



Impacts of COVID-19 on U.S. sportfish farms: Quarter 1 Results

March 23, 2020 to April 10, 2020

Authored by Carole R. Engle, Engle-Stone Aquatic\$ LLC, Adjunct Faculty, Virginia Seafood AREC, Virginia Tech; Jonathan van Senten, Assistant Professor and Extension Specialist Department of Agricultural and Applied Economics, Center for Coastal Studies Affiliate Faculty, Virginia Seafood AREC, Virginia Tech; and Matthew A. Smith, Extension Specialist, The Ohio State University; Charles Clark, Virginia Seafood AREC, Virginia Tech; Shannon Fluharty, Department of Agricultural and Applied Economics, Virginia Tech; Michael H. Schwarz, Virginia Seafood AREC

Introduction

On March 23rd, 2020 Virginia Tech Seafood AREC and The Ohio State University Extension initiated an online survey of the U.S. aquaculture, aquaponics, and allied businesses. This survey was designed to capture and quantify the effects of the coronavirus disease (COVID-19) on the aquaculture, aquaponics, and allied industries. The survey closed April 10th, 2020 at 11:59 pm. The survey will be distributed at the conclusion of every quarter for 2020, to attempt to capture the evolving impacts of COVID-19 over time.

Survey methods are detailed in the Virginia Cooperative Extension Fact Sheet VCE-AAEC-218, available at:

https://www.arec.vaes.vt.edu/arec/virginia-seafood/research/Impacts_of_COVID19.html. This report is a supplemental report to the overall survey that summarizes results of **sportfish farm** respondents.

Methods

For a detailed description of the methods for this study, please consult the factsheet summarizing the Q1 results (AAEC-218NP). Data for this study were collected through an online survey distributed through Qualtrics. It should be noted that respondents self-selected for participation in the study and there was no specific sampling protocol followed due to time constraints and challenges with obtaining contact lists. It is therefore possible that

responses are skewed towards those farms and businesses that have been more affected by the coronavirus (COVID-19) disease pandemic. This study is being conducted for the duration of 2020, with a survey being administered quarterly to capture the evolving effects and impacts of the coronavirus diseases (COVID-19) pandemic on U.S. aquaculture, aquaponics, and allied businesses. The responses summarized in this fact sheet were collected during the Q1 survey, between March 23rd and April 10th, 2020.

Results

Characterization of Respondents

Quarter 1 survey results showed that there were **25 sportfish farm participants**. Fifty-two percent of sportfish respondents sold their fish directly to customers, 24% sold to other, un-categorized channels, 16% to other aquaculture farms, 4% to distributors, and 4% to restaurants (Table 1). No respondents sold to processors or grocery stores/supermarkets.

Table 1. Primary marketing channel for sportfish respondents.

Category	Percentage
Direct to customers	52%
Other	24%
Other aquaculture farms	16%
Restaurants	4%
Distributors	4%
Processor	0%
Grocery stores/supermarkets	0%

Scale of farms/businesses

Sportfish farms vary in terms of their production scale. Respondents to the survey included those with scales of production from sales of \$10,001 to \$25,000 a year up to those with annual sales greater than \$1 million (Table 2). The greatest percentage (32%) of respondents had sales greater than \$1 million, followed by \$250,001 to \$500,000 (16%); \$100,001 to \$250,000 (12%); \$50,001 to \$100,000 (8%); \$25,001 to \$50,000 (8%), and \$10,001 to \$25,000 (4%). No respondents had sales less than \$10,001 or from \$500,000 to \$1 million. Twenty percent did not respond to this question.

Table 2. Scale of sportfish respondent farms/businesses.

Category	Percentage
> \$1 million	32%
No response	20%
\$250,001 - \$500,000	16%
\$100,001 - \$250,000	12%
\$50,001 - \$100,000	8%
\$25,001 - \$50,000	8%
\$10,001 - \$25,000	4%
\$5,001 - \$10,000	0%
\$1,001 - \$5,000	0%
\$1 - \$1,000	0%
\$500,000 - \$1 million	0%

Aquaculture Regions

The greatest percentage of sportfish farm respondents (56%) were located in the North Central Aquaculture Region, followed by the Western Aquaculture Region (24%), and the Northeastern Aquaculture Region (20%) (Table 3). There were no

sportfish respondents from the Southern or Tropical and Sub-tropical Aquaculture Regions.

Table 3. Participation by aquaculture region.

Region	Percentage of survey respondents
North Central	56%
Western	24%
Northeastern	20%
Southern	0%
Tropical and Sub-tropical	0%

Key Findings

Eighty-eight percent of sportfish respondents reported that their farm or business had been impacted by the COVID-19 pandemic. One respondent indicated that their farm had not been affected by COVID-19 because they only sell and deliver fish to another farm in the winter months. When asked whether their farm or business would survive the next 3 months without external intervention (such as government assistance), 63% said, “yes.” Twenty-nine percent reported that their farm would “maybe” survive 3 months without external assistance, and 8% said that their farm or business would not survive 3 months without external assistance. When asked the same question, but for the next 6 months, 46% said that it would survive, 46% said “maybe,” and 8% said that their farm/business would not survive the next 6 months without external assistance. Responses related to 12 months without external assistance were that 25% indicated that they would not survive, 42% said that their farm or business would “maybe” survive, and only 33% said that they would survive. Those that indicated that they would be able to withstand more than 10 months without sales included two respondents who operated state hatcheries.

Lost Sales

Seventy-five percent of sportfish farm respondents indicated that they had lost sales due to the COVID-19 outbreak. In addition, 10% of sportfish respondents indicated that they had lost sales to international or export markets outside the U.S. In terms of the volume of sales that had been lost, 30% reported losses in the range of \$50,001 to \$100,000. An additional 10% of respondents reported that they

had lost either \$100,001 to \$250,000, \$10,001 to \$25,000, or \$5,001 to \$10,000. Five percent of respondents reported sales losses of either \$25,001 to \$50,000, \$1,001 to \$5,000, or \$1 to \$1,000. No respondents reported losses greater than \$250,000. Twenty percent of respondents indicated that they could not estimate the losses at the time the survey was administered.

The lost sales reported included canceled contracts of various sorts. Seventy-three percent of sportfish respondents reported losing private contracts for sales, and 14% reported losing government (state or federal) contracts for sales.

Respondents were further asked what challenges they expected to experience on their farms or businesses as a result of the coronavirus pandemic in 2020. Seventy-nine percent of sportfish respondents indicated that they expected to lose sales, with 11% expecting to lose international markets. In terms of the volume of sales expected to be lost, 26% expected to lose from \$100,001 to \$250,000, 16% each expected to lose from \$50,001 to \$100,000, or from \$5,001 to \$10,000, 11% expected to lose from \$10,001 to \$25,000, and 5% expected to lose from \$1,001 to \$5,000. Twenty-six percent indicated that they could not estimate the amount of losses at the time of the survey.

When asked how long sportfish respondents thought their farm or business could survive without sales before suffering longer term cash flow effects, 25% said 1 to 3 months, 21% said more than 10 months, 17% said 7 to 10 months, 13% 4 to 6 months, and 8% said less than 1 month. Seventeen percent did not respond. It should be noted that some respondents completed the survey four weeks prior to the preparation of this report.

Labor

Thirty-two percent of respondents reported that they had laid off employees as a result of the COVID-19 pandemic and another 14% indicated that they “will have to soon.” Fifty-five percent had not laid off employees. In terms of the number of employees laid off, 71% of sportfish respondents who had laid off employees indicated that they had laid off 1 to 3 employees. Another 14% had laid off from 4 to 6

employees and from 16 to 20 employees, respectively.

Respondents were further asked how many weeks it would be before they would have to lay off employees. Sixty-seven percent of sportfish respondents indicated that they would have to decide within 4 to 6 weeks whether to lay off employees and 33% said 1 to 3 weeks. It should be noted that data collection for the survey was open for a period of 3 weeks. Sportfish respondents were further asked how many employees they would need to lay off at that time. Two-thirds (67%) said that they would have to lay off from 1 to 3 employees and one-third (33%) said 7 to 10 employees. Of those employees who had been laid off, 60% of sportfish respondents indicated that these were “Short-Time” or “Shared-Work” employees. Ten percent did not respond to this question.

Fifty-four percent of sportfish respondents had experienced some type of labor challenge. Forty-one percent of sportfish respondents indicated that employees had missed work due to COVID-19, while 59% reported that employees had not missed work due to the coronavirus. Employees who missed work did so because they or a family member was sick or due to self-quarantine. Another respondent reported isolating employees on farms that, as a consequence, limited the amount of work that could be done. Other respondents reported that employees at their fee fishing facilities were afraid to come to work for fear of being exposed to the disease. Of those respondents who reported employees missing work, 44% reported 11 to 14 days, 33% 7 to 10 days, and 11% 1 to 3 days and 4 to 6 days.

In addition to employees missing work, other respondents commented that they had to put hiring of seasonal labor on hold. Another respondent reported insufficient staffing to do what needed to be done and having to deal with actions that may potentially imperil fish health and survival.

Respondents expected the labor challenges related to employees missing work and the inability to hire seasonal employees to continue. Planning for upcoming staffing needs is difficult with the length of the shutdowns. One respondent indicated that training new delivery drivers will be a challenge

while trying to maintain “social distancing”. Since they typically have multiple drivers using the same vehicles, maintaining disinfection of the interior of vehicles will require additional labor.

Challenges to the farm/business

Sportfish respondents reported a variety of different challenges to the business that included production challenges not related to labor, increased costs, the cascading effects of holding market-ready product for extended periods of time, lower farm-gate prices, and financial services. Sixty-three percent of sportfish respondents expected to experience production challenges not related to labor.

Thirty-eight percent of sportfish respondents reported increased costs of production, including feed, and 58% expected to experience increased costs of production in the coming months. Feed costs were reported to have increased as a result of higher inventories that have resulted from reduced sales. Holding fish for longer periods of time will result in decreased growth from over-crowding and increased risks of oxygen depletion with greater biomasses of fish. Another respondent reported that labor costs per unit of production have increased because they continue to pay salaries of those not on the farm but yet do not have a full work force. Trucking costs were reported to have increased. Another respondent reported that maintaining social distance, washing hands, and disinfecting common areas takes more time and costs much more, resulting in reduced efficiency.

Thirty-eight percent of respondents indicated that they could hold market-ready product for 1 to 3 months, with 25% reporting 4 to 6 months, 21% less than 1 month, and 17% more than 10 months. Holding market-ready product clearly increases biomasses of fish, reduces growth, increases costs, and increases risk of greater mortality to disease.

Challenges related to production inputs (feed, therapeutants, etc.) were reported by 46% of sportfish respondents. Sportfish respondents reported difficulties with obtaining feed and getting feed on time due to shipping and distribution difficulties. Another respondent reported canceling feed orders in response to an inability to obtain eggs,

fry, or fingerlings following cancellations from hatcheries. Another respondent reported that feed costs will increase due to having to hold a large amount of fish for a longer period of time due to losses of sales. Broodstock cancellations were reported by one respondent. Another respondent reported having ordered supplies prior to COVID-19 that will have to be held for the 2021 season. One respondent reported a lack of availability of some production inputs that were to come from other countries.

Thirty-one percent of sportfish respondents reported challenges with repair, construction, consultant, or engineering services. Sportfish respondents reported that construction projects have either stopped or slowed down. Others reported that either closure or reduced hours of businesses that do repairs have prevented them from having repairs done. Other respondents reported that in-house staff were being directed towards deferred maintenance projects. Other comments were related to having to put all repair and construction projects on hold and limitations on availability of cash for discretionary projects and repairs. Another respondent mentioned that the shutdown happened when they were near the end of renovating their restaurant and building a hatchery this year.

Financial services challenges were mentioned by 8% of respondents. One respondent reported that obtaining additional funds was not an option.

In terms of expectations for the coming months, 79% of sportfish respondents expected additional lost sales, 63% continued production challenges, 58% increased costs of production, 54% labor challenges, and only 8% expected increased demand for products. Additional comments from sportfish respondents included concern over steady feed supplies, greater difficulties to obtain production items on time.

Marketing of products

Extended holding of product that is ready to be sold can cause problems associated with planting new crops for subsequent years. Thirty-three percent of sportfish respondents indicated that holding market-sized product would make it less marketable. More specifically, 63% of sportfish respondents said that holding product would reduce the quantity of

sportfish sold and 13% said that it would reduce the price received. One respondent indicated that they sell 35% to 50% of their crop to live fish markets which were shut down at the time of the survey. The other 50% to 65% go to private pond stocking, whose owners now are scared to spend extra money to stock ponds. Other comments were related to the holdover inventory that takes room away for growing the next crop of fish and that they will not be able to sell their fish until the summer of 2021. Others mentioned that they cannot hold their fish stocks indefinitely because the collective biomass will exceed the carrying capacity.

For coldwater fish such as market-ready trout that must be held, the waters will get too warm in the coming months. Other effects of holding market-ready product include the cash flow effects, increased costs, long-term reduction in production, interrupted flow of hatchery fingerlings to market size, and missing the seasonal hatching season. Other comments related to reduced prices from fish growing larger than what their customers want.

Increased Demand for Products

No sportfish respondents reported any increased demand for their products. While 8% reported expecting future increases in demand for their products, those respondents were not able to estimate the amount of sales expected to be lost.

Assistance to Farms/Businesses

The survey included questions on the types of assistance that might be helpful to the farm or business of respondents. Fifty percent of sportfish respondents indicated that federal assistance would increase the likelihood of survival of their farm or business. Another 29% said that assistance from the state, 17% from local government, and 13% from associations would be helpful.

When asked more specifically what types of assistance would be helpful, 33% said waiving or delaying state fees, 25% said that loan guarantees, 17% said specialty crop insurance, and 13% said that assistance with identifying new markets or tariff relief would be helpful. No respondents indicated that there were existing programs for which their sportfish farm did not qualify.

Additional comments by sportfish respondents included a variety of suggestions on the type of assistance that would be of greatest help (Table 4). The most frequently mentioned type of assistance (36%) mentioned by sportfish respondents was the need for very immediate assistance in the form of cash payments or grants. This was followed by tax breaks (32%), financing assistance, with mention of low-interest loans and debt forgiveness, reducing the regulatory burden (24%), marketing and distribution assistance (16%), stopping imports of low-priced fish (8%), employee assistance (8%), and government purchases of fish (8%). Twenty percent of respondents mentioned other types of assistance that included help with importing eggs, encouraging people to go fishing, strengthen the economy, and flattening the economic curve. Several respondents expressed appreciation to associations that were keeping farmers informed. Another suggestion was for a communications hub that would include assistance programs, research, lifting red tape, and legislative input for assistance programs.

Table 4. Additional comments related to types of assistance reported by sportfish respondents that would be most useful.

Type of assistance	Sportfish respondents (%)
Cash payments, grants, credits, for expenses	36%
Tax breaks	32%
Financing assistance (guaranteed loans, debt forgiveness, deferred loan payments, exemption of interest, low-interest loans)	24%
Reducing regulatory burden	24%
Marketing and distribution assistance	16%
Stop importing non-competitively priced fish	8%
Employee assistance	8%
Government purchases of sportfish	8%
Other	20%

Discussion and Conclusion

Responses by sportfish farms to the Quarter 1 survey show that the U.S. sportfish farmers have been impacted severely by the COVID-19 pandemic. Seventy-three percent of sportfish respondents had had sales orders from private companies canceled and 14% had had government (state/federal) orders canceled. While lost sales were the immediate impact, other challenges were mentioned related to increasing production costs, financing, and other essential services that are critical to survival of the farm or business. Effects on the sportfish industry will be felt more in the coming months if sales continue to be reduced, with 25% indicating that they would not survive if the sales losses continue over the next 12 months. Given that survey results showed that there will be longer-term effects on the U.S. sportfish industry, it will be important to continue to monitor changes throughout the year. Key findings from sportfish farm and business respondents include:

- *88% have been impacted by COVID-19*
- *73% have had private orders/contracts canceled*
- *46% have or will soon have to lay off employees*
- *75% have experienced lost sales*
- *63% can survive 3 months without external intervention*

References

United States Department of Agriculture. 2019. 2018 Census of Aquaculture. National Agricultural Statistics Service, USDA, Washington, District of Columbia, USA. Accessed April 2020 at: https://www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Census_of_Aquaculture/index.php. (last accessed, April 12th, 2020)

van Senten, J., Smith, M.A., and Engle, C.R. 2020. Impacts of COVID-19 on U.S. aquaculture, aquaponics, and allied businesses: Quarter 1 Results. AAEC-218NP. Available at: https://www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/AAEC/aec-218/AAEC-218.pdf

Visit Virginia Cooperative Extension: ext.vt.edu

Virginia Cooperative Extension programs and employment are open to all, regardless of age, color, disability, gender, gender identity, gender expression, national origin, political affiliation, race, religion, sexual orientation, genetic information, veteran status, or any other basis protected by law. An equal opportunity/affirmative action employer. Issued in furtherance of Cooperative Extension work, Virginia Polytechnic Institute and State University, Virginia State University, and the U.S. Department of Agriculture cooperating. Edwin J. Jones, Director, Virginia Cooperative Extension, Virginia Tech, Blacksburg; M. Ray McKinnie, Administrator, 1890 Extension Program, Virginia State University, Petersburg.

2020

VCE-AAEC-247NP
VSG-20-16

Appendix

Summary of COVID-19 impacts on U.S. sportfish (including trout)

Quarter 1 Results

Carole R. Engle, Engle-Stone Aquatics, LLC, Virginia Tech

Jonathan van Senten, Virginia Tech

Matthew A. Smith, The Ohio State University

Charles Clark, Virginia Tech

Shannon Fluharty, Virginia Tech

Michael H. Schwarz, Virginia Seafood AREC



Contents

Q1. Has your farm or business been impacted by the coronavirus disease (COVID-19)?.....5

Q2. Has your farm or business had government (state or federal) contracts canceled for 2020 because of the coronavirus disease (COVID-19)?.....5

Q3. Has your farm or business had private contracts / orders canceled for 2020 because of the coronavirus disease (COVID-19)?6

Q4. Has your farm or business had to lay off any employees due to the coronavirus disease (COVID-19)?6

Q4.1. Are any of the employees that your farm or business had to, or will have to, lay off due to the coronavirus disease (COVID-19) designated as "Short-Time" or "Shared-Work" employees?7

Q4.2. How many employees has your farm or business had to lay off in response to the coronavirus disease (COVID-19)?7

Q4.3. How many weeks before your farm or business will have to make a decision to lay off employees, in response to the coronavirus disease (COVID-19)?8

Q4.4. How many employees do you estimate your farm or business will have to lay off in response to the coronavirus disease (COVID-19)?8

Q5. Has your farm or business had any employees miss work due to the coronavirus disease (COVID-19)?9

Q5.1. In total, approximately how many days have any employees in your farm or business missed work due to the coronavirus disease (COVID-19)?.....9

Q6. Does your farm or business make use of H2A or H2B workers?.....10

Q6.1. Has your farm or business been able to secure H2A and H2B workers during the coronavirus disease (COVID-19) pandemic?.....10

Q6.2. Is your farm or business currently at risk of losing H2A or H2B workers due to the coronavirus disease (COVID-19) pandemic?.....11

Q7. Has your farm or business experienced any of the following as a result of the coronavirus disease (COVID-19) in 2020? Please select all that apply.....11

Q7.1. Has your farm or business experienced lost sales to international or export markets (outside of the United States), as a result of the coronavirus disease (COVID-19)?.....12

Q7.2. If your farm or business has experienced lost sales as a result of the coronavirus disease (COVID-19), please estimate the value of lost sales?13

Q7.3. If your farm or business has experienced production challenges (not related to labor) as a result of the coronavirus disease (COVID-19), can those challenges be specified? Please select all that apply.14

Q7.6. If your farm or business has experienced increased demand for products as a result of the coronavirus disease (COVID-19), please estimate the value of those effects on sales?15

Q8. Does your farm or business expect to experience any of the following as a result of the coronavirus disease (COVID-19) in 2020? Please select all that apply15

Q8.1. Does your farm or business expect to experience lost sales to international or export markets (outside of the United States), as a result of the coronavirus disease (COVID-19)? 16

Q8.2. Does your farm or business expect to experience lost sales as a result of the coronavirus disease (COVID-19), please estimate the value of lost sales? 17

Q8.3. Does your farm or business expect to experience production challenges (not related to labor) as a result of the coronavirus disease (COVID-19), can those challenges be specified? Please select all that apply. 18

Q8.6. Does your farm or business expect to experience increased demand for products as a result of the coronavirus disease (COVID-19), please estimate the value of those effects on sales? 19

Q9. Without external intervention (for example, governmental assistance), will your farm or business survive in the next 3 (three) months? 20

Q10. Without external intervention (for example, governmental assistance), will your farm or business survive in the next 6 (six) months?..... 20

Q11. Without external intervention (for example, governmental assistance), will your farm or business survive in the next 12 (twelve) months?..... 21

Q12. How many months can your farm or business survive without sales, as a result of the coronavirus disease (COVID-19), before suffering longer term cash flow effects? 21

Q13. Will holding market ready product, as a result of the coronavirus disease (COVID-19), make it less marketable?..... 22

Q13.1. Will holding market ready product, as a result of the coronavirus disease (COVID-19), result in: Please select all that apply. 22

Q14. How many months can your farm or business hold market ready product, as a result of the coronavirus disease (COVID-19), before it becomes an issue for new crops or planting?..... 23

Q16. Are there specific steps or types of assistance that would increase the likelihood for your farm or business to survive? Please select all that apply. 23

Q17. Would assistance with any of the following be helpful to your farm or business right now? Please select all that apply. 24

Q18. Are there any existing programs that your aquaculture, aquaponics, or allied business does not currently qualify for, that would increase the likelihood of survival of your farm or business?..... 24

Q19. What is the primary product that your farm or business produces? 25

Q19.1. Please indicate which is the major species of foodfish raised by your farm or business: 26

Q20. How does your farm or business primarily market or sell aquaculture / aquaponics products? 27

Q21. Please indicate the scale of your farm or business by annual sales volume before the effects of coronavirus disease (COVID-19): 28

Q22. In which USDA defined Aquaculture Region is your farm or business located? 29

Overview

On March 23rd, 2020 Virginia Tech Seafood AREC and The Ohio State University Extension initiated an online survey of the U.S. aquaculture, aquaponics, and allied businesses. This survey was designed to capture and quantify the effects of the coronavirus disease (COVID-19) on the aquaculture, aquaponics, and allied industries. The survey closed April 10th, 2020 at 11:59 pm. The survey will be distributed at the conclusion of every quarter for 2020, to attempt to capture the evolving impacts of COVID-19 over time.

Survey methods are detailed in the Virginia Cooperative Extension Fact Sheet VCE-AAEC-218, available at: https://www.arec.vaes.vt.edu/arec/virginia-seafood/research/Impacts_of_COVID19.html.

This report is a supplemental report to the **Sportfish (including trout) Report Summary, Quarter 1** that summarizes results of **sportfish farm** respondents.

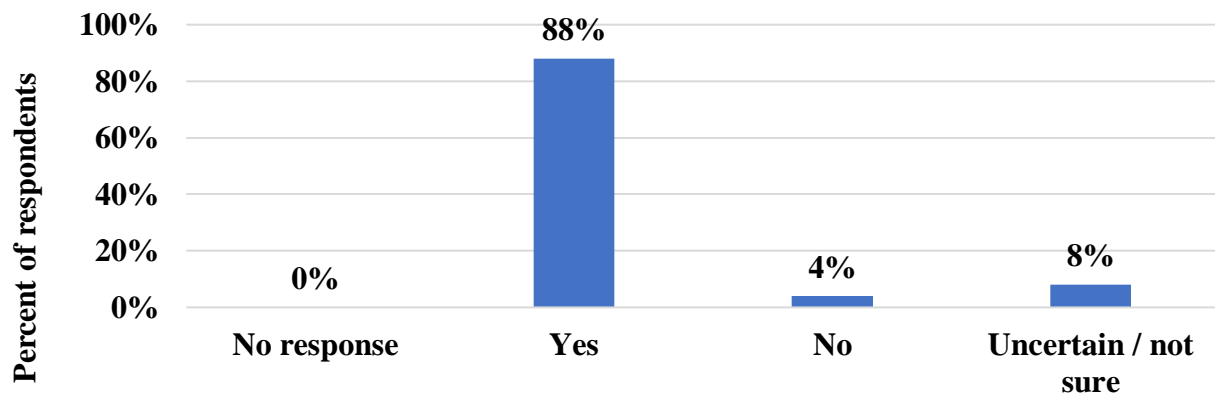
Survey results for each question

The number of respondents to each question presented in this summary is denoted as (n =).

Q1. Has your farm or business been impacted by the coronavirus disease (COVID-19)?

(n = 25)

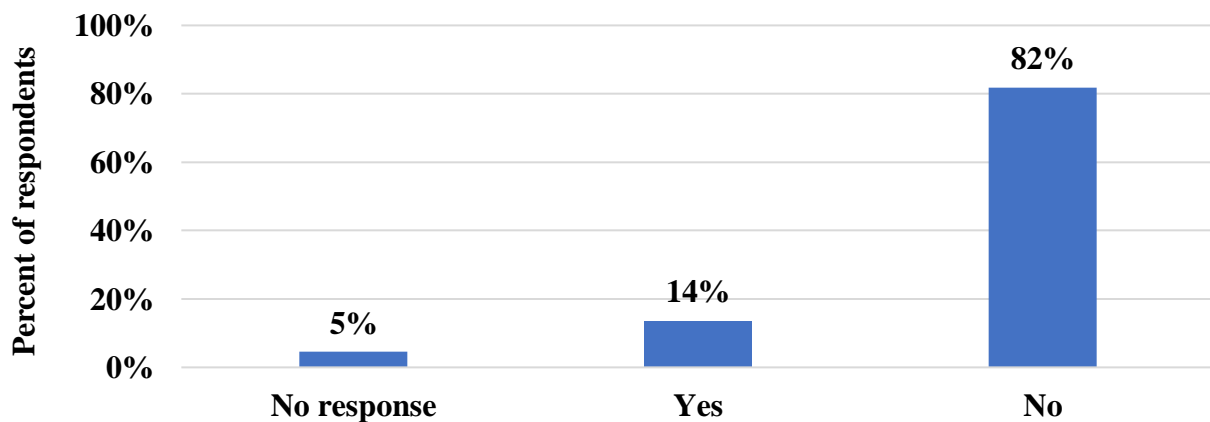
- No response : 0%
- Yes : 88%
- No : 4%
- Uncertain / Not Sure : 8%



Q2. Has your farm or business had government (state or federal) contracts canceled for 2020 because of the coronavirus disease (COVID-19)?

(n = 22)

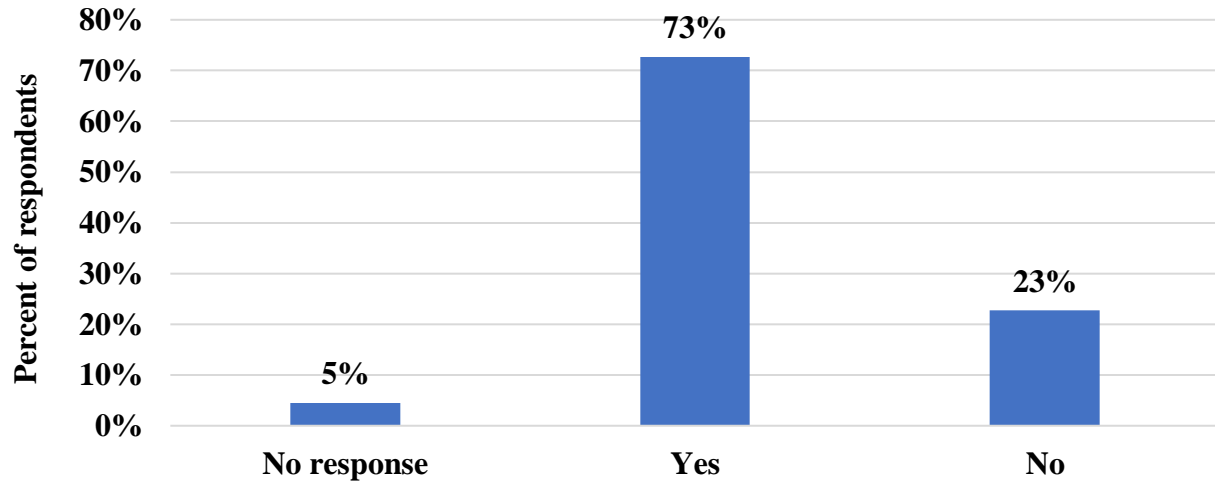
- No response : 5%
- Yes : 14%
- No : 82%



Q3. Has your farm or business had private contracts / orders canceled for 2020 because of the coronavirus disease (COVID-19)?

(n = 22)

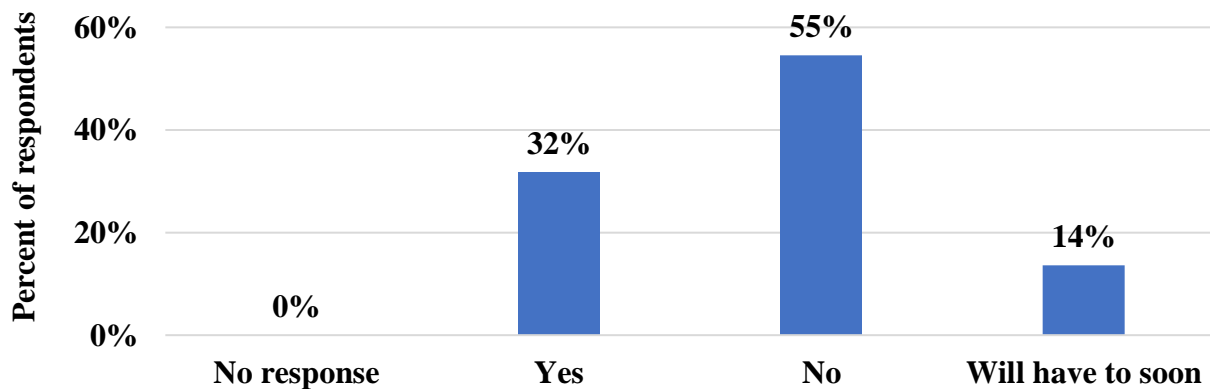
- No response : 5%
- Yes : 73%
- No : 23%



Q4. Has your farm or business had to lay off any employees due to the coronavirus disease (COVID-19)?

(n = 22)

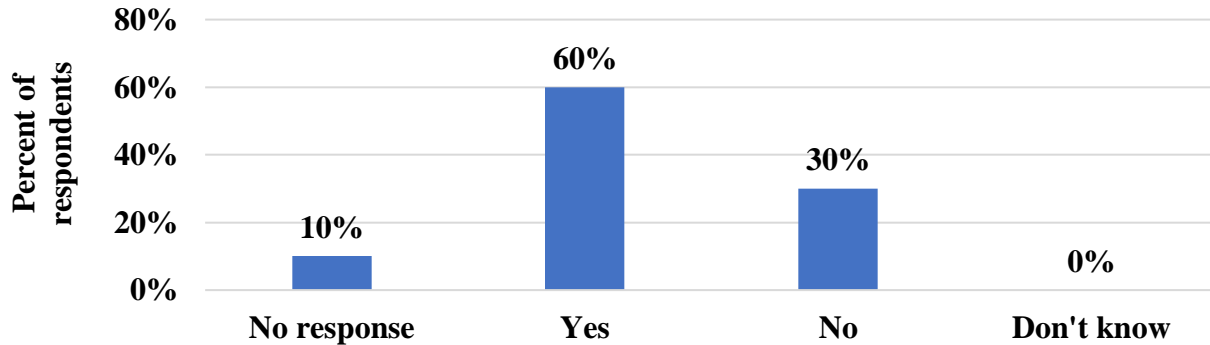
- No response : 0%
- Yes : 32%
- No : 55%
- Will have to soon : 14%



Q4.1. Are any of the employees that your farm or business had to, or will have to, lay off due to the coronavirus disease (COVID-19) designated as "Short-Time" or "Shared-Work" employees?

(n = 10)

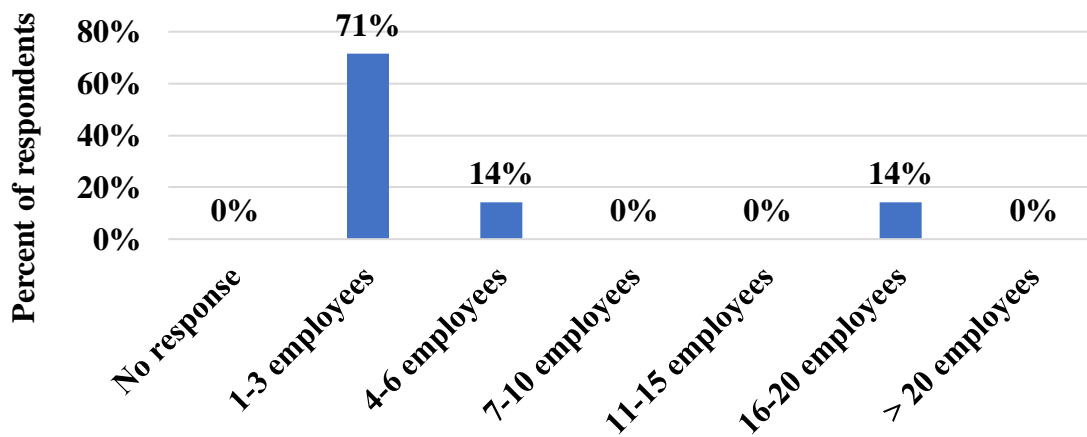
- No response : 10%
- Yes : 60%
- No : 30%
- Don't know : 0%



Q4.2. How many employees has your farm or business had to lay off in response to the coronavirus disease (COVID-19)?

(n = 7)

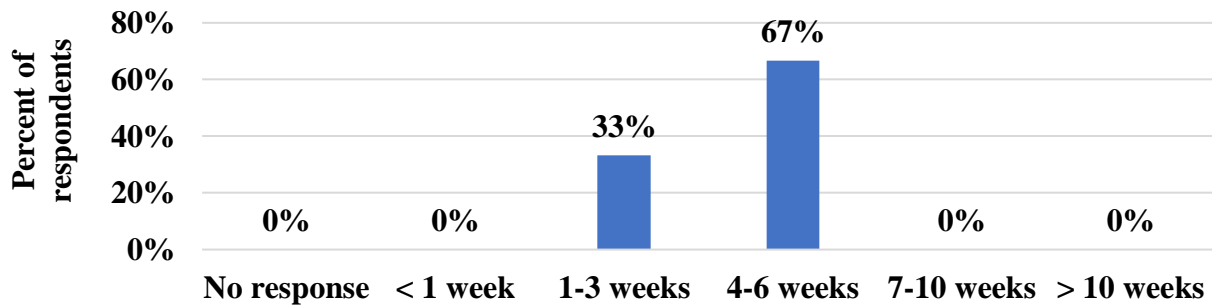
- No response : 0%
- 1 – 3 employees : 71%
- 4 – 6 employees : 14%
- 7 – 10 employees : 0%
- 11 – 15 employees : 0%
- 16 – 20 employees : 14%
- More than 20 employees : 0%



Q4.3. How many weeks before your farm or business will have to make a decision to lay off employees, in response to the coronavirus disease (COVID-19)?

(n = 3)

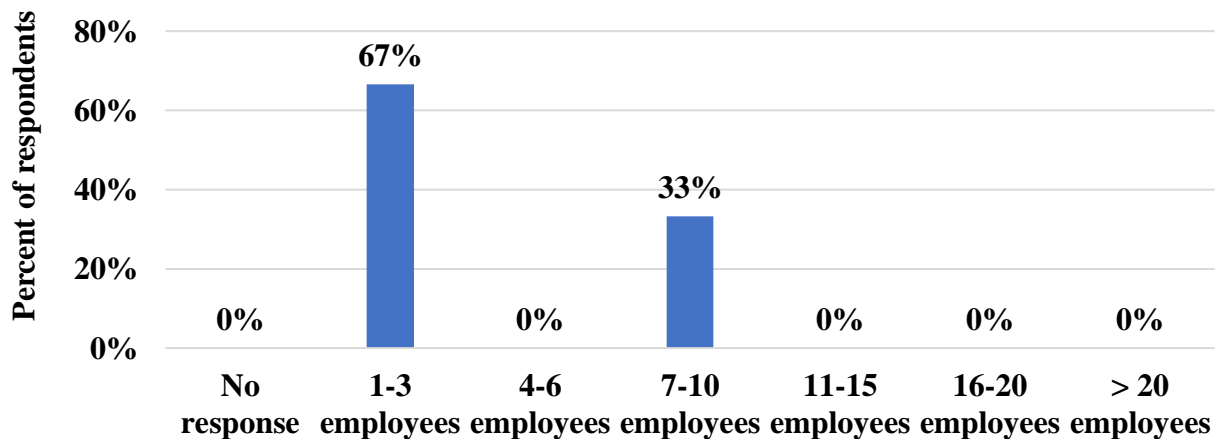
- No response : 0%
- Less than 1 week : 0%
- 1 – 3 weeks : 33%
- 4 – 6 weeks : 67%
- 7 – 10 weeks : 0%
- More than 10 weeks : 0%



Q4.4. How many employees do you estimate your farm or business will have to lay off in response to the coronavirus disease (COVID-19)?

(n = 3)

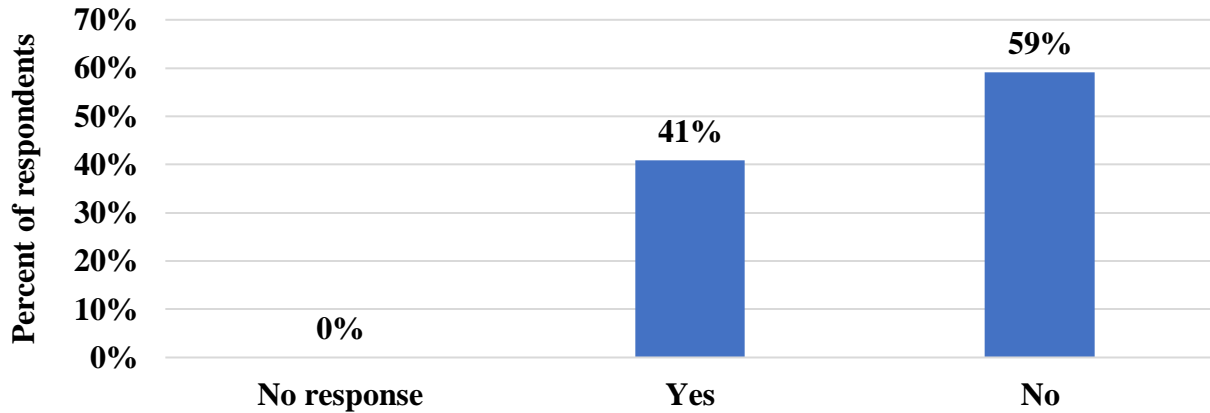
- No response : 0%
- 1 – 3 employees : 67%
- 4 – 6 employees : 0%
- 7 – 10 employees : 33%
- 11 – 15 employees : 0%
- 16 – 20 employees : 0%
- More than 20 employees : 0%



Q5. Has your farm or business had any employees miss work due to the coronavirus disease (COVID-19)?

(n = 22)

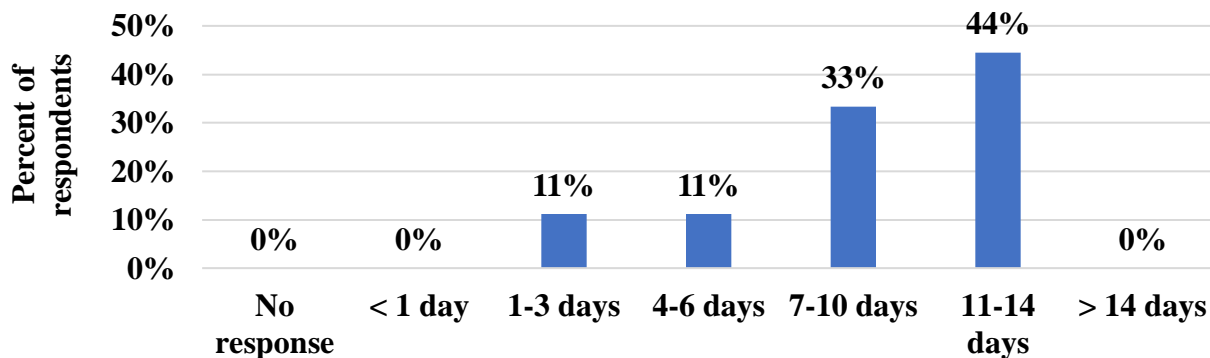
- No response : 0%
- Yes : 41%
- No : 59%



Q5.1. In total, approximately how many days have any employees in your farm or business missed work due to the coronavirus disease (COVID-19)?

(n = 9)

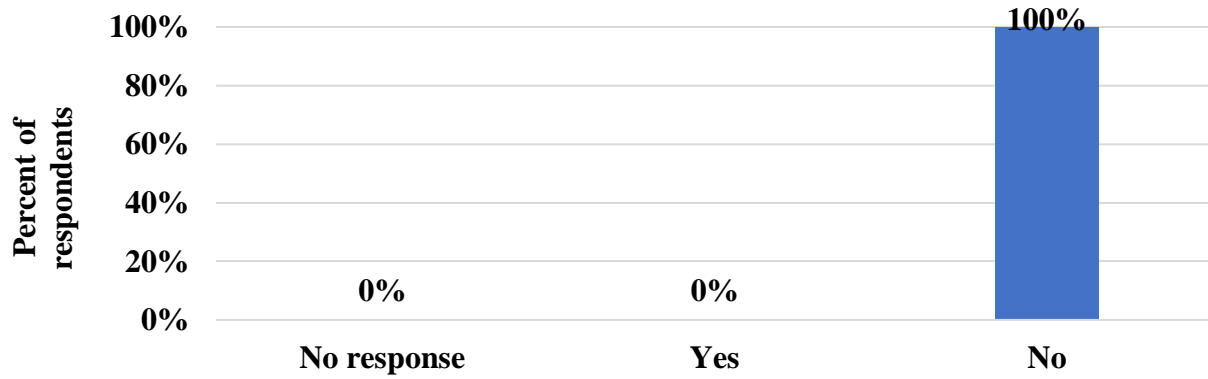
- No response : 0%
- Less than a day : 0%
- 1 -3 days : 11%
- 4 – 6 days : 11%
- 7 – 10 days : 33%
- 11 – 14 days : 44%
- More than 14 days : 0%



Q6. Does your farm or business make use of H2A or H2B workers?

(n = 22)

- No response : 0%
- Yes : 0%
- No : 100%



Q6.1. Has your farm or business been able to secure H2A and H2B workers during the coronavirus disease (COVID-19) pandemic?

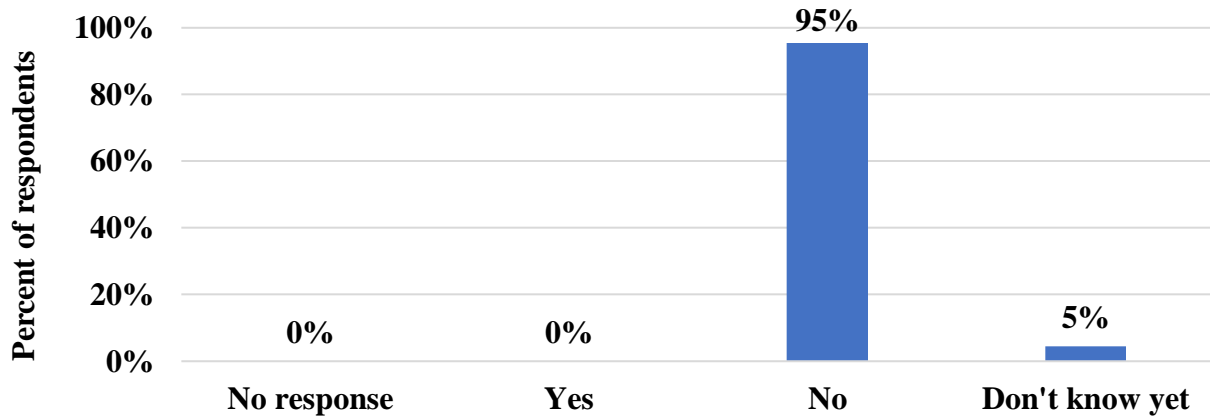
(n = 0)

- No response : NA
- Yes : NA
- No : NA
- Don't know yet : NA
- Have not tried : NA

Q6.2. Is your farm or business currently at risk of losing H2A or H2B workers due to the coronavirus disease (COVID-19) pandemic?

(n = 22)

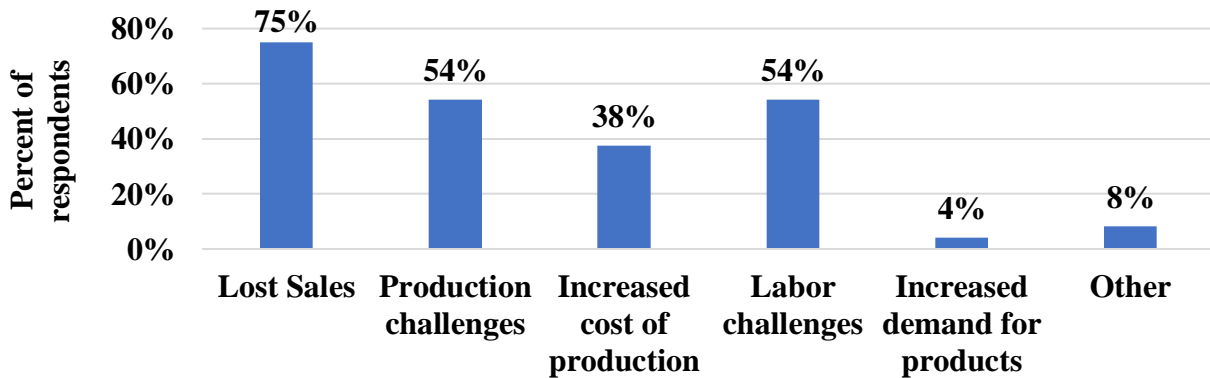
- No response : 0%
- Yes : 0%
- No : 95%
- Don't know yet : 5%



Q7. Has your farm or business experienced any of the following as a result of the coronavirus disease (COVID-19) in 2020? Please select all that apply.

(n = 24)

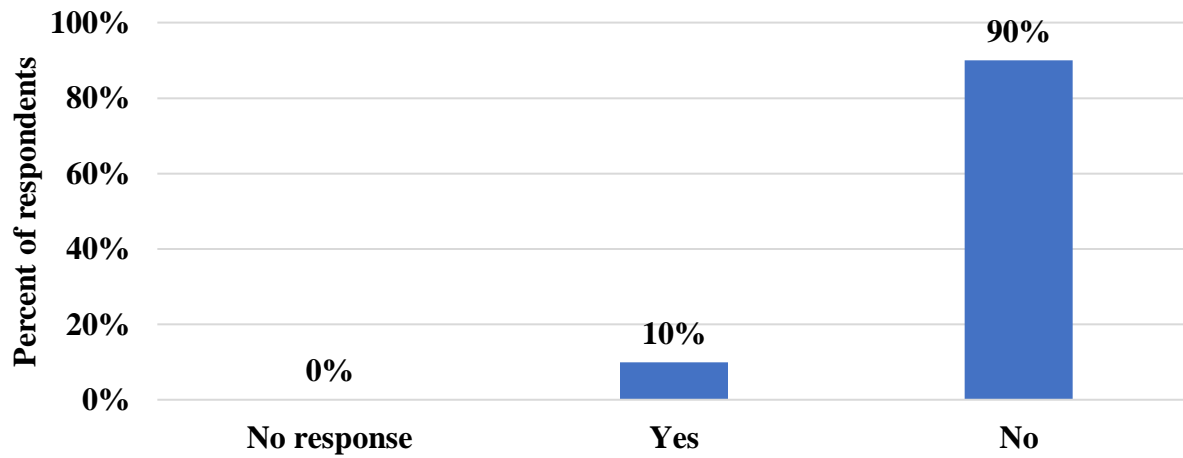
- Lost sales : 75%
- Production challenges (not related to labor) : 54%
- Increased cost of production : 38%
- Labor challenges : 54%
- Increased demand for products : 4%
- Other : 8%



Q7.1. Has your farm or business experienced lost sales to international or export markets (outside of the United States), as a result of the coronavirus disease (COVID-19)?

(n = 20)

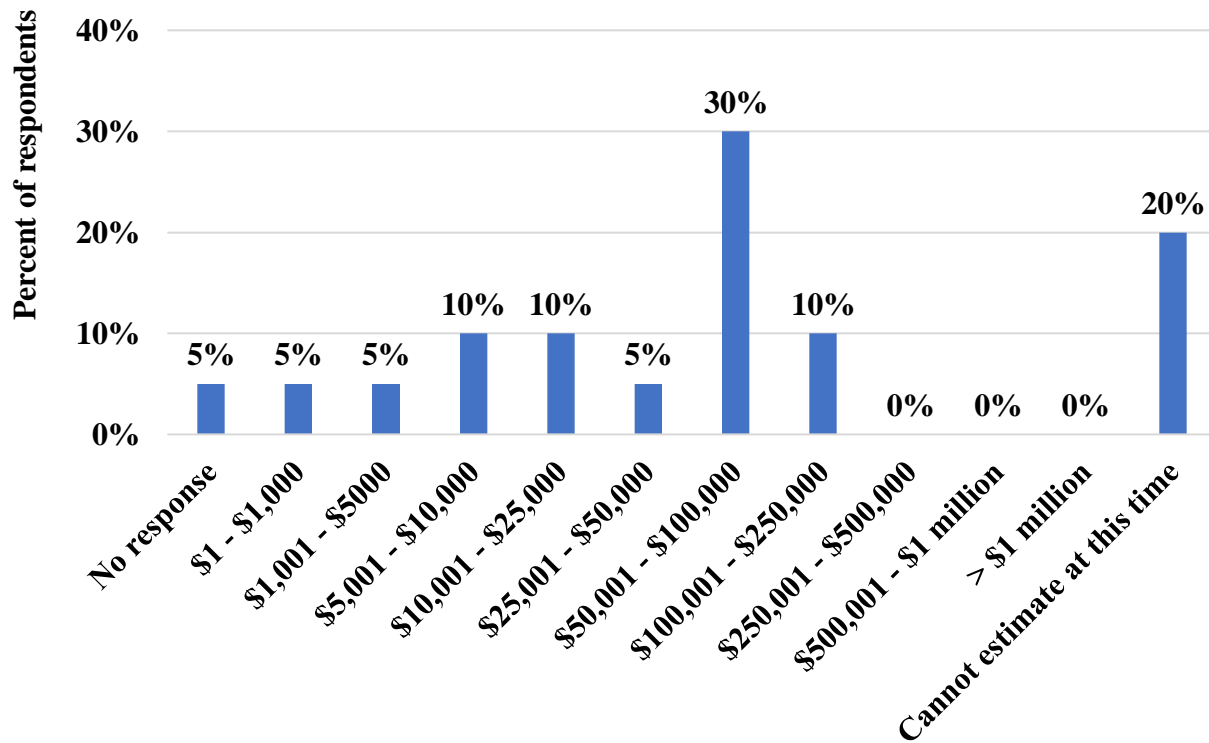
- No response : 0%
- Yes : 10%
- No : 90%



Q7.2. If your farm or business has experienced lost sales as a result of the coronavirus disease (COVID-19), please estimate the value of lost sales?

(n = 20)

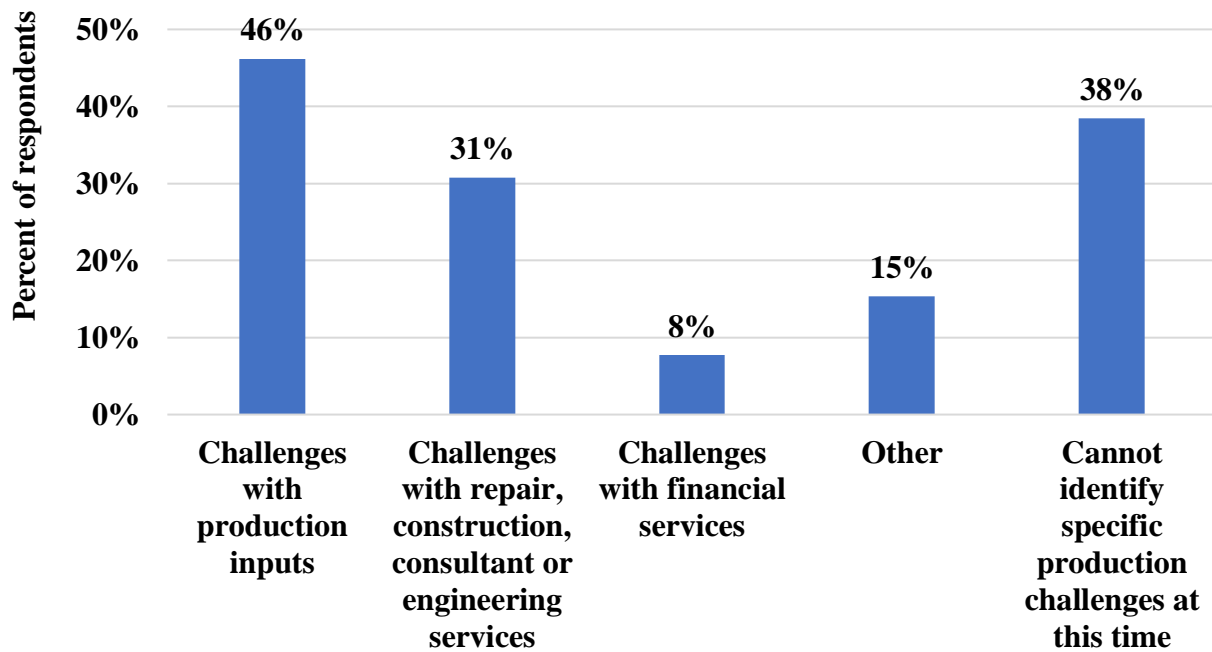
- No response : 5%
- \$1 - \$1,000 : 5%
- \$1,001 - \$5,000 : 5%
- \$5,001 - \$10,000 : 10%
- \$10,001 - \$25,000 : 10%
- \$25,001 - \$50,000 : 5%
- \$50,001 - \$100,000 : 30%
- \$100,001 - \$250,000 : 10%
- \$250,001 - \$500,000 : 0%
- \$500,001 - \$ 1million : 0%
- Greater than \$1 million : 0%
- Cannot estimate at this time : 20%



Q7.3. If your farm or business has experienced production challenges (not related to labor) as a result of the coronavirus disease (COVID-19), can those challenges be specified? Please select all that apply.

(n = 13)

- Challenges with production inputs (feed, chemicals, therapeutants, etc.) : 46%
- Challenges with repair, construction, consultant or engineering services : 31%
- Challenges with financial services (operating loans, leases, etc.) : 8%
- Other : 15%
- Cannot identify specific production challenges at this time : 38%



Q7.6. If your farm or business has experienced increased demand for products as a result of the coronavirus disease (COVID-19), please estimate the value of those effects on sales?

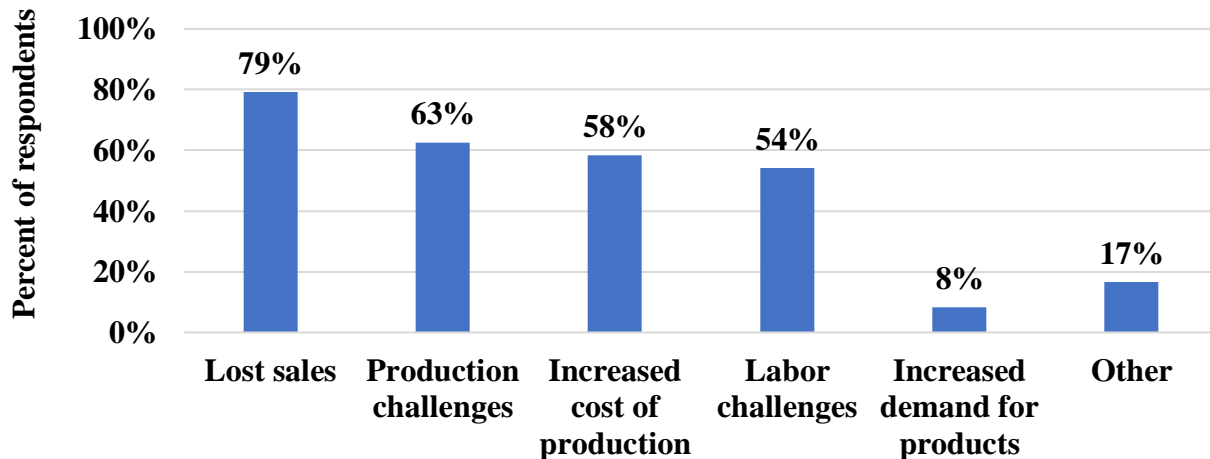
(n = 0)

- No response : NA
- \$1 - \$1,000 : NA
- \$1,001 - \$5,000 : NA
- \$5,001 - \$10,000 : NA
- \$10,001 - \$25,000 : NA
- \$25,001 - \$50,000 : NA
- \$50,001 - \$100,000 : NA
- \$100,001 - \$250,000 : NA
- \$250,001 - \$500,000 : NA
- \$500,001 - \$ 1million : NA
- Greater than \$1 million : NA
- Cannot estimate at this time : NA

Q8. Does your farm or business expect to experience any of the following as a result of the coronavirus disease (COVID-19) in 2020? Please select all that apply.

(n = 24)

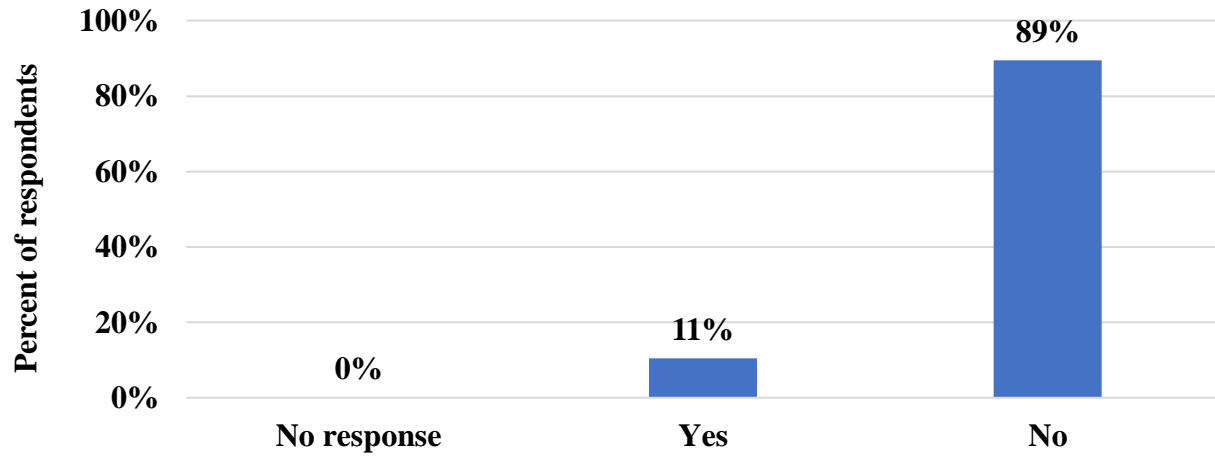
- Lost sales : 79%
- Production challenges (not related to labor) : 63%
- Increased cost of production : 58%
- Labor challenges : 54%
- Increased demand for products : 8%
- Other : 17%



Q8.1. Does your farm or business expect to experience lost sales to international or export markets (outside of the United States), as a result of the coronavirus disease (COVID-19)?

(n = 19)

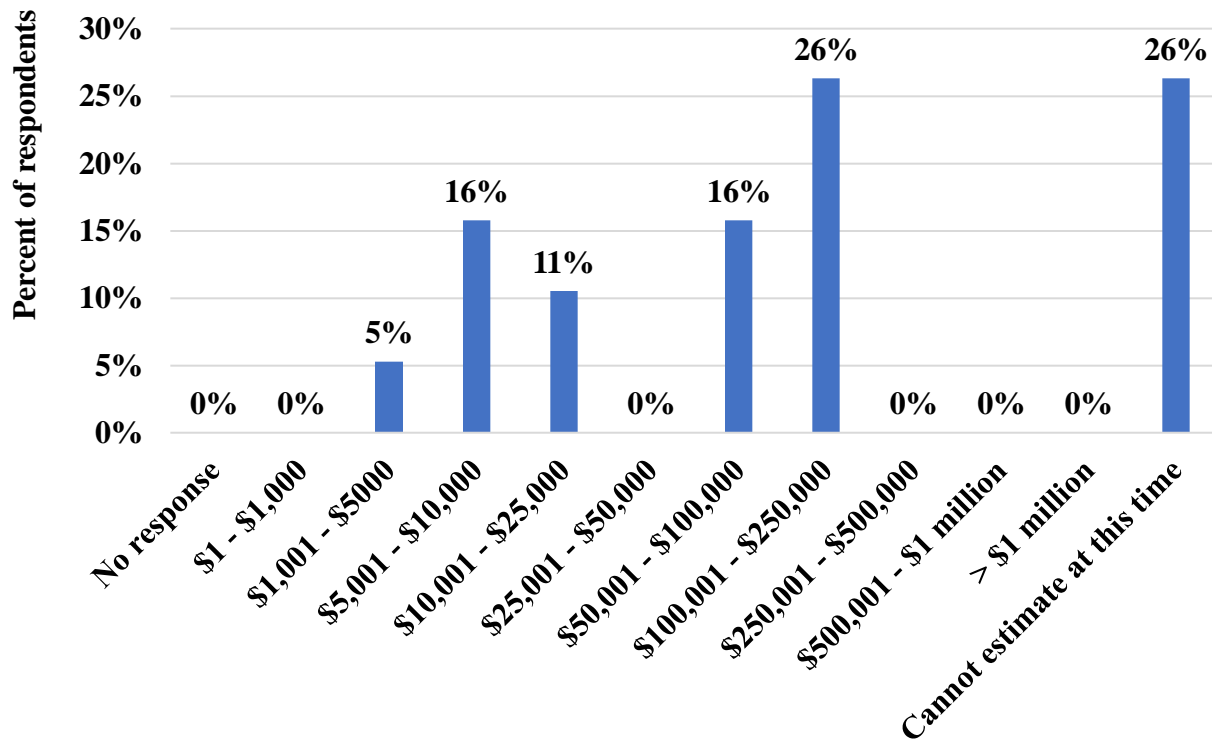
- No response : 0%
- Yes : 11%
- No : 89%



Q8.2. Does your farm or business expect to experience lost sales as a result of the coronavirus disease (COVID-19), please estimate the value of lost sales?

(n = 19)

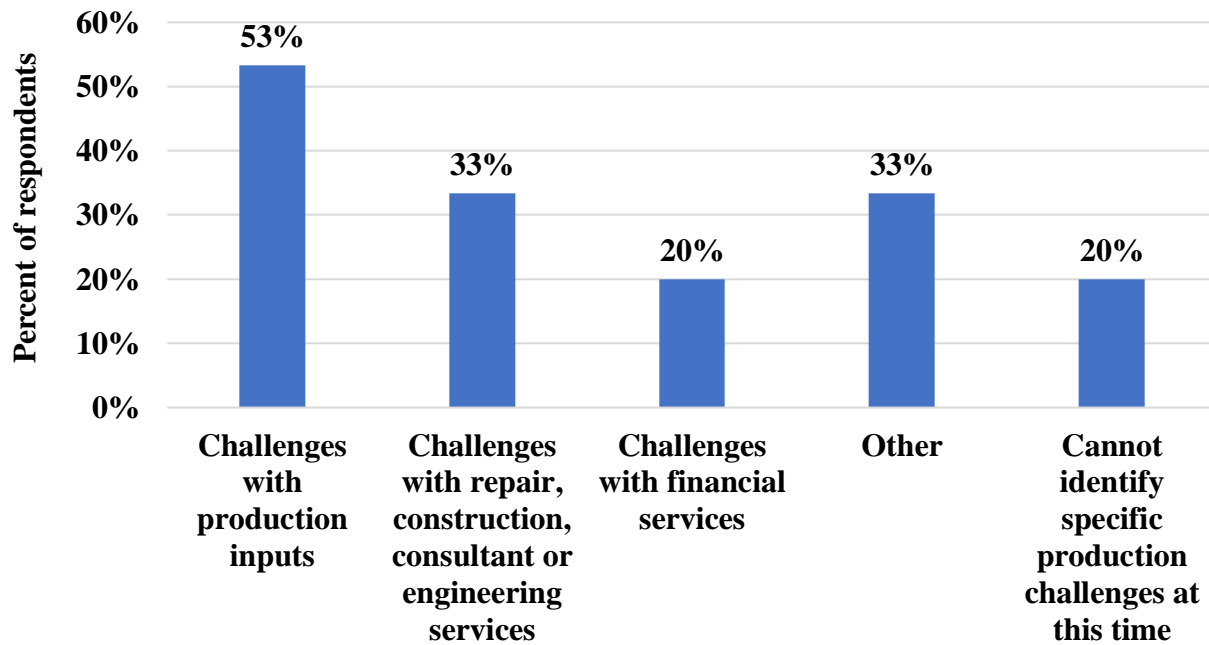
- No response : 0%
- \$1 - \$1,000 : 0%
- \$1,001 - \$5,000 : 5%
- \$5,001 - \$10,000 : 16%
- \$10,001 - \$25,000 : 11%
- \$25,001 - \$50,000 : 0%
- \$50,001 - \$100,000 : 16%
- \$100,001 - \$250,000 : 26%
- \$250,001 - \$500,000 : 0%
- \$500,001 - \$ 1million : 0%
- Greater than \$1 million : 0%
- Cannot estimate at this time : 26%



Q8.3. Does your farm or business expect to experience production challenges (not related to labor) as a result of the coronavirus disease (COVID-19), can those challenges be specified? Please select all that apply.

(n = 15)

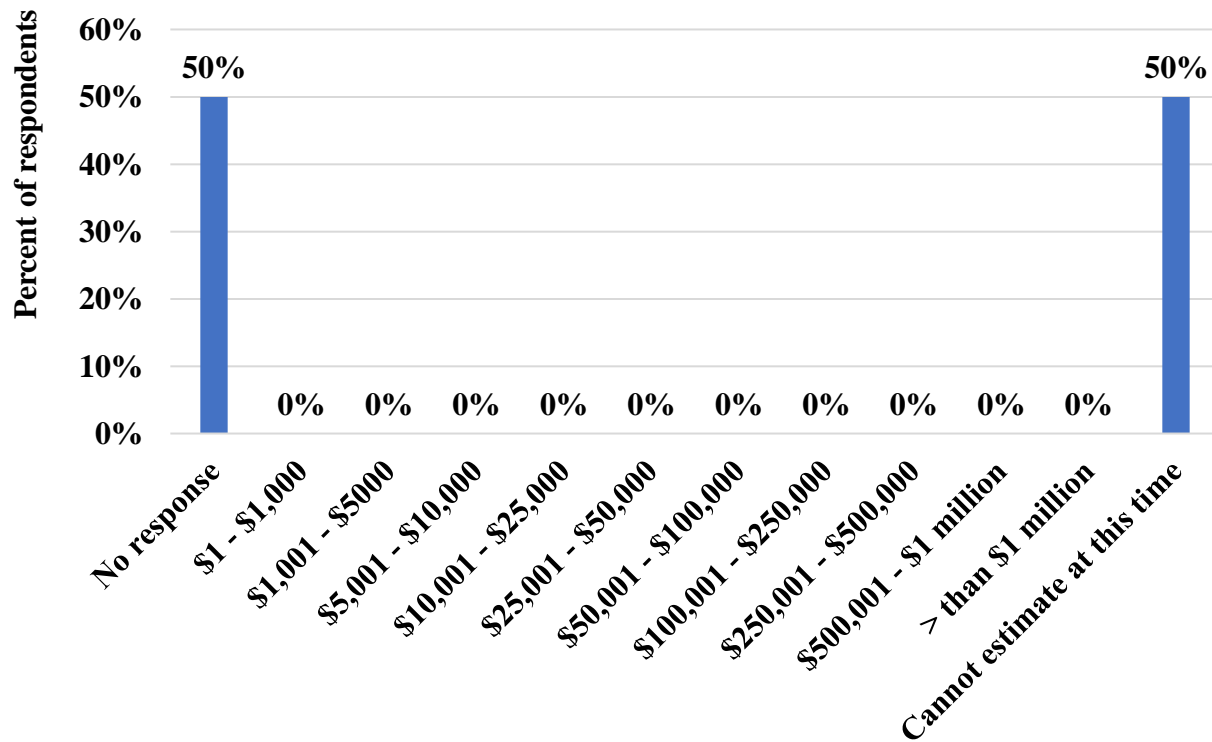
- Challenges with production inputs (feed, chemicals, therapeutants, etc.) : 53%
- Challenges with repair, construction, consultant or engineering services : 33%
- Challenges with financial services (operating loans, leases, etc.) : 20%
- Other : 33%
- Cannot identify specific production challenges at this time : 20%



Q8.6. Does your farm or business expect to experience increased demand for products as a result of the coronavirus disease (COVID-19), please estimate the value of those effects on sales?

(n = 2)

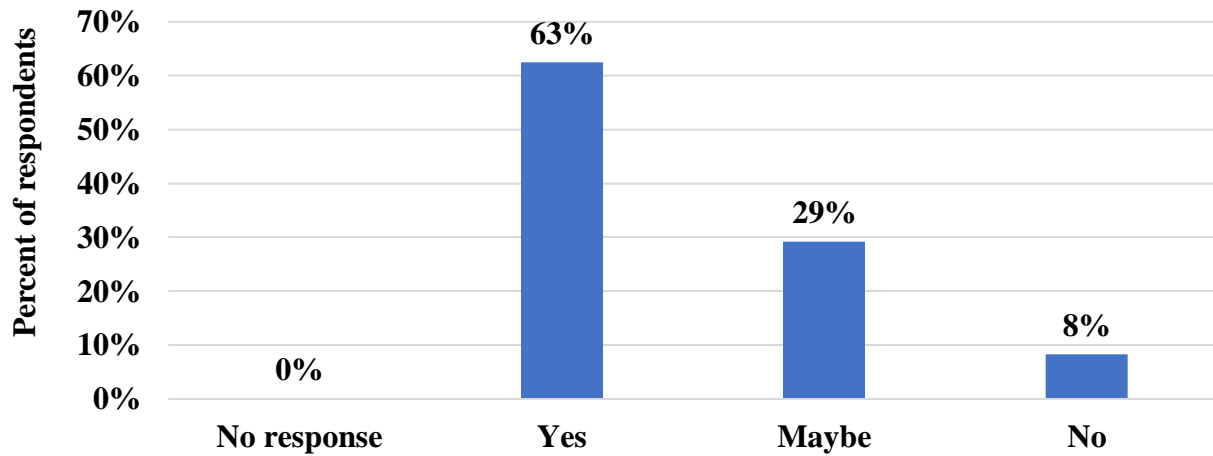
- No response : 50%
- \$1 - \$1,000 : 0%
- \$1,001 - \$5,000 : 0%
- \$5,001 - \$10,000 : 0%
- \$10,001 - \$25,000 : 0%
- \$25,001 - \$50,000 : 0%
- \$50,001 - \$100,000 : 0%
- \$100,001 - \$250,000 : 0%
- \$250,001 - \$500,000 : 0%
- \$500,001 - \$ 1million : 0%
- Greater than \$1 million : 0%
- Cannot estimate at this time : 50%



Q9. Without external intervention (for example, governmental assistance), will your farm or business survive in the next 3 (three) months?

(n = 24)

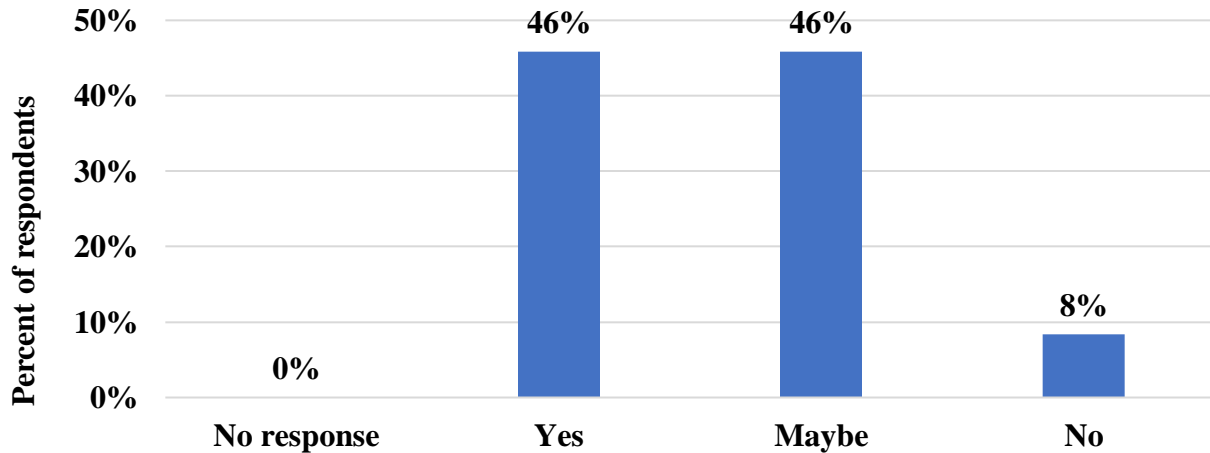
- No response : 0%
- Yes : 63%
- Maybe : 29%
- No : 8%



Q10. Without external intervention (for example, governmental assistance), will your farm or business survive in the next 6 (six) months?

(n = 24)

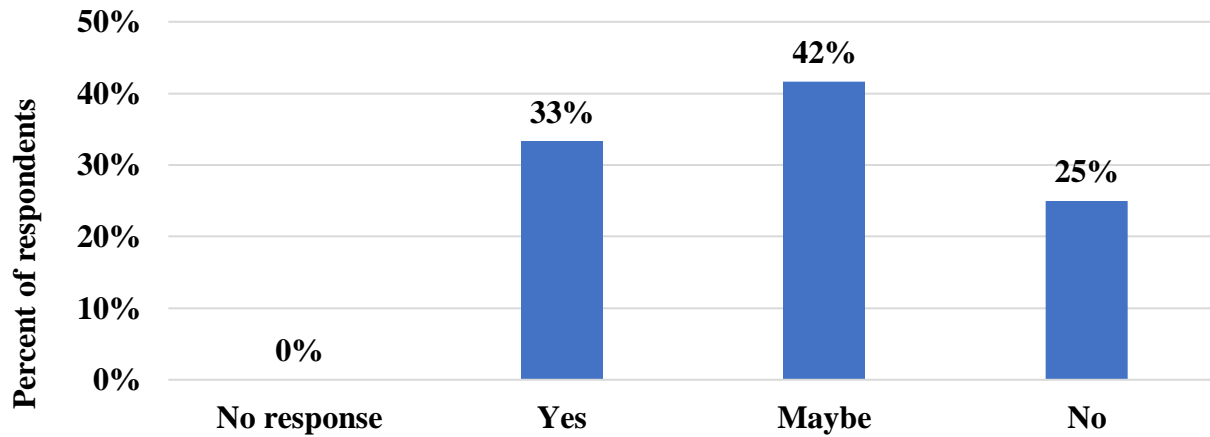
- No response : 0%
- Yes : 46%
- Maybe : 46%
- No : 8%



Q11. Without external intervention (for example, governmental assistance), will your farm or business survive in the next 12 (twelve) months?

(n = 24)

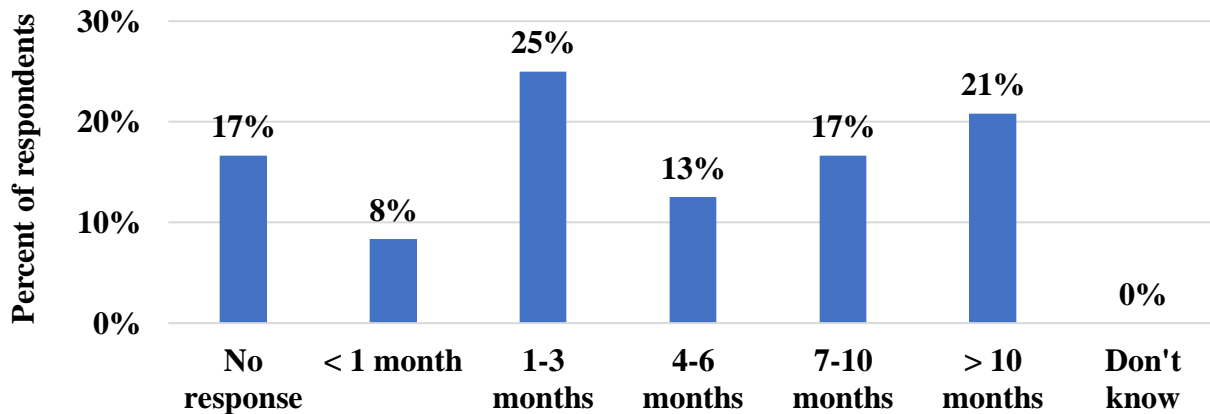
- No response : 0%
- Yes : 33%
- Maybe : 42%
- No : 25%



Q12. How many months can your farm or business survive without sales, as a result of the coronavirus disease (COVID-19), before suffering longer term cash flow effects?

(n = 24)

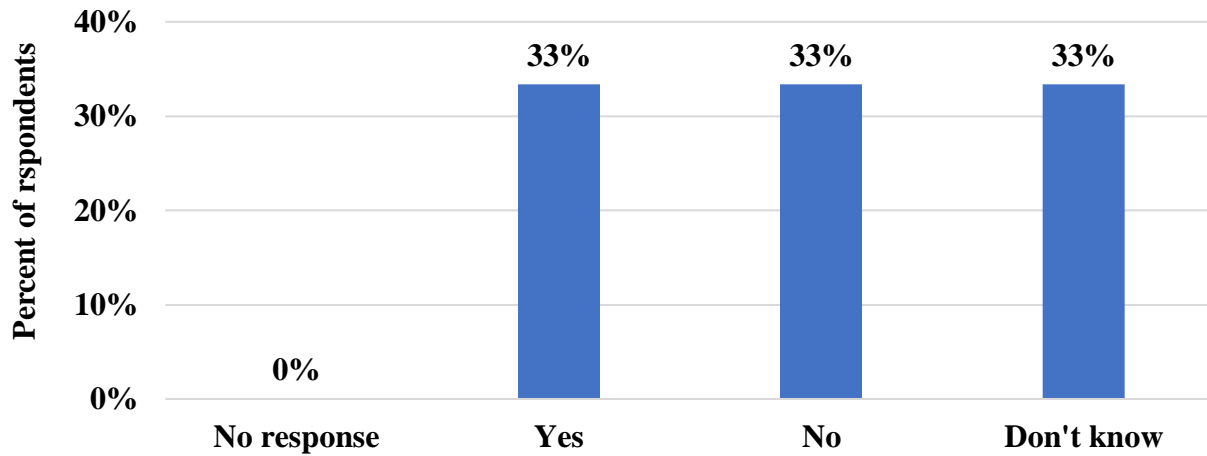
- No response : 17%
- Less than 1 month : 8%
- 1 – 3 months : 25%
- 4 – 6 months : 13%
- 7 – 10 months : 17%
- More than 10 months : 21%
- Do not know : 0%



Q13. Will holding market ready product, as a result of the coronavirus disease (COVID-19), make it less marketable?

(n = 24)

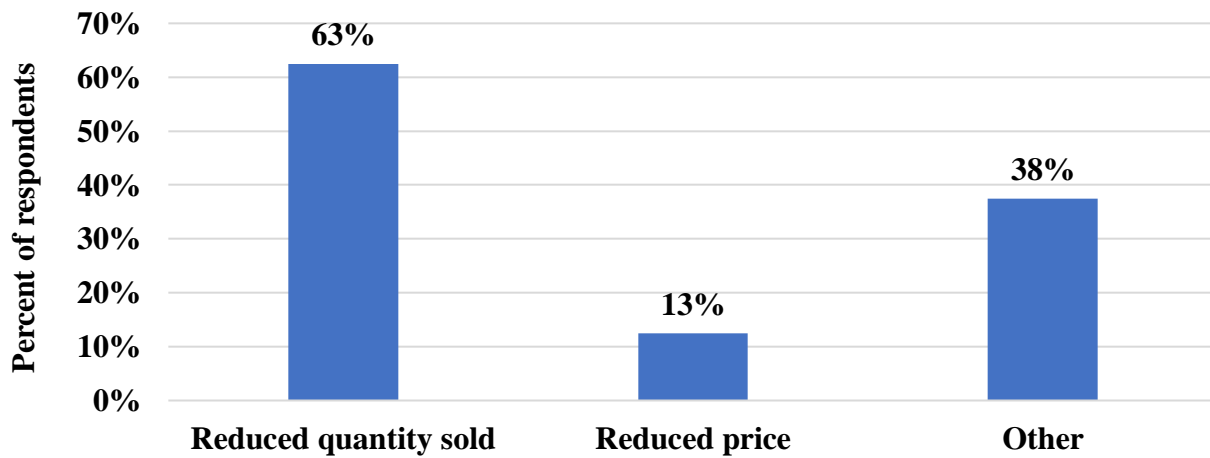
- No response : 0%
- Yes : 33%
- No : 33%
- Don't know : 33%



Q13.1. Will holding market ready product, as a result of the coronavirus disease (COVID-19), result in: Please select all that apply.

(n = 8)

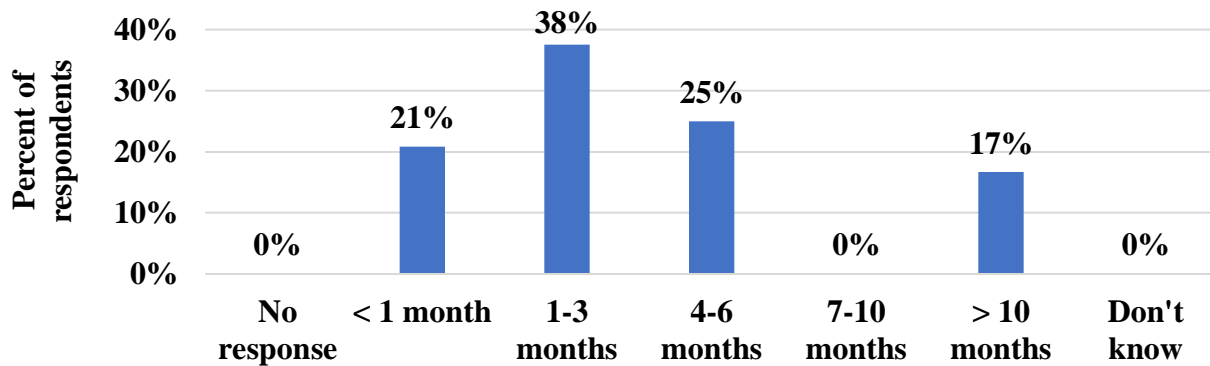
- Reduced quantity sold : 63%
- Reduced price : 13%
- Other : 38%



Q14. How many months can your farm or business hold market ready product, as a result of the coronavirus disease (COVID-19), before it becomes an issue for new crops or planting?

(n = 24)

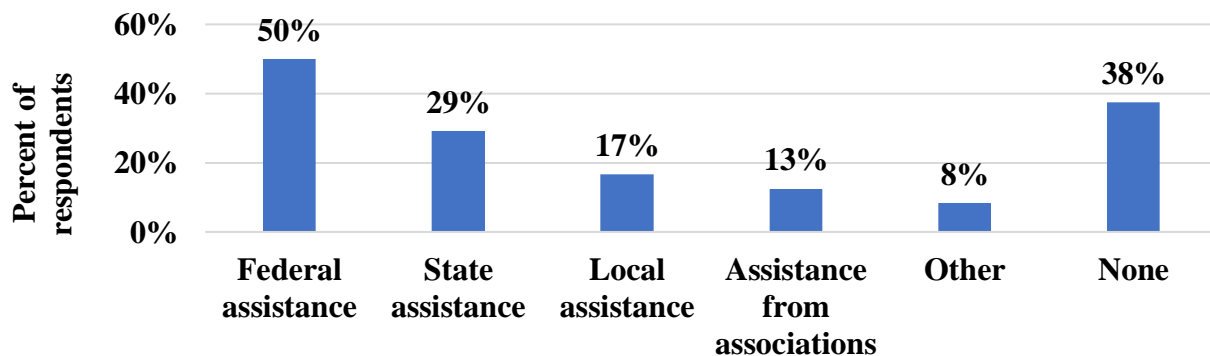
- No response : 0%
- Less than 1 month : 21%
- 1 – 3 months : 38%
- 4 – 6 months : 25%
- 7 – 10 months : 0%
- More than 10 months : 17%
- Don't know : 0%



Q16. Are there specific steps or types of assistance that would increase the likelihood for your farm or business to survive? Please select all that apply.

(n = 24)

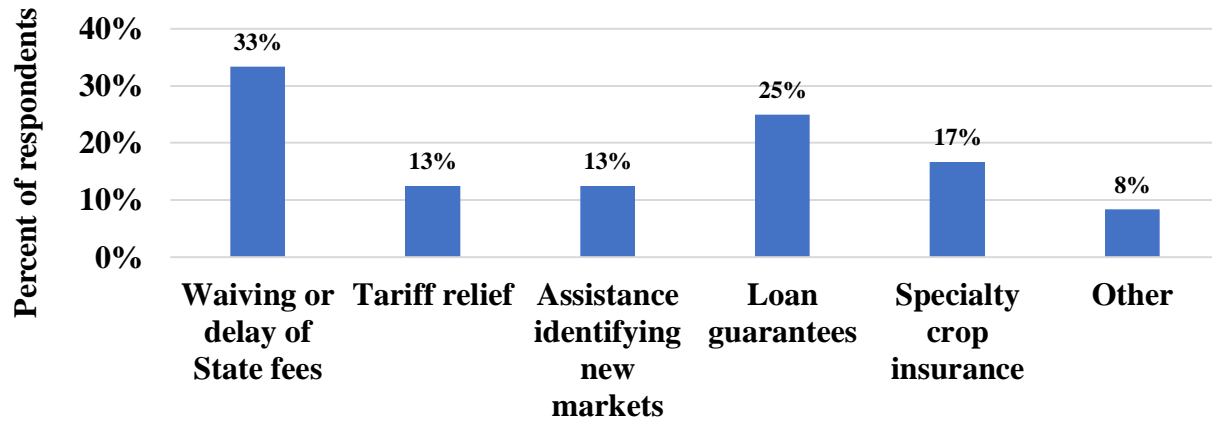
- Federal assistance : 50%
- State assistance : 29%
- Local assistance : 17%
- Assistance from associations : 13%
- Other : 8%
- None : 38%



Q17. Would assistance with any of the following be helpful to your farm or business right now? Please select all that apply.

(n = 24)

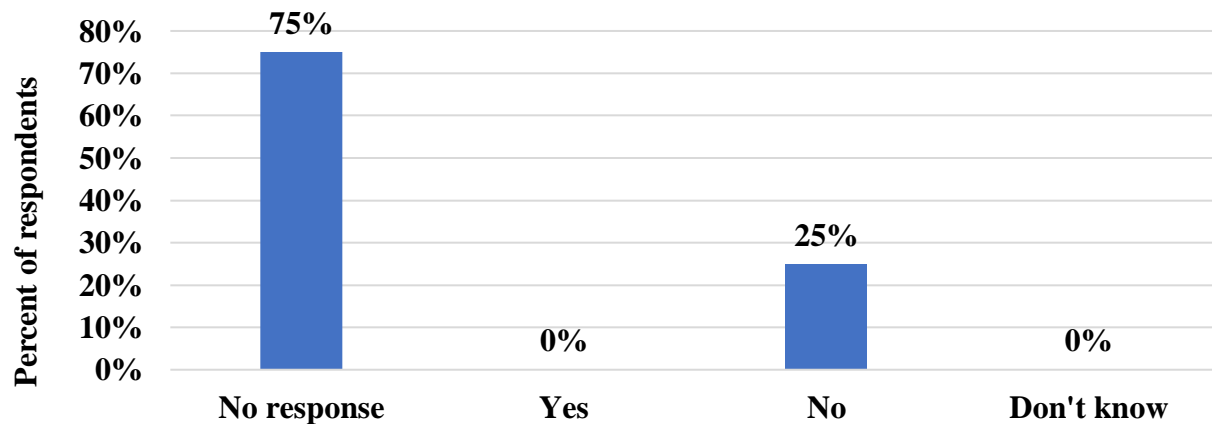
- Waiving or delay of State fees : 33%
- Tariff relief : 13%
- Assistance identifying new markets : 13%
- Loan guarantees : 25%
- Specialty Crop Insurance : 17%
- Other : 8%



Q18. Are there any existing programs that your aquaculture, aquaponics, or allied business does not currently qualify for, that would increase the likelihood of survival of your farm or business?

(n = 24)

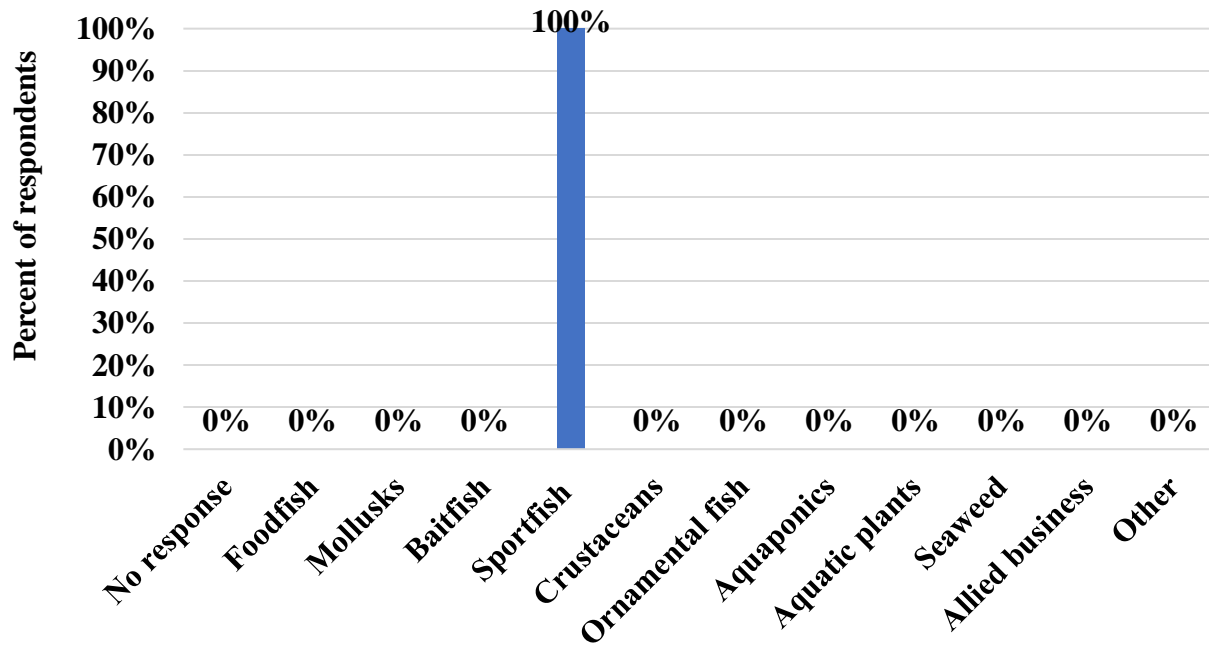
- No response : 75%
- Yes : 0%
- No : 25%
- Don't know : 0%



Q19. What is the primary product that your farm or business produces?

(n = 25)

• No response	:	0%
• Foodfish	:	0%
• Mollusks (oysters, clams, mussels, etc.)	:	0%
• Baitfish	:	0%
• Sportfish / recreational fish, including trout	:	100%
• Crustaceans (crawfish, soft crab, shrimp, etc.)	:	0%
• Ornamental fish (aquarium or water garden)	:	0%
• Aquaponics	:	7%
• Aquatic plants	:	0%
• Seaweed	:	0%
• Allied business (equipment, chemicals, etc.)	:	0%
• Other	:	0%



Q19.1. Please indicate which is the major species of foodfish raised by your farm or business:

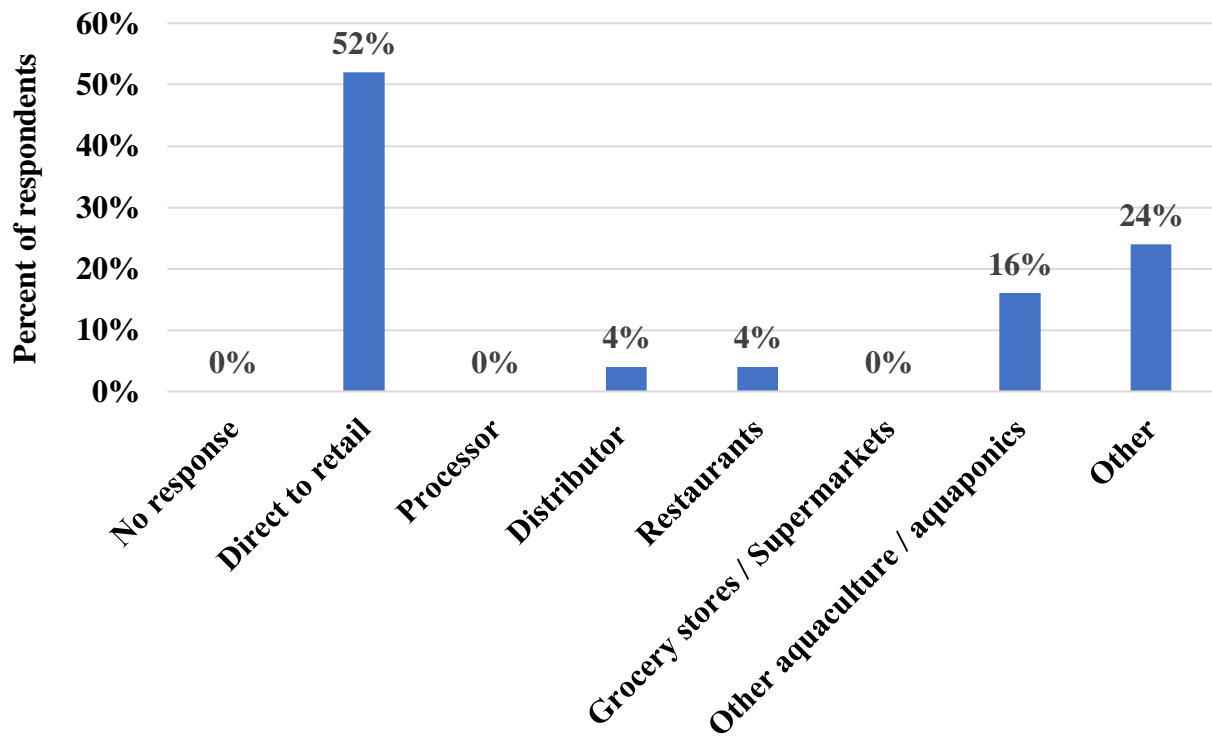
(n = 0)

- No response : NA
- Catfish : NA
- Trout : NA
- Salmon : NA
- Tilapia : NA
- Hybrid Striped Bass : NA
- Other : NA

Q20. How does your farm or business primarily market or sell aquaculture / aquaponics products?

(n = 25)

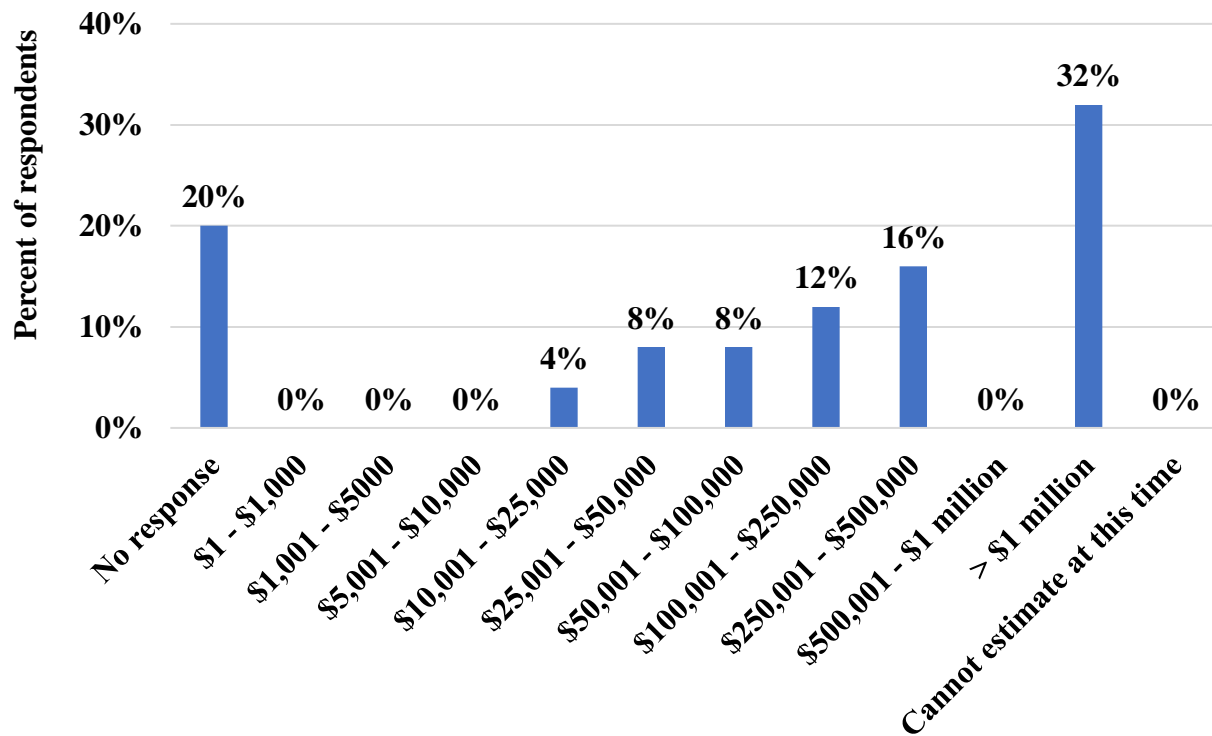
- No response : 0%
- Direct to retail (direct to consumers) : 52%
- Processor : 0%
- Distributor : 4%
- Restaurants : 4%
- Grocery Stores / Supermarkets : 0%
- Other aquaculture/aquaponics farms or businesses : 16%
- Other : 24%



Q21. Please indicate the scale of your farm or business by annual sales volume before the effects of coronavirus disease (COVID-19):

(n = 25)

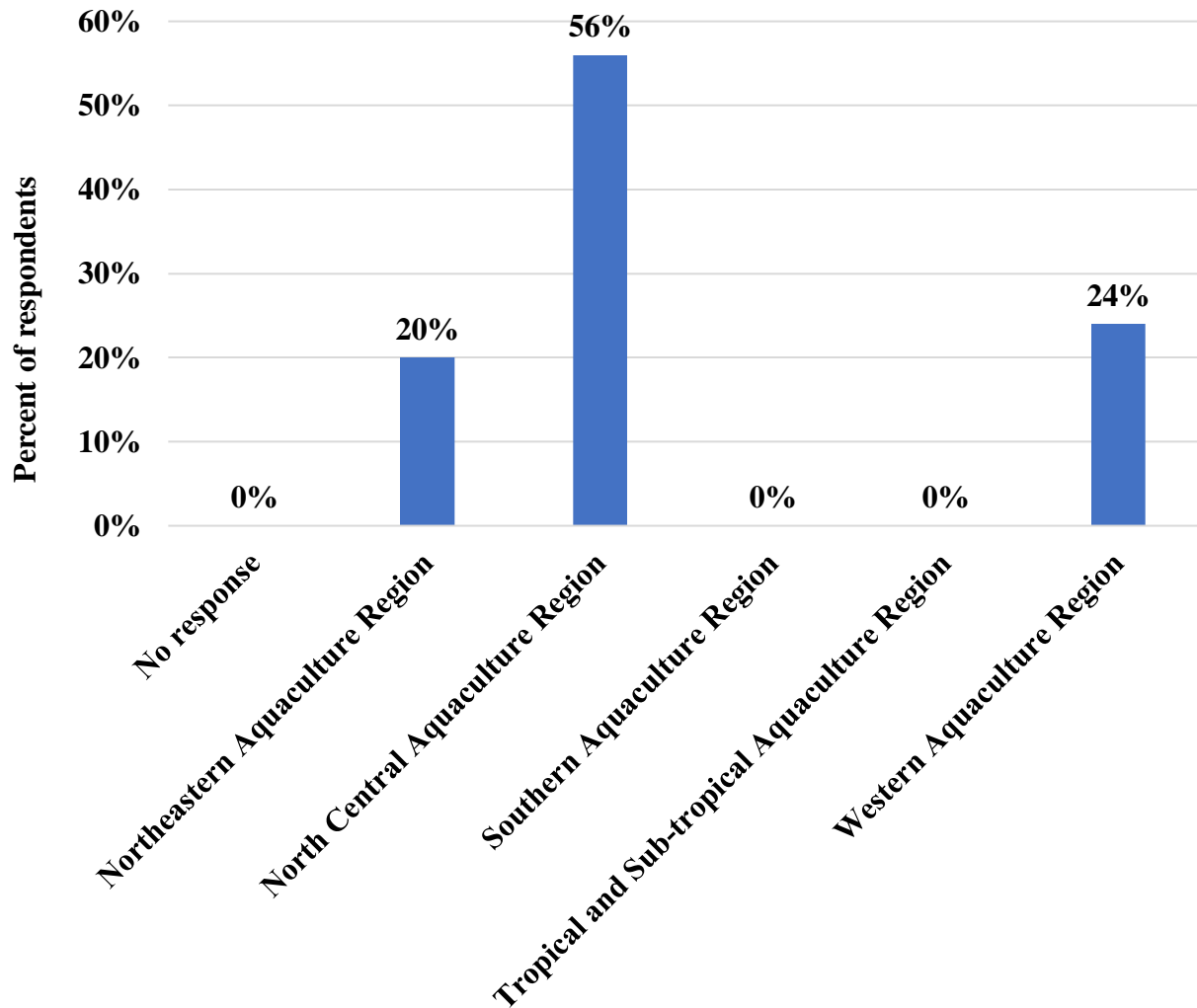
- No response : 20%
- \$1 - \$1,000 : 0%
- \$1,001 - \$5,000 : 0%
- \$5,001 - \$10,000 : 0%
- \$10,001 - \$25,000 : 4%
- \$25,001 - \$50,000 : 8%
- \$50,001 - \$100,000 : 8%
- \$100,001 - \$250,000 : 12%
- \$250,001 - \$500,000 : 16%
- \$500,001 - \$ 1million : 0%
- Greater than \$1 million : 32%
- Cannot estimate at this time : 0%



Q22. In which USDA defined Aquaculture Region is your farm or business located?

(n = 25)

- No response : 0%
- Northeastern Aquaculture Region : 20%
- North Central Aquaculture Region : 56%
- Southern Aquaculture Region : 0%
- Tropical and Sub-Tropical Aquaculture Region : 0%
- Western Aquaculture Region : 24%



References

USDA (United States Department of Agriculture). 2019. 2018 Census of Aquaculture. National Agricultural Statistics Service, USDA, Washington, District of Columbia, USA.

Accessed April 2020 at:

https://www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Census_of_Aquaculture/index.php.

Acknowledgements

Thank you to all respondents who participated in this study. Also, thank you to all of the national, regional, and state associations, agencies, Extension, and all others who helped us disseminate the survey. There are simply too many names to list, thanks to all of you.