

2017 PRODUCTION AGRICULTURE REVIEW



UNIVERSITY OF GUAM
COOPERATIVE EXTENSION & OUTREACH

2017 Production Agriculture Review

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EXECUTIVE SUMMARY

The University of Guam Cooperative Extension & Outreach conducted the 2017 Production Agriculture Review on Guam. This assessment was conducted in order to identify Guam farm production commodities, challenges for Guam's agriculture community, and links to research and education efforts at UOG Cooperative Extension & Outreach. Farmers were contacted and interviewed on their property on information of each operation, challenges within each operation, and interests for information and research related to production agriculture.

The assessment started March 2018 and continued to December 2018. The assessment is a broad representation of Guam's agriculture in 2017. It should be noted that economic questions were not asked in order to not overburden farmers with identical questions due to the US Department of Agriculture's (USDA) Census of Agriculture in April 2019. It should also be noted that the success and accuracy of the survey is dependent directly on the cooperation of farmers and ranchers on Guam. The University of Guam Cooperative Extension & Outreach appreciates the contributions of every producer who participated.

Identification of Participants

In order to contact farmers on Guam, multiple data sources were accessed and compiled. Duplicates were eliminated and each person identified was contacted through telephone, email, physical address, and/or farm address. Each respondent was asked to complete the survey which took between one (1) to two (2) hours at the site of production.

Two hundred and twenty-seven (227) farmers were contacted. One hundred and eighty-eight (188) reported they were producing and thirty-nine (39) reported they were not producing. Of the one hundred and eighty-eight (188) producers that reported they were producing, one hundred and one (101) surveys were completed, twelve (12) producers cancelled their scheduled meeting, and seventy-five (75) producers reported they were unavailable. Also, one hundred and twenty-three (123) producers that were contacted did not answer the call when contacted, thirty-seven (37) producers were messaged via machine or by a family member, eighteen (18) producers contacted had the wrong contact information, one hundred and four (104) producers contacted were disconnected, and ten (10) producers contacted were deceased. Lastly, two hundred and eighty-two (282) people were not contacted yet before the one hundred and one (101) surveys were completed for this study.

Farm Definition

Guided by USDA National Agriculture Statistics Service (NASS) methodology, the definition of a "large-commercial producer" is any operation from which \$10,000 or more agricultural products were produced and sold, or would have been sold in 2017. The definition of a "small-commercial producer" is any operation from which \$1,000 to \$9,999 of agricultural products were produced and sold, or would have been sold in 2017. The definition of a "subsistence producer" is any operation from which less than \$1,000 of agricultural products produced and sold or would have been sold, in 2017.

OVERALL GUAM AGRICULTURE PRODUCTION

One hundred and one (101) participants' information was recorded as the 2017 Production Agriculture Review on Guam. Twenty-five percent (25%) of the participants within the assessment were categorized as large-commercial producers, thirty-four percent (34%) were categorized as small-commercial producers, and forty-one percent (41%) were categorized as subsistence producers. The following information is based on one hundred and one (101) participants' answers. Additionally, this data is compared with the 2012 USDA Census of Agriculture data for the US, where comparisons are appropriate in this section.

Village Location

Twenty-two percent (22%) of the total farms reported *Yigo* as the main farm location. Twenty percent (20%) reported *Dededo*, eleven percent (11%) reported *Inarajan*, and eleven percent (11%) reported *Mangilao* as the main farm location.

Farm Acreage

The total farm acreage reported for Guam was 853.45 acres. The total acreage used was 340.4 acres. The unused acreage by the total producers was 513.05 acres.

PRINCIPLE OPERATOR DEMOGRAPHICS

Ethnicity

Seventy-five percent (75%) of the total producers are *CHamoru*. Eleven percent (11%) reported to be *Filipino*.

Primary Speaking Language

Forty-two percent (42%) of the total producers reported *CHamoru* as the primary speaking language. Forty-one percent (41%) reported *English* and eight percent (8%) reported a *Filipino dialect* as the primary speaking language.

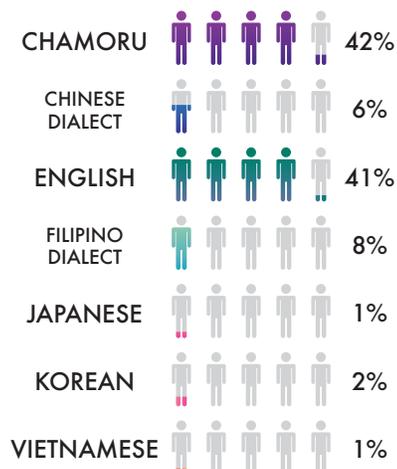


Figure 1: Primary speaking language of producers on Guam.

Primary Reading Language

Seventy-four percent (74%) of the total producers reported *English* as the primary reading language. Eleven percent (11%) reported *CHamoru*, six percent (6%) reported a *Chinese dialect*, and five percent (5%) reported a *Filipino dialect* as the primary reading language.

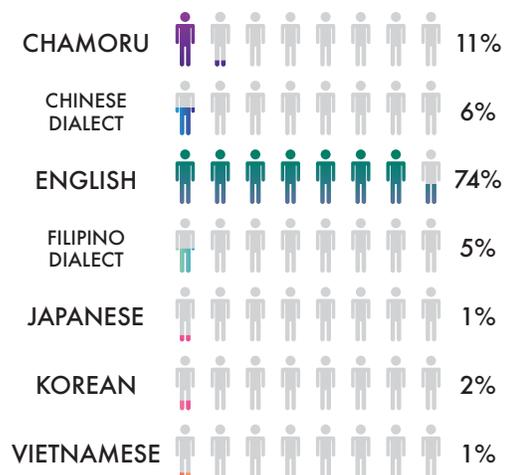


Figure 2: Primary reading language of producers on Guam.

Citizenship

Ninety-three percent (93%) of the total producers are *US citizens*. Six percent (6%) of the participants reported to be *permanent residents*.

Gender

Seventy-three percent (73%) of the total producers are *male*. Twenty-seven percent (27%) of the participants are *female*.

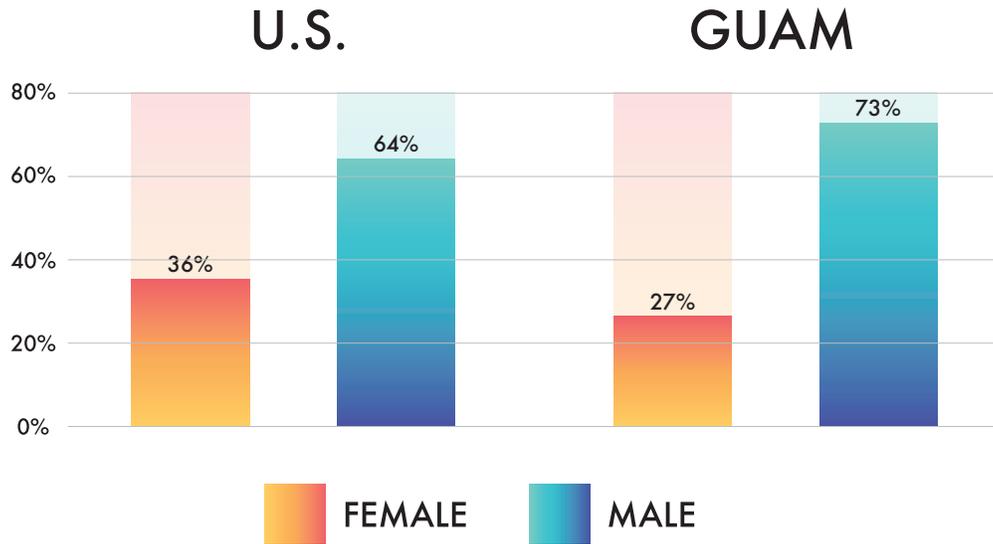


Figure 3: Gender comparison between Guam and US producers. Source: 2017 Census of Agriculture United States Summary and State Data.

Age Range

Thirty-eight percent (38%) of the total producers reported to be *between the age of sixty-five (65) and seventy-four (74)*. Thirty-one percent (31%) reported to be *between the age of fifty-five (55) and sixty-four (64)* and thirteen percent (13%) reported to be *between the age of forty-five (45) and fifty-four (54)*.

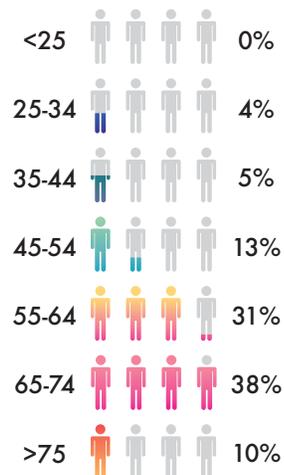


Figure 4: Age range of producers on Guam.

Years Farming

Forty percent (40%) of the total producers reported producing for *twenty (20) years or more*. Twenty-four percent (24%) reported producing for *less than ten (10) years* and twenty percent (20%) reported producing for *less than five (5) years*.

Farm Products

Producers reporting within this category had multiple types of farm products. Eighty-seven percent (87%) of the total producers reported *production of fruits*. Seventy-seven percent (77%) reported *production of vegetables* and thirty-seven percent (37%) reported *production of root crops*.

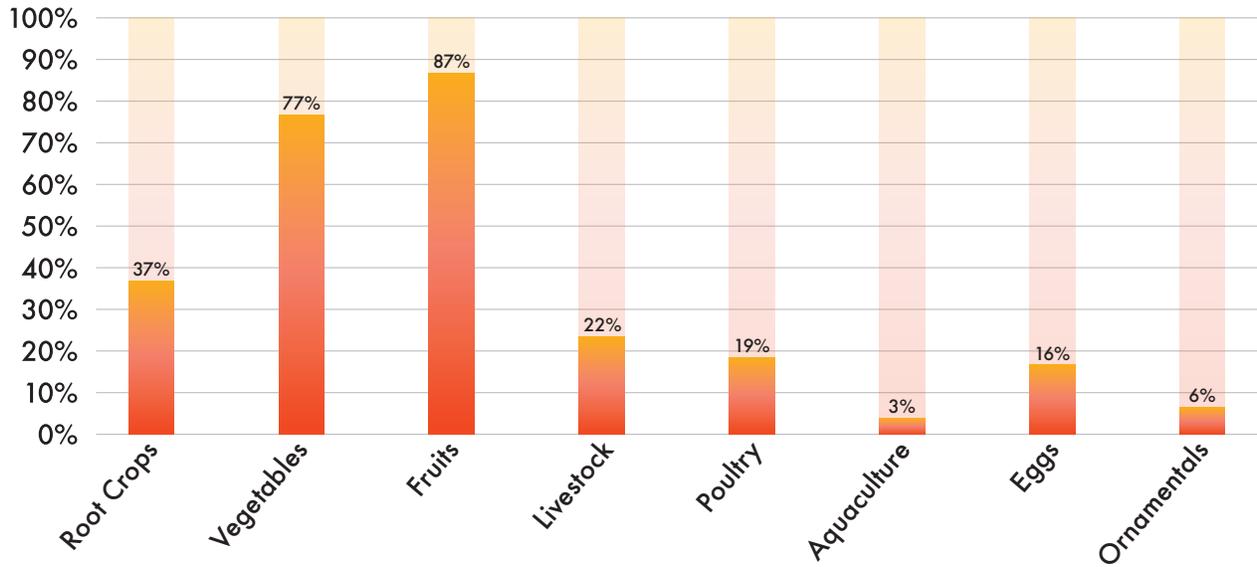


Figure 5: Farm products of producers on Guam.

Producers reporting within the following categories produced multiple vegetable and fruit varieties.

Root Crop Production

Sixty-three percent (63%) of the total producers reported *no root crop production*. Of those reporting root crop production, twenty-one percent (21%) reported production of *taro*. Fifteen percent (15%) reported production of *cassava* and fifteen percent (15%) reported production of *yam*.

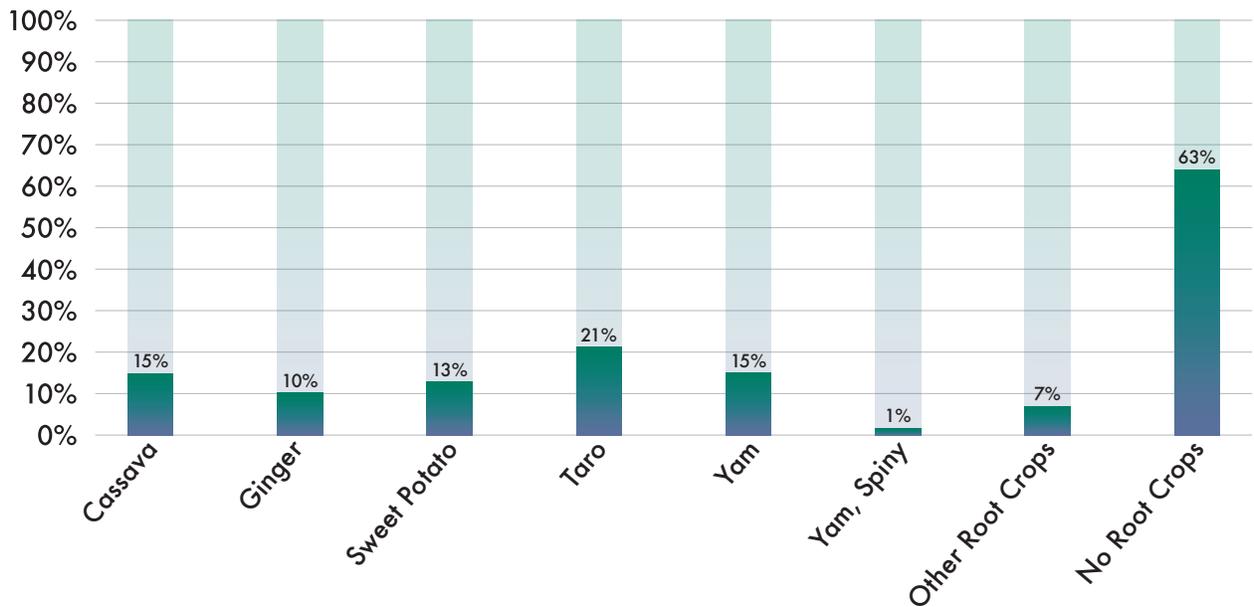


Figure 6: Root crop production of producers on Guam.

Vegetable/Melon Production

Fifty percent (50%) of the total producers reported production of *hot peppers* and forty-three percent (43%) reported production of *eggplant*. Twenty-eight percent (28%) reported production of *tomato*, twenty-six percent (26%) reported *yard-long bean*, and twenty-five percent (25%) reported *cucumber*.

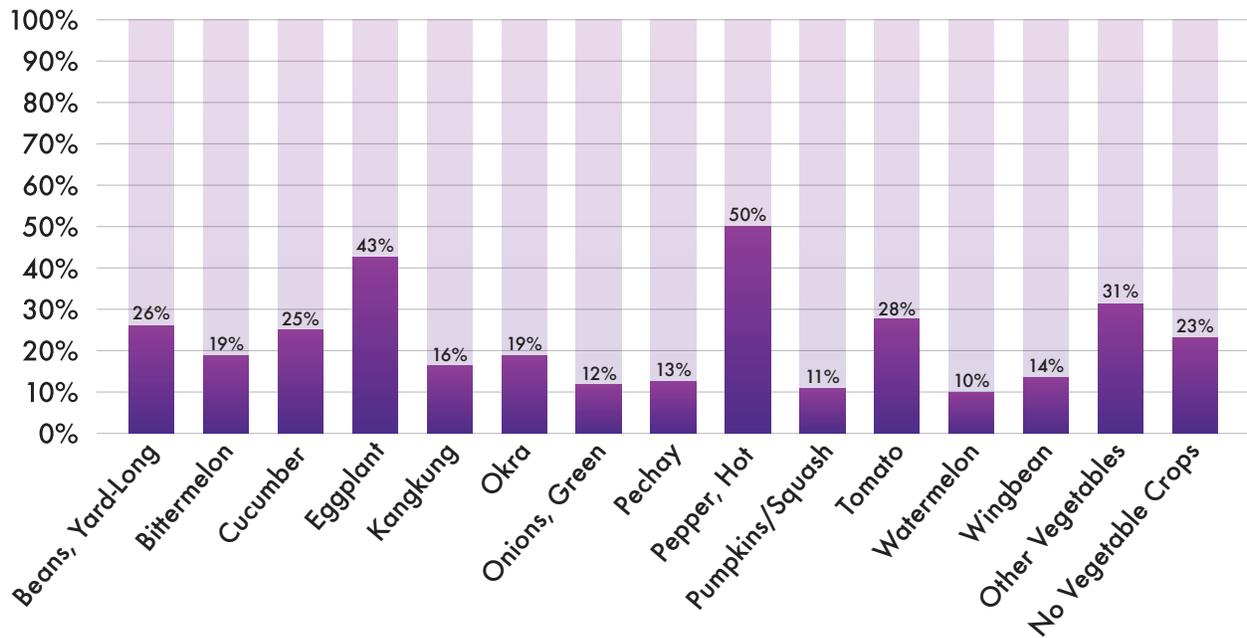


Figure 7: Vegetable and melon production of producers on Guam.

Fruit/Nut/Ornamental Production

Sixty-seven percent (67%) of the total producers reported production of *banana*. Fifty-three percent (53%) reported production of *papaya* and fifty percent (50%) reported production of *mango*.

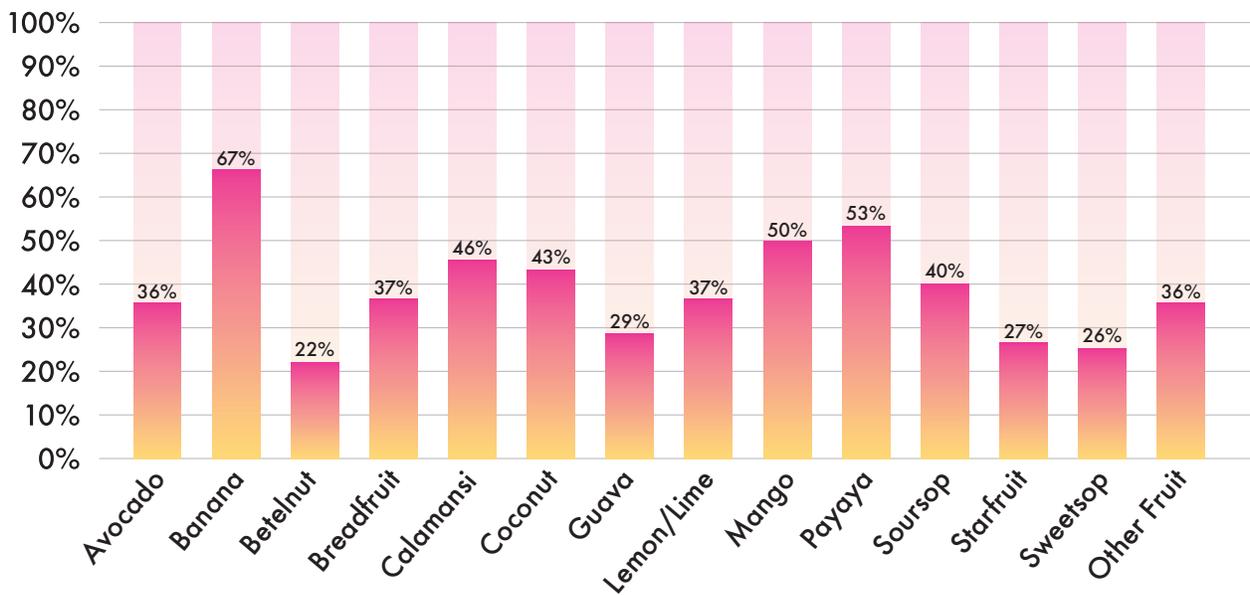


Figure 8: Fruit, nut, and ornamental production of producers on Guam.

Producers reporting livestock and other animal production had multiple avenues of agriculture production including plant (vegetable and fruit) production.

Livestock Production

Seventy-seven percent (77%) of the total farmers reported *no livestock production*. Of those reporting livestock production, seventeen percent (17%) reported production of *swine* and nine percent (9%) reported production of *cattle*.

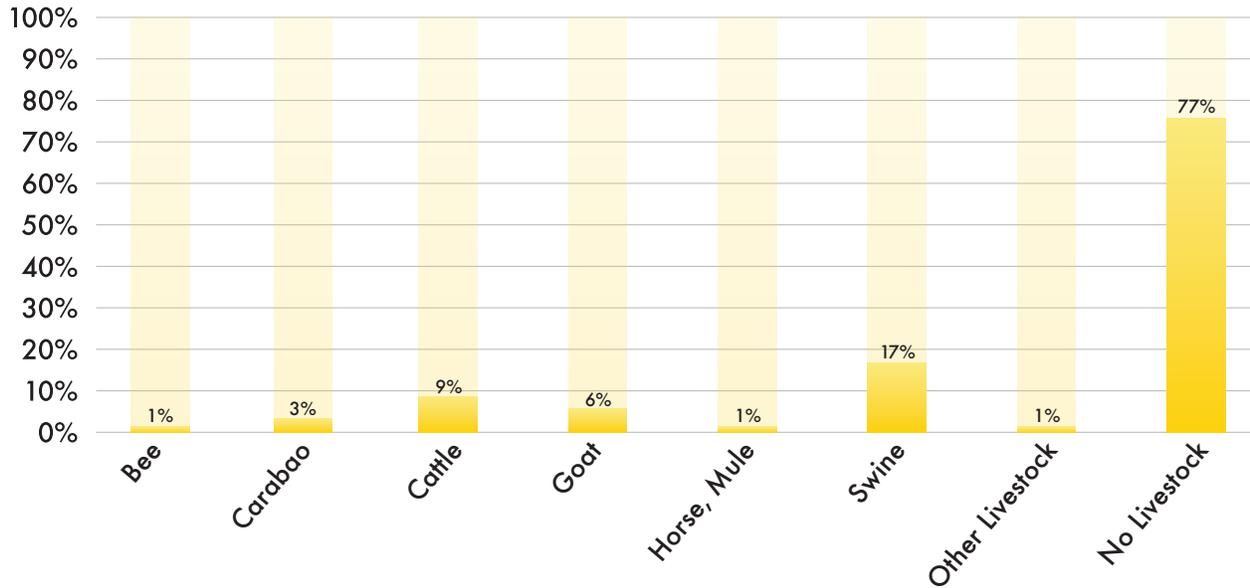


Figure 9: Livestock production of producers on Guam.

Poultry Production

Seventy-five percent (75%) of the total producers reported *no poultry production*. Of those reporting poultry production, seventeen percent (17%) reported production of *chickens for eggs* and fifteen percent (15%) reported *chickens for meat*.

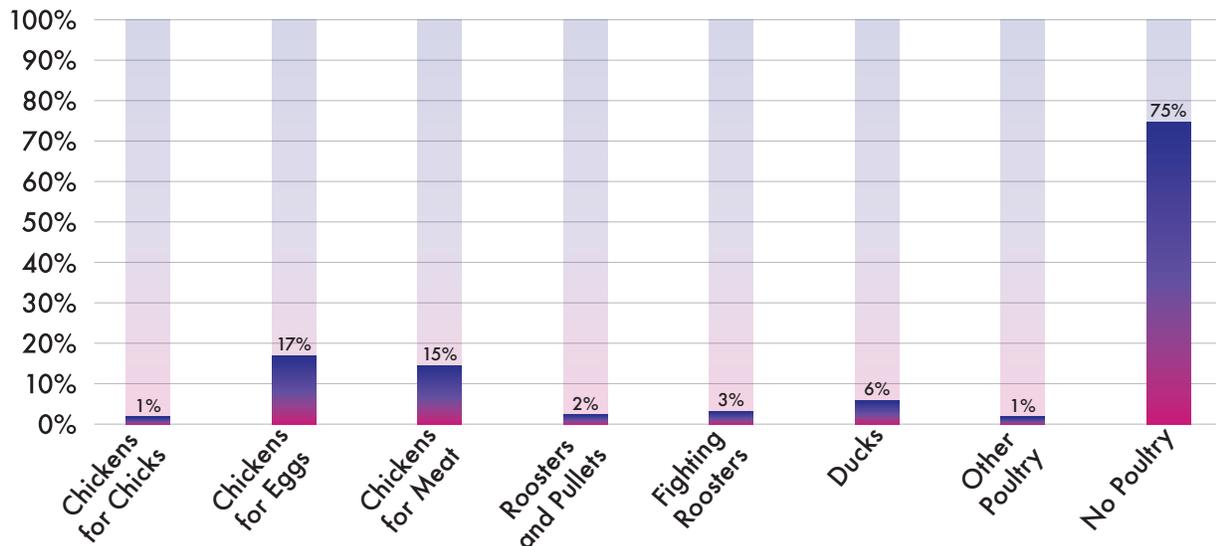


Figure 10: Poultry production of producers on Guam.

Aquaculture Production

Ninety-seven percent (97%) of the total producers reported *no aquaculture production*. Of those reporting aquaculture production, one percent (1%) reported production of *catfish*, one percent (1%) reported production of *tilapia*, and one percent (1%) reported production of an *unknown fish species*.

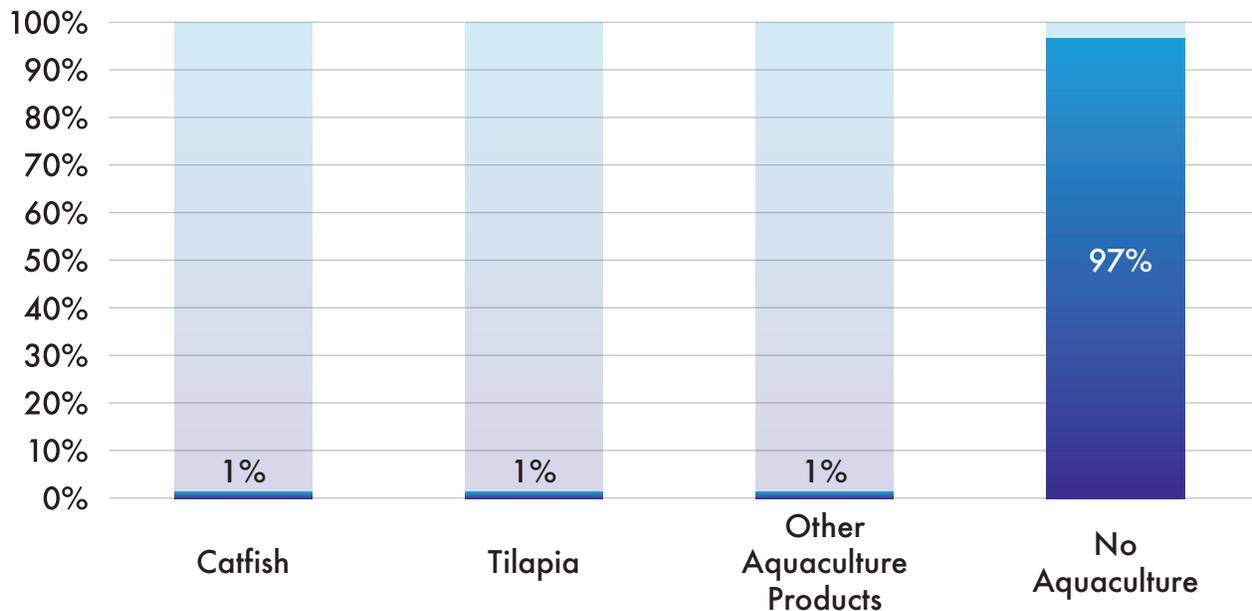


Figure 11: Aquaculture production of producers on Guam.

Venues Where Products were Sold

Producers used a variety of avenues to sell products and are not mutually exclusive. Thirty-one percent (31%) of the total producers reported products were sold *directly to customers*. Twenty-nine percent (29%) reported products were sold to *supermarkets*, twenty-five percent (25%) reported products were sold at *village markets (i.e. flea markets)*, and twenty-four percent (24%) reported *I do not sell my produce*.

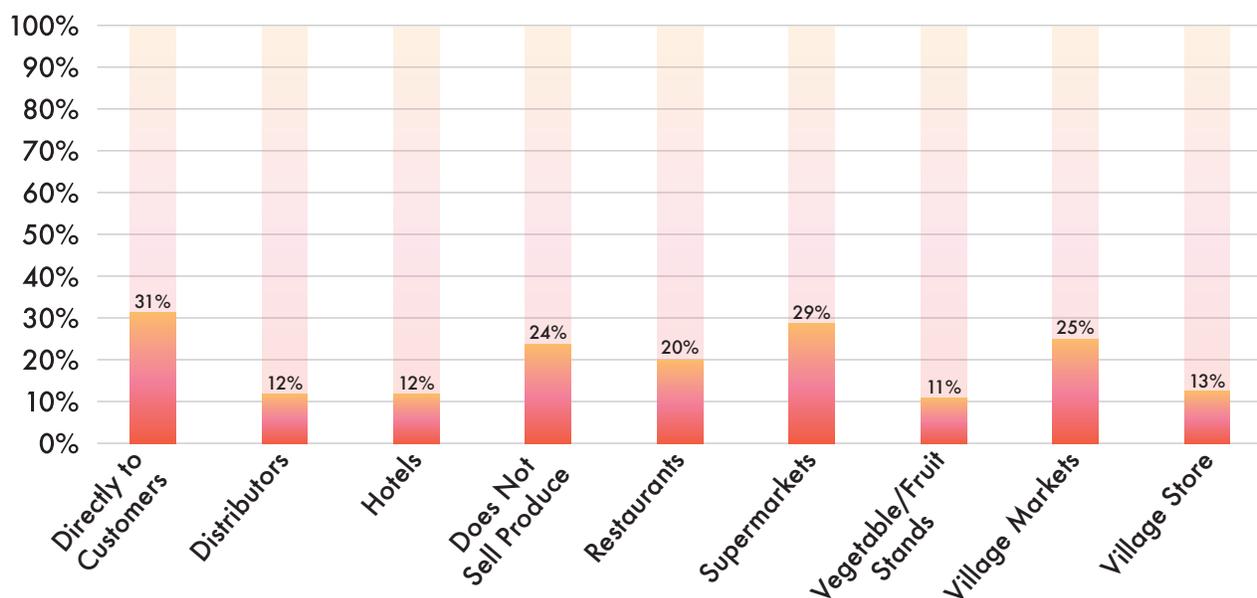


Figure 12: Venues products were sold for producers on Guam.

Leading Costs for Production

Producers identified multiple production costs and were asked to rank the top three (3) production costs. Seventy-five percent (75%) of the total producers reported *water* as a top cost. Sixty-five percent (65%) reported *soil amendments* as a top cost and twenty-six percent (26%) reported *fuel* as a top cost of production.

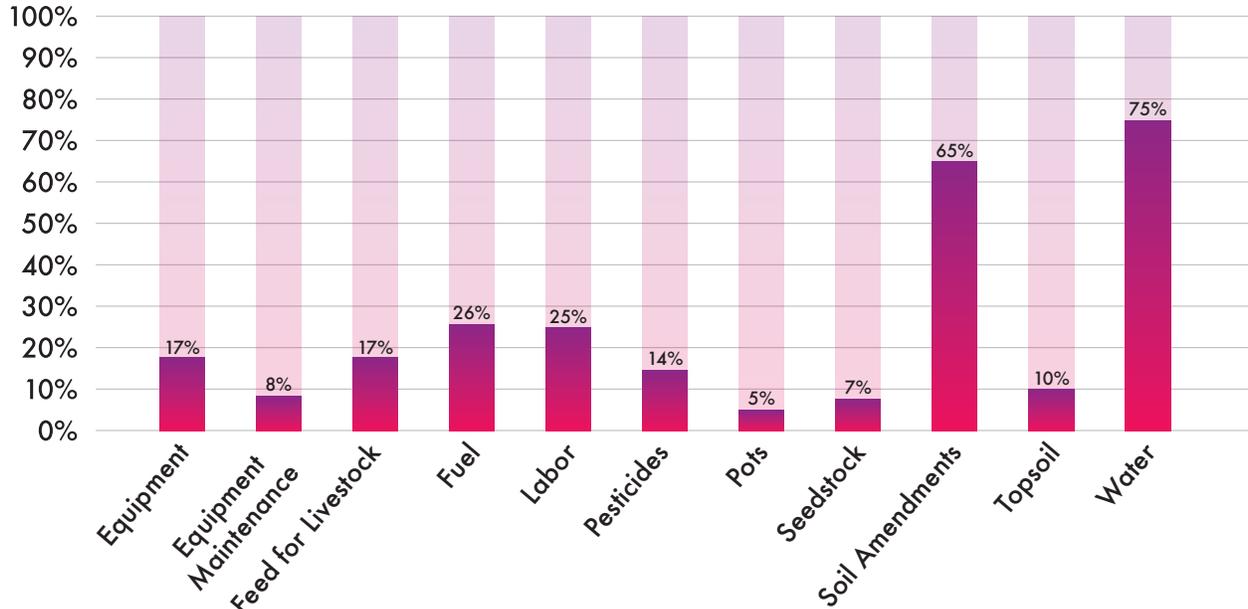


Figure 13: Leading costs for production for producers on Guam.

Reasons for Inability to Produce More

Producers had multiple reasons for the inability to produce more agriculture products. Seventy-one percent (71%) of the total producers reported *crop loss via pests* as a reason for the inability to produce more crops. Sixty percent (60%) reported *crop loss via weather*, fifty percent (50%) reported *crop loss via disease*, and forty-two percent (42%) reported *stolen agricultural products* as a reason for the inability to produce more agriculture products.

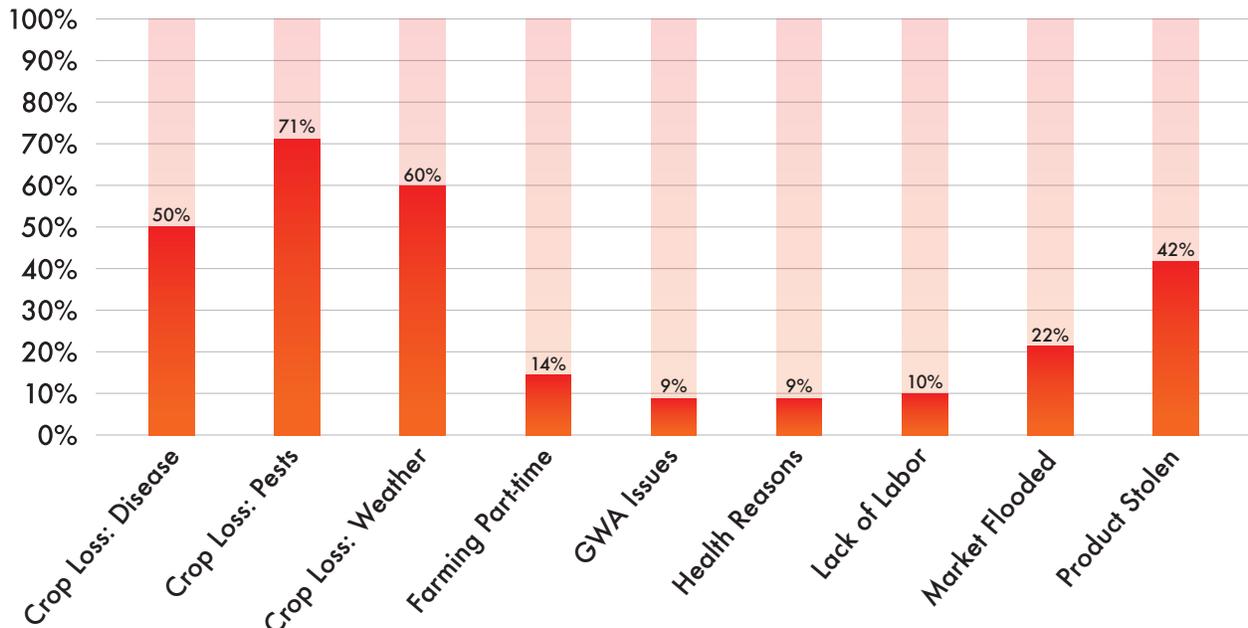


Figure 14: Reasons for inability to produce more agriculture products for producers on Guam.

Research Interests

Producers had multiple research interests and were given up to five (5) interest responses. Twenty-six percent (26%) of the total producers reported *prevention/control of invasive pests and diseases* as a research interest. Twenty-one percent (21%) reported a *sustainable water and power source for irrigation* and sixteen percent (16%) reported *methods to control rhino beetles* as a research interest.

Leading Research Interest

Producers were asked to report their leading research interest and were given one (1) response for UOG research. Sixteen percent (16%) of the total producers reported *prevention/control of invasive pests and diseases* as a leading research interest. In descending order of priority, the next two areas of research wanted were *sustainable water and power source for irrigation* (13%) and *methods to control rhino beetles* (8%) as a leading research interest.

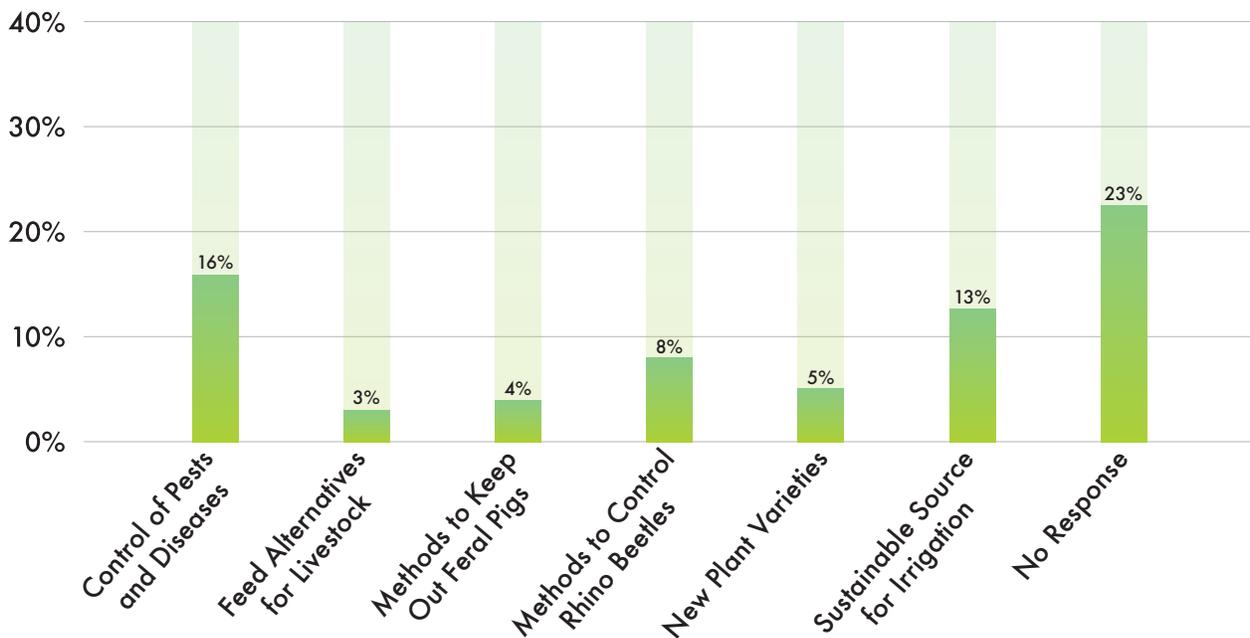


Figure 15: Leading research interests for producers on Guam.

TECHNICAL INTERESTS/TRAINING

Other Technical Interest Areas Identified

Producers were asked to identify other technical interest areas where information is needed for production markets and other areas. Twenty-five percent (25%) of the total producers reported *loans and grants* as a technical interest area. Eleven percent (11%) reported *feed alternatives for animals*, ten percent (10%) reported *disease diagnostics*, ten percent (10%) reported *fertilizer alternatives for plants*, ten percent (10%) reported *insect identification*, and ten percent (10%) reported *slaughterhouse services*.

Pests

Producers had multiple pests and were asked to identify specific pest issues and concerns. Thirty-nine percent (39%) of the total producers reported *feral pigs* as a pest issue. Thirty percent (30%) reported *rhino beetles* and twenty-seven percent (27%) reported *mealybugs* as a pest issue.

Production Needs

Producers were asked to prioritize their needs specifically related to increased production and were given one (1) response. Eighteen percent (18%) of the total producers reported *more assistance with plant pests*. Ten percent (10%) reported *more labor*, nine percent (9%) reported *more land*, eight percent (8%) reported *more opportunity to sell agriculture products*, and eight percent (8%) reported *resolving issues with GWA* as the priority for increased production.

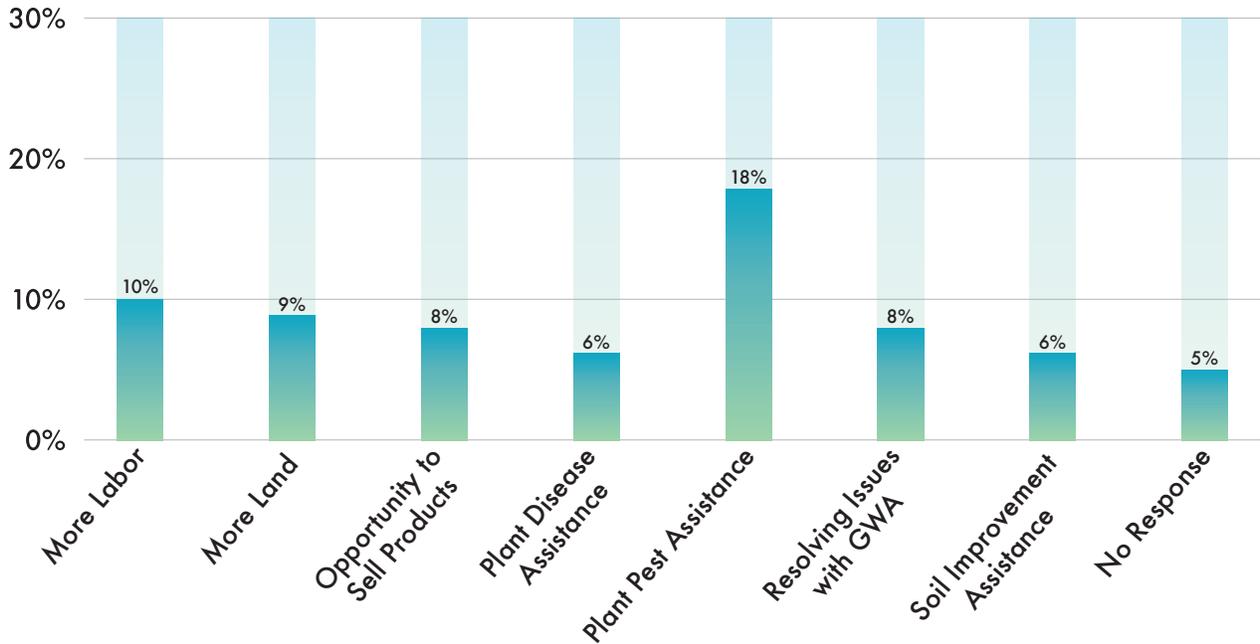


Figure 16: Production needs to produce more agriculture products for producers on Guam.

Pesticide Applicator Training Certification

Any person intending to apply general use antibacterial, antimicrobials, antifungal, disinfectants, and other pesticides as part of their occupational duties must first obtain a “Basic Training-A Qualification Card” from Guam EPA prior to any pesticide application. Any new or transferred employee may be granted a three (3) month grace period to come into compliance with the qualification requirements of this section (Guam Legislature, 2019).

Fifty-nine percent (59%) of the total producers reported a *no* response to being certified currently or previously for pesticide applicator training. Forty-one percent (41%) reported a *yes* response to being certified currently or previously for pesticide applicator training.

INTEREST AREAS

Interest in a UOG Farmers Directory

Producers were asked if they would like to be included in a directory that informed potential customers what products producers sold and producers’ contact information. Forty-six percent (46%) of the total producers reported a *no* response to interest in being a part of a UOG farmers directory. Forty-three percent (43%) reported a *yes* response to interest in being a part of a UOG farmers directory.

Interest in Veterans-Focused Engagement

Veterans-focused agricultural engagement are potential programs that enhance agriculture opportunities for military veterans.

Producers were asked if they were interested in veterans-focused agricultural engagement. Sixty-six percent (66%) of the total producers were *not applicable* to veterans-focused engagement. Seventeen percent (17%) reported a *yes* response and nine percent (9%) reported a *no* response to interest in veterans-focused engagement.

Interest in an Organic Farmers Group

Organic is a labeling term that indicates that the food or other agricultural product has been produced and processed using approved methods. These methods integrate cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity. Synthetic fertilizers, sewage sludge, irradiation, and genetic engineering may not be used (USDA, 2019).

Before a product can be labeled “organic,” an approved certifier inspects the farm where the food is grown to make sure the producer is following all the rules necessary to meet USDA organic standards. Companies that handle or process organic food must be certified, too (Gold, 2007).

Producers were asked if they would like to be part of an organic farmers group. Forty-eight percent (48%) of the total producers reported a *no* response to interest in being a part of an organic farmers group. Thirty-seven percent (37%) reported a *yes* response and eight percent (8%) reported a *maybe* response to interest in being a part of an organic farmers group.

BONAFIDE FARMERS PROGRAM MEMBERS:

“A bona fide farmer shall mean a person registered with the Department who commercially grows for profit fruits, crops, ornamental, livestock, including aquaculture and/or similar products, who furnishes financial records that substantiate a claim to the Department’s satisfaction and who is (a) a U. S. citizen, a permanent resident alien or who has been a resident of Guam for the immediately preceding five (5) years or (b) a corporation or partnership licensed to do business in Guam” (Guam Legislature, 1995).

Ninety-five percent (95%) of the total producers reported a *yes* response to being in the Department of Agriculture’s Bonafide Farmers Program. Five percent (5%) reported a *no* response to being in the Department of Agriculture’s Bonafide Farmers Program.

Agricultural Land Tax Break Filers

Title II, Guam Code Annotated, Chapter 24, Real Property Tax §24401(f) Exemptions; indicates the property is exempt from real property taxes and shall not be assessed if the property is actively used for farming at least eight (8) months in any year. Individuals should be directly involved in farming that is commercial in nature (Guam Legislature, 2019).

Eighty-six percent (86%) of the total producers reported a *no* response to filing an agricultural land tax break. Fourteen percent (14%) reported a *yes* response to filing an agricultural land tax break.

CONNECTIVITY

Producers with Internet Access

Producers were asked if they had access to the internet. Sixty-one percent (61%) of the total producers reported a *yes* response to having internet access.

Producers that own a Cellphone with Texting Capabilities

Producers were asked if they owned a cellphone with texting capabilities. Eighty-four percent (84%) of the total producers reported a *yes* response to having a cellphone with texting capabilities.

LARGE COMMERCIAL AGRICULTURE PRODUCTION

Within the framework of the survey, producers with more than \$10,000 in total revenue for 2017 were categorized as *large commercial producers*. Twenty-five (25) participants were categorized as large commercial producers. The following information is based on the twenty-five (25) participants' responses and aggregated data.

Village Location

Twenty-eight percent (28%) of the large commercial producers reported *Dededo* and twenty-eight percent (28%) reported *Inarajan* as the main farm location. Twelve percent (12%) reported *Barrigada* and twelve percent (12%) reported *Yigo* as the main farm location.

Farm Acreage

The total farm acreage reported from Guam's large commercial producers was 606.7 acres. The total acreage used was 192.95 acres. The total unused acreage by large commercial producers was 413.75 acres.

PRINCIPLE OPERATOR DEMOGRAPHICS

Ethnicity

Sixty-four percent (64%) of the large commercial producers are *CHamoru*. Twelve percent (12%) reported to be *Chinese* and twelve percent (12%) reported to be *Taiwanese*.

Primary Speaking Language

Forty-eight percent (48%) of the large commercial producers reported *English* as the primary speaking language. Twenty-four percent (24%) reported *CHamoru* and twenty-four percent (24%) reported a *Chinese dialect* as the primary speaking language.

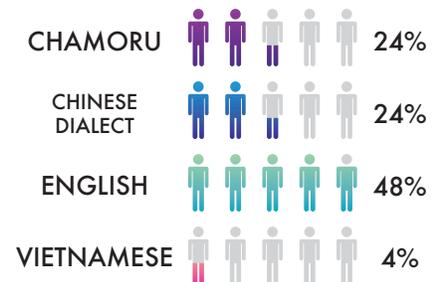


Figure 17: Primary speaking language of large commercial producers on Guam.

Primary Reading Language

Seventy-two percent (72%) of the large commercial producers reported *English* as the primary reading language. Twenty-four percent (24%) reported a *Chinese dialect* and four percent (4%) reported *Vietnamese* as the primary reading language.



Figure 18: Primary reading language of large commercial producers on Guam.

Citizenship

Seventy-six percent (76%) of the large commercial producers are *US citizens*. Twenty-four percent (24%) of the participants reported to be *permanent residents*.

Gender

Seventy-two percent (72%) of the large commercial producers are *male*. Twenty-eight percent (28%) of the participants are *female*.

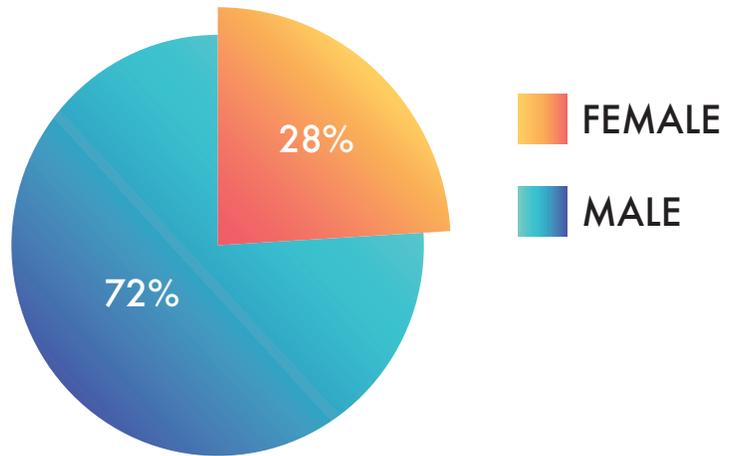


Figure 19: Gender of large commercial producers on Guam.

Age Range

Forty percent (40%) of the large commercial producers reported to be *between the age of fifty-five (55) and sixty-four (64)*. Twenty-eight percent (28%) reported to be *between the age of sixty-five (65) and seventy-four (74)* and sixteen percent (16%) reported to be *between the age of forty-five (45) and fifty-four (54)*.

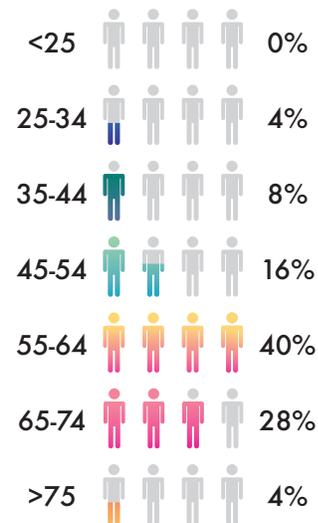


Figure 20: Age range of large commercial producers on Guam.

Years Farming

Forty percent (40%) of the large commercial producers reported producing for *twenty (20) years or more*. Twenty-four percent (24%) reported producing for *less than ten (10) years* and twenty percent (20%) reported producing for *less than five (5) years*.

FARM PRODUCTS

Large commercial producers had multiple types of farm products. One hundred percent (100%) of the large commercial producers reported *production of vegetables*. Eighty-four percent (84%) reported *production of fruits* and twenty percent (20%) reported *production of root crops*.

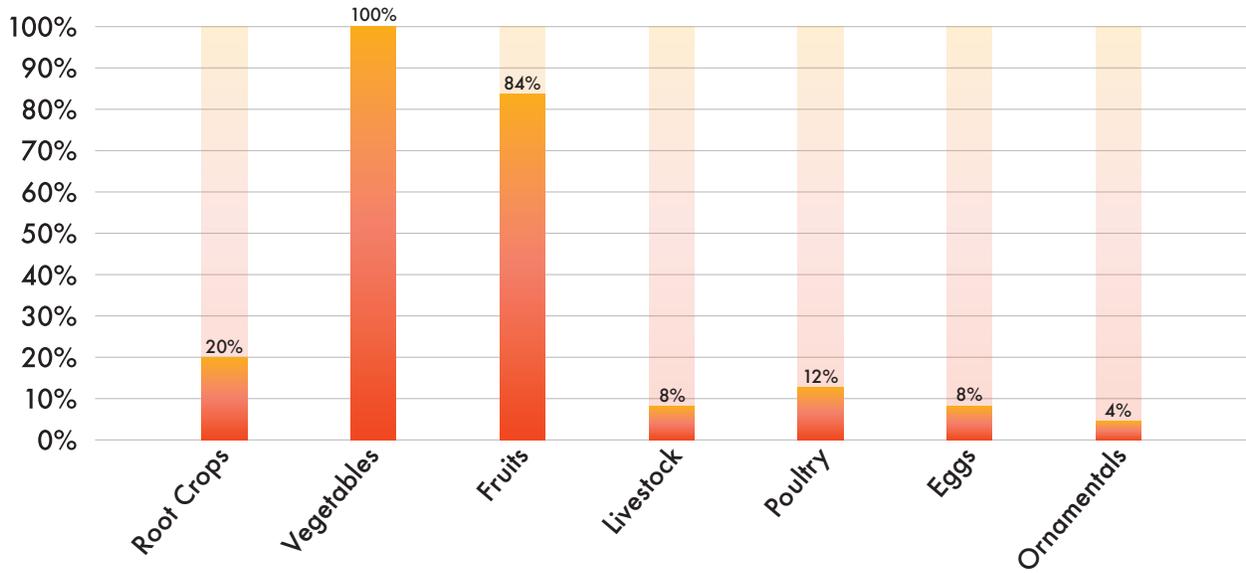


Figure 21: Farm products of large commercial producers on Guam.

Large commercial producers reporting within the following categories produced multiple vegetable and fruit varieties.

Root Crop Production

Eighty percent (80%) of the large commercial producers reported *no commercial root crop production*. Of those reporting root crop production, eight percent (8%) reported production of *taro* and eight percent (8%) reported production of *yam*.

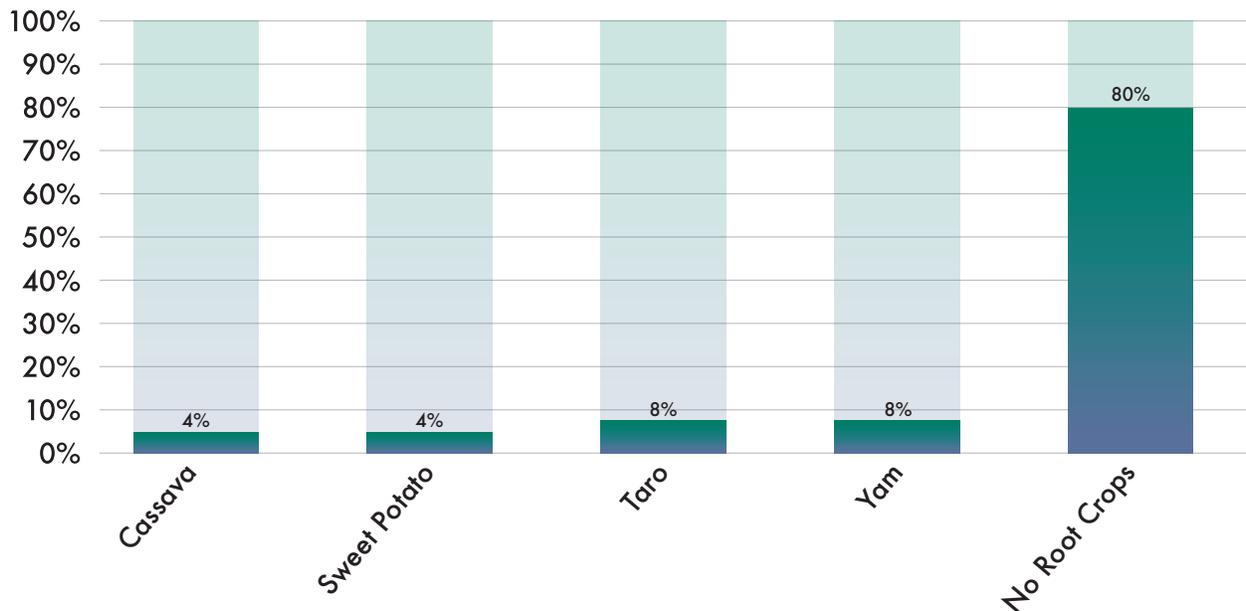


Figure 22: Root crop production of large commercial producers on Guam.

Vegetable/Melon Production

Seventy-two percent (72%) of the large commercial producers reported production of *yard-long beans* and seventy-two percent (72%) reported production of *cucumbers*. Sixty-eight percent (68%) reported production of *eggplant*, fifty-six percent (56%) reported *bitter melon*, fifty-six percent (56%) reported *hot peppers*, and fifty-six percent (56%) reported production of *tomato*.

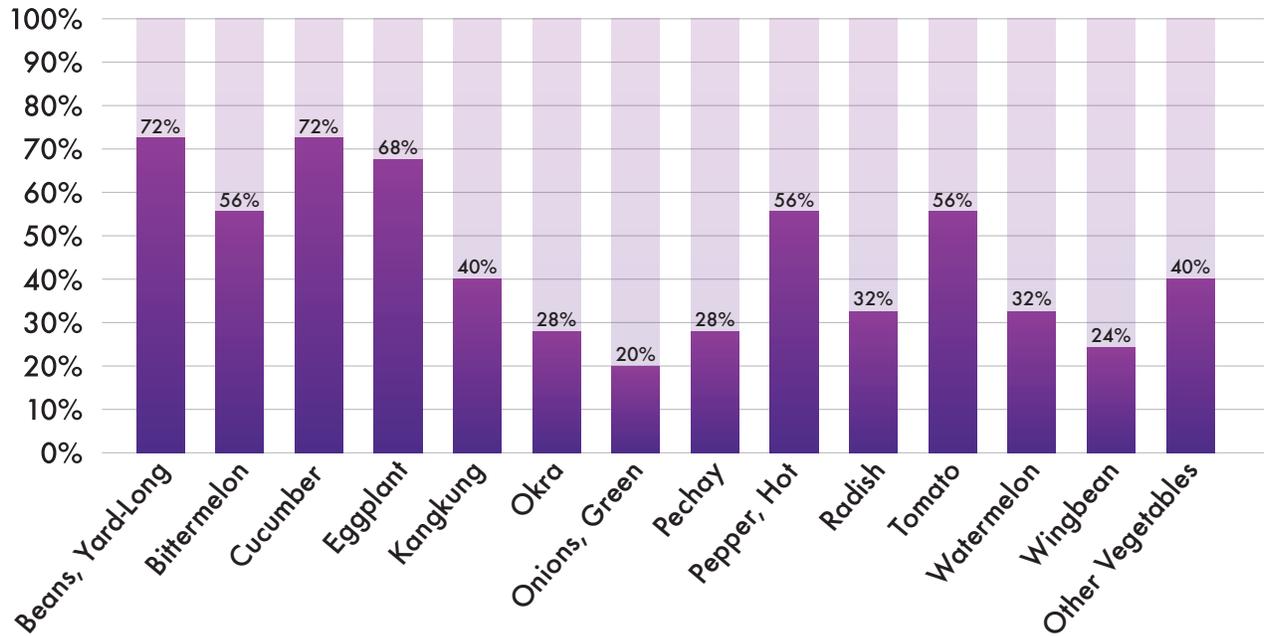


Figure 23: Vegetable and melon production of large commercial producers on Guam.

Fruit/Nut/Ornamental Production

Sixty-four percent (64%) of the large commercial producers reported production of *banana*. Fifty-two percent (52%) reported production of *papaya* and thirty-two percent (32%) reported production of *mango*.

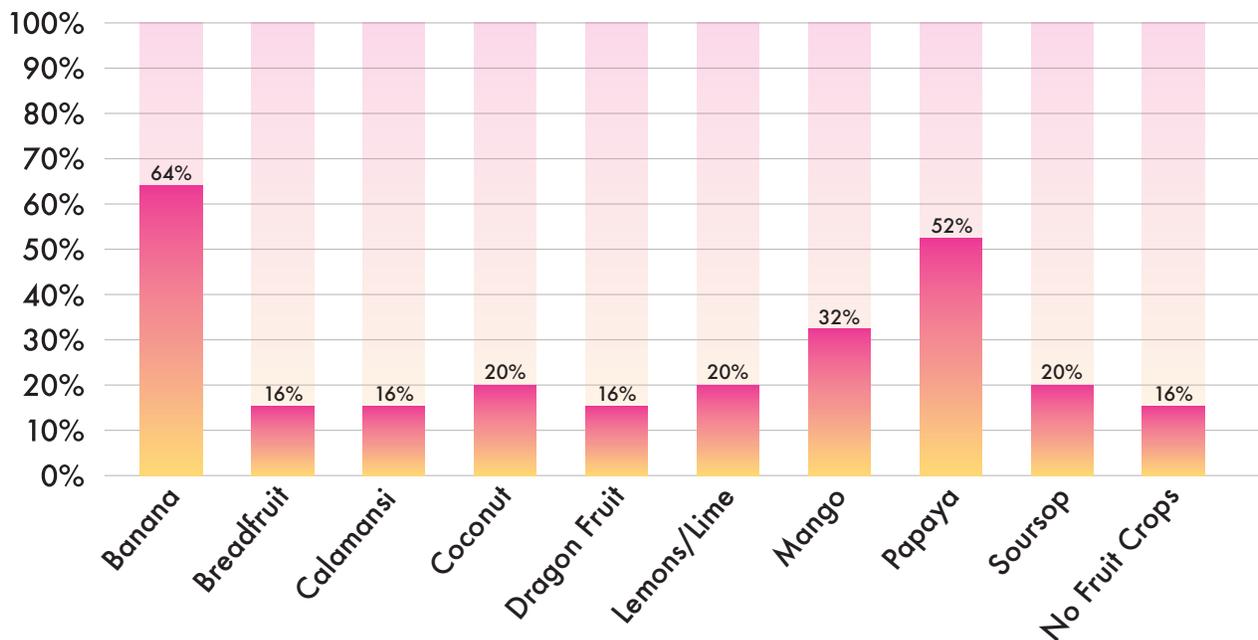


Figure 24: Fruit, nut, and ornamental production of large commercial producers on Guam.

Large commercial producers reporting livestock and other animal production had multiple avenues of agriculture production including plant (vegetable and fruit) production.

Livestock Production

Ninety-two percent (92%) of the large commercial producers reported *no commercial livestock production*. Of those reporting livestock production, eight percent (8%) reported production of *cattle* and eight percent (8%) reported production of *swine*.

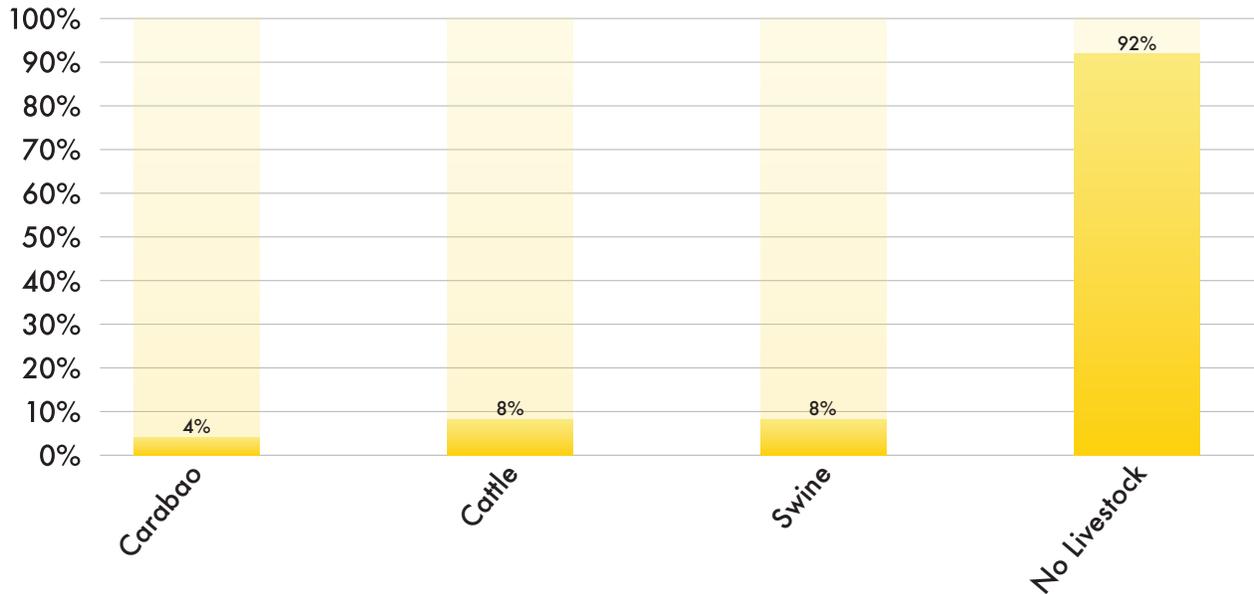


Figure 25: Livestock production of large commercial producers on Guam.

Poultry Production

Eighty-eight percent (88%) of the large commercial producers reported *no commercial poultry production*. Of those reporting poultry production, eight percent (8%) reported production of *ducks*, four percent (4%) reported production of *chickens for eggs*, four percent (4%) *fighting roosters*, and four percent (4%) reported production of *turkey*.

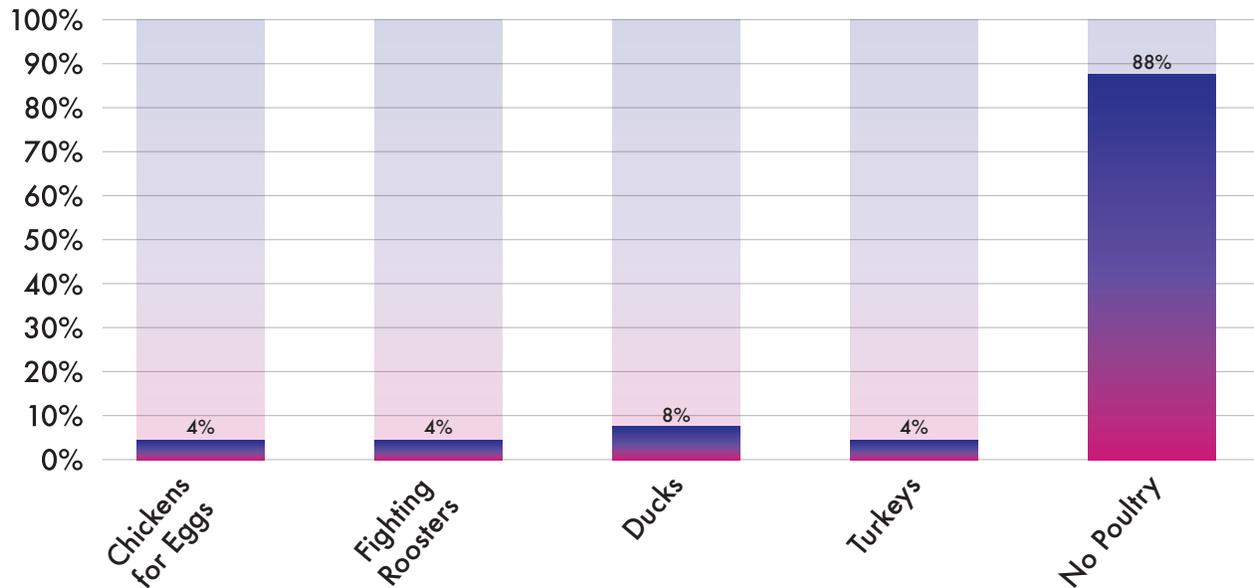


Figure 26: Poultry production of large commercial producers on Guam.

Venues Products were Sold

Large commercial producers used a variety of avenues to sell products and are not mutually exclusive. Seventy-two percent (72%) of the large commercial producers reported products were sold to *supermarkets*. Forty-four percent (44%) reported products were sold to *distributors*, forty percent (40%) reported products were sold to *restaurants*, and thirty-six percent (36%) reported products were sold at *village markets* (i.e. *flea markets*).

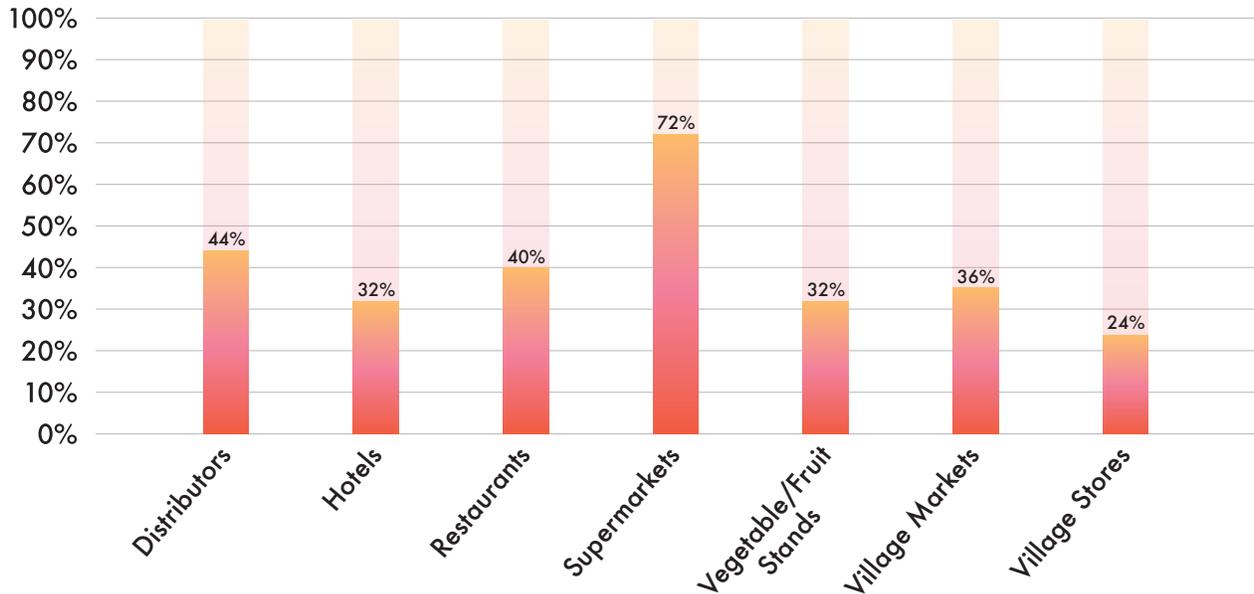


Figure 27: Venues products were sold for large commercial producers on Guam.

Leading Costs for Production

Large commercial producers identified multiple production costs and were asked to rank the top three (3) production costs. Eighty-eight percent (88%) of the large commercial producers reported *soil amendments* were a leading cost of production. Eighty-four percent (84%) reported *water* and fifty-six percent (56%) reported *labor* as a leading cost of production.

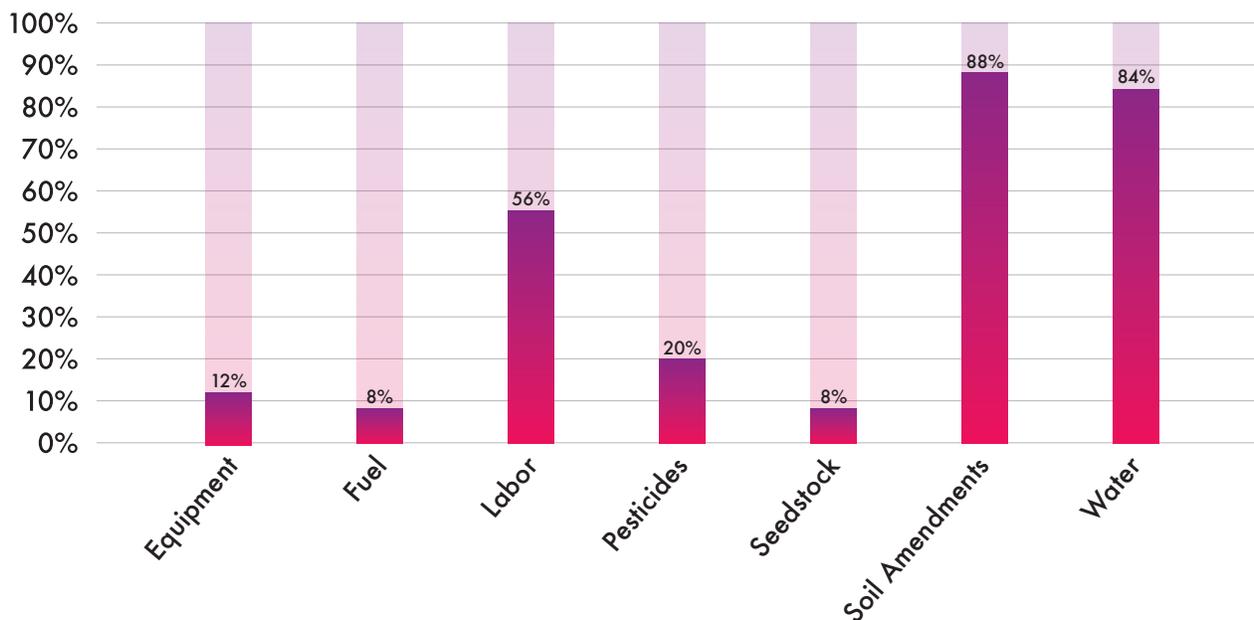


Figure 28: Leading costs for production for large commercial producers on Guam.

Reasons for Inability to Produce More

Large commercial producers had multiple reasons for the inability to produce more agriculture products. Eighty percent (80%) of the large commercial producers reported *crops died via weather* as a reason for the inability to produce more crops. Seventy-six percent (76%) reported *crops died via pests*, fifty-six percent (56%) reported *crops died via disease*, and fifty-two percent (52%) reported *thieves stole agricultural products* as a reason for the inability to produce more agriculture products. Additionally, forty-eight percent (48%) of the large commercial producers reported the *market was flooded at the time of harvest and sale* as a reason for the inability to produce more agriculture products.

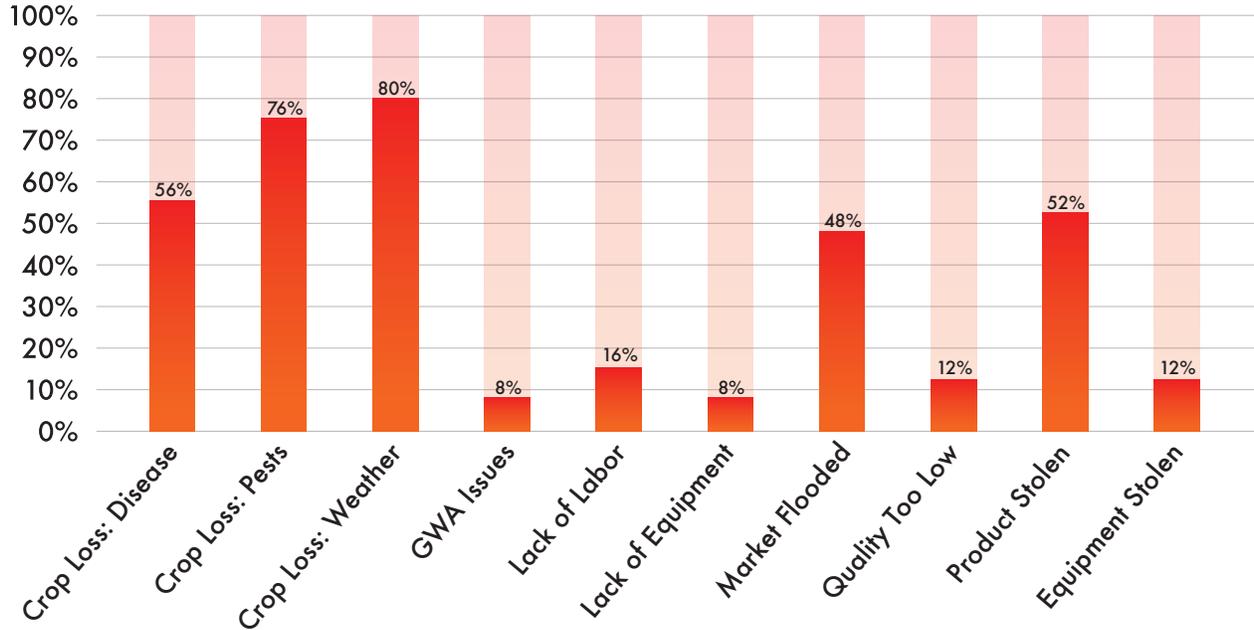


Figure 29: Reasons for inability to produce more agriculture products for large commercial producers on Guam.

Research Interests

Large commercial producers had multiple research interests and were asked for five (5) interest responses. Thirty-six percent (36%) of the large commercial producers reported *prevention/control of invasive pests and diseases* as a research interest. Thirty-two percent (32%) reported a *sustainable water and power source for irrigation* and twenty-four percent (24%) reported *new plant varieties* as a research interest.

Leading Research Interest

Large commercial producers were asked to prioritize their leading research interest and identify one (1) area for UOG research. Twenty percent (20%) of the large commercial producers reported *prevention/control of invasive pests and diseases* as a leading research interest. In order of priority, the next two areas of research wanted were *sustainable water and power source for irrigation* (16%) and *new plant varieties* (12%) as a leading research interest.

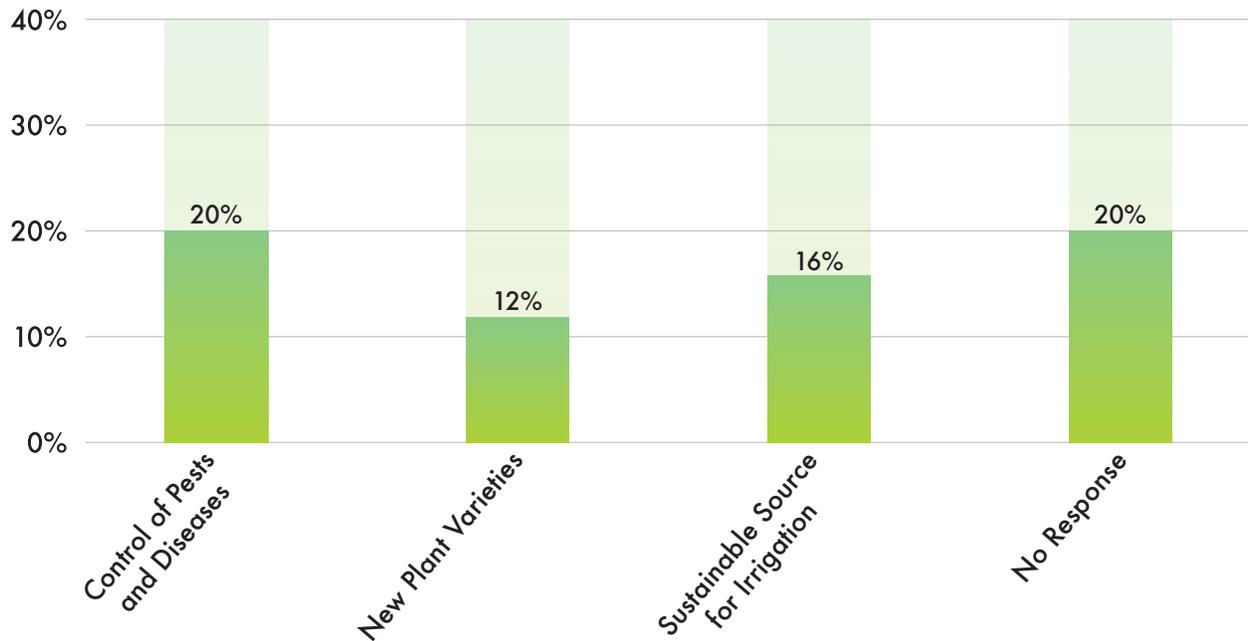


Figure 30: Leading research interest for large commercial producers on Guam.

TECHNICAL INTERESTS/TRAINING

Other Technical Interest Areas Identified

Large commercial producers were asked to identify other technical interest areas where information is needed for production markets and other areas. Twenty-eight percent (28%) of the large commercial producers reported *loans and grants* as a technical interest area. Sixteen percent (16%) reported *disease diagnostics* and sixteen percent (16%) reported *periodic visits from agents* as a technical interest area. Additionally, twelve percent (12%) reported *FSA loans and grants* and twelve percent (12%) reported *insect identification*.

Pests

Large commercial producers had multiple pests and were asked to identify specific pest issues and concerns. Forty percent (40%) of the large commercial producers reported *feral pigs* as a pest issue. Twenty-eight percent (28%) reported *aphids*, twenty-four percent (24%) reported *feral deer*, twenty-four percent (24%) reported *mealy bugs*, and twenty-four percent (24%) reported *whiteflies* as a pest issue.

Production Needs

Large commercial producers were asked to prioritize their needs specifically related to increased production and were given one (1) response. Sixteen percent (16%) of the large commercial producers reported *more assistance with plant pests* and sixteen percent (16%) reported *more labor* as the priority for increased production. Twelve percent (12%) reported *more opportunity to sell products* as the priority for increased production.

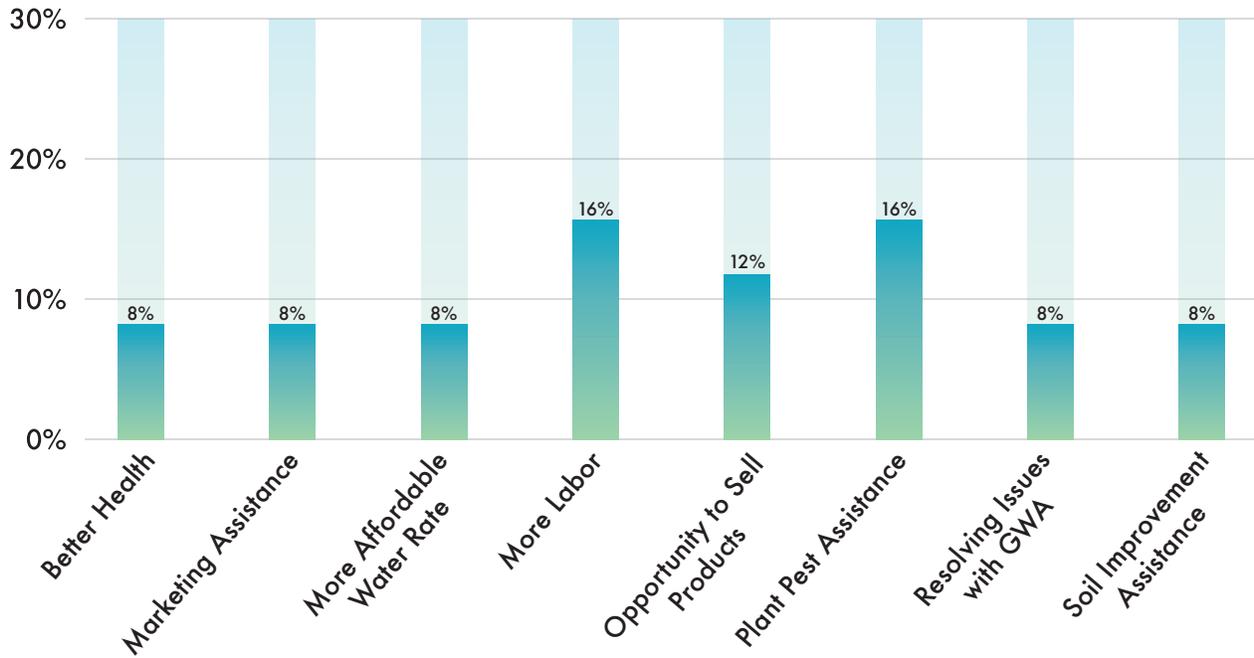


Figure 31: Production needs to produce more agriculture products for large commercial producers on Guam.

Pesticide Applicator Training Certification

Any person intending to apply general use antibacterial, antimicrobials, antifungal, disinfectants, and other pesticides as part of their occupational duties must first obtain a “Basic Training-A Qualification Card” from Guam EPA prior to any pesticide application. Any new or transferred employee may be granted a three (3) month grace period to come into compliance with the qualification requirements of this section (Guam Legislature, 2019).

Seventy-six percent (76%) of the large commercial producers reported a *yes* response to being certified currently or previously for pesticide applicator training. Twenty-four percent (24%) reported a *no* response to being certified currently or previously for pesticide applicator training.

INTEREST AREAS

Interest in a UOG Farmers Directory

Large commercial producers were asked if they would like to be included in a directory that informed potential customers what products producers sold and producers’ contact information. Forty-eight percent (48%) of the large commercial producers reported a *yes* response and thirty-two percent (32%) reported a *no* response to interest in being a part of a UOG farmers directory.

Interest in Veterans-Focused Engagement

Veterans-focused agricultural engagement are potential programs that enhance agriculture opportunities for military veterans.

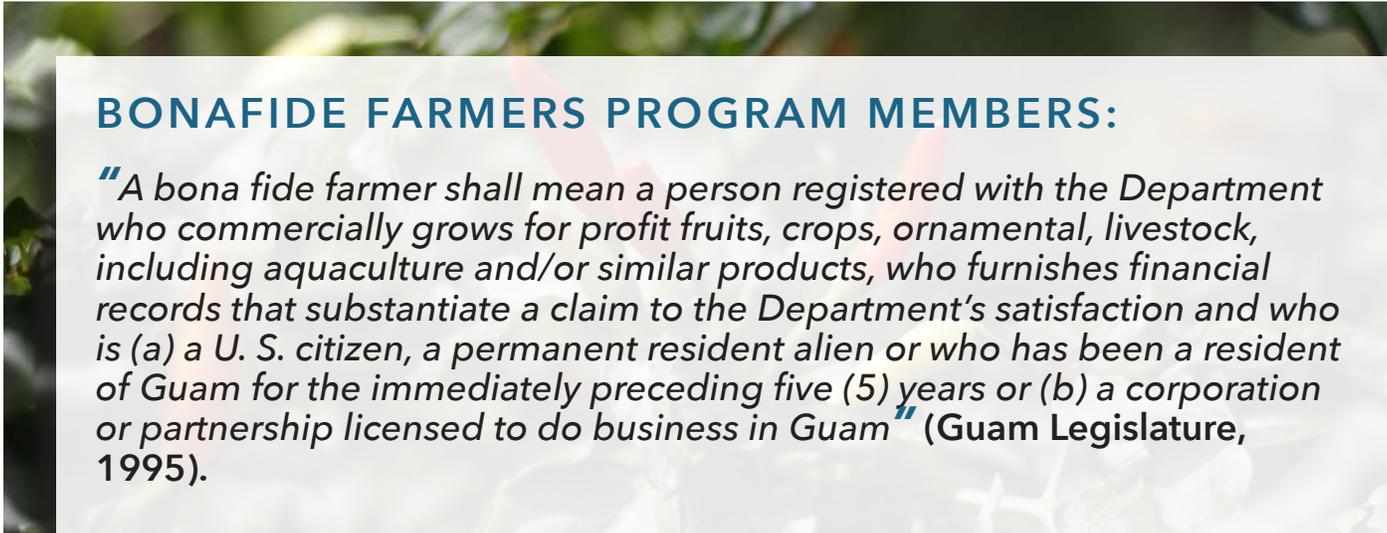
Producers were asked if they were interested in veterans-focused agricultural engagement. Four percent (4%) reported a *yes* response and four percent (4%) reported a *no* response to interest in veterans-focused engagement.

Interest in an Organic Farmers Group

Organic is a labeling term that indicates that the food or other agricultural product has been produced and processed using approved methods. These methods integrate cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity. Synthetic fertilizers, sewage sludge, irradiation, and genetic engineering may not be used. (USDA, 2019)

Before a product can be labeled “organic,” an approved certifier inspects the farm where the food is grown to make sure the producer is following all the rules necessary to meet USDA organic standards. Companies that handle or process organic food must be certified, too (Gold, 2007).

Large commercial producers were asked if they would like to be part of an organic farmers group. Fifty-six percent (56%) of the large commercial producers reported a *no* response to interest in being a part of an organic farmers group. Twenty-four percent (24%) reported a *yes* response and twelve percent (12%) reported a *maybe* response to interest in being a part of an organic farmers group.



BONAFIDE FARMERS PROGRAM MEMBERS:

“A bona fide farmer shall mean a person registered with the Department who commercially grows for profit fruits, crops, ornamental, livestock, including aquaculture and/or similar products, who furnishes financial records that substantiate a claim to the Department’s satisfaction and who is (a) a U. S. citizen, a permanent resident alien or who has been a resident of Guam for the immediately preceding five (5) years or (b) a corporation or partnership licensed to do business in Guam” (Guam Legislature, 1995).

Ninety-two percent (92%) of the large commercial producers reported a *yes* response to being in the Department of Agriculture’s Bonafide Farmers Program.

Agricultural Land Tax Break Filers

Title II, Guam Code Annotated, Chapter 24, Real Property Tax §24401(f) Exemptions; indicates the property is exempt from real property taxes and shall not be assessed if the property is actively used for farming at least eight (8) months in any year. Individuals should be directly involved in farming that is commercial in nature (Guam Legislature, 2019).

Seventy-six percent (76%) of the large commercial producers reported a *no* response to filing an agricultural land tax break. Twenty-four percent (24%) reported a *yes* response to filing an agricultural land tax break.

CONNECTIVITY

Producers with Internet Access

Large commercial producers were asked if they had access to the internet. Sixty percent (60%) of the large commercial producers reported a *yes* response to having internet access.

Producers that own a Cellphone with Texting Capabilities

Large commercial producers were asked if they owned a cellphone with texting capabilities. Ninety-two percent (92%) of the large commercial producers reported *yes* response to having a cellphone with texting capabilities.

SMALL COMMERCIAL AGRICULTURE PRODUCTION

Within the survey, producers with less than \$10,000 in total revenue for 2017 were categorized as *small commercial producers*. Thirty-four (34) participants were considered small commercial producers. The following information is based on the thirty-four (34) participants' responses and aggregated data.

Village Location

Thirty-two percent (32%) of Guam's small commercial producers reported *Yigo* as the main farm location. Twelve percent (12%) reported *Mangilao*, nine percent (9%) reported *Dededo*, and nine percent (9%) reported *Merizo* as the main farm location.

Farm Acreage

The total farm acreage reported from Guam's small commercial producers was 97.78 acres. The total acreage used was 58.88 acres. The total unused acreage by small commercial producers was 38.9 acres.

Ethnicity

Seventy-one percent (71%) of the small commercial producers are *CHamoru*. Twenty-four percent (24%) reported to be *Filipino* and six percent (6%) reported to be *White*.

Primary Speaking Language

Forty-one percent (41%) of the small commercial producers reported *English* as the primary speaking language. Thirty-eight percent (38%) reported *CHamoru* and twenty-one percent (21%) reported a *Filipino dialect* as the primary speaking language.

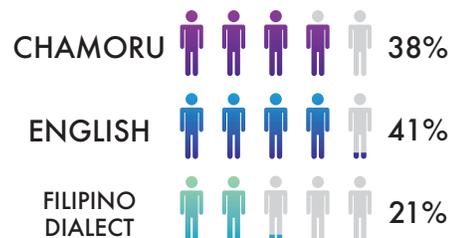


Figure 32: Primary speaking language of small commercial producers on Guam.

Primary Reading Language

Seventy-six percent (76%) of the small commercial producers reported *English* as the primary reading language. Fifteen percent (15%) reported a *Filipino dialect* and nine percent (9%) reported *CHamoru* as the primary reading language.

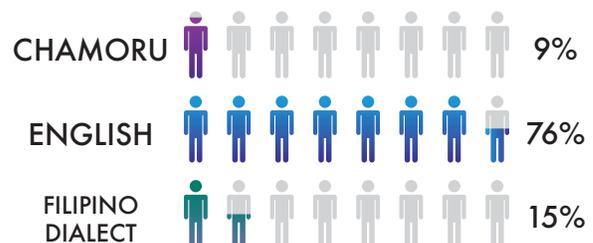


Figure 33: Primary reading language of small commercial producers on Guam.

Citizenship

One hundred percent (100%) of the small commercial producers are *US citizens*.

Gender

Seventy-six percent (76%) of the small commercial producers are *male*. Twenty-four percent (24%) of the participants are *female*.

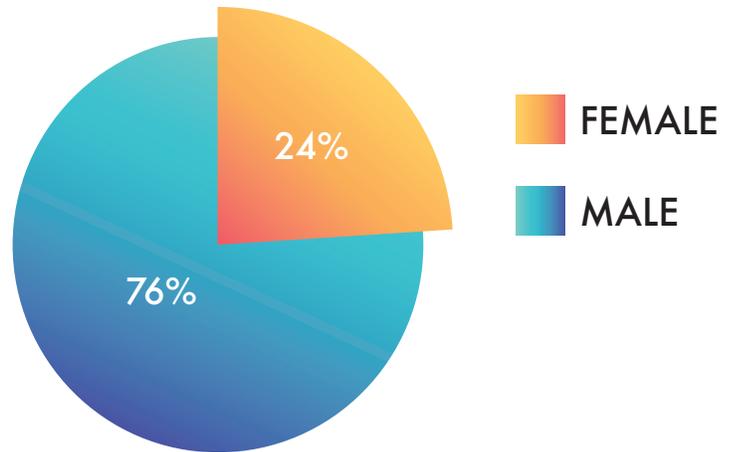


Figure 34: Gender of small commercial producers on Guam.

Age Range

Thirty-eight percent (38%) of the small commercial producers reported to be *between the age of sixty-five (65) and seventy-four (74)*. Twenty-six percent (26%) reported to be *between fifty-five (55) and sixty-four (64)*, twelve percent (12%) reported to be *between forty-five (45) and fifty-four (54)*, and twelve percent (12%) reported to be *greater than the age 75*.

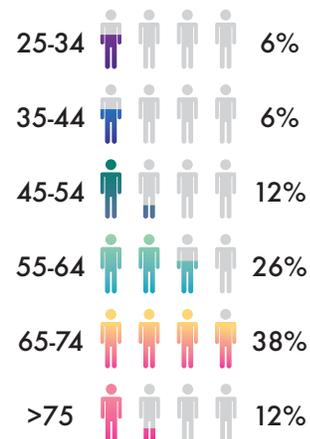


Figure 35: Age range of small commercial producers on Guam.

Years Farming

Forty-seven percent (47%) of the small commercial producers reported producing for *twenty (20) years or more*. Twenty-six percent (26%) reported producing for *less than ten (10) years* and twelve percent (12%) reported producing for *less than five (5) years*.

Farm Products

Small commercial producers reporting within this category had multiple types of farm products. Eighty-five percent (85%) of the small commercial producers reported *production of fruits*. Seventy-six percent (76%) reported *production of vegetables* and thirty-five percent (35%) reported *production of root crops*.

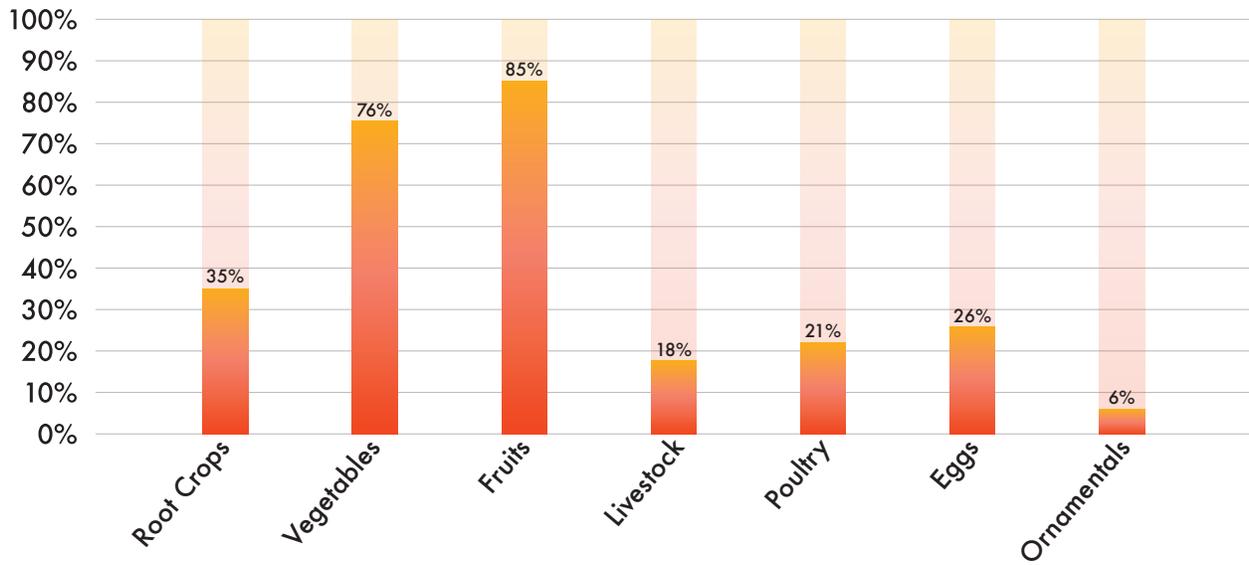


Figure 36: Farm products of small commercial producers on Guam.

Small commercial producers reporting within the following categories produced multiple vegetable and fruit varieties.

Root Crop Production

Twenty-one percent (21%) of the small commercial producers reported production of *sweet potato*, eighteen percent (18%) reported production of *cassava*, and eighteen percent (18%) reported production of *yam*.

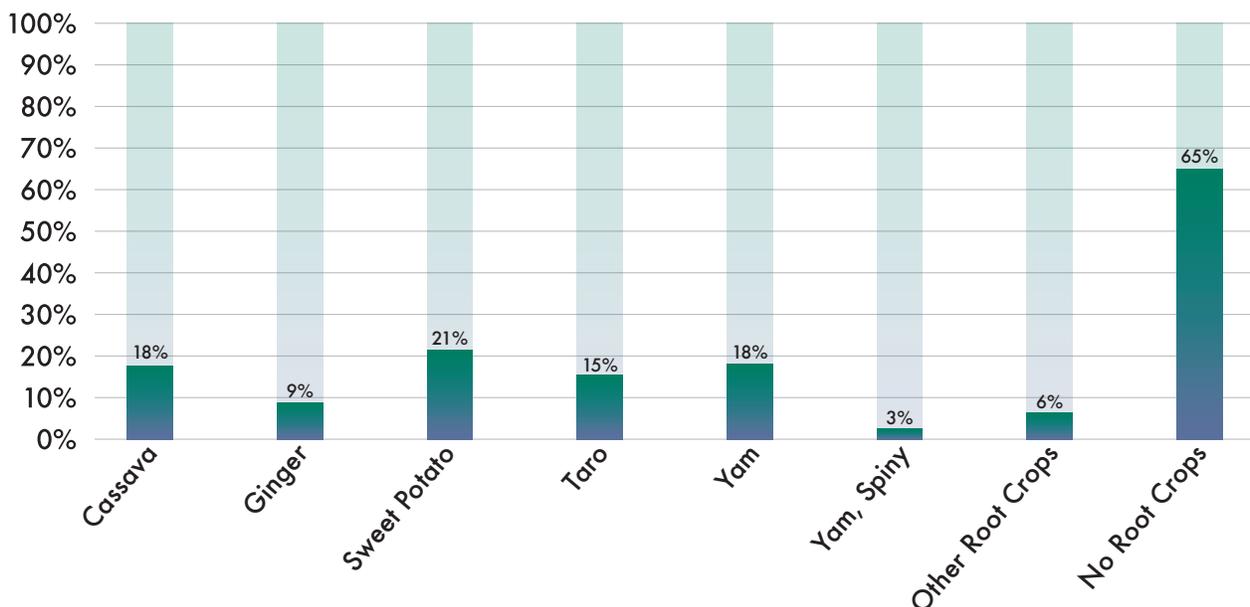


Figure 37: Root crop production of small commercial producers on Guam.

Vegetable/Melon Production

Fifty-six percent (56%) of the small commercial producers reported production of *hot peppers*. Thirty-two percent (32%) reported production of *eggplant*, twenty-six percent (26%) reported production of *okra*, and twenty-one percent (21%) reported production of *tomato*.

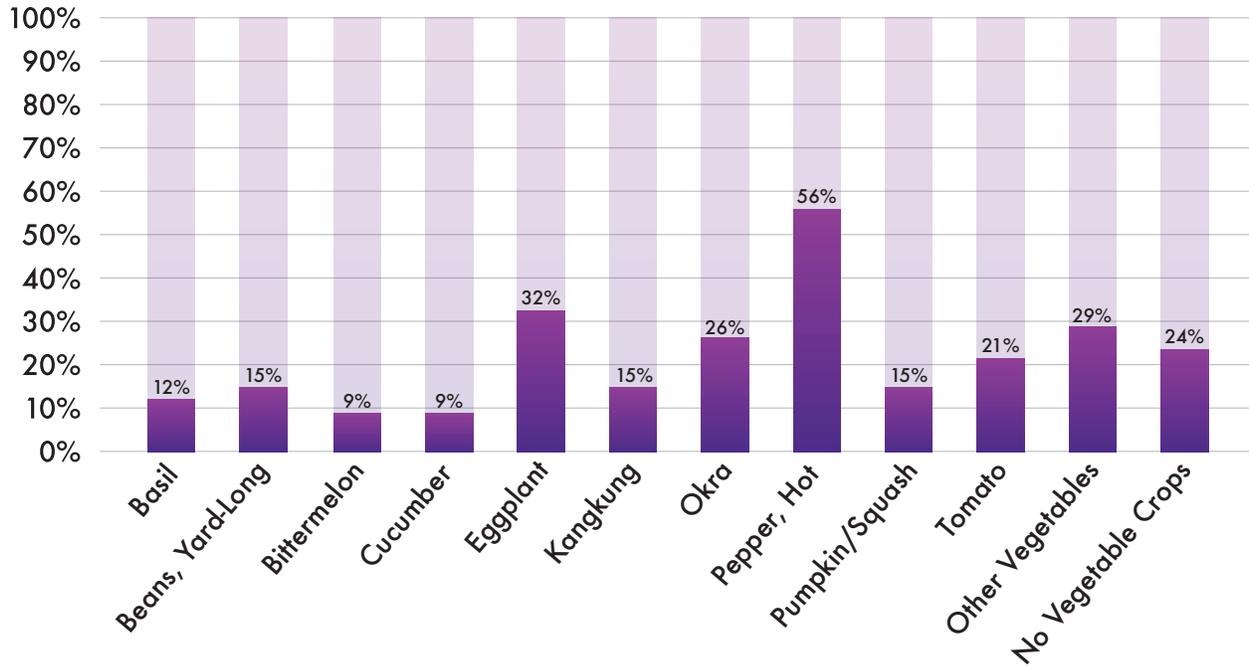


Figure 38: Vegetable and melon production of small commercial producers on Guam.

Fruit/Nut/Ornamental Production

Fifty-nine percent (59%) of the small commercial producers reported production of *banana*. Fifty-six percent (56%) reported production of *calamondin lemon* and forty-seven percent (47%) reported production of *papaya*.

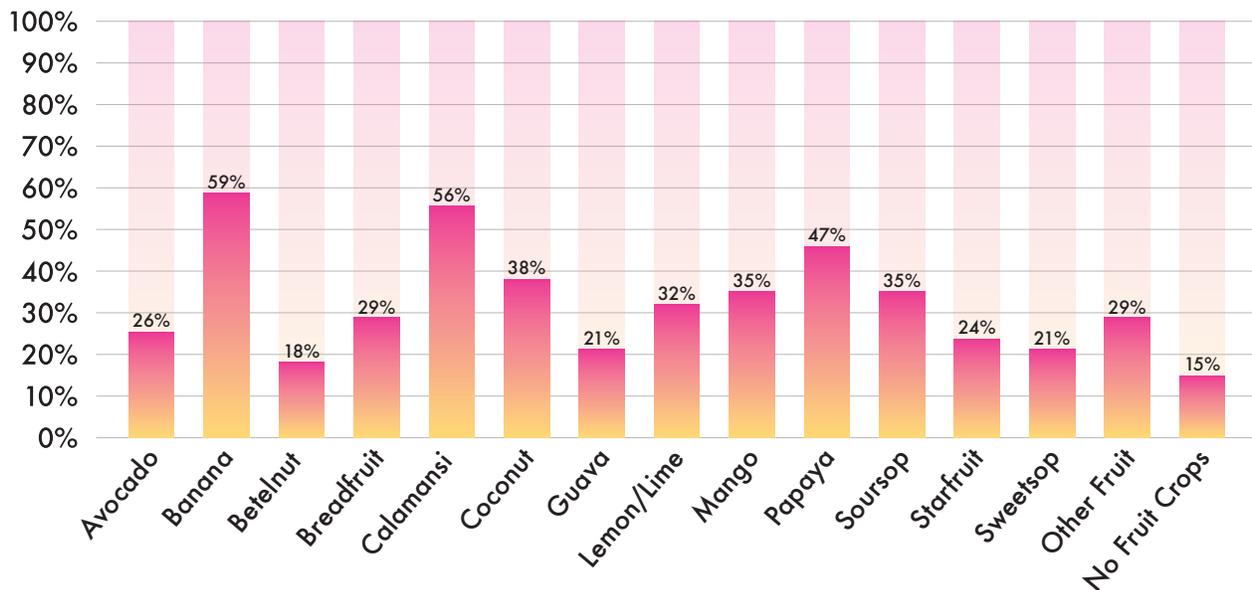


Figure 39: Fruit, nut, and ornamental production of small commercial producers on Guam.

Small commercial producers reporting livestock and other animal production had multiple avenues of agriculture production including plant (vegetable and fruit) production.

Livestock Production

Eighty-two percent (82%) of the small commercial producers reported *no commercial livestock production*. Of those reporting livestock production, twelve percent (12%) reported production of *goat* and nine percent (9%) reported production of *swine*.

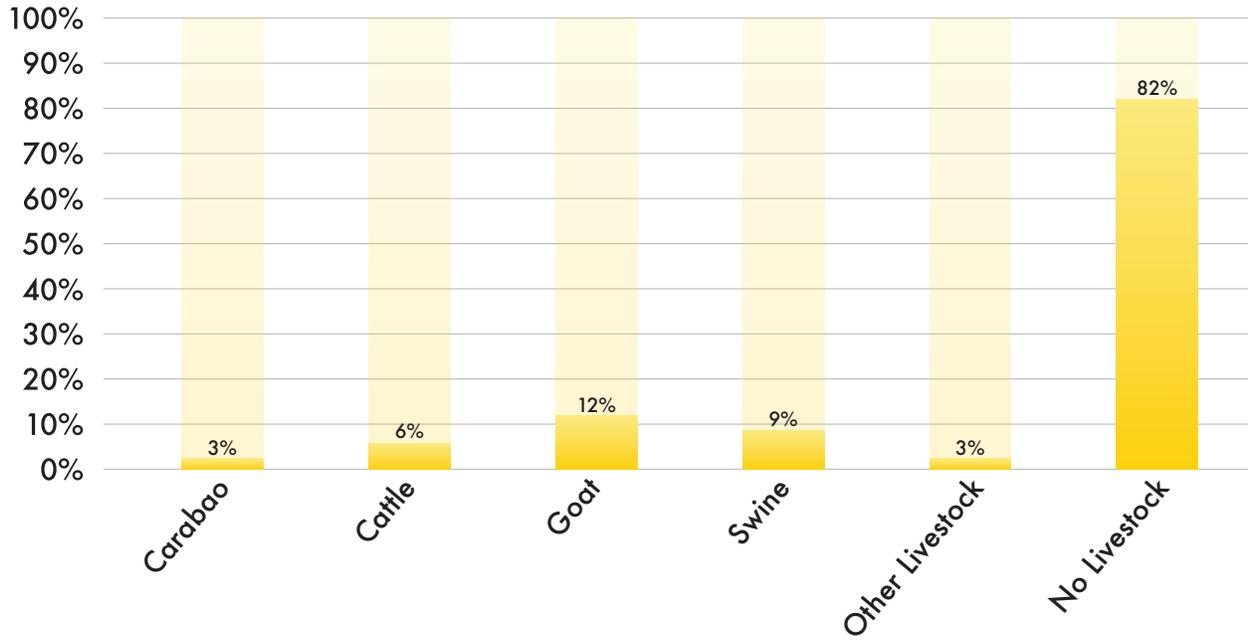


Figure 40: Livestock production of small commercial producers on Guam.

Poultry Production

Seventy-four percent (74%) of the small commercial producers reported *no commercial poultry production*. Of those reporting poultry production, twenty-six percent (26%) reported production of *chickens for eggs* and twenty-one percent (21%) reported production of *chickens for meat*.

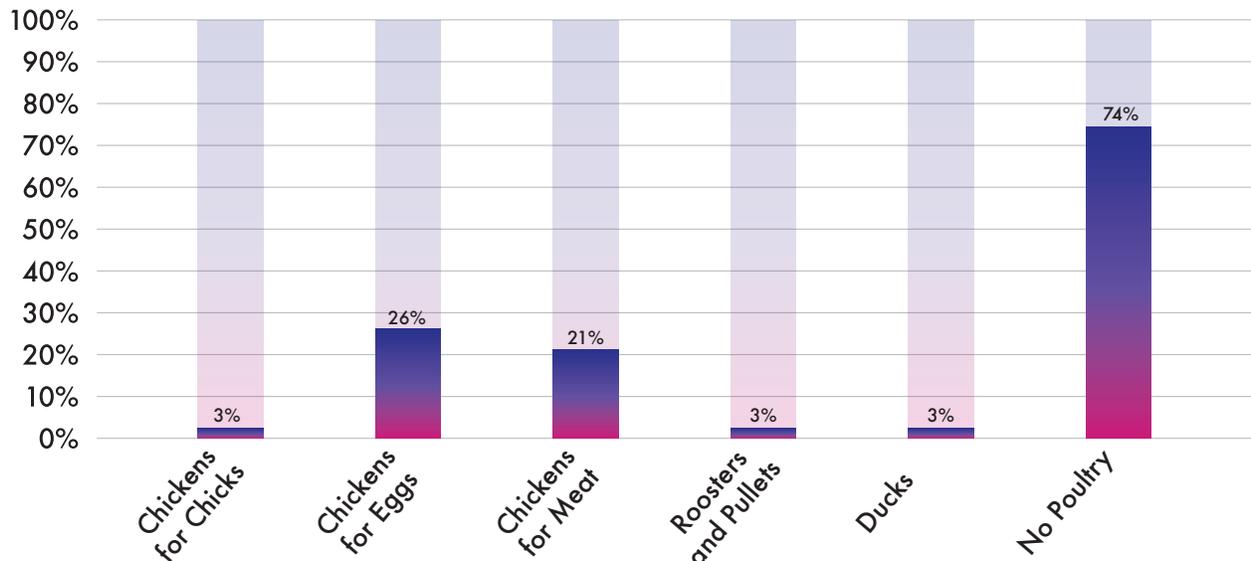


Figure 41: Poultry production of small commercial producers on Guam.

Venues Products were Sold

Small commercial producers used a variety of avenues to sell products and are not mutually exclusive. Fifty-three percent (53%) of the small commercial producers reported products were sold *directly to customers*. Thirty-eight percent (38%) reported products were sold at *village markets* (i.e. flea markets), twenty-four percent (24%) reported products were sold to *restaurants*, and twenty-four percent (24%) reported products were sold at *supermarkets*.

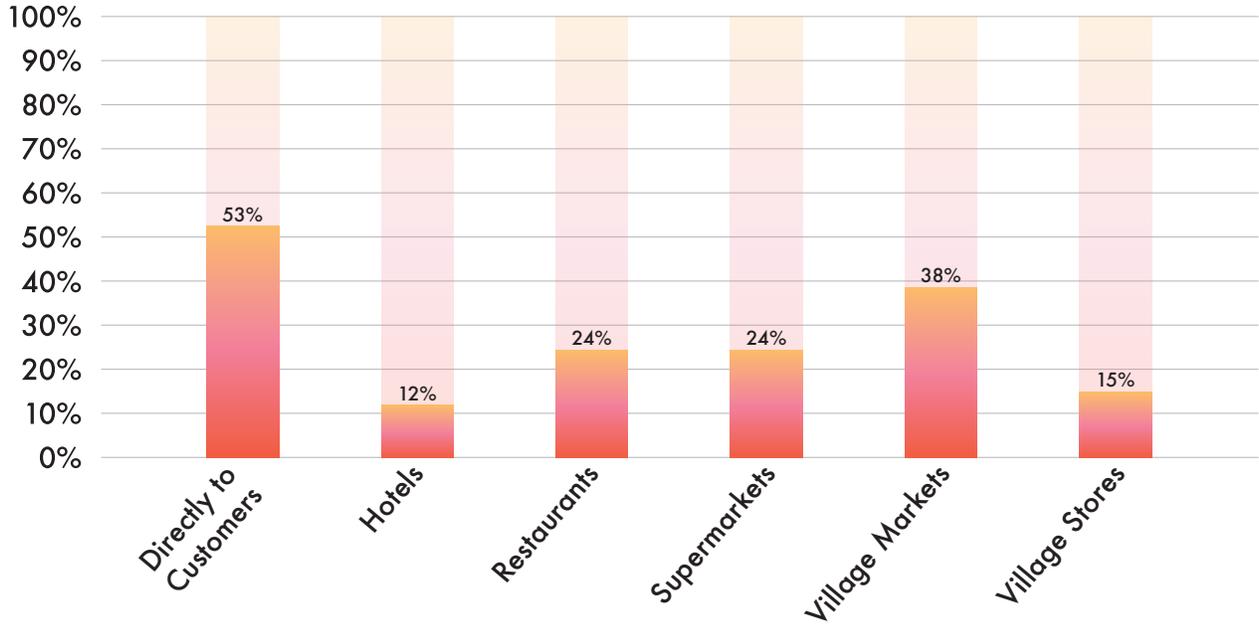


Figure 42: Venues products were sold for small commercial producers on Guam.

Leading Costs for Production

Small commercial producers had multiple production costs and were asked to rank the top three (3) production costs. Sixty-eight percent (68%) of the small commercial producers reported *water* was a leading cost for production. Sixty-five percent (65%) reported *soil amendments* as a top cost and twenty-six percent (26%) reported *fuel* as a leading cost for production.

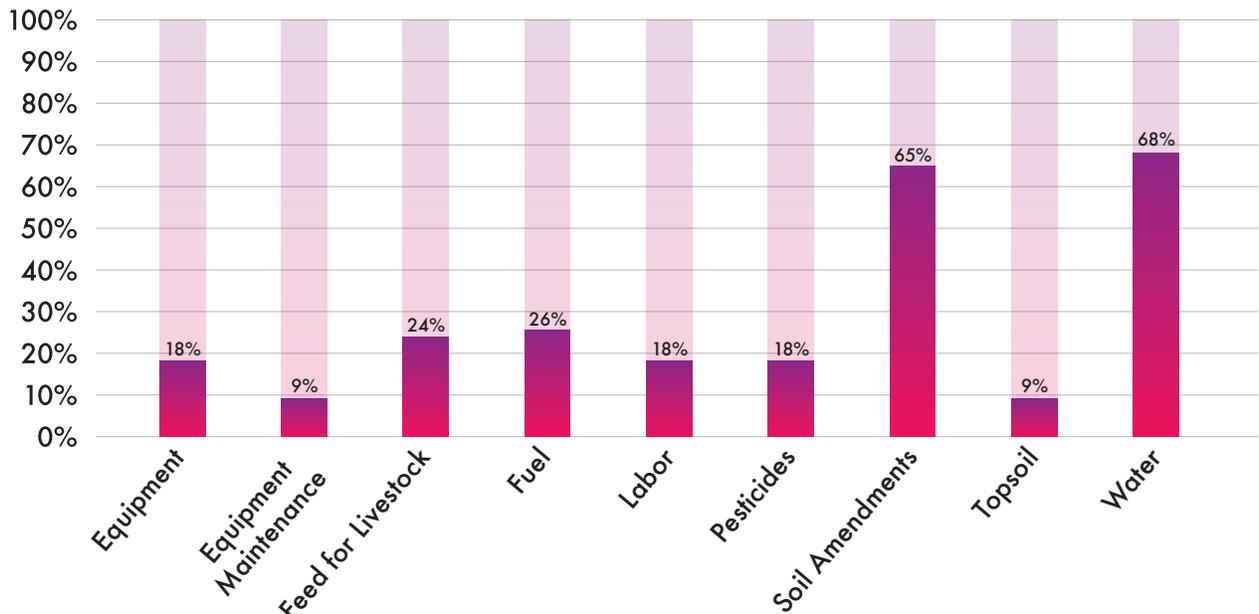


Figure 43: Leading costs for production of small commercial producers on Guam.

Reasons for Inability to Produce More

Small commercial producers had multiple reasons for the inability to produce more crops. Seventy-six percent (76%) of the small commercial producers reported *crop loss via pests*. Fifty-nine percent (59%) reported *crop loss via disease*, fifty-three percent (53%) reported *crop loss via weather*, and thirty-two percent (32%) reported *stolen agricultural products*. Additionally, twenty-nine percent (29%) of the small commercial producers reported the *market was flooded at the time of harvest and sale*.

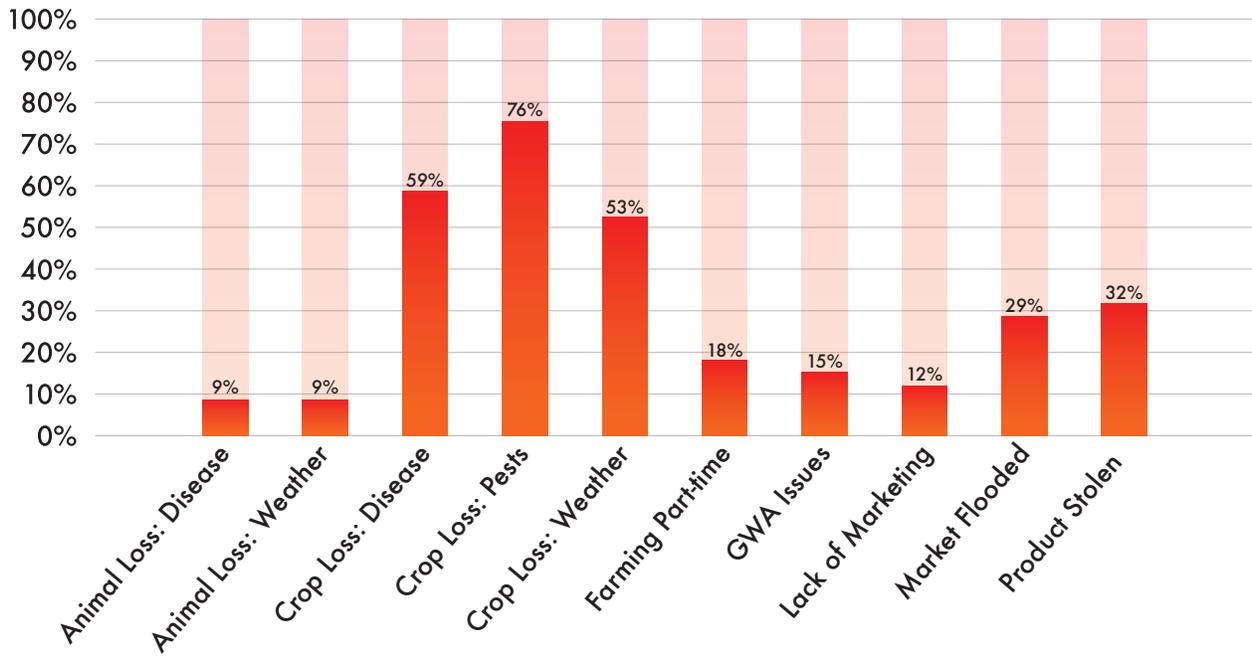


Figure 44: Reasons for inability to produce more for small commercial producers on Guam.

Research Interests

Small commercial producers had multiple research interests and were asked for five (5) interest responses. Twenty-six percent (26%) of the small commercial producers reported *prevention/control of invasive pests and diseases*. Twenty-four percent (24%) reported a *sustainable water and power source for irrigation* and fifteen percent (15%) reported *growing organic*.

Leading Research Interest

Small commercial producers were asked to prioritize their leading research interest and identify one (1) area for UOG research. Eighteen percent (18%) of the small commercial producers reported *prevention/control of invasive pests and diseases* and twelve percent (12%) reported *sustainable water and power source for irrigation*. Additionally, six percent (6%) reported *feed alternatives*, six percent (6%) reported *methods to control rhino beetles*, six percent (6%) reported *new plant varieties*, six percent (6%) reported *organic control methods for pests and diseases*, and six percent (6%) reported *small footprint, high production farm ideas*.

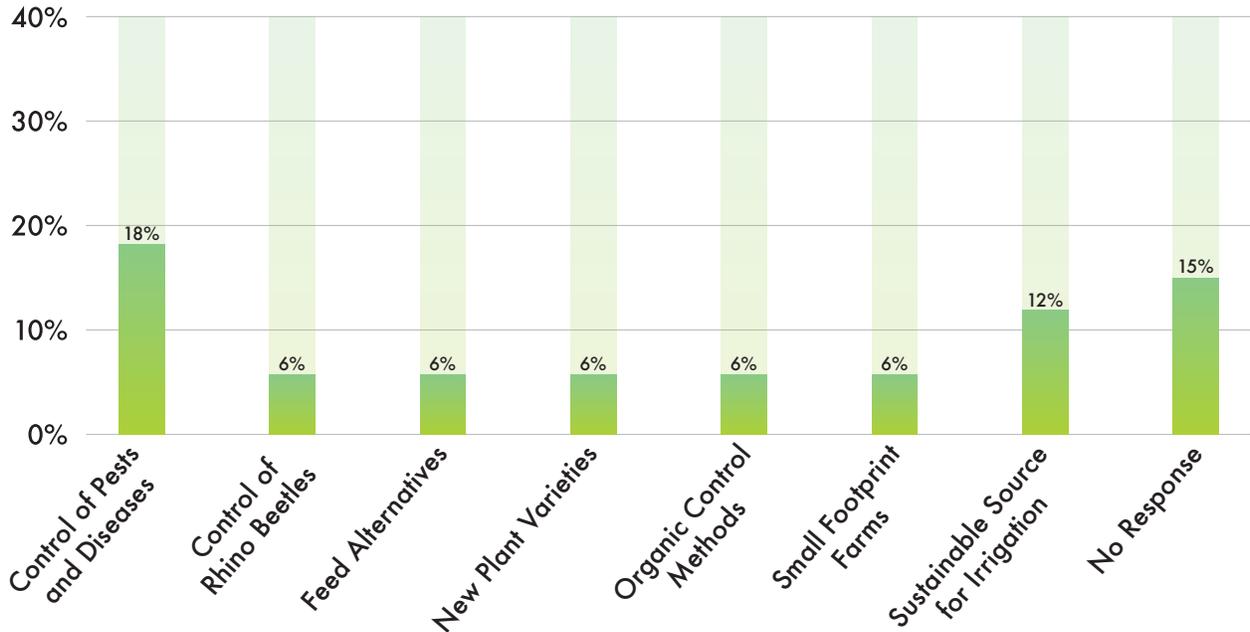


Figure 45: Leading research interest for small commercial producers on Guam.

TECHNICAL INTERESTS/TRAINING

Other Technical Interest Areas Identified

Small commercial producers were asked to identify other technical interest areas where information is needed for production markets and other areas. Twenty-six percent (26%) of the small commercial producers reported *loans and grants*. Eighteen percent (18%) reported *disease diagnostics*, eighteen percent (18%) reported *feed alternatives*, eighteen percent (18%) reported *fertilizer alternatives*, eighteen percent (18%) reported *insect identification*, and eighteen percent (18%) reported a *reliable seed/seedling source*.

Pests

Small commercial producers had multiple pests and were asked to identify specific pest needs. Forty-one percent (41%) of the small commercial producers reported *feral pigs* as a pest issue. Thirty-two percent (32%) reported *rhino beetles*, twenty-six percent (26%) reported *mealy bugs*, and twenty-one percent (21%) reported *ants* as a pest issue.

Production Needs

Small commercial producers were asked to prioritize their needs specifically related to increased production and were given one (1) response. Fifteen percent (15%) of the small commercial producers reported *more assistance with plant pests* and twelve percent (12%) reported *more land*. Nine percent (9%) reported *more assistance with plant diseases*, nine percent (9%) reported *more labor*, nine percent (9%) reported *more opportunity to sell products*, and nine percent (9%) reported *resolving issues with Guam Waterworks Authority*.

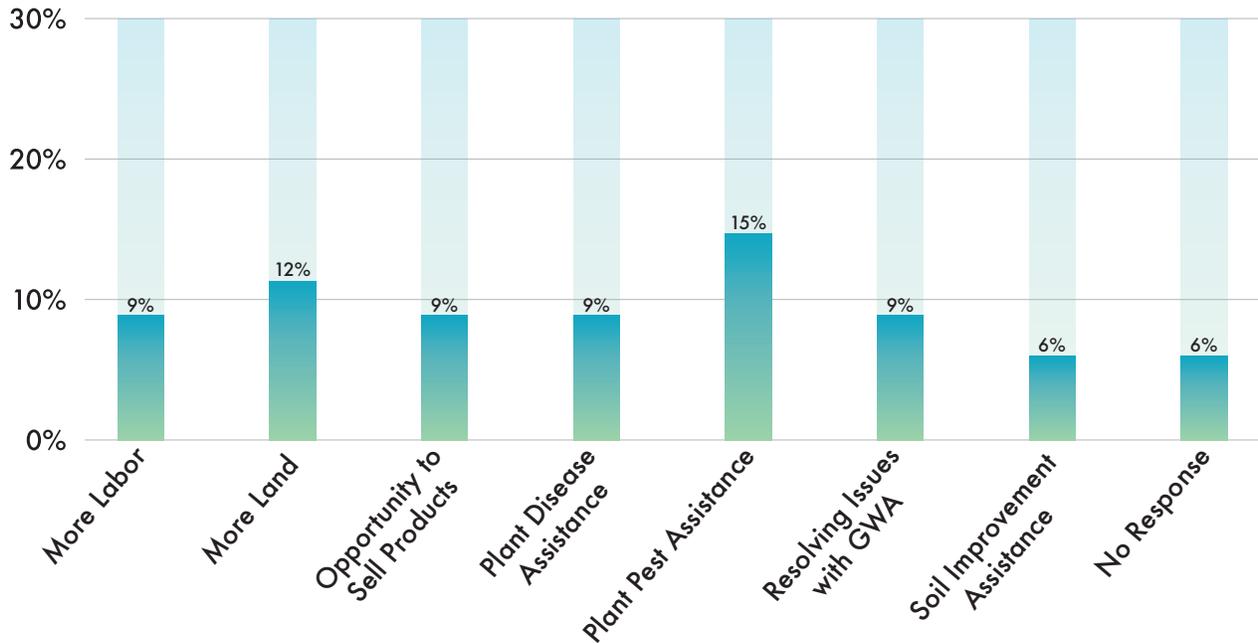


Figure 46: Production needs to produce more agriculture products for small commercial producers on Guam.

Pesticide Applicator Training Certification

Any person intending to apply general use antibacterial, antimicrobials, antifungal, disinfectants, and other pesticides as part of their occupational duties must first obtain a “Basic Training-A Qualification Card” from Guam EPA prior to any pesticide application. Any new or transferred employee may be granted a three (3) month grace period to come into compliance with the qualification requirements of this section (Guam Legislature, 2019).

Forty-seven percent (47%) of the small commercial producers reported a *yes* response to being certified currently or previously for pesticide applicator training.

INTEREST AREAS

Interest in a UOG Farmers Directory

Small commercial producers were asked if they would like to be included in a directory that informed potential customers what products producers sold and producers’ contact information. Fifty-nine percent (59%) of the small commercial producers reported a *yes* response to interest in being a part of a UOG farmers directory.

Interest in Veterans-Focused Engagement

Veterans-focused agricultural engagement are potential programs that enhance agriculture opportunities for military veterans.

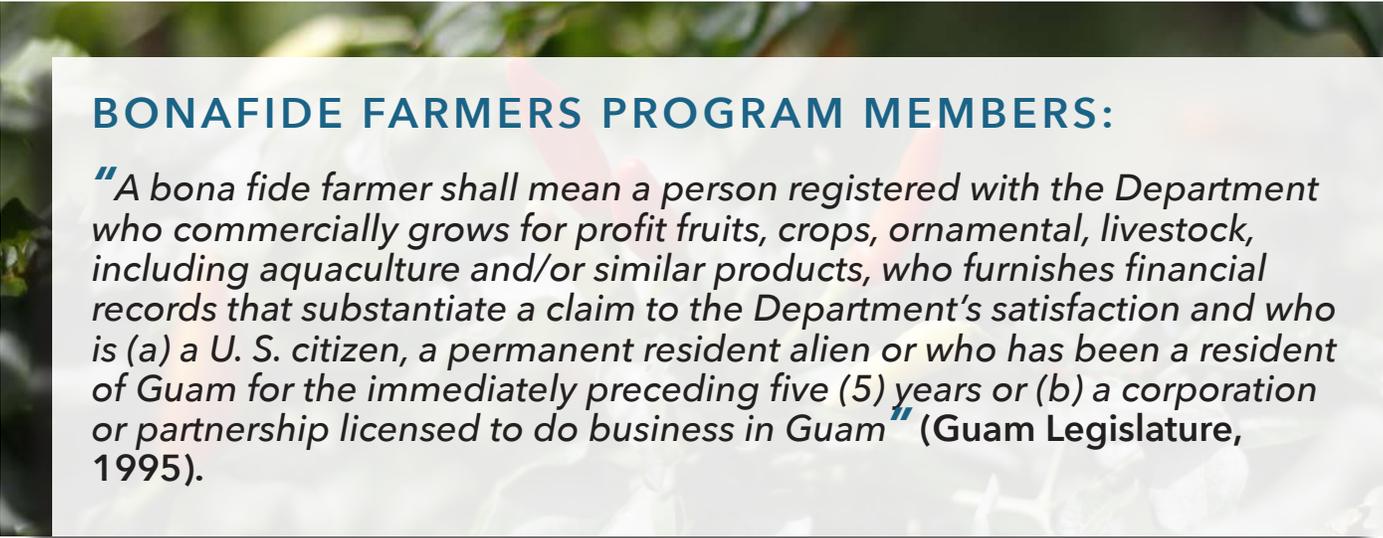
Small commercial producers were asked if they were interested in veterans-focused agricultural engagement. Fifty-nine percent (59%) of the small commercial producers were *not applicable* to veterans-focused engagement. Twenty-six percent (26%) reported a *yes* response and nine percent (9%) reported a *no* response to interest in veterans-focused engagement.

Interest in an Organic Farmers Group

Organic is a labeling term that indicates that the food or other agricultural product has been produced and processed using approved methods. These methods integrate cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity. Synthetic fertilizers, sewage sludge, irradiation, and genetic engineering may not be used. (USDA, 2019)

Before a product can be labeled “organic,” an approved certifier inspects the farm where the food is grown to make sure the producer is following all the rules necessary to meet USDA organic standards. Companies that handle or process organic food must be certified, too (Gold, 2007).

Small commercial producers were asked if they would like to be part of an organic farmers group. Fifty-three percent (53%) of the small commercial producers reported a *yes* response to interest in being a part of an organic farmers group.



BONAFIDE FARMERS PROGRAM MEMBERS:

“A bona fide farmer shall mean a person registered with the Department who commercially grows for profit fruits, crops, ornamental, livestock, including aquaculture and/or similar products, who furnishes financial records that substantiate a claim to the Department’s satisfaction and who is (a) a U. S. citizen, a permanent resident alien or who has been a resident of Guam for the immediately preceding five (5) years or (b) a corporation or partnership licensed to do business in Guam” (Guam Legislature, 1995).

Agricultural Land Tax Break Filers

Title II, Guam Code Annotated, Chapter 24, Real Property Tax §24401(f) Exemptions; indicates the property is exempt from real property taxes and shall not be assessed if the property is actively used for farming at least eight (8) months in any year. Individuals should be directly involved in farming that is commercial in nature (Guam Legislature, 2019).

Fifteen percent (15%) of the small commercial producers reported a *yes* response to filing an agricultural land tax break.

CONNECTIVITY

Producers with Internet Access

Small commercial producers were asked if they had access to the internet. Sixty-five percent (65%) of the small commercial producers reported a *yes* response to having internet access.

Producers that own a Cellphone with Texting Capabilities

Small commercial producers were asked if they owned a cellphone with texting capabilities. Ninety-one percent (91%) of the small commercial producers reported a *yes* response to having a cellphone with texting capabilities.

SUBSISTENCE AGRICULTURE PRODUCTION

Within the survey, producers that made less than \$1,000 in total revenue for 2017, or farm products were for their own consumption were considered *subsistence producers*. Forty-two (42) participants were considered subsistence producers. The following information is based on the forty-two (42) participants' answers.

Village Location

Twenty-four percent (24%) of the subsistence producers reported *Dededo* as the main farm location. Nineteen percent (19%) reported *Yigo*, fourteen percent (14%) reported *Mangilao*, and ten percent (10%) reported *Barrigada* as the main farm location.

Farm Acreage

The total farm acreage reported for Guam's subsistence production was 148.97 acres. The total acreage used was 88.57 acres. The total unused acreage for subsistence production was 60.4 acres.

PRINCIPLE OPERATOR DEMOGRAPHICS

Ethnicity

Eighty-six percent (86%) of the subsistence producers are *CHamoru*. Five percent (5%) reported to be *Filipino*, five percent (5%) reported to be *Korean*, two percent (2%) reported to be *African American*, and two percent (2%) reported to be *Japanese*.

Citizenship

Ninety-eight percent (98%) of the subsistence farmers are *US citizens*. Two percent (2%) reported to be *on a working visa*.

Primary Speaking Language

Fifty-five percent (55%) of the subsistence producers reported *CHamoru* as the primary speaking language. Thirty-six percent (36%) reported *English* and five percent (5%) reported *Korean* as the primary speaking language.

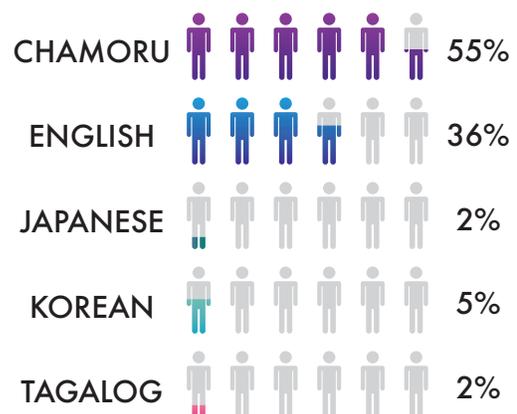


Figure 47: Primary speaking language of subsistence producers on Guam.

Primary Reading Language

Seventy-four percent (74%) of the subsistence producers reported *English* as the primary reading language. Nineteen percent (19%) reported *CHamoru* and five percent (5%) reported *Korean* as the primary reading language.

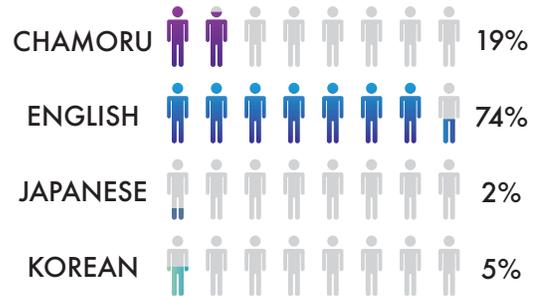


Figure 48: Primary reading language of subsistence producers on Guam.

Gender

Seventy-one percent (71%) of the subsistence producers are *male*. Twenty-nine percent (29%) of the participants are *female*.

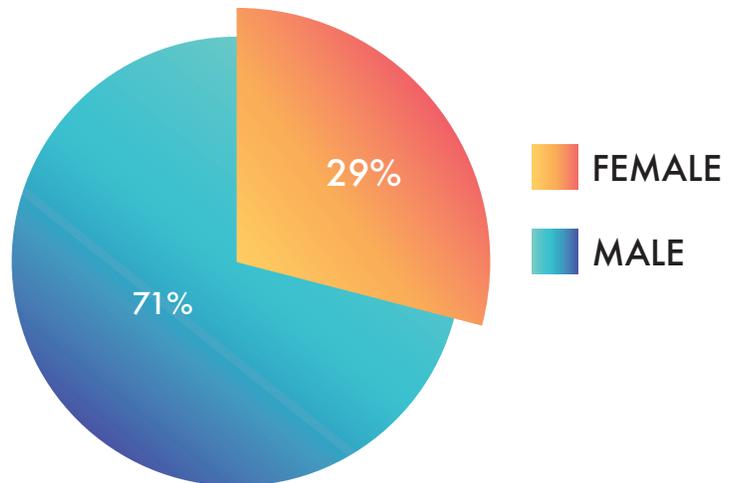


Figure 49: Gender of subsistence producers on Guam.

Age Range

Forty-three percent (43%) of the subsistence producers reported to be *between the age of sixty-five (65) and seventy-four (74)*. Twenty-nine percent (29%) reported to be *between fifty-five (55) and sixty-four (64)*, twelve percent (12%) reported to be *between forty-five (45) and fifty-four (54)*, and twelve percent (12%) reported to be *greater than the age 75*.

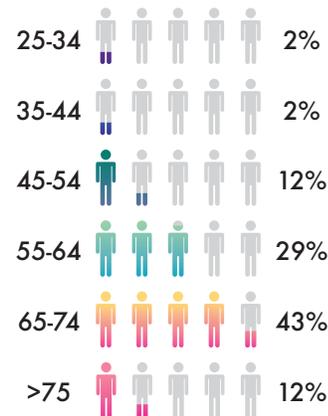


Figure 50: Age range of subsistence producers on Guam.

Years Farming

Sixty-two percent (62%) of the subsistence producers reported farming for *twenty (20) years or more*. Nineteen percent (19%) reported farming for *less than ten (10) years* and fourteen percent (14%) reported farming for *less than five (5) years*.

Farm Products

Subsistence producers reporting within this category had multiple types of farm products. Ninety percent (90%) of the subsistence farmers reported *production of fruits*. Sixty-four percent (64%) reported *production of vegetables* and forty-eight percent (48%) reported *production of root crops*.

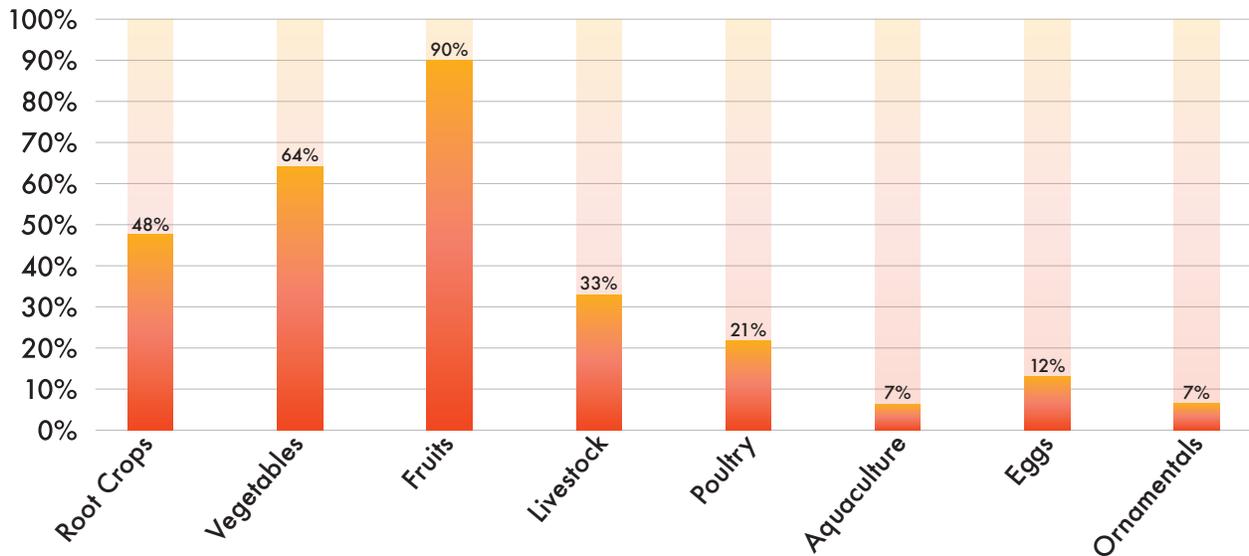


Figure 51: Farm products of subsistence producers on Guam.

Subsistence producers reporting within the following categories produced multiple vegetable and fruit varieties.

Root Crop Production

Fifty-two percent (52%) of the subsistence producers reported *no root crop production*. Of those reporting root crop production, thirty-three percent (33%) reported production of *taro*, nineteen percent (19%) reported production of *cassava*, seventeen percent (17%) reported production of *ginger*, and seventeen percent (17%) reported production of *yam*.

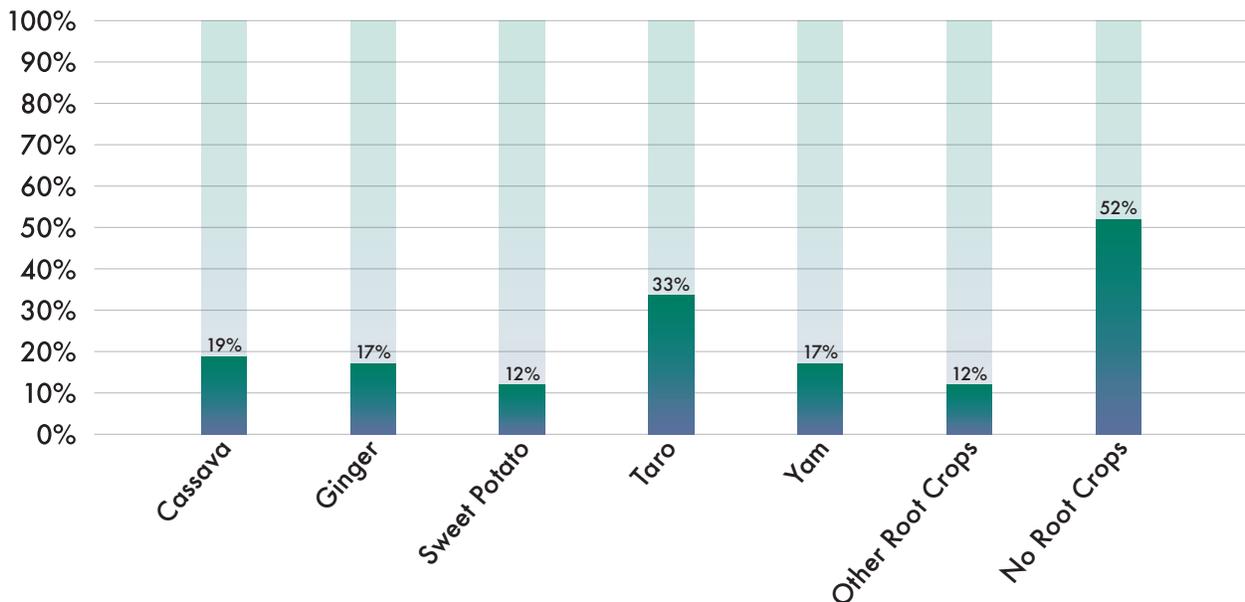


Figure 52: Root crop production of subsistence producers on Guam.

Vegetable/Melon Production

Forty percent (40%) of the subsistence producers reported production of *hot peppers*. Thirty-six percent (36%) reported production of *eggplant* and seventeen percent (17%) reported production of *tomato*.

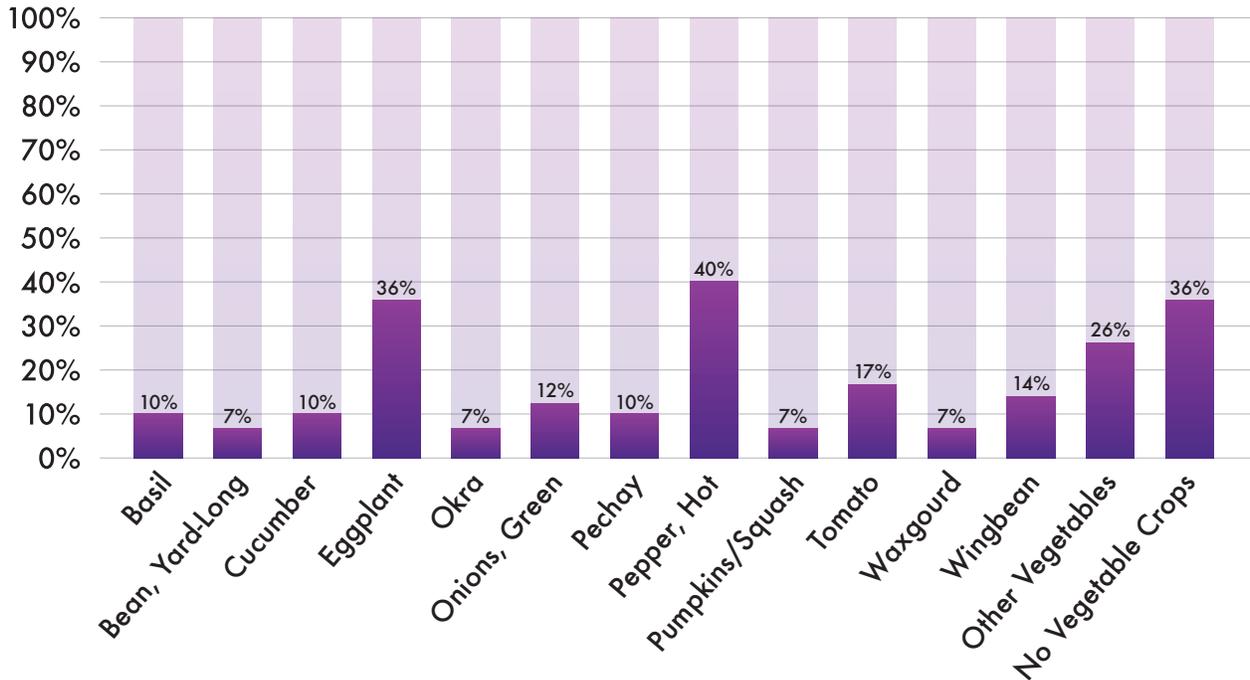


Figure 53: Vegetable and melon production of subsistence producers on Guam.

Fruit/Nut/Ornamental Production

Seventy-six percent (76%) of the subsistence producers reported production of *banana*. Seventy-one percent (71%) reported production of *mango*, sixty percent (60%) reported production of *coconut*, and sixty percent (60%) reported production of *papaya*. Additionally, fifty-seven percent (57%) reported production of *avocado*, fifty-five percent (55%) reported production of *breadfruit*, fifty-five percent (55%) reported production of *calamondin lemon*, and fifty-five percent (55%) reported production of *soursop*.

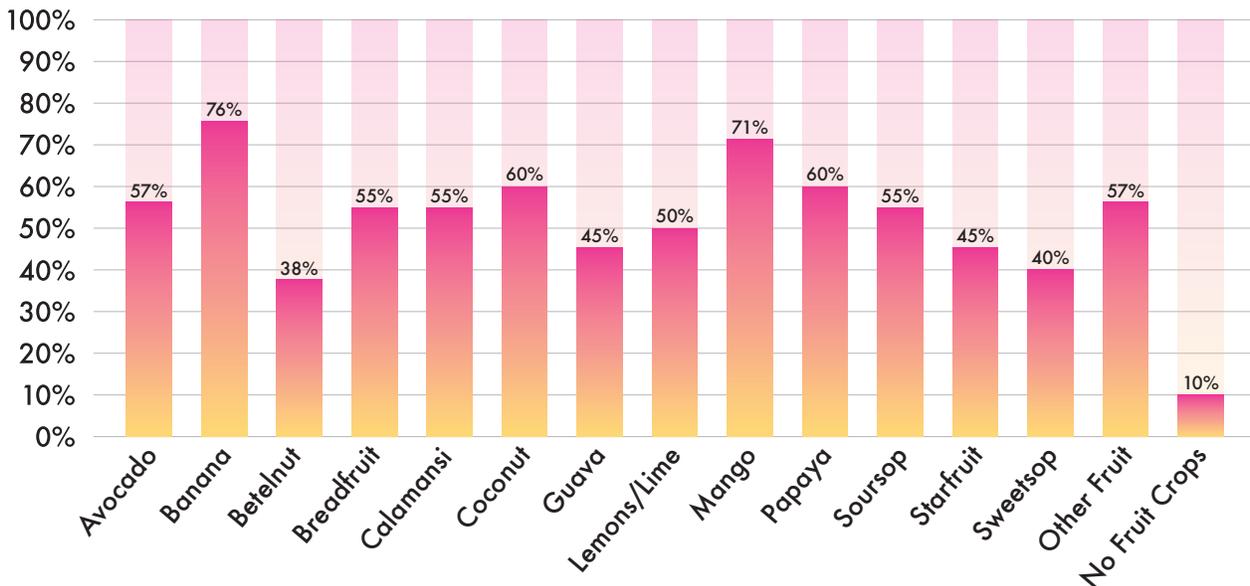


Figure 54: Fruit, nut, and ornamental production of subsistence producers on Guam.

Subsistence producers reporting livestock and other animal production had multiple avenues of agriculture production including plant (vegetable and fruit) production.

Livestock Production

Sixty-four percent (64%) of the subsistence producers reported *no livestock production*. Of those reporting livestock production, twenty-nine percent (29%) reported production of *swine* and twelve percent (12%) reported production of *cattle*.

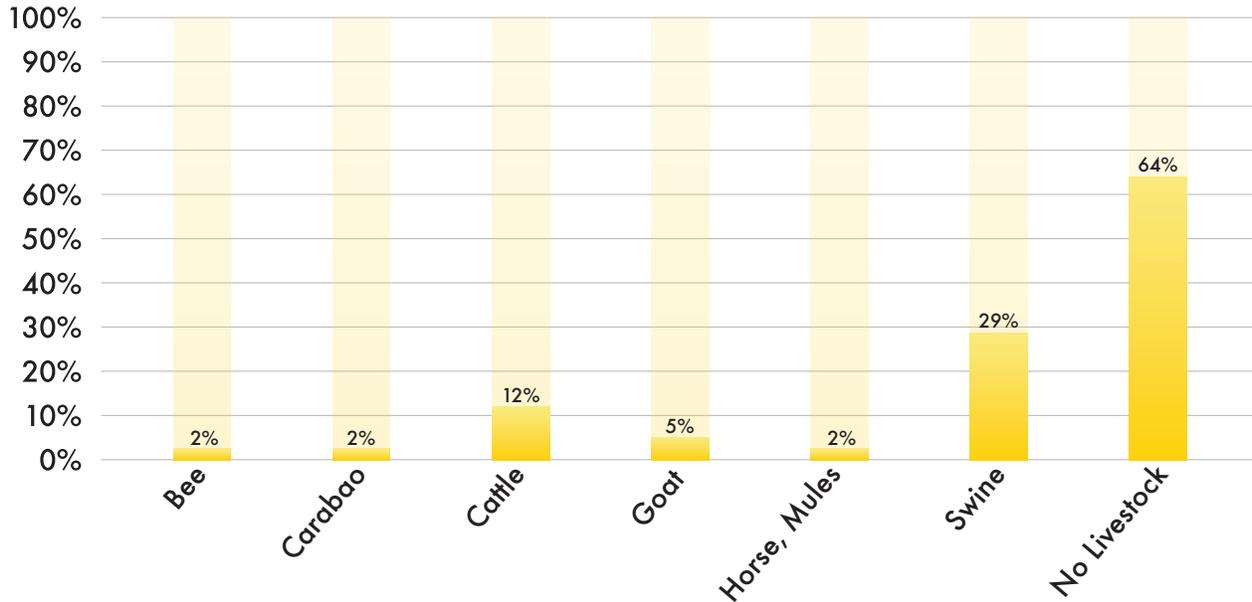


Figure 55: Livestock production of subsistence producers on Guam.

Poultry Production

Sixty-four percent (64%) of the subsistence producers reported *no poultry production*. Of those reporting poultry production, nineteen percent (19%) reported production of *chickens for meat* and seventeen percent (17%) reported production of *chickens for eggs*.

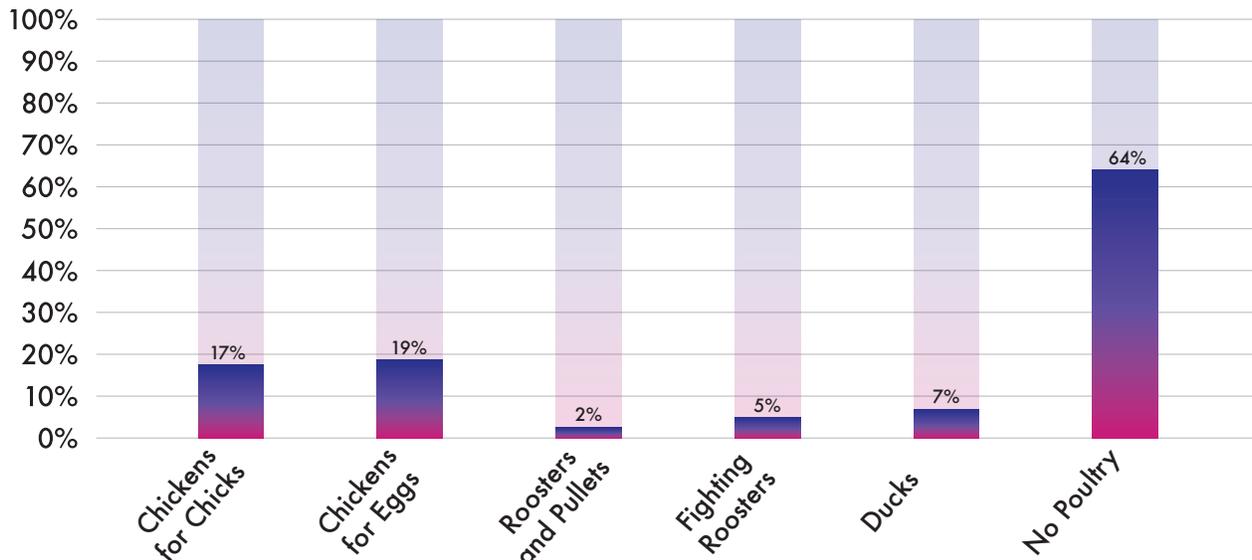


Figure 56: Poultry production of subsistence producers on Guam.

Aquaculture Production

Ninety-three percent (93%) of the subsistence producers reported *no aquaculture production*. Of those reporting aquaculture production, two percent (2%) reported production of *catfish*, two percent (2%) reported production of *tilapia*, and two percent (2%) reported production of an *unknown fish species*.

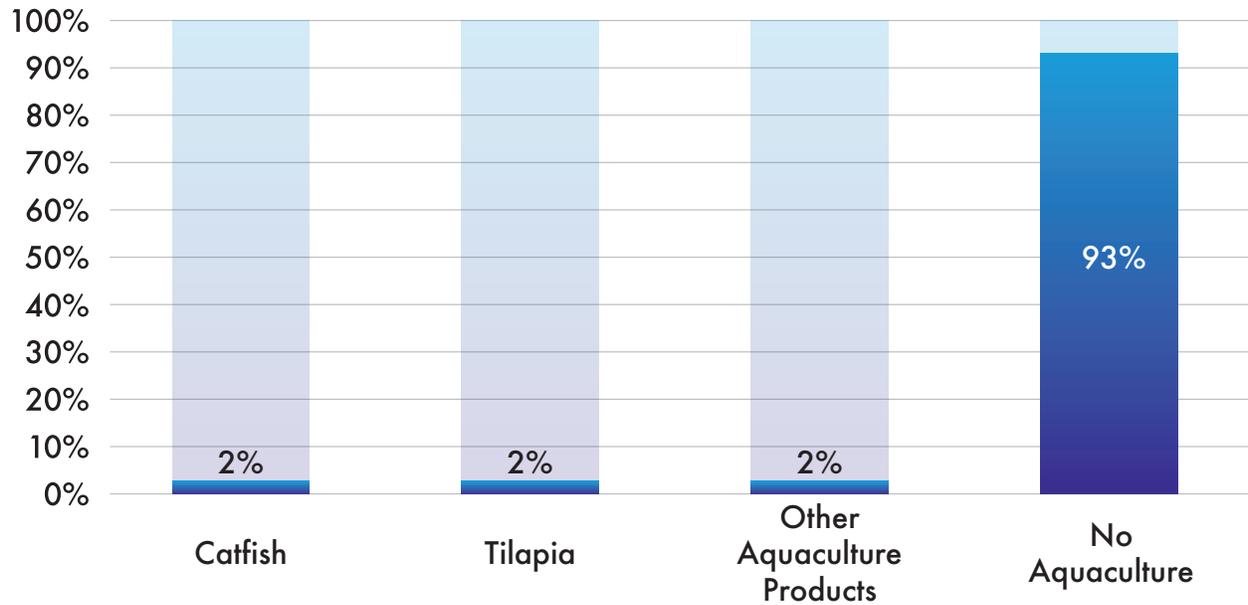


Figure 57: Aquaculture production of subsistence producers on Guam.

Venues Products were Sold

Subsistence producers used a variety of avenues to sell products and are not mutually exclusive. Fifty-seven percent (57%) of the subsistence producers reported *I do not sell my produce*. Twenty-one percent (21%) reported produce was sold *directly to customers*, seven percent (7%) reported produce was sold to *supermarkets*, and seven percent (7%) reported produce was sold at *village markets (i.e. flea markets)*.

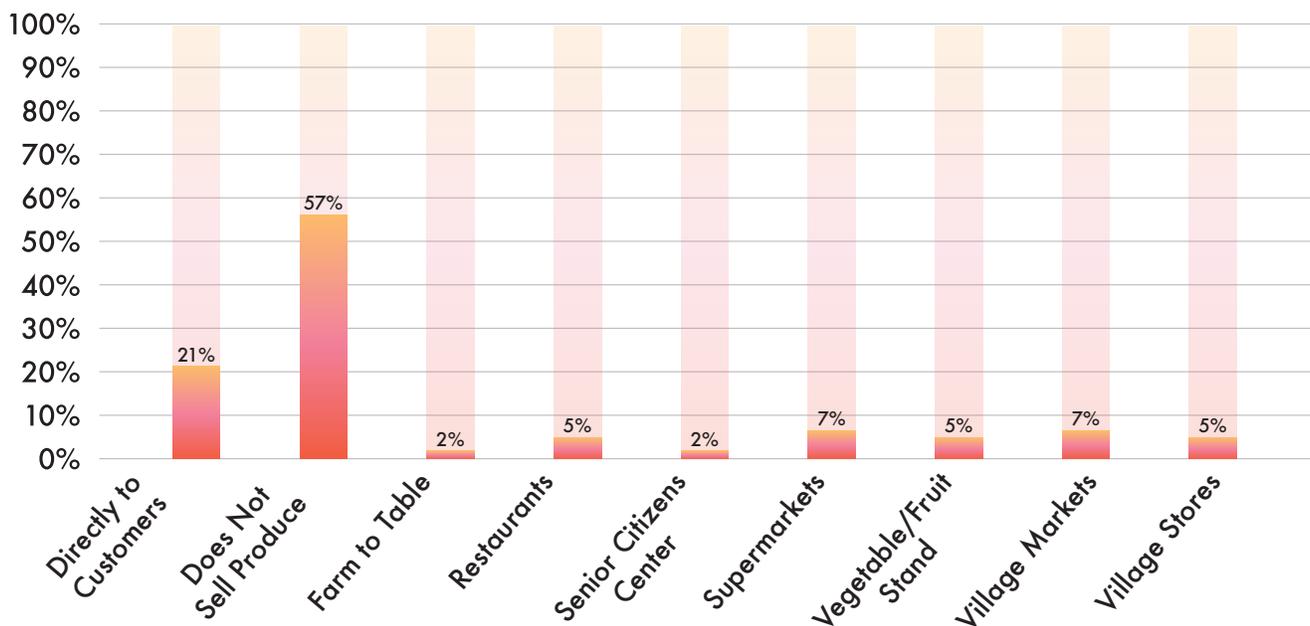


Figure 58: Venues products were sold for subsistence producers on Guam.

Leading Costs for Production

Subsistence producers had multiple production costs and were asked to rank the top three (3) production costs. Seventy-six percent (76%) of the subsistence producers reported *water* was a leading cost of production. Fifty-two percent (52%) reported *soil amendments* as a top cost and thirty-six percent (36%) reported *fuel* as a leading cost of production.

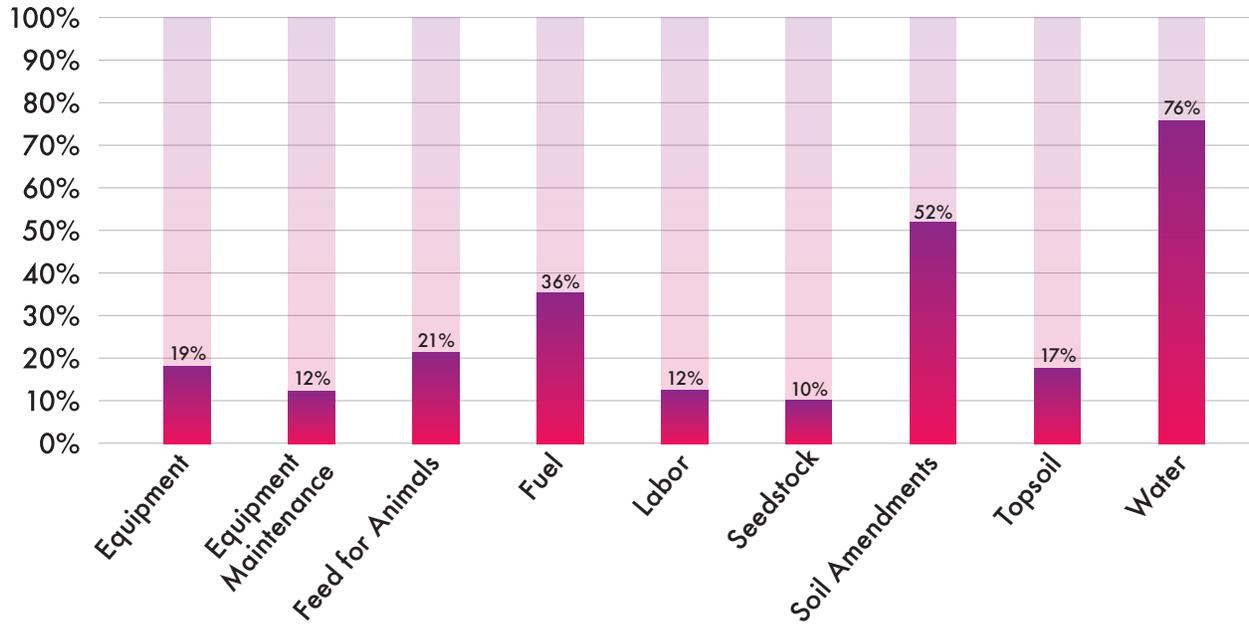


Figure 59: Leading costs for production for subsistence producers on Guam.

Reasons for Inability to Produce More

Subsistence producers had multiple reasons for the inability to produce more crops. Sixty-four percent (64%) of the subsistence producers reported *crop loss via pests*. Fifty-five percent (55%) reported *crop loss via weather*, forty-three percent (43%) reported *stolen agricultural products*, and thirty-eight per cent (38%) reported *crops died via disease*.

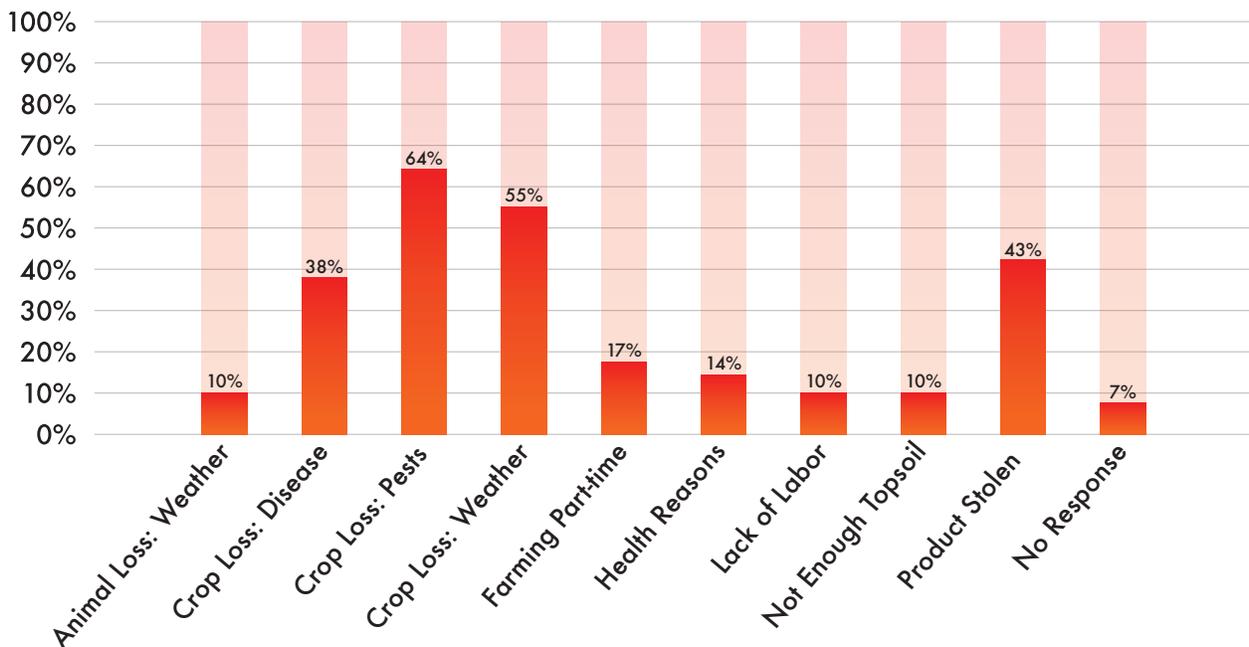


Figure 60: Reasons for inability to produce more for subsistence producers on Guam.

Research Interests

Subsistence producers had multiple research interests and were asked for five (5) interest responses. Twenty-six percent (26%) of the subsistence producers reported *methods to control rhino beetles*. Nineteen percent (19%) reported a *prevention and control of invasive species*, twelve percent (12%) reported *methods to keep out feral pigs*, twelve percent (12%) reported *new and emerging pests and diseases*, and twelve percent (12%) reported a *sustainable water and power source for irrigation*.

Leading Research Interest

Subsistence producers were asked to prioritize their leading research interest and identify one (1) area for UOG research. Fourteen percent (14%) of the subsistence producers reported *methods to control rhino beetles*. Twelve percent (12%) reported *prevention and control of invasive species* and twelve percent (12%) reported *sustainable water and power source for irrigation*.

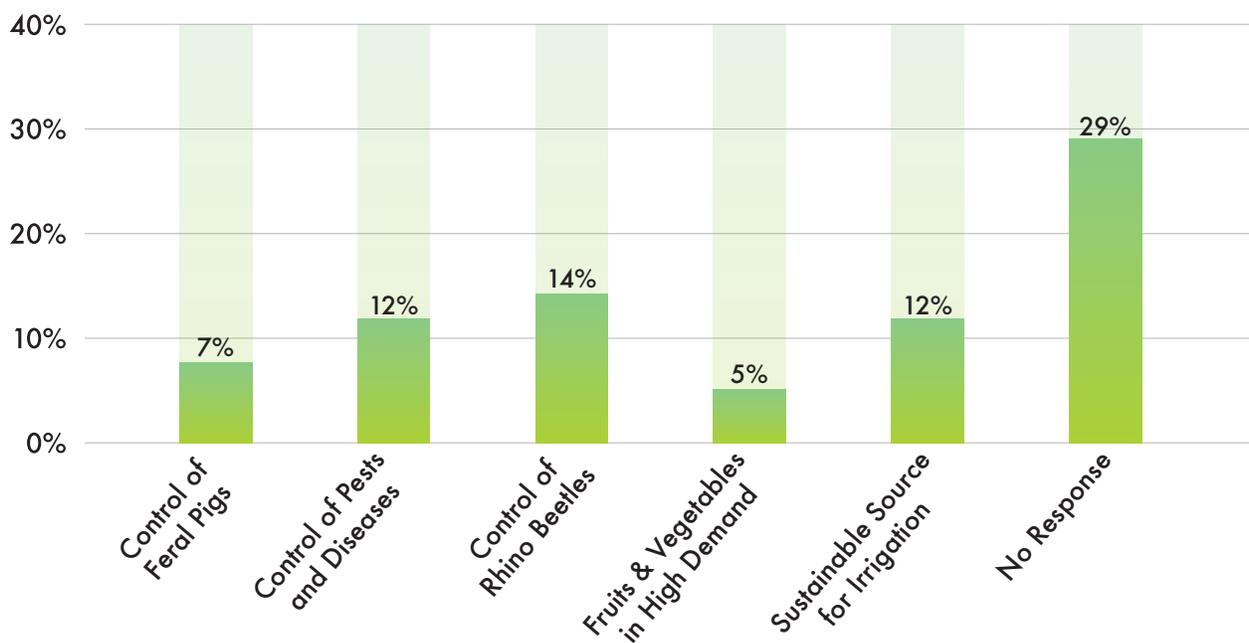


Figure 61: Leading research interest for subsistence producers on Guam.

TECHNICAL INTERESTS/TRAINING

Other Technical Interests Areas

Subsistence producers were asked to identify other technical interest areas where information is needed for production markets and other areas. Twenty-one percent (21%) of the subsistence producers reported *loans and grants*. Twelve percent (12%) reported *feed alternatives* and twelve percent (12%) reported *slaughterhouse services*.

Pests

Subsistence producers had multiple pests and were asked to identify specific pest issues and concerns. Thirty-six percent (36%) of the subsistence producers reported *feral pigs* and thirty-six percent (36%) reported *rhino beetles* as a pest issue. Twenty-nine percent (29%) reported *mealy bugs* and fourteen percent (14%) reported *ants* as a pest issue.

Production Needs

Subsistence producers were asked to prioritize their needs specifically related to increased production and were given one (1) response. Twenty-one percent (21%) of the subsistence producers reported *more assistance with plant pests*. Ten percent (10%) reported *more land*, seven percent (7%) reported *more labor*, seven percent (7%) reported *more topsoil*, and seven percent (7%) reported *resolving issues with Guam Waterworks Authority*.

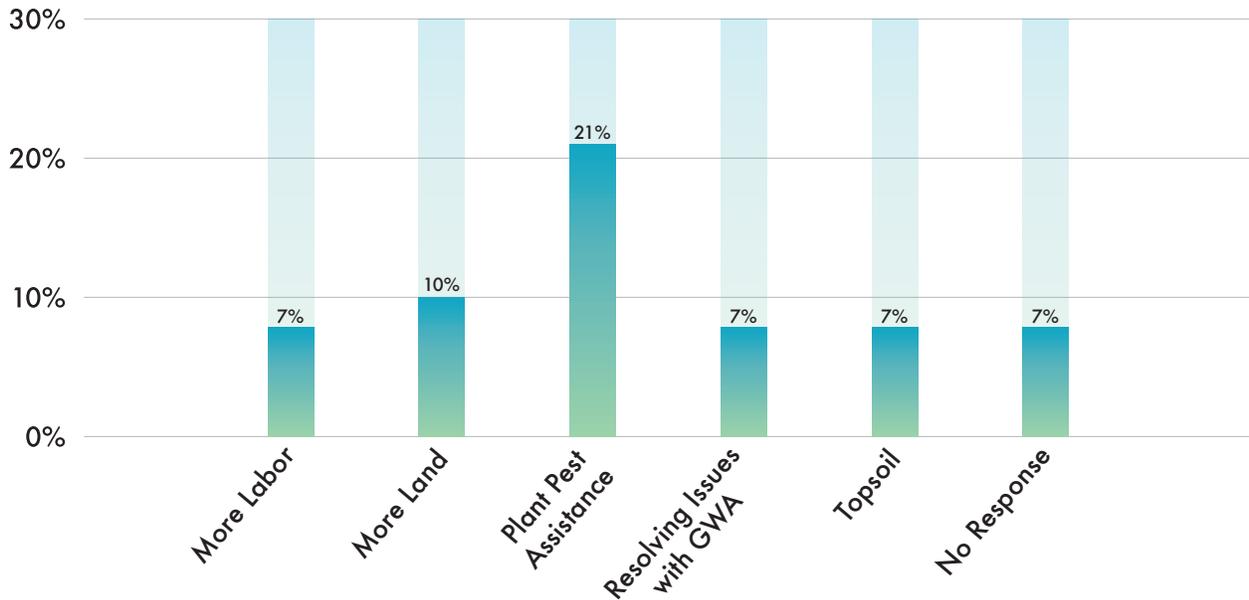


Figure 62: Production needs to produce more agriculture products for subsistence producers on Guam.

Pesticide Applicator Training Certification

Any person intending to apply general use antibacterial, antimicrobials, antifungal, disinfectants, and other pesticides as part of their occupational duties must first obtain a “Basic Training-A Qualification Card” from Guam EPA prior to any pesticide application. Any new or transferred employee may be granted a three (3) month grace period to come into compliance with the qualification requirements of this section (Guam Legislature, 2019).

Seventy-six percent (76%) of the subsistence producers reported a *yes* response to being certified currently or previously for pesticide applicator training.

INTEREST AREAS

Interest in a UOG Farmers Directory

Subsistence producers were asked if they would like to be included in a directory that informed potential customers what products producers sold and producers’ contact information. Twenty-six percent (26%) reported a *yes* response and five percent (5%) reported a *maybe* response to interest in being a part of a UOG farmers directory.

Interest in Veterans-Focused Engagement

Veterans-focused agricultural engagement are potential programs that enhance agriculture opportunities for military veterans.

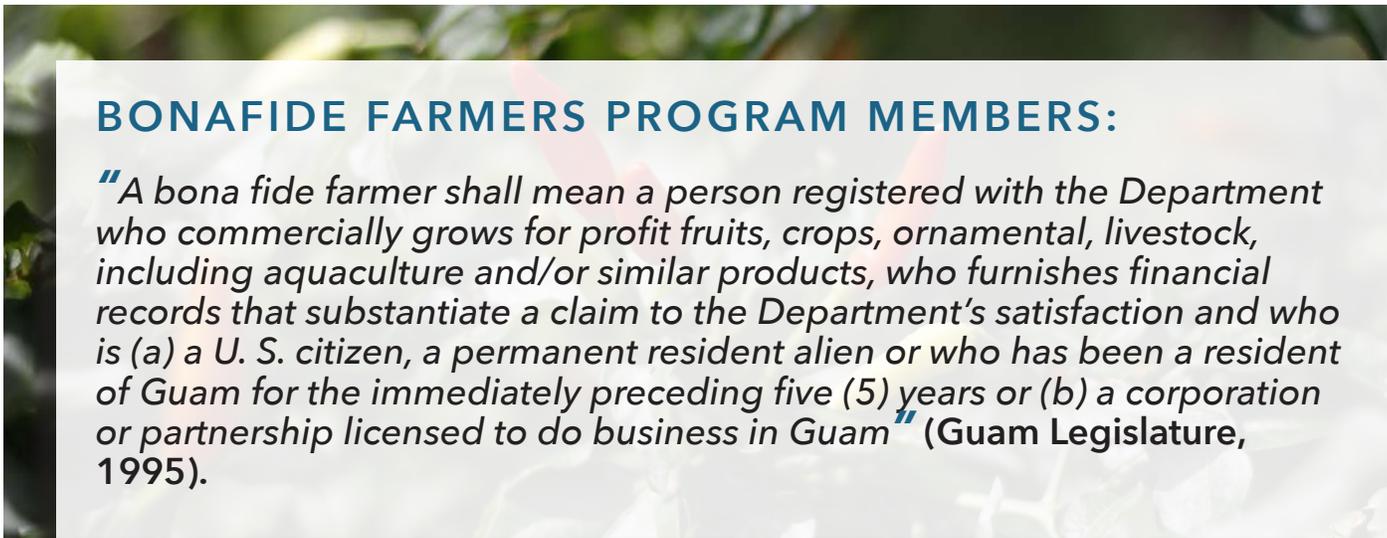
Subsistence producers were asked if they were interested in veterans-focused agricultural engagement. Sixty-two percent (62%) of the subsistence producers were *not applicable* to veterans-focused engagement. Seventeen percent (17%) reported a *yes* response and twelve percent (12%) reported a *no* response to interest in veterans-focused engagement.

Interest in an Organic Farmers Group

Organic is a labeling term that indicates that the food or other agricultural product has been produced and processed using approved methods. These methods integrate cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity. Synthetic fertilizers, sewage sludge, irradiation, and genetic engineering may not be used. (USDA, 2019)

Before a product can be labeled “organic,” an approved certifier inspects the farm where the food is grown to make sure the producer is following all the rules necessary to meet USDA organic standards. Companies that handle or process organic food must be certified, too (Gold, 2007).

Subsistence producers were asked if they would like to be part of an organic farmers group. Thirty-one percent (31%) reported a *yes* response, twelve percent (12%) reported a *maybe* response, and forty-eight percent (48%) reported a *no* response to interest in being a part of an organic farmers group.



BONAFIDE FARMERS PROGRAM MEMBERS:

“A bona fide farmer shall mean a person registered with the Department who commercially grows for profit fruits, crops, ornamental, livestock, including aquaculture and/or similar products, who furnishes financial records that substantiate a claim to the Department’s satisfaction and who is (a) a U. S. citizen, a permanent resident alien or who has been a resident of Guam for the immediately preceding five (5) years or (b) a corporation or partnership licensed to do business in Guam” (Guam Legislature, 1995).

Ninety-three percent (93%) of the subsistence producers reported a *yes* response to being in the Department of Agriculture’s Bonafide Farmers Program.

Agricultural Land Tax Break Filers

Title II, Guam Code Annotated, Chapter 24, Real Property Tax §24401(f) Exemptions; indicates the property is exempt from real property taxes and shall not be assessed if the property is actively used for farming at least eight (8) months in any year. Individuals should be directly involved in farming that is commercial in nature (Guam Legislature, 2019).

Fourteen percent (14%) of the subsistence producers reported a *yes* response to filing an agricultural land tax break.

CONNECTIVITY

Producers with Internet Access

Subsistence producers were asked if they had access to the internet. Sixty percent (60%) of the subsistence producers reported a *yes* response to having internet access.

Producers that own a Cellphone with Texting Capabilities

Subsistence producers were asked if they owned a cellphone with texting capabilities. Seventy-four percent (74%) of the subsistence producers reported a *yes* response to having a cellphone with texting capabilities.

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