



Impacts of COVID-19 on U.S. crustacean farms: 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 **crustacean 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 **12 crustacean farm participants**. The greatest percentage of respondents (25%) sold to other aquaculture or aquaponics farms. One respondent reported selling primarily broodstock and seedstock to other farms. Seventeen percent of crustacean respondents sold their fish to restaurants, distributors, or to other, un-characterized channels, whereas 8% of crustacean respondents sold directly to customers, to grocery stores/supermarkets, or to a processor (Table 1).

Table 1. Primary marketing channel for crustacean respondents.

Category	Percentage
Other aquaculture/aquaponics farms	25%
Restaurants	17%
Distributors	17%
Other	17%
Direct to customers	8%
Grocery stores/supermarkets	8%
Processor	8%

Scale of farms/businesses

Crustacean farms vary in terms of their production scale. Respondents to the survey included those with scales of production from sales of \$10,000 to as much as \$20 million (Table 2). The greatest percentage (33%) of respondents had sales greater than \$1 million, followed by 25% with sales of from \$100,001 to \$250,000; 17% with sales of from \$500,001 to \$1 million; \$250,001 to \$500,000 (8%); \$50,001 to \$100,000 (8%); and \$10,001 to \$25,000 (8%). No respondents reported sales of \$25,001 to \$50,000 (0%) or less than \$10,000.

Table 2. Scale of crustacean respondent farms/businesses.

Category	Percentage
> \$1 million	33%
\$100,001 - \$250,000	25%
\$500,001 - \$1 million	17%
\$250,001 - \$500,000	8%
\$50,001 - \$100,000	8%
\$10,001 - \$25,000	8%
\$25,001 - \$50,000	0%
\$5,001 - \$10,000	0%
\$1,001 - \$5,000	0%
\$1 - \$1,000	0%

Aquaculture Regions

The greatest percentage of crustacean farm respondents (42%) were located in the Southern Aquaculture Region, followed by the North Central Aquaculture Region (33%), the Tropical and Sub-tropical Aquaculture Region, and the Western Aquaculture /Region (8%) (Table 3). There were

no crustacean respondents from the Northeastern Aquaculture Region.

Table 3. Participation by USDA aquaculture region.

Region	Percentage of survey respondents
Southern	42%
North Central	33%
Tropical and Sub-tropical	17%
Western	8%
Northeastern	0%

Key Findings

One hundred percent of crustacean respondents reported that their farm or business had been impacted by the COVID-19 pandemic.

When asked whether their farm or business would survive the next 3 months without external intervention (such as government assistance), 42% said, “yes.” Another 42% percent reported that their farm would “maybe” survive 3 months without external assistance, and 17% 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, only 8% said that it would survive, 67% said “maybe,” and 25% 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 33% indicated that they would not survive, 58% said that their farm or business would “maybe” survive, and only 8% said that they would survive.

Lost Sales

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. Ninety-two percent of crustacean farm respondents indicated that they had lost sales due to the COVID-19 outbreak. In addition, 55% of crustacean 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 \$25,001 to \$50,000. An additional 18% of respondents reported that they had lost either \$100,001 to \$250,000, or \$250,001 to \$500,000. Nine percent reported lost sales of more than \$1 million; \$10,001 to \$25,000; or \$1,001 to \$5,000. No respondents reported lost sales in the ranges of \$500,001 to \$1 million; \$50,001 to \$100,000; \$5,001 to \$10,000; or \$1 to \$1,000. One respondent reported lost sales as high as \$3 million. Nine percent of respondents could not estimate the amount of sales lost.

The lost sales reported included canceled contracts of various sorts. Ninety-two percent of crustacean respondents reported losing private contracts for sales, but no respondents 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. One hundred percent of crustacean respondents indicated that they expected to lose sales, with 50% expecting to lose international markets. In terms of the volume of sales expected to be lost, 25% expected to lose from \$100,001 to \$250,000, 17% each expected to lose more than \$1 million and \$25,001 to \$50,000. An additional 8% expected to lose from \$500,001 to \$1 million; \$10,001 to \$25,000; and \$1,001 to \$5,000. Seventeen percent indicated that they could not estimate the amount of losses at the time of the survey. Some respondents expected to lose as much as \$3 to \$6 million in 2020. No respondents

expected to lose \$250,001 to \$500,000; \$50,001 to \$100,000; \$5,001 to \$10,000; or \$1 to \$1,001.

When asked how long crustacean respondents thought their farm or business could survive without sales before suffering longer term cash flow effects, 42% said 1 to 3 months, or 4 to 6 months, 8% said less than 1 month, and 8% more than 10 months. **It should be noted that some respondents completed the survey four weeks prior to the preparation of this report.**

Labor

Twenty-five percent of respondents reported that they had laid off employees as a result of the COVID-19 pandemic and another 25% indicated that they “will have to soon.” Fifty percent had not laid off employees. In terms of the number of employees laid off, 67% of crustacean respondents who had laid off employees indicated that they had laid off from 1 to 3 employees. Another 33% had laid off from 11 to 15 employees. No crustacean respondent reported laying off more than 15 employees.

Respondents were further asked how many weeks it would be before they would have to lay off employees. Sixty-seven percent of crustacean respondents indicated that they would have to decide within 1 to 3 weeks whether to lay off employees. Thirty-three percent said that they would have to decide within 4 to 6 weeks whether to lay off employees. It should be noted that data collection for the survey was open for a period of 3 weeks. Crustacean respondents were further asked how many employees they would need to lay off at that time. One-third each reported that they would need to lay off 4 to 6 employees, 7 to 10, and more than 20 employees. No crustacean farm respondents reporting having laid off “Short-Time” or “Shared-Work” employees. Thirty-three percent did not respond to this question.

Seventeen percent of crustacean respondents had experienced some type of labor challenge. Forty-two percent of crustacean respondents indicated that employees had missed work due to COVID-19, while 58% reported that employees had not missed work due to the coronavirus. The lockdown was cited overall as a source of labor challenges. While employees missed work due to being sick, one

respondent commented that some employee family members gave them a hand to help out. However, with those individuals not trained, it was challenging to get them trained to help out. One respondent reported having all non-sick employees work as many days straight as they can. Of those respondents who reported employees missing work, 60% reported missing more than 14 days, and 20% each missed 4 to 6 days or 7 to 10 days of work. No respondent reported employees missing fewer than 4 days of work. One respondent indicated that an employee had missed 20 days of work so far.

Respondents reported expecting to continue to experience challenges with labor, given the lockdown, government-ordered quarantine, and self-quarantine. In the future, employees may continue to get sick or otherwise be prevented from working. One respondent reported that they had been growing and looking to hire before the COVID-19 outbreak.

Challenges to the farm/business

Crustacean respondents reported a variety of different challenges to the business that included production challenges not related to labor. Respondents reported challenges related to input supplies and delivery, logistical issues related to shipping, delays with construction projects, and problems derived from having to hold market-ready product.

Twenty-five percent of crustacean respondents expected to experience continued production challenges not related to labor. Logistical challenges related to transportation issues were reported by several respondents. Cancellation of a number of airline flights has made it difficult to sell product, particularly to Europe. Thus, respondents reported that some product will be lost due to cancelled international flights. Without quarantine slots for broodstock imports, one respondent reported that they cannot get animals into southeast Asian countries.

Seventeen percent of crustacean respondents reported having experienced increased costs of production, including feed, and 25% expected to continue to experience increased costs of production in the coming months. Feed costs, utility costs, and

biosecurity costs were reported to have increased. International freight costs were reported to have tripled.

One-third of respondents indicated that they could only hold market-ready product for less than a month, 33% 1 to 3 months, 17% 4 to 6 months, and 17% 7 to 10 months. No respondent said that they could hold market ready product for more than 10 months. One respondent reported that it was very challenging to determine how many shrimp tanks to continue to grow out due to ongoing order cancellations. Another respondent reported that their brine shrimp have a small window of viability; if they are too old, they are not marketable. Another respondent reported that shrimp will get too large to sell if they must hold market-ready product.

Challenges related to production inputs (feed, etc.) were reported by 50% of crustacean respondents. Feed delivery was reported as a challenge by several respondents as well as the inability to have other needed materials delivered.

Twenty-five percent of crustacean respondents reported challenges with repair, construction, consultant, or engineering services. Major construction delays were reported due to the inability to have materials shipped in.

Financial services challenges were mentioned by 25% of respondents. Loan applications were reported to be cancelled as their client base (primarily restaurants) has cancelled their orders.

In terms of expectations for the coming months, 100% of crustacean respondents expected additional lost sales, 42% additional labor challenges, 25% continued production challenges, and 25% increased costs of production. Seventeen percent of respondents reported increased demand for products.

Comments by respondents indicated that they were concerned over the availability of feed supplies and of post-larvae supplies. Others expected the price of feed to go up.

Marketing of products

Extended holding of product that is ready to be sold can cause a variety of problems. Sixty-seven percent of crustacean respondents indicated that holding

market-sized product would make it less marketable. More specifically, 63% of crustacean respondents said that holding product would reduce the quantity of crustacean sold and 50% said that it would reduce the price received. Holding market ready product will result in shrimp postlarvae being too large to ship and broodstock will become too old to sell. Another respondent reported that, without feed, they will have to harvest, but there is no market outlet; they likely will feed the shrimp to their employees. Another respondent reported that, as a shrimp farm, they market for freshness. Another respondent pointed out that their client base was primarily in Washington and that all the restaurants there are closed. Since the shelf life of their product is three days on ice, they are not able to hold it. Other respondents commented on the lack of demand that is forcing prices down and the need to drop their price to move what is now ready.

Increased Demand for Products

Seventeen percent of crustacean respondents reported increased demand for their products and the same 17% expected demand for their products to increase. Only one respondent who reported expecting demand for their products to increase could estimate the expected increase in sales and indicated that it was expected to be from \$5,001 to \$10,000.

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-five percent of crustacean respondents indicated that federal assistance would increase the likelihood of survival of their farm or business. Fifty-eight percent said that assistance from the state, 33% from local government, and 25% from associations would be helpful.

When asked more specifically what types of assistance would be helpful, 25% said that loan guarantees, 25% waiving or delay of state fees, 25% specialty crop insurance, 17% said assistance with identifying new markets, and 17% that tariff relief would be helpful. No crustacean respondents indicated that there were existing programs that their business did not qualify for, but 92% did not respond to this question.

Additional comments by crustacean 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 (29%) by crustacean respondents was the need for very immediate assistance in the form of cash payments or grants to help cover monthly bills and to ease cash flow problems. This was followed by financing assistance (26%) that included low and no-interest loans and debt forgiveness, tax relief in the form of payroll tax and state tax abatement (11%), market assistance (to be able to pick up direct to consumer sales) (6%), specialty crop assistance (6%), renewable energy credits (6%) and other (14%), that included comments related to furlough of workers, easing farm worker movements, increasing cargo flights to major international markets, opening government quarantine facilities in importing countries.

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

Type of assistance	Catfish respondents
Cash payments, grants, credits, for expenses (feed vouchers, utilities)	29%
Financing assistance (guaranteed loans, debt forgiveness, deferred loan payments, exemption of interest, low-interest loans)	26%
Tax relief (payroll tax abatement, state tax abatement)	11%
Market assistance (need to pick up direct to consumer sales)	6%
Specialty crop assistance	6%
Renewable energy credits	6%
Other (furlough workers, ease farm worker movement, Mega Bucks Lottery, proper pandemics response, increase cargo flights to countries of customers, open government quarantine facilities in importing countries)	14%

Discussion and Conclusion

Responses by crustacean farms to the Quarter 1 survey show that U.S. crustacean farmers have been impacted severely by the COVID-19 pandemic. Ninety-two percent of crustacean respondents had

had sales 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 crustacean industry will be felt more in the coming months if sales continue to be reduced, with only 42% indicating that they would survive over the next 3 months without external assistance. Given that survey results showed that there will be longer-term effects on the U.S. crustacean industry, it will be important to continue to monitor changes throughout the year. Key findings from crustacean farm and business respondents include:

- *100% have been impacted by COVID-19*
- *92% have had private orders/contracts canceled*
- *50% have or will soon have to lay off employees*
- *92% have experienced lost sales*
- *42% can survive 3 months without external intervention*

References

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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Appendix

Summary of COVID-19 impacts on U.S. crustacean farms

Quarter 1 Results

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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. 15

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? 16

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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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This report is a supplemental report to the **Crustacean Report Summary, Quarter 1** that summarizes results of **crustacean farm** respondents.

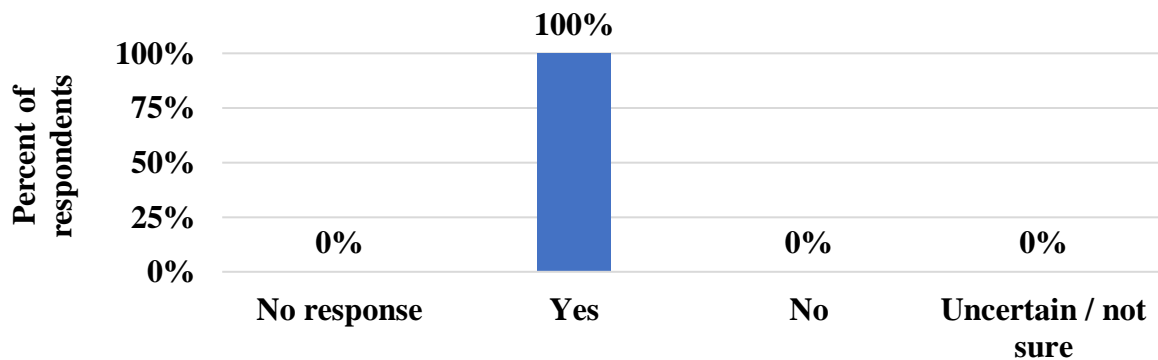
Survey results for each question

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 = 12)

- No response : 0%
- Yes : 100%
- No : 0%
- Uncertain / Not Sure : 0%



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

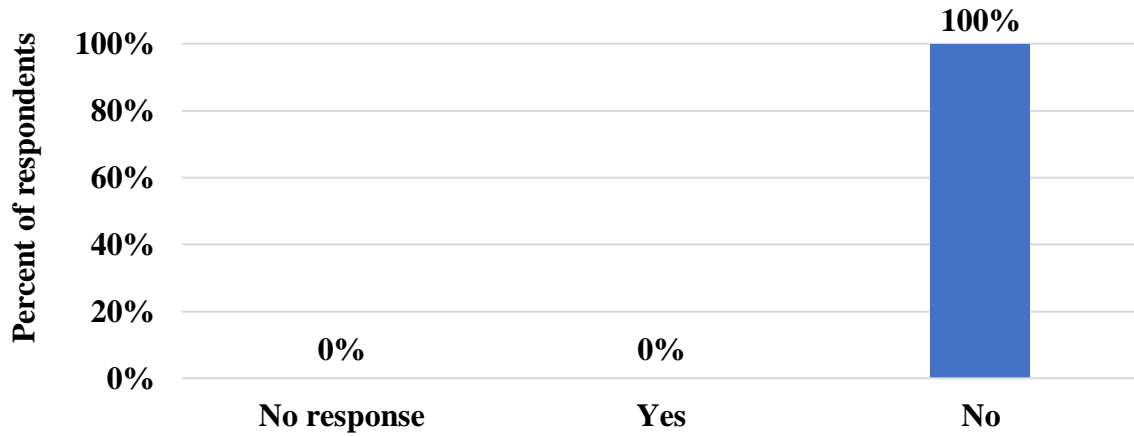
(n = 0)

- No response : NA
- Definitely yes : NA
- Probably yes : NA
- Probably not : NA
- Definitely not : NA

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

(n = 12)

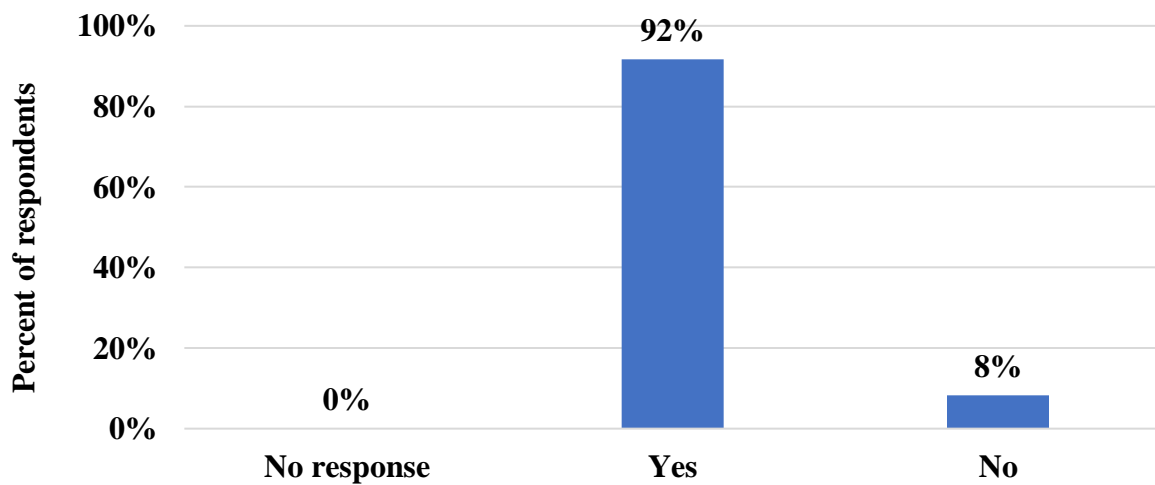
- No response : 0%
- Yes : 0%
- No : 100%



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

(n = 12)

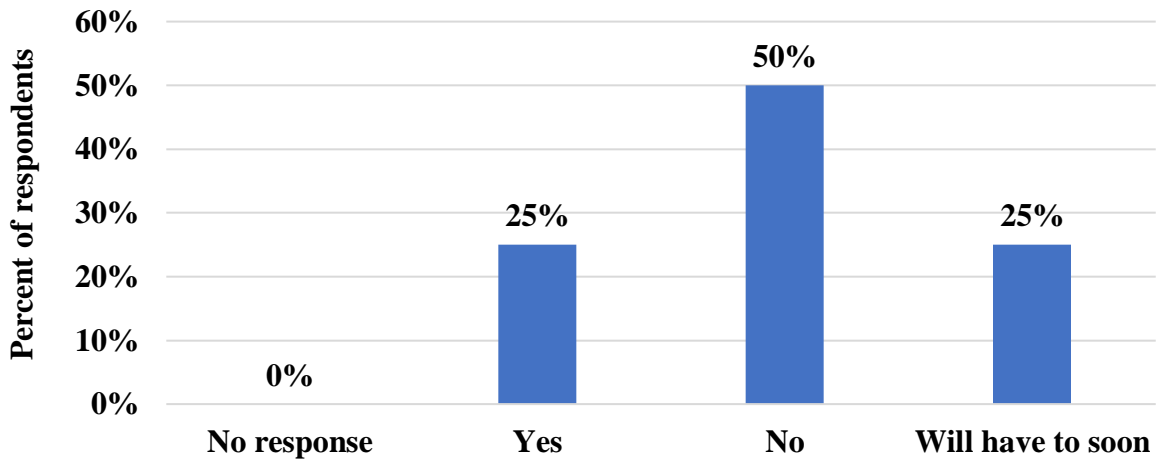
- No response : 0%
- Yes : 92%
- No : 8%



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

(n = 12)

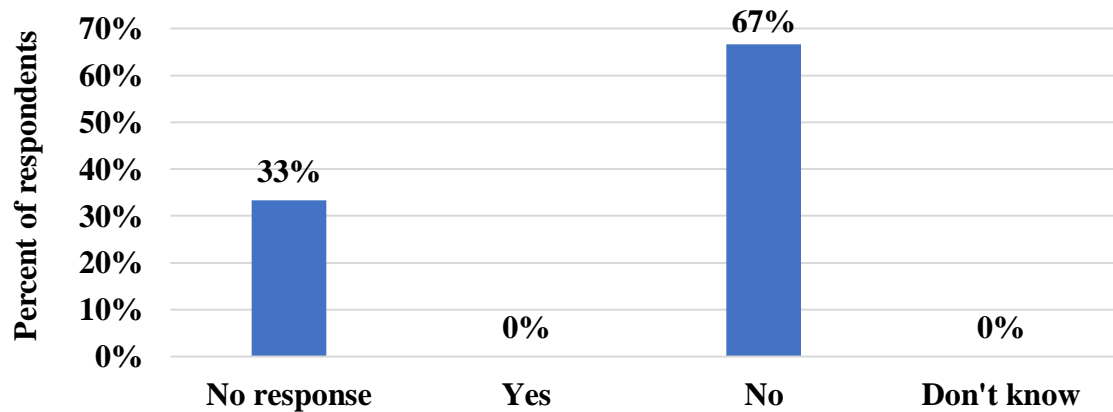
- No response : 0%
- Yes : 25%
- No : 50%
- Will have to soon : 25%



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 = 6)

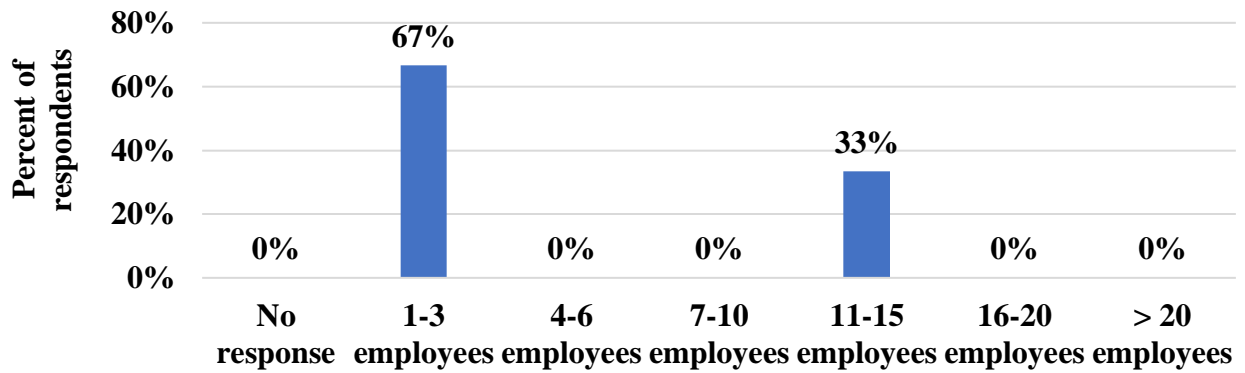
- No response : 33%
- Yes : 0%
- No : 67%
- Don't know : 0%



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

(n = 3)

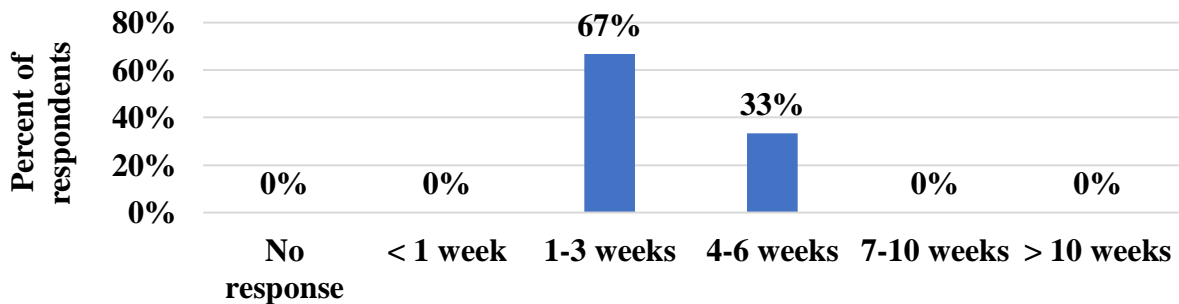
- No response : 0%
- 1 – 3 employees : 67%
- 4 – 6 employees : 0%
- 7 – 10 employees : 0%
- 11 – 15 employees : 33%
- 16 – 20 employees : 0%
- More than 20 employees : 0%



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)

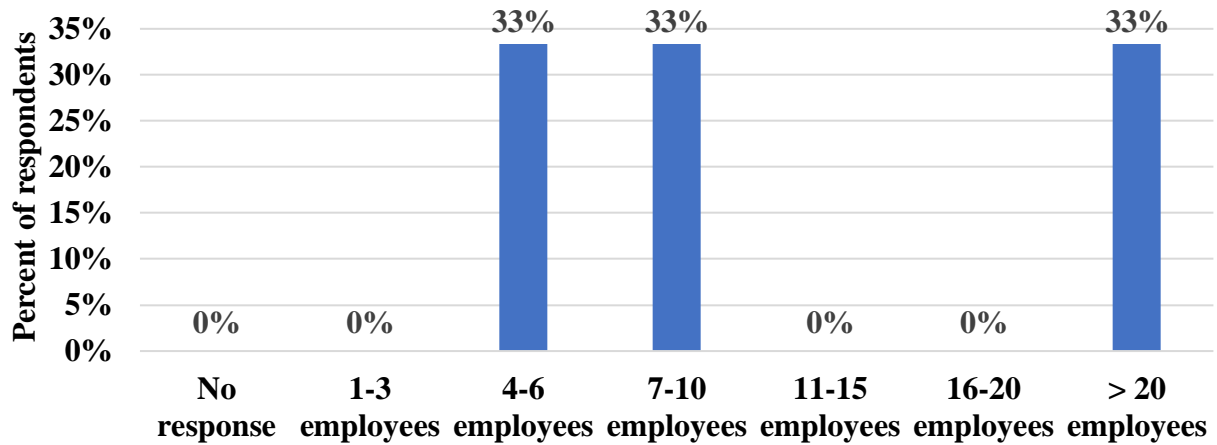
- No response : 0%
- Less than 1 week : 0%
- 1 – 3 weeks : 67%
- 4 – 6 weeks : 33%
- 7 – 10 weeks : 0%
- More than 10 weeks : 0%



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)

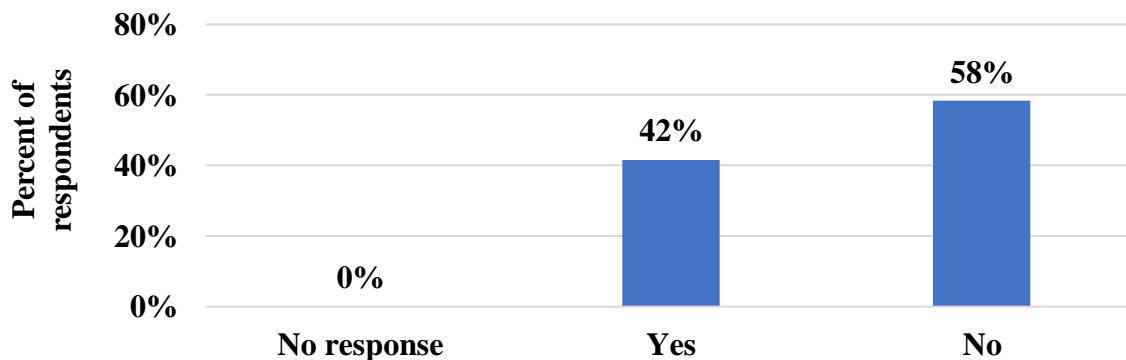
- No response : 0%
- 1 – 3 employees : 0%
- 4 – 6 employees : 33%
- 7 – 10 employees : 33%
- 11 – 15 employees : 0%
- 16 – 20 employees : 0%
- More than 20 employees : 33%



Q5. Has your farm or business had any employees miss work due to the coronavirus disease (COVID-30)?

(n = 12)

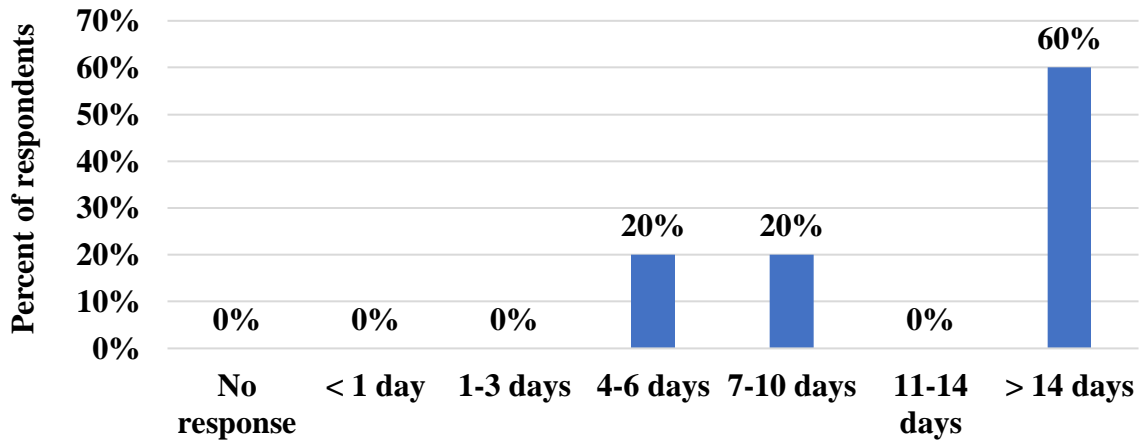
- No response : 0%
- Yes : 42%
- No : 58%



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 = 5)

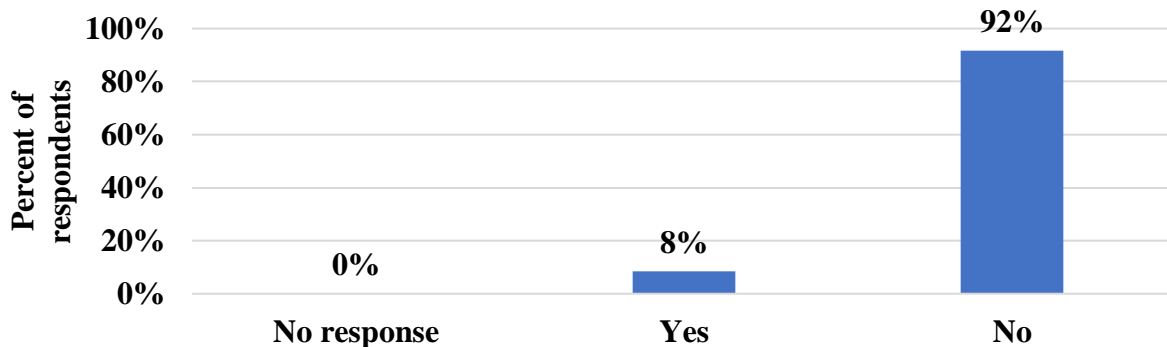
- No response : 0%
- Less than a day : 0%
- 1 -3 days : 0%
- 4 – 6 days : 20%
- 7 – 10 days : 20%
- 11 – 14 days : 0%
- More than 14 days : 60%



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

(n = 12)

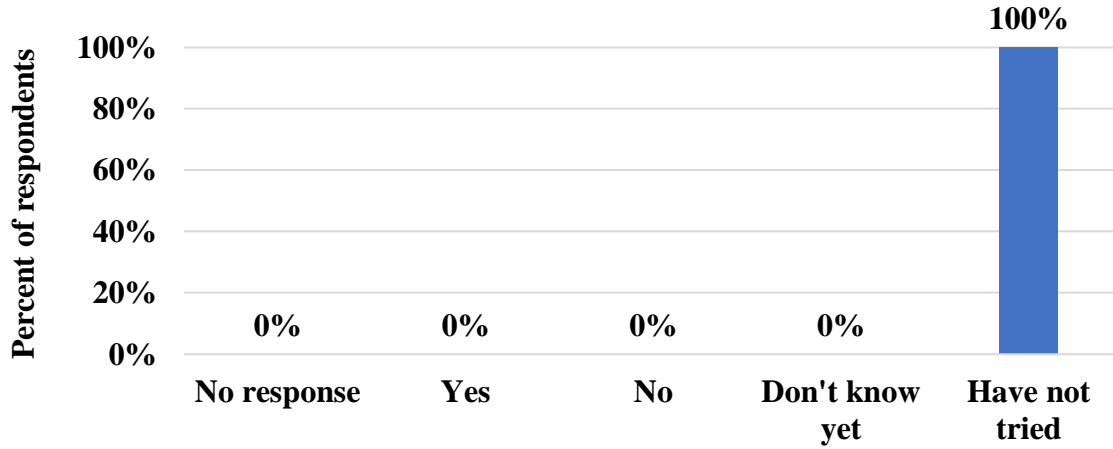
- No response : 0%
- Yes : 8%
- No : 92%



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

(n = 1)

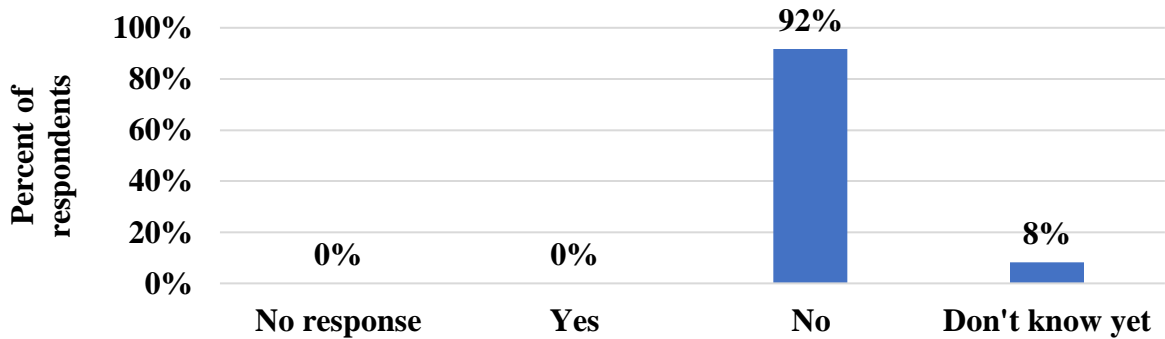
- No response : 0%
- Yes : 0%
- No : 0%
- Don't know yet : 0%
- Have not tried : 100%



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 = 12)

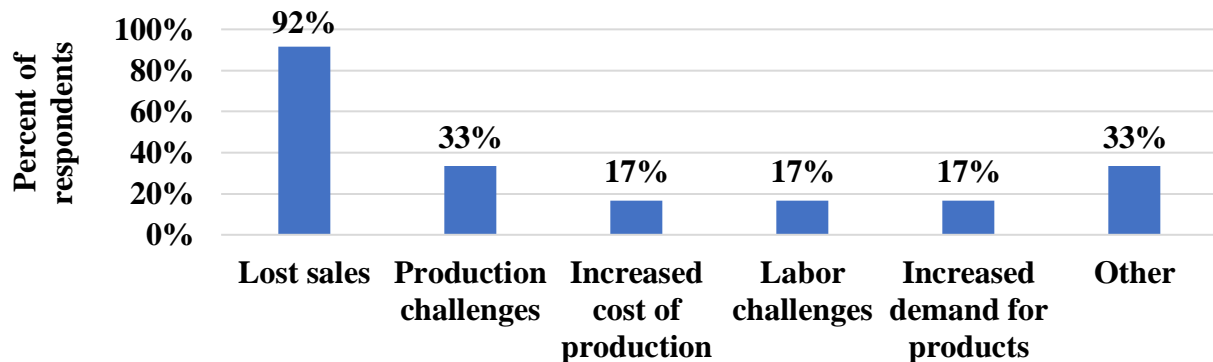
- No response : 0%
- Yes : 0%
- No : 92%
- Don't know yet : 8%



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 = 12)

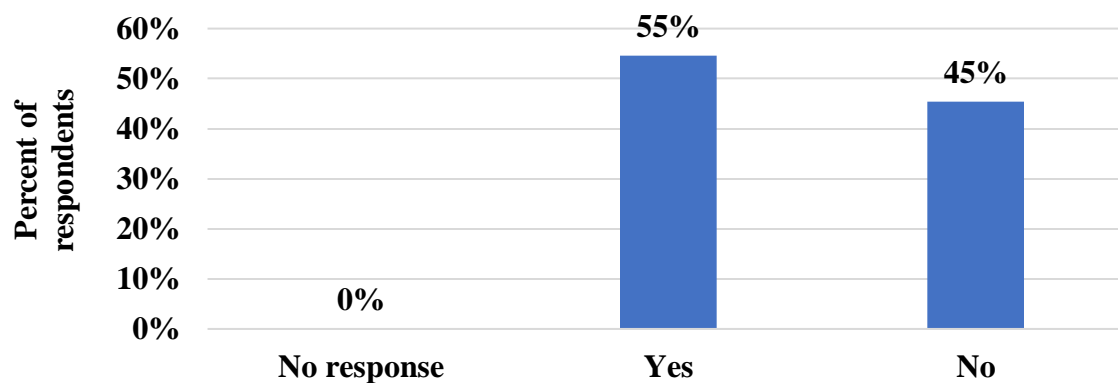
- Lost sales : 92%
- Production challenges (not related to labor) : 33%
- Increased cost of production : 17%
- Labor challenges : 17%
- Increased demand for products : 17%
- Other : 33%



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 = 11)

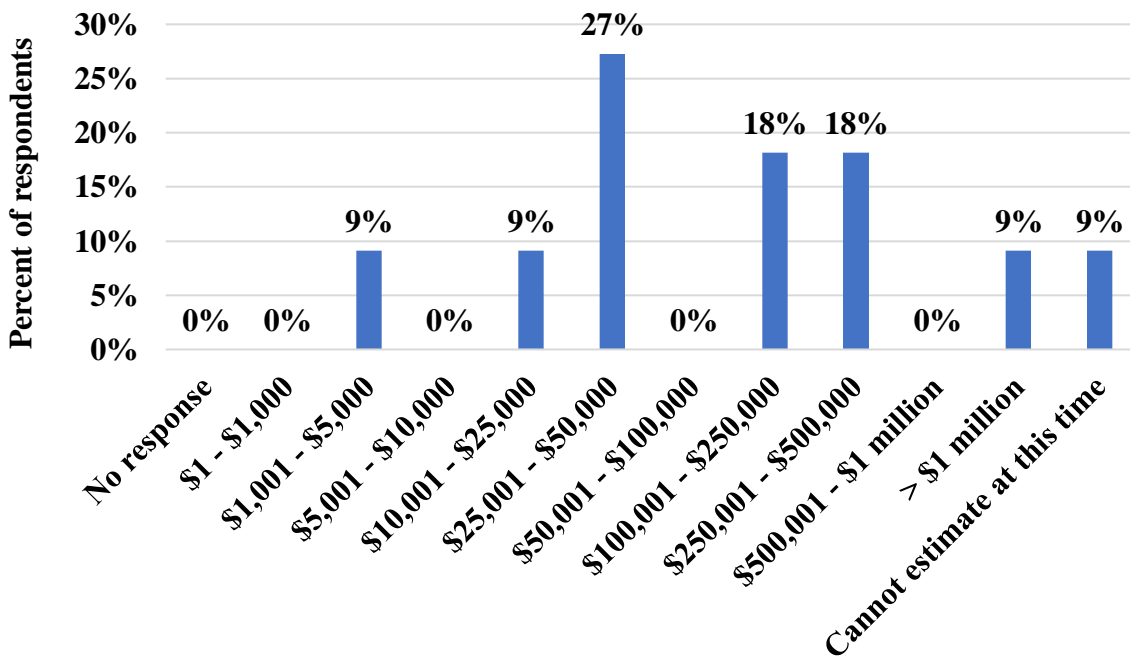
- No response : 0%
- Yes : 55%
- No : 45%



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 = 11)

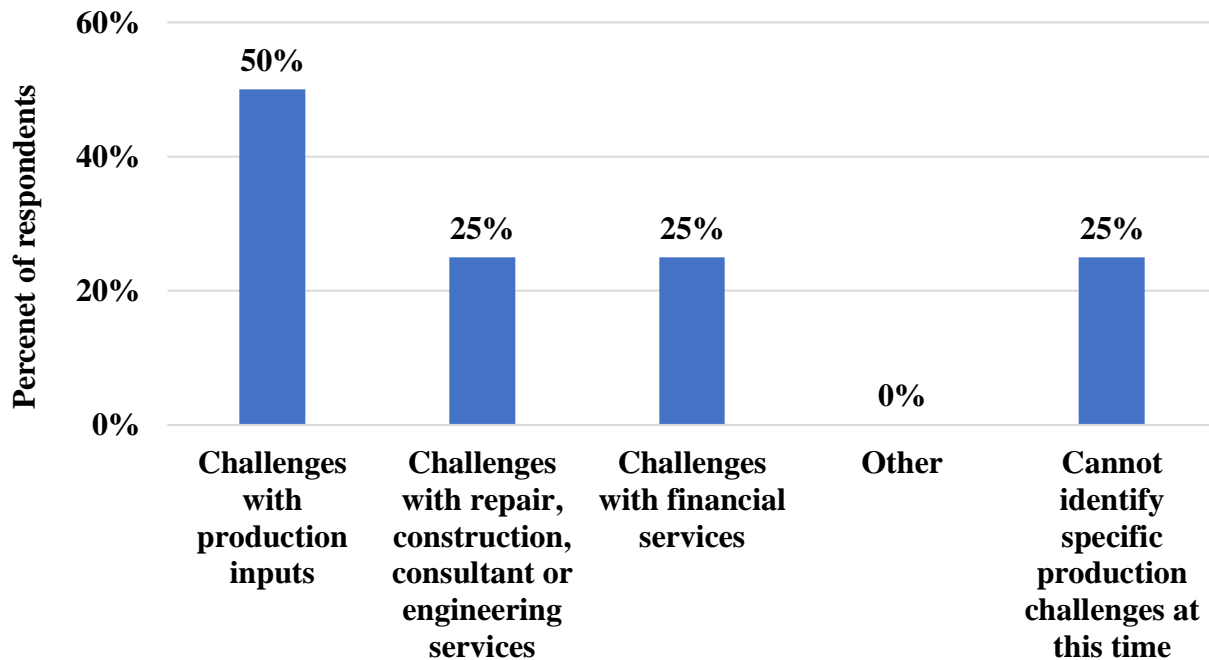
- No response : 0%
- \$1 - \$1,000 : 0%
- \$1,001 - \$5,000 : 9%
- \$5,001 - \$10,000 : 0%
- \$10,001 - \$25,000 : 9%
- \$25,001 - \$50,000 : 27%
- \$50,001 - \$100,000 : 0%
- \$100,001 - \$250,000 : 18%
- \$250,001 - \$500,000 : 18%
- \$500,001 - \$ 1million : 0%
- Greater than \$1 million : 9%
- Cannot estimate at this time : 9%



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 = 4)

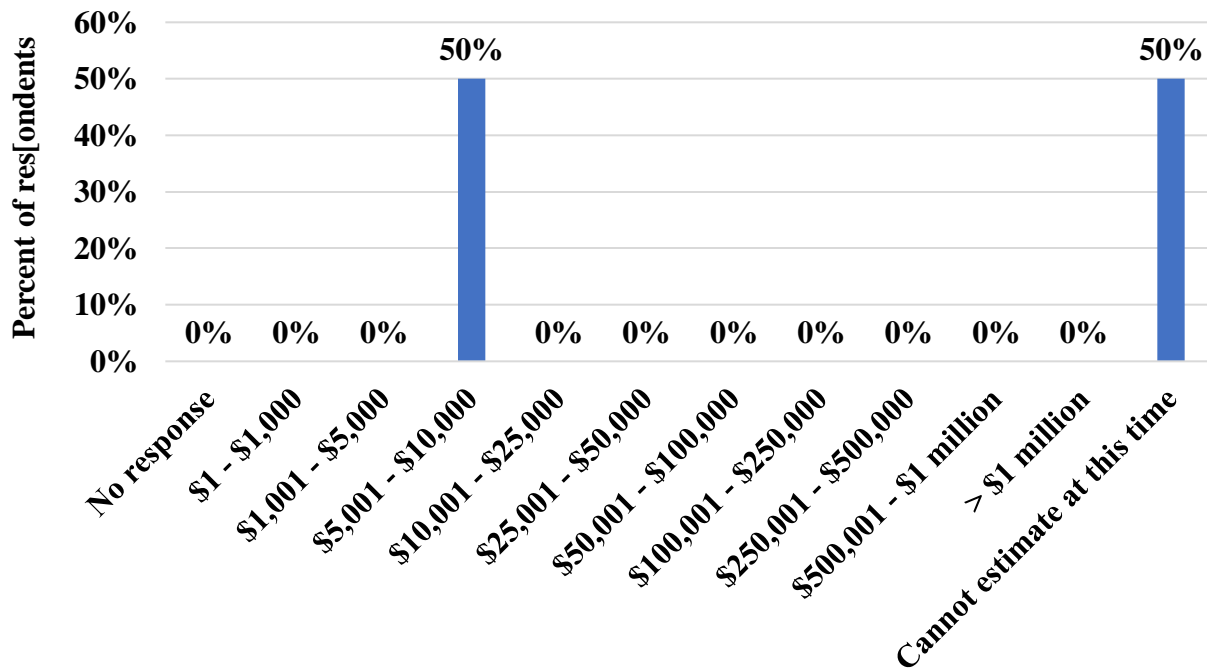
- Challenges with production inputs (feed, chemicals, therapeutants, etc.) : 50%
- Challenges with repair, construction, consultant or engineering services : 25%
- Challenges with financial services (operating loans, leases, etc.) : 25%
- Other : 0%
- Cannot identify specific production challenges at this time : 25%



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)

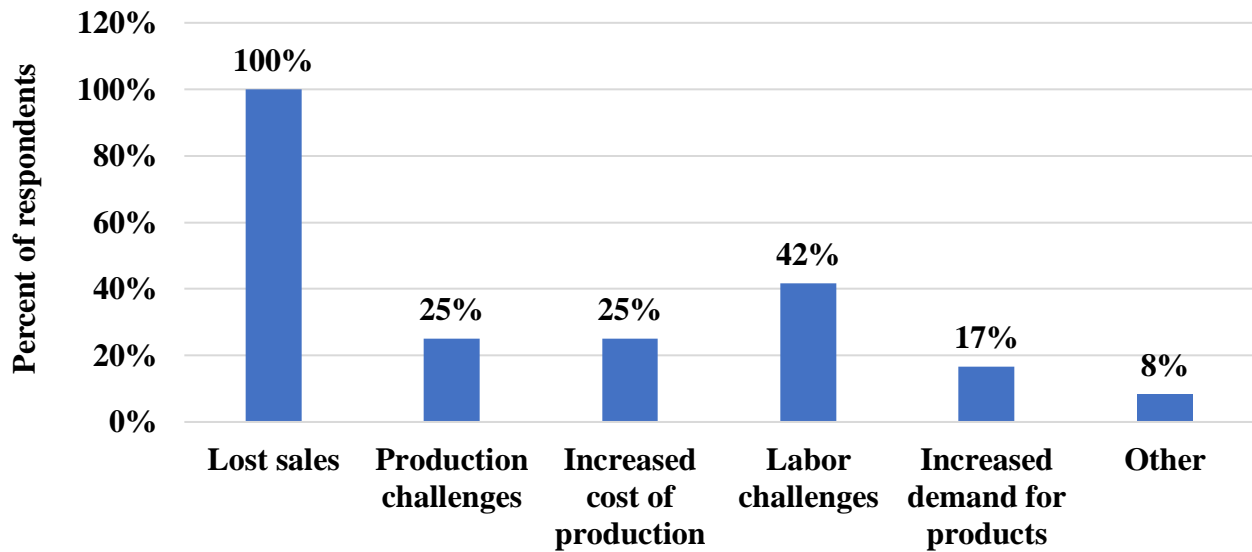
- No response : 0%
- \$1 - \$1,000 : 0%
- \$1,001 - \$5,000 : 0%
- \$5,001 - \$10,000 : 50%
- \$10,001 - \$25,000 : 0%
- \$25,001 - \$50,000 : 0%
- \$50,001 - \$100,000 : 0%
- \$100,001 - \$250,000 : 0%
- \$250,001 - \$500,000 : 0%
- \$500,001 - \$ 1million : 0%
- Greater than \$1 million : 0%
- Cannot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



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 = 12)

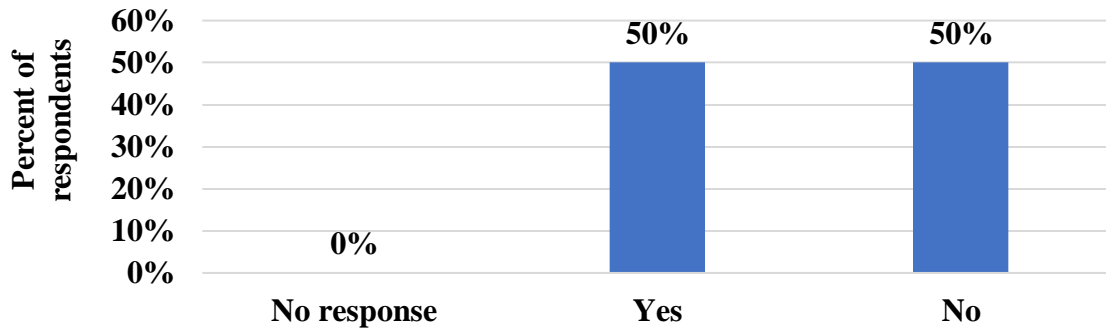
- Lost sales : 100%
- Production challenges (not related to labor) : 25%
- Increased cost of production : 25%
- Labor challenges : 42%
- Increased demand for products : 17%
- Other : 8%



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 = 12)

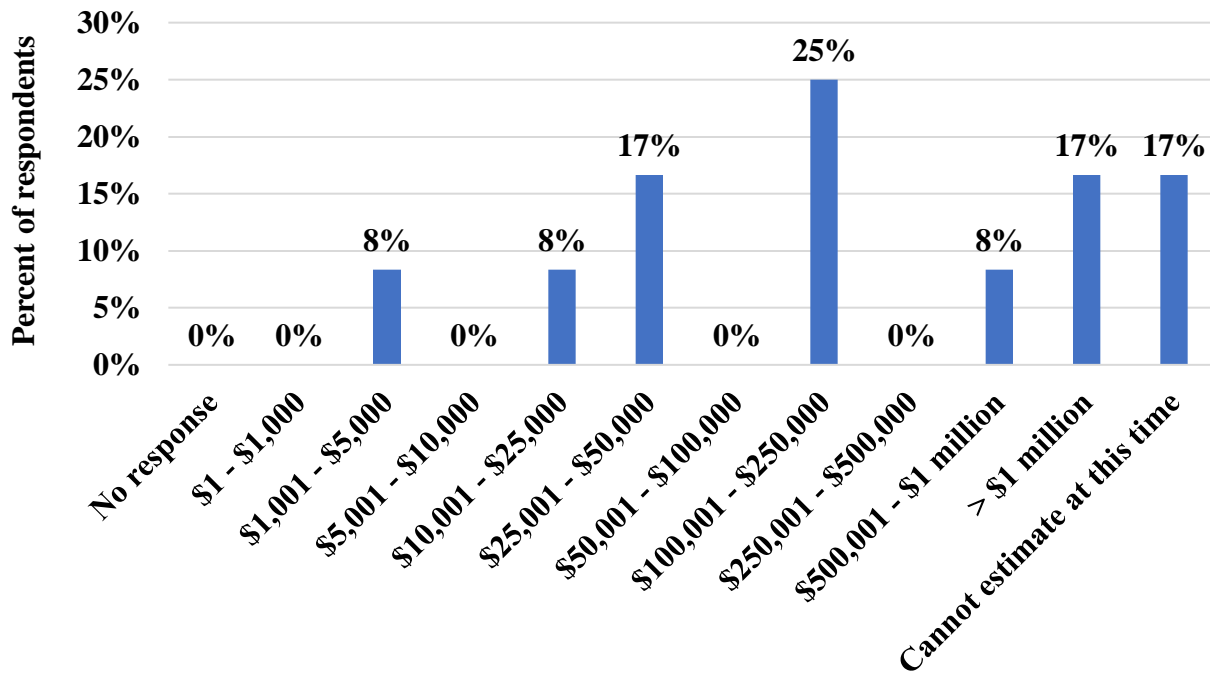
- No response : 0%
- Yes : 50%
- No : 50%



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 = 12)

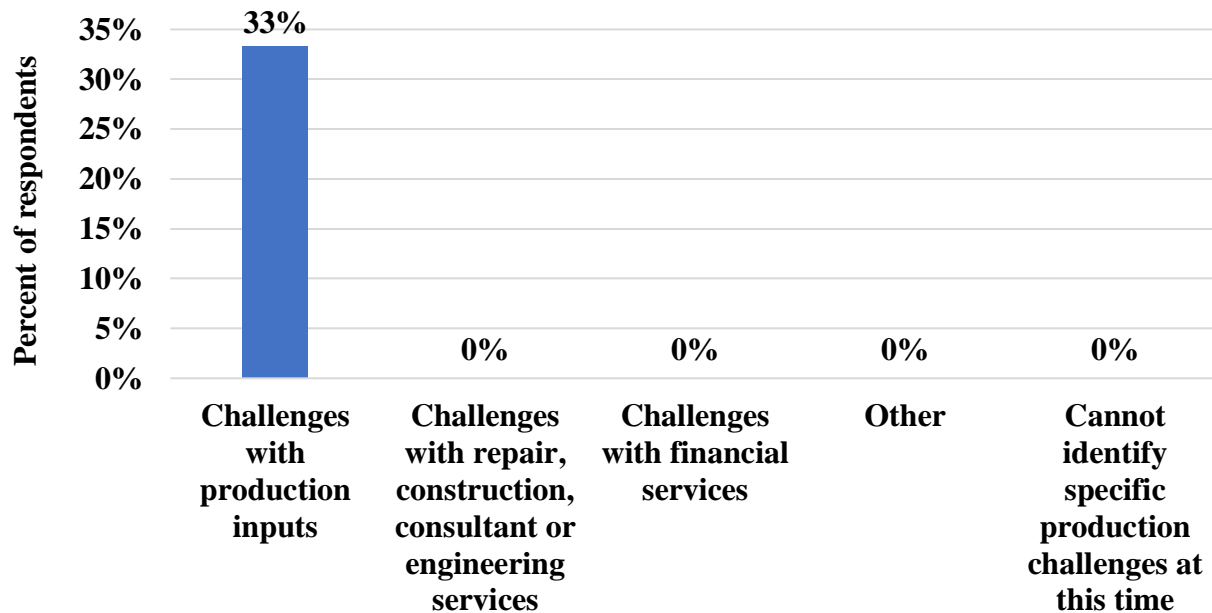
- No response : 0%
- \$1 - \$1,000 : 0%
- \$1,001 - \$5,000 : 8%
- \$5,001 - \$10,000 : 0%
- \$10,001 - \$25,000 : 8%
- \$25,001 - \$50,000 : 17%
- \$50,001 - \$100,000 : 0%
- \$100,001 - \$250,000 : 25%
- \$250,001 - \$500,000 : 0%
- \$500,001 - \$ 1million : 8%
- Greater than \$1 million : 17%
- Cannot estimate at this time : 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.

(n = 3)

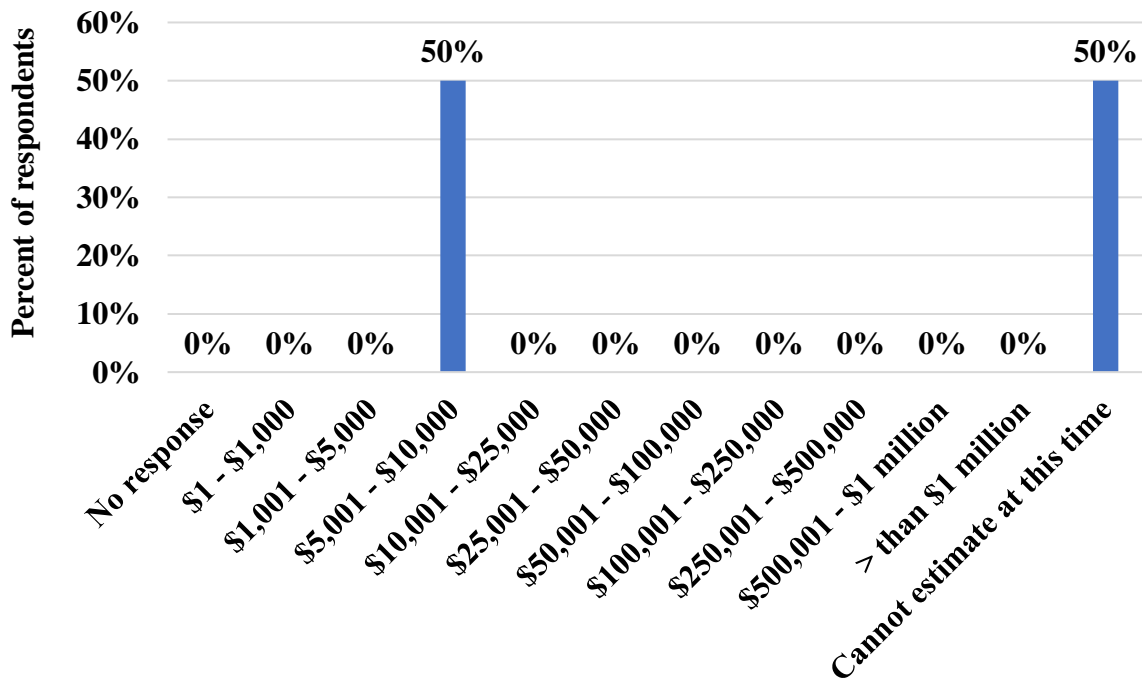
- Challenges with production inputs (feed, chemicals, therapeutants, etc.) : 33%
- Challenges with repair, construction, consultant or engineering services : 0%
- Challenges with financial services (operating loans, leases, etc.) : 0%
- Other : 0%
- Cannot identify specific production challenges at this time : 0%



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)

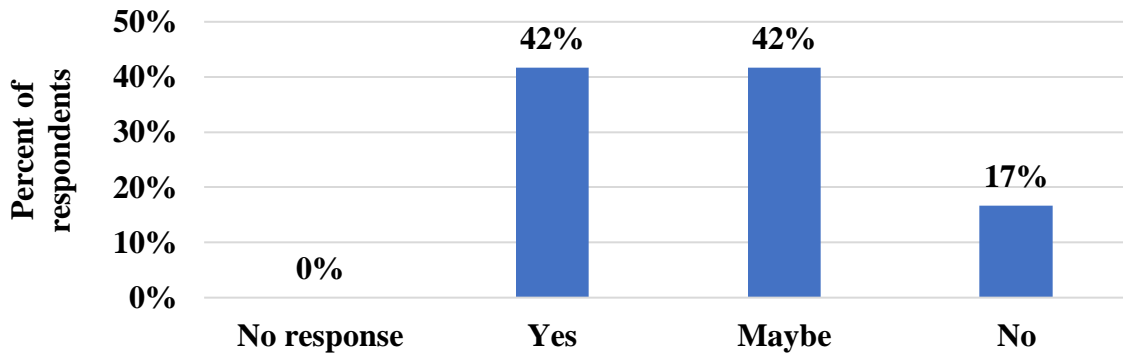
- No response : 0%
- \$1 - \$1,000 : 0%
- \$1,001 - \$5,000 : 0%
- \$5,001 - \$10,000 : 50%
- \$10,001 - \$25,000 : 0%
- \$25,001 - \$50,000 : 0%
- \$50,001 - \$100,000 : 0%
- \$100,001 - \$250,000 : 0%
- \$250,001 - \$500,000 : 0%
- \$500,001 - \$ 1million : 0%
- Greater than \$1 million : 0%
- Cannot 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 = 12)

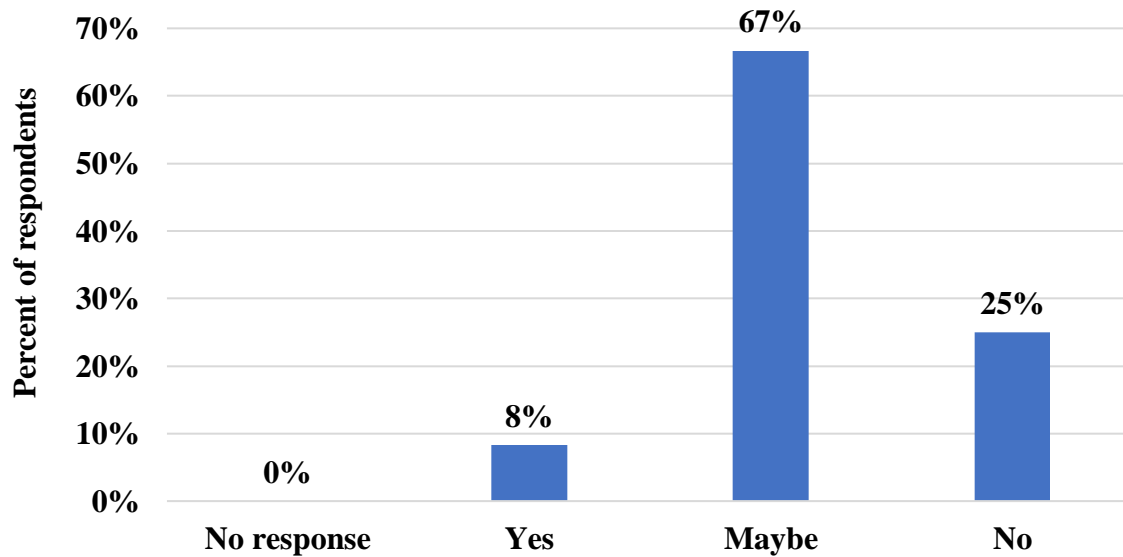
- No response : 0%
- Yes : 42%
- Maybe : 42%
- No : 17%



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

(n = 12)

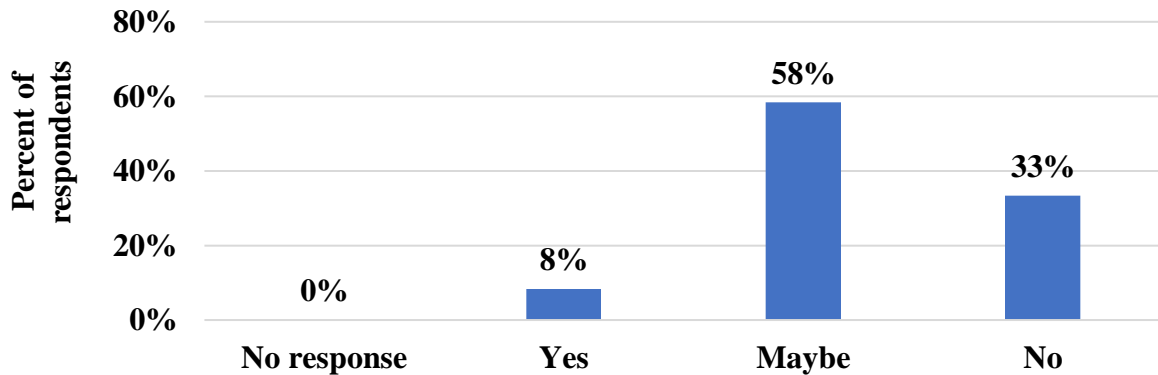
- No response : 0%
- Yes : 8%
- Maybe : 67%
- No : 25%



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

(n = 12)

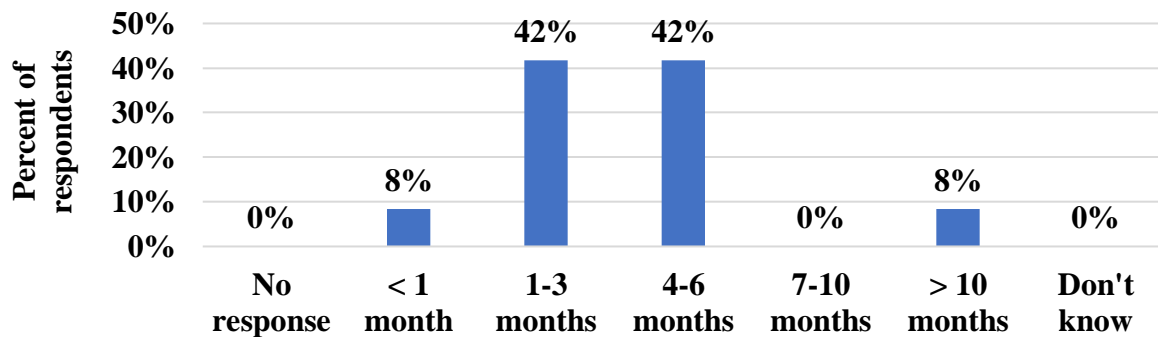
- No response : 0%
- Yes : 8%
- Maybe : 58%
- No : 33%



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 = 12)

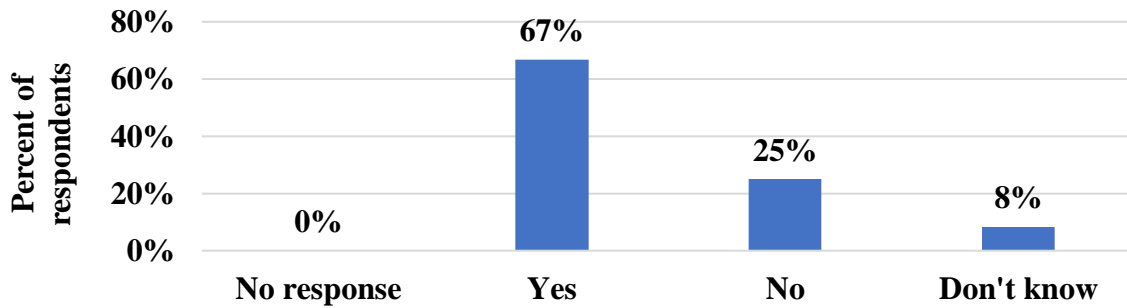
- No response : 0%
- Less than 1 month : 8%
- 1 – 3 months : 42%
- 4 – 6 months : 42%
- 7 – 10 months : 0%
- More than 10 months : 8%
- Do not know : 0%



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

(n = 12)

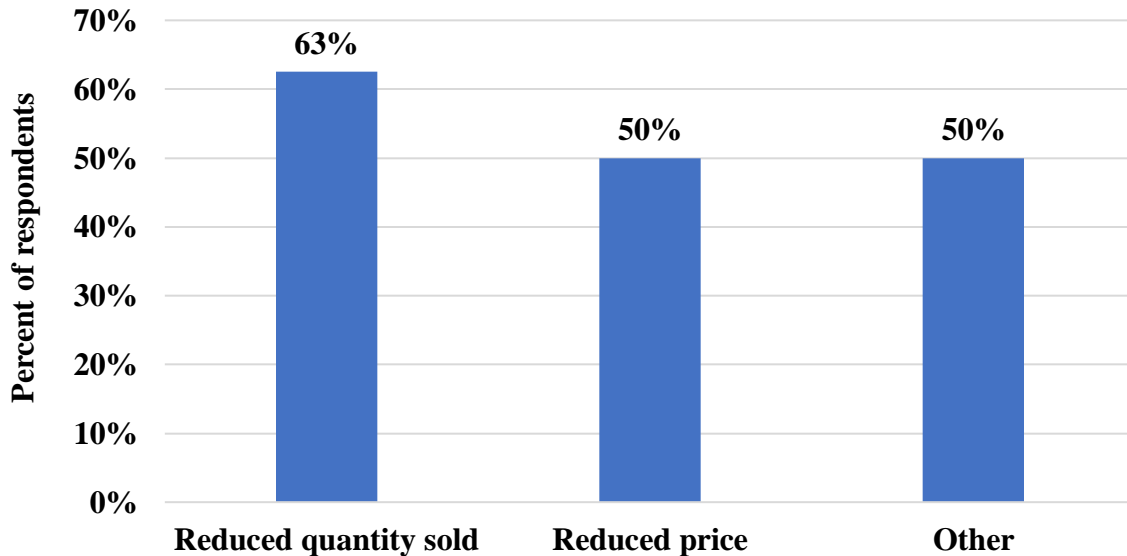
- No response : 0%
- Yes : 67%
- No : 25%
- Don't know : 8%



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)

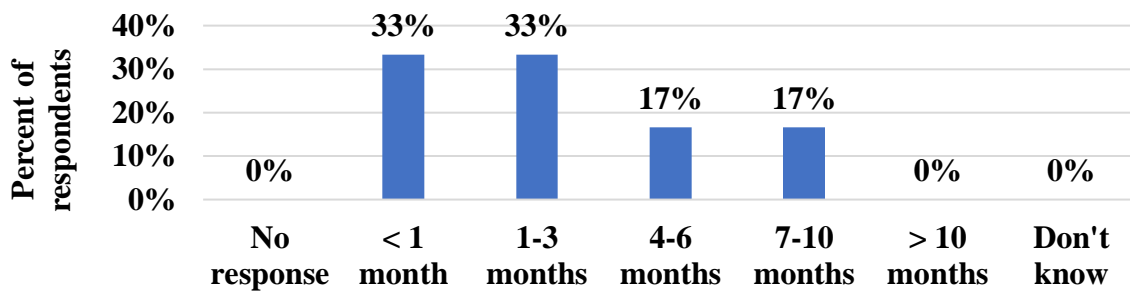
- Reduced quantity sold : 63%
- Reduced price : 50%
- Other : 50%



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 = 12)

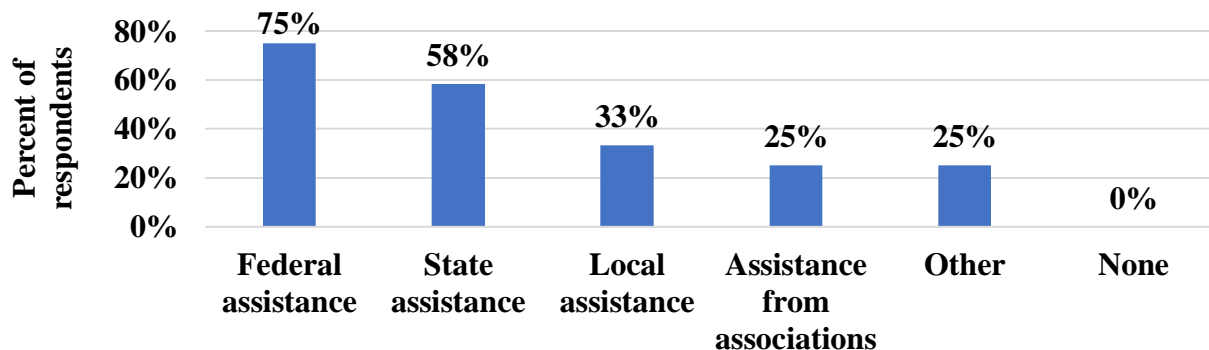
- No response : 0%
- Less than 1 month : 33%
- 1 – 3 months : 33%
- 4 – 6 months : 17%
- 7 – 10 months : 17%
- More than 10 months : 0%
- Don't know : 0%



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 = 12)

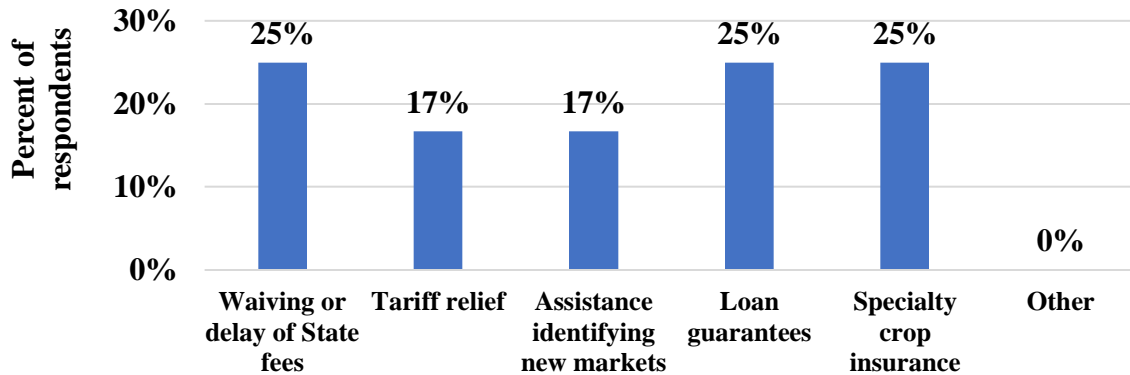
- Federal assistance : 75%
- State assistance : 58%
- Local assistance : 33%
- Assistance from associations : 25%
- Other : 25%
- None : 0%



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

(n = 12)

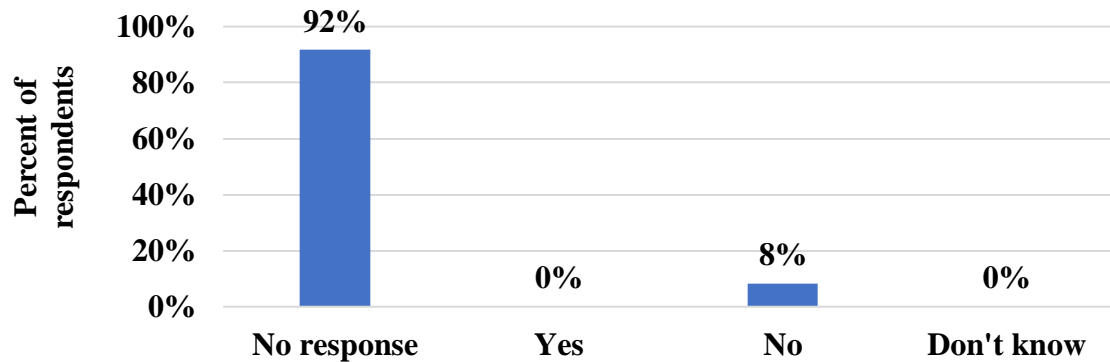
- Waiving or delay of State fees : 25%
- Tariff relief : 17%
- Assistance identifying new markets : 17%
- Loan guarantees : 25%
- Specialty Crop Insurance : 25%
- Other : 0%



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 = 12)

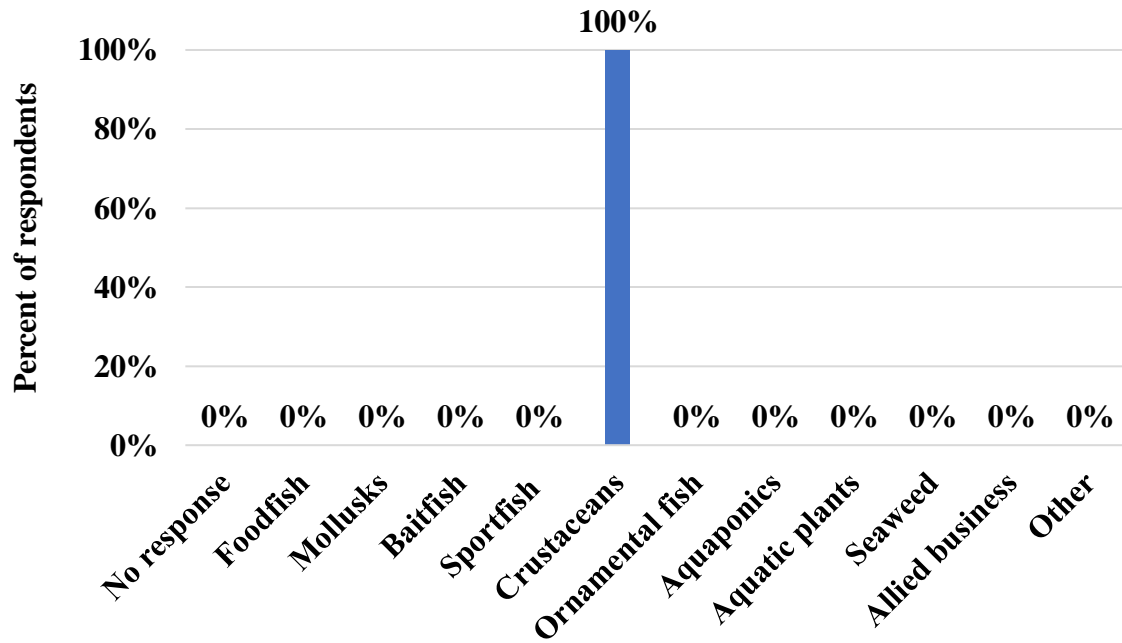
- No response : 92%
- Yes : 0%
- No : 8%
- Don't know : 0%



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

(n = 12)

• No response	:	0%
• Foodfish	:	0%
• Mollusks (oysters, clams, mussels, etc.)	:	0%
• Baitfish	:	0%
• Sportfish / recreational fish, including trout	:	0%
• Crustaceans (crawfish, soft crab, shrimp, etc.)	:	100%
• Ornamental fish (aquarium or water garden)	:	0%
• Aquaponics	:	0%
• 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:

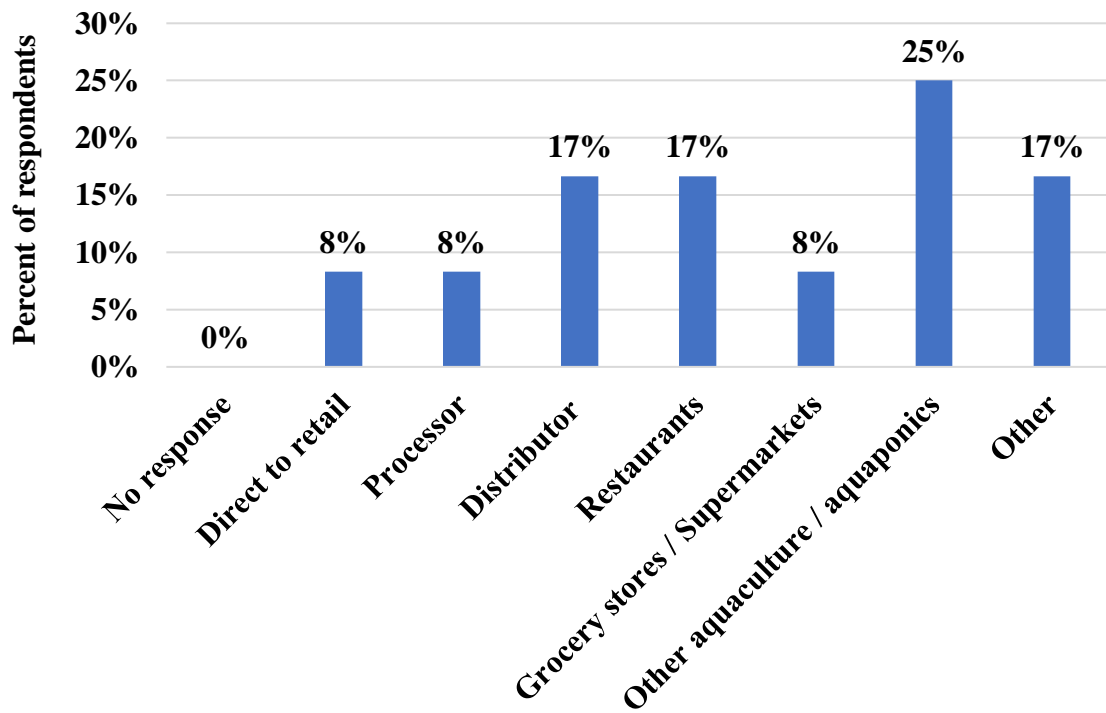
(n = 0)

- No response : NA
- Catfish : NA
- Sportfish : NA
- Ornamental fish : 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 = 12)

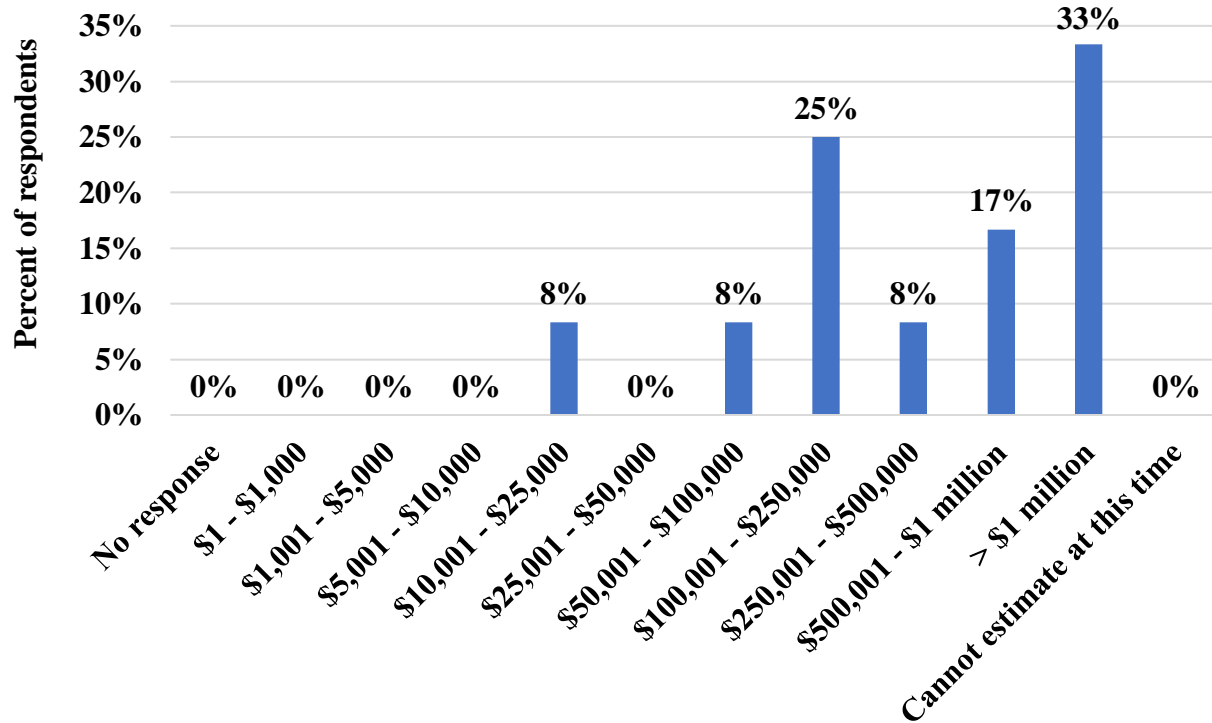
- No response : 0%
- Direct to retail (direct to consumers) : 8%
- Processor : 8%
- Distributor : 17%
- Restaurants : 17%
- Grocery Stores / Supermarkets : 8%
- Other aquaculture/aquaponics farms or businesses : 25%
- Other : 17%



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

(n = 12)

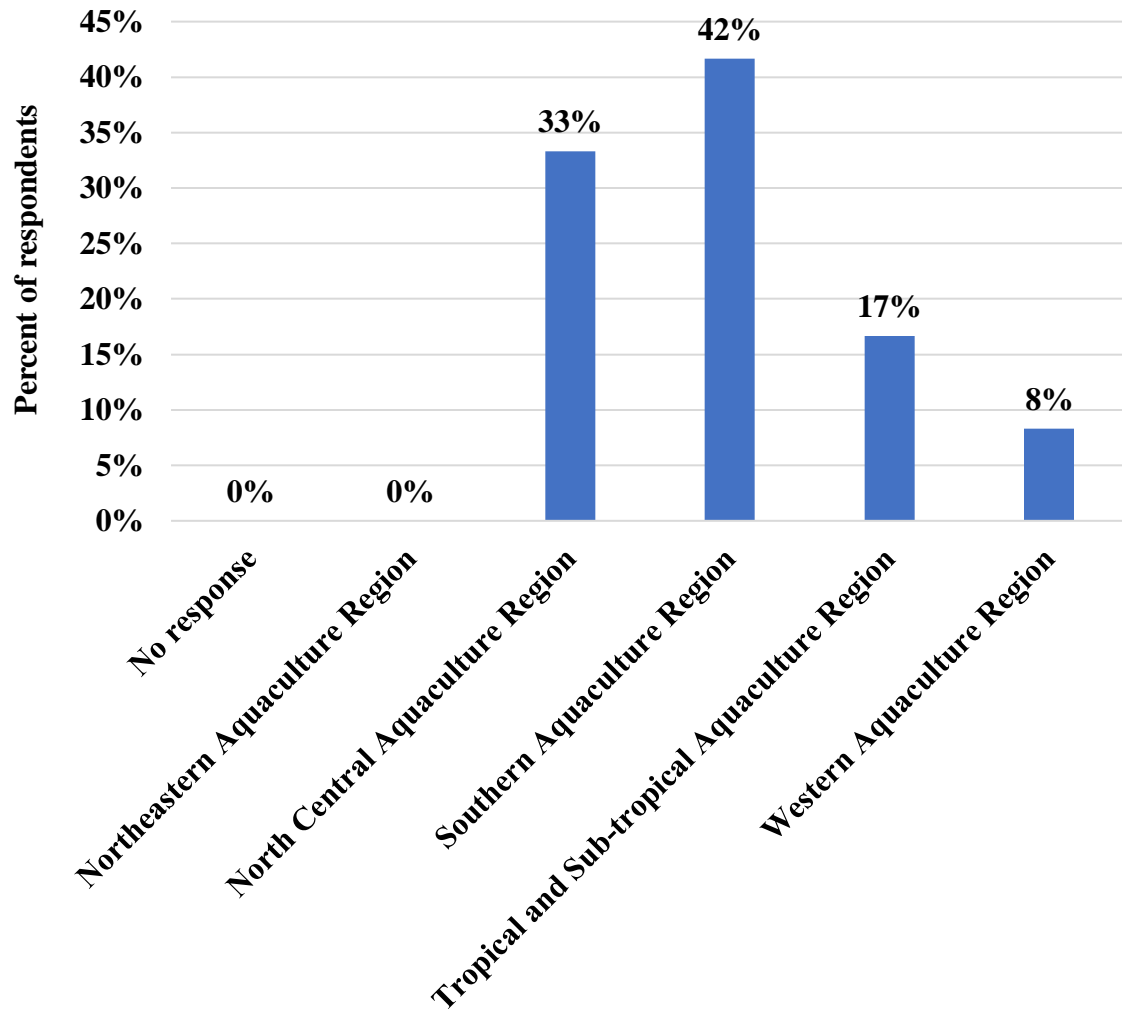
- No response : 0%
- \$1 - \$1,000 : 0%
- \$1,001 - \$5,000 : 0%
- \$5,001 - \$10,000 : 0%
- \$10,001 - \$25,000 : 8%
- \$25,001 - \$50,000 : 0%
- \$50,001 - \$100,000 : 8%
- \$100,001 - \$250,000 : 25%
- \$250,001 - \$500,000 : 8%
- \$500,001 - \$ 1million : 17%
- Greater than \$1 million : 33%
- Cannot estimate at this time : 0%



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

(n = 12)

- No response : 0%
- Northeastern Aquaculture Region : 0%
- North Central Aquaculture Region : 33%
- Southern Aquaculture Region : 42%
- Tropical and Sub-Tropical Aquaculture Region : 17%
- Western Aquaculture Region : 8%



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.