# Impacts of COVID-19 on U.S. catfish businesses: Quarter 2 Results

*April 10, 2020 to June 29, 2020 survey*

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## Introduction

On March 23rd, 2020 Virginia Tech Seafood AREC and The Ohio State University Extension initiated an online survey of 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 will be distributed after every quarter for 2020 (van Senten et al. 2020a,b), to attempt to capture the evolving impacts of COVID-19 over time. **The Quarter 2 survey closed on July 17th, 2020 at 11:59 pm.** Survey methods are detailed in the Virginia Cooperative Extension Fact Sheet VCE-AAEC-228, available at https://www.arec.vaes.vt.edu/arec/virginia-seafood/research/Impacts_of_COVID19.html. This factsheet is a supplemental report to the overall survey that summarizes the results of **catfish farm** respondents summarizing the Q2 results of this study, covering the period from **April 10th to June 29th, 2020.**

## Results

### Characterization of Catfish Respondents

Quarter 2 survey results showed that there were **49 catfish farm participants**, which represent approximately 9% of the U.S. catfish farmers reported in the 2018 Census of Aquaculture (USDA, 2019). More than four-fifths of catfish respondents sold their fish to a processor, with much smaller percentages selling direct to consumers, distributors, or other sources (Table 1).

*Table 1. Primary marketing channel for catfish respondents.*

| Category | Percentage |
|---|---|
| **Processor** | 81% |
| **Direct to consumer** | 4% |
| **Restaurants** | 0% |
| **Distributors** | 4% |
| **Other markets** | 11% |

Catfish farms vary in terms of their production scale. Respondents to the survey included those with scales of production from annual sales of < $100,000 up to those with annual sales greater than $1 million (Table 2). The greatest percentage (40%) of catfish respondents had sales in the range of over $1 million, followed by farms with sales of $500,001 to $1 million (27%), $250,001 to $500,000 (19%), $100,001 to $250,000 (8%), 2% of catfish

respondents had sales less than $100,000, and 4% did not respond to this question.

*Table 2. Scale of catfish respondent farms/businesses.*

| Category | Percentage |
|---|---|
| **Over $1 million** | 40% |
| **$500,001 - $1 million** | 27% |
| **$250,001 - $500,000** | 19% |
| **$100,001 - $250,000** | 8% |
| **<$100,000** | 2% |
| **No response** | 4% |

*Table 3. Participation by aquaculture region.*

| Category | Percentage |
|---|---|
| **Southern Aquaculture Region** | 93% |
| **No response** | 7% |

# Key findings

Seventy percent of catfish respondents reported that their farm or business had been impacted by the COVID-19 pandemic during Q2. Seven percent said that their catfish business had not been impacted, and 17% were uncertain or unsure whether it had been impacted. Of those who reported that their catfish farm or business had not been impacted, 29% said it would "definitely" be impacted, 57% said "probably yes," and 14% said, "probably not". None of the catfish respondents stated 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 25% said, "yes." Fifty-eight percent reported that their farm or business would "maybe" survive 3 months without external assistance, and 13% said that their farm or business would not survive 3 months without external assistance (4% of catfish respondents did not respond to this question). When asked the same question, but for the next 6 months, 21% said that it would survive, 63% said "maybe," and 13% said that their farm/business would not survive the next 6 months without external assistance (4% did not respond). Responses related to 12 months without external assistance suggested that 29% would not survive, 46% said that their farm or business would "maybe" survive, and only 17% said that they would survive (8% did not respond to this question).

*70% of Q2 catfish respondents indicated that their farm or business had been impacted by the coronavirus disease pandemic.*

Increased cost associated with holding market-sized fish in ponds was cited as the biggest problem followed by loss in sales. Holding market-sized fish that would have been marketed if not for the pandemic has further caused management problems due to the greater biomasses in production ponds. The delay in sales resulted in larger sizes of fish that sell as reduced prices per lb. Inefficiencies associated with labor challenges and input supply delays also increased the costs of production. Half of the catfish respondents also reported lost sales due to restaurant and other market closures. Producers and processors were unable to pivot marketing strategies rapidly for a variety of reasons.

## Lost Sales

Lost sales were one of the major impacts reported by respondents in the Q1 survey; with 77% of catfish respondents (n = 54), reporting lost sales. Results from the Q2 survey indicated that catfish respondents also experienced lost sales in the second quarter of 2020; with 50% of catfish respondents (n = 28), reporting lost sales. Approximately one third (36%) of Q2 catfish respondents reported lost sales to international markets (n = 14). Respondents also reported the value of lost sales in the second quarter (Table 4), with 50% of catfish respondents indicating that they had lost between $100,001 and $250,000 in sales. This was followed by 14% of catfish respondents that had lost between $500,001 and $1,000,000 or $25,001 and $50,000 during the second quarter of 2020.

*Table 4. Value of lost sales on catfish operations in Q2.*

| Category | Percentage |
|---|---|
| **$100,001 - $250,000** | 50% |
| **$500,001 - $1 million** | 14% |

| | |
|---|---|
| **$25,001 - $50,000** | 14% |
| **$250,001 - $500,000** | 7% |
| **$50,001 - $100,000** | 7% |
| **$10,001 - $25,000** | 7% |
| **> $1 million** | 0% |
| **$5,001 - $10,000** | 0% |
| **$1,001 - $5,000** | 0% |
| **$1 - $1,000** | 0% |
| **Cannot estimate at this time** | 0% |
| **No response** | 0% |

Respondents were also asked about the status of contracts during the second quarter (n = 21). One-third of the catfish respondents (33%) had government contracts delayed, and 10% reported government contract cancellations. Fourteen percent of Q2 catfish respondents indicated that their farm or business had made new government (state or federal) contracts during the second quarter; with 5% reporting government contracts re-instated. As for private contracts, 48% of respondents indicated that their farm or business had private contracts delayed during Q2. This was followed by 29% that had contracts canceled, and only 5% reported new private contracts or private contracts re-instated.

Forty-six percent of Q2 catfish respondents indicated that they expected to experience additional lost sales in Q3 of 2020 (n = 28), with 23% of respondents expecting to experience decreased sales to international markets (n = 13).

*50% of Q2 catfish respondents reported that their farm or business had experienced lost sales due to the coronavirus disease pandemic.*

A new question for the Q2 survey asked catfish respondents about the availability of cash on hand to cover operating expenses. A quarter of catfish respondents (25%), indicated that they had sufficient cash on hand to cover 1 to 3 months of operations (n = 24). Sixteen percent of catfish respondents to the Q2 survey said they had cash on hand for up to one month of business operations. However, 17% of catfish respondents indicated not having enough cash on hand for operations. Since the Q2 survey was open for 3 weeks for data collection, catfish respondents who completed the survey shortly after it was distributed may have already exhausted their cash on hand by the time this factsheet was prepared.

## Labor

Fifty-five percent of Q2 catfish respondents reported that their farm or business had experienced no change in employment during the second quarter (n = 20). Twenty-five percent of respondents had laid off additional employees during the second quarter; while 20% of respondents reported that their farm or business would “have to soon”. None of the catfish respondents had hired additional employees. Respondents were asked about the number of employees that had been laid off during Q2, with the majority (80%) indicating that between 1 and 3 employees had been let go. Twenty percent of catfish businesses indicated the number of employees laid off during the second quarter to be between 4 and 6.

Catfish respondents were also asked how long before their farm or business had to decide whether to lay off employees or not. Half of the catfish respondents indicated that they had from 4 to 6 weeks to decide on laying off employees and another 25% said that they had 1 to 3 weeks to make the decision. Catfish respondents were then asked how many employees the farm or business would have to lay off (n = 4); all of them (100%) indicated between 1 and 3 employees.

Catfish respondents were also asked about employees missing work due to the coronavirus (COVID-19) disease pandemic. Sixty-five percent of respondents indicated that their farm or business had employees miss work (n = 20), while 35% percent of catfish respondents did not experience any employees missing work due to COVID-19. Among the Q2 catfish respondents that indicated that employees had missed work due to COVID-19, 38% reported 11 to 14 days of missed work while another 23% had employees who missed either more than 14 days or from 4 to 6 days of work during the second quarter. This was followed by 15% reporting between 7 and 10 days of missed work.

## Challenges to the farm/business

Fifty percent of the responding catfish farms and businesses in Q2 (n= 28) had experienced production challenges related to the increased cost of production, tied with the 50% that had experienced lost sales. Another 46% of Q2 respondents indicated they had experienced production challenges, while 39% experienced labor challenges, 21% reported being unable to pay bills or cover their liabilities during the second quarter. Only 11% of Q2 catfish respondents reported experiencing an increased demand for their product (Table 5).

Specifically, 46% of Q2 catfish respondents reported challenges with production inputs such as feed, chemicals, therapeutics, etc. (n = 13). Another 46% reported experiencing challenges with financial services. This was followed by 38% of Q2 catfish respondents who experienced challenges with repair, construction, consultant, or engineering services, and another 23% reported various other challenges related to production. Fifteen percent of Q2 catfish respondents reported that they could not identify specific challenges at the time they completed the survey.

*Table 5. Production problems experienced by catfish operation in Q2.*

| Production problems | Percentage |
|---|---|
| **Lost sales** | 50% |
| **Increased cost of production** | 50% |
| **Production challenges** | 46% |
| **Labor challenges** | 39% |
| **Unable to pay bills/liabilities** | 21% |
| **Other (non-specified challenges)** | 21% |
| **Increased demand** | 11% |

Although a third of the catfish respondents chose not to answer the question about whether farms or businesses had missed any bill or loan payments as a result of the pandemic 17% percent of Q2 catfish respondents indicated having missed between $10,001 and $25,000 in bill or loan payments. Similarly, 17% of respondents had missed payments of between $100,001 and $250,000, and 17% of respondents who had missed between $500,001 and $1,000,000 in payments during the second quarter. Another 17% of respondents who could not estimate the value of missed payments at the time they completed the survey.

*50% of Q2 respondents reported that their farm or business had experienced increased cost of production due to the coronavirus disease pandemic.*

When asked about expecting to experience challenges at the farm or business during Q3, 57% of catfish respondents indicated they expected to experience increased cost of production (n = 28). This was followed by 46% of Q2 catfish respondents expecting a loss in sales and another 43% expecting labor challenges. Thirty-nine percent of the catfish respondents expect production challenges while 29% expect an inability to make debt payments.

An overwhelming majority (92%) of catfish farms and businesses also reported challenges with the market-ready product taking up space and interfering with new stocking. Fifty-eight percent of catfish respondents reported that their farm or business could hold market-ready products for a period of 1 to 3 months before it would interfere with new production (n = 24). Thirty-four percent of Q2 catfish respondents could hold market-ready products for less than 1 month before it would interfere with future production; while only 4% percent of responding farms and businesses could hold market-ready products for 4 to 6 months. None of the catfish farms could hold market-ready fish for more than 6 months before it would become an issue for new production.

### Marketing of products

Second-quarter catfish respondents were also asked about the effects of holding market-ready products on price, quality, and quantities sold. The majority (92%) of catfish respondents said “yes”, holding product would make it less marketable (n = 24). Specifically, 77% of Q2 catfish respondents indicated that holding product would result in a reduced price, 50% indicated that holding product would result in a lower quantity sold, and 45% indicated that holding product would reduce the quality of products.

## Marketing channels

Catfish respondents were also asked to indicate their primary marketing channels before the effects of the coronavirus (COVID-19) disease pandemic. Eighty-one percent of Q2 catfish respondents indicated that they previously sold their products primarily through a processor. This was followed by 4% of Q2 catfish respondents indicating sales through distributors or direct sales to consumers.

Catfish respondents were also asked about adaptations or changes in their marketing channel in response to the pandemic, to which 74% of respondents said "no" they had not implemented or attempted to implement a new marketing channel (n = 27). Fifteen percent of catfish respondents said that they had implemented or attempted to implement a new marketing channel during the second quarter of 2020. Of those catfish respondents who had implemented or attempted to implement direct to consumer sales (n = 2), 50% had used online sales while another 50% implemented "curbside pickup", or other unspecified means of market channels.

## Relief and assistance programs

As an important new addition to the Q2 survey, catfish respondents were asked about the various assistance and relief programs that had been announced during Q2 of 2020. Catfish respondents were asked to identify which programs they had applied to, whether they had received the requested support, and whether that support had been helpful to their farm or business (n = 28). Half of the catfish farm respondents (50%) had applied for a personal bank loan or line of credit. About 32% of Q2 respondents had applied for the Paycheck Protection Program (PPP). This was followed by 29% of catfish respondents who had applied for a Small Business Administration (SBA) loan while 18% had applied for Economic Injury Disaster Loans (EIDL). Eighteen percent of Q2 catfish respondents reported that their farm or business had not applied for any assistance programs during the second quarter (Table 6).

*Table 6. Assistance applied by Q2 catfish respondents (n=28).*

| Category | Percentage |
|---|---|
| **Private bank loans/personal line of credit** | 50% |
| **Paycheck Protection Program loans (PPP)** | 32% |
| **Small Business Administration loans (SBA)** | 29% |
| **Economic Injury Disaster Loans (EIDL)** | 18% |
| **Farm/business has not requested financial assistance from any source** | 18% |
| **Other Federal program or initiative** | 11% |
| **Other State program or initiative** | 0% |
| **Other Local program or initiative** | 0% |
| **Unemployment benefits** | 0% |

As for having received the support that was requested, 17% of Q2 catfish respondents indicated that they had applied but not yet received assistance, while 6% reported having been declined or denied assistance. All (100%) of the Q2 respondents who had applied for a Paycheck Protection Program loan, 71% applying for private bank loans, 63% for Small Business Administration Loans, and 60% for Economic Injury Disaster Loans had received the requested support.

Table 7 breaks down the various support programs and the percent of Q2 catfish respondents that reported receiving that support.

*Table 7. Assistance received by Q2 catfish respondents.*

| Assistance received by catfish farmers | (N =) | Percentage |
|---|---|---|
| **Private bank loans/ personal line of credit** | 14 | 71% |
| **Paycheck Protection Program loans (PPP)** | 9 | 100% |
| **Small Business Administration loans (SBA)** | 8 | 63% |
| **Economic Injury Disaster Loans (EIDL)** | 5 | 60% |
| **Other Federal program** | 3 | 67% |
| **Farm or business has applied but not yet received** | 18 | 17% |
| **Farm / business was declined** | 18 | 6% |
| **Unemployment benefits** | 0 | - |
| **Other State/local programs** | 0 | - |

All of Q2 catfish respondents (n = 9) who had applied for a PPP loan had received the requested support. Sixty-three percent of the catfish respondents who applied for a SBA loan received support (n = 8). Among the respondents who requested support (n = 18), 17% of Q2 respondents indicated that they have not yet received assistance, while 6% reported having been declined or denied assistance.
Sixty-eight percent of the catfish respondents suggested that federal assistance would increase the likelihood of their farm to remain in business while 29% suggested State assistance. Another 14% suggested local assistance and a similar proportion suggested help from either associations or other sources.

Forty-three percent of Q2 respondents indicated that specialty-crop insurance would be helpful to them (n = 28). Fourteen percent indicated that waiving or delay of State fees would be helpful, and 11% indicated that tariff relief and assistance with identifying new markets would be helpful.

# Discussion and Conclusion

Results of the Q2 survey demonstrate that U.S. catfish farms and businesses are still experiencing negative impacts from the COVID-19 pandemic. The total number of catfish respondents for the Q2 survey (n = 49) was similar to that of Q1 (n = 54) and many of the responses indicated a similar trend as was observed in the Q1 results. Seventy percent of the catfish respondents had been impacted by the COVID-19 pandemic during Q2. Almost half of the catfish respondents had their contracts either canceled or delayed. Twenty-five percent of the responding catfish farms and businesses had to lay off employees to adjust to cash flow requirements. The biggest problem cited by catfish business owners was the increased cost associated with holding market-sized fish in ponds which would have been sold if the pandemic had not occurred. Increased cost of holding market-sized fish (including increased feed costs, aeration, and others) was the main reason behind the increased cost on operations along with inefficiencies created by labor challenges, and logistical delays in procuring inputs (feed/chemicals, etc.). Half of the catfish respondents also reported lost sales due to restaurant and business closures. Catfish producers, as well as processors, were unable to rapidly pivot to new marketing channels.

One out of every six responding catfish operations had no cash to cover current operating expenses while another 16% could barely cover operating expenses for another month. Lenders were reported to reduce the operating loan limits owing to lower cash flows from farms as well due to uncertain market conditions. While many Q2 catfish respondents have been able to obtain external assistance and relief, there are still several impacts that will have long term consequences for the industry. These include the continued disruption of traditional marketing channels, increasing costs of production, challenges obtaining inputs (feed and chemicals) and services (repair), challenges with cash on hand to cover operating expenses, and missed or delayed loan and bill payments. Disruptions in sales has required catfish farmers to hold fish in ponds longer causing increased holding costs as well as delays in preparations for future production. Lost revenue continues to be a significant challenge for respondents, with 50% of Q2 catfish respondents reporting lost sales. Repondents also reported historic labor shortages on catfish farms and processing facilities due to COVID-19 related absenteeism. Challenges reported with labor and production, also reinforce Q1 results in reiterating the negative impacts on future catfish production and supply. The key points from the Quarter 2 survey results are:

- *70% had been impacted by COVID-19 during Q2*
- *43% had had private orders/contracts canceled or delayed*
- *25% had laid-off employees*
- *50% had increased cost of production and have experienced lost sales*
- *17% had no cash available to cover operating expenses*
- *16% had less than 1 month of cash available to cover operating expenses*

- *25% would survive 3 months without external intervention*
- *68% suggested that federal assistance would increase the likelihood of farm survival and 29% indicated that state assistance would help their farm or business to survive.*
- *50% have applied for a personal bank loan or line of credit; 32% applied for the Paycheck Protection Program, 29% applied for Small Business Administration loans, 18% for an Economic Injury Disaster Loan, and 0% for unemployment benefits.*

# References


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# Additional resources

A summary of all Quarter 2 survey results may be found in the Appendix document to this fact sheet, titled: "Summary of COVID-19 impacts on U.S. aquaculture, aquaponics, and allied businesses: Quarter 2 Results". All study results and disaggregated reports are/will be published online and available at: https://www.arec.vaes.vt.edu/arec/virginia-seafood/research/Impacts_of_COVID19.html

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# Appendix

# Summary of COVID-19 impacts on U.S. catfish aquaculture:

# Quarter 2 Results

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# Contents

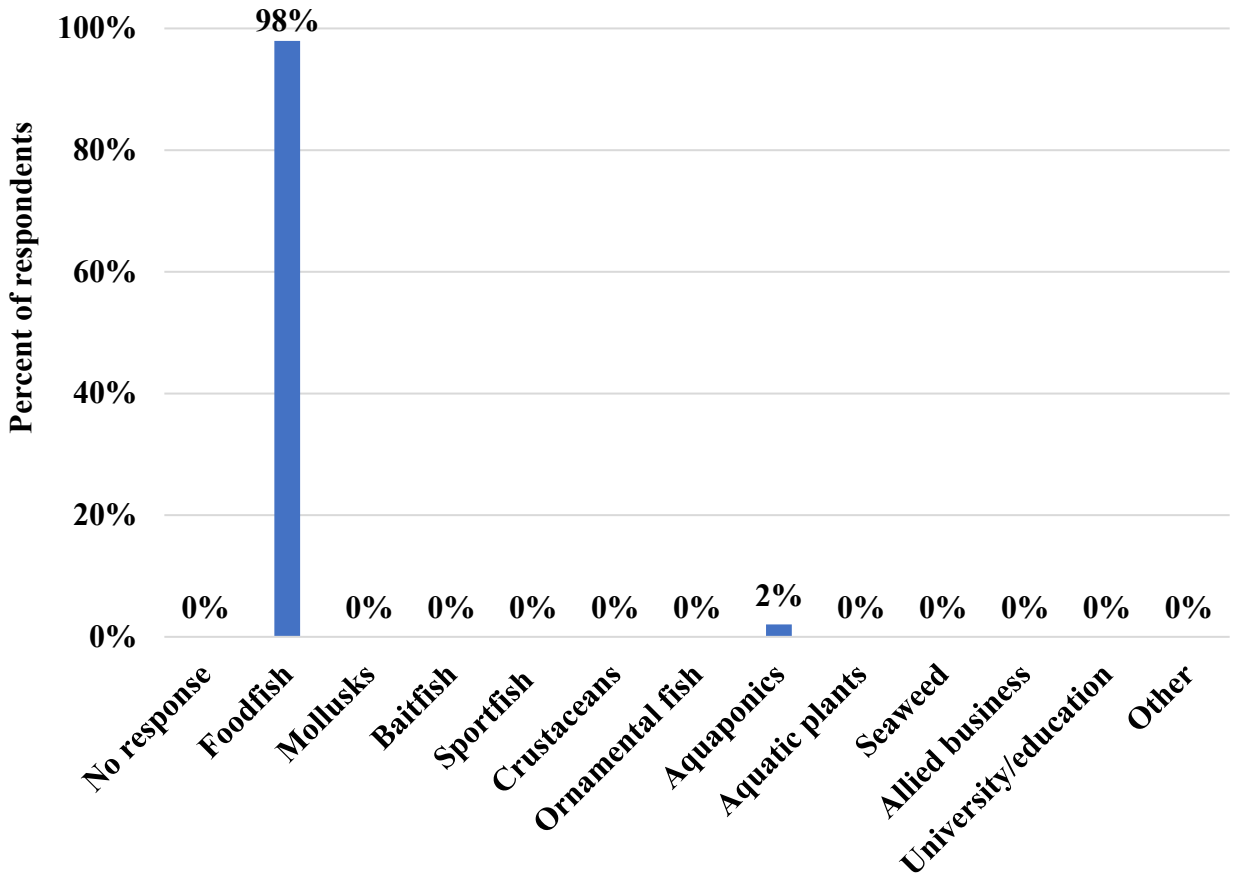
## Overview

On March 23rd, 2020 Virginia Tech Seafood AREC and The Ohio State University Extension initiated an online survey of 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 will be administered quarterly for 2020 to capture the evolving effects of the coronavirus disease pandemic (COVID-19) on the industry. The Quarter 2 survey closed on July 17th, 2020 at 11:59 pm.
Survey methods are detailed in the Virginia Cooperative Extension Fact Sheet VCE-AAEC-228, available at: https://www.arec.vaes.vt.edu/arec/virginia-seafood/research/Impacts_of_COVID19.html.

This report is a supplemental report to the **Catfish Report Summary, Quarter 2** that summarizes the results of **catfish farm** respondents.

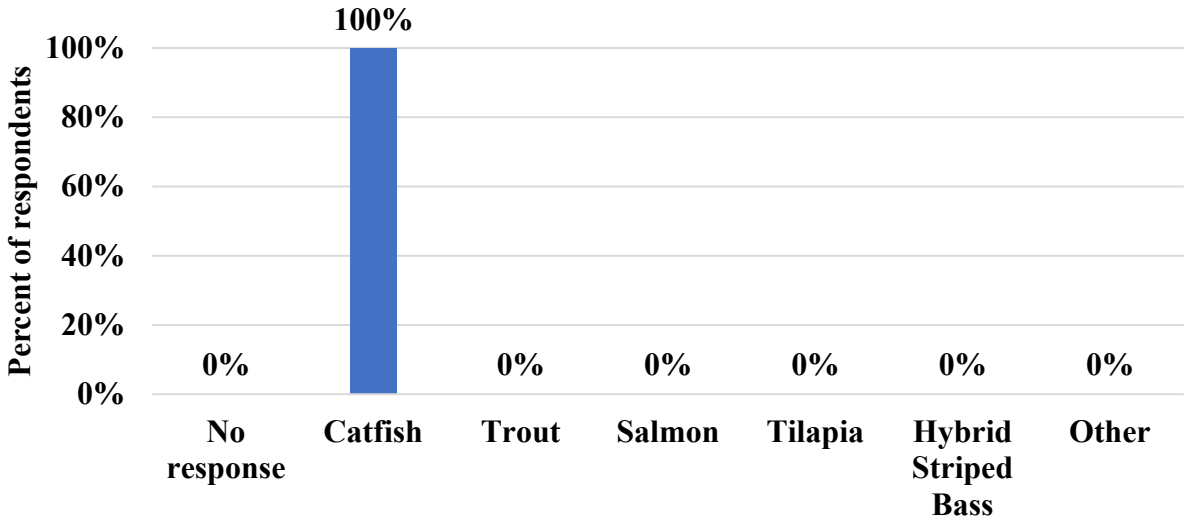
**Q1. What is the primary product that your farm or allied business produces? (n = 49)**

- No response : 0%
- Foodfish : 98%
- Mollusks : 0%
- Baitfish : 0%
- Sportfish : 0%
- Crustaceans : 0%
- Ornamental fish : 0%
- Aquaponics : 2%
- Aquatic plants : 0%
- Seaweed : 0%
- Allied business : 0%
- University/education : 0%
- Other : 0%



**Q1.1 Please indicate which is the major species of foodfish raised by your farm or business.**
**(n = 49)**

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

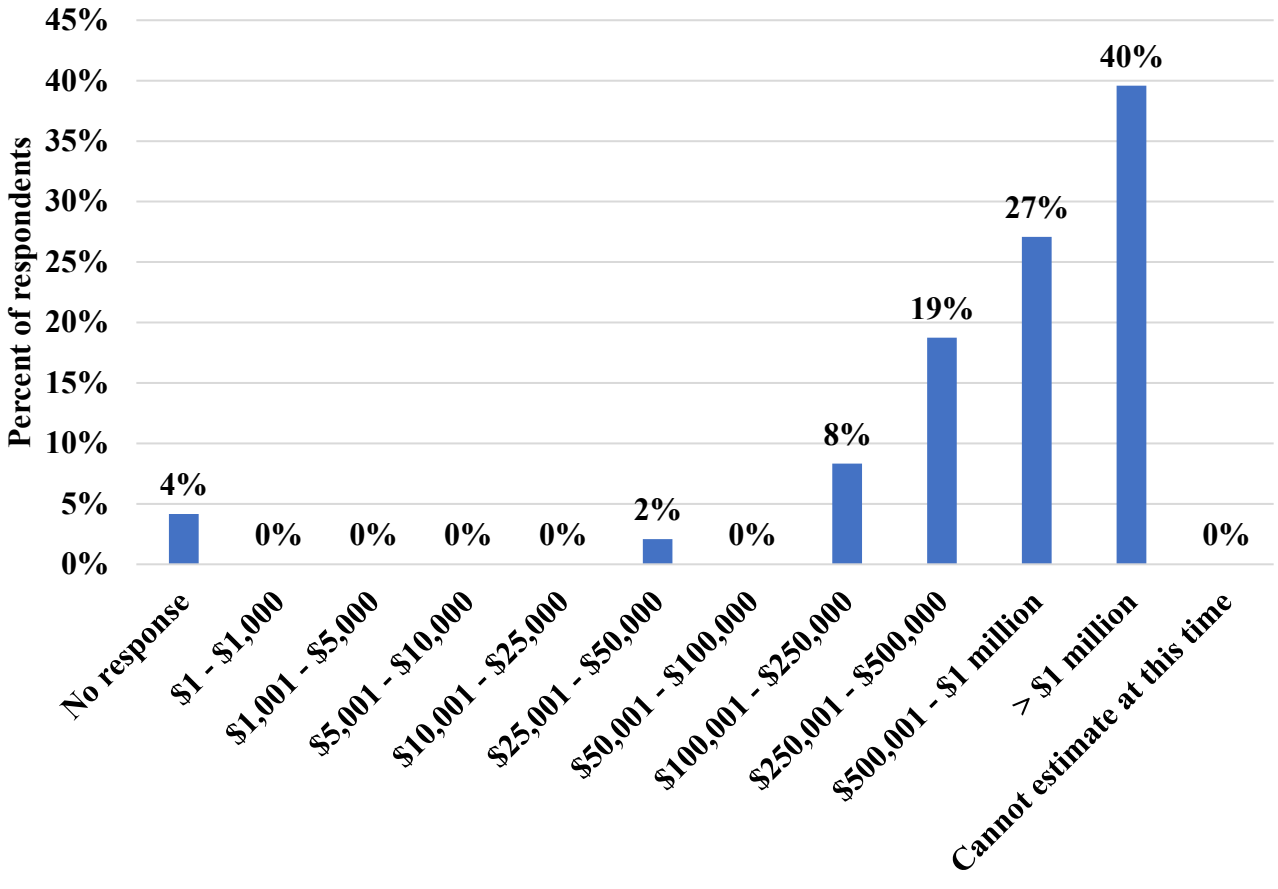



**Q1.2 Please indicate which is the major species of sportfish raised by your farm or business:**
**(n = N/A)**

- No response : N/A
- Trout : N/A
- Warmwater sportfish : N/A
- Other : N/A

**Q2. Please indicate the scale of your farm or allied business by annual sales volume before the effects of coronavirus disease (COVID-19).**
**(n = 48)**

- No response : 4%
- $1 - $1,000 : 0%
- $1,001 - $5,000 : 0%
- $5,001 - $10,000 : 0%
- $10,001 - $25,000 : 0%
- $25,001 - $50,000 : 2%
- $50,001 - $100,000 : 0%
- $100,001 - $250,000 : 8%
- $250,001 - $500,000 : 19%
- $500,001 - $1 million : 27%
- > $1 million : 40%
- Cannot estimate at this time : 0%



**Q3. Please provide the average price and approximate inventory of the primary product (market-sized) on your farm or business for the following periods of time:**
**(n = N/A)**

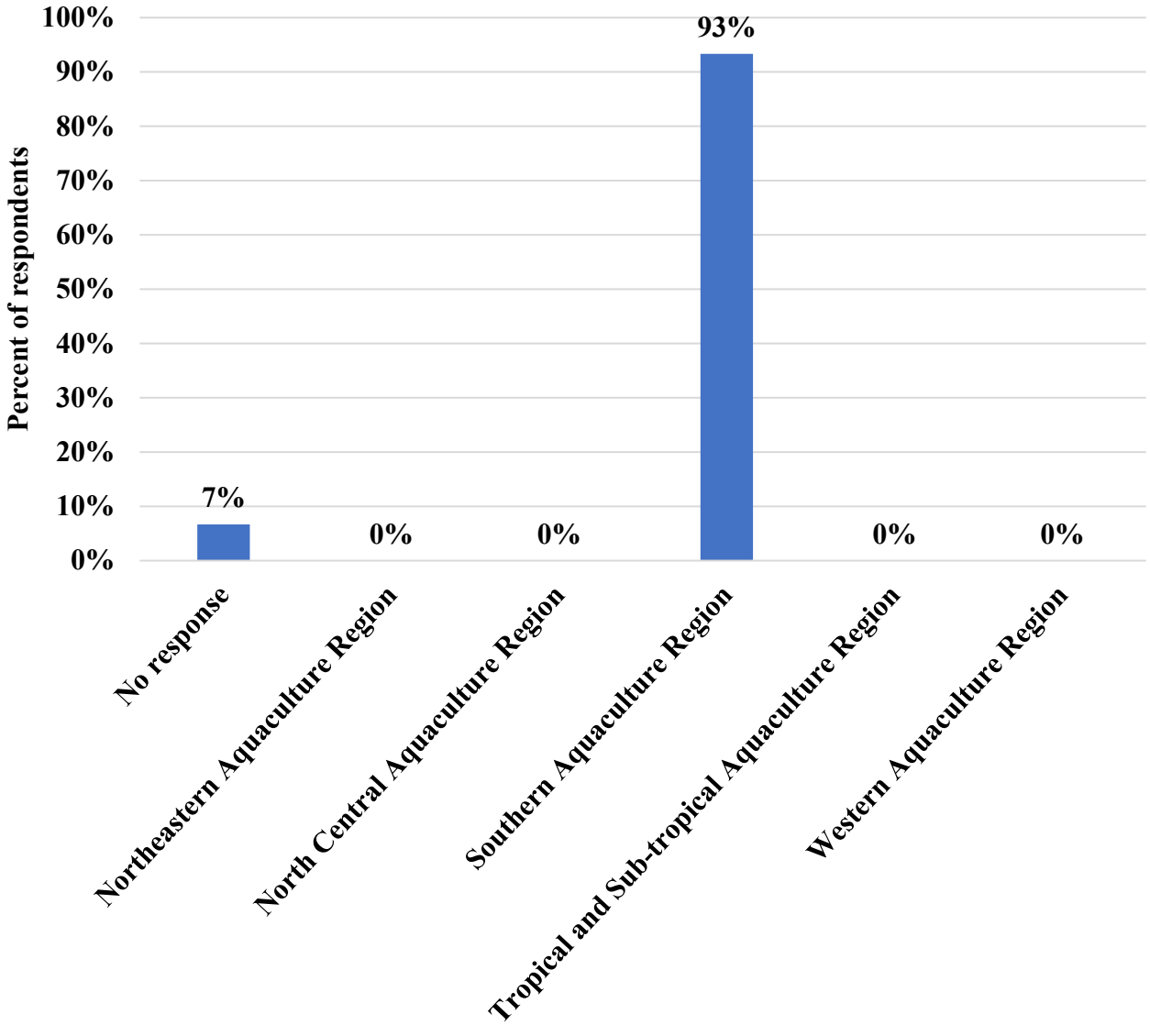
| | Average price per unit ($ USD) | Average inventory (# of units) | Unit (lbs, count, etc.) |
|---|---|---|---|
| No response | N/A | N/A | N/A |
| As of January 1st 2020 | N/A | N/A | N/A |
| As of April 1st 2020 | N/A | N/A | N/A |
| As of July 1st 2020 | N/A | N/A | N/A |

**Q3.1. Please provide the volume of the primary product (market-sized) sold by your farm at the market price and the volume sold at a reduced price due to being out-of-size for the following periods of time:**
**(n = N/A)**

| | Unit (lbs, count, etc.) | Average number of units sold at market price | Average number of units sold at reduced price |
|---|---|---|---|
| No response | N/A | N/A | N/A |
| Q1: January – March 2020 | N/A | N/A | N/A |
| Q2: April – June 2020 | N/A | N/A | N/A |

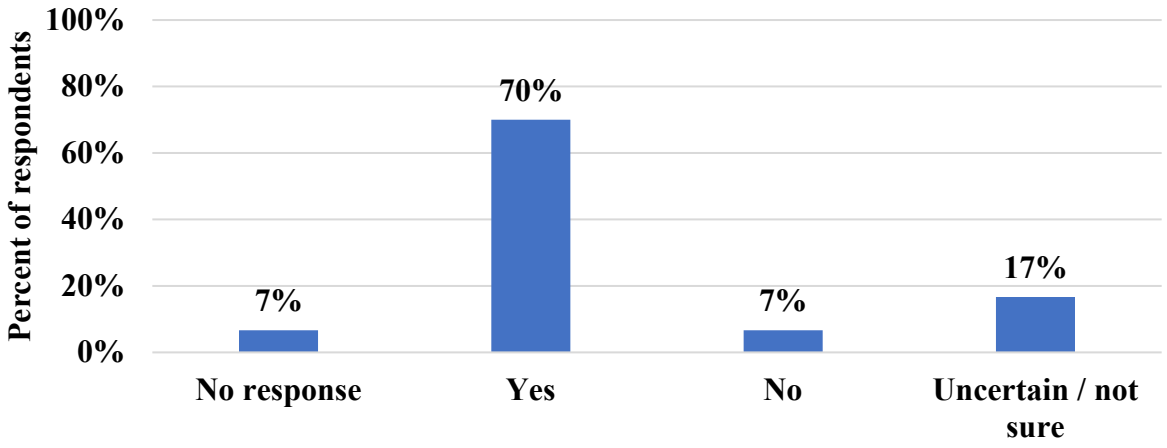
**Q4. In which USDA defined Aquaculture Region is your farm or allied business located? (n = 30)**

- No response : 7%
- Northeastern Aquaculture Region : 0%
- North Central Aquaculture Region : 0%
- Southern Aquaculture Region : 93%
- Tropical and Sub-tropical Aquaculture Region : 0%
- Western Aquaculture Region : 0%



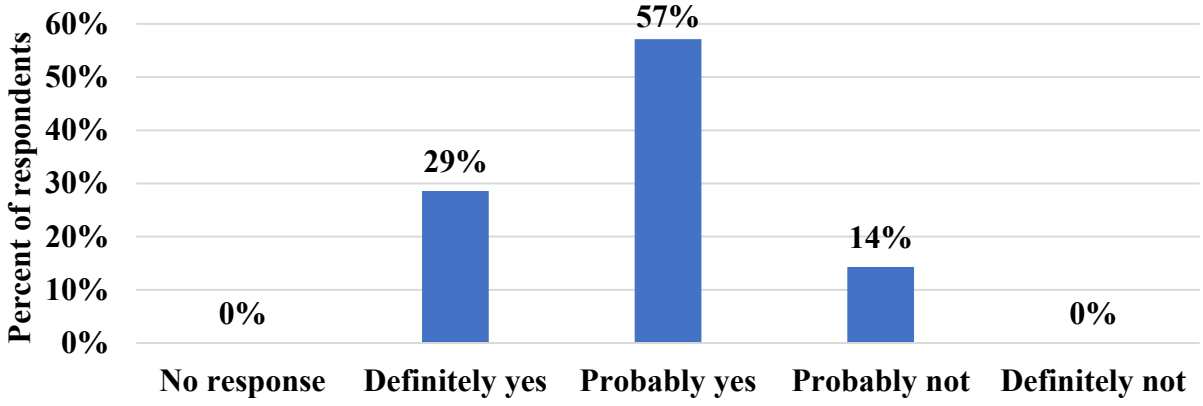
**Q5. Has your farm or allied business been impacted, either positively or negatively, by the coronavirus disease (COVID-19) in the period of time between April 10th 2020 and June 29th 2020?**
**(n = 30)**

- No response : 7%
- Yes : 70%
- No : 7%
- Uncertain/ not sure : 17%



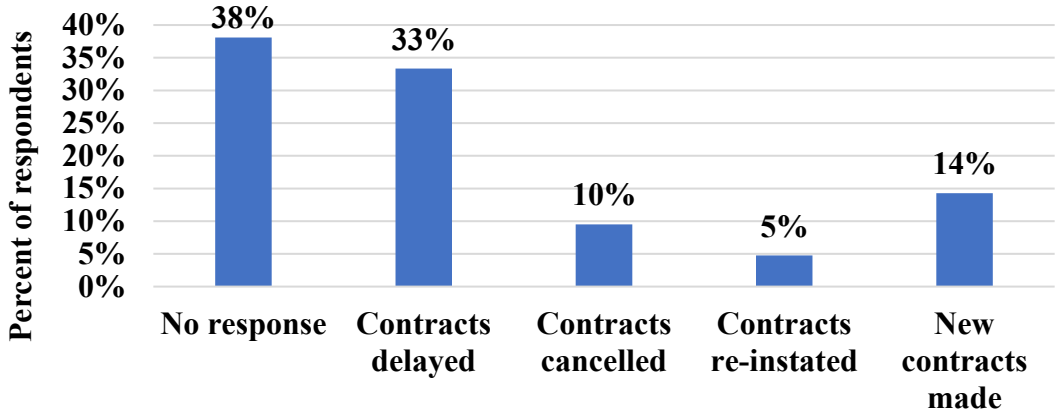

**Q5.1. Does your farm or allied business expect to be affected, either positively or negatively, by the coronavirus disease (COVID-19) in 2020?**
**(n = 7)**

- No response : 0%
- Definitely yes : 29%
- Probably yes : 57%
- Probably not : 14%
- Definitely not : 0%



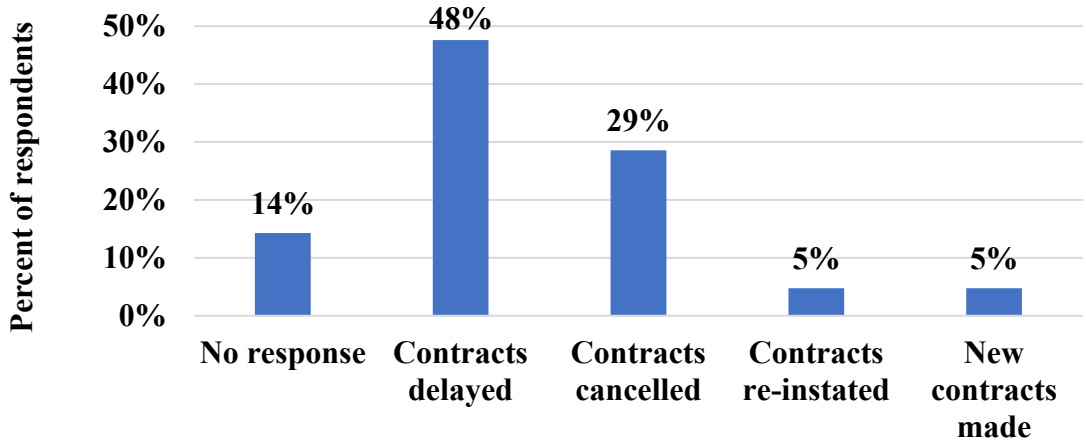
**Q6. Have there been changes in government (state or federal) contracts <u>in the period of time between April 10th 2020 and June 29th 2020</u> because of the coronavirus disease (COVID-19)?**
**(n = 21)**

- No response : 38%
- Contracts delayed : 33%
- Contracts cancelled : 10%
- Contracts re-instated : 5%
- New contracts made : 14%



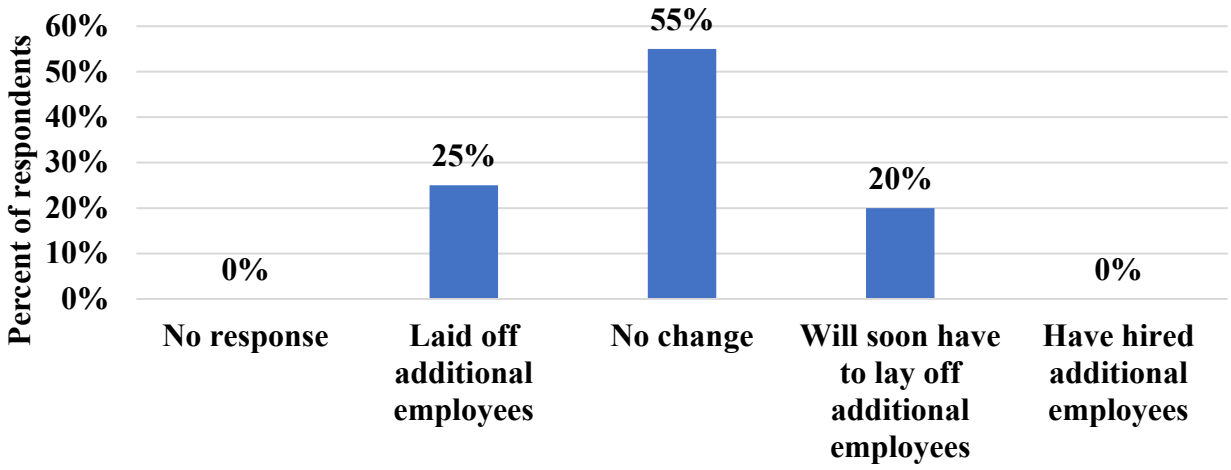

**Q7. Have there been changes in private contracts or orders <u>in the period of time between April 10th 2020 and June 29th 2020</u> because of the coronavirus disease (COVID-19)?**
**(n = 21)**

- No response : 14%
- Contracts delayed : 48%
- Contracts cancelled : 29%
- Contracts re-instated : 5%
- New contracts made : 5%



**Q8. Please indicate what types of changes in employment have occurred in the period of time between April 10th 2020 and June 29th 2020 due to the coronavirus disease (COVID-19)? (n = 20)**

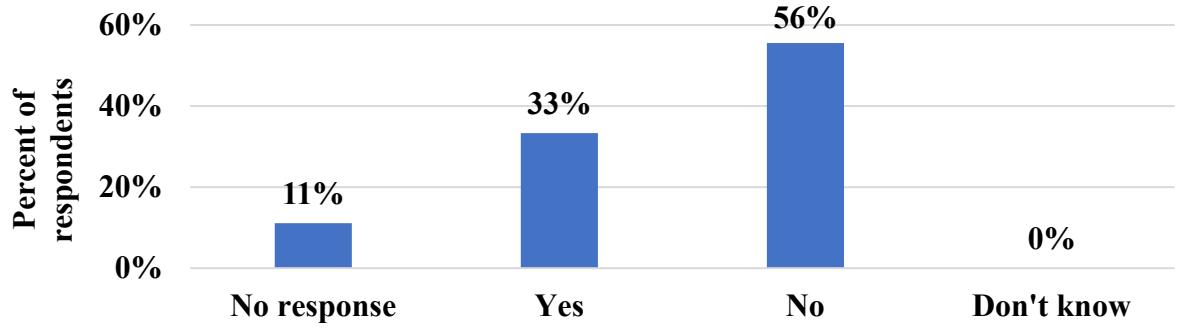
- No response : 0%
- Laid off additional employees : 25%
- No change : 55%
- Will soon have to lay off additional employees : 20%
- Have hired additional employees : 0%




**Q8.1. Are any of the employees that your farm or allied business had to, or will have to, lay off due to the coronavirus disease (COVID-19) designated as "Short-Time" or "Shared-Work" employees?**

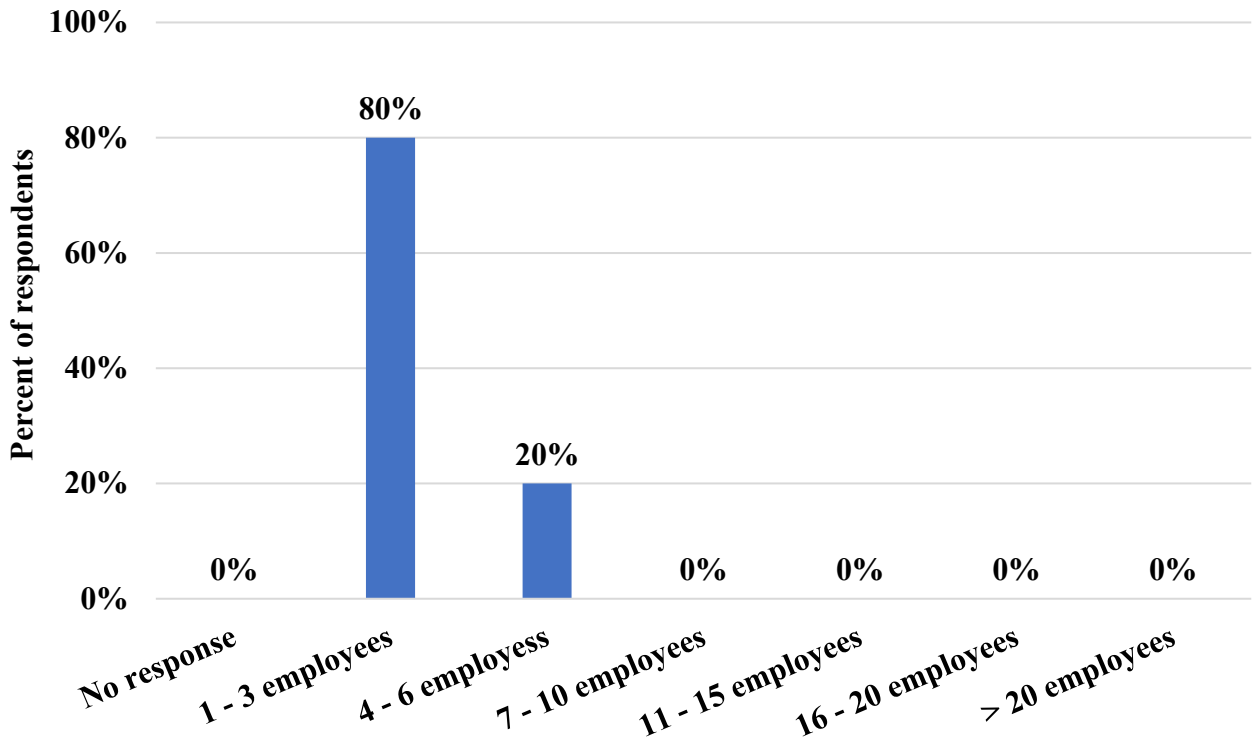
**(n = 9)**

- No response : 11%
- Yes : 33%
- No : 56%
- Don't know : 0%



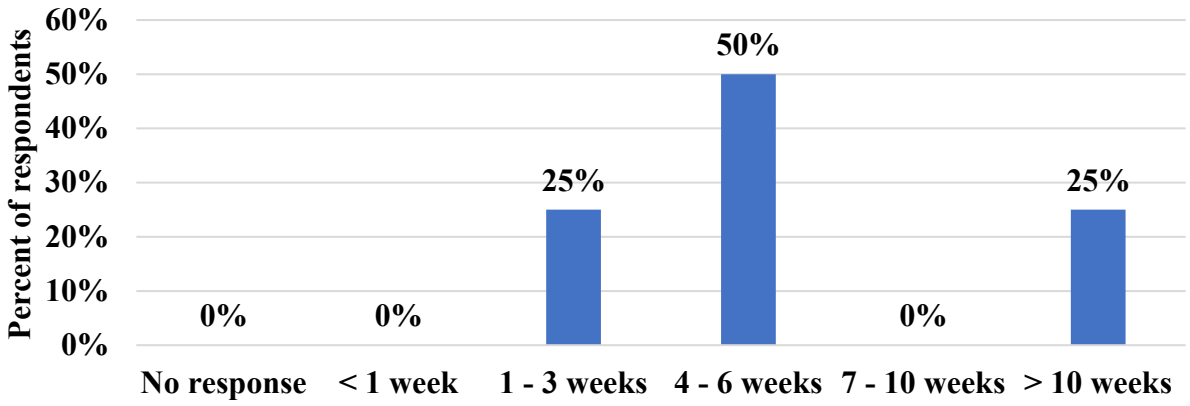
**Q8.2 How many employees has your farm or allied business had to lay off in the period of time between April 10th 2020 and June 29th 2020 in response to the coronavirus disease (COVID-19)?**
**(n = 5)**

- No response : 0%
- 1-3 employees : 80%
- 4-6 employees : 20%
- 7-10 employees : 0%
- 11-15 employees : 0%
- 16-20 employees : 0%
- > 20 employees : 0%



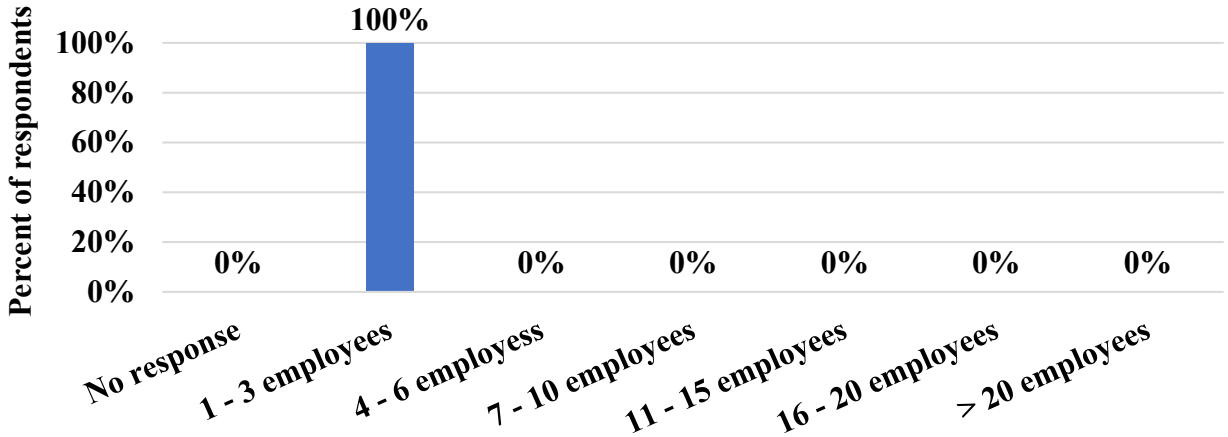
**Q8.3. How many weeks before your farm or business will have to make a decision to lay off employees, in response to the coronavirus disease (COVID-19)?**
**(n = 4)**

- No response : 0%
- < 1 week : 0%
- 1-3 weeks : 25%
- 4-6 weeks : 50%
- 7-10 weeks : 0%
- > 10 weeks : 25%




**Q8.4. How many employees do you estimate your farm or business will have to lay off in response to the coronavirus disease (COVID-19)?**
**(n = 4)**

- No response : 0%
- 1-3 employees : 100%
- 4-6 employees : 0%
- 7-10 employees : 0%
- 11-15 employees : 0%
- 16-20 employees : 0%
- > 20 employees : 0%

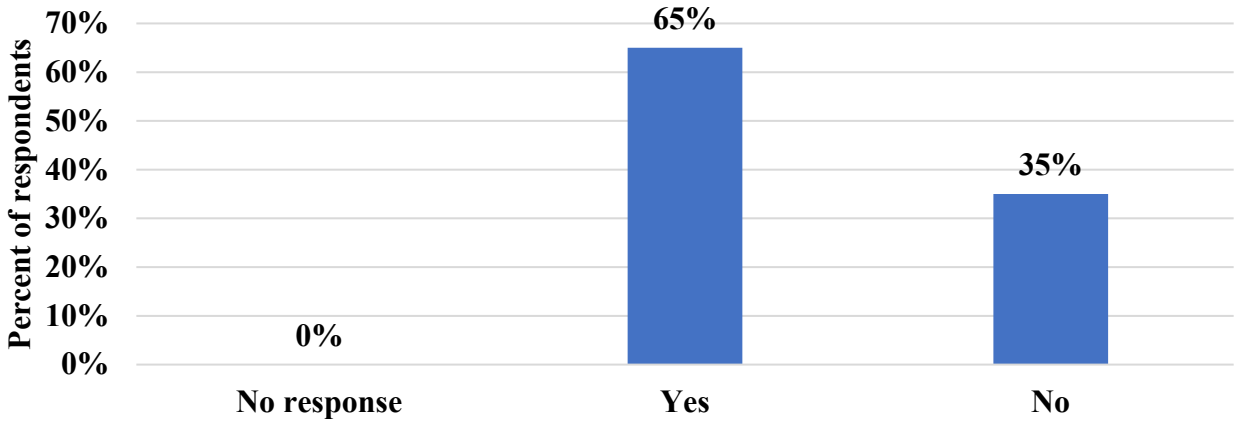


**Q8.5. How many additional employees has your farm or allied business hired in the period of time between April 10th 2020 and June 29th 2020 in response to the coronavirus disease (COVID-19)?**
**(n = N/A)**

- No response N/A
- 1-3 employees N/A
- 4-6 employees N/A
- 7-10 employees N/A
- 11-15 employees N/A
- 16-20 employees N/A
- > 20 employees N/A

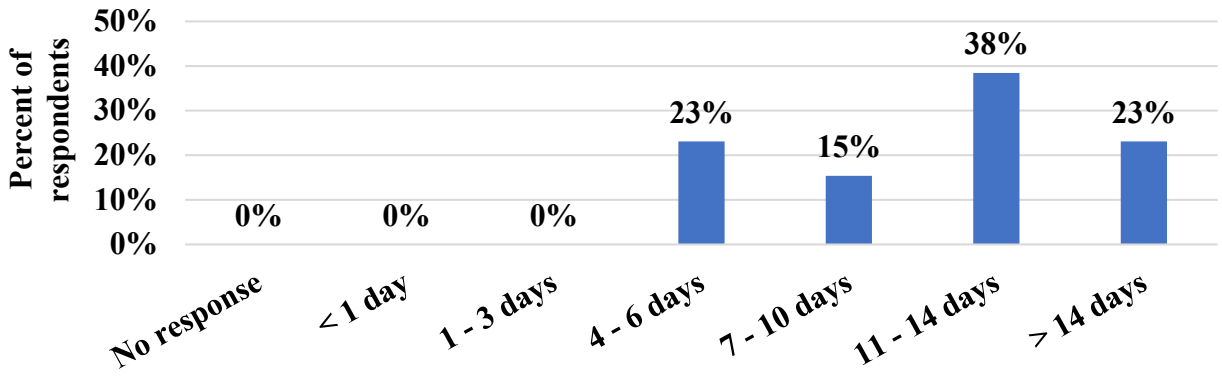
**Q9. Has your farm or allied business had any employees miss work due to the coronavirus disease (COVID-19) in the period of time between April 10th 2020 and June 29th 2020? (n = 20)**

- No response : 0%
- Yes : 65%
- No : 35%



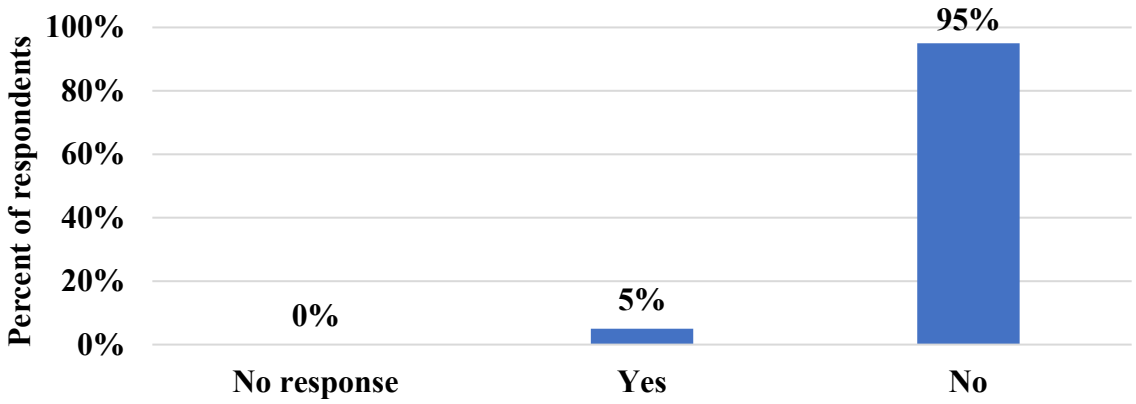

**Q9.1. In total, approximately how many days have any employees in your farm or allied business missed work due to the coronavirus disease (COVID-19) in the period of time between April 10th 2020 and June 29th 2020? (n = 13)**

- No response : 0%
- < 1 day : 0%
- 1-3 days : 0%
- 4-6 days : 23%
- 7-10 days : 15%
- 11-14 days : 38%
- > 14 days : 23%



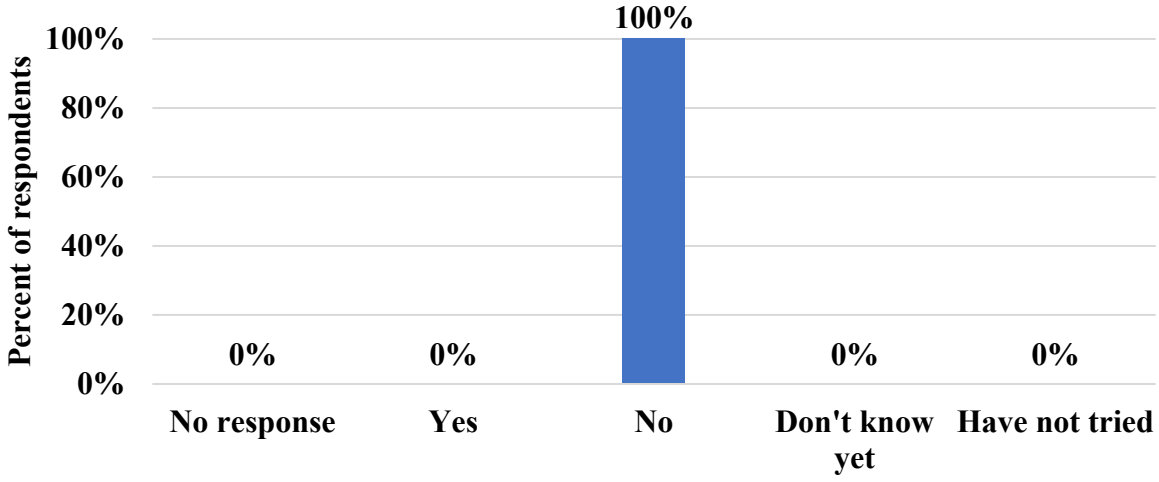
**Q10. Does your farm or allied business employ H2A or H2B workers?**
**(n = 20)**

- No response : 0%
- Yes : 5%
- No : 95%



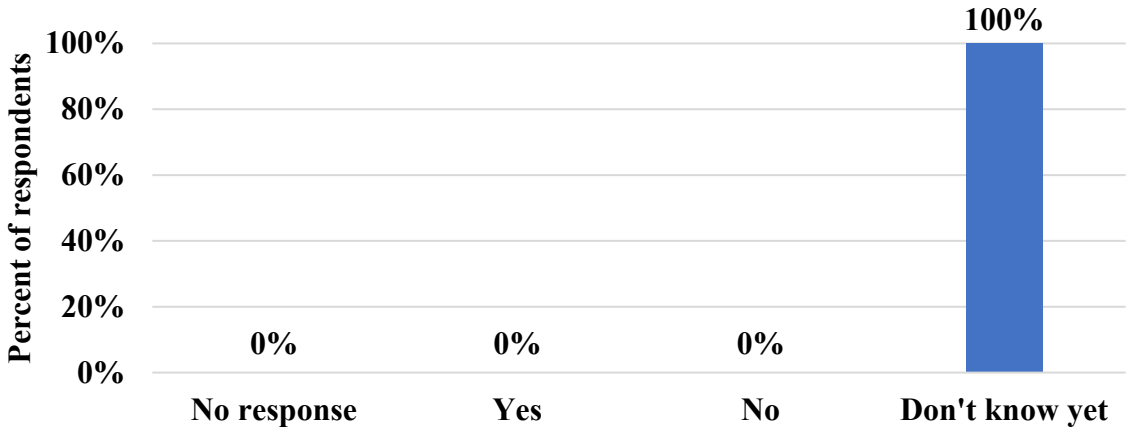

**Q10.1. Has your farm or allied business been able to hire H2A and H2B workers during the coronavirus disease (COVID-19) pandemic in the period of time between April 10th 2020 and June 29th 2020?**
**(n = 1)**

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



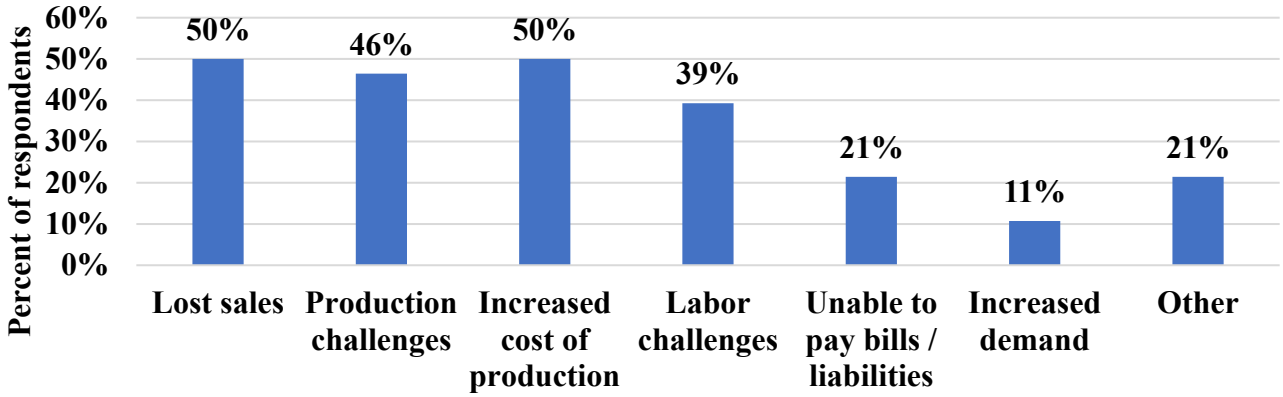
**Q10.2. Is your farm or allied business currently at risk of losing H2A or H2B workers due to the coronavirus disease (COVID-19) pandemic?**
**(n = 1)**

- No response : 0%
- Yes : 0%
- No : 0%
- Don’t know yet : 100%



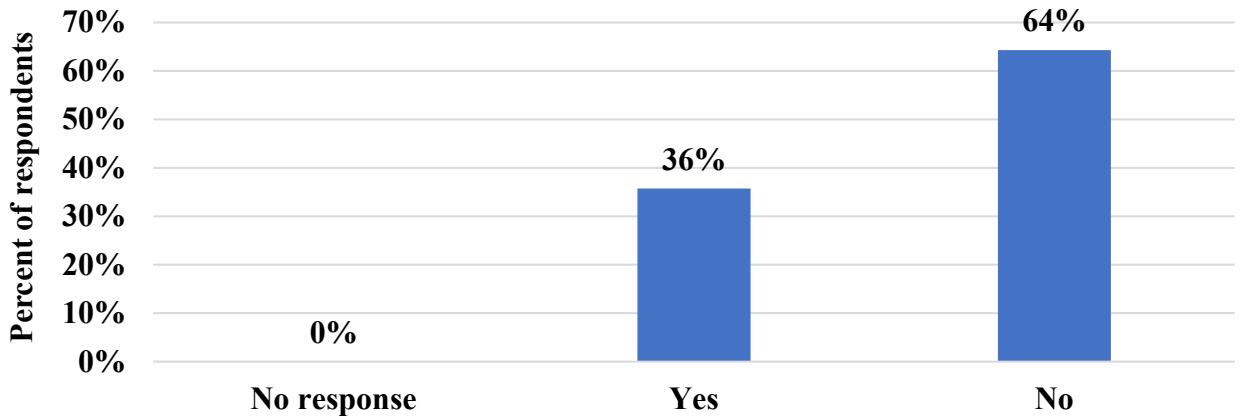
**Q11. Has your farm or allied business experienced any of the following as a result of the coronavirus disease (COVID-19) in the period of time between April 10th 2020 and June 29th 2020? (Please select all that apply)**
**(n = 28)**

- Lost sales : 50%
- Production challenges : 46%
- Increased cost of production : 50%
- Labor challenges : 39%
- Unable to pay bills / liabilities : 21%
- Increased demand : 11%
- Other : 21%



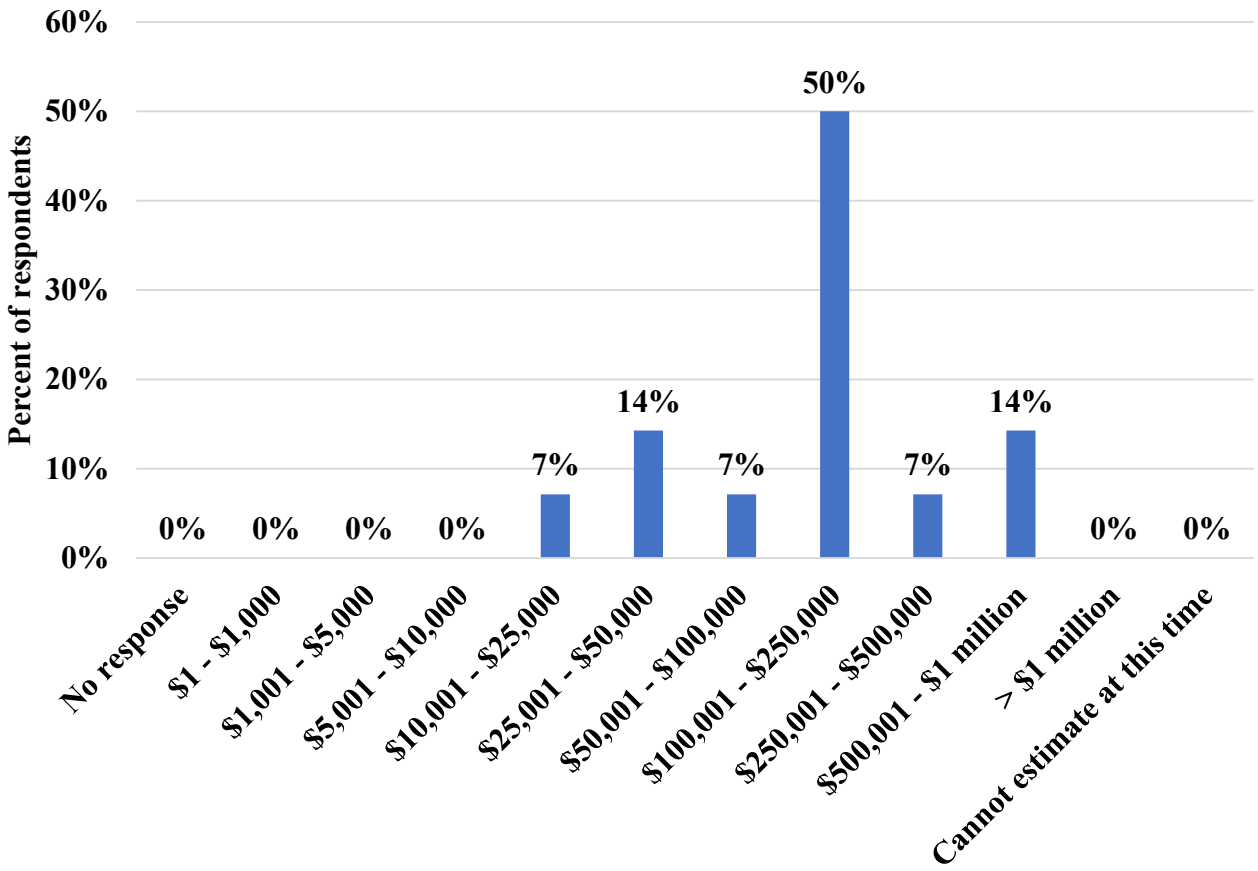

**Q11.1. Has your farm or allied business experienced lost sales to international or export markets (outside of the United States), as a result of the coronavirus disease (COVID-19) in the period of time between April 10th 2020 and June 29th 2020?**
**(n = 14)**

- No response : 0%
- Yes : 36%
- No : 64%



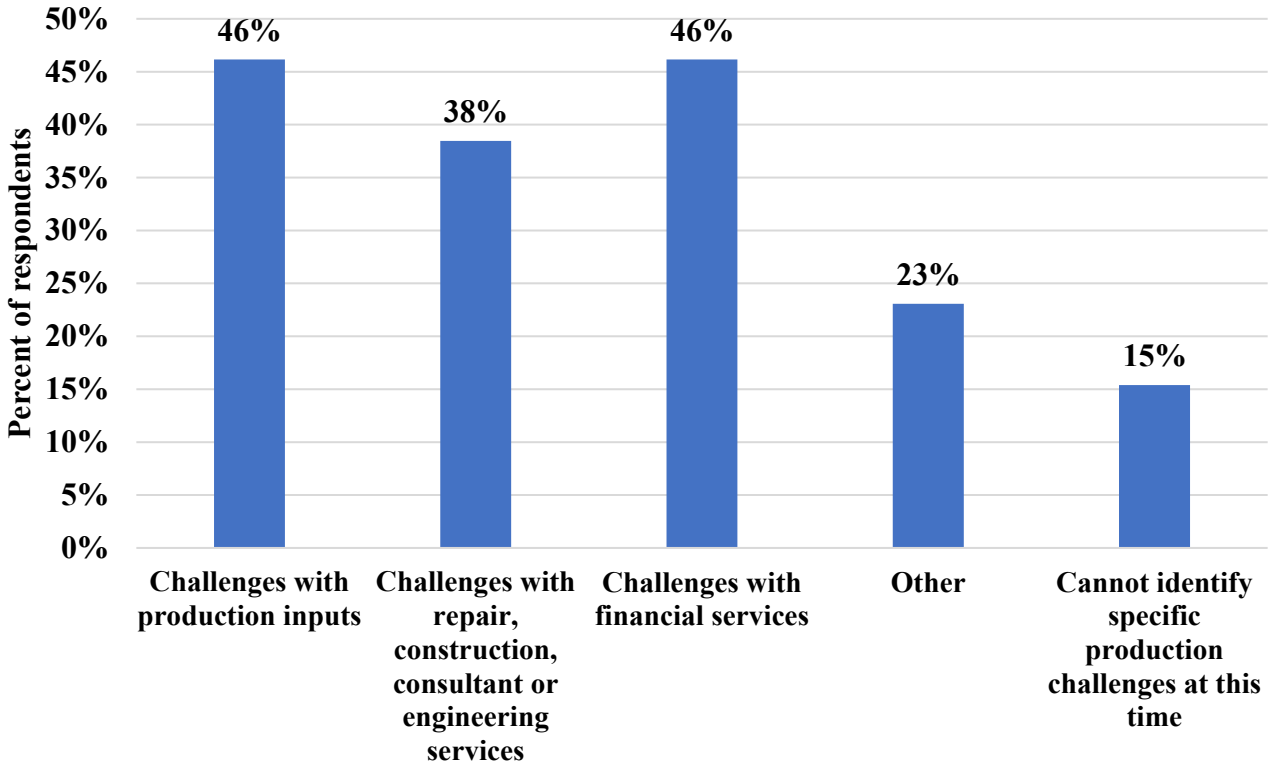
**Q11.2. If your farm or allied business has experienced lost sales as a result of the coronavirus disease (COVID-19) in the period of time between April 10th 2020 and June 29th 2020? Please estimate the value of lost sales:**
**(n = 14)**

- No response : 0%
- $1 - $1,000 : 0%
- $1,001 - $5,000 : 0%
- $5,001 - $10,000 : 0%
- $10,001 - $25,000 : 7%
- $25,001 - $50,000 : 14%
- $50,001 - $100,000 : 7%
- $100,001 - $250,000 : 50%
- $250,001 - $500,000 : 7%
- $500,001 - $1 million : 14%
- > $1 million : 0%
- Cannot estimate at this time : 0%



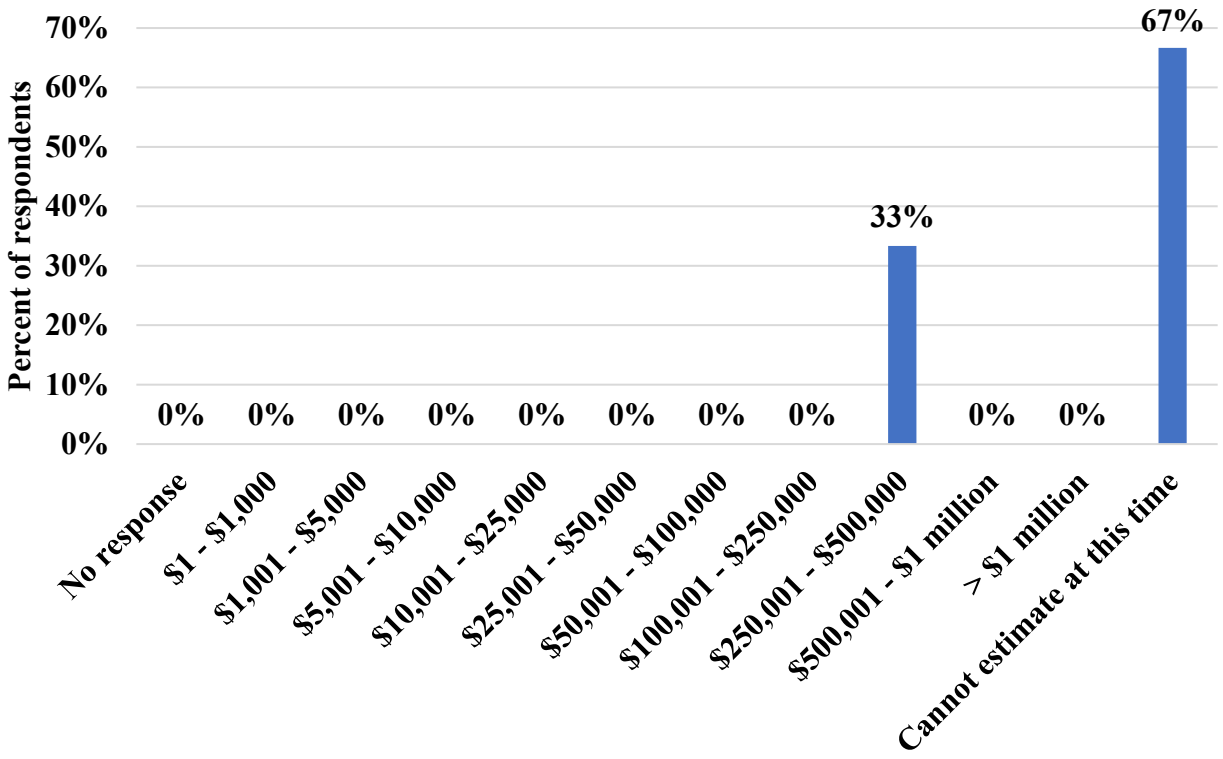
**Q11.3. If your farm or allied business has experienced production challenges (not related to labor) as a result of the coronavirus disease (COVID-19) in the period of time between April 10th 2020 and June 29th 2020, can those challenges be specified? (Please select all that apply)**
**(n = 13)**

- Challenges with production inputs : 46%
- Challenges with repair, construction, consultant or engineering services : 38%
- Challenges with financial services : 46%
- Other : 23%
- Cannot identify specific production challenges at this time : 15%



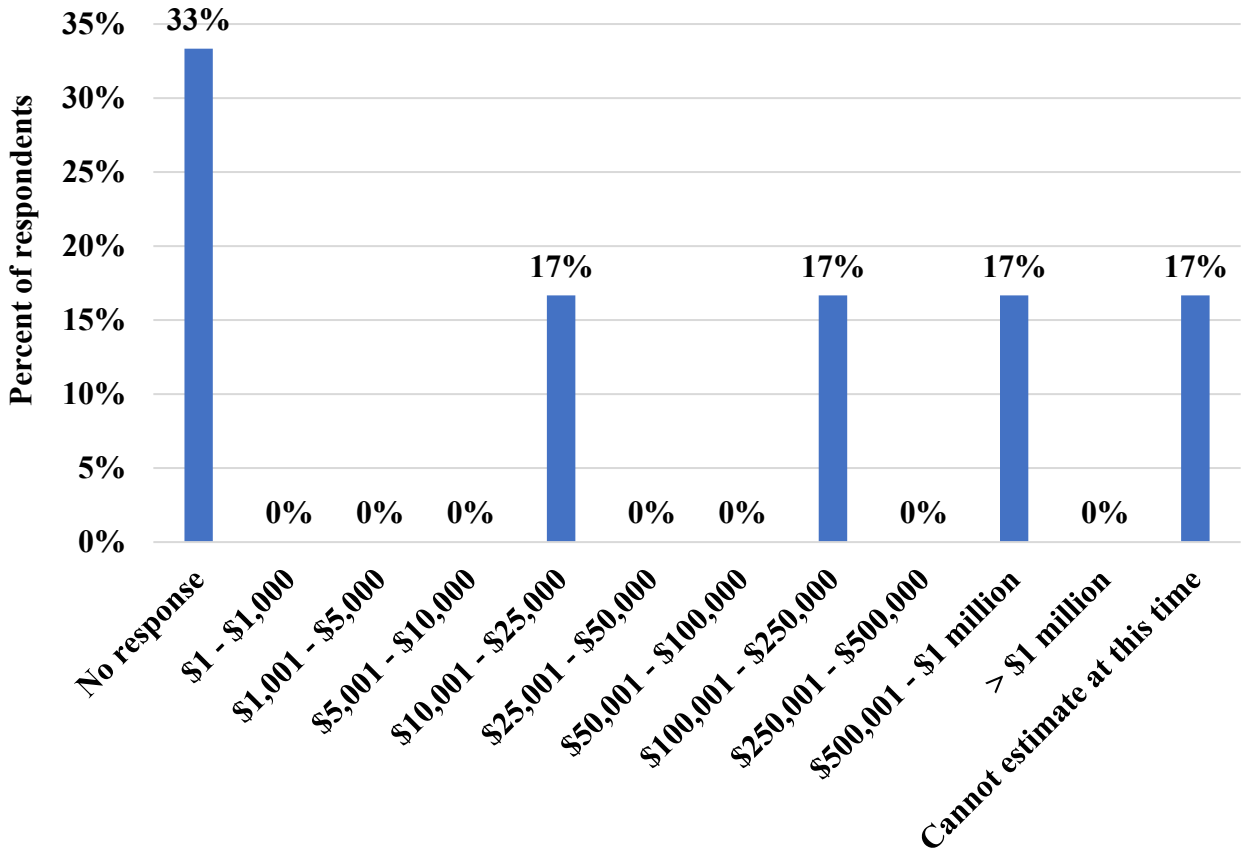
**Q11.6. If your farm or allied business has experienced increased demand for products as a result of the coronavirus disease (COVID-19) in the period of time between April 10th 2020 and June 29th 2020? Please estimate the value of those effects on sales:**
**(n = 3)**

- No response : 0%
- $1 - $1,000 : 0%
- $1,001 - $5,000 : 0%
- $5,001 - $10,000 : 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 : 33%
- $500,001 - $1 million : 0%
- > $1 million : 0%
- Cannot estimate at this time : 67%



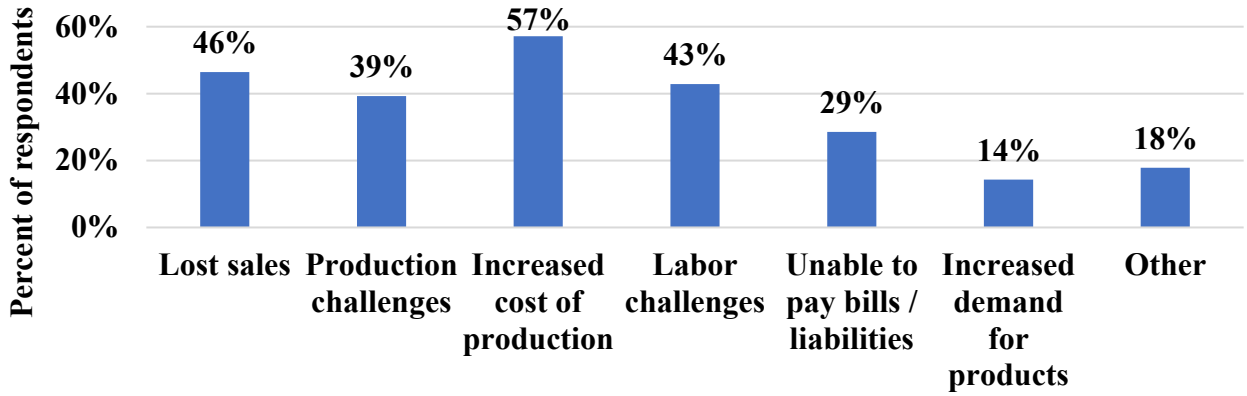
**Q11.8. If your farm or allied business has experienced missed bill or loan payments as a result of the coronavirus disease (COVID-19) in the period of time between April 10th 2020 and June 29th 2020, please estimate the value of those missed payments:**
**(n = 6)**

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



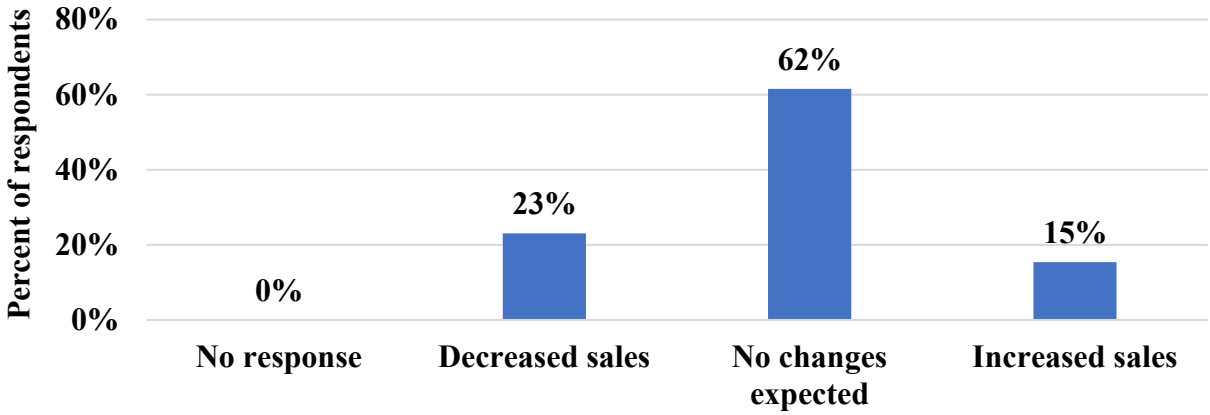
**Q12. Does your farm or allied business expect to experience any of the following as a result of the coronavirus disease (COVID-19) in the 3rd Quarter of 2020 (July, August, September)? (Please select all that apply)**
**(n = 28)**

- Lost sales : 46%
- Production challenges : 39%
- Increased cost of production : 57%
- Labor challenges : 43%
- Unable to pay bills / liabilities : 29%
- Increased demand for products : 14%
- Other : 18%



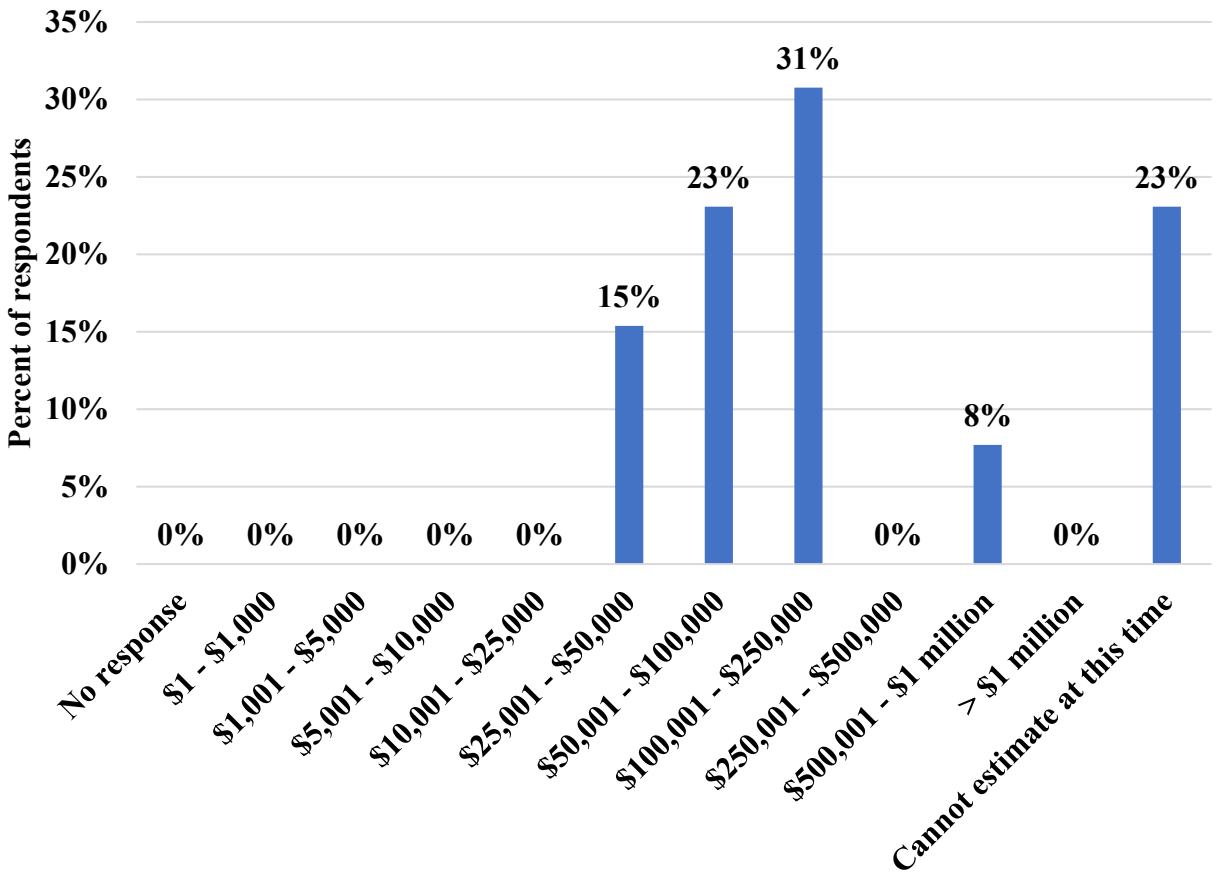

**Q12.1. Does your farm or allied business expect to experience changes in sales to international or export markets (outside of the United States), as a result of the coronavirus disease (COVID-19), in the 3rd Quarter of 2020 (July, August, September)?**
**(n = 13)**

- No response : 0%
- Decreased sales : 23%
- No changes expected : 62%
- Increased sales : 15%



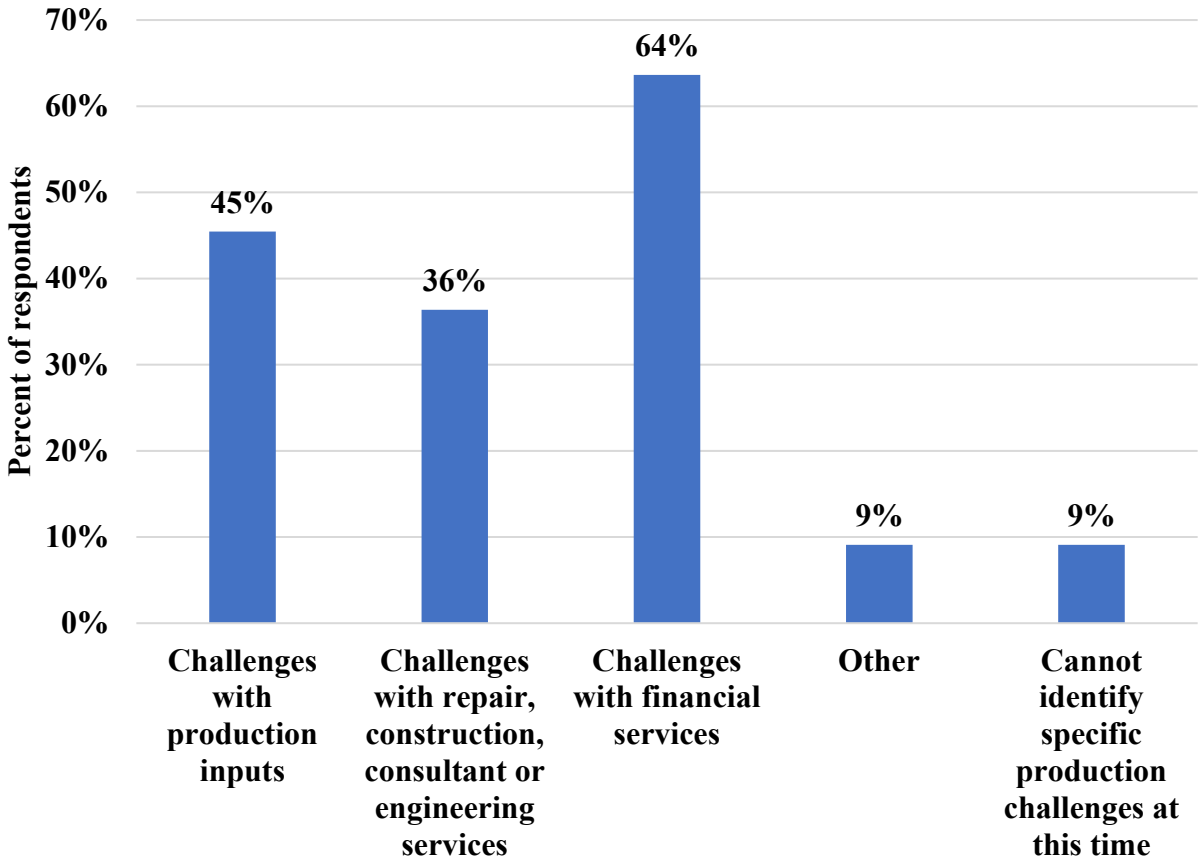
**Q12.2. Does your farm or allied business expect to experience lost sales as a result of the coronavirus disease (COVID-19) in the 3rd Quarter of 2020 (July, August, September), please estimate the value of lost sales:**
**(n = 13)**

- No response : 0%
- $1 - $1,000 : 0%
- $1,001 - $5,000 : 0%
- $5,001 - $10,000 : 0%
- $10,001 - $25,000 : 0%
- $25,001 - $50,000 : 15%
- $50,001 - $100,000 : 23%
- $100,001 - $250,000 : 31%
- $250,001 - $500,000 : 0%
- $500,001 - $1 million : 8%
- > $1 million : 0%
- Cannot estimate at this time : 23%



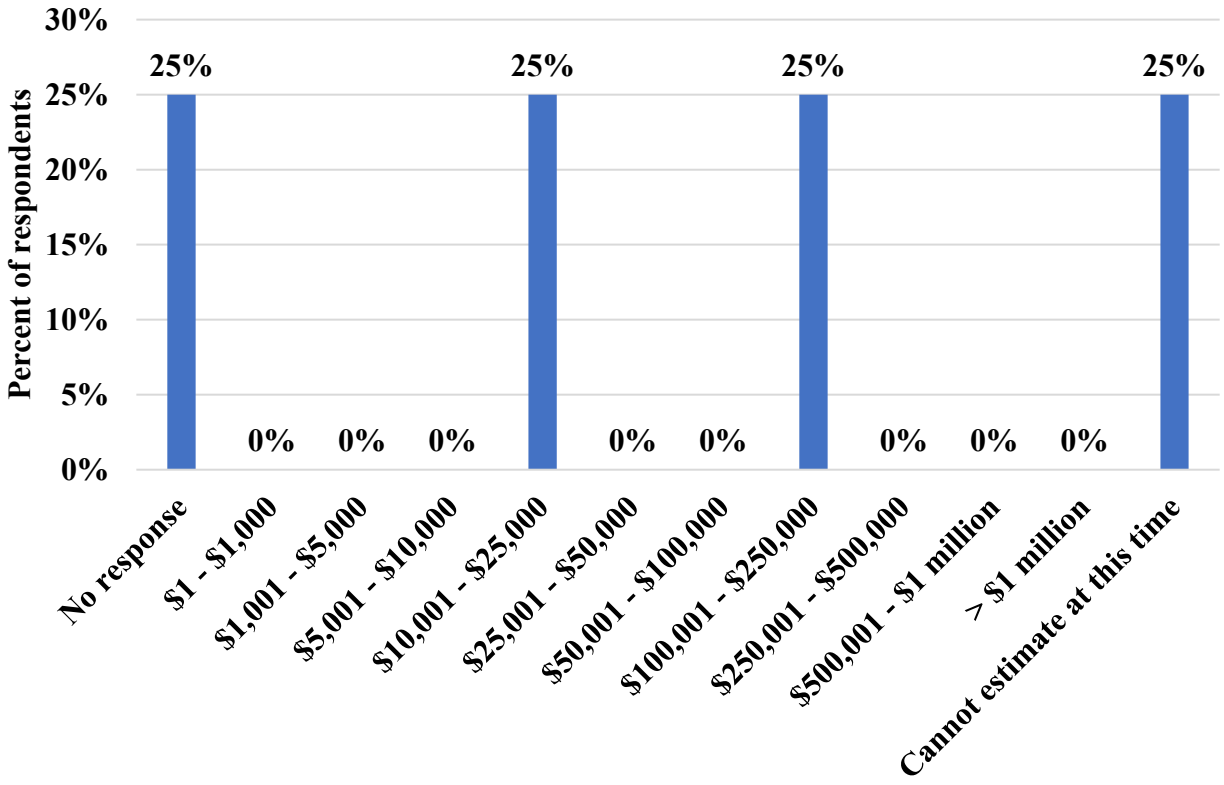
**Q12.3. Does your farm or allied business expect to experience production challenges (not related to labor) as a result of the coronavirus disease (COVID-19) in the 3rd Quarter of 2020 (July, August, September)? (Please select all that apply)**
**(n = 11)**

- Challenges with production inputs : 45%
- Challenges with repair, construction, consultant or engineering services : 36%
- Challenges with financial services : 64%
- Other : 9%
- Cannot identify specific production challenges at this time : 9%



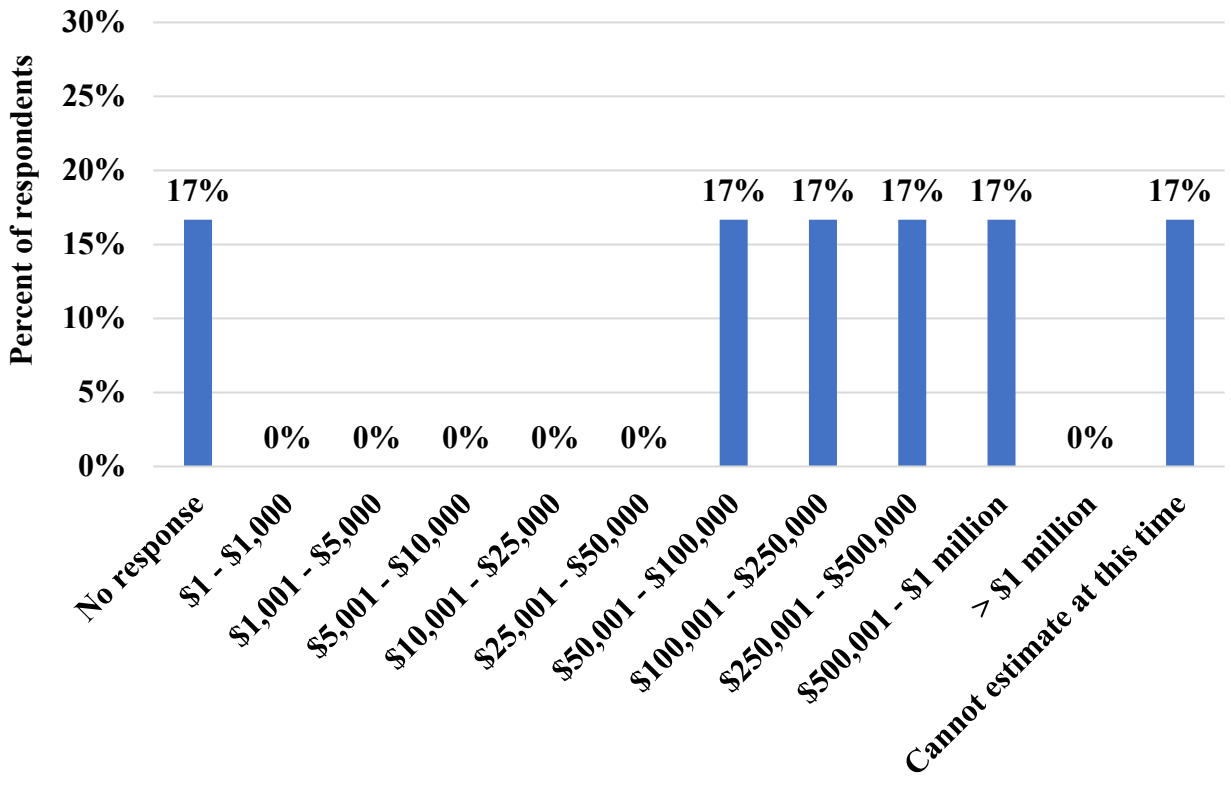
**Q12.6. Does your farm or business expect to experience increased demand for products as a result of the coronavirus disease (COVID-19) in the 3rd Quarter of 2020 (July, August, September)? Please estimate the value of those effects on sales:**
**(n = 4)**

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



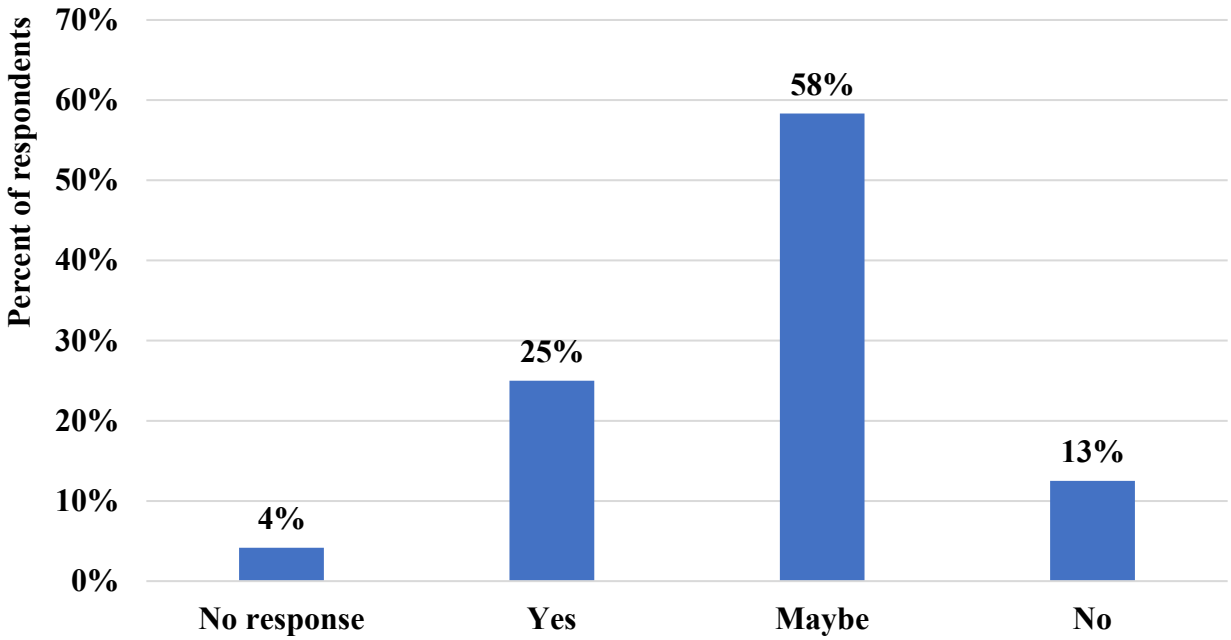
**Q12.8. If your farm or allied business expects to miss bill or loan payments as a result of the coronavirus disease (COVID-19) in the 3rd Quarter of 2020 (July, August, September)? Please estimate the value of those missed payments:**
**(n = 6)**

- No response : 17%
- $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 : 17%
- $100,001 - $250,000 : 17%
- $250,001 - $500,000 : 17%
- $500,001 - $1 million : 17%
- > $1 million : 0%
- Cannot estimate at this time : 17%



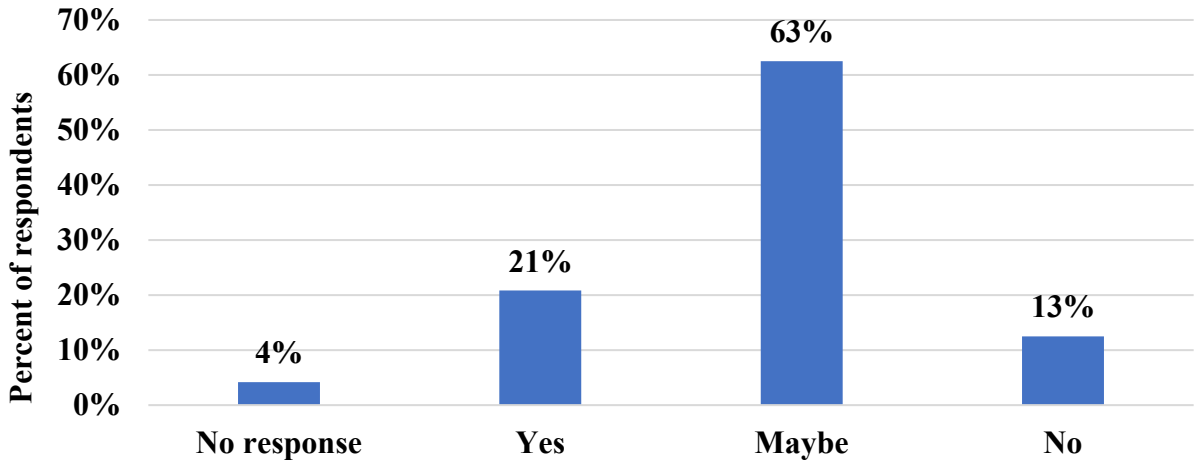
**Q13. Without external intervention (for example, governmental assistance), will your farm or allied business survive in the next 3 (three) months?**
**(n = 24)**

- No response : 4%
- Yes : 25%
- Maybe : 58%
- No : 13%



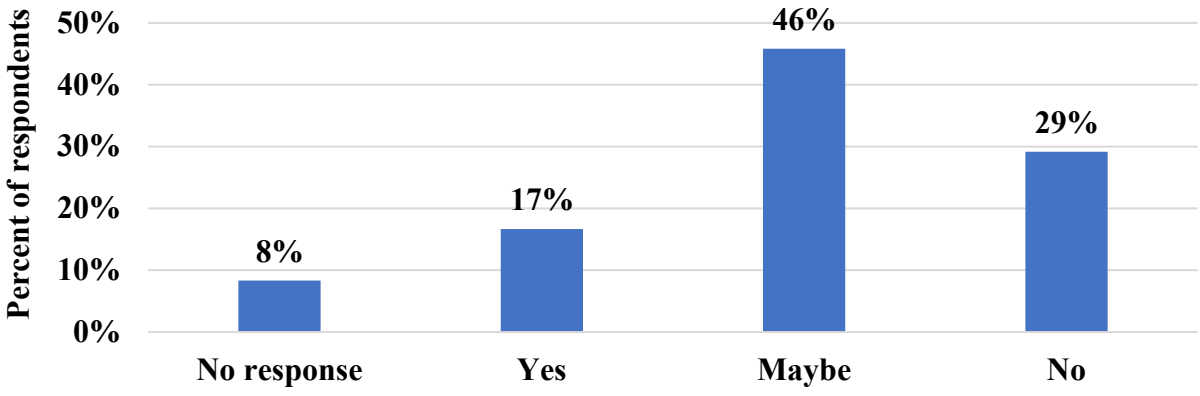
**Q14. Without external intervention (for example, governmental assistance), will your farm or allied business survive in the next 6 (six) months?**
**(n = 24)**

- No response : 4%
- Yes : 21%
- Maybe : 63%
- No : 13%



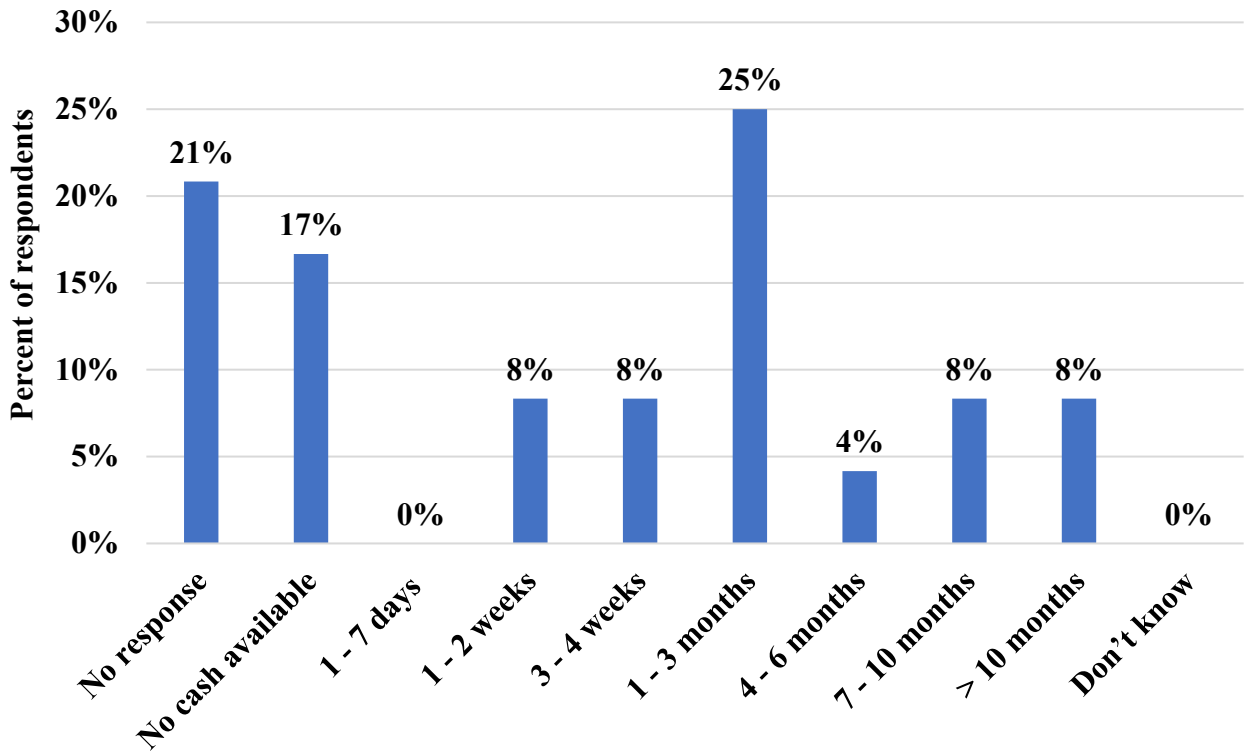

**Q15. Without external intervention (for example, governmental assistance), will your farm or allied business survive in the next 12 (twelve) months?**
**(n = 24)**

- No response : 8%
- Yes : 17%
- Maybe : 46%
- No : 29%



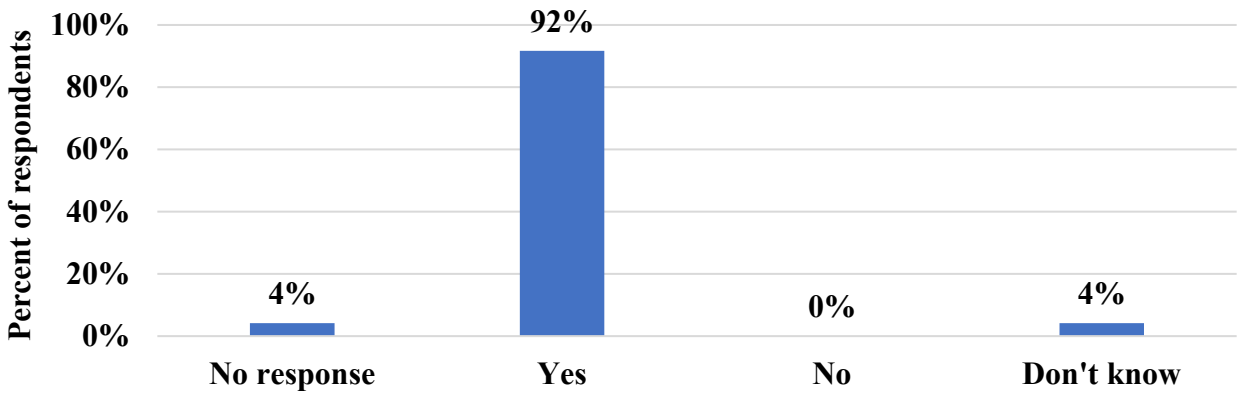
**Q16. How would you describe the current availability of cash on hand for your farm or allied business, including financial assistance or loans? Please select how long a period the current cash on hand will cover:**
**(n = 24)**

- No response : 21%
- No cash available : 17%
- 1-7 days : 0%
- 1-2 weeks : 8%
- 3-4 weeks : 8%
- 1-3 months : 25%
- 4-6 months : 4%
- 7-10 months : 8%
- >10 months : 8%
- Don't know : 0%



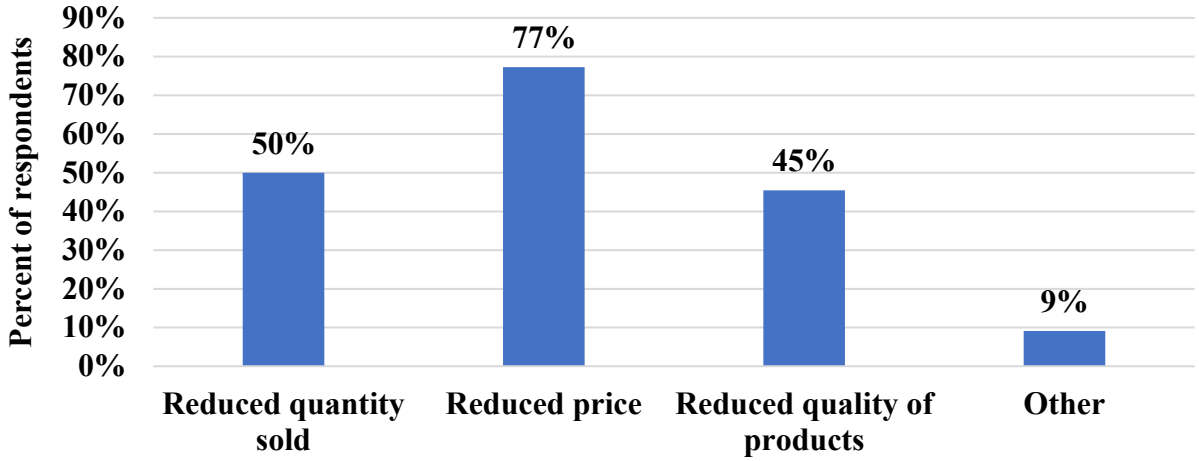
**Q17. Will holding market ready product, as a result of the coronavirus disease (COVID-19), make it less marketable?**
**(n = 24)**

- No response : 4%
- Yes : 92%
- No : 0%
- Don't know : 4%



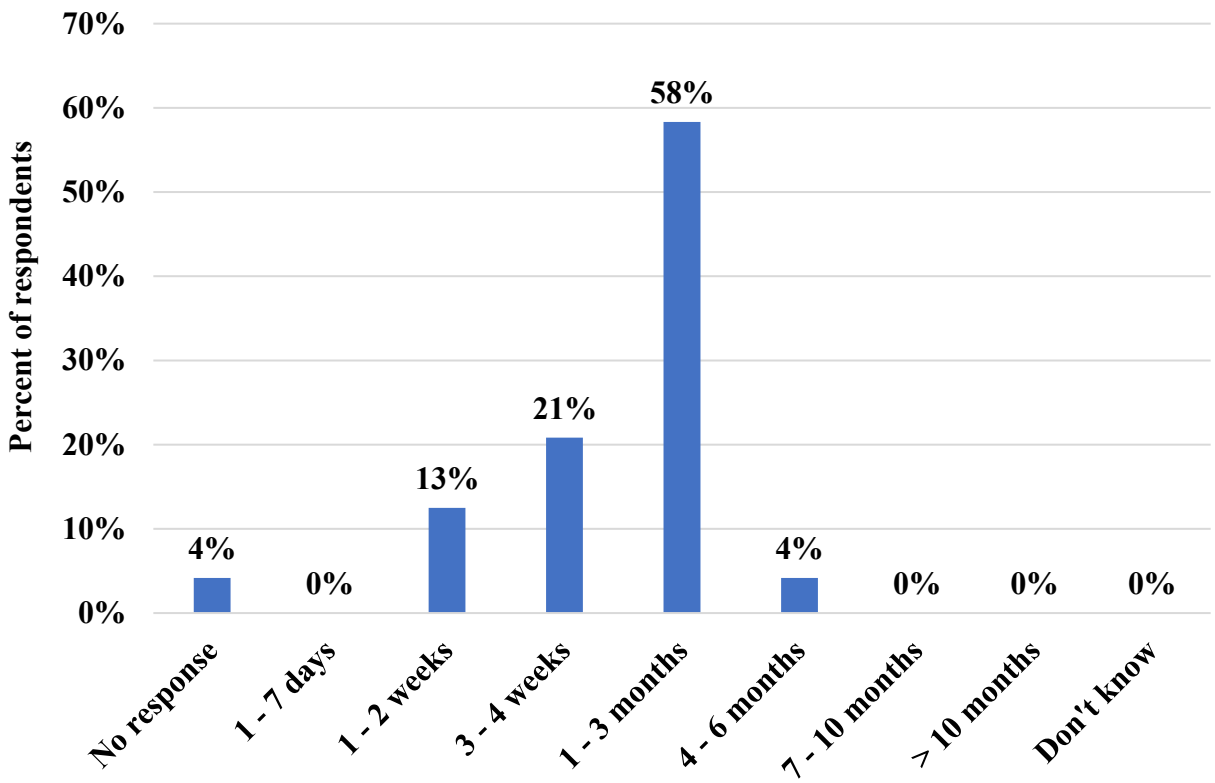

**Q17.1. Will holding market ready product, as a result of the coronavirus disease (COVID-19), result in: (please select all that apply)**
**(n = 22)**

- Reduced quantity sold : 50%
- Reduced price : 77%
- Reduced quality of products : 45%
- Other : 9%



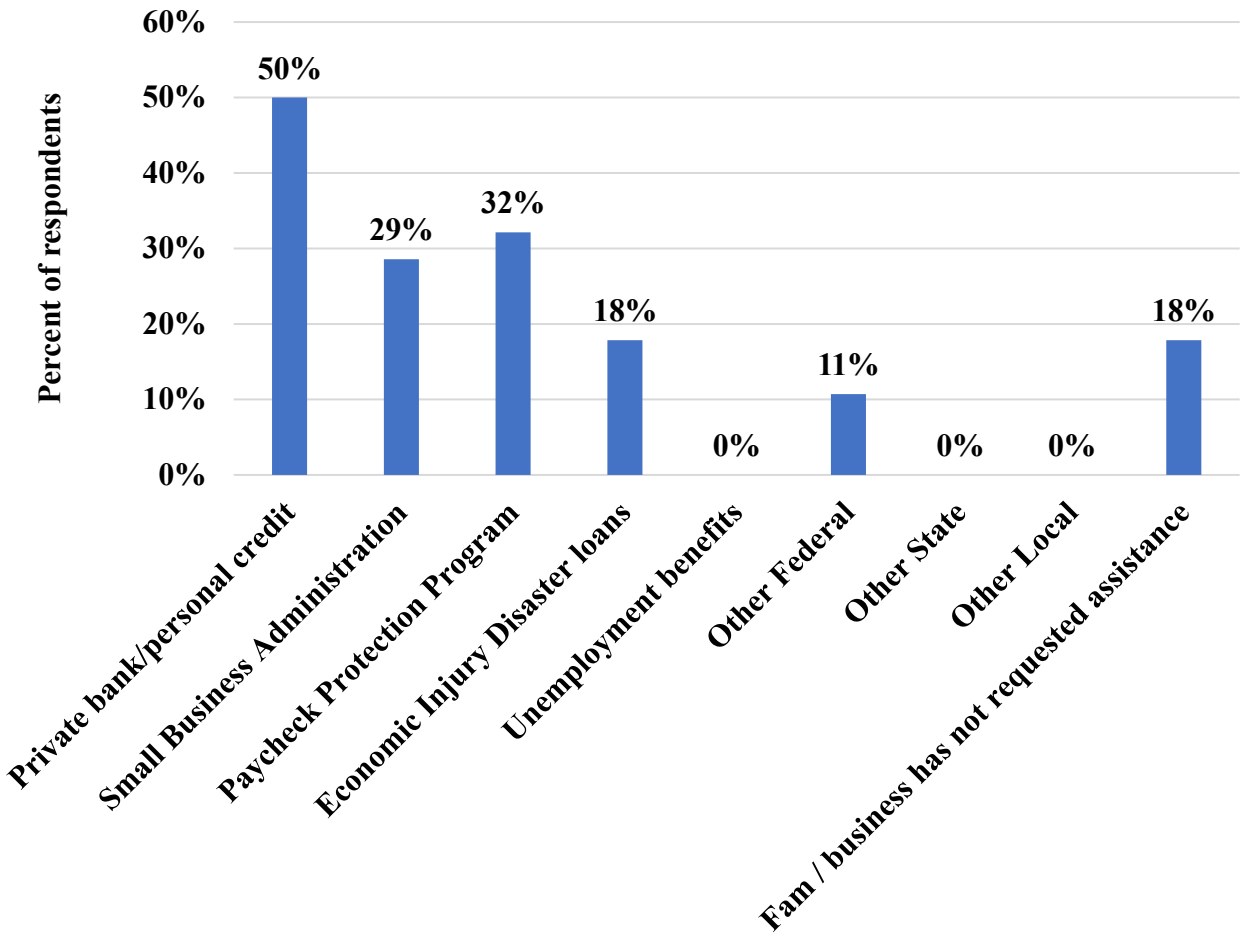
**Q18. How long can your farm or allied business hold market ready product, as a result of the coronavirus disease (COVID-19), before it becomes an issue for new crops or planting? (n = 24)**

- No response : 4%
- 1-7 days : 0%
- 1-2 weeks : 13%
- 3-4 weeks : 21%
- 1-3 months : 58%
- 4-6 months : 4%
- 7-10 months : 0%
- >10 months : 0%
- Don't know : 0%



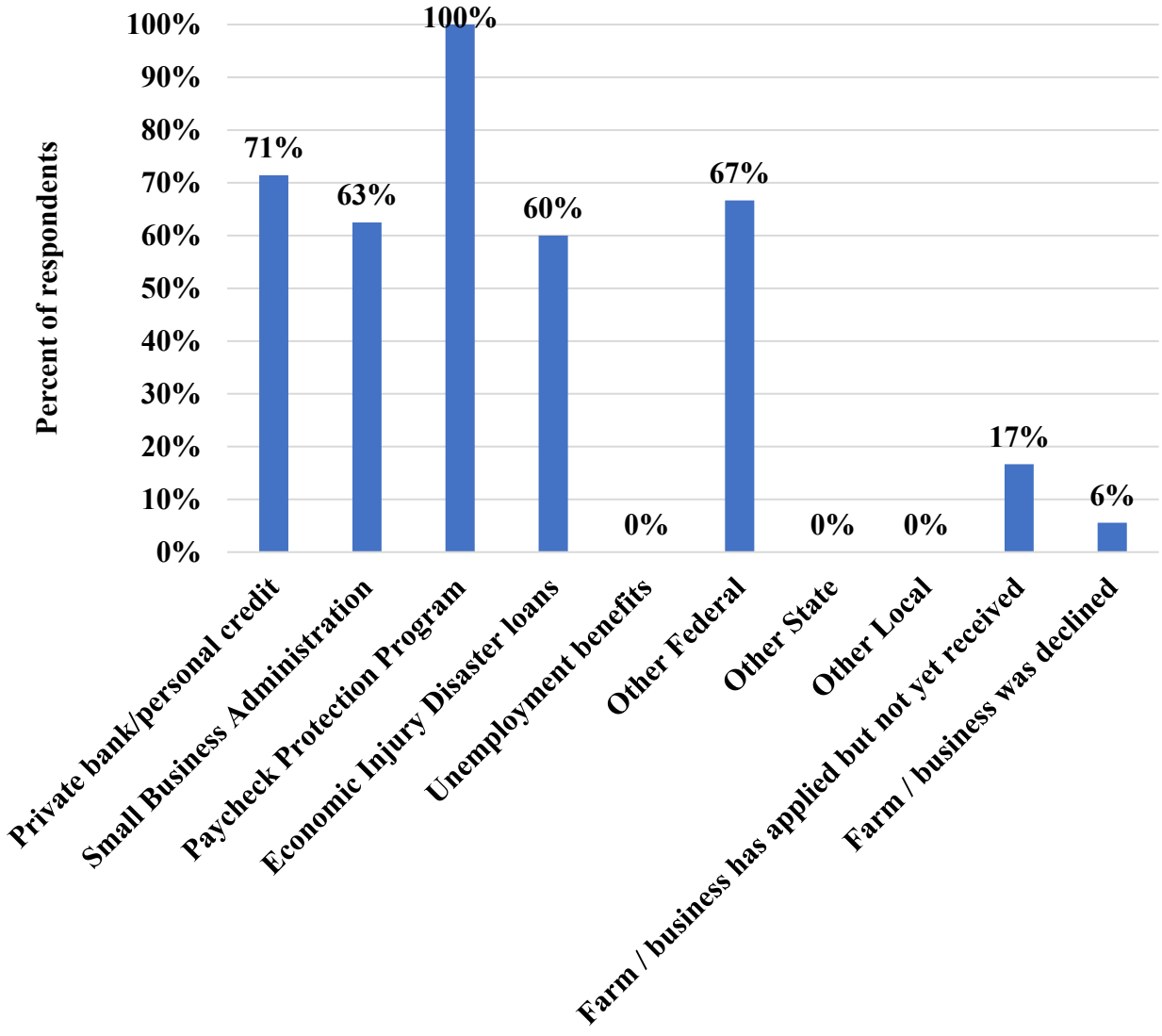
**Q19. Please indicate if your farm or allied business has applied for loans or financial assistance from any of the following programs in the period of time between April 10th 2020 and June 29th 2020: (please select all that apply)**
**(n = 28)**

- Private bank loans/personal line of credit : 50%
- Small Business Administration loans (SBA) : 29%
- Paycheck Protection Program loans (PPP) : 32%
- Economic Injury Disaster Loans (EIDL) : 18%
- Unemployment benefits : 0%
- Other **Federal** program or initiative (please describe) : 11%
- Other **State** program or initiative (please describe) : 0%
- Other **Local** program or initiative (please describe) : 0%
- Fam / business has not requested financial assistance from any source : 18%



**Q19.1. Please indicate if your farm or allied business has received loans or financial assistance from any of the following programs that you applied for: (please select all that apply)**

- Private bank loans/personal line of credit **(n = 14)** : 71%
- Small Business Administration loans (SBA) **(n = 8)** : 63%
- Paycheck Protection Program loans (PPP) **(n = 9)** : 100%
- Economic Injury Disaster Loans (EIDL) **(n = 5)** : 60%
- Unemployment benefits **(n = 0)** : N/A
- Other **Federal** program or initiative (please describe) **(n = 3)** : 67%
- Other **State** program or initiative (please describe) **(n = 0)** : N/A
- Other **Local** program or initiative (please describe) **(n = 0)** : N/A
- Farm / business has applied but not yet received **(n = 18)** : 17%
- Farm / business was declined **(n = 18)** : 6%

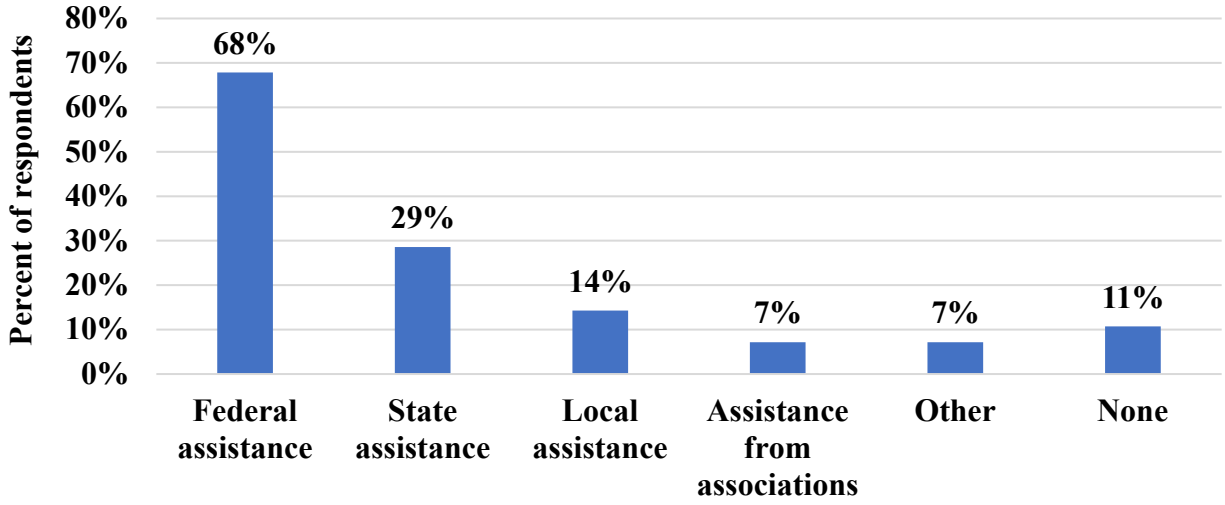


**Q19.2. Please indicate if loans or financial assistance received by your farm or allied business have been helpful?**

| Financial Assistance Program | No response | Yes | No |
|---|---|---|---|
| Private bank loans/personal line of credit **(n = 10)** | 0% | 90% | 10% |
| Small Business Administration loans (SBA) **(n = 5)** | 0% | 100% | 0% |
| Paycheck Protection Program loans (PPP) **(n = 9)** | 11% | 78% | 11% |
| Economic Injury Disaster Loans (EIDL) **(n = 3)** | 0% | 100% | 0% |
| Unemployment benefits **(n = 0)** | N/A | N/A | N/A |
| Other **Federal** program or initiative (please describe) **(n = 2)** | 0% | 100% | 0% |
| Other **State** program or initiative (please describe) **(n = 0)** | N/A | N/A | N/A |
| Other **Local** program or initiative (please describe) **(n = 0)** | N/A | N/A | N/A |

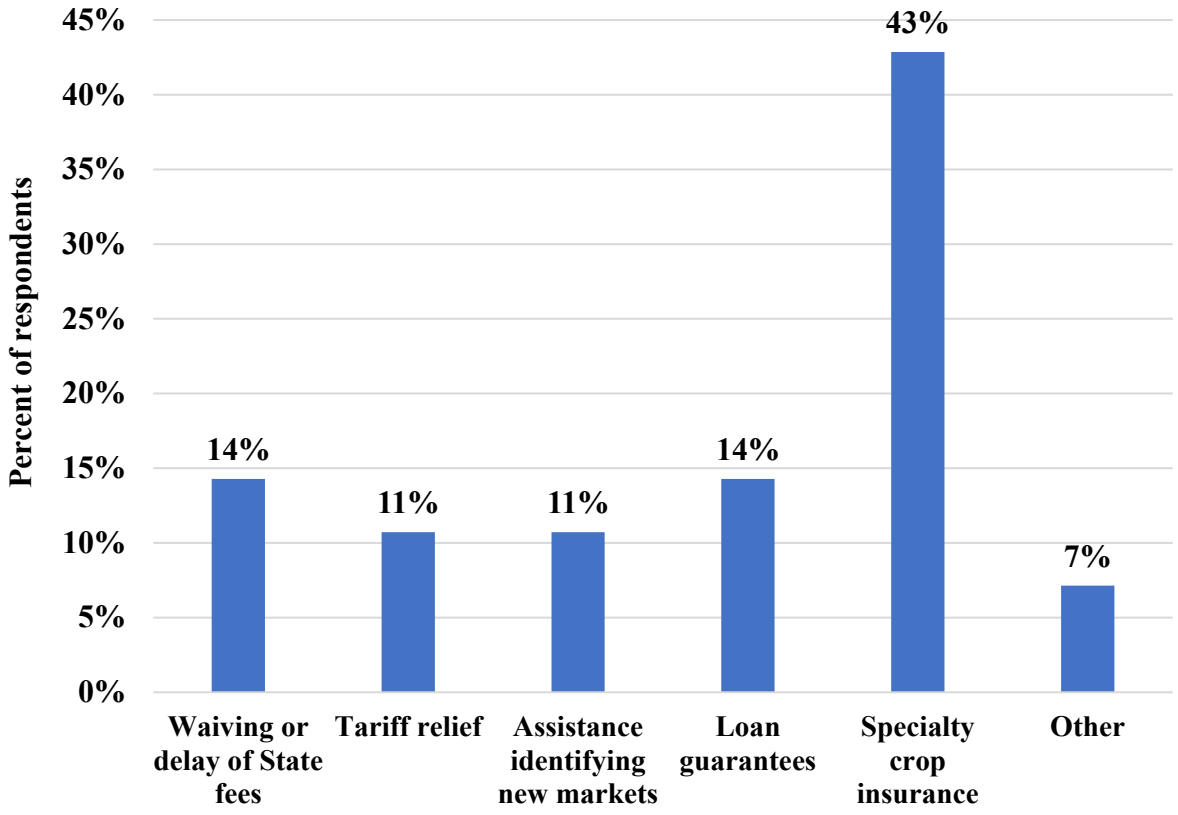
**Q20. Are there specific steps or types of assistance that would increase the likelihood for your farm or allied business to survive? (please select all that apply)**
**(n = 28)**

- Federal assistance : 68%
- State assistance : 29%
- Local assistance : 14%
- Assistance from associations : 7%
- Other : 7%
- None : 11%



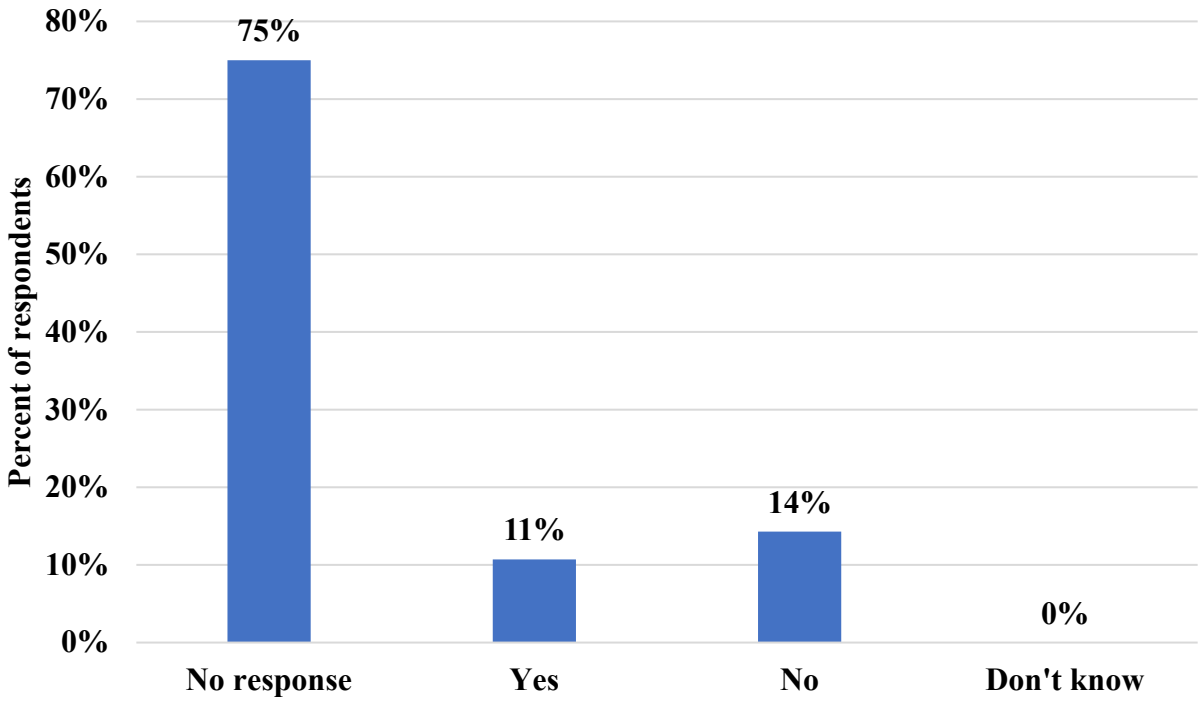
**Q21. Would assistance with any of the following be helpful to your farm or allied business right now? (please select all that apply)**
**(n = 28)**

- Waiving or delay of State fees : 14%
- Tariff relief : 11%
- Assistance identifying new markets : 11%
- Loan guarantees : 14%
- Specialty crop insurance : 43%
- Other : 7%



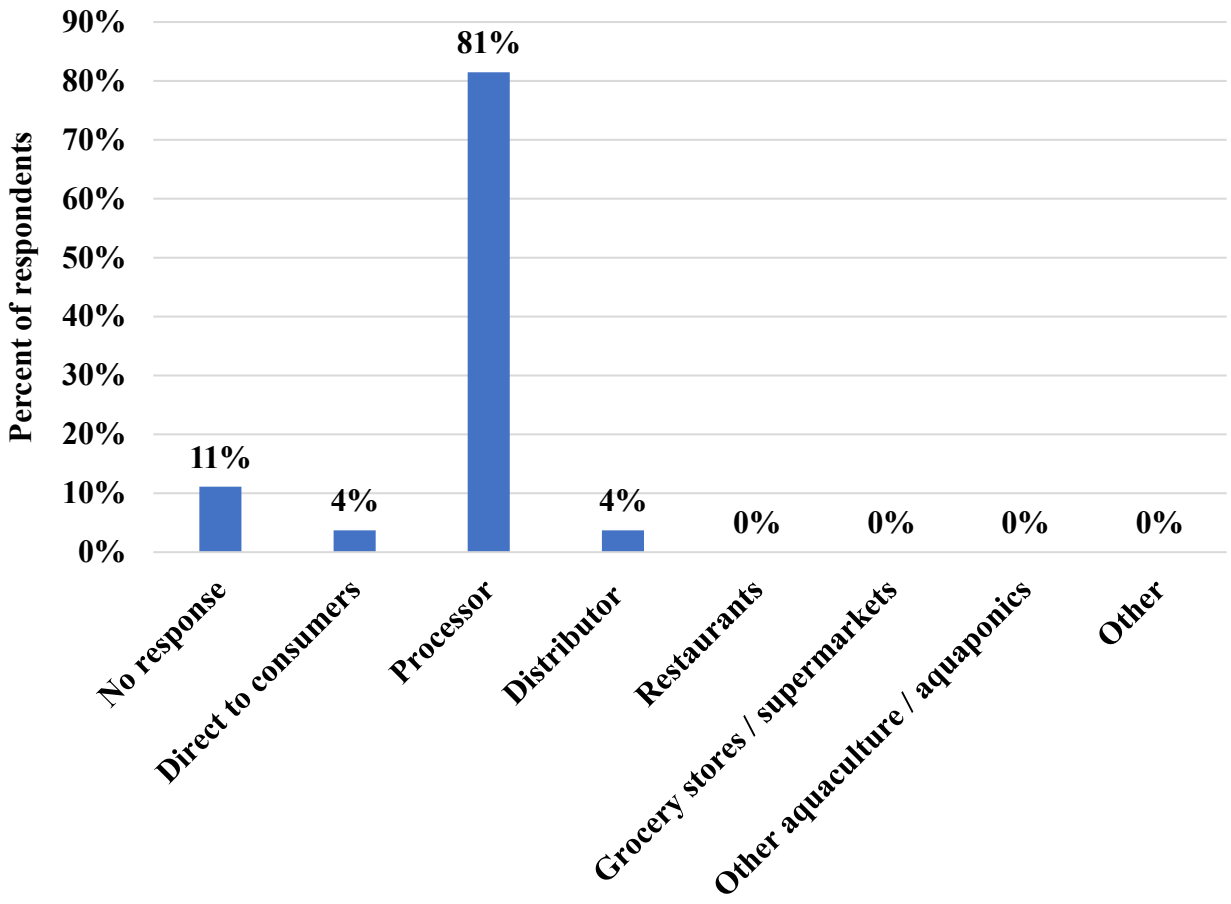
**Q22. Are there any existing programs that your aquaculture, aquaponics, or allied business does not currently qualify for, that would increase the likelihood of survival of your farm or business?**
**(n = 28)**

- No response : 75%
- Yes : 11%
- No : 14%
- Don't know : 0%



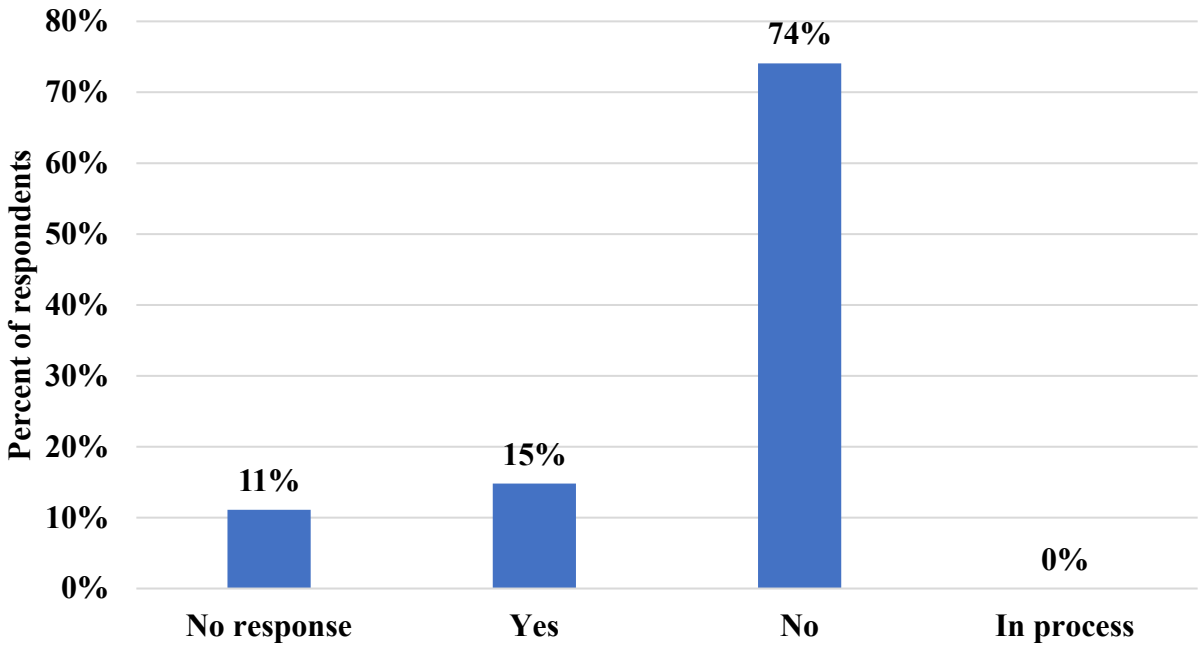
**Q23. How did your farm or allied business primarily market or sell aquaculture / aquaponics products before the effects of coronavirus disease (COVID-19)? (n = 27)**

- No response : 11%
- Direct to customers : 4%
- Processor : 81%
- Distributor : 4%
- Restaurants : 0%
- Grocery stores/ supermarkets : 0%
- Other aquaculture /aquaponics : 0%
- Other : 0%



**Q23.1. Did your farm or allied business implement or attempt to implement a new marketing or sales channel in the period of time between April 10th 2020 and June 29th 2020 because of coronavirus disease (COVID-19)?**
**(n = 27)**

- No response : 11%
- Yes : 15%
- No : 74%
- In process : 0%

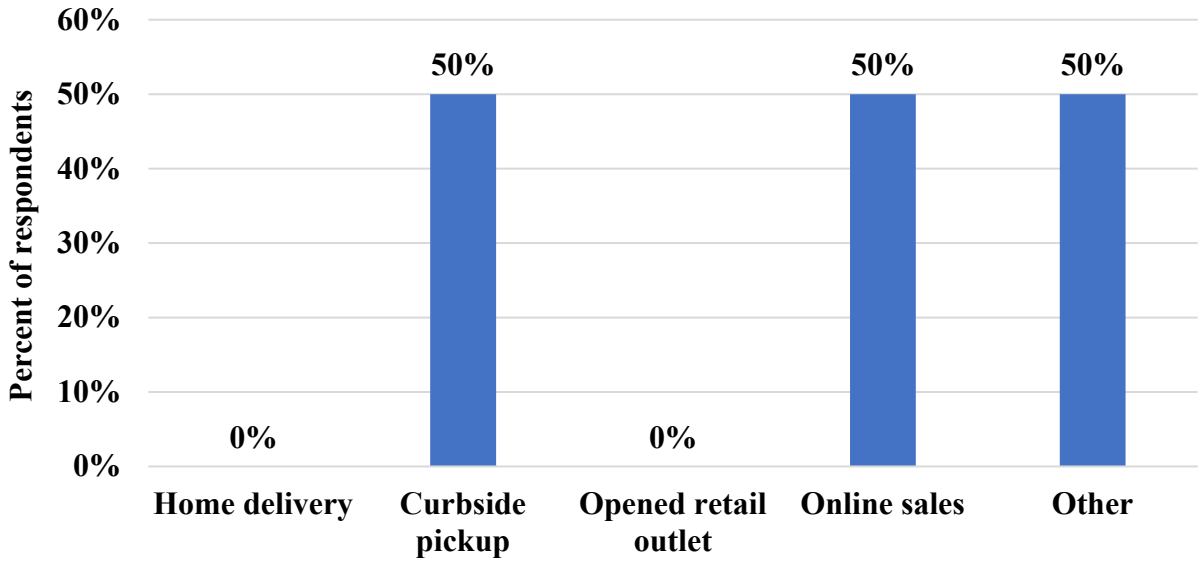



**Q23.2. What percent of sales from your farm or allied business in the period of time between April 10th 2020 and June 29th 2020 went through a new marketing channel?**

| Marketing Channel | Average percent of sales |
|---|---|
| Direct to consumers / end users **(n = 2)** | 11% |
| Processor **(n = 0)** | N/A |
| Distributor **(n = 1)** | 80% |
| Restaurants **(n = 0)** | N/A |
| Grocery stores / supermarkets **(n = 0)** | N/A |
| Other aquaculture / aquaponics farms or business **(n = 0)** | N/A |
| Other **(n = 0)** | N/A |

**Q23.3. If your farm or allied business implemented or attempted to implement a "Direct to consumer / end user" marketing channel, please specify the method(s) from the options below: (please select all that apply)?**
**(n = 2)**

- Home delivery : 0%
- Curbside pickup : 50%
- Opened retail outlet : 0%
- Online sales : 50%
- Other : 50%



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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.

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