

# Impacts of COVID-19 on U.S. Mollusk aquaculture: Quarter 2 Results

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

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## Introduction

In response to the coronavirus (COVID-19) disease pandemic, a collaborative initiative was launched by The Ohio State University, Virginia Tech, and Engle-Stone Aquatic\$, LLC to assess the impacts of the pandemic on U.S. aquaculture, aquaponics, and allied industries. Results from the first quarter survey (AAEC-218NP) demonstrated that the U.S. aquaculture industry has been impacted by the coronavirus (COVID-19) disease pandemic; with 90% of respondents reporting that their farm or business had been affected by the pandemic in some way. The Q1 impacts reported by respondents can be broadly summarized as the disruption of traditional marketing channels, challenges with labor, and challenges with production. For the first quarter of 2020, the U.S. government developed and implemented several emergency relief measures, to assist small businesses and individuals. The Q2 survey asked specifically about these relief and assistance programs, as well as questions on adaptations and changes being implemented by farms and businesses in response to the ongoing challenges. This fact sheet summarizes the Q2 results of this study, covering the period from April 10<sup>th</sup> to June 29<sup>th</sup>, 2020

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](https://www.arec.vaes.vt.edu/arec/virginia-seafood/research/Impacts_of_COVID19.html).

## Results

### Characterization of Respondents

Quarter 2 survey results showed that there were **117 mollusk farm participants**,

#### Scale of farms/businesses

Respondents represented various scales of production (Table 1). Seventeen percent of Q2 respondents reported a pre-COVID annual sales volume in excess of \$1 million. This was followed by 16% of respondents that were in the \$100,001 to \$250,000 scale, 15% of respondents in the \$50,001 to \$100,000 scale, 14% in the \$500,001 to \$1-million scale, 12% in the \$250,001 to \$500,000 scale, and 10% in the \$25,001 to \$50,000 scale. Four percent of Q2 respondents reported a pre-COVID scale of \$10,001 to \$25,000 and \$5,001 to \$10,000 in annual sales. Four percent of respondents chose

not to answer this question. Only 3% of respondents indicated their farm or business had an annual sales volume of \$1 to \$1,000. As with the Q1 survey, it is possible that smaller aquaculture farms may not belong to the aquaculture associations and Extension contact lists that were used to distribute the survey. It is also possible that smaller farms had less time to respond or did not consider responding due to greater demands on their time dealing with the immediate needs of their farm or business.

Table 1. Scale of respondent farms/business.

Category	Percentage
> \$1 million	17%
\$100,001 - \$250,000	16%
\$50,001 - \$100,000	15%
\$500,001 - \$1 million	14%
\$250,001 - \$500,000	12%
\$25,001 - \$50,000	10%
No response	4%
\$10,001 - \$25,000	4%
\$5,001 - \$10,000	4%
\$1 - \$1,000	3%
\$1,001 - \$5,000	0%

## Aquaculture Regions

Forty-two percent of responding farms and businesses (n = 76) were located in the Northeastern Aquaculture Region (NRAC). This was followed by the Southern Aquaculture Region (30%), the Western Aquaculture Region (20%), and the Tropical and Sub-tropical Aquaculture Region (3%). Five percent of respondents elected not to answer this question. There were no responding farms or businesses located in the North Central Aquaculture Region. Table 2 depicts the percentage of farms reported in the 2018 USDA Census of Aquaculture located in each region and the percentage of survey respondents from each respective aquaculture region (2019).

Table 2. Participation by aquaculture region.

Region	Percentage of USDA census reporting farms	Percentage of survey respondents
Northeast	18%	42%
Southern	59%	30%
Western	12%	20%

Tropical and Sub-tropical	2%	3%
North Central	9%	0%

## Key Findings

Ninety-two percent of Quarter 2 respondents (n = 75) indicated that their farm or business had been impacted by the coronavirus disease pandemic. Another 3% of respondents indicated that their farm or business had not been impacted, and 3% of respondents were uncertain whether their farm or business had been impacted or not. Of the 4 Q2 respondents who reported being uncertain or not impacted by the coronavirus (COVID-19) pandemic, 25% expected their farm or business would “probably” be impacted in 2020. Seventy-five percent of these respondents expected that their farm or business would “probably not” be impacted in 2020. No respondents reported that their farm would “definitely” or “definitely not” be impacted in 2020.

Forty-two percent of respondents indicated that their farm or business would survive the next 3 months without any external interventions (n = 64). Forty-eight percent indicated that “maybe” their farm or business would survive 3 months without external intervention, while 9% of respondents indicated that their farm or business would not survive 3 months without external intervention. This percentage of respondents reporting not being able to survive for 3 months without intervention was lower than in the Q1 survey; at that time, 17% respondents (n = 181) reported that their farm or business would not survive for 3 months without external intervention.

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*92% of Q2 respondents indicated that their farm or business had been impacted by the coronavirus disease pandemic.*

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When the time period for the question was extended to 6 months, 23% of respondents said their farm or business would not survive without external intervention (n = 64); while 47% said “maybe”, and

30% indicated their farm or business could survive 6 months without intervention. Extending this timeframe further, to 12 months, 36% percent of respondents indicated that their business would not survive without external intervention (n = 64). Some of the respondents to the Q1 survey may have permanently closed since the completion of that survey and therefore did not participate in the Q2 survey.

## Lost Sales

Lost sales were one of the major impacts reported by respondents in the Q1 survey; with 98% of respondents (n = 183) reporting lost sales. Results from the Q2 survey indicated that respondents also experienced lost sales in the second quarter of 2020; with 93% of respondents (n = 71) reporting lost sales. Fifteen percent of Q2 respondents reported lost sales to international markets (n = 66). Respondents also reported on the value of lost sales in the second quarter (Table 3), with 23% of respondents indicating that they had lost between \$50,001 and \$100,000 in sales. Followed by 18% of respondents that had lost between \$10,001 and \$25,000, 15% that had lost \$100,001 and \$250,000, and 12% that had lost between \$25,001 and \$50,000 during the second quarter of 2020.

Table 3. Value of lost sales during Q2

Category	Percentage
<b>\$50,001 - \$100,000</b>	23%
<b>\$10,001 - \$25,000</b>	18%
<b>\$100,001 - \$250,000</b>	15%
<b>\$25,001 - \$50,000</b>	12%
<b>\$1,001 - \$5,000</b>	8%
<b>\$500,001 - \$1 million</b>	6%
<b>\$250,001 - \$500,000</b>	6%
<b>\$5,001 - \$10,000</b>	5%
<b>Cannot estimate at this time</b>	3%
<b>Greater than \$1 million</b>	2%
<b>No response</b>	2%
<b>\$1 - \$1,000</b>	0%

Respondents were also asked about the status of contracts during the second quarter (n = 69). Six percent had government contracts delayed, and 6% reported government contract cancellations. Nine percent of Q2 respondents indicated that their farm or business had made new government (state or

federal) contracts during the second quarter; with 1% reporting government contracts re-instated. As for private contracts, 49% of respondents indicated that their farm or business had private contracts cancelled during Q2. This was followed by 26% that had contracts delayed, and only 1% reported private contracts re-instated. No respondents indicated that their farm or business had made any new contracts during Q2.

Eighty-eight percent of Q2 respondents indicated that they expected to experience additional lost sales in Q3 of 2020 (n = 66), with 16% of respondents expecting to experience decreased sales to international markets (n = 58).

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*93% of Q2 respondents reported that their farm or business had experienced lost sales due to the coronavirus disease pandemic.*

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A new question for the Q2 survey asked respondents to provide the average price and inventory of the primary product on the farm or business. Many respondents, however, reported producing more than one primary product, indicating that they produced clams, oysters, or both.

Respondents were also asked to provide the volumes of primary product sold at market price and the volumes sold at a reduced price due to being out-of-size during Q1 and Q2. Responses indicate that during Q1, 9% of volume was sold at a reduced price. In Q2, more than half (52%) of volume was sold at reduced price.

An additional new question for the Q2 survey asked respondents about the availability of cash on hand to cover operating expenses. More than one quarter of respondents (27%), indicated that they have sufficient cash on hand to cover 1 to 3 months of operations (n = 64). This was followed by 22% of respondents who indicated having enough cash on hand for 4 to 6 months of operations. Nine percent of respondents to the Q2 survey said they had no cash on hand for business operations, while 21% of

respondents reported less than 1 month of cash on hand. It is worth noting that the Q2 survey was open for 3 weeks for data collection, meaning that respondents who completed the survey shortly after it was distributed may have already exhausted their cash on hand by the time this fact sheet was prepared.

## **Labor**

Forty-five percent of Q2 survey respondents reported that their farm or business had experienced no change in employment during the second quarter (n = 69). Thirty percent of respondents had laid off employees during the second quarter; while 14% of respondents reported that their farm or business would “have to soon”. Six percent of respondents had hired additional employees. Respondents were asked about the number of employees that had been laid off during Q2, with the majority (62%) indicating that between 1 and 3 employees had been let go (n = 21). Twenty-four percent of respondents indicated the number of employees laid off during the second quarter to be between 4 and 6. Ten percent of respondents indicated the number of employees laid off during Q2 to be greater than 20 employees, and 5% of respondents indicated between 7 and 10 employees laid off. The maximum number of employees laid off by a single respondent was 400.

Respondents were also asked how long before their farm or business had to decide whether to lay off employees or not, the majority of respondents (80%) indicated a period between 4 and 6 weeks (n = 10). Furthermore, 10% of Q2 respondents indicated that they had less than a week to make a decide on laying off employees. Another 10% of respondents reported having between 1 and 3 weeks to decide on laying off employees. Respondents were then asked how many employees the farm or business would have to lay off (n = 10), the majority of respondents (70%) indicated between 1 and 3 employees. All (100%) of those respondents that hired additional employees during the second quarter hired between 1 and 3 employees (n = 4).

Survey respondents were also asked about employees missing work due to the coronavirus (COVID-19) disease pandemic. Sixty-four percent of respondents indicated that their farm or business did not have any employees miss work (n = 69),

while 35% percent of respondents did experience employees that had missed work. Sixty-one percent of those Q2 respondents (n = 23) indicated that employees had missed more than 14 days of work during the second quarter. This was followed by 22% reporting employees had missed between 7 and 10 days of work, 13% reporting between 1 and 3 days of work missed, and 4% reporting between 11 and 14 days.

## **Challenges to the farm/business**

Forty-six percent of responding Q2 farms and businesses experienced labor challenges (n = 71). Thirty-eight percent of respondents reported their farm or business had been unable to pay bills and/or liabilities. This was followed by 30% of Q2 respondents who indicated they had experienced production challenges not related to labor, and 27% of respondents who reported increased cost of production. Only 1% of Q2 respondents reported experiencing an increased demand for their product.

More specifically, 37% of Q2 respondents reported challenges with production inputs (n = 19). These inputs include, but are not limited to, oyster seed, oyster larvae, and personal protective equipment (PPE). This was followed by 16% of Q2 respondents who experienced challenges with repair, construction, consultant or engineering services, and another 16% who reported they had experienced challenges with financial services. Five percent of Q2 respondents reported that they could not identify specific challenges at the time they completed the survey. Forty-seven percent of Q2 respondents indicated other production challenges that were not listed in the survey. These challenges include, but are not limited to, shortage of space and gear due to reduction of sales and delayed delivery of critical supplies.

Another new question for the second-quarter survey was whether farms or businesses had missed any bill or loan payments as a result of the pandemic (n = 26). A third of the respondents chose not to answer this question. Nineteen percent of Q2 respondents indicated that they had missed between \$1,001 and \$5,000 in bill or loan payments. This was followed by 12% of respondents who could not estimate the value of missed payments at the time they completed

the survey, 8% of respondents who had each missed between \$10,001 and \$25,000 and \$25,001 and \$50,000 in payments during the second quarter.

When asked about expecting to experience challenges at the farm or business during Q3, 22% of respondents indicated they expect to experience challenges with production inputs (n = 23). This was followed by 26% of Q2 respondents who expected challenges with financial services. Responding farms and businesses also reported challenges with market-ready product taking up space and interfering with new stocking or planting. Forty-one percent of 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 = 64). Sixteen percent of Q2 respondents could hold market ready products for less than 1 month or 4 to 6 months, before it would interfere with future production; while 13% percent of responding farms and businesses could hold market-ready products for more than 10 months before it becomes an issue for new production.

### Marketing of products

Second-quarter respondents were also asked about the effects of holding market-ready products on price, quality, and quantities sold. The majority (80%) of respondents said “yes”, holding product would make it less marketable (n = 64). Specifically, 69% of Q2 respondents indicated that holding products would result in a reduced price, 67% indicated that holding products would reduce the quality of products, and 57% indicated that holding products would result in a lower quantity sold (n = 51).

### Marketing channels

Respondents were also asked to indicate their primary marketing channels before the effects of the coronavirus (COVID-19) disease pandemic (Table 4). Forty-seven percent of Q2 respondents indicated that they previously primarily sold their products through a distributor (n = 66). This was followed by 23% that sold primarily to restaurants, 9% that sold primarily direct to consumer and 8% that sold to processors.

Table 4. Primary marketing channel for respondents.

Category	Percentage
<b>Distributor</b>	47%
<b>Restaurants</b>	23%
<b>Direct to consumer</b>	9%
<b>Processor</b>	8%
<b>Other</b>	6%
<b>Other aquaculture /aquaponics</b>	3%
<b>No response</b>	3%
<b>Grocery store / supermarket</b>	2%

Respondents were also asked about adaptations or changes in their marketing channel in response to the pandemic, to which 48% of respondents said “yes” they had implemented or attempted to implement a new marketing channel and 17% said they were in the process of attempting to do so (n = 66). Thirty-two percent of respondents said that they had not implemented or attempted to implement a new marketing channel during the second quarter of 2020. Of those respondents who had implemented or attempted to implement direct to consumer sales (n = 21), 76% had used online sales. This was followed by 67% who had implemented “curbside pickup”, and 48% who had implemented home delivery services. Nineteen percent of respondents indicated that they had opened a retail outlet in effort to implement a “direct to consumer/end user” marketing channel.

### Relief and assistance programs

As an important new addition to the Q2 survey, respondents were asked about the various assistance and relief programs that had been announced during Q2 of 2020. Respondents were asked to identify to which programs they had applied, whether they had received the requested support, and whether that support had been helpful to their farm or business. More than half (56%) of Q2 respondents (n = 66) had applied for the Paycheck Protection Program (PPP). This was followed by 45% of respondents who had applied for Economic Injury Disaster Loans (EIDL), 20% who had applied for a Small Business Administration (SBA) loan, 18% who had applied for unemployment benefits, and 9% who had applied for private bank loans/personal lines of credit. Fourteen percent of Q2 respondents reported that

their farm or business had not applied for any assistance programs during the second quarter.

As for having received the support that was requested (n = 55), 7% of Q2 respondents indicated that they had applied but not yet received assistance, while 5% reported having been declined or denied assistance. Eighty-nine percent of Q2 respondents who had applied for a PPP loan had received the requested support. Table 5 breaks down the various support programs and the percent of Q2 respondents that reported receiving that support.

The majority of respondents (59%) indicated that Federal assistance would increase the likelihood of their farm or business to survive (n = 66). This was followed by 39% of respondents who also selected State assistance as a mechanism that would increase their likelihood of survival.

Thirty-six percent of Q2 respondents indicated that specialty crop insurance would be helpful to them (n = 66). Thirty-six percent also indicated that waiving or delay of State fees would be helpful, 26% indicated that assistance with identifying new markets would be helpful, and 20% indicated that loan guarantees would be helpful to the farm or business.

Table 5. Assistance received by Q2 respondents

Category	(N = )	Percentage
Private bank loans / line of credit	6	50%
Small Business Administration loans (SBA)	13	69%
Paycheck Protection Program loans (PPP)	37	89%
Economic Injury Disaster Loans (EIDL)	30	73%
Unemployment benefits	12	83%
Other Federal programs	2	50%
Other State programs	4	50%
Other Local programs	1	100%
Farm or business has applied but not yet received	55	7%
Farm or business applications have been denied / declined	55	5%

## Discussion and Conclusion

Results of the Q2 survey demonstrate that U.S. mollusk farms and businesses were still experiencing negative impacts from the coronavirus (COVID-19) disease pandemic during Q2. Although the total number of respondents for the Q2 survey was lower, many of the responses indicated a similar trend as was observed in the Q1 results. While many Q2 respondents have been able to obtain external assistance and relief, there were 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 services and inputs, challenges with cash on hand to cover operating expenses, and missed or delayed loan and bill payments. Comments provided by respondents reveal that some producers have ceased all harvest activity or preparations for future production. Lost revenue continues to be a significant challenge for respondents, with 93% of Q2 respondents reporting lost sales. Challenges reported with labor and production, also reinforce Q1 results in suggesting negative impacts on the future supply of aquaculture and aquaponics products. The key points from the Quarter 2 survey results are:

- 92% had been impacted by COVID-19 during Q2
- 49% had had private orders/contracts cancelled
- 30% had laid off employees
- 93% had experienced lost sales
- 9% had no cash available to cover operating expenses
- 21% had less than 1 month of cash available to cover operating expenses
- 42% would survive 3 months without external intervention

- 56% applied for the Paycheck Protection Program, 45% for an Economic Injury Disaster Loan, 18% for unemployment benefits, and 9% for a personal bank loan or line of credit.
- 59% indicated that Federal assistance would help their farm or business to survive, and 39% indicated that state assistance would help their farm or business to survive.

## References

National Marine Fisheries Service. 2018. "Fisheries of the United States, 2017". U.S. Department of Commerce, NOAA Current Fishery Statistics No. 2017 Available at: <https://www.fisheries.noaa.gov/resource/document/fisheries-united-states-2017-report>. (last accessed, April 12<sup>th</sup>, 2020)

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](https://www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Census_of_Aquaculture/index.php). (last accessed, April 12<sup>th</sup>, 2020)

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## Additional Resources

van Senten, J., C.R. Engle, and M. Smith. 2020. Impacts of COVID-19 on U.S. aquaculture, aquaponics, and allied businesses. Journal of the World Aquaculture Society 51(3):571-573.

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](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. mollusk aquaculture: Quarter 2 Results**

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<u>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?</u>	33
<u>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)</u>	34
<u>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)</u>	35
<u>Q19.2. Please indicate if loans or financial assistance received by your farm or allied business has been helpful?</u>	36
<u>Q20. 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.</u>	37
<u>Q21. Would assistance with any of the following be helpful to your farm or business right now? Please select all that apply.</u>	40
<u>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?</u>	40
<u>Q23. How did your farm or allied business primarily market or sell aquaculture / aquaponics products before the effects of the coronavirus disease pandemic (COVID-19)?</u>	41
<u>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)?</u>	40
<u>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?</u>	40
<u>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)?</u>	43

## Overview

On March 23<sup>rd</sup>, 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 17<sup>th</sup>, 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](https://www.arec.vaes.vt.edu/arec/virginia-seafood/research/Impacts_of_COVID19.html).

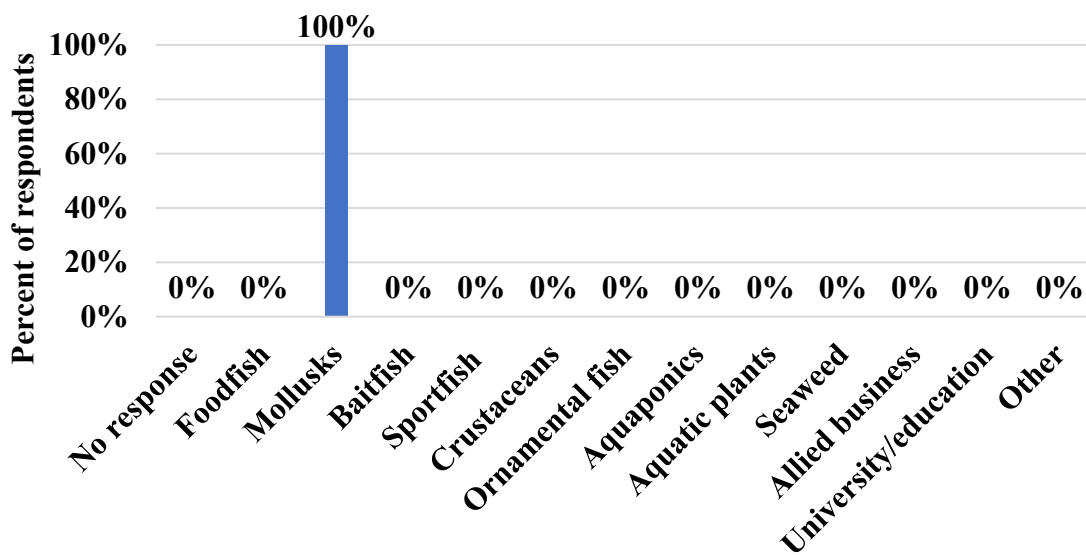
This report is a supplemental report to the **Mollusk Report Summary, Quarter 2** that summarizes the results of **mollusk farm** respondents.

### Survey results for each question

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

#### Q1. What is the primary product that your farm or allied business produces? (n = 117)

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



**Q1.1. Please indicate which is the major species of foodfish raised by your farm or business:**

**(n = 0)**

- No response : N/A
- Catfish : N/A
- Trout : N/A
- Salmon : N/A
- Tilapia : N/A
- Hybrid Striped Bass : N/A
- Other : N/A

**Q1.2 Please indicate which is the major species of sportfish raised by your farm or business:**

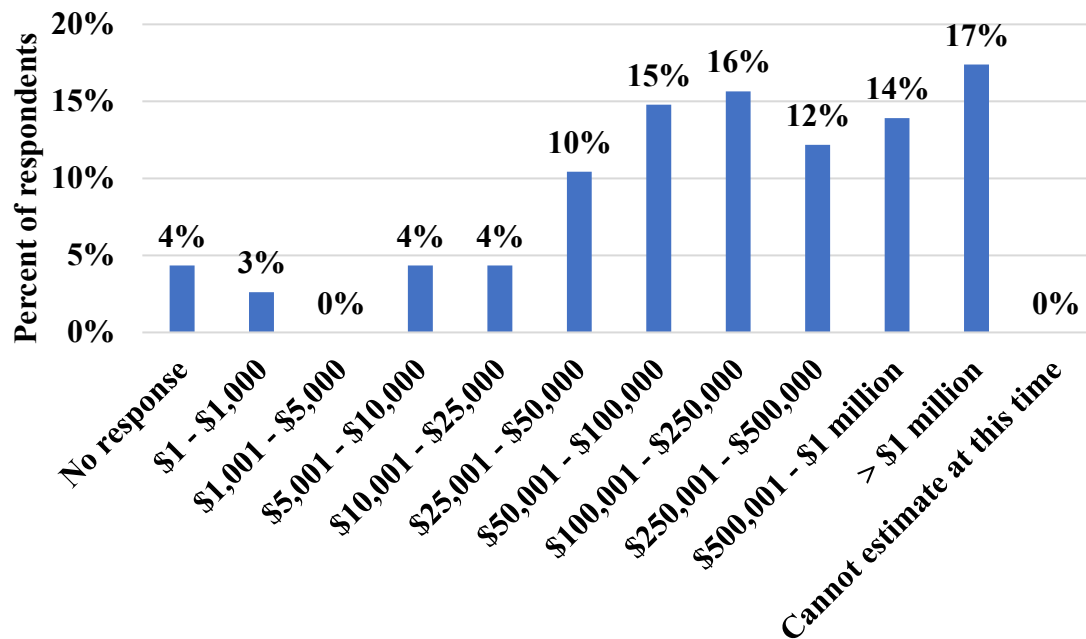
**(n =0)**

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

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

**(n = 115)**

• No response	:	4%
• \$1 - \$1,000	:	3%
• \$1,001 - \$5,000	:	0%
• \$5,001 - \$10,000	:	4%
• \$10,001 - \$25,000	:	4%
• \$25,001 - \$50,000	:	10%
• \$50,001 - \$100,000	:	15%
• \$100,001 - \$250,000	:	16%
• \$250,001 - \$500,000	:	12%
• \$500,001 - \$ 1 million	:	14%
• Greater than \$1 million	:	17%
• 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 = 61)

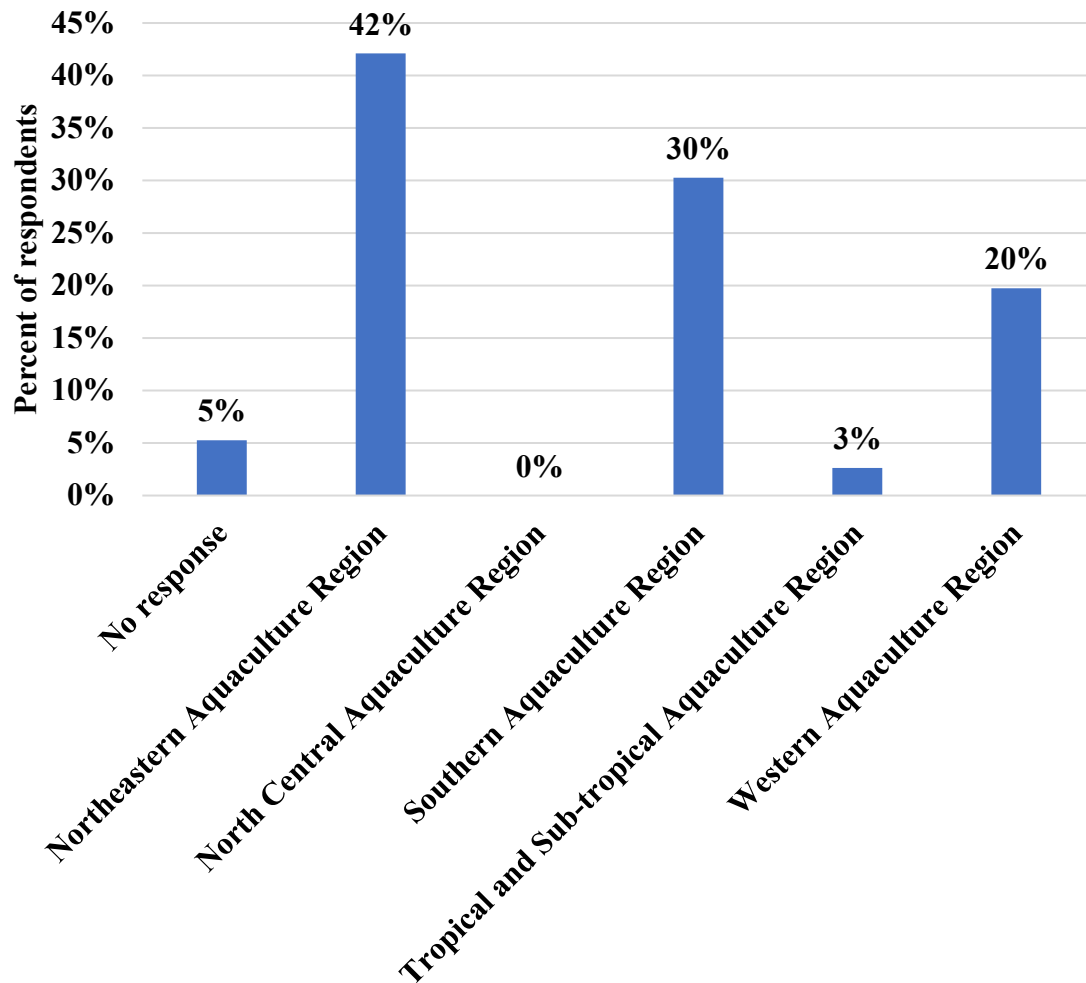
	Average price per unit (\$ USD)	Average inventory (# of units)	Unit (lbs, count, etc.)
No response	N/A	N/A	N/A
As of January 1 <sup>st</sup> 2020	N/A	N/A	N/A
As of April 1 <sup>st</sup> 2020	N/A	N/A	N/A
As of July 1 <sup>st</sup> 2020	N/A	N/A	N/A

**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 = 39)

	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 business located?**  
(n = 76)

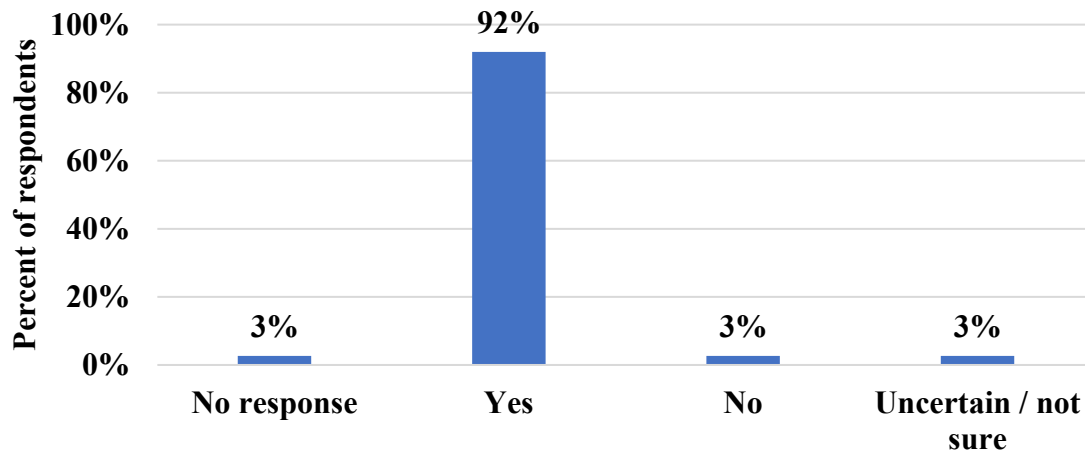
- No response : 5%
- Northeastern Aquaculture Region : 42%
- North Central Aquaculture Region : 0%
- Southern Aquaculture Region : 30%
- Tropical and Sub-Tropical Aquaculture Region : 3%
- Western Aquaculture Region : 20%



**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 = 75)**

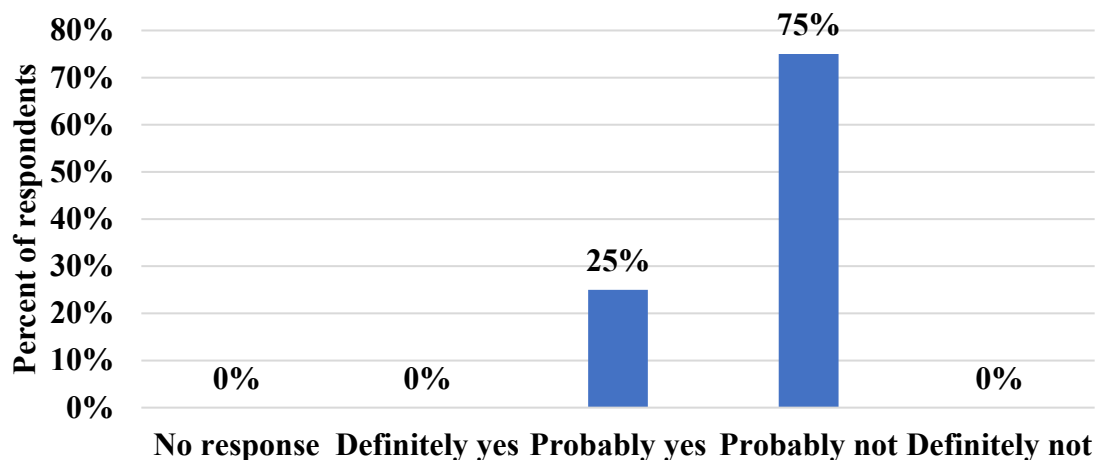
- No response : 3%
- Yes : 92%
- No : 3%
- Uncertain/not sure : 3%



**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 = 4)**

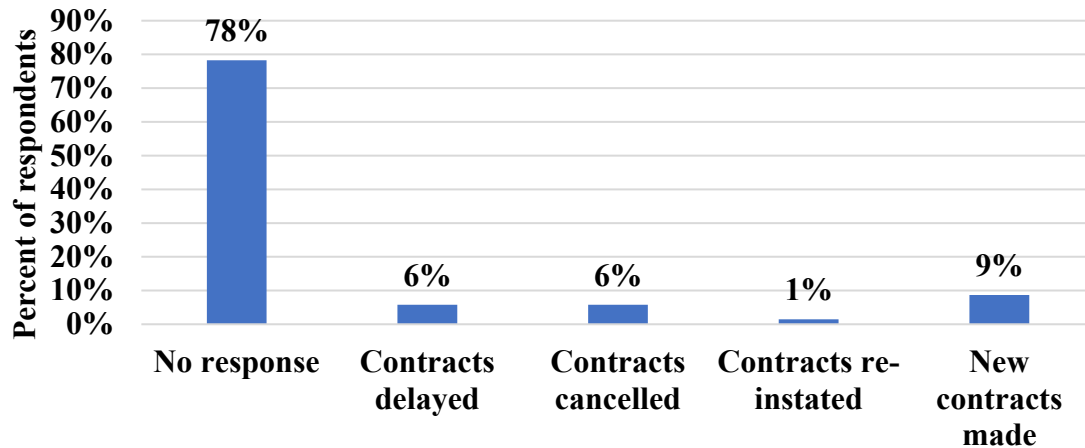
- No response : 0%
- Definitely yes : 0%
- Probably yes : 25%
- Probably not : 75%
- Definitely not : 0%



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

**(n = 69)**

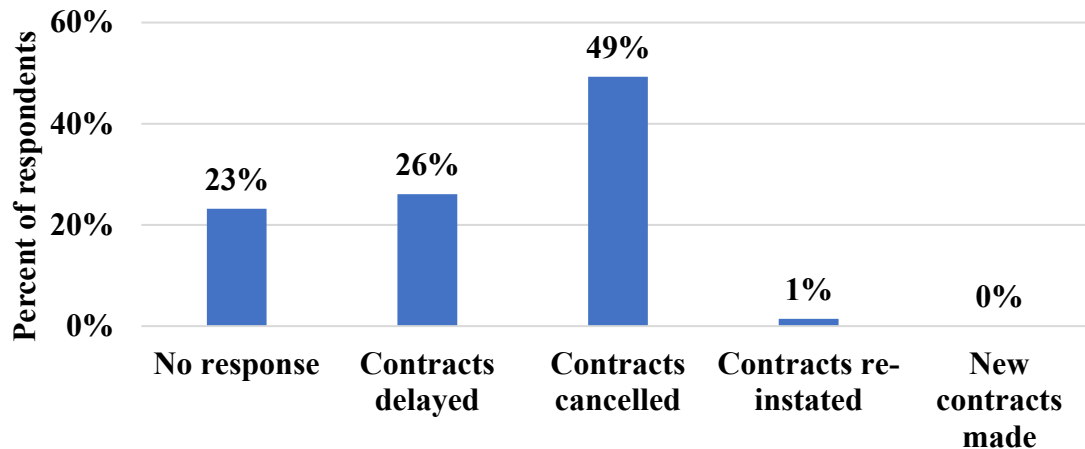
- No response : 78%
- Contracts delayed : 6%
- Contracts cancelled : 6%
- Contracts re-instated : 1%
- New contracts made : 9%



**Q7. Have there been changes in private contracts in the period of time between April 10th 2020 and June 29th 2020 because of the coronavirus disease (COVID-19)?**

**(n = 69)**

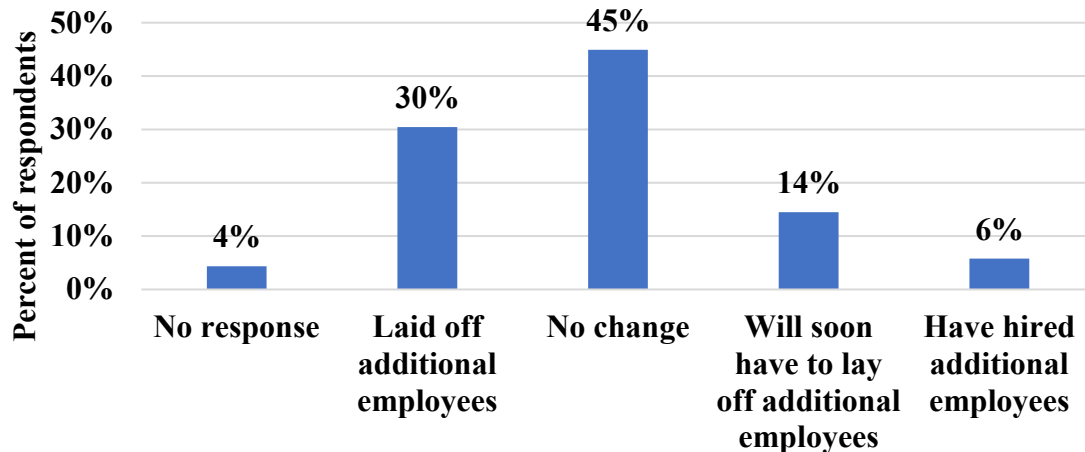
- No response : 23%
- Contracts delayed : 26%
- Contracts cancelled : 49%
- Contracts re-instated : 1%
- New contracts made : 0%



**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 = 69)**

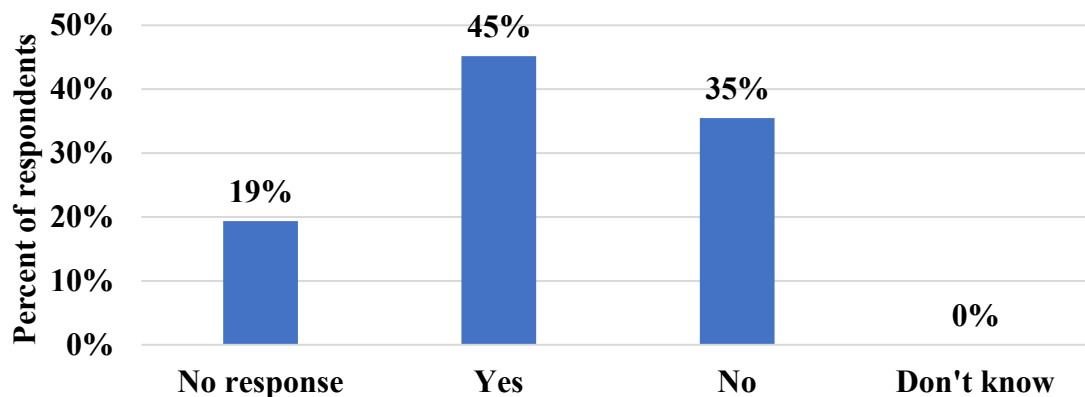
- No response : 4%
- Laid off additional employees : 30%
- No change : 45%
- Will soon have to lay off additional employees : 14%
- Have hired additional employees : 6%



**Q8.1. 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 = 31)**

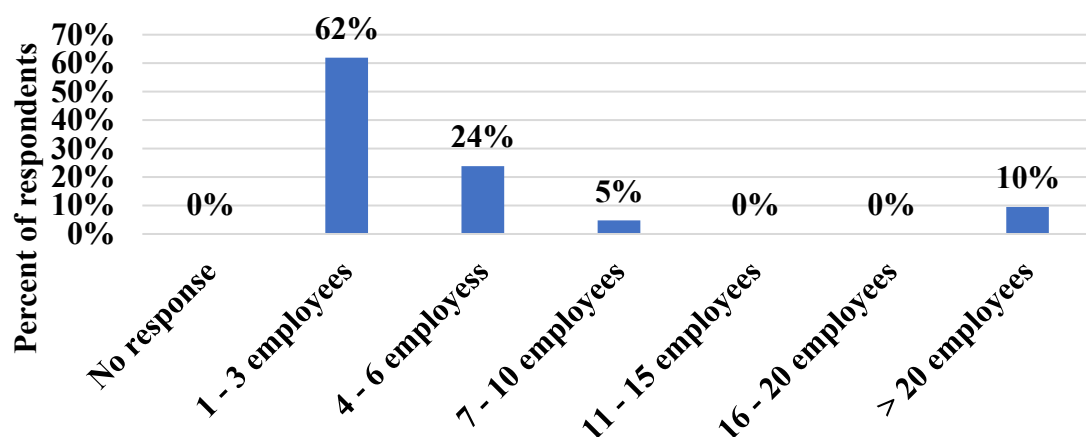
- No response : 19%
- Yes : 45%
- No : 35%
- Don't know : 0%



**Q8.2. How many employees has your farm or 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 = 21)

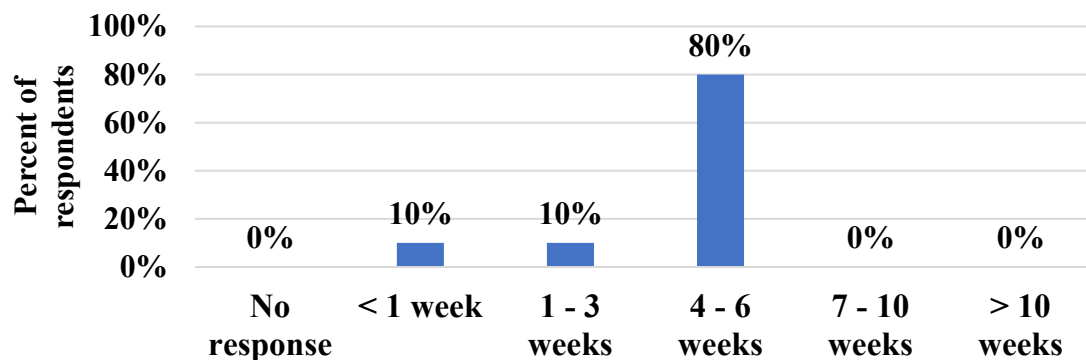
- No response : 0%
- 1 – 3 employees : 62%
- 4 – 6 employees : 24%
- 7 – 10 employees : 5%
- 11 – 15 employees : 0%
- 16 – 20 employees : 0%
- More than 20 employees : 10%



**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 = 10)

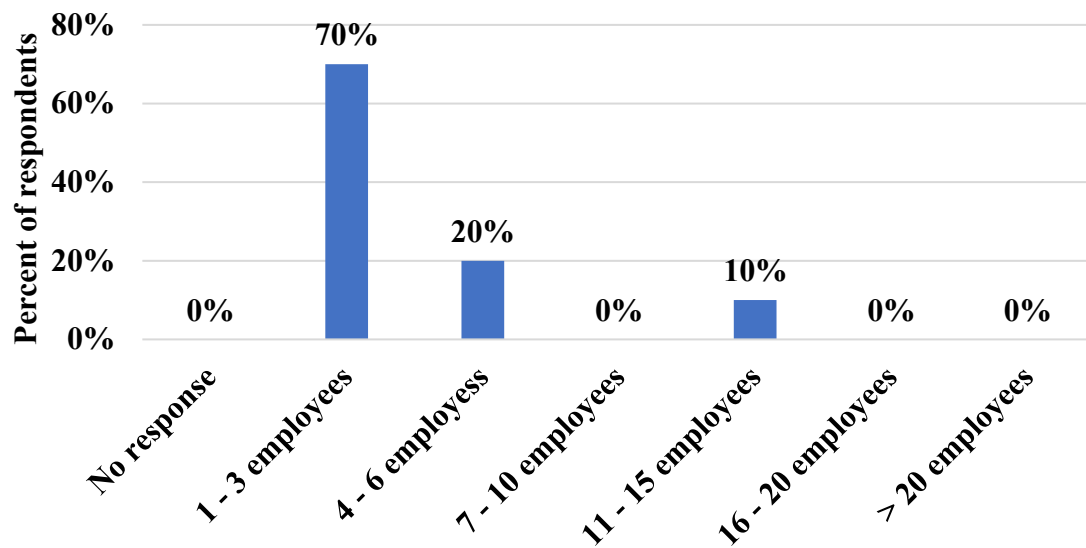
- No response : 0%
- Less than 1 week : 10%
- 1 – 3 weeks : 10%
- 4 – 6 weeks : 80%
- 7 – 10 weeks : 0%
- More than 10 weeks : 0%



**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 = 10)**

- No response : 0%
- 1 – 3 employees : 70%
- 4 – 6 employees : 20%
- 7 – 10 employees : 0%
- 11 – 15 employees : 10%
- 16 – 20 employees : 0%
- More than 20 employees : 0%

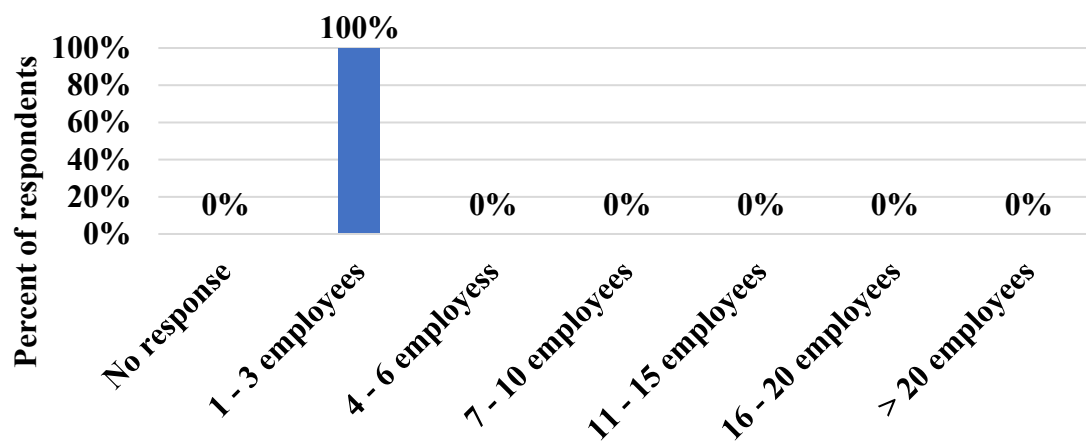




**Q8.5 How many additional employees has your farm or allied business hired in the period of time between April 10th 2020 and June 29th 2020 in response to the coronavirus disease (COVID-19)?**

(n = 4)

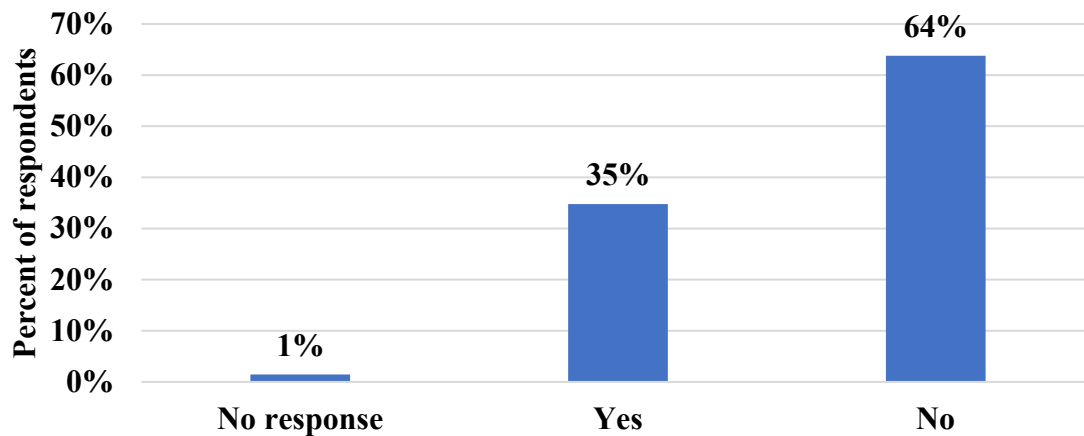
- No response : 0%
- 1 – 3 employees : 100%
- 4 – 6 employees : 0%
- 7 – 10 employees : 0%
- 11 – 15 employees : 0%
- 16 – 20 employees : 0%
- More than 20 employees : 0%



**Q9. Has your farm or 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 = 69)

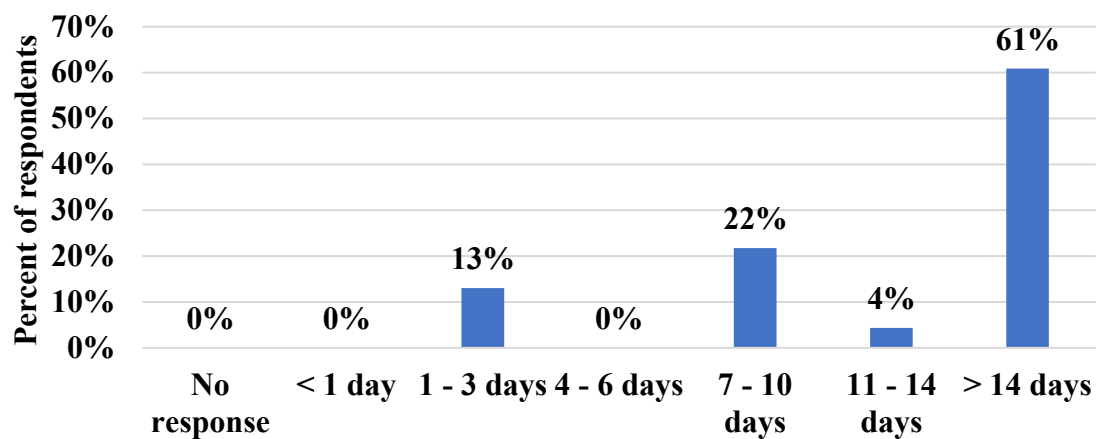
- No response : 1%
- Yes : 35%
- No : 64%



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

(n = 23)

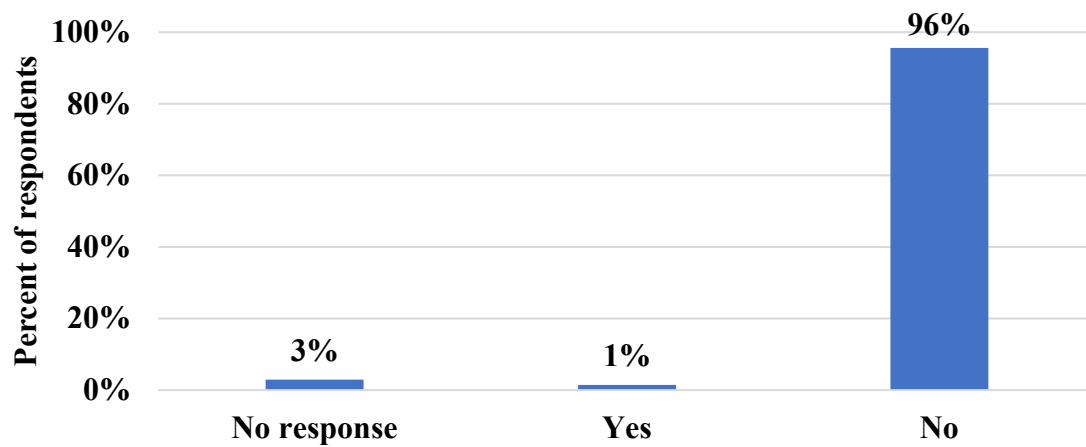
- No response : 0%
- Less than a day : 0%
- 1 – 3 days : 13%
- 4 – 6 days : 0%
- 7 – 10 days : 22%
- 11 – 14 days : 4%
- More than 14 days : 61%



**Q10. Does your farm or business make use of H2A or H2B workers?**

(n = 68)

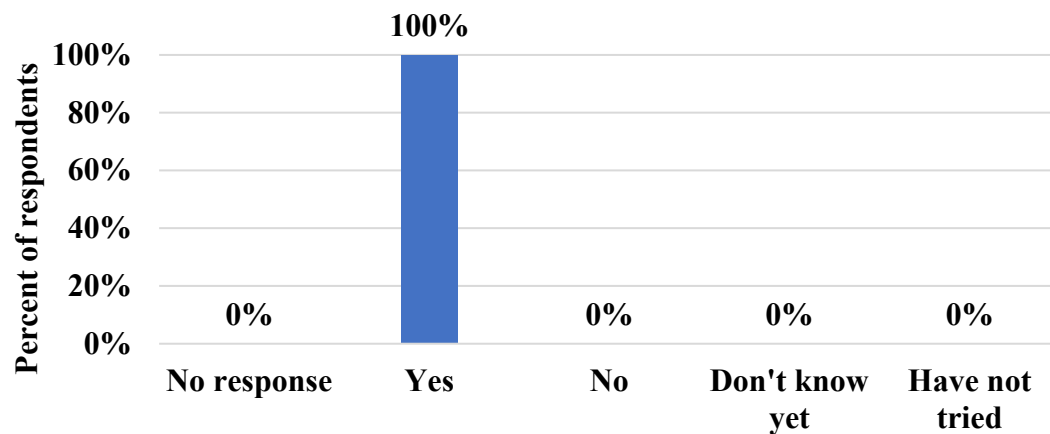
- No response : 3%
- Yes : 1%
- No : 96%



**Q10.1. Has your farm or business been able to secure 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)**

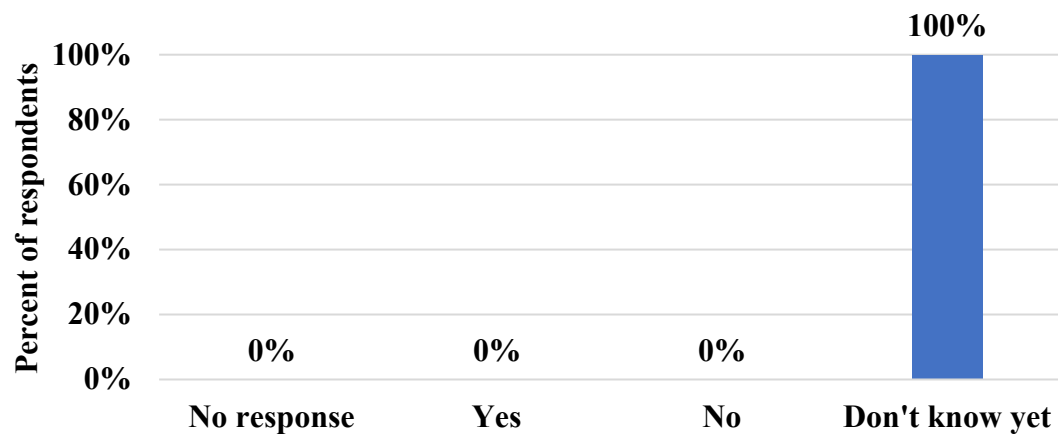
- No response : 0%
- Yes : 100%
- No : 0%
- Don't know yet : 0%
- Have not tried : 0%



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

**(n = 1)**

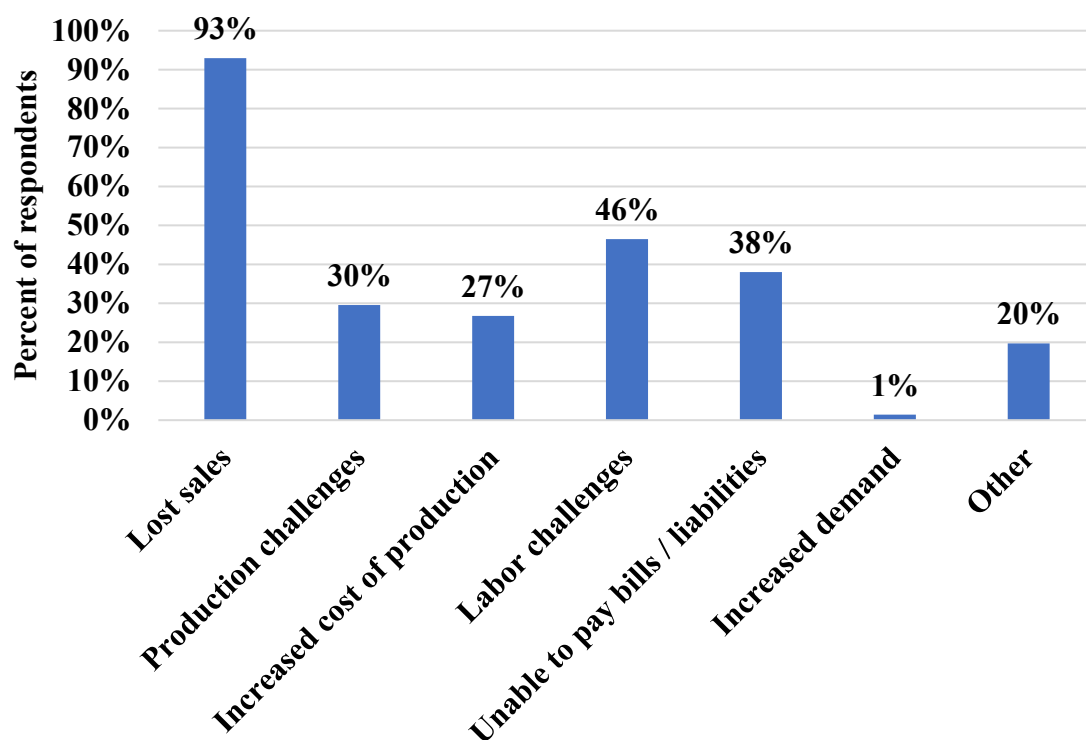
- No response : 0%
- Yes : 0%
- No : 0%
- Don't know yet : 100%



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

**(n = 71)**

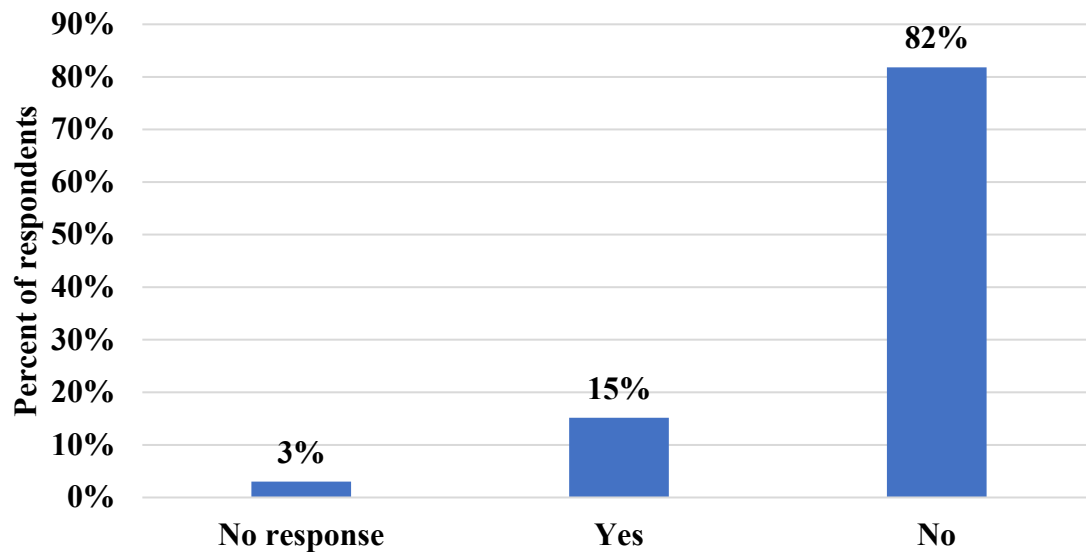
- Lost sales : 93%
- Production challenges (not related to labor) : 30%
- Increased cost of production : 27%
- Labor challenges : 46%
- Unable to pay bills or cover liabilities : 38%
- Increased demand for products : 1%
- Other : 20%



**Q11.1. 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) in the period of time between April 10th 2020 and June 29th 2020?**

**(n = 66)**

- No response : 3%
- Yes : 15%
- No : 82%

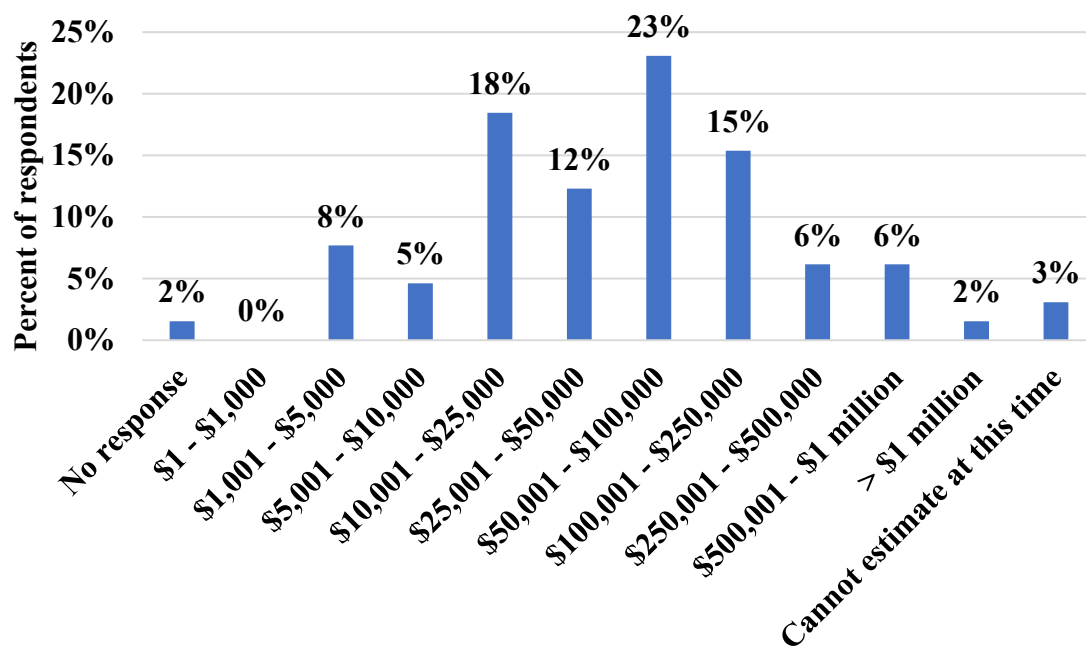


**Q11.2. If your farm or business has experienced lost sales as a result of the coronavirus disease (COVID-19) in the period of time between April 10th 2020 and June 29th 2020?**

**Please estimate the value of lost sales:**

**(n = 65)**

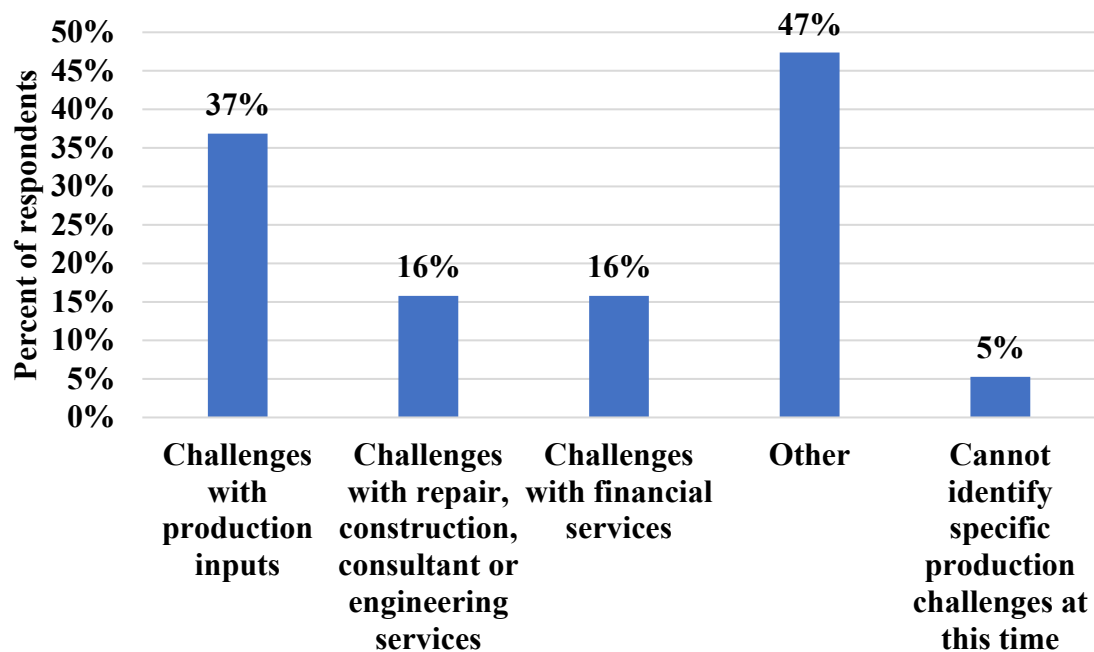
- No response : 2%
- \$1 - \$1,000 : 0%
- \$1,001 - \$5,000 : 8%
- \$5,001 - \$10,000 : 5%
- \$10,001 - \$25,000 : 18%
- \$25,001 - \$50,000 : 12%
- \$50,001 - \$100,000 : 23%
- \$100,001 - \$250,000 : 15%
- \$250,001 - \$500,000 : 6%
- \$500,001 - \$1 million : 6%
- Greater than \$1 million : 2%
- Cannot estimate at this time : 3%



**Q11.3. If your farm or 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 = 19)**

- Challenges with production inputs (feed, chemicals, therapeutants, etc.) : 37%
- Challenges with repair, construction, consultant or engineering services : 16%
- Challenges with financial services (operating loans, leases, etc.) : 16%
- Other : 47%
- Cannot identify specific production challenges at this time : 5%

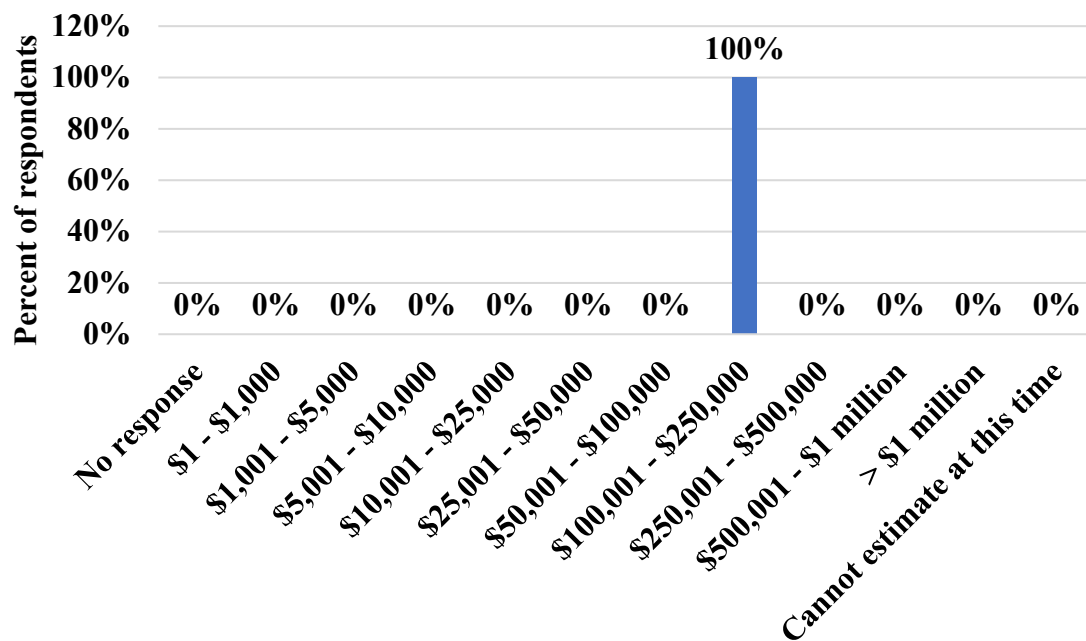




**Q11.6. If your farm or business has experienced increased demand for products as a result of the coronavirus disease (COVID-19) in the period of time between April 10th 2020 and June 29th 2020? Please estimate the value of those effects on sales:**

**(n = 1)**

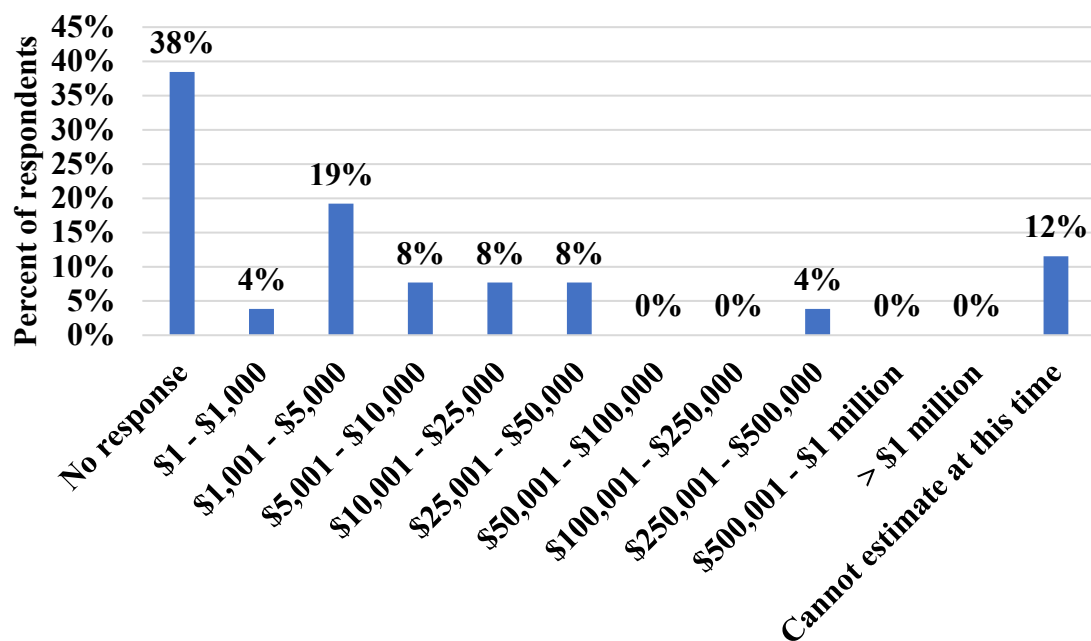
- No response : 0%
- \$1 - \$1,000 : 0%
- \$1,001 - \$5,000 : 0%
- \$5,001 - \$10,000 : 0%
- \$10,001 - \$25,000 : 0%
- \$25,001 - \$50,000 : 0%
- \$50,001 - \$100,000 : 0%
- \$100,001 - \$250,000 : 100%
- \$250,001 - \$500,000 : 0%
- \$500,001 - \$1 million : 0%
- Greater than \$1 million : 0%
- Cannot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



**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 = 26)**

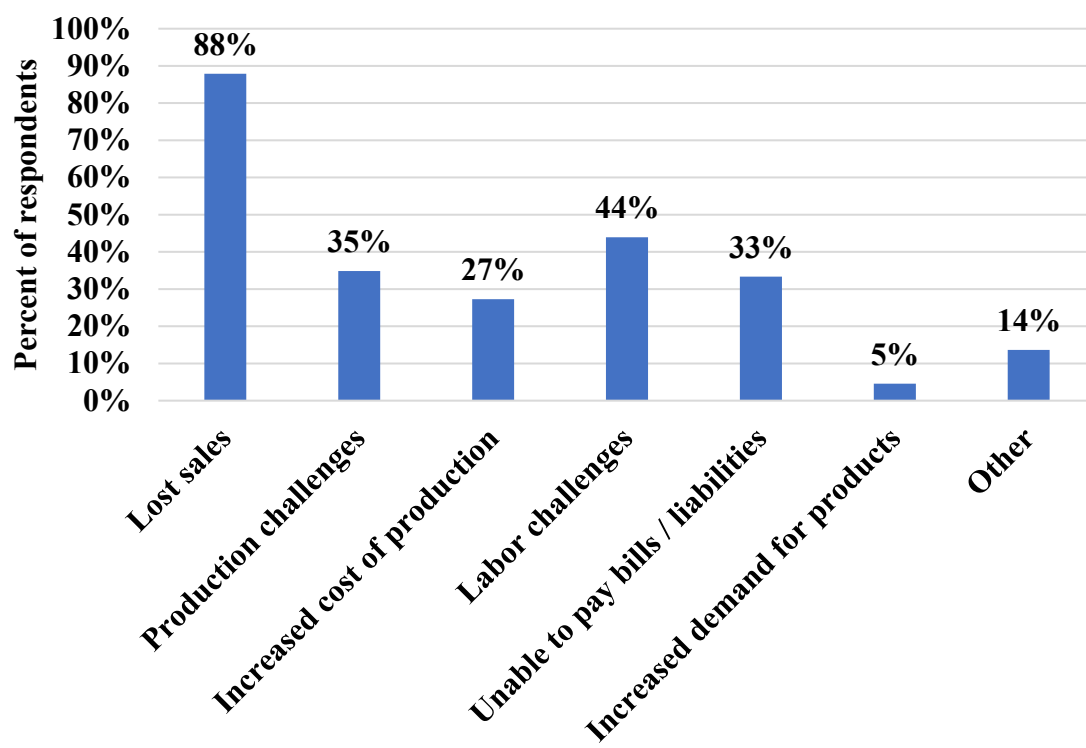
- No response : 38%
- \$1 - \$1,000 : 4%
- \$1,001 - \$5,000 : 19%
- \$5,001 - \$10,000 : 8%
- \$10,001 - \$25,000 : 8%
- \$25,001 - \$50,000 : 8%
- \$50,001 - \$100,000 : 0%
- \$100,001 - \$250,000 : 0%
- \$250,001 - \$500,000 : 4%
- \$500,001 - \$1 million : 0%
- Greater than \$1 million : 0%
- Cannot estimate at this time : 12%



**Q12. Does your farm or 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 = 66)**

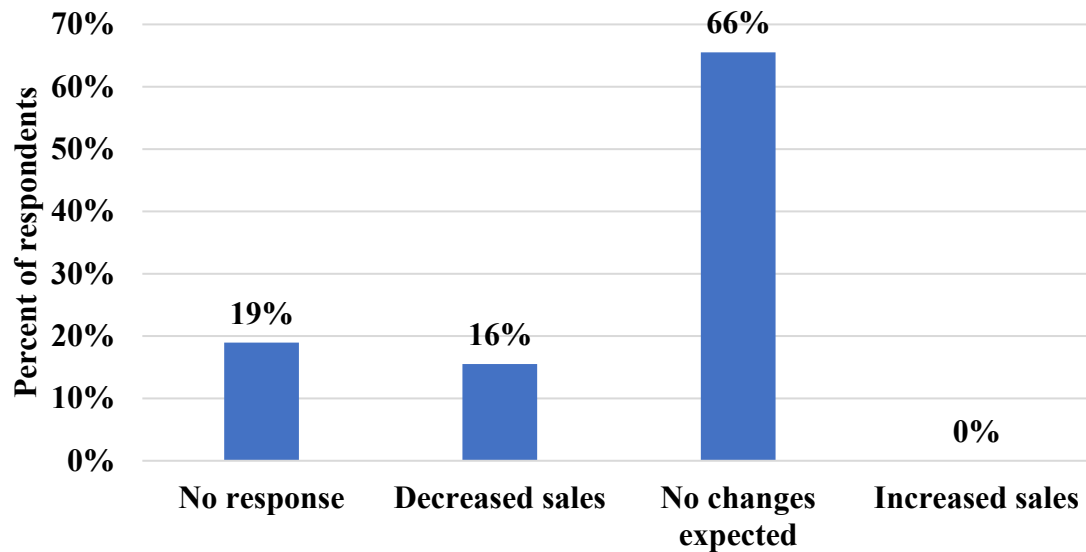
- Lost sales : 88%
- Production challenges (not related to labor) : 35%
- Increased cost of production : 27%
- Labor challenges : 44%
- Unable to pay bills or cover liabilities : 33%
- Increased demand for products : 5%
- Other : 14%



**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 = 58)**

- No response : 19%
- Decreased sales : 16%
- No changes expected : 66%
- Increased sales : 0%

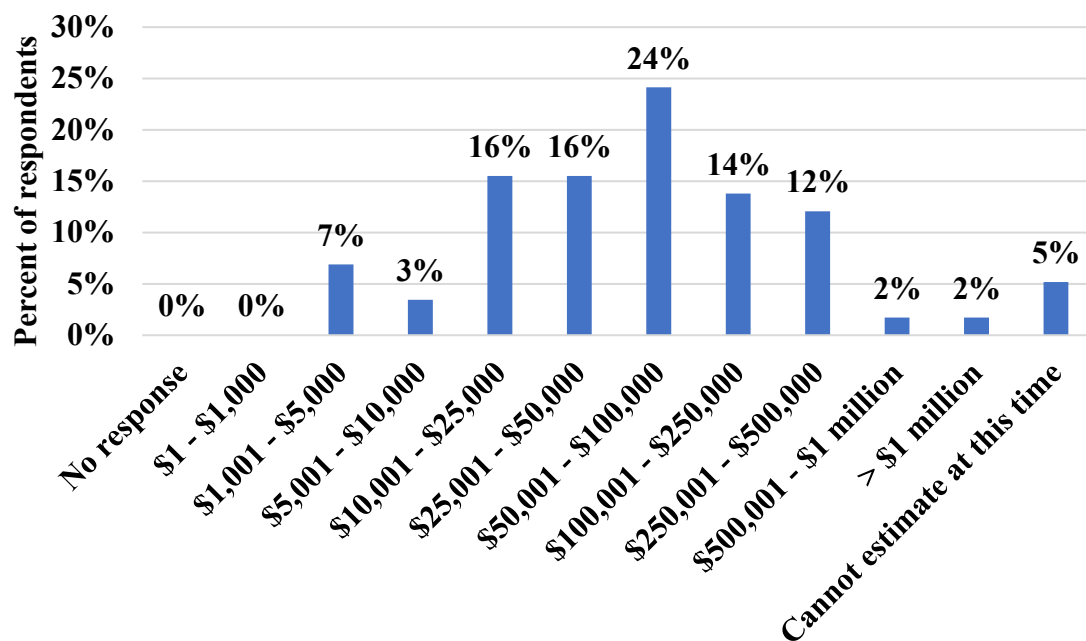


**Q12.2. Does your farm or business expect to experience lost sales as a result of the coronavirus disease (COVID-19) in the 3rd Quarter of 2020 (July, August, September)?**

**Please estimate the value of lost sales:**

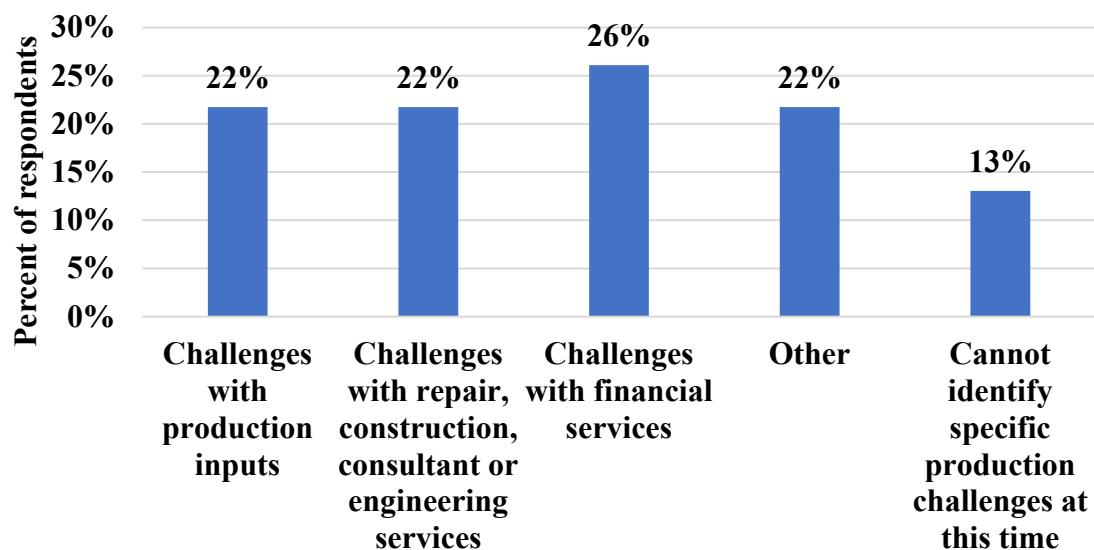
**(n = 58)**

- No response : 0%
- \$1 - \$1,000 : 0%
- \$1,001 - \$5,000 : 7%
- \$5,001 - \$10,000 : 3%
- \$10,001 - \$25,000 : 16%
- \$25,001 - \$50,000 : 16%
- \$50,001 - \$100,000 : 24%
- \$100,001 - \$250,000 : 14%
- \$250,001 - \$500,000 : 12%
- \$500,001 - \$1 million : 2%
- Greater than \$1 million : 2%
- Cannot estimate at this time : 5%



**Q12.3. Does your farm or 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), can those challenges be specified? Please select all that apply.**  
(n = 23)

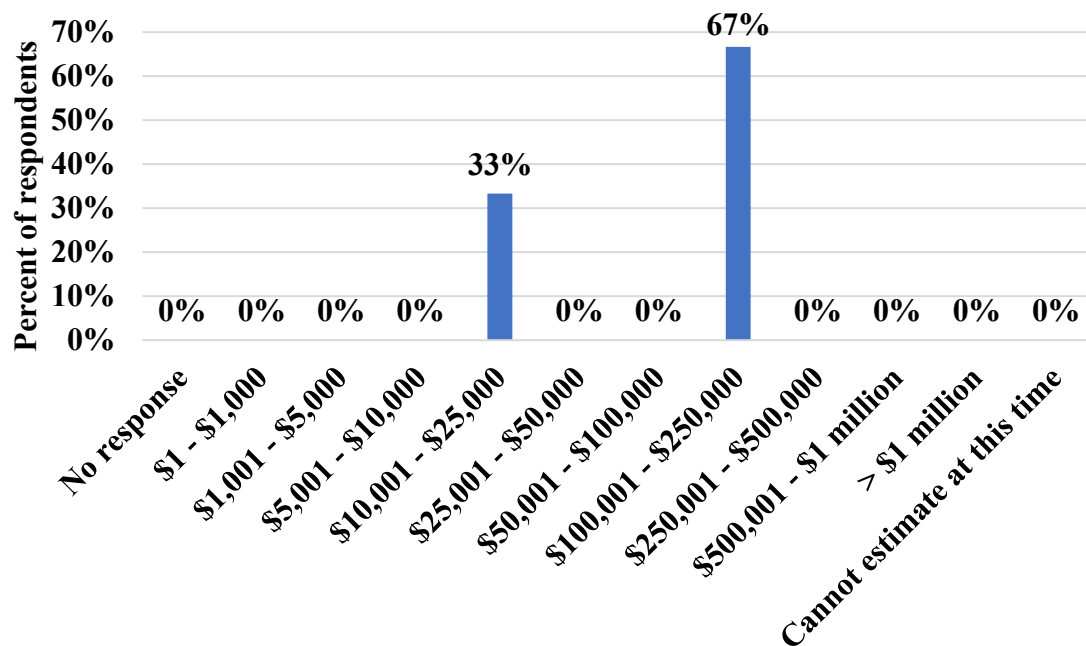
- Challenges with production inputs (feed, chemicals, therapeutants, etc.) : 22%
- Challenges with repair, construction, consultant or engineering services : 22%
- Challenges with financial services (operating loans, leases, etc.) : 26%
- Other : 22%
- Cannot identify specific production challenges at this time : 13%



**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 = 3)**

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

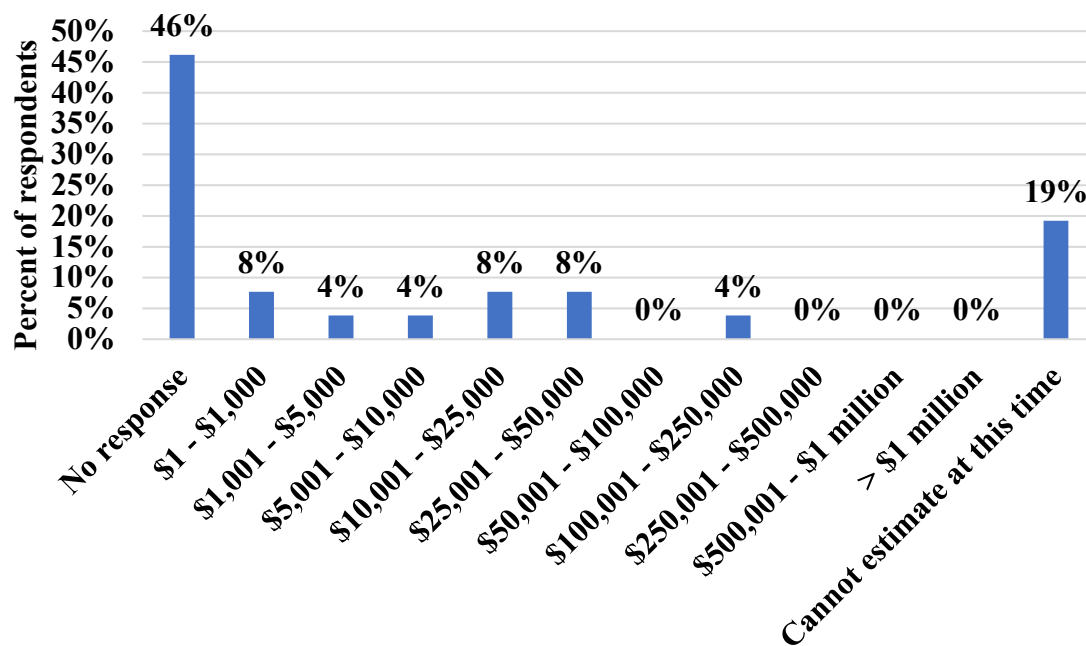




**Q12.8. If your farm or allied business expects to miss bill or loan payments as a result of the coronavirus disease (COVID-19) in the 3rd Quarter of 2020 (July, August, September)? Please estimate the value of those missed payments:**

**(n = 26)**

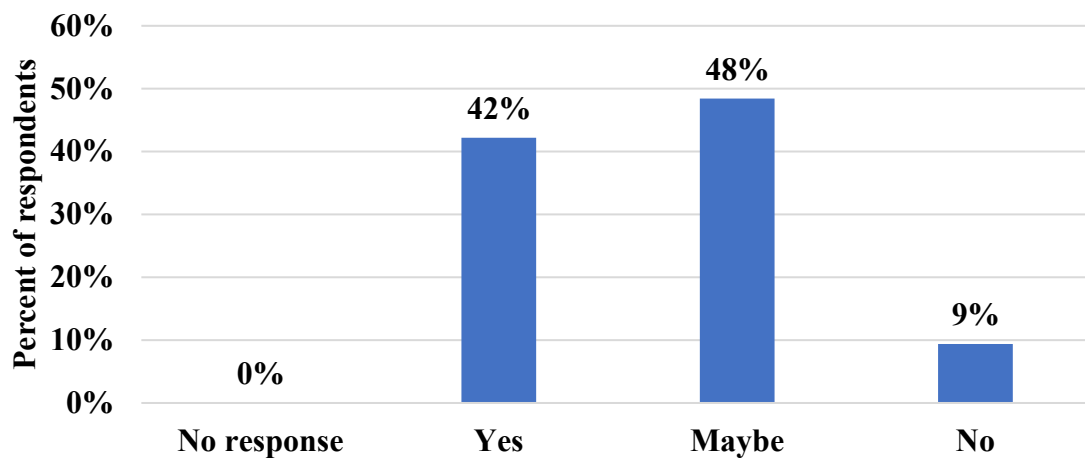
- No response : 46%
- \$1 - \$1,000 : 8%
- \$1,001 - \$5,000 : 4%
- \$5,001 - \$10,000 : 4%
- \$10,001 - \$25,000 : 8%
- \$25,001 - \$50,000 : 8%
- \$50,001 - \$100,000 : 0%
- \$100,001 - \$250,000 : 4%
- \$250,001 - \$500,000 : 0%
- \$500,001 - \$1 million : 0%
- Greater than \$1 million : 0%
- Cannot estimate at this time : 19%



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

**(n = 64)**

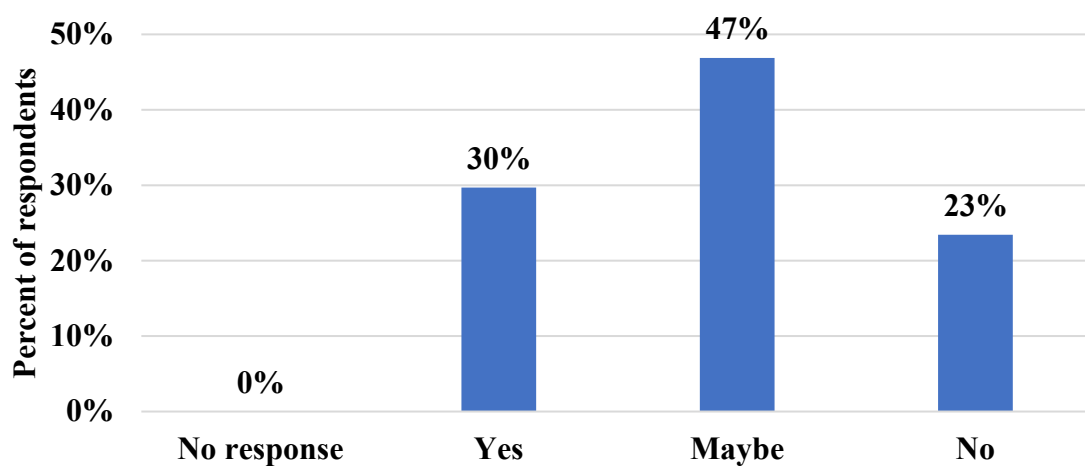
- No response : 0%
- Yes : 42%
- Maybe : 48%
- No : 9%



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

**(n = 64)**

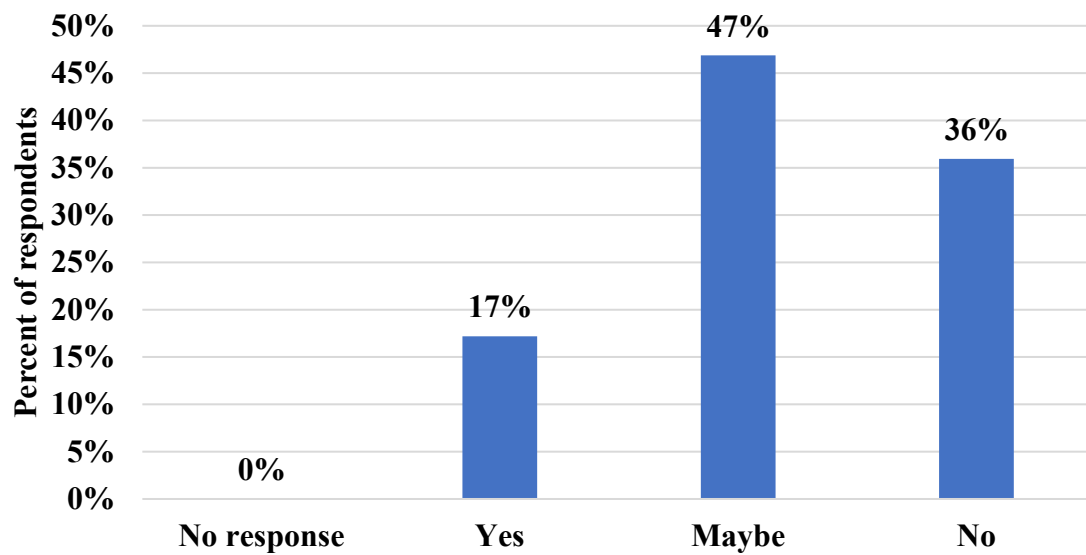
- No response : 0%
- Yes : 30%
- Maybe : 47%
- No : 23%



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

**(n = 64)**

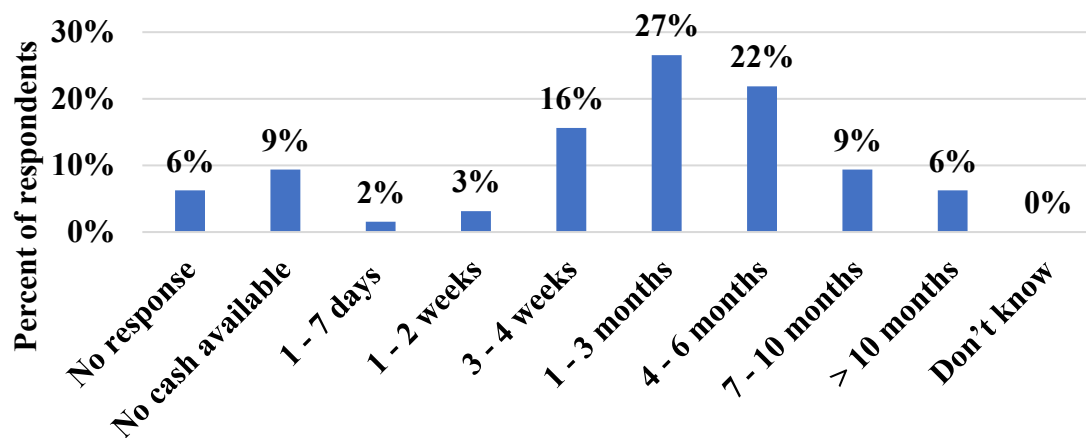
- No response : 0%
- Yes : 17%
- Maybe : 47%
- No : 36%



**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 = 64)**

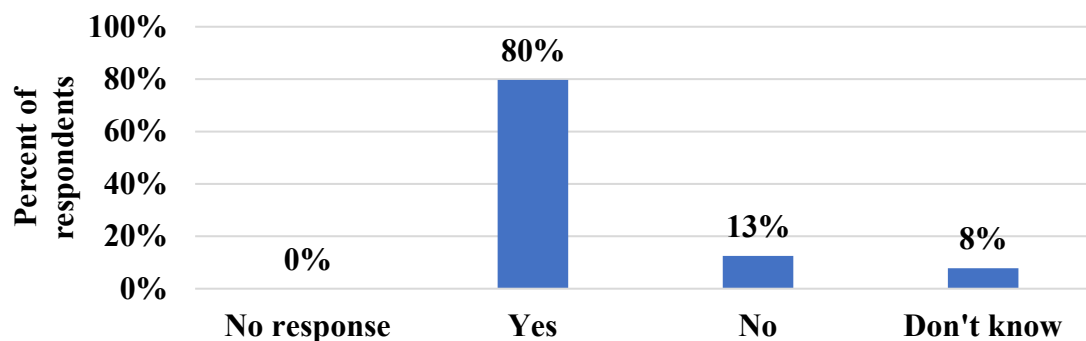
- No response : 6%
- No cash available for business operations : 9%
- 1 - 7 days of operations : 2%
- 1 - 2 weeks of operations : 3%
- 3 - 4 weeks of operations : 16%
- 1 - 2 months of operations : 27%
- 4 - 6 months of operations : 22%
- 7 - 10 months of operations : 9%
- More than 10 months of operations : 6%
- Don't know : 0%



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

**(n = 64)**

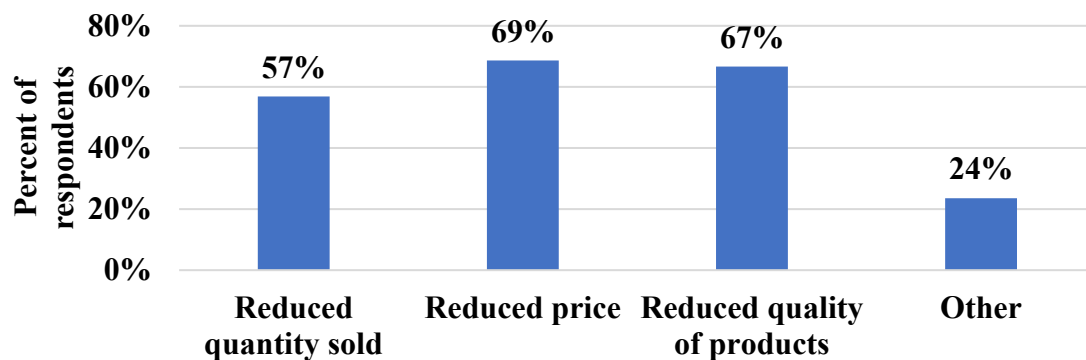
- No response : 0%
- Yes : 80%
- No : 13%
- Don't know : 8%



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

(n = 51)

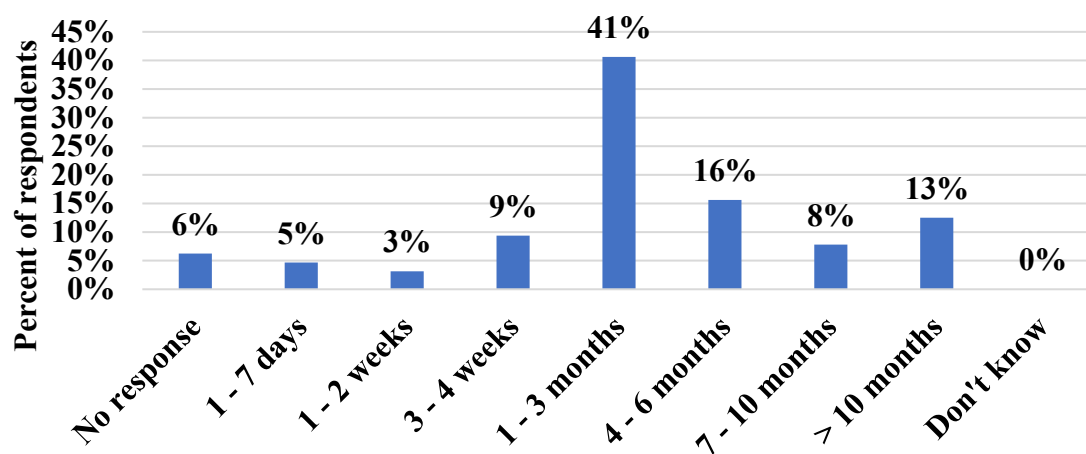
- Reduced quantity sold : 57%
- Reduced price : 69%
- Reduced quality of product : 67%
- Other : 24%



**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 = 64)

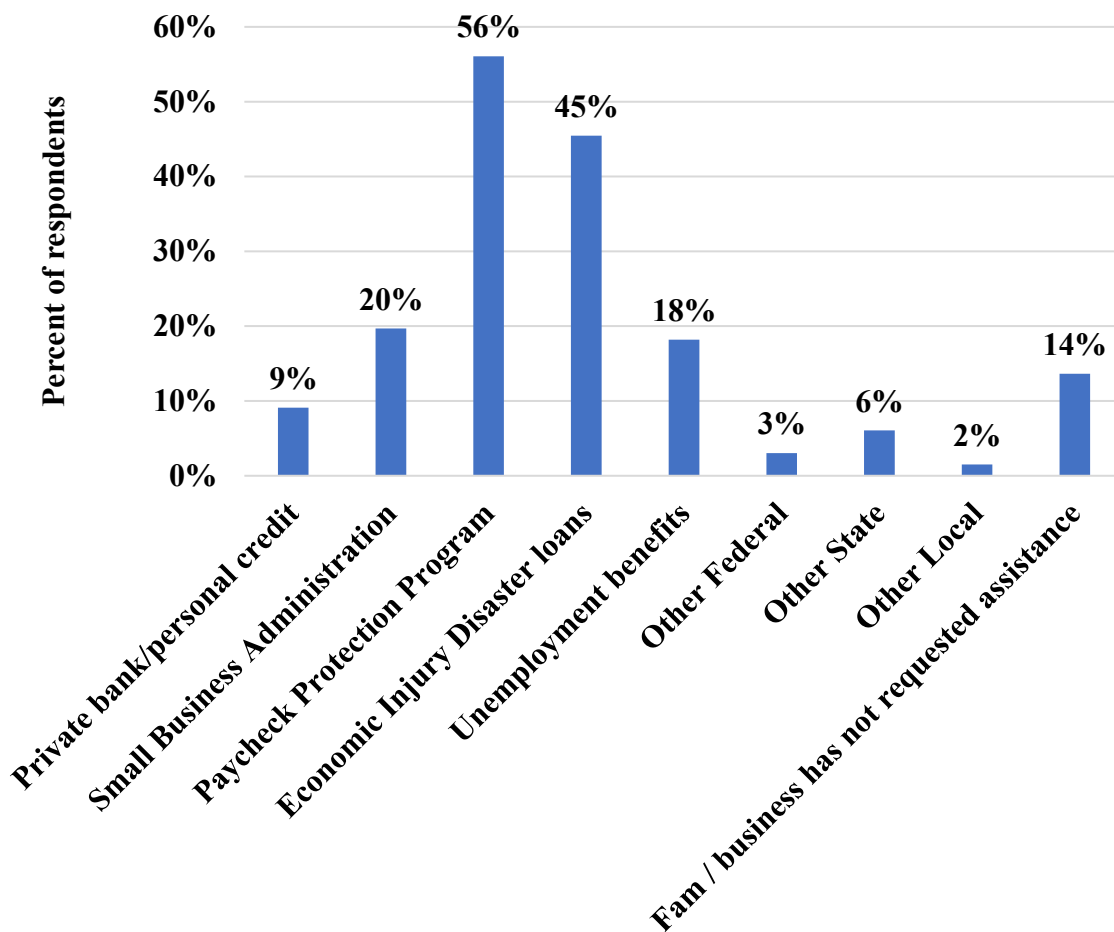
- No response : 6%
- 1 - 7 days : 5%
- 1 - 2 weeks : 2%
- 3 - 4 weeks : 9%
- 1 - 2 months : 41%
- 4 - 6 months : 16%
- 7 - 10 months : 8%
- More than 10 months : 13%
- Don't know : 0%



**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)**

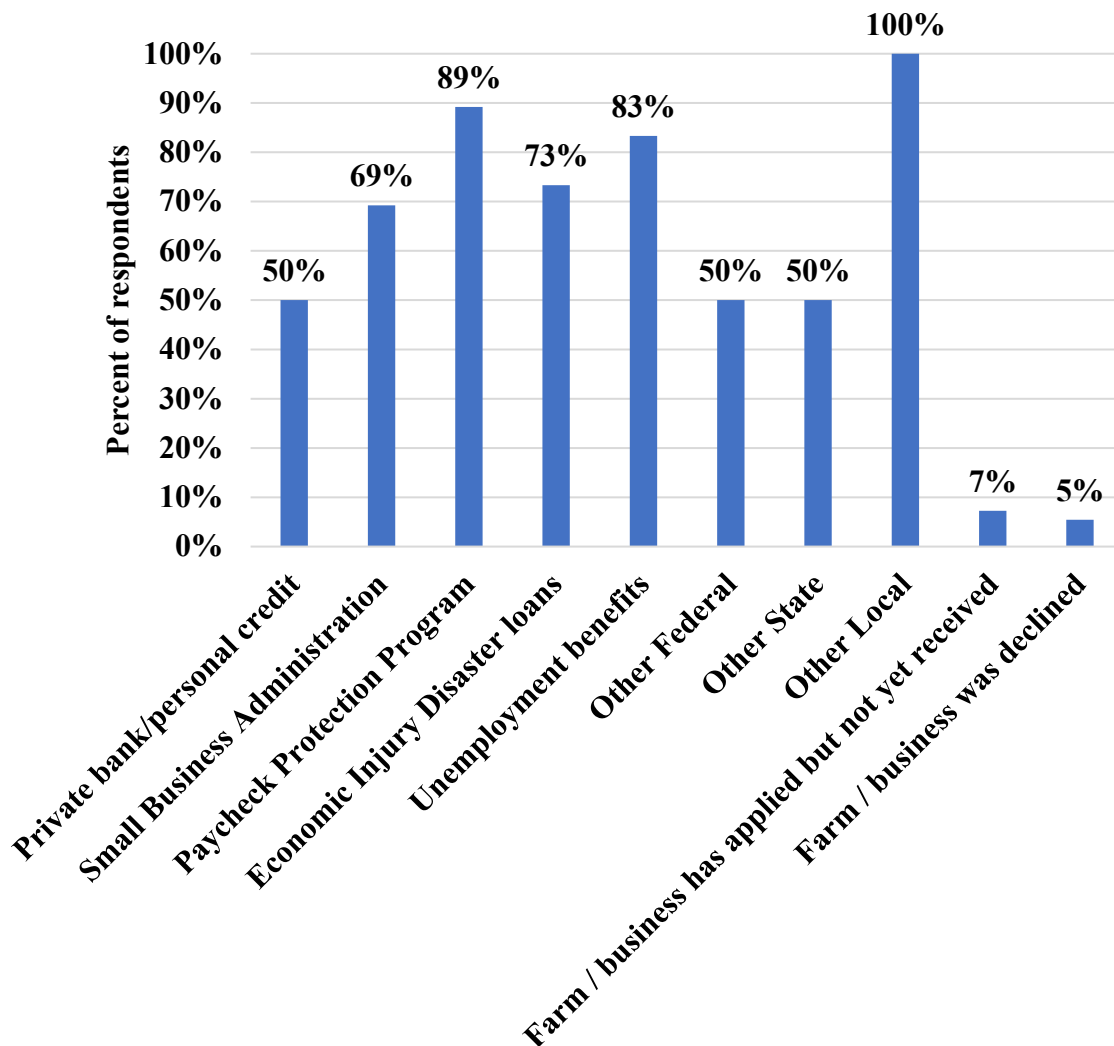
**(n = 66)**

- Private bank loans / personal line of credit : 9%
- Small Business Administration loans (SBA) : 20%
- Paycheck Protection Program loans (PPP) : 56%
- Economic Injury Disaster Loans (EIDL) : 45%
- Unemployment benefits : 18%
- Other **Federal** program or initiative (please describe): : 3%
- Other **State** program or initiative (please describe): : 6%
- Other **Local** program or initiative : 2%
- Farm or business has not requested financial assistance from any source : 14%



**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 = 6) : 50%
- Small Business Administration loans (SBA) (n = 13) : 69%
- Paycheck Protection Program loans (PPP) (n = 37) : 89%
- Economic Injury Disaster Loans (EIDL) (n = 30) : 73%
- Unemployment benefits (n = 12) : 83%
- Other **Federal** program or initiative (n = 2) : 50%
- Other **State** program or initiative (n = 4) : 50%
- Other **Local** program or initiative (n = 1) : 100%
- Farm or business has applied but not yet received loans or assistance (n = 55) : 7%
- Farm or business applications have been denied / declined (n = 55) : 5%



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

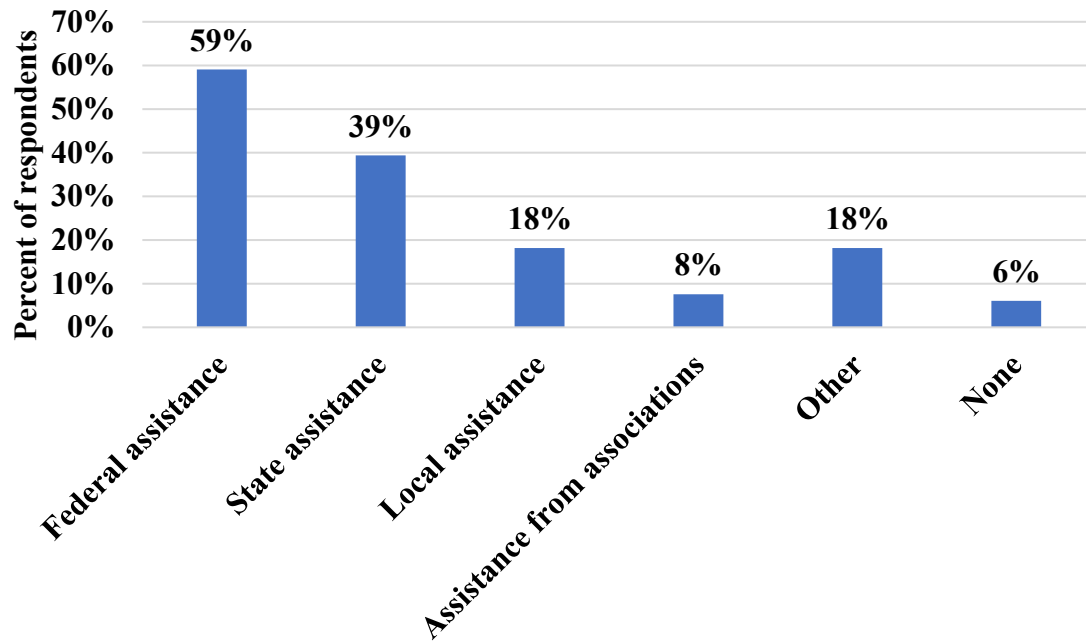
<b>Financial Assistance Program</b>	<b>No response</b>	<b>Yes</b>	<b>No</b>
Private bank loans / personal line of credit ( <b>n = 3</b> )	0%	67%	33%
Small Business Administration loans (SBA) ( <b>n = 9</b> )	0%	100%	0%
Paycheck Protection Program loans (PPP) ( <b>n = 33</b> )	0%	100%	0%
Economic Injury Disaster Loans (EIDL) ( <b>n = 22</b> )	0%	91%	9%
Unemployment benefits ( <b>n = 10</b> )	0%	80%	20%
Other <b><u>Federal</u></b> program or initiative ( <b>n = 1</b> )	100%	0%	0%
Other <b><u>State</u></b> program or initiative ( <b>n = 2</b> )	0%	100%	0%
Other <b><u>Local</u></b> program or initiative ( <b>n = 1</b> )	0%	100%	0%



**Q20. 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 = 66)**

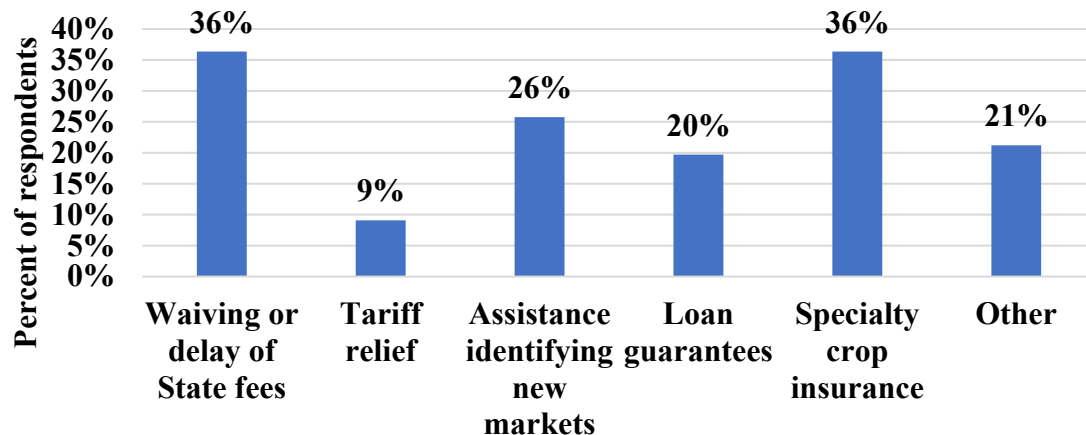
- Federal assistance : 59%
- State assistance : 39%
- Local assistance : 18%
- Assistance from associations : 8%
- Other : 18%
- None : 6%



**Q21. Would assistance with any of the following be helpful to your farm or business right now? Please select all that apply.**

(n = 66)

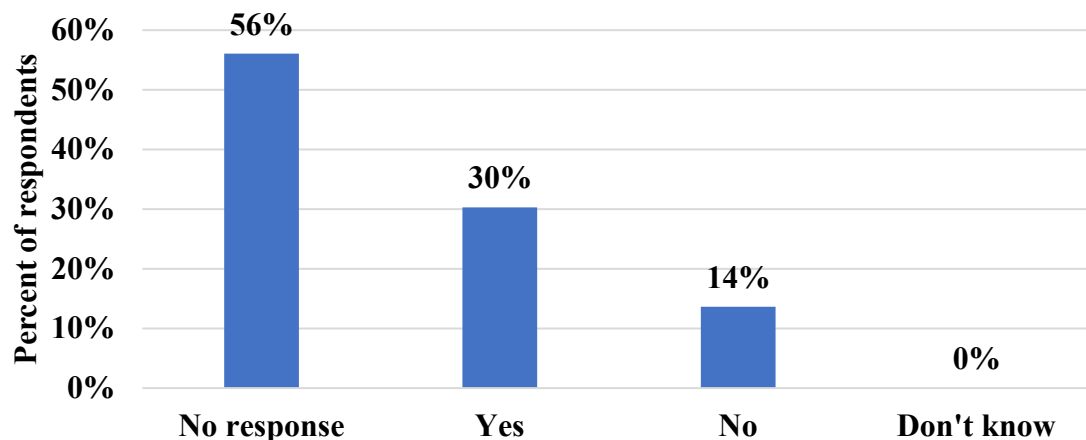
- Waiving or delay of State fees : 36%
- Tariff relief : 9%
- Assistance identifying new markets : 26%
- Loan guarantees : 20%
- Specialty Crop Insurance : 36%
- Other : 21%



**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?**

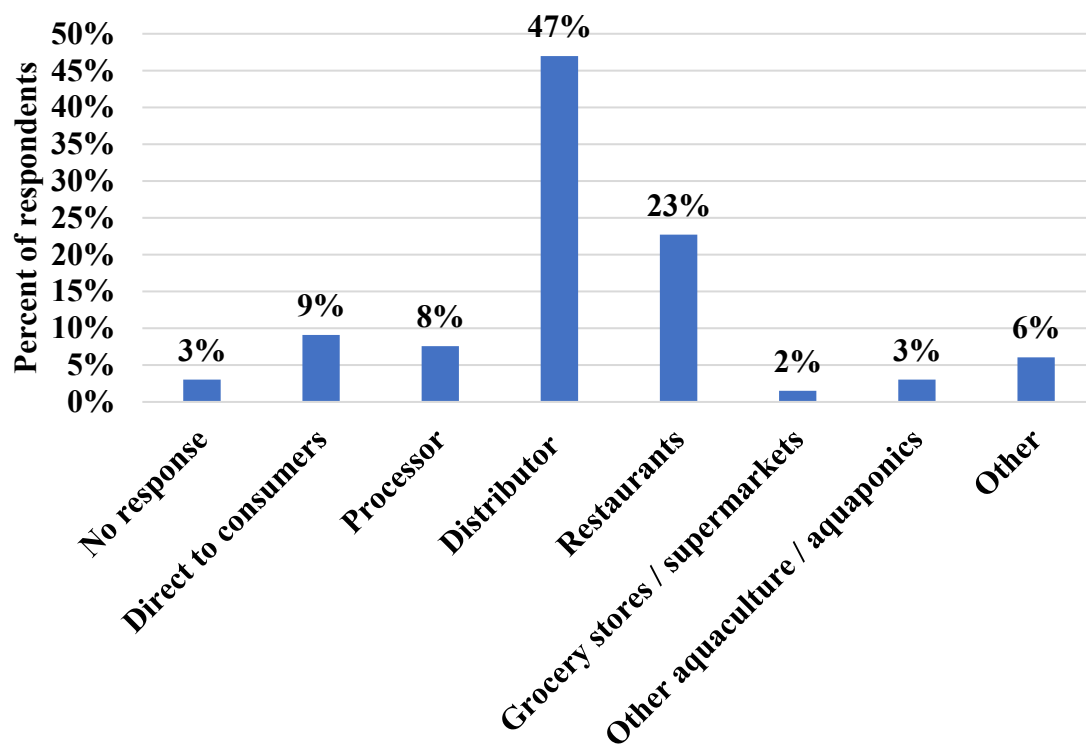
(n = 66)

- No response : 56%
- Yes : 30%
- 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 the coronavirus disease pandemic (COVID-19)?**  
(n = 66)

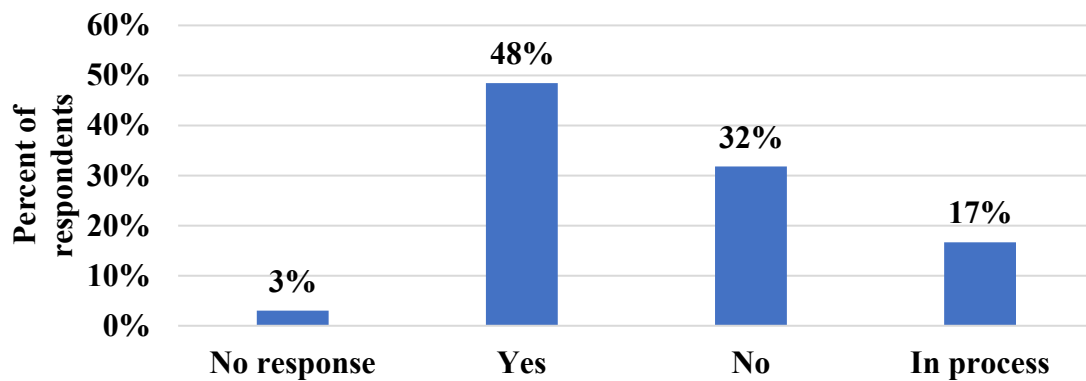
- No response : 3%
- Direct to consumers : 9%
- Processor : 8%
- Distributor : 47%
- Restaurants : 23%
- Grocery Stores / Supermarkets : 2%
- Other aquaculture/aquaponics farms or businesses : 3%
- Other : 6%



**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 = 66)**

- No response : 3%
- Yes : 48%
- No : 32%
- In the process of implementing : 17%



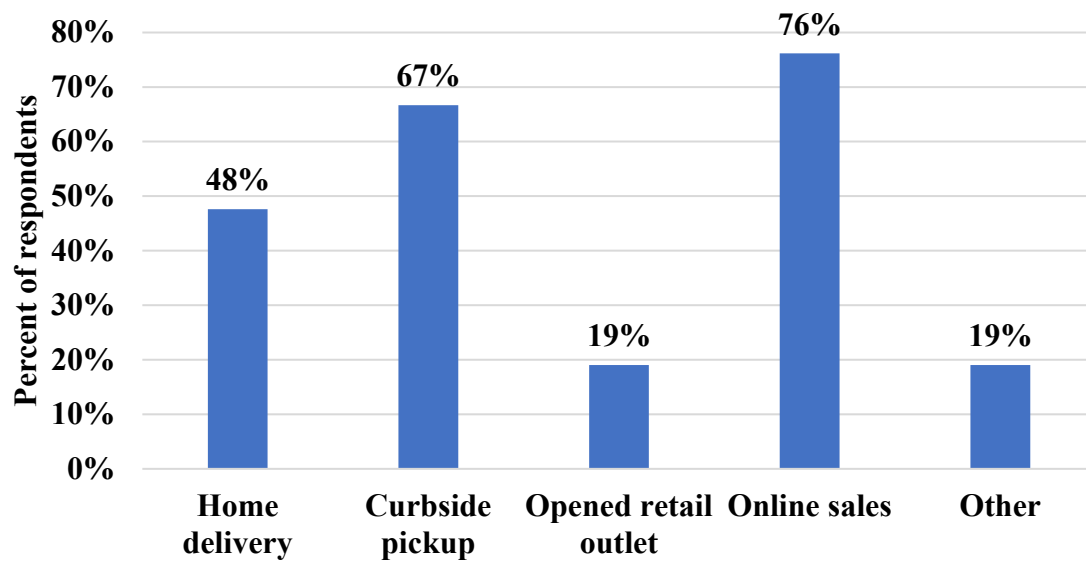
**Q23.2. What percent of sales from your farm or allied business in the period of time between April 10th 2020 and June 29th 2020 went through a new marketing channel?**

Marketing Channel	Average percent of sales
Direct to consumers / end users (n = 28)	53%
Processor (n = 24)	66%
Distributor (n = 26)	30%
Restaurants (n = 28)	24%
Grocery stores / supermarkets (n = 24)	40%
Other aquaculture / aquaponics farms or business (n = 28)	63%
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 = 21)**

- Home delivery : 48%
- Curbside pickup : 67%
- Opened a retail outlet : 19%
- Online sales : 76%
- Other : 19%



## **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](https://www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Census_of_Aquaculture/index.php).

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