerable commercial experience in areas of crop, fruit tree, and livestock production. Furthermore, many producers continue to farm despite rising costs of production, dwindling institutional support, and other counterproductive factors that hinder their operations, suggesting their continued desire to press on and continue investing and expanding their farming operations despite many setbacks. With a greater understanding of their challenges, needs, and opportunities, the sustainable re-development of Tinian's agricultural sector is conceivable and achievable.

To accomplish this, a sustained effort to guide and plan towards the development of Tinian's agricultural sector is critical to this process. Producers must be involved in the planning at every step of the way, and must be considered as a vital resource and beneficiary of any planned programs and policies. In the future, farmer surveys should be conducted frequently to better understand the needs, attitudes, and expectations of farmer and ranchers so that the planning process is informed by these studies and lend themselves to the adoption of appropriate measures and resulting outcomes.

Given that the overarching goal for this project and perhaps others is aimed at re-invigorating local farm production on the island of Tinian, further research may be prudent in order to better understand specific interests and needs of the farming community, that goes

beyond the scope of this project, but have been touched on by producers in the open ended questions. Below is a list of recommendations for future research surveys:

1. Annual or bi-annual farmer and ranchers needs and opportunities surveys
2. Identifying specific livestock research and extension projects
3. Identifying specific fruit tree research and extension projects
4. Identifying specific vegetable crop research and extension projects
5. Crop, fruit tree, and livestock production surveys
6. Producer surveys targeted at attitudes, motivations, and inhibitors
7. Financial analysis to better understand production costs and profitability of farming on Tinian
8. Youth farming attitude survey

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## Appendix A

### Tinian Farmer and Rancher Agriculture Development Planning Survey Questions

- 1) Languages Spoken: Eng:\_\_\_\_ Cha:\_\_\_\_ Phi:\_\_\_\_ Other:\_\_\_\_\_
- 2) Internet access at home? Yes\_\_\_\_\_ No\_\_\_\_\_
- 3) Do you have an email address that you check at least once a week? Y:\_\_\_N:\_\_\_
- 4) Do you have a current farming or agriculture-related business license?  
-What type?:\_\_\_\_\_
- Date of last valid business license\_\_\_\_\_
- 5) When filing your yearly income taxes, do you fill out and submit a Schedule F (1040 Form) ?  
Yes\_\_\_\_\_No\_\_\_\_\_
- 6) Are you interested in starting up a farming or agriculture related business? Y:\_\_\_N:\_\_\_\_. If  
yes, what type:\_\_\_\_\_
- 7) Do you earn more than \$1,000 per year from your farming operations?  
Yes\_\_\_ or No\_\_\_.
- 8) Do you have commercial farming experience in which you have marketed to local stores,  
restaurants, hotels, or other? Yes:\_\_\_\_\_No:\_\_\_\_\_
- 9) What types of products do you have experience growing commercially:  
Livestock: Cows\_\_\_Hogs\_\_\_ Goats\_\_\_Deer\_\_\_, Chicken (Meat)\_\_\_ Chicken(egg-  
layer)\_\_\_Chicken (sports)\_\_\_Others\_\_\_\_\_  
Of cattle: Bulls\_\_\_ Cows\_\_\_ Bullocks\_\_\_ Heifers\_\_\_calves\_\_\_total:\_\_\_\_\_  
How many hectares do you currently graze?\_\_\_\_\_



Crops: Bell peppers\_\_\_\_ Eggplant\_\_\_\_ Lettuce\_\_\_\_ Tomato\_\_\_\_ Hot pepper\_\_\_\_

Okra\_\_\_\_ Yams (Dagu)\_\_\_\_ Sweet Potatoes\_\_\_\_ Bitter Melon\_\_\_\_ Cassava\_\_\_\_ Chinese

Cabbage\_\_\_\_ Corn\_\_\_\_ Cucumber\_\_\_\_ Radish\_\_\_\_ Green Onion\_\_\_\_ Watercress\_\_\_\_

Pumpkins\_\_\_\_ Snap Gean\_\_\_\_ Squash\_\_\_\_ String Bean\_\_\_\_ Taro\_\_\_\_

Wingbean\_\_\_\_ Others\_\_\_\_\_

Fruits: Avocado\_\_\_\_ Banana\_\_\_\_ Breadfruit\_\_\_\_ Cantaloupe\_\_\_\_ Pineapple\_\_\_\_

Mango\_\_ Papaya\_\_\_\_ Sour Sop\_\_\_\_ Sweet Melon\_\_\_\_ Citrus\_\_\_\_ Watermelon\_\_\_\_

10) Do you own\_\_\_\_ or lease land\_\_\_\_ for farming purposes?

11) How many hectares\_\_\_\_\_?

12) How many hectares do you currently farm for Crops\_\_\_\_ Fruits\_\_\_\_ Livestock\_\_\_\_\_?

13) Where is your primary market for your agricultural goods:

Tinian\_\_\_\_ Saipan\_\_\_\_ Guam\_\_\_\_\_?

14) What is the primary source of your water for your farm or business?

Municipal\_\_\_\_ Catchment\_\_\_\_ Trucked in\_\_\_\_ Other\_\_\_\_\_

15) What percentage of your farm expenditures arrive from water related

costs?\_\_\_\_\_ Cost:\_\_\_\_\_ Explain\_\_\_\_\_

\_\_\_\_\_

16) Do you feel that a farmer water rate would be important to the success of your farming operation? Yes\_\_\_\_ or No\_\_\_\_\_

17) Do you feel that public land should be designated for crop production, for leasing to farmers, similar to how the old coop was managed? Yes\_\_\_\_ or NO\_\_\_\_. What area should be designated?\_\_\_\_\_

How much land should be designated?\_\_\_\_\_

18) Do you have a farm in the leaseback area? Yes\_\_\_\_ or No\_\_\_\_\_

19) If you were asked to relocate this farm, **WITH** financial support for the move, would you agree to relocate? Yes\_\_\_\_No\_\_\_\_Maybe:\_\_\_\_If no, would longer lease terms make a difference in your decision? Yes\_\_\_\_NO\_\_\_\_\_

20) If you were asked to relocate this farm, **WITHOUT** financial support for the move, would you agree to relocate? Yes\_\_\_\_No\_\_\_\_Maybe:\_\_\_\_If no, would longer lease terms make a difference in your decision? Yes\_\_\_\_NO\_\_\_\_\_

21) Do you believe that Tinian ranches in the leaseback area could or should co-exist with the firing ranges or other military operations within the military leased lands? Yes\_\_\_\_No\_\_\_\_\_

22) Do you think that Tinian should have a USDA certified slaughterhouse? Yes\_\_\_\_No\_\_\_\_or Perhaps Later:\_\_\_\_\_

23) Do you think that \$1 per pound is a reasonable price for cattle sold live weight to a slaughterhouse? Yes\_\_\_\_NO\_\_\_\_ If no, what is a reasonable price\_\_\_\_\_?

24) What assistance do you need in order to make your agricultural business thrive?

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25) What is the primary reason that you choose to engage in farming activities? Preserve traditions\_\_\_\_ Income\_\_\_\_ Food for family\_\_\_\_ Enjoyment\_\_\_\_ Food Security:\_\_\_\_\_ Others\_\_\_\_\_

26) That type of Extension and Research programs do you believe NMC-CREES should focus on?

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27) Do you know about the USDA-NRCS Environmental Quality Incentives Program? Yes\_\_\_\_ No\_\_\_\_ or, have you participated in EQIP Programs?\_\_\_\_\_

28) Are you aware of USDA-Farm Service Agency Programs? (That is, FSA Loans, Transportation Reimbursement program, and Crop protection program) Yes\_\_\_No\_\_\_

29)What are some of the best way to let you know about events, programs, and services? (select all that apply)

Television\_\_\_\_\_ Radio\_\_\_\_\_ (Station) email\_\_\_\_\_ Facebook\_\_\_\_\_ Signs at water wells\_\_\_\_\_ Signs at stores\_\_\_\_\_ Signs at post office\_\_\_\_\_ phone\_\_\_\_\_ Newspaper (paper) news (online)\_\_\_\_\_

Other\_\_\_\_\_

30) How best do you learn:

Workshops\_\_\_\_\_ Demonstrations\_\_\_\_\_ one on one consultation\_\_\_\_ Personal Experience\_\_\_\_\_ reading online\_\_\_\_\_ printed publications\_\_\_\_\_

31)What are the top barriers to the development of the Agricultural Sector on

Tinian?\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

32)Rank these issues from the highest priority to the least, with 1 being the highest priority, with higher numbers decreasing in urgency.

Finance\_\_\_\_\_ Water\_\_\_\_\_ Land lease\_\_\_\_\_ Equipment availability\_\_\_\_\_ Drought\_\_\_\_\_ Labor\_\_\_\_\_ technical support\_\_\_\_\_ Markets\_\_\_\_\_ Transportation\_\_\_\_\_ Youth Training\_\_\_\_\_

33) Do you have any employees that support your business operation? Yes\_\_\_No\_\_

Job Titles:\_\_\_\_\_