



Impacts of COVID-19 on U.S. catfish businesses:

Quarter 1 Results

March 23, 2020 to April 10, 2020

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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 **catfish 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 **54 catfish farm participants**, that represent approximately 10% of the U.S. catfish farmers reported in the 2018 Census of Aquaculture (USDA, 2019). More than three-fourths of catfish respondents sold their fish to a processor, with much smaller percentages selling direct to consumers, restaurants, distributors, or to other aquaculture farms (Table 1).

Table 1. Primary marketing channel for catfish respondents.

Category	Percentage
Processor	76%
Direct to consumer	7%
Restaurants	6%
Distributors	6%
Other aquaculture farms	6%

Scale of farms/businesses

Catfish farms vary in terms of their production scale. Respondents to the survey included those with scales of production from sales of \$50,000 to \$100,000 a year up to those with annual sales greater than \$1 million (Table 2). The greatest percentage (30%) of respondents had sales in the range of \$250,000 to \$500,000, followed by farms with sales greater than \$1 million (26%), \$500,000 to \$1 million (24%), \$100,000 to \$250,000 (9%), and 8% of respondents had sales less than \$100,000.

Table 2. Scale of catfish respondent farms/businesses.

Category	Percentage
\$250,000 - \$500,000	30%
> \$1 million	26%
\$500,000 - \$1 million	24%
\$100,000 - \$250,000	9%
\$5,000 - \$10,000	4%
No response	4%
\$25,000 - \$50,000	2%
\$50,000 - \$100,000	2%
\$1,000 - \$5,000	0 %
\$1 - \$1,000	0 %

Aquaculture Regions

Nearly all catfish farm (94%) respondents were located in the Southern Aquaculture Region. There were small percentages in the North Central Region (4%) and Western Region (2%) (Table 3).

Table 3. Participation by aquaculture region.

Region	Percentage of survey respondents
Southern	94%
North Central	4%
Western	2%

Key Findings

Eighty-three percent of catfish respondents reported that their farm or business had been impacted by the COVID-19 pandemic. Seven percent said that their catfish business had not been impacted, and 9% were uncertain or unsure whether it had been impacted. Of those who reported that their catfish farm or business had not been impacted, 44% said it would “definitely” be impacted, 33% said “probably yes,” and 22% said “probably not”. No respondents said that their business would “definitely not” be impacted.

When asked whether their farm or business would survive the next 3 months without external intervention (such as government assistance), only 38% said, “yes.” Fifty-two percent reported that their farm or business would “maybe” survive 3 months without external assistance, and 8% said that their farm or business would not survive 3 months without external assistance (2% of respondents did not respond to this question). When asked the same question, but for the next 6 months, 26% said that it would survive, 52% said “maybe,” and 20% said that their farm/business would not survive the next 6 months without external assistance (2% did not respond). Responses related to 12 months without external assistance were that 40% indicated that they would not survive, 50% said that their farm or business would “maybe” survive, and only 8% said that they would survive (2% did not respond to this question).

Lost Sales

Seventy-seven percent of catfish farm respondents indicated that they had lost sales due to the COVID-19 outbreak. In addition, 20% of catfish 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, 27% reported losses in the range of \$100,000 to \$250,000; another 27% said that they could not estimate the losses at the time they responded to the survey; 12% reported losses of \$25,000 - \$50,000; 10% lost from \$250,000 to \$500,000; 10% lost \$500,000 to \$1 million; 5% \$50,000 to \$100,000; and 2% of respondents reported losing more than \$1 million, 2% lost \$10,000 - \$25,000, and 2% lost \$1,000 - \$5,000, (2% did not respond to the question). One processor reported loss of 60% of their business,

another reported sales losses of \$200,000 in a single week.

The lost sales reported included canceled contracts of various sorts. Sixty-two percent of catfish farm respondents reported losing private contracts for sales, and 13% reported losing government (state or federal) contracts for sales. One catfish business reported the loss of 60% of their food service business due to restaurant closures and cutbacks. Another business reported that, while retail grocery sales were increasing with the closure of restaurants, that retail grocery sales would not offset the losses in food service sales over the short term.

Respondents were further asked what challenges they expected to experience on their farms or businesses as a result of the coronavirus pandemic in 2020. Ninety-two percent of catfish farm respondents indicated that they expected to lose sales, with 27% expecting to lose international markets. In terms of the volume of sales expected to be lost, one-third of respondents reported that they were not able to estimate the volume at this time. Fifteen percent estimated that lost sales would be in the range of \$250,000 - \$500,000; 13% \$50,000 - \$100,000; 10% \$25,000 - \$50,000; 8% \$100,000 - \$250,000; 6% \$500,000 - \$1 million; 6% greater than \$1 million; 4% \$10,000 - \$25,000; and 4% \$5,000 - \$10,000.

When asked how long catfish respondents thought their farm or business could survive without sales before suffering longer term cash flow effects, 42% said 1 – 3 months, 20% said 4 – 6 months, 18% 7-10 months, 14% less than 1 month, and 6% did not respond to this question. It should be noted that some respondents completed the survey three weeks prior to the preparation of this report. One processor commented that the market shutdowns may result in permanent loss of customers.

Labor

Sixteen percent of respondents reported that they had laid off employees as a result of the COVID-19 pandemic. Another 29% indicated that they “will have to soon.” Fifty-six percent had not laid off employees. In terms of the number of employees laid off, 43% of catfish farm or business respondents indicated that they had laid off 1-3 employees.

Another 29% had laid off from 4-6 employees, 14% 7-10, and 14% 16-20 employees. Individual respondents reported having laid off as many as 150 employees.

Respondents were further asked how many weeks it would be before they would have to lay off employees. Sixty-nine percent of catfish respondents indicated that they would have to decide within 1-3 weeks whether to lay off employees. Twenty-three percent said that they had less than a week to decide whether to lay off employees, and 8% said that they had more than 10 weeks to make that decision. It should be noted that data collection for the survey was open for a period of 3 weeks. Catfish respondents were further asked how many employees they would need to lay off at that time. Forty-six percent said that they would have to lay off from 1-3, 23% said that they would have to lay off more than 20 employees, 15% 4-6 employees, 8% 11 – 15 employees, and 8% 16-20 employees. Of those employees who had been laid off, 30% of catfish respondents indicated that these were “Short-time” or “Shared-Work” employees.

Twenty-five percent of catfish farm respondents had experienced some type of labor challenge. Employees were reported to have missed work due to the COVID-19 pandemic. Those who missed work included those who were instructed to self-quarantine at home due to symptoms exhibited. Eighteen percent of catfish farm or business respondents indicated that employees had missed work, while 82% reported that employees had not missed work due to the coronavirus. Of those respondents who reported employees missing work, 25% reported 1-3 lost days, 25% 4-6 lost days, 25% 7-10 lost days, 13% 11-14 lost days, and 13% lost more than 14 days of work.

Several respondents commented on labor shortages due not just to the illness itself but also the fear of virus outbreaks in their area and the reaction of some employees to call in sick when they receive a lump sum of money from government or other assistance. Labor shortages are compounded by company actions to lay off employees due to lack of sales and by actions taken out of concern over employees becoming infected. Some businesses have divided employees into shift groups to maintain

social distancing; doing so results in reduced hours of work overall. One comment indicated that they had no known infected employees, but when it does occur it will have a severe impact on employee fears and their ability to operate. Labor shortages were expected to extend beyond May, 2020.

In spite of layoffs in some businesses, labor costs were reported to have increased for several catfish businesses. The increased labor costs are due to increased costs for health screening of applicants for positions. In addition, the increased use of employment agencies for both recruitment and health has increased labor costs. Additional training required for new hires and additional training for existing employees on safety recommendations related to COVID-19 have further increased labor costs in catfish businesses.

Challenges to the farm/business

Catfish farm 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. One respondent commented that a disruption to the supply chain between farm production and plant processing will have a 2-year impact due to the 2-year growth cycle from egg to processable food fish. Fifty-four percent of catfish farm or business respondents reported experiencing production challenges not related to labor. Half (50%) of catfish farm respondents reported increased costs of production, particularly feed, and 15% reported other types of challenges, including lower farm-gate prices for catfish with decreased overall demand.

Many of the comments related to increased costs of production were related to increased cost of catfish feed. The price of catfish feed was reported to have increased due to increased prices of commodities. In addition to increased feed prices, storage fees have climbed for product that now needs to be held longer due to order cancellations.

Sixty-eight percent of catfish respondents indicated that they could hold market-ready product for 1 to 3 months before it would interfere with stockings of

future crops. Eighteen percent said that they could hold market-ready product for less than 1 month, and 10% said that they could hold it for 4 to 6 months.

Other cost increases will occur due to holding market-ready product for an extended period of time before sale, allowing for increased predation by fish-eating birds, and greater losses to disease. One respondent estimated additional losses of 3% to 5% per month due to holding market-ready fish longer than normal. In addition to feeding the un-sold market-sized fish longer, the growth rate will slow due to greater stocking densities. Moreover, the coming months are the seasons of greatest risk of losses due to disease or oxygen problems. The greater biomass in the ponds will lead to greater aeration costs during the summer months and greater-than-normal mortality rates. If the lack of sales continues into the fall, there likely will be more losses to disease related to the high biomasses of catfish in ponds. Similarly, winter mortality will be higher if larger fish are carried into the winter.

Compounding the above problems is that larger fish bring lower prices, with catfish above 3 pounds having little value. If another crop is stocked in ponds with the un-sold market-sized fish, the larger fish will consume more feed, not just increasing overall costs but growing past ideal processing size for which processing plants pay either a reduced price per pound or do not pay at all if too large. Hatcheries that cannot sell fingerlings, then, may have fingerlings pushed into a limited foodfish-size market at a much lower price.

In processing plants, the lower volumes processed will increase costs per pound of product due to the lower volume processed with fixed costs remaining the same or possible increasing. A respondent reported that the total volume processed has decreased by 40%, resulting in greater processing inefficiencies, and estimated that processing costs (per pound of product sold) will increase by approximately 15 to 20% due to the reduced volume processed.

Challenges related to production inputs (feed, therapeutants, etc.) were reported by 42% of catfish farm respondents. Additional production challenges reported by catfish farm respondents included:

challenges with repair, construction, consulting, or engineering services (17%), and financial services (29%). Other comments were related to the short supply of cleaning materials, packaging and bagging materials, and replacement parts for machinery. If repairmen are shut down or quarantined, the lack of access to repair services would cause serious problems.

Financial services challenges mentioned by respondents included: loan service needs for the 2020 growing season, not being able to pay off production loan and other financial obligations due to not being able to move product and generate cash. In terms of expectations for the coming months, 56% of respondents expected increased costs of production, and 25% expected labor problems. One respondent commented that banks were wary of making production loans.

Marketing of products

At least one processor commented that they have suspended purchases of fish from independent producers. Thus, producers without a formal relationship with a processing plant may be unable to sell fish from their farm. Extended holding of product that is ready to be sold can cause problems associated with planting new crops for subsequent years. Eighty-eight percent of catfish farm respondents indicated that holding market-sized product would make it less marketable. More specifically, 52% of catfish respondents said that holding product would reduce the overall quantity sold. Eighty-six percent said that the price received for the product would be reduced. One respondent commented that not being able to sell fish would keep them from raising a crop in 2020. One respondent reported 100% loss of revenue from the farm. Other respondents indicated that the prohibitions and local curfews restricted visitors and have prevented direct on-farm sales to consumers. One respondent commented that prices will have to be cut to push more product through retail grocery stores. The problem with increasing volumes sold to grocery stores is that retailers have strict allocations that keep consumers from being able to order all products needed due to limited trucking services.

Increased demand for products

Four percent of catfish respondents reported increased demand for their products. Of these, half reported increased demand in the range of \$250,000 to \$500,000.

Assistance to Farms/Businesses

The survey included questions on the types of assistance that might be helpful to the farm or business of respondents. Seventy-seven percent of catfish respondents indicated that federal assistance would increase the likelihood of survival of their farm or business. Thirty-five percent said that assistance from the state, 13% from local government, and 13% from association would be helpful.

When asked more specifically what types of assistance would be helpful, 38% said that identifying new markets, 33% said loan guarantees, 33% said specialty crop insurance, 21% tariff relief, and 12% said waiving or delaying state fees would be helpful. When asked if there were existing programs for which their farm or business does not currently qualify that would be of assistance during the pandemic, only 10% said, “Yes,” with 19% saying, “No,” and 71% did not respond to this question.

Additional comments by catfish respondents included a variety of suggestions on the type of assistance that would be of greatest help (Table 4). Cash payments, credits, and vouchers for major expenses such as feed and utilities were mentioned most often. The second-most frequent comments were related to various forms of financial services, including loan guarantees, low-interest loans, debt forgiveness, exemption of interest payments, and deferred loan payments. Several respondents referred to a current need for loan guarantees specifically for feed or for operating loans generally, given the serious cash flow problems. Interest-free loans were also mentioned by a number of respondents. Additional suggestions were made to provide assistance through increased federal purchases of catfish products to distribute to food banks, for the military, and for First Nation

reservations. Restrictions to stop imports of catfish-like products were also mentioned frequently by catfish respondents. A number of suggestions were made to provide assistance to employees who have been laid off, including providing a match for state unemployment payments as well as the Payroll Protection Program.

Table 4. Additional Comments Related to Types of Assistance Reported by Catfish Respondents that Would be Most Useful

Type of assistance	Catfish respondents
Cash payments, grants, credits, for expenses (feed vouchers, utilities)	23%
Financing assistance (guaranteed loans, debt forgiveness, deferred loan payments, exemption of interest, low-interest loans)	17%
Government purchases of catfish (food banks, Section 32, schools, military, First Nation reservations)	12%
Stop imports of catfish-like products	12%
Employee assistance (match state funds for out-of-work employees), Payroll Protection Program	10%
Tax breaks	8%
Other (includes honoring existing government orders, keeping processors open, price support payments to keep catfish price > \$1.00, “any assistance”, economic stimulus, market assistance)	17%

Discussion and Conclusion

Responses by catfish farms and businesses to the Quarter 1 survey show that the U.S. catfish industry has been impacted severely by the COVID-19 pandemic. Nearly two-thirds of catfish respondents had had sales orders from private companies canceled and 13% had had government (state/federal) orders canceled, with losses reported as high as \$3 million for one farm/business for the month of March. 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. Of grave concern is that only 38% of catfish farm/business respondents indicated that their farm or business would survive the next 3

months without external assistance. There is a critical need to find solutions for the challenges identified by catfish farms/businesses. Given that survey results showed that there will be longer-term effects on the U.S. catfish industry (only 8% of respondents indicated they were confident of surviving 12 months without external intervention), it will be important to continue to monitor changes throughout the year. Key findings from catfish farm and business respondents include:

- 83% have been impacted by COVID-19
- 62% have had orders/contracts canceled
- 45% have or will soon have to lay off employees
- 77% have experienced lost sales
- 38% 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/aaec-218/AAEC-218.pdf

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2020

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Appendix

Summary of COVID-19 impacts on U.S. catfish

Quarter 1 Results

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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
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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.

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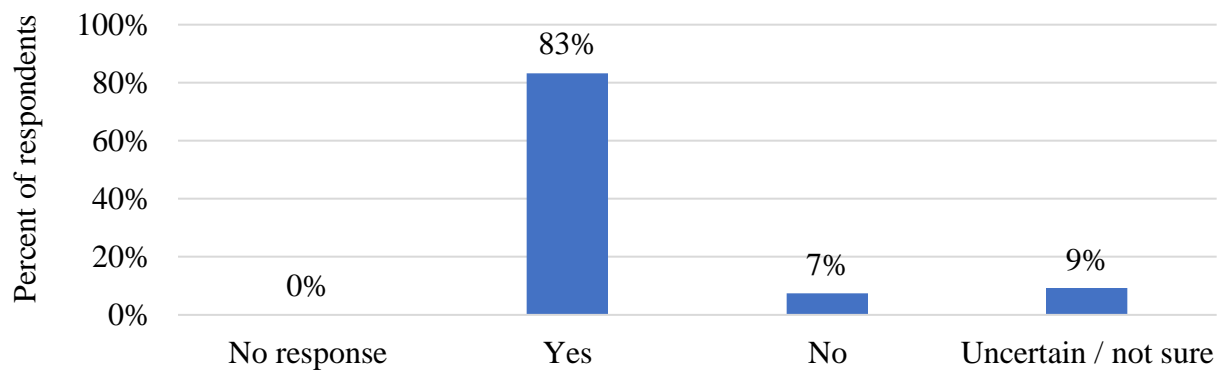
Survey results for each question

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 = 54)

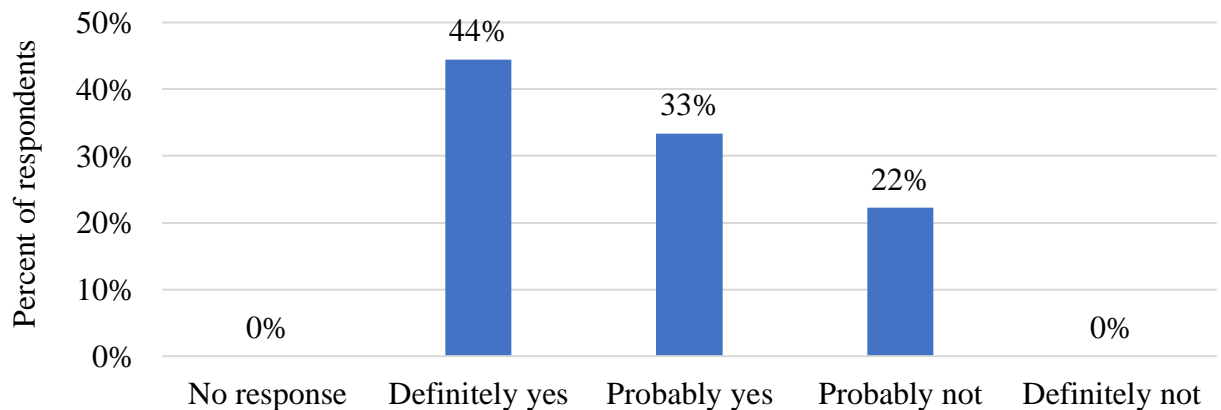
- No response : 0%
- Yes : 83%
- No : 7%
- Uncertain / Not Sure : 9%



Q1.1. Does your farm or business expect to be affected by the coronavirus disease (COVID-19) in 2020?

(n = 9)

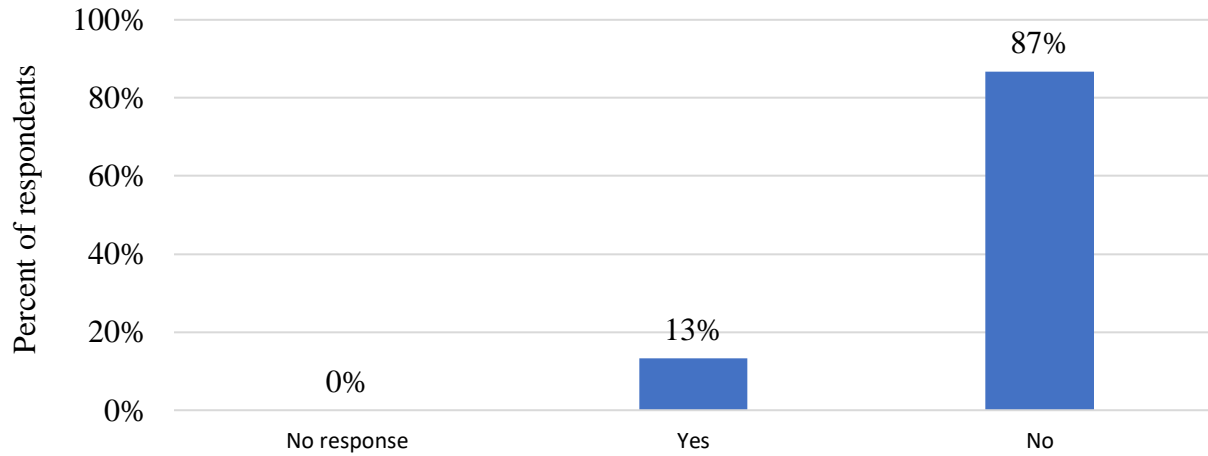
- No response : 0%
- Definitely yes : 44%
- Probably yes : 33%
- Probably not : 22%
- Definitely not : 0%



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

(n = 45)

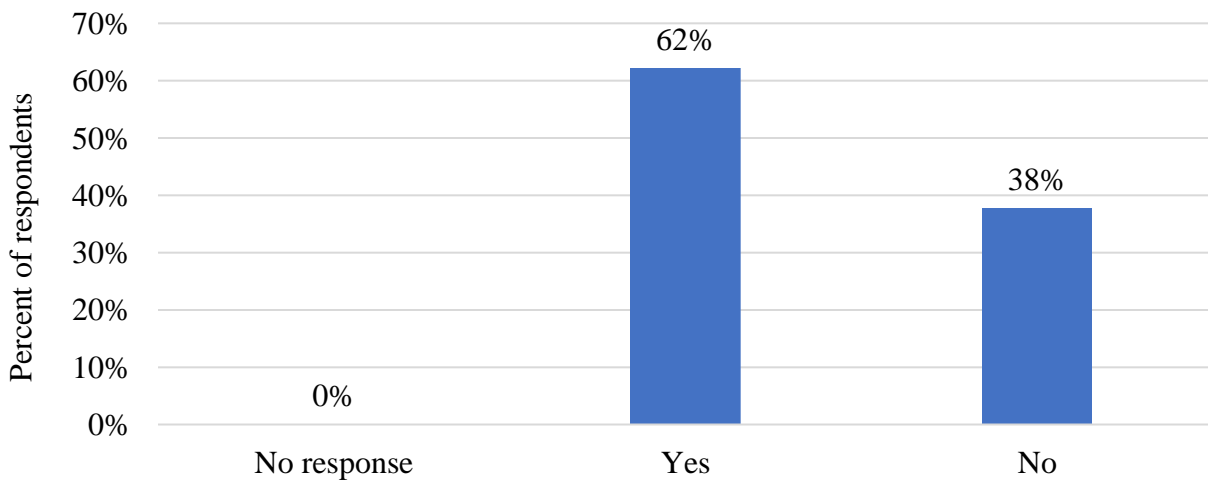
- No response : 0%
- Yes : 13%
- No : 87%



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

(n = 45)

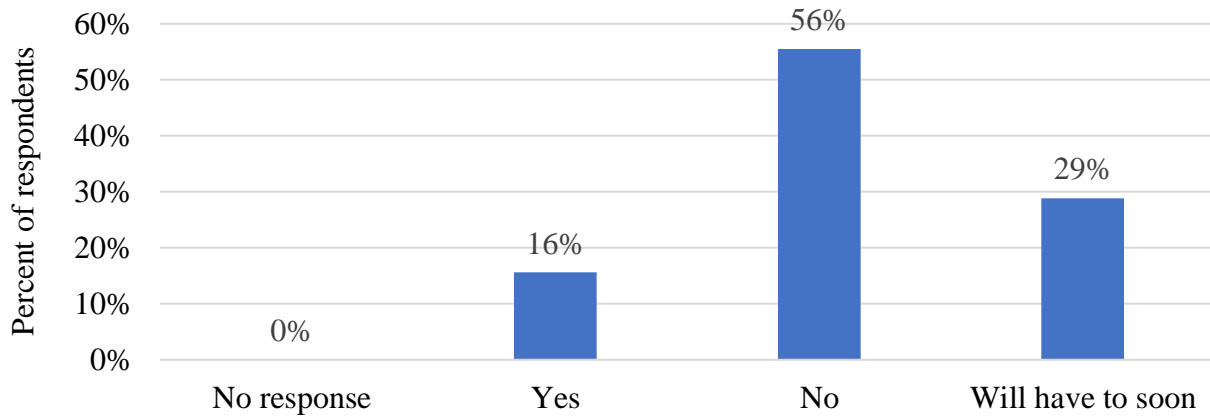
- No response : 0%
- Yes : 62%
- No : 38%



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

(n = 45)

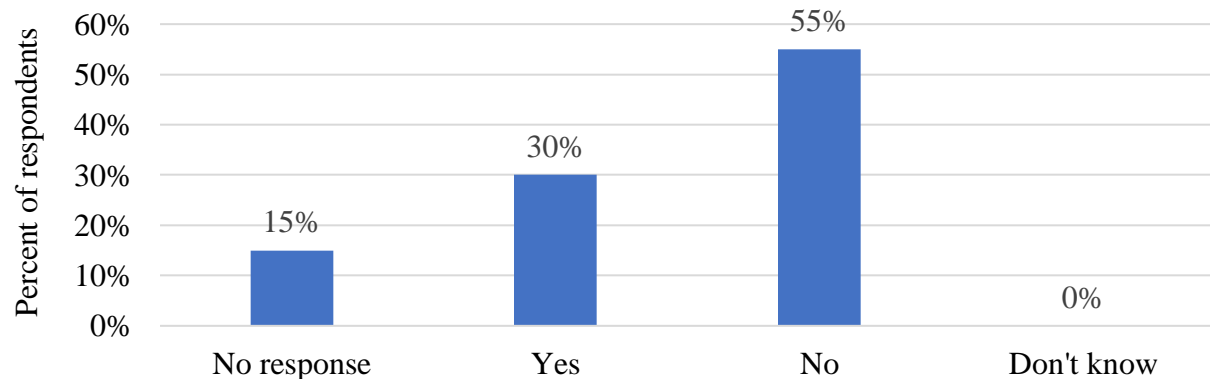
- No response : 0%
- Yes : 16%
- No : 56%
- Will have to soon : 29%



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 = 20)

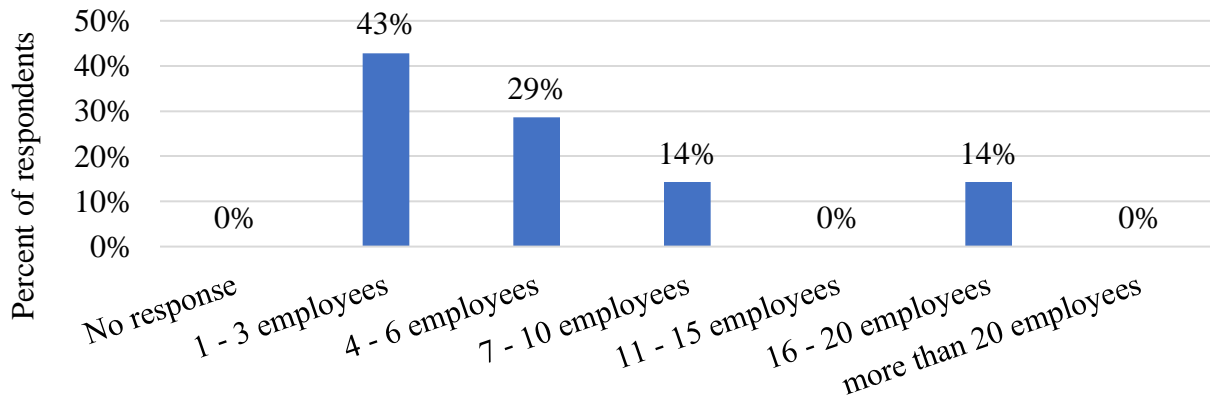
- No response : 15%
- Yes : 30%
- No : 55%
- Don't know : 0%



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

(n = 7)

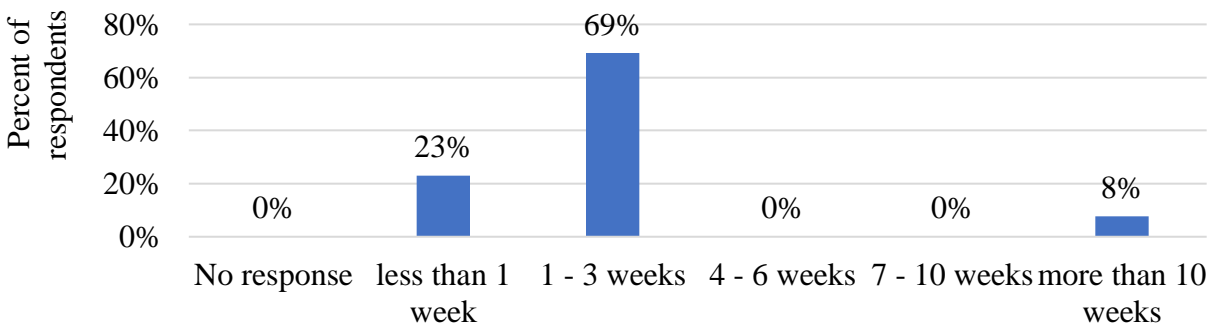
- No response : 0%
- 1 – 3 employees : 43%
- 4 – 6 employees : 29%
- 7 – 10 employees : 14%
- 11 – 15 employees : 0%
- 16 – 20 employees : 14%
- More than 20 employees : 0%



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 = 13)

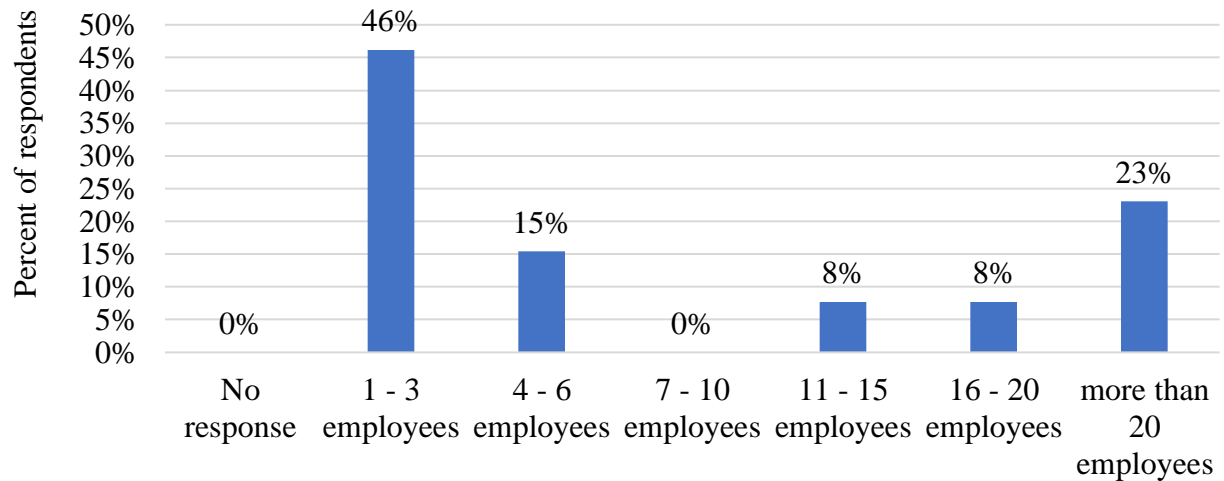
- No response : 0%
- Less than 1 week : 23%
- 1 – 3 weeks : 69%
- 4 – 6 weeks : 0%
- 7 – 10 weeks : 0%
- More than 10 weeks : 8%



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)?

(n = 13)

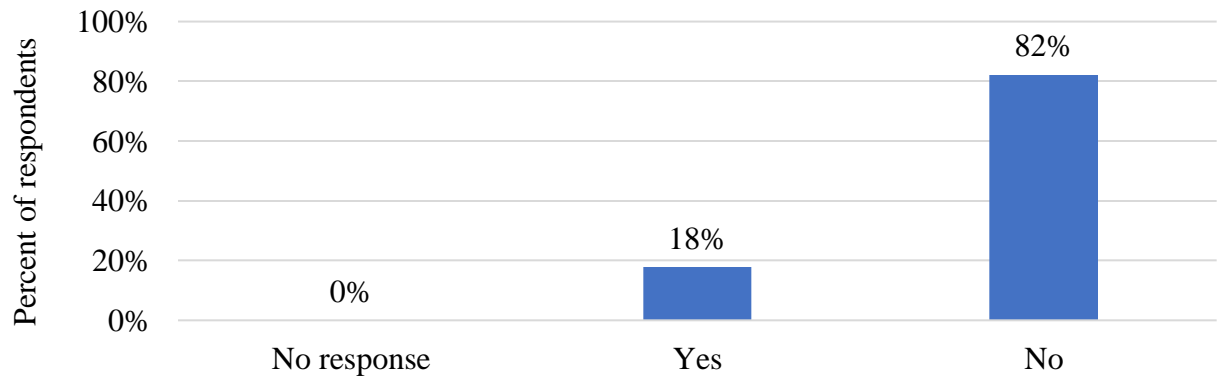
- No response : 0%
- 1 – 3 employees : 46%
- 4 – 6 employees : 15%
- 7 – 10 employees : 0%
- 11 – 15 employees : 8%
- 16 – 20 employees : 8%
- More than 20 employees : 23%



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

(n = 45)

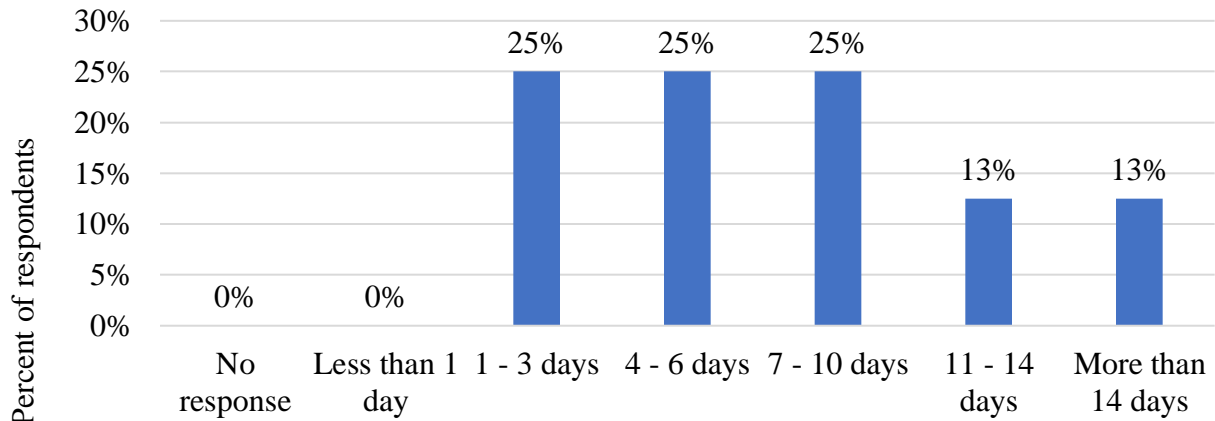
- No response : 0%
- Yes : 18%
- No : 82%



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 = 8)

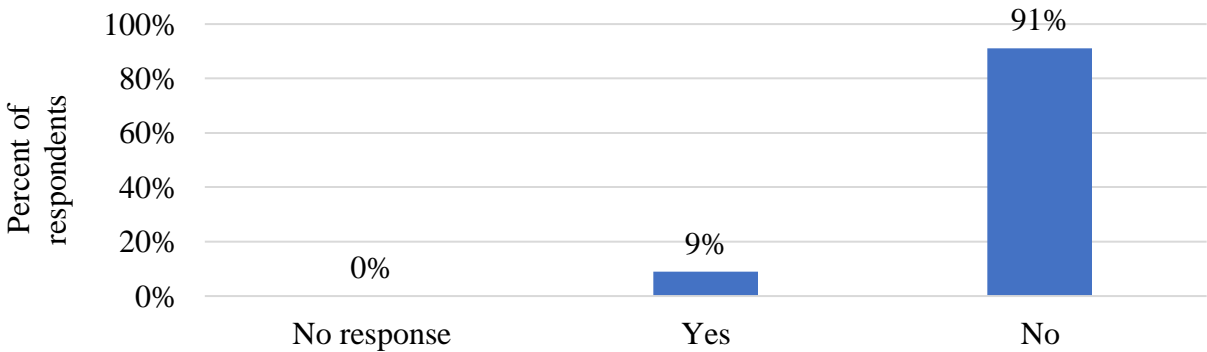
- No response : 0%
- Less than a day : 0%
- 1 -3 days : 25%
- 4 – 6 days : 25%
- 7 – 10 days : 25%
- 11 – 14 days : 13%
- More than 14 days : 13%



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

(n = 45)

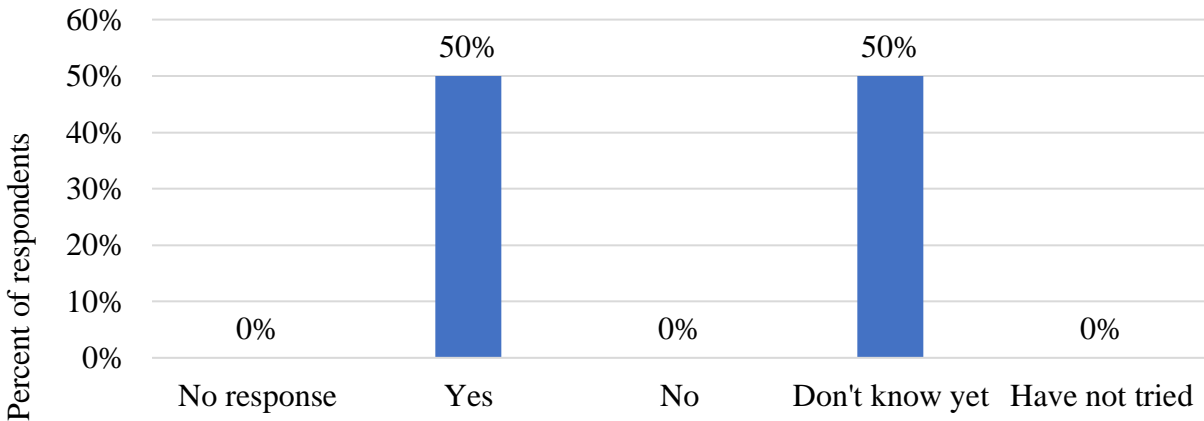
- No response : 0%
- Yes : 9%
- No : 91%



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

(n = 4)

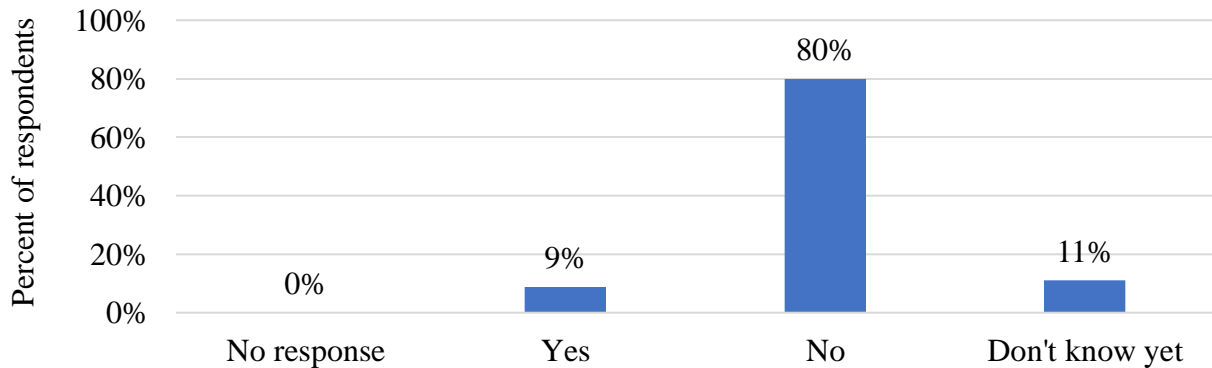
- No response : 0%
- Yes : 50%
- No : 0%
- Don't know yet : 50%
- Have not tried : 0%



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 = 45)

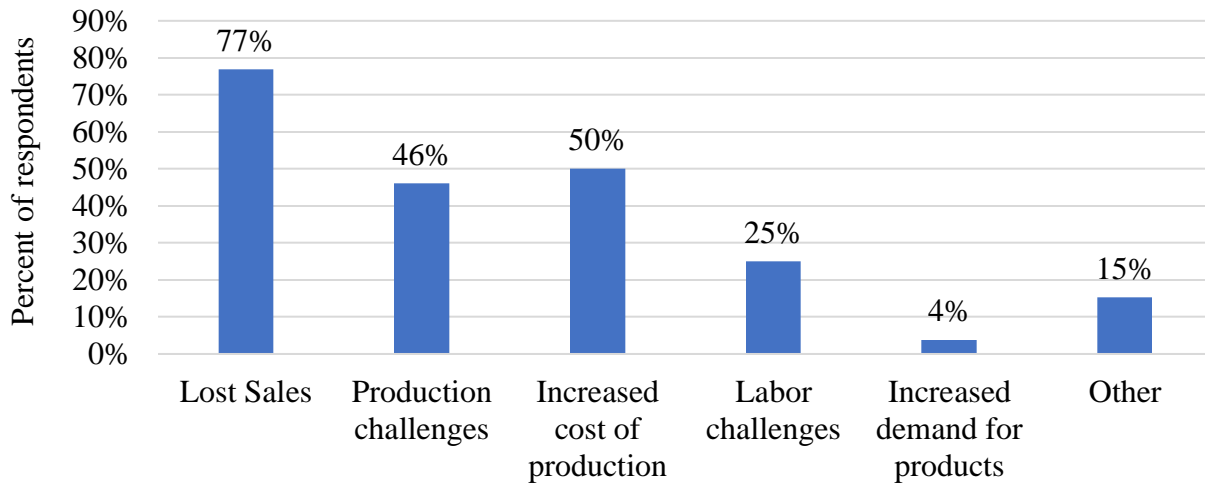
- No response : 0%
- Yes : 9%
- No : 80%
- Don't know yet : 11%



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.

(n = 52)

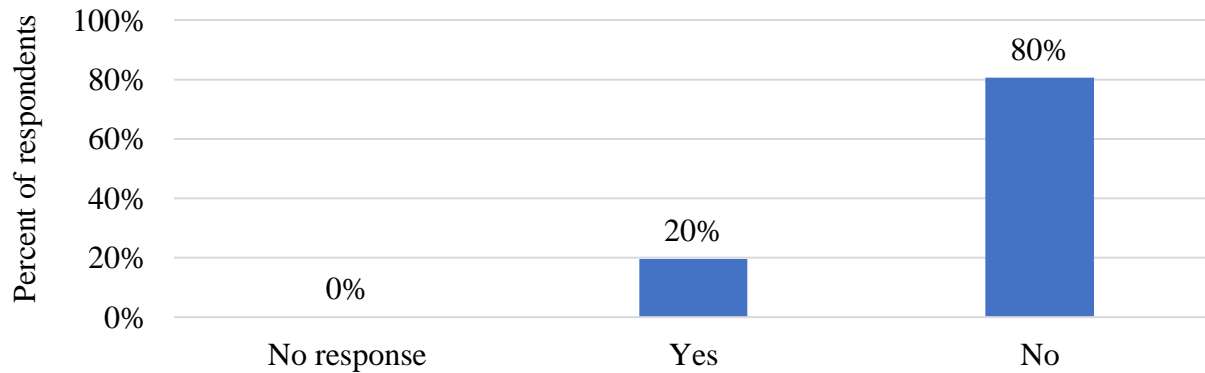
- Lost sales : 77%
- Production challenges (not related to labor) : 46%
- Increased cost of production : 50%
- Labor challenges : 25%
- Increased demand for products : 4%
- Other : 15%



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 = 41)

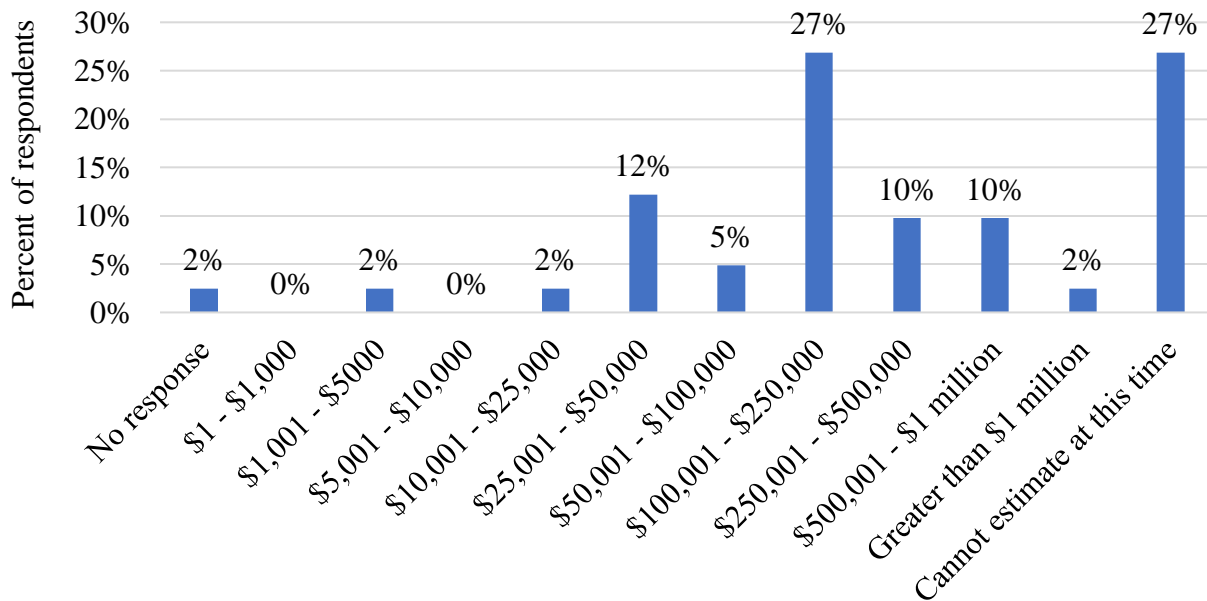
- No response : 0%
- Yes : 20%
- No : 80%



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 = 41)

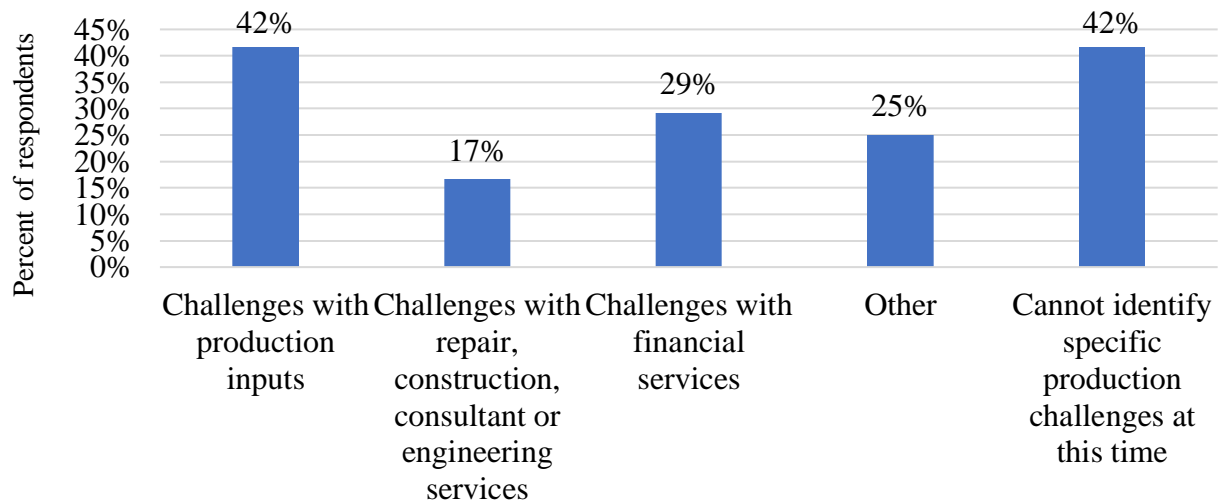
- No response : 2%
- \$1 - \$1,000 : 0%
- \$1,001 - \$5,000 : 2%
- \$5,001 - \$10,000 : 0%
- \$10,001 - \$25,000 : 2%
- \$25,001 - \$50,000 : 12%
- \$50,001 - \$100,000 : 5%
- \$100,001 - \$250,000 : 27%
- \$250,001 - \$500,000 : 10%
- \$500,001 - \$ 1million : 10%
- Greater than \$1 million : 2%
- Cannot estimate at this time : 27%



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 = 24)

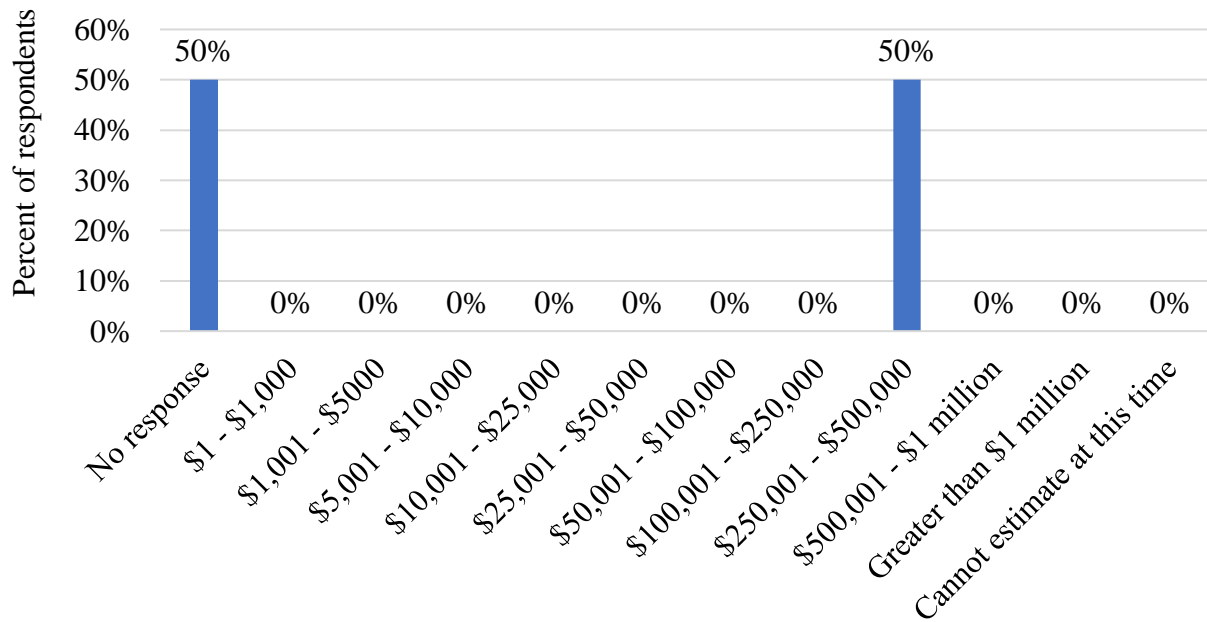
- Challenges with production inputs (feed, chemicals, therapeutants, etc.) : 42%
- Challenges with repair, construction, consultant or engineering services : 17%
- Challenges with financial services (operating loans, leases, etc.) : 29%
- Other : 25%
- Cannot identify specific production challenges at this time : 42%



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 = 2)

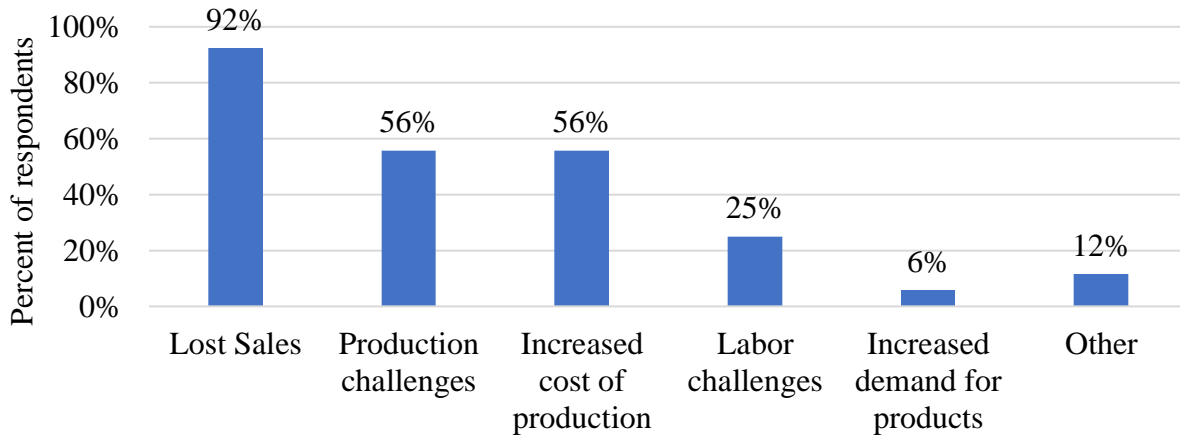
- No response : 50%
- \$1 - \$1,000 : 0%
- \$1,001 - \$5,000 : 0%
- \$5,001 - \$10,000 : 0%
- \$10,001 - \$25,000 : 0%
- \$25,001 - \$50,000 : 0%
- \$50,001 - \$100,000 : 0%
- \$100,001 - \$250,000 : 0%
- \$250,001 - \$500,000 : 50%
- \$500,001 - \$ 1million : 0%
- Greater than \$1 million : 0%
- Cannot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



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 = 52)

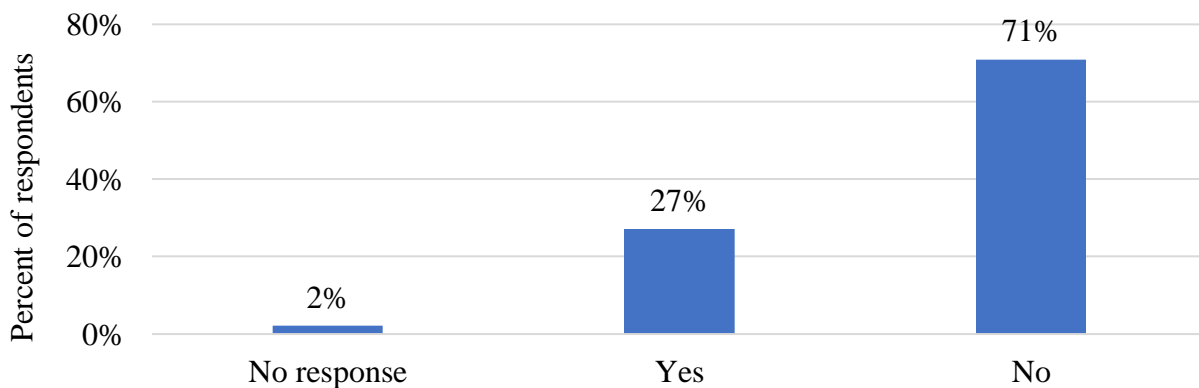
- Lost sales : 92%
- Production challenges (not related to labor) : 56%
- Increased cost of production : 56%
- Labor challenges : 25%
- Increased demand for products : 6%
- Other : 12%



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 = 48)

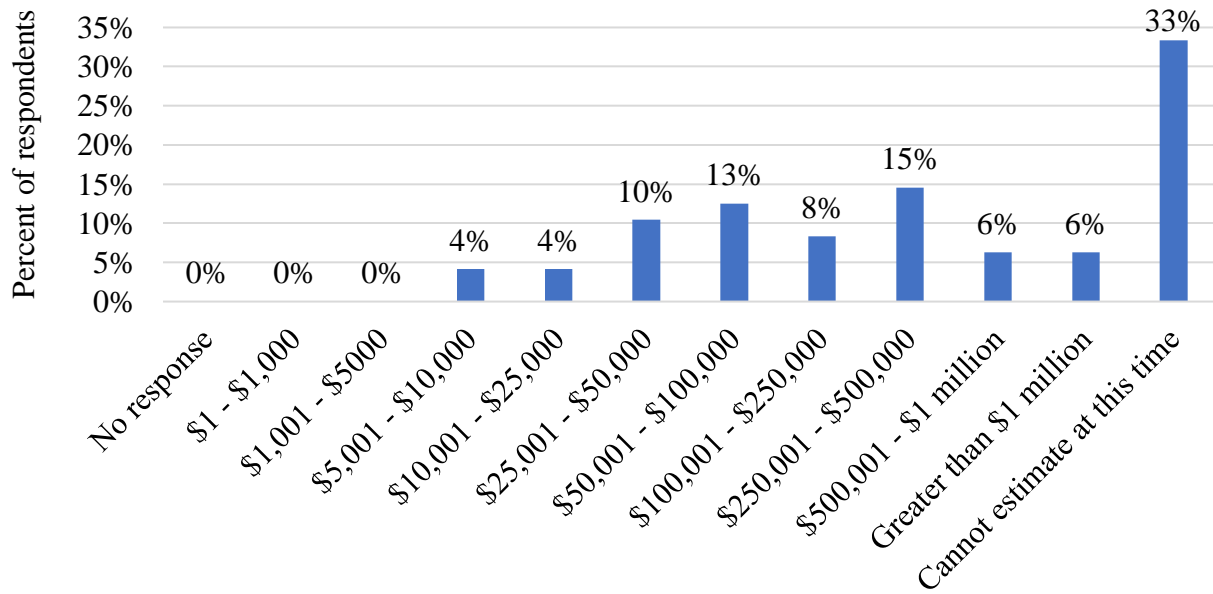
- No response : 2%
- Yes : 27%
- No : 71%



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 = 48)

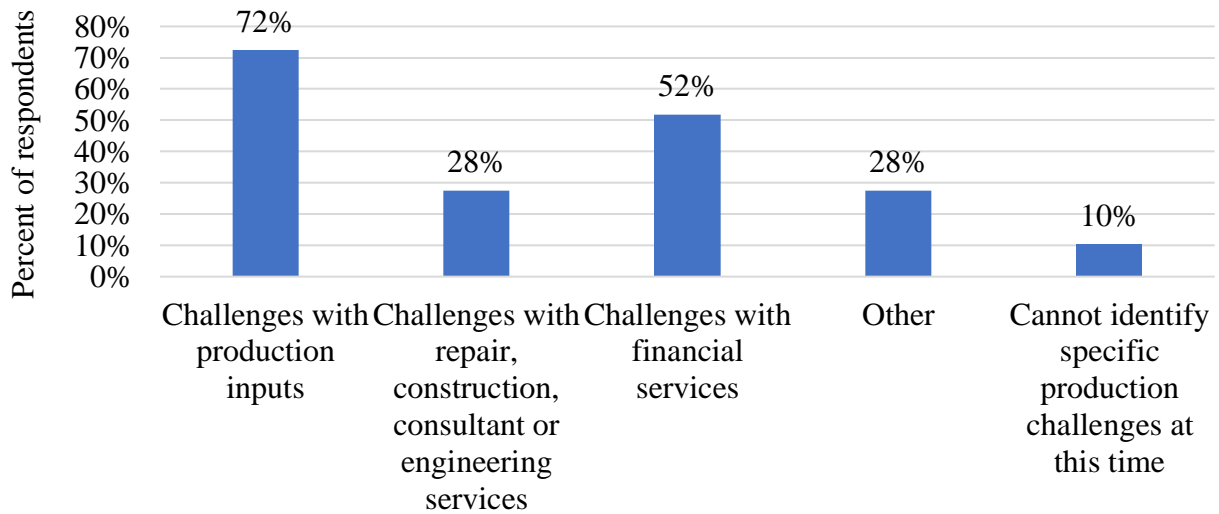
- No response : 0%
- \$1 - \$1,000 : 0%
- \$1,001 - \$5,000 : 0%
- \$5,001 - \$10,000 : 4%
- \$10,001 - \$25,000 : 4%
- \$25,001 - \$50,000 : 10%
- \$50,001 - \$100,000 : 13%
- \$100,001 - \$250,000 : 8%
- \$250,001 - \$500,000 : 15%
- \$500,001 - \$ 1million : 6%
- Greater than \$1 million : 6%
- Cannot estimate at this time : 33%



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 = 29)

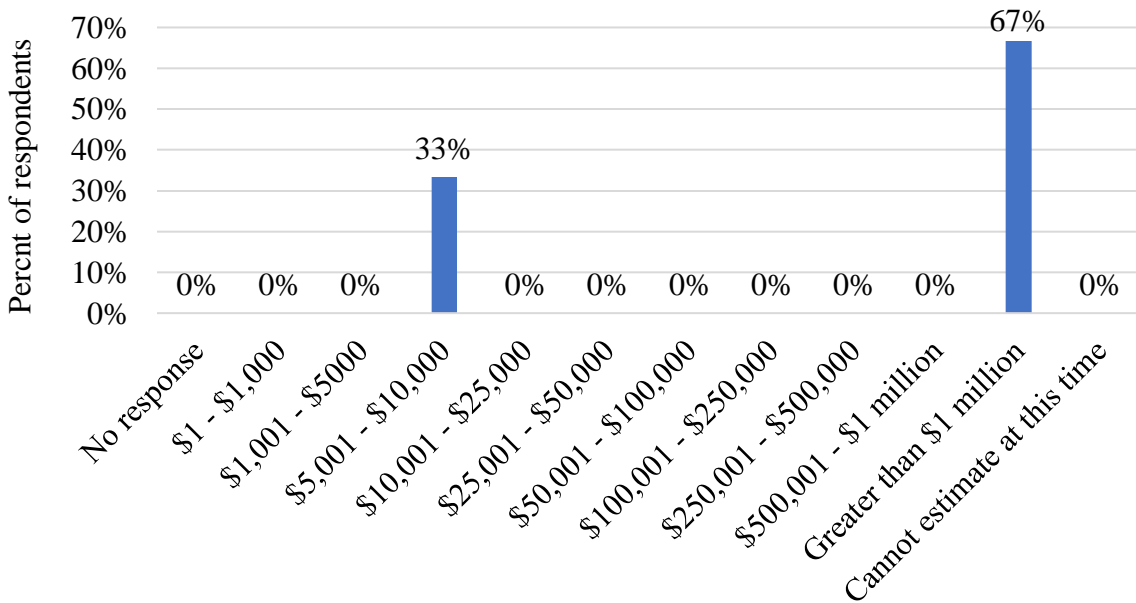
- Challenges with production inputs (feed, chemicals, therapeutants, etc.) : 72%
- Challenges with repair, construction, consultant or engineering services : 28%
- Challenges with financial services (operating loans, leases, etc.) : 52%
- Other : 28%
- Cannot identify specific production challenges at this time : 10%



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 = 3)

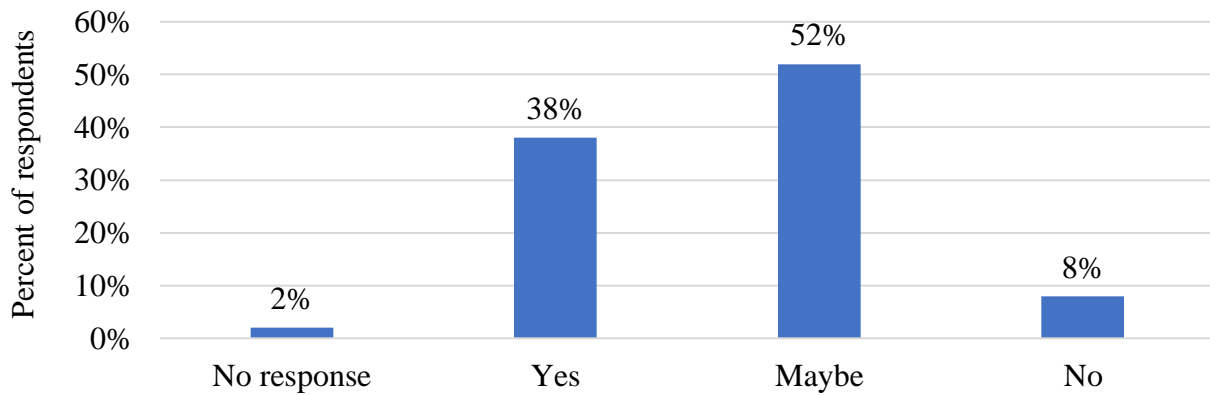
- No response : 0%
- \$1 - \$1,000 : 0%
- \$1,001 - \$5,000 : 0%
- \$5,001 - \$10,000 : 33%
- \$10,001 - \$25,000 : 0%
- \$25,001 - \$50,000 : 0%
- \$50,001 - \$100,000 : 0%
- \$100,001 - \$250,000 : 0%
- \$250,001 - \$500,000 : 0%
- \$500,001 - \$ 1million : 0%
- Greater than \$1 million : 67%
- Cannot estimate at this time : 0%



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

(n = 50)

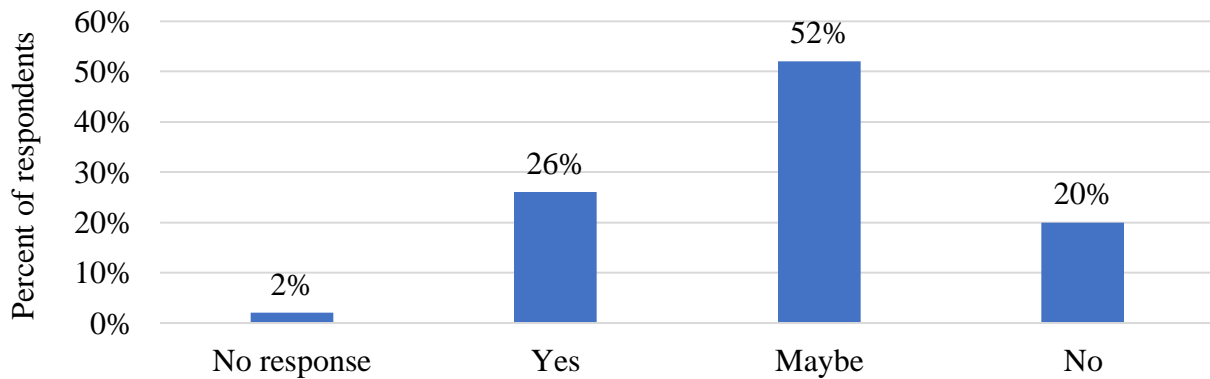
- No response : 2%
- Yes : 38%
- Maybe : 52%
- No : 8%



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

(n = 50)

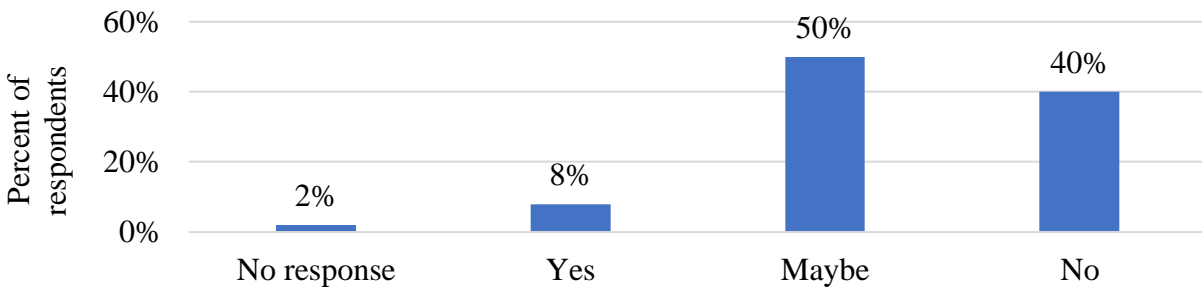
- No response : 2%
- Yes : 26%
- Maybe : 52%
- No : 20%



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

(n = 50)

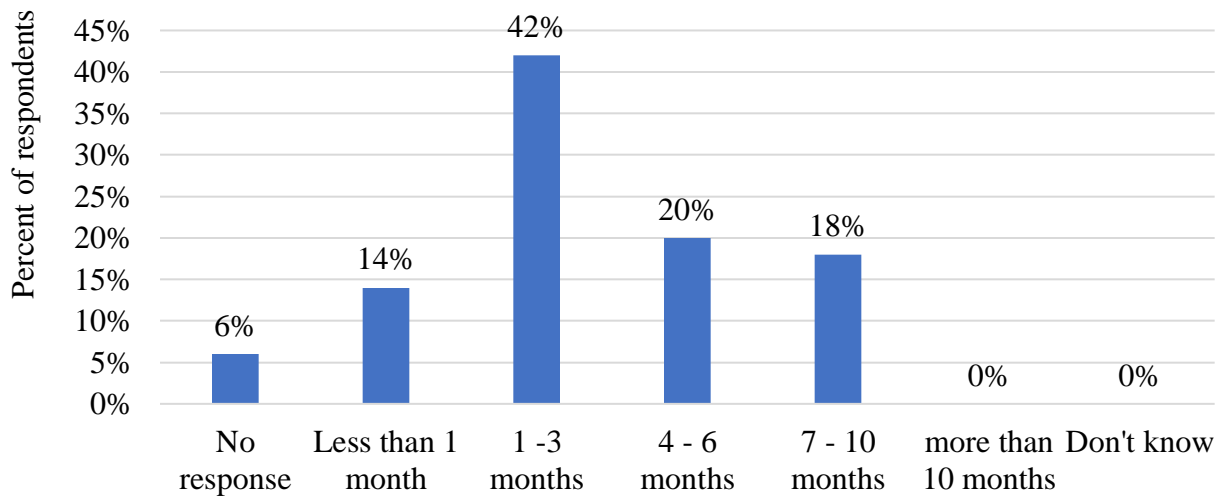
- No response : 2%
- Yes : 8%
- Maybe : 50%
- No : 40%



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 = 50)

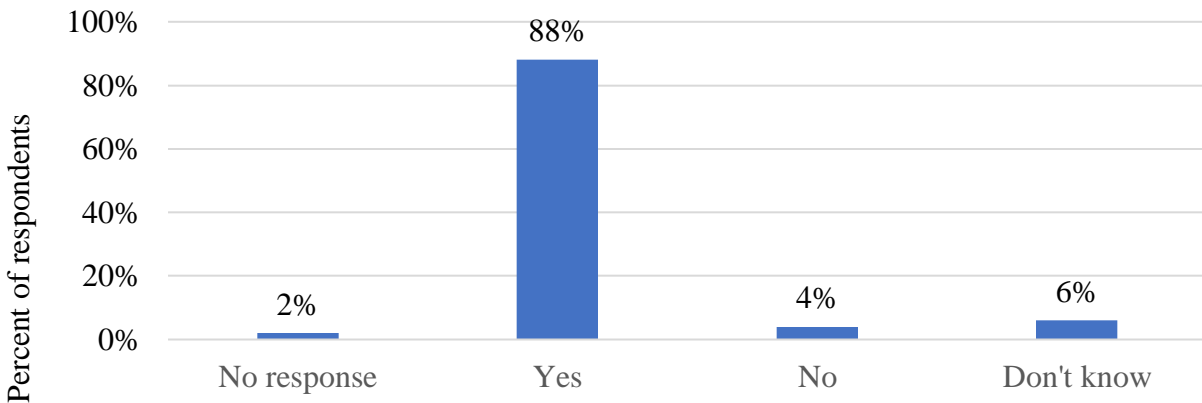
- No response : 6%
- Less than 1 month : 14%
- 1 – 3 months : 42%
- 4 – 6 months : 20%
- 7 – 10 months : 18%
- More than 10 months : 0%
- Do not know : 0%



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

(n = 50)

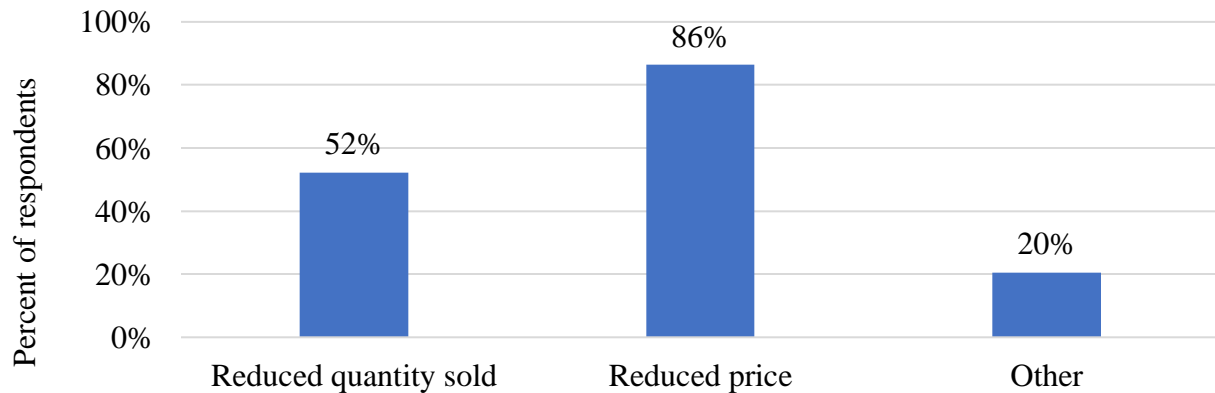
- No response : 2%
- Yes : 88%
- No : 4%
- Don't know : 6%



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

(n = 44)

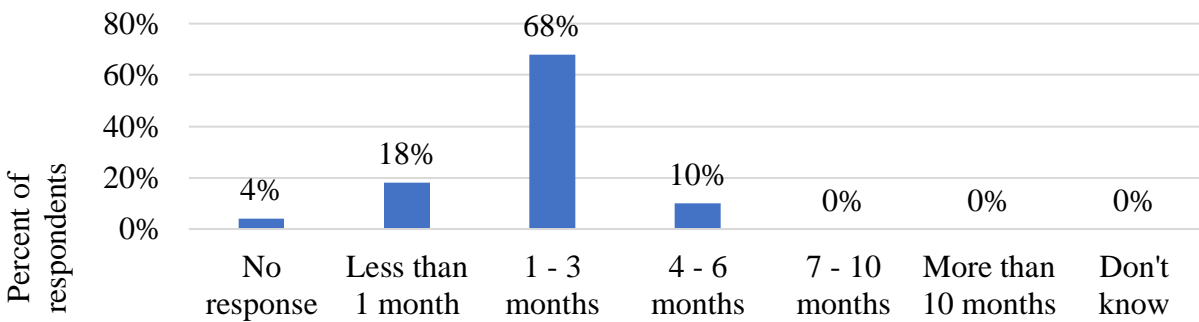
- Reduced quantity sold : 52%
- Reduced price : 86%
- Other : 20%



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 = 50)

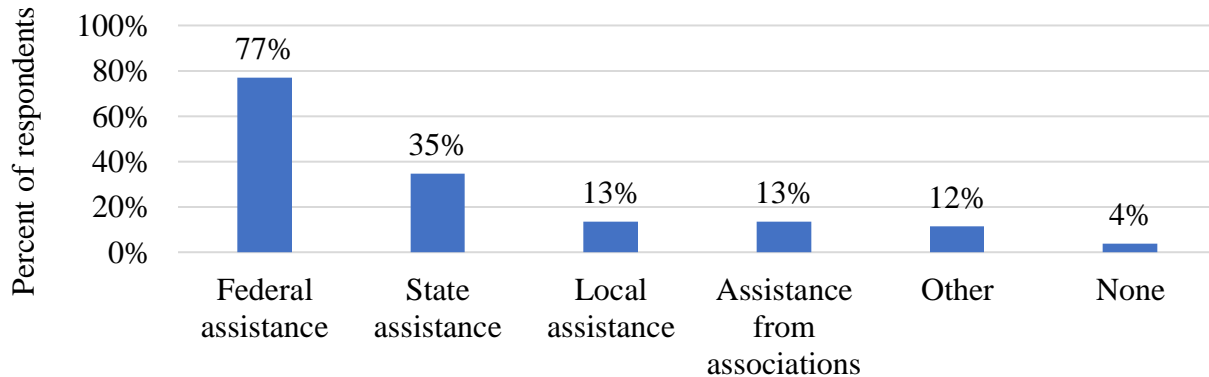
- No response : 4%
- Less than 1 month : 18%
- 1 – 3 months : 68%
- 4 – 6 months : 10%
- 7 – 10 months : 0%
- More than 10 months : 0%
- Don't know : 0%



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 = 52)

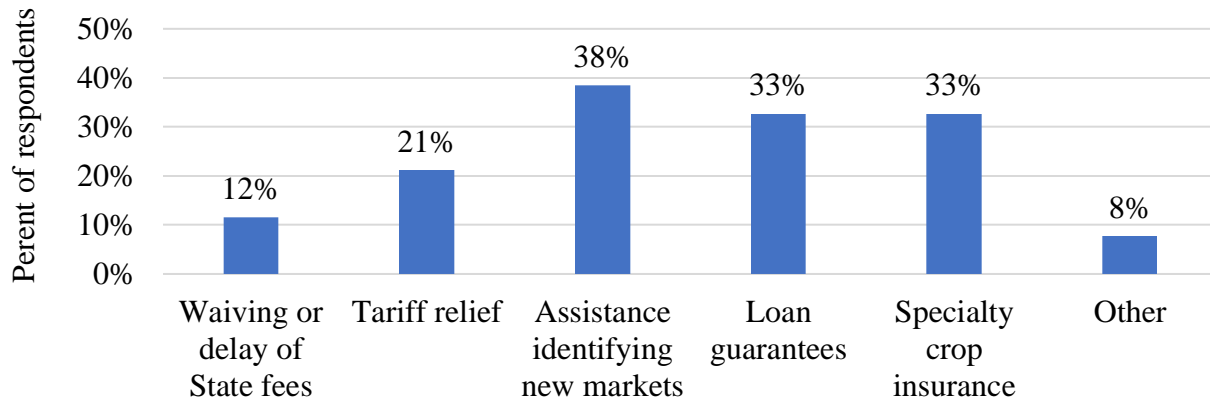
- Federal assistance : 77%
- State assistance : 35%
- Local assistance : 13%
- Assistance from associations : 13%
- Other : 12%
- None : 4%



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

(n = 52)

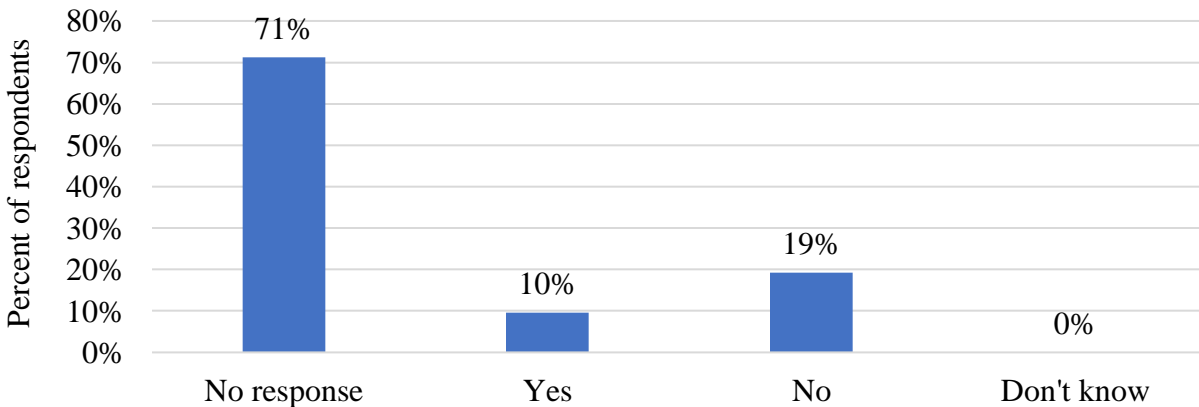
- Waiving or delay of State fees : 12%
- Tariff relief : 21%
- Assistance identifying new markets : 38%
- Loan guarantees : 33%
- Specialty Crop Insurance : 33%
- Other : 8%



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 = 52)

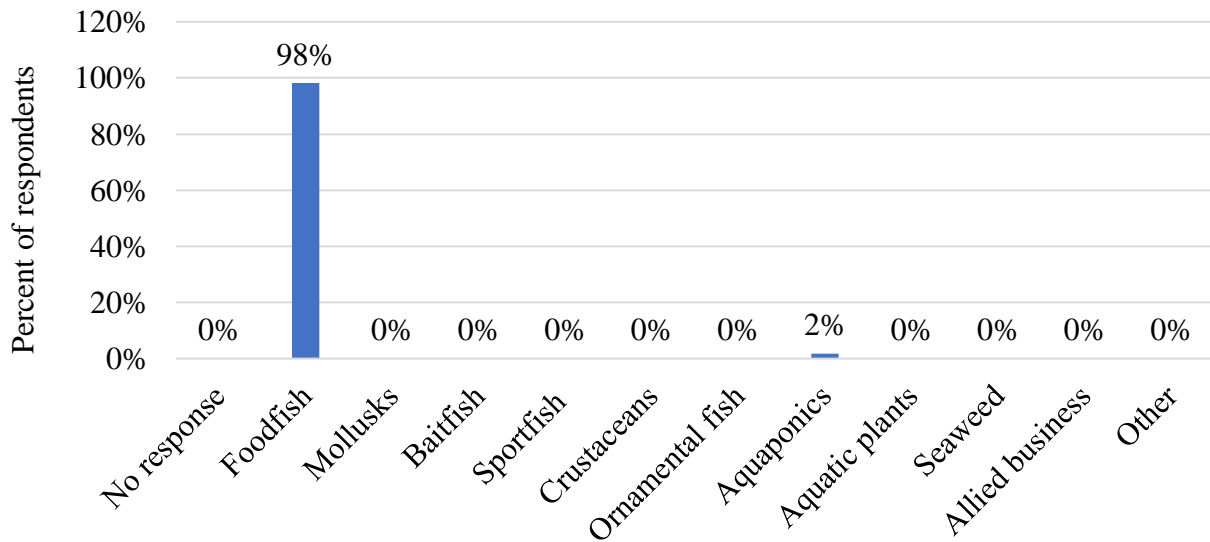
- No response : 71%
- Yes : 10%
- No : 19%
- Don't know : 0%



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

(n = 54)

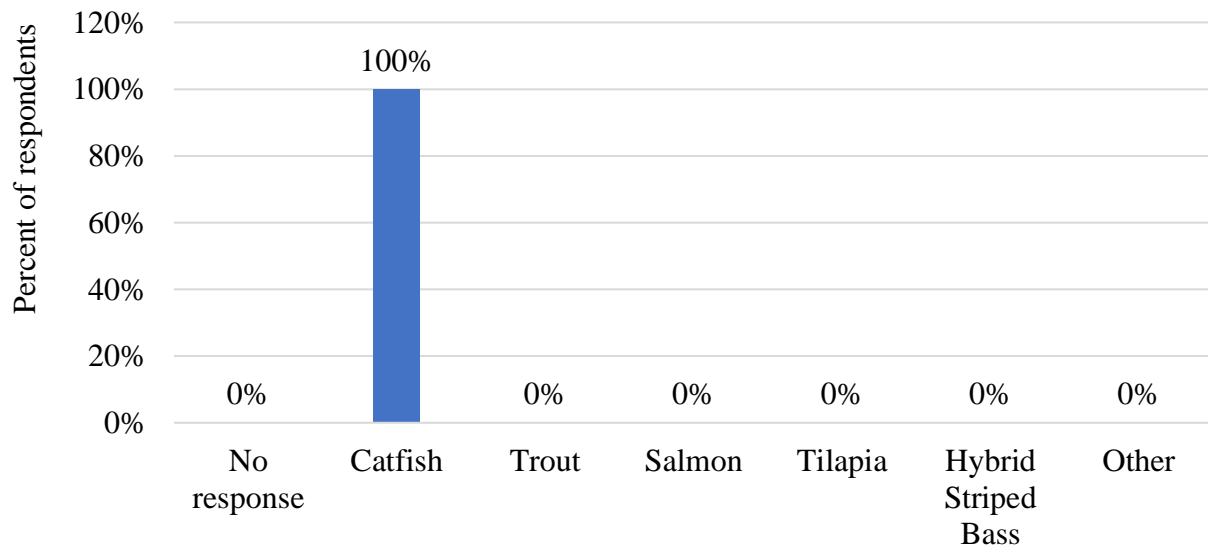
• No response	:	0%
• Foodfish	:	98%
• Mollusks (oysters, clams, mussels, etc.)	:	0%
• Baitfish	:	0%
• Sportfish / recreational fish, including trout	:	0%
• Crustaceans (crawfish, soft crab, shrimp, etc.)	:	0%
• Ornamental fish (aquarium or water garden)	:	0%
• Aquaponics	:	2%
• Aquatic plants	:	0%
• 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 = 54)

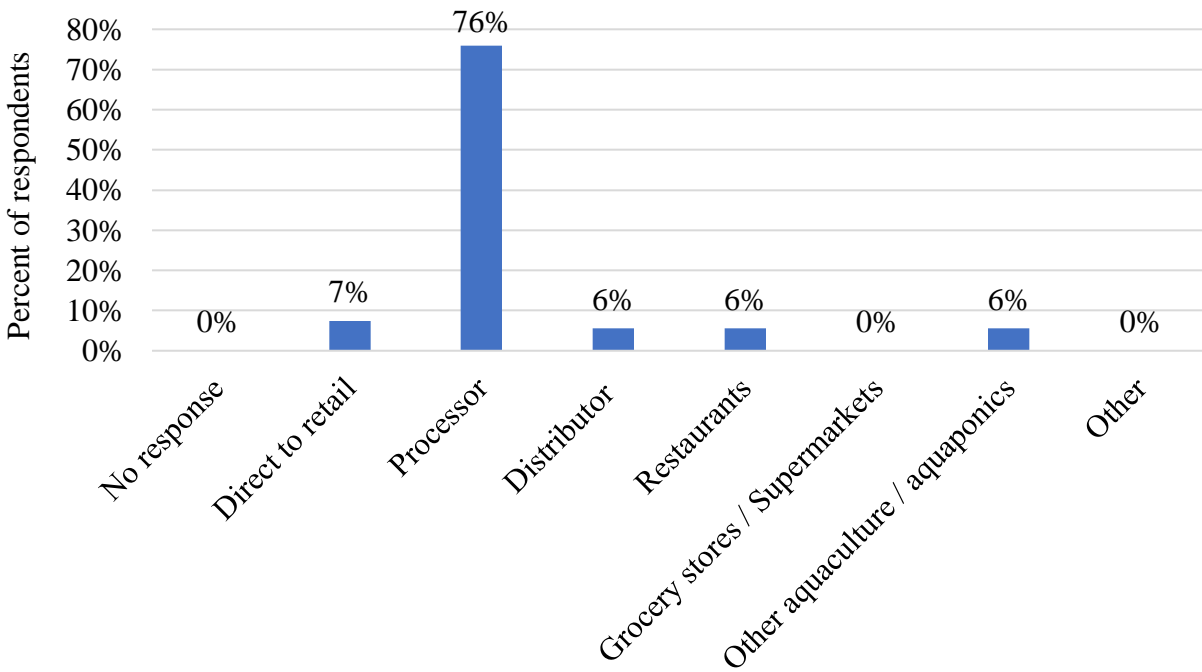
- No response : 0%
- Catfish : 100%
- Trout : 0%
- Salmon : 0%
- Tilapia : 0%
- Hybrid Striped Bass : 0%
- Other : 0%



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

(n = 54)

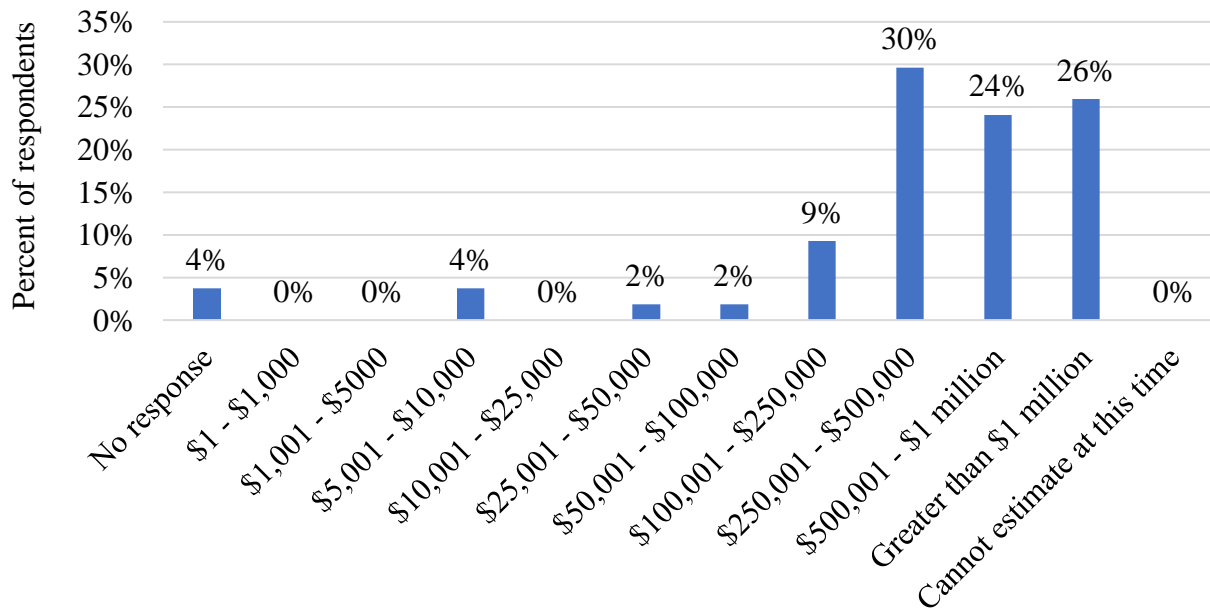
- No response : 0%
- Direct to retail (direct to consumers) : 7%
- Processor : 76%
- Distributor : 6%
- Restaurants : 6%
- Grocery Stores / Supermarkets : 0%
- Other aquaculture/aquaponics farms or businesses : 6%
- Other : 0%



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

(n = 54)

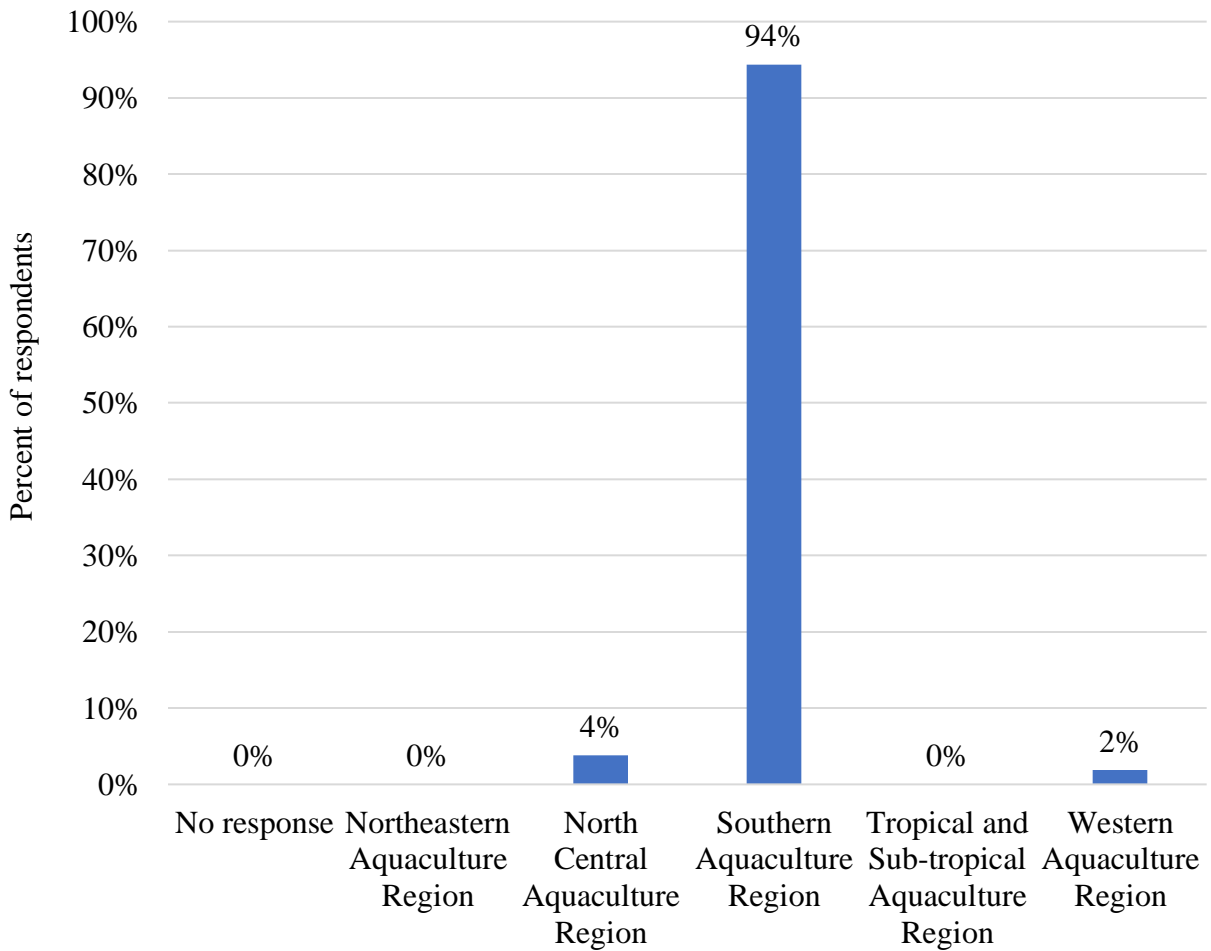
- No response : 4%
- \$1 - \$1,000 : 0%
- \$1,001 - \$5,000 : 0%
- \$5,001 - \$10,000 : 4%
- \$10,001 - \$25,000 : 0%
- \$25,001 - \$50,000 : 2%
- \$50,001 - \$100,000 : 2%
- \$100,001 - \$250,000 : 9%
- \$250,001 - \$500,000 : 30%
- \$500,001 - \$ 1million : 24%
- Greater than \$1 million : 26%
- Cannot estimate at this time : 0%



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

(n = 53)

- No response : 0%
- Northeastern Aquaculture Region : 0%
- North Central Aquaculture Region : 4%
- Southern Aquaculture Region : 94%
- Tropical and Sub-Tropical Aquaculture Region : 0%
- Western Aquaculture Region : 2%



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

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