



Impacts of COVID-19 on U.S. aquaculture allied business: Quarter 1 Results

March 23, 2020 to April 10, 2020

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

Introduction

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

Survey methods are detailed in the Virginia Cooperative Extension Fact Sheet VCE-AAEC-218, available at https://www.arec.vaes.vt.edu/arec/virginia-seafood/research/Impacts_of_COVID19.html. This report is a supplemental report to the overall survey that summarizes results of **aquaculture allied business** respondents.

Methods

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

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

Results

Characterization of Respondents

Quarter 1 survey results showed that there were **15 aquaculture allied business participants**. Twenty-seven percent of allied business respondents sold their product(s) direct to retail, 27% sold to other aquaculture/aquaponic farms, 7% to distributors, and 40% to other marketing channels (Table 1).

Table 1. Primary marketing channel for trout foodfish respondents.

| Category | Percentage |
|------------------------------|------------|
| Direct to retail | 27% |
| Other aquaculture/aquaponics | 27% |
| Distributors | 7% |
| Other marketing channels | 40% |

Scale of farms/businesses

Aquaculture allied businesses vary in terms of their production scale. Respondents to the survey included those with scales of production from sales of \$50,001 to \$100,000 a year up to those with annual sales greater than \$1 million (Table 2). The greatest percentage (40%) of respondents had annual sales greater than \$1 million, followed by 20% each that sold from \$250,001 to \$500,000 and \$500,001 to \$1 million, and 7% each that sold from \$50,001 to \$100,000 and \$100,001 to \$250,000, or did not respond to this question.

Table 2. Scale of trout foodfish respondent farms/businesses.

| Category | Percentage |
|-------------------------|------------|
| > \$1 million | 40% |
| \$500,001 - \$1 million | 20% |
| \$250,001 - \$500,000 | 20% |
| \$100,001 - \$250,000 | 7% |
| No response | 7% |
| \$50,001 - \$100,000 | 7% |
| \$25,001 - \$50,000 | 0% |
| \$10,001 - \$25,000 | 0% |
| \$5,001 - \$10,000 | 0% |
| \$1,001 - \$5,000 | 0% |
| \$1 - \$1,000 | 0% |

Aquaculture Regions

The greatest percentage of allied business respondents (33%) were located in the Western Aquaculture Region, followed by the North Central and Southern Aquaculture Regions (20%), and the Northeastern and Tropical and Sub-tropical Aquaculture Regions (13%). (Table 3).

Table 3. Participation by aquaculture region.

| Region | Percentage of survey respondents |
|---------------------------|----------------------------------|
| Western | 33% |
| North Central | 20% |
| Southern | 20% |
| Northeastern | 13% |
| Tropical and Sub-tropical | 13% |

Key Findings

Ninety-three percent of allied business respondents reported that their business had been impacted by the COVID-19 pandemic. All respondents (100%) reported that they expect their business to be affected by the COVID-19 pandemic in 2020. When asked whether their business would survive the next 6 months without external intervention (such as government assistance), only 33% said “yes.” Sixty-seven percent reported that their farm or business would “maybe” survive 6 months without external assistance, and no respondents said that their business would not survive 6 months without external assistance. When asked the same question, but for the next 12 months, 20% said that it would survive, 60% said “maybe,” and 13% said that their farm/business would not survive the next 12 months without external assistance.

Lost Sales

Fifty-three percent of allied business respondents indicated that they had lost sales due to the COVID-19 outbreak. When asked if their business experienced lost sales to international or export markets outside the U.S, 70% of respondents said “yes”. In terms of the volume of sales that had been lost, 20% each reported loss from \$100,001 to \$250,000 or \$500,001 to \$1 million, and 10% each from \$10,001 to \$25,000 or \$50,001 to 100,000. Forty percent of respondents reported that they could not estimate at this time.

No allied business respondents reported losing government (state or federal) contracts, however 64% reported losing private contracts or orders due to the COVID-19 outbreak.

Respondents were further asked what challenges they expected to experience in businesses as a result of the coronavirus pandemic in 2020. Eighty percent of allied business respondents indicated that they expected to lose sales. Sixty-seven percent reported expecting to lose international markets. In terms of the volume of sales expected to be lost, 25% expected to lose from \$500,001 to \$1 million, 17% each expected to lose from \$250,001 to \$500,000 or \$25,001 to \$50,000, and 8% each from \$100,001 to \$250,000 or \$50,001 to \$100. Twenty-five percent of respondents reported that they could not estimate at this time.

When asked how long allied business respondents thought their farm or business could survive without sales before suffering longer term cash flow effects, 40% said 1 to 3 months, 20% said 4 to 6 months, 7% said 7 to 10 months, and 13% said greater than 10 months. Twenty percent of respondents did not respond to this question.

Labor

Seven percent of respondents reported that they had laid off employees as a result of the COVID-19 pandemic and another 14% indicated that they “will have to soon.” Seventy-nine percent had not laid off any employees.

Respondents were further asked how many weeks it would be before they would have to lay off employees. All (100%) of allied business respondents indicated that they would have to decide within 7 to 10 weeks whether to lay off employees. It should be noted that data collection for the survey was open for a period of 3 weeks. Allied business respondents were further asked how many employees they would need to lay off at that time. Fifty percent each said that they would have to lay off from 4 to 6 employees or more than 20 employees. Of those employees who had been laid off, 33% of allied business respondents indicated that these were “Short-Time” or “Shared-Work” employees.

Sixty-seven percent of allied business respondents had experienced some type of labor challenge. Employees were reported to have missed work due to the COVID-19 pandemic. Forty-three percent of

allied business respondents indicated that employees had missed work, while 57% reported that employees had not missed work due to the coronavirus. Of those respondents who reported employees missing work, 33% each reported 1 to 3 lost days or 4 to 6 lost days, and 17% percent each reported 7 to 10 lost days or 11 to 14 lost days. Those who missed work included those who were ill but also included instances of self-quarantine for symptoms that turned out to not be COVID-19. Both types of reasons resulted in full loss of an employee for a week or more.

Challenges to the farm/business

Allied business respondents reported a variety of different challenges to the business that included production challenges not related to labor, increased costs, increased demand for products, and others. Forty percent of allied business respondents experienced production challenges not related to labor. Seven percent of respondents reported increased costs of production, 20% reported increased demand for products, and 20% reported other types of challenges.

When asked to specify which production challenges have affected the business, 67% of allied business respondents reported challenges with production inputs, 17% each reported challenges with repair, construction, consulting or engineering services or other. Seventeen percent of allied business respondents could not identify specific production challenges at this time.

Three allied business respondents who reported challenges with production inputs mentioned access/availability of raw materials (i.e. plastics) has been reduced. Additionally, three respondents also indicated delivery and supply chain slow-down.

Two allied business respondents reported challenges related to research. One respondent reported that an inability to proceed with research will potentially jeopardize the ability to meet a reporting deadline in June of 2020. Another respondent said more than one research contract was lost due to challenges caused by the coronavirus pandemic.

One allied business respondent indicated they experienced delayed payments by customers which had previously agreed to credit terms.

In terms of expectations for the coming months, 80% of allied business respondents expected lost sales, 33% expected labor challenges, 33% expected a variety of production challenges, and 7% expected increased costs of production. The expected on-going cash flow problems were reported to continue to create problems in terms of purchasing production inputs. The cash flow problems will be especially devastating for small businesses. Expenses have continued for electricity, insurance, mortgages, and other expenses, but without sales, the cash flow problems have become severe.

Marketing of products

It is unknown if extended holding of product that is ready to be sold can cause problems for allied businesses. Fifty-three percent of allied business respondents indicated that they do not know if holding market-ready product would make it less marketable, Forty-seven percent of respondents reported it would not affect marketability.

Increased Demand for Products

Twenty percent of allied business respondents reported increased demand for their products but could not estimate the value at this time. Fourteen percent of respondents indicated that they expected some increased demand for their products but could not estimate the value at this time.

Assistance to Farms/Businesses

The survey included questions on the types of assistance that might be helpful to the business of respondents. Forty-one percent of allied business respondents indicated that federal assistance would increase the likelihood of survival of their farm or business. Twenty percent said that assistance from the state, 7% from associations, and 20% from other sources. Thirty-three percent of respondents reported that there is no type of assistance that would increase the likelihood for their business to survive

When asked more specifically what types of assistance would be helpful, 27% of allied business respondents said that loan guarantees, 20% each said tariff relief, assistance identifying new markets, or other, and 13% said waiving or delaying state fees

would be helpful. When asked if there were existing programs for which their business does not currently qualify that would be of assistance during the pandemic, only 7% said, “Yes,” with 13% saying, “No,” and 80% did not respond to this question.

Additional types of assistances mentioned by allied business respondents include financial assistance (27%) and employee assistance (13%). Financial assistance mentioned includes grant extensions, loan forgiveness, access to SBA loans/grants, reduced interest, and exemption of interest. Employee assistance included extension of Paycheck Protection Program loan and other payroll support.

Discussion and Conclusion

Responses by U.S. aquaculture allied businesses to the Quarter 1 survey show that allied business owners have been impacted significantly by the COVID-19 pandemic. Challenges frequently mentioned by respondents include to lost sales, production challenges, and labor challenges. **It is of significant concern is that only 33% of allied business respondents could confirm that their business would survive the next 6 months without external assistance.** There is a substantial need to find solutions for the challenges identified by allied businesses. Given that survey results showed that there will be longer-term effects on these allied businesses (only 20% of respondents indicated they were confident of surviving 12 months without external intervention), it will be important to continue to monitor changes throughout the year. The key points from the Quarter 2 survey results are:

- *93% have been impacted by COVID-19*
- *64% have had orders/private contracts canceled*
- *53% have experienced lost sales*

References

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

Visit Virginia Cooperative Extension: ext.vt.edu

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

2020

VCE-AAEC-235NP
VSG-20-23

Appendix

Summary of COVID-19 impacts on U.S. aquaculture allied business

Quarter 1 Results

Charles Clark, Virginia Tech

Jonathan van Senten, Virginia Tech

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

Matthew A. Smith, The Ohio State University

Shannon Fluharty, Virginia Tech

Michael H. Schwarz, Virginia Seafood AREC



Contents

| | |
|---|----|
| Q1. Has your farm or business been impacted by the coronavirus disease (COVID-19)?..... | 5 |
| Q1.1. Does your farm or business expect to be affected by the coronavirus disease (COVID-19) in 2020?..... | 5 |
| Q2. Has your farm or business had government (state or federal) contracts canceled for 2020 because of the coronavirus disease (COVID-19)?..... | 6 |
| Q3. Has your farm or business had private contracts / orders canceled for 2020 because of the coronavirus disease (COVID-19)?..... | 6 |
| Q4. Has your farm or business had to lay off any employees due to the coronavirus disease (COVID-19)? | 7 |
| Q4.1. Are any of the employees that your farm or business had to, or will have to, lay off due to the coronavirus disease (COVID-19) designated as "Short-Time" or "Shared-Work" employees? | 7 |
| Q4.2. How many employees has your farm or business had to lay off in response to the coronavirus disease (COVID-19)?..... | 8 |
| Q4.3. How many weeks before your farm or business will have to make a decision to lay off employees, in response to the coronavirus disease (COVID-19)? | 8 |
| Q4.4. How many employees do you estimate your farm or business will have to lay off in response to the coronavirus disease (COVID-19)?..... | 9 |
| Q5. Has your farm or business had any employees miss work due to the coronavirus disease (COVID-19)? | 9 |
| Q5.1. In total, approximately how many days have any employees in your farm or business missed work due to the coronavirus disease (COVID-19)?..... | 10 |
| Q6. Does your farm or business make use of H2A or H2B workers? | 10 |
| Q6.1. Has your farm or business been able to secure H2A and H2B workers during the coronavirus disease (COVID-19) pandemic? | 11 |
| Q6.2. Is your farm or business currently at risk of losing H2A or H2B workers due to the coronavirus disease (COVID-19) pandemic? | 11 |
| Q7. Has your farm or business experienced any of the following as a result of the coronavirus disease (COVID-19) in 2020? Please select all that apply. | 12 |
| Q7.1. Has your farm or business experienced lost sales to international or export markets (outside of the United States), as a result of the coronavirus disease (COVID-19)?..... | 12 |
| Q7.2. If your farm or business has experienced lost sales as a result of the coronavirus disease (COVID-19), please estimate the value of lost sales? | 13 |
| Q7.3. If your farm or business has experienced production challenges (not related to labor) as a result of the coronavirus disease (COVID-19), can those challenges be specified? Please select all that apply..... | 14 |
| Q7.6. If your farm or business has experienced increased demand for products as a result of the coronavirus disease (COVID-19), please estimate the value of those effects on sales?..... | 15 |

Q8. Does your farm or business expect to experience any of the following as a result of the coronavirus disease (COVID-19) in 2020? Please select all that apply. 16

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

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

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

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

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

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

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

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

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

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

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

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

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

Q18. Are there any existing programs that your aquaculture, aquaponics, or allied business does not currently qualify for, that would increase the likelihood of survival of your farm or business?.....25

Q19. What is the primary product that your farm or business produces?..... 26

Q19.1. Please indicate which is the major species of foodfish raised by your farm or business: 27

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

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

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

Overview

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

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

This report is a supplemental report to the **Allied Business Report Summary, Quarter 1** that summarizes results of **aquaculture allied business** respondents.

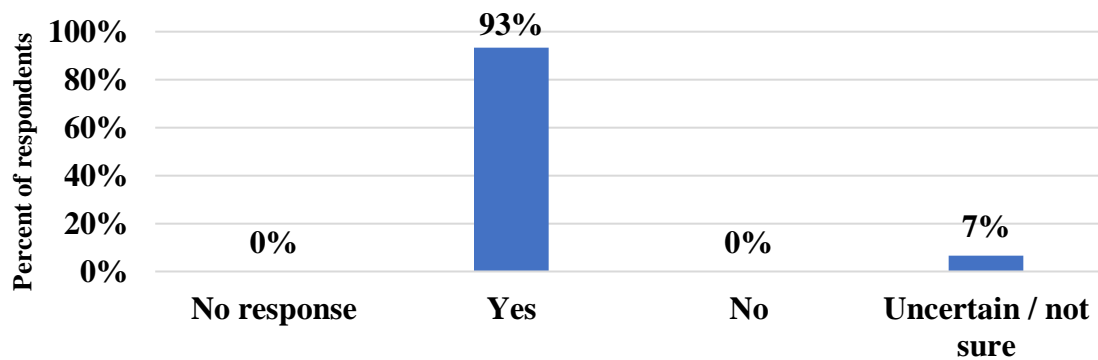
Survey results for each question

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

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

(n = 15)

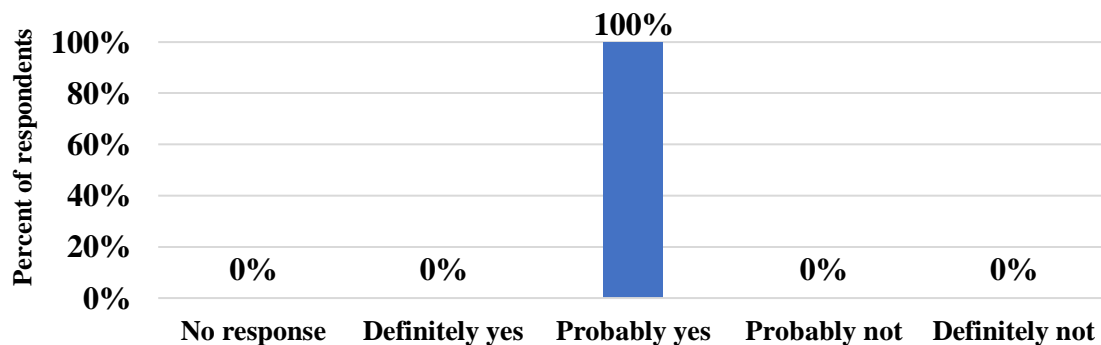
- No response : 0%
- Yes : 93%
- No : 0%
- Uncertain / Not Sure : 7%



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

(n = 1)

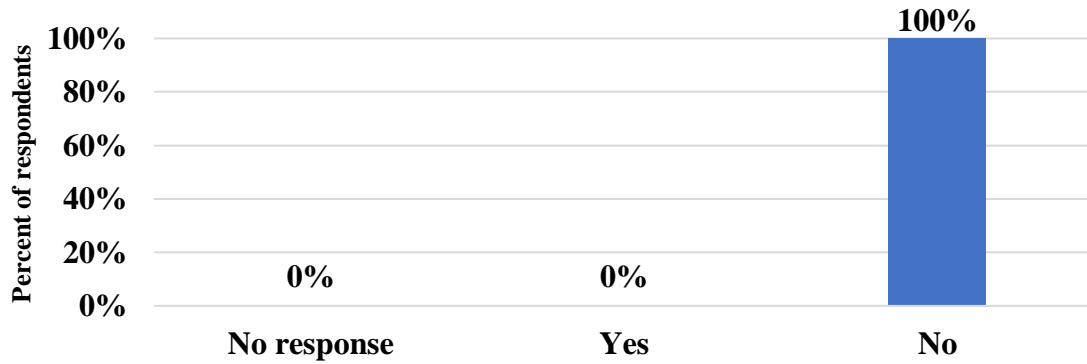
- No response : 0%
- Definitely yes : 0%
- Probably yes : 100%
- Probably not : 0%
- Definitely not : 0%



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

(n = 14)

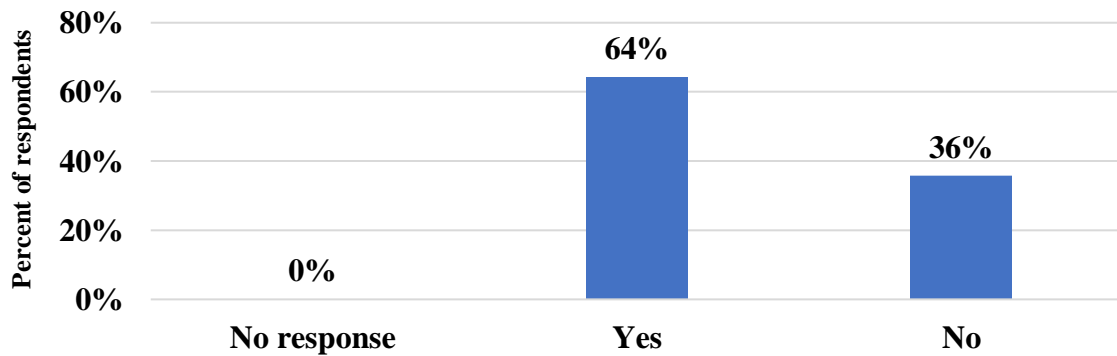
- No response : 0%
- Yes : 0%
- No : 100%



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

(n = 14)

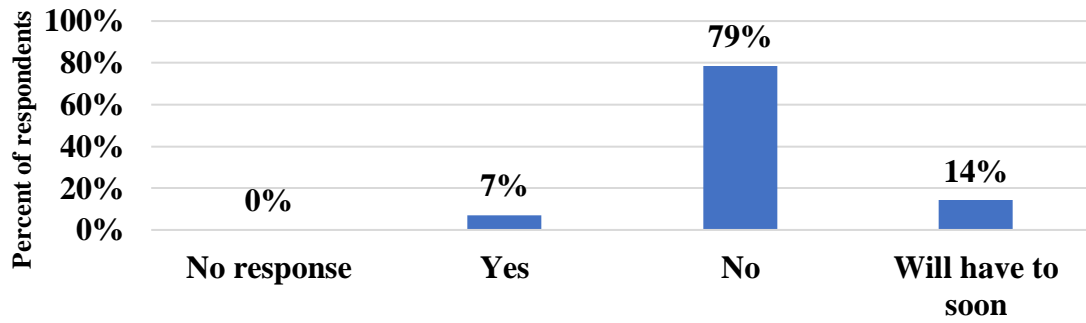
- No response : 0%
- Yes : 64%
- No : 36%



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

(n = 14)

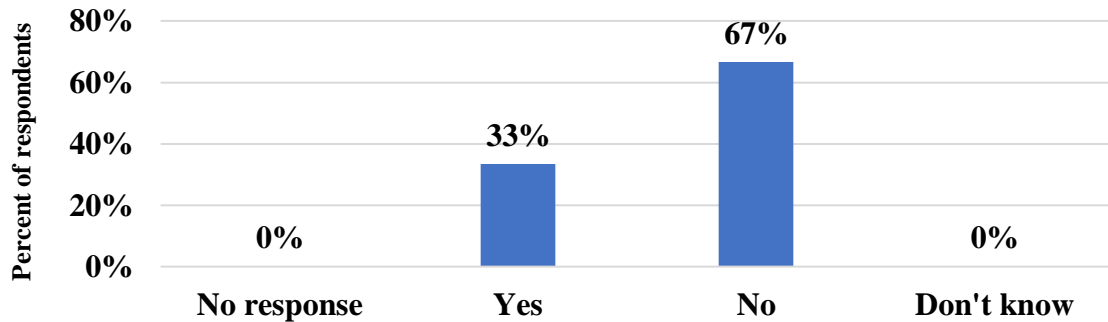
- No response : 0%
- Yes : 7%
- No : 79%
- Will have to soon : 14%



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

(n = 3)

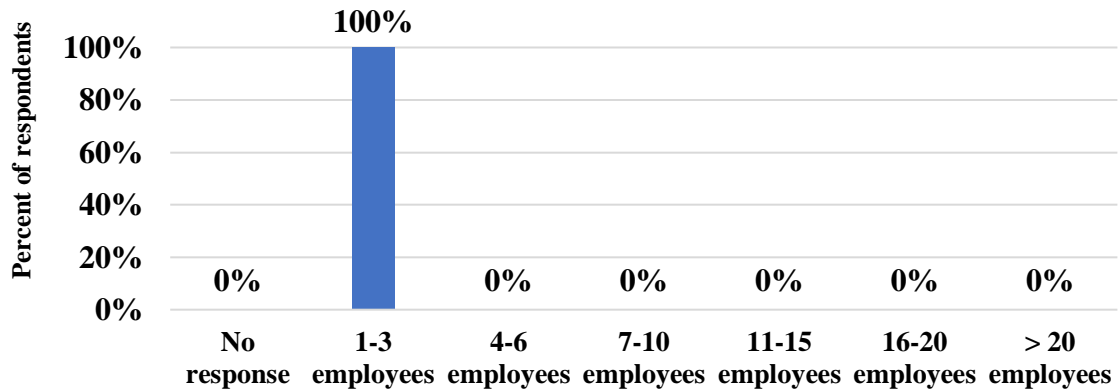
- No response : 0%
- Yes : 33%
- No : 67%
- Don't know : 0%



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

(n = 1)

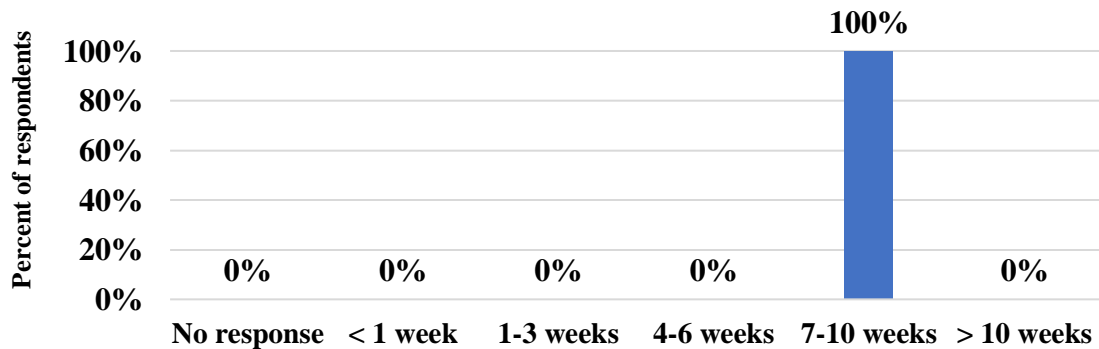
- No response : 0%
- 1 – 3 employees : 100%
- 4 – 6 employees : 0%
- 7 – 10 employees : 0%
- 11 – 15 employees : 0%
- 16 – 20 employees : 0%
- More than 20 employees : 0%



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

(n = 2)

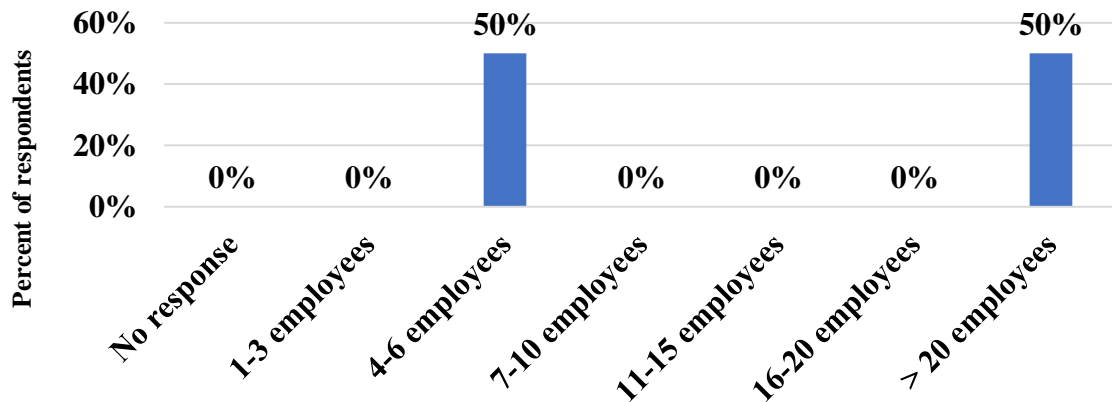
- No response : 0%
- Less than 1 week : 0%
- 1 – 3 weeks : 0%
- 4 – 6 weeks : 0%
- 7 – 10 weeks : 100%
- More than 10 weeks : 0%



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

(n = 2)

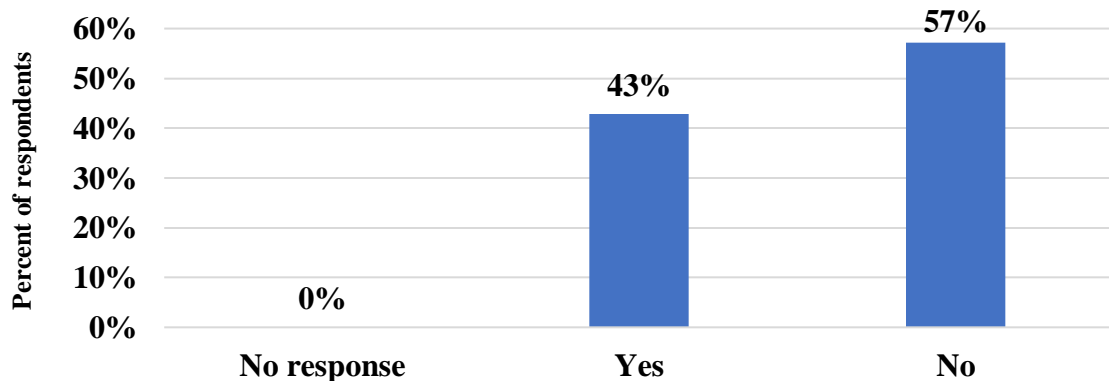
- No response : 0%
- 1 – 3 employees : 0%
- 4 – 6 employees : 50%
- 7 – 10 employees : 0%
- 11 – 15 employees : 0%
- 16 – 20 employees : 0%
- More than 20 employees : 50%



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

(n = 14)

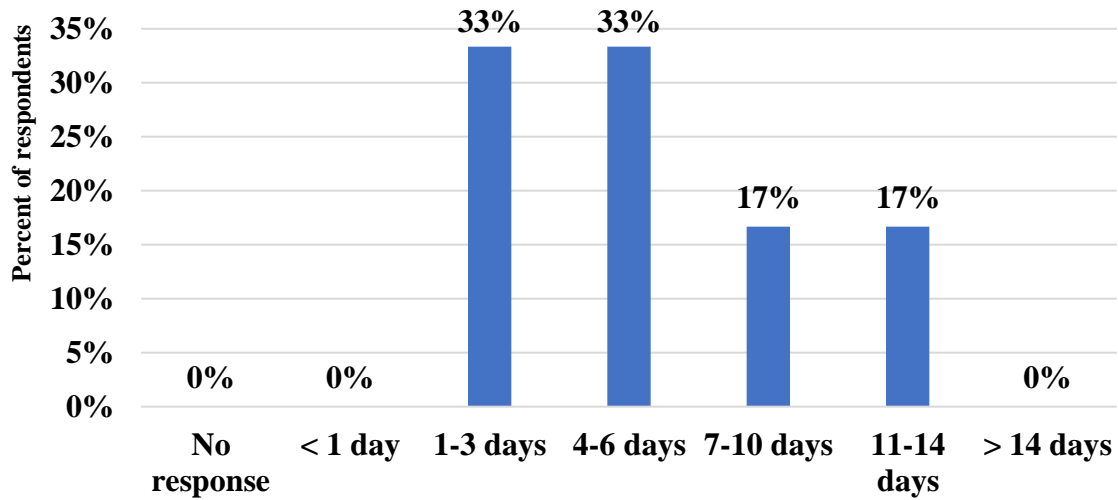
- No response : 0%
- Yes : 43%
- No : 57%



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

(n = 6)

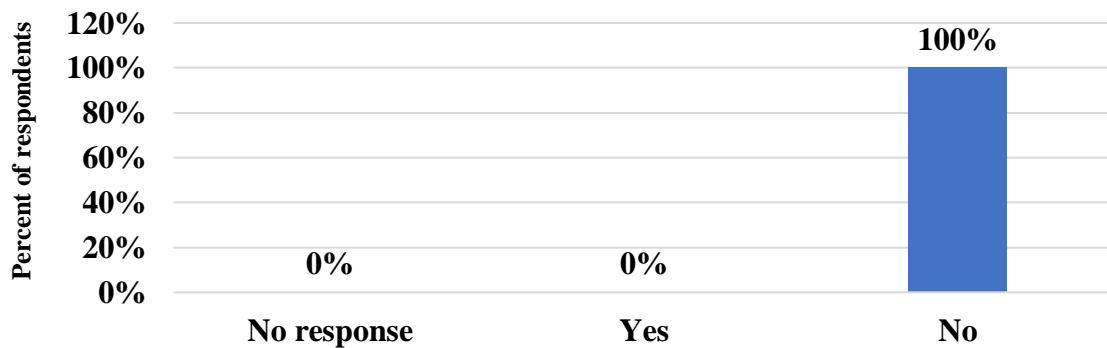
- No response : 0%
- Less than a day : 0%
- 1 -3 days : 33%
- 4 – 6 days : 33%
- 7 – 10 days : 17%
- 11 – 14 days : 17%
- More than 14 days : 0%



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

(n = 14)

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



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

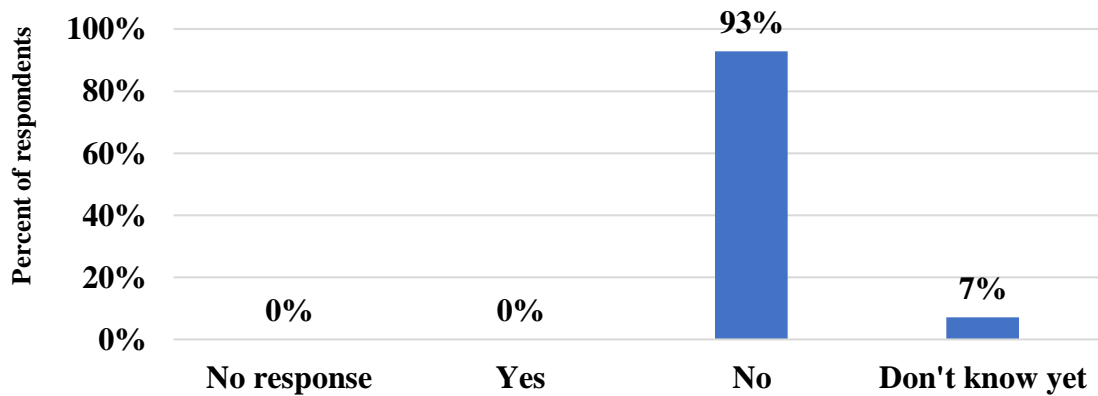
(n = 0)

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

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

(n = 14)

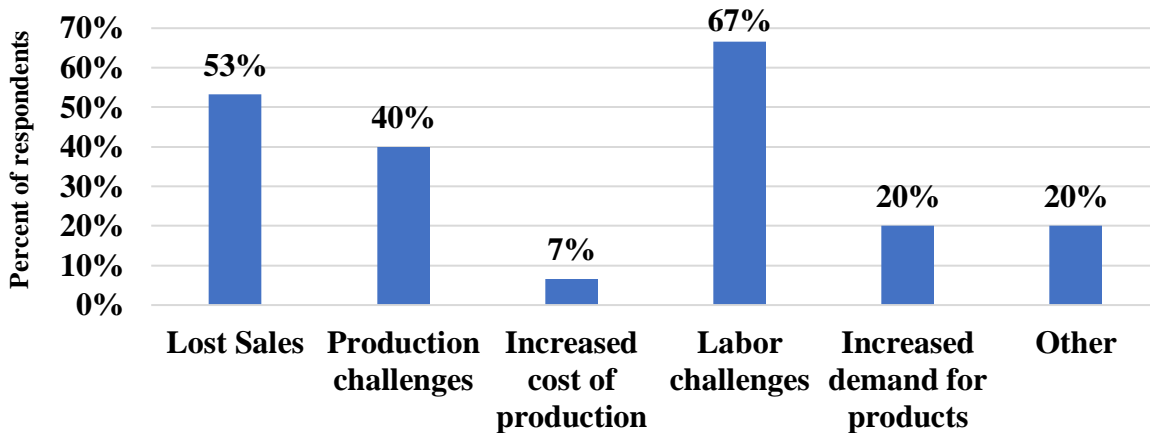
- No response : 0%
- Yes : 0%
- No : 93%
- Don't know yet : 7%



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

(n = 15)

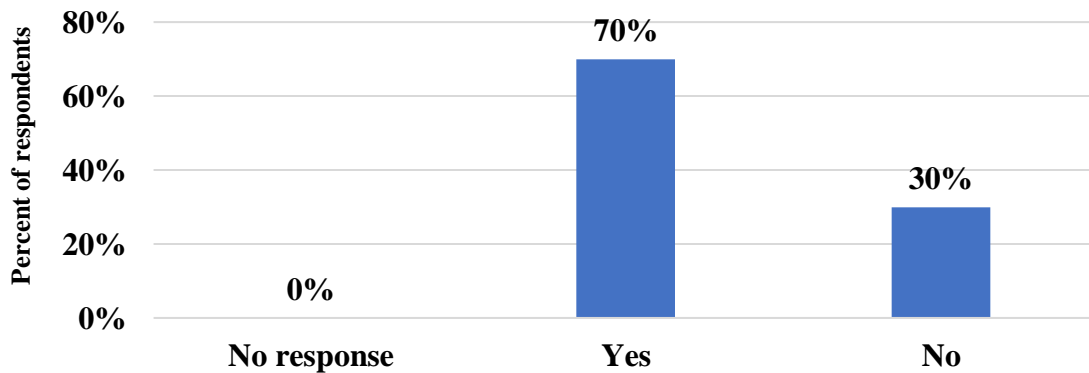
- Lost sales : 53%
- Production challenges (not related to labor) : 40%
- Increased cost of production : 7%
- Labor challenges : 67%
- Increased demand for products : 20%
- Other : 20%



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

(n = 10)

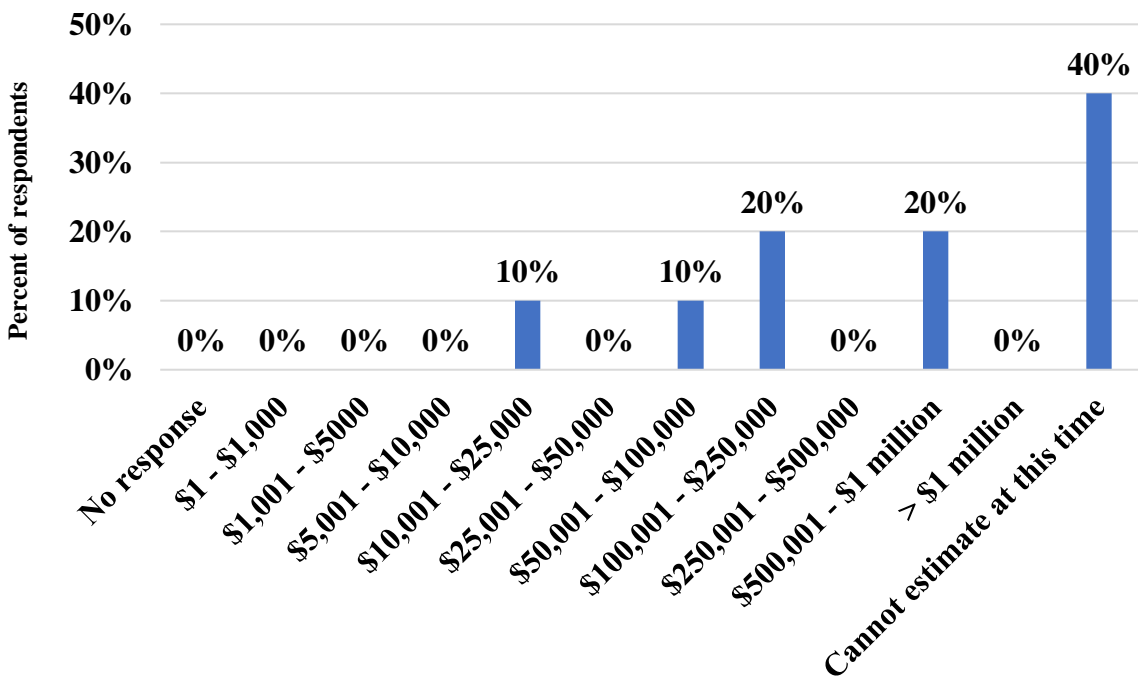
- No response : 0%
- Yes : 70%
- No : 30%



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

(n = 10)

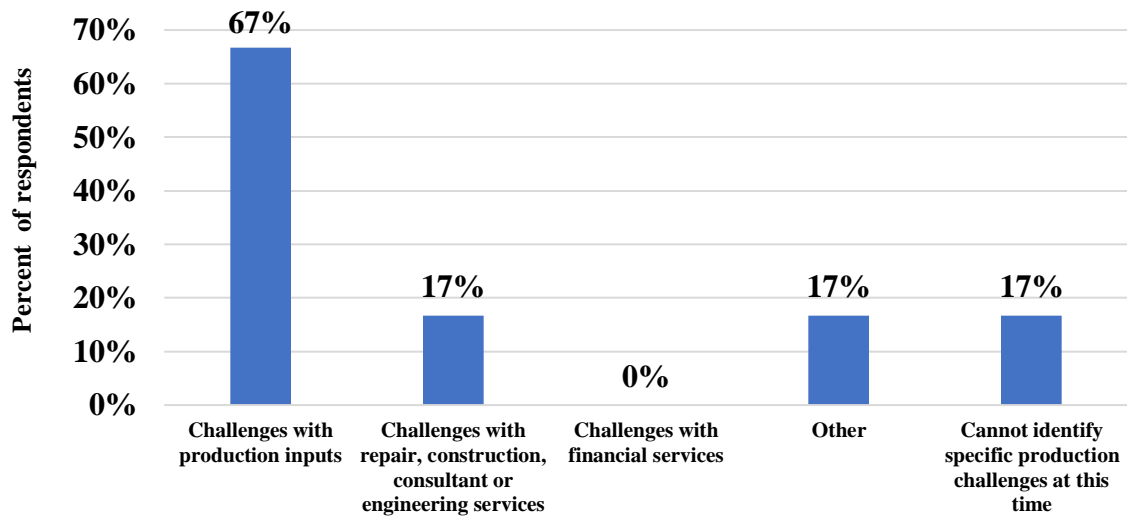
- No response : 0%
- \$1 - \$1,000 : 0%
- \$1,001 - \$5,000 : 0%
- \$5,001 - \$10,000 : 0%
- \$10,001 - \$25,000 : 10%
- \$25,001 - \$50,000 : 0%
- \$50,001 - \$100,000 : 10%
- \$100,001 - \$250,000 : 20%
- \$250,001 - \$500,000 : 0%
- \$500,001 - \$ 1million : 20%
- Greater than \$1 million : 0%
- Cannot estimate at this time : 40%



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

(n = 6)

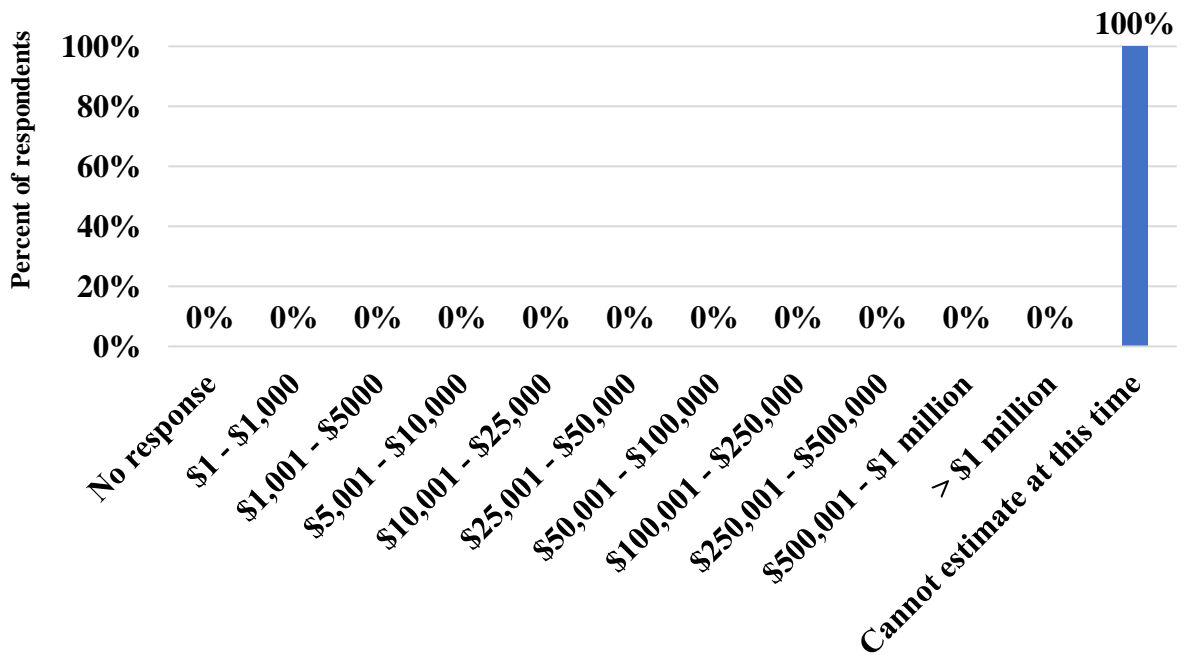
- Challenges with production inputs (feed, chemicals, therapeutants, etc.) : 67%
- Challenges with repair, construction, consultant or engineering services : 17%
- Challenges with financial services (operating loans, leases, etc.) : 0%
- Other : 17%
- Cannot identify specific production challenges at this time : 17%



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

(n = 3)

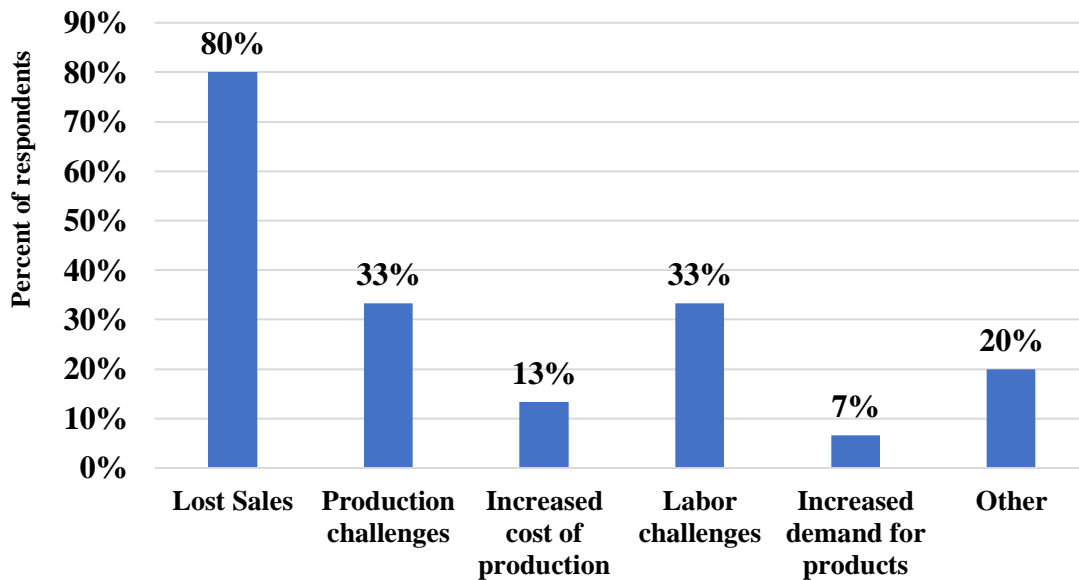
- No response : 0%
- \$1 - \$1,000 : 0%
- \$1,001 - \$5,000 : 0%
- \$5,001 - \$10,000 : 0%
- \$10,001 - \$25,000 : 0%
- \$25,001 - \$50,000 : 0%
- \$50,001 - \$100,000 : 0%
- \$100,001 - \$250,000 : 0%
- \$250,001 - \$500,000 : 0%
- \$500,001 - \$ 1million : 0%
- Greater than \$1 million : 0%
- Cannot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



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

(n = 15)

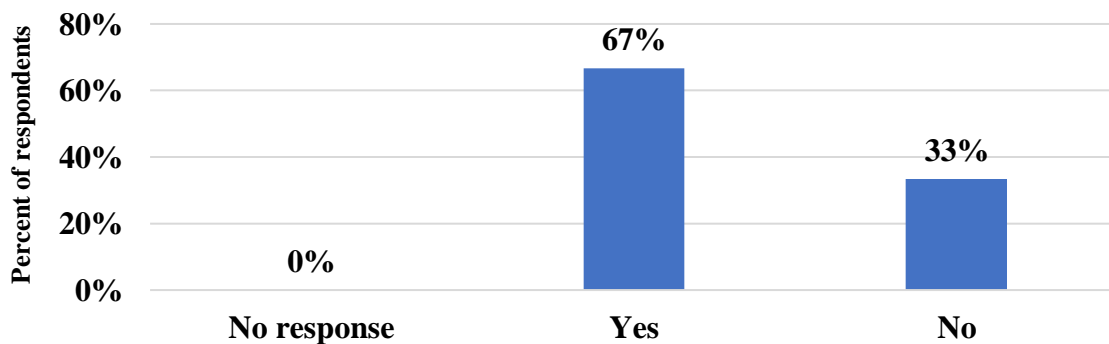
- Lost sales : 80%
- Production challenges (not related to labor) : 33%
- Increased cost of production : 13%
- Labor challenges : 33%
- Increased demand for products : 7%
- Other : 20%



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

(n = 12)

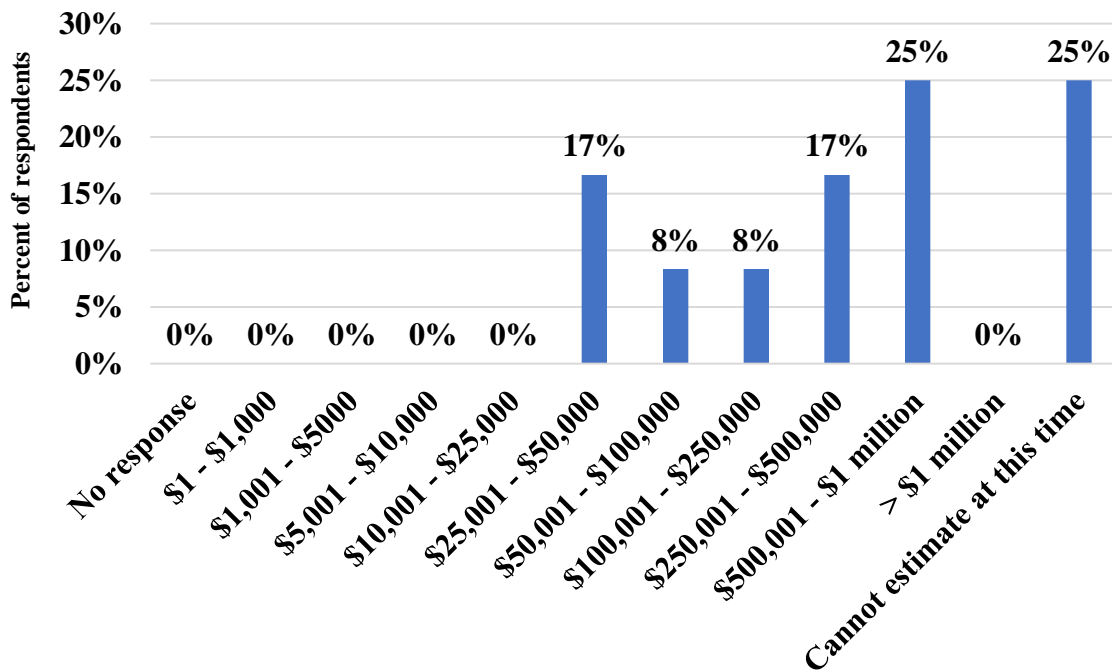
- No response : 0%
- Yes : 67%
- No : 33%



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

(n = 12)

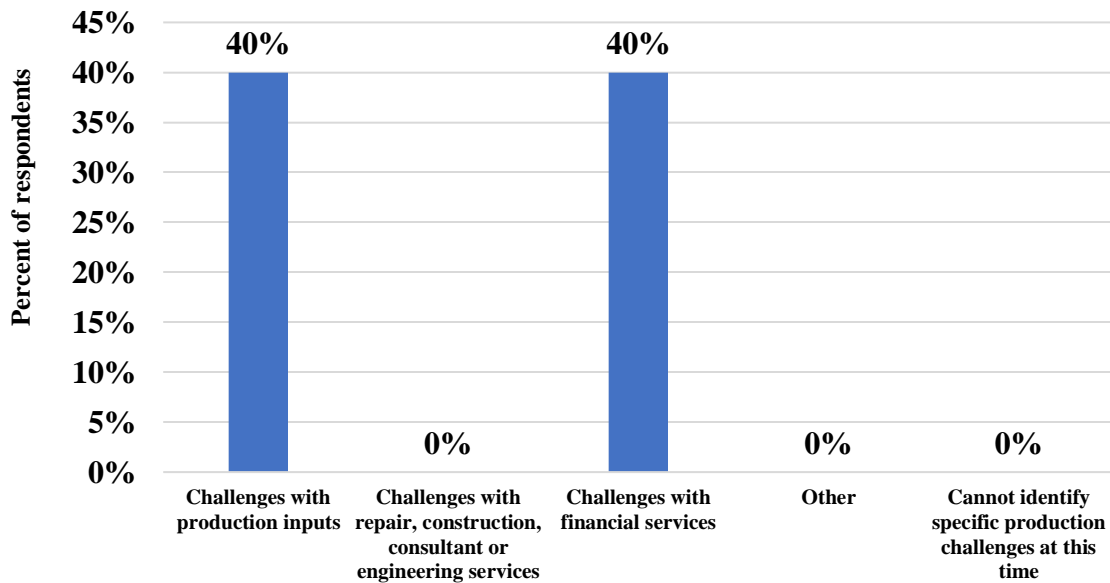
- No response : 0%
- \$1 - \$1,000 : 0%
- \$1,001 - \$5,000 : 0%
- \$5,001 - \$10,000 : 0%
- \$10,001 - \$25,000 : 0%
- \$25,001 - \$50,000 : 17%
- \$50,001 - \$100,000 : 8%
- \$100,001 - \$250,000 : 8%
- \$250,001 - \$500,000 : 17%
- \$500,001 - \$ 1million : 25%
- Greater than \$1 million : 0%
- Cannot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



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

(n = 5)

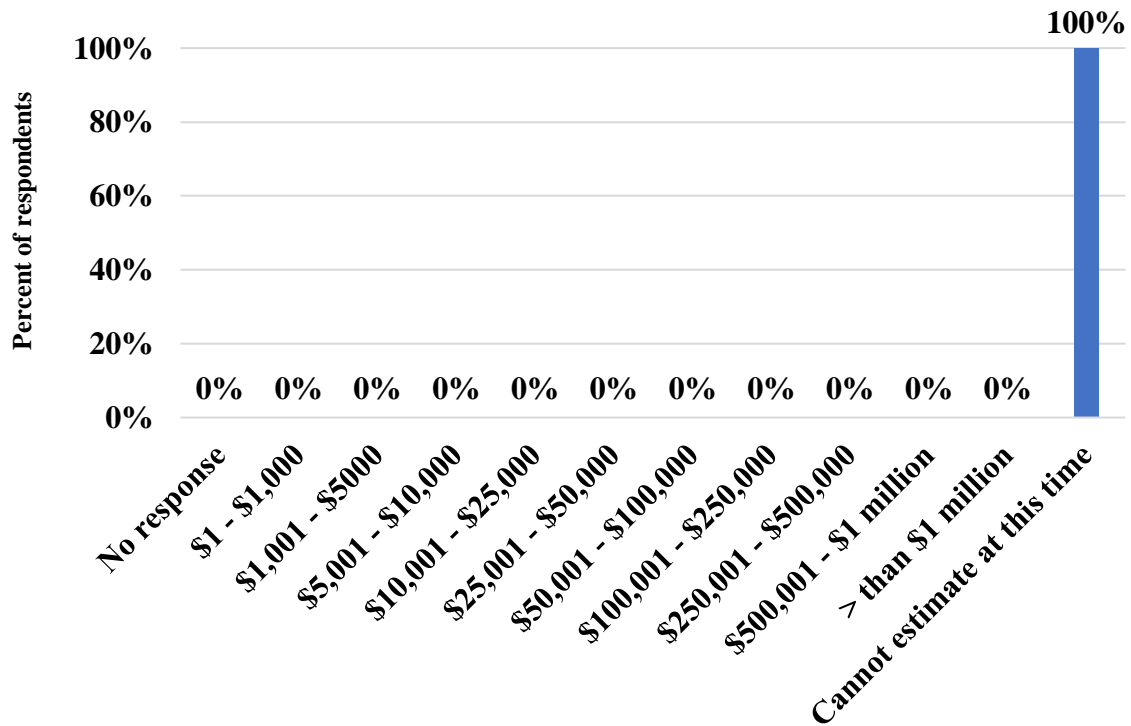
- Challenges with production inputs (feed, chemicals, therapeutants, etc.) : 40%
- Challenges with repair, construction, consultant or engineering services : 0%
- Challenges with financial services (operating loans, leases, etc.) : 40%
- Other : 0%
- Cannot identify specific production challenges at this time : 0%



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

(n = 1)

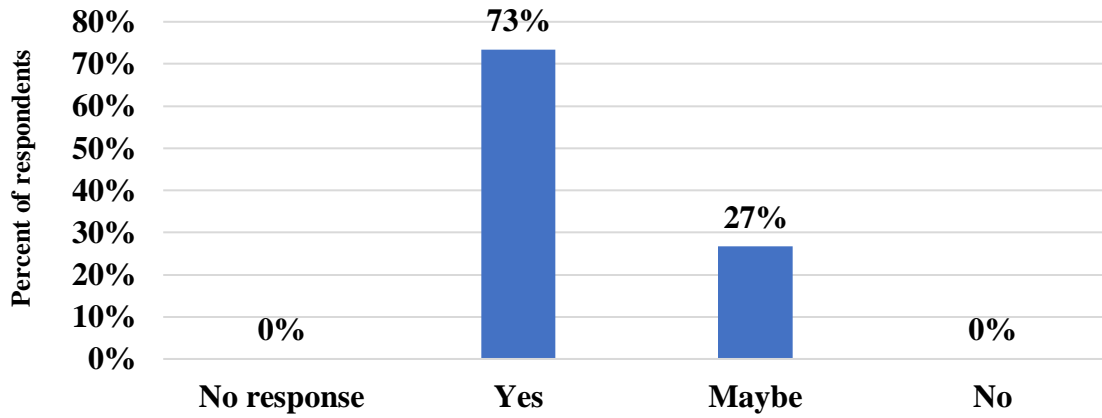
- No response : 0%
- \$1 - \$1,000 : 0%
- \$1,001 - \$5,000 : 0%
- \$5,001 - \$10,000 : 0%
- \$10,001 - \$25,000 : 0%
- \$25,001 - \$50,000 : 0%
- \$50,001 - \$100,000 : 0%
- \$100,001 - \$250,000 : 0%
- \$250,001 - \$500,000 : 0%
- \$500,001 - \$ 1million : 0%
- Greater than \$1 million : 0%
- Cannot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



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

(n = 15)

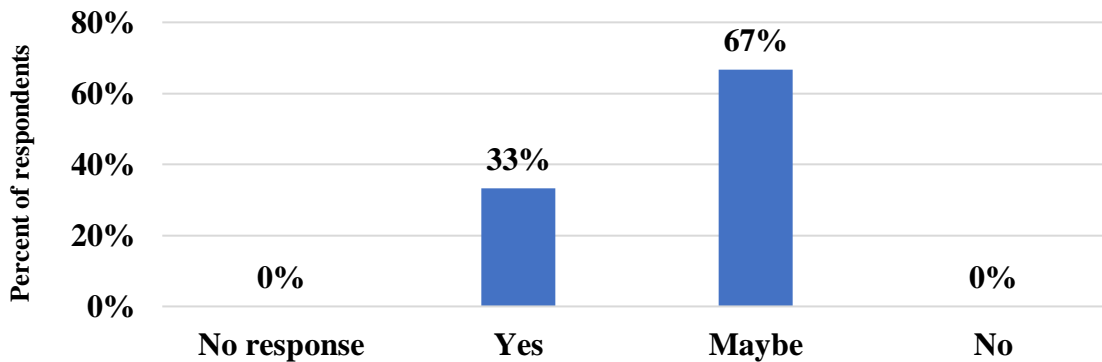
- No response : 0%
- Yes : 73%
- Maybe : 27%
- No : 0%



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

(n = 15)

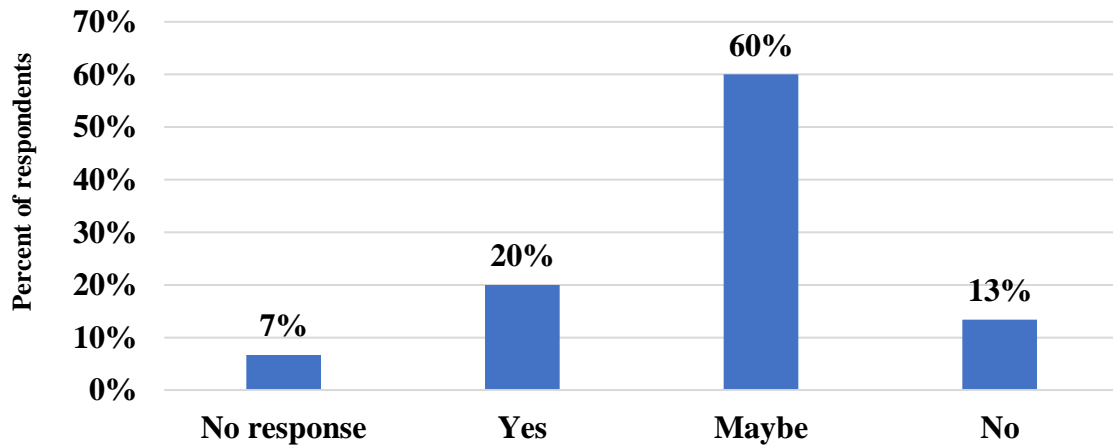
- No response : 0%
- Yes : 33%
- Maybe : 67%
- No : 0%



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

(n = 15)

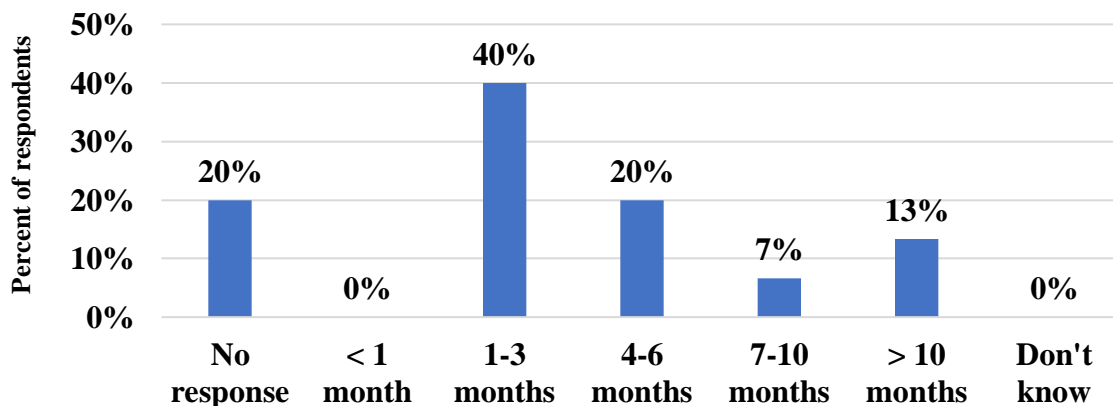
- No response : 7%
- Yes : 20%
- Maybe : 60%
- No : 13%



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

(n = 15)

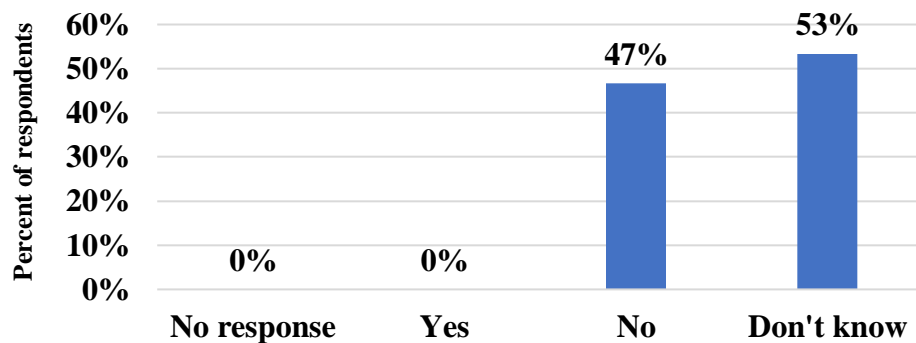
- No response : 20%
- Less than 1 month : 0%
- 1 – 3 months : 40%
- 4 – 6 months : 20%
- 7 – 10 months : 7%
- More than 10 months : 13%
- Do not know : 0%



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

(n = 15)

- No response : 0%
- Yes : 0%
- No : 47%
- Don't know : 53%



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

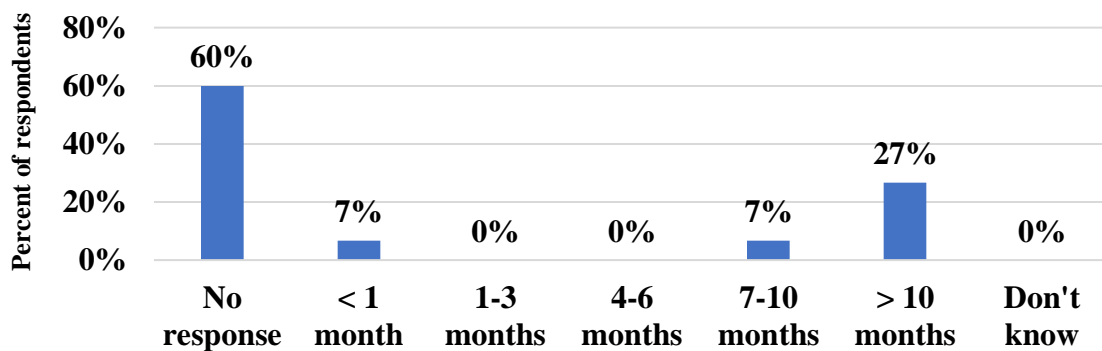
(n = 0)

- Reduced quantity sold : NA
- Reduced price : NA
- Other : NA

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

(n = 15)

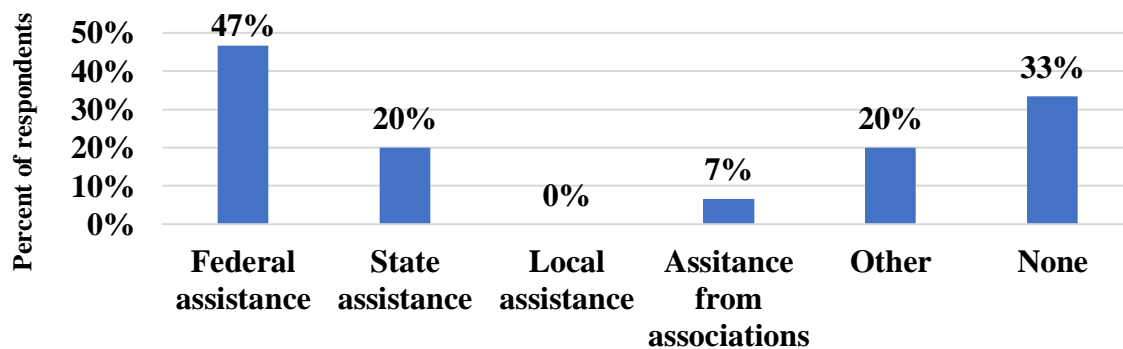
- No response : 60%
- Less than 1 month : 7%
- 1 – 3 months : 0%
- 4 – 6 months : 0%
- 7 – 10 months : 7%
- More than 10 months : 27%
- Don't know : 0%



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

(n = 15)

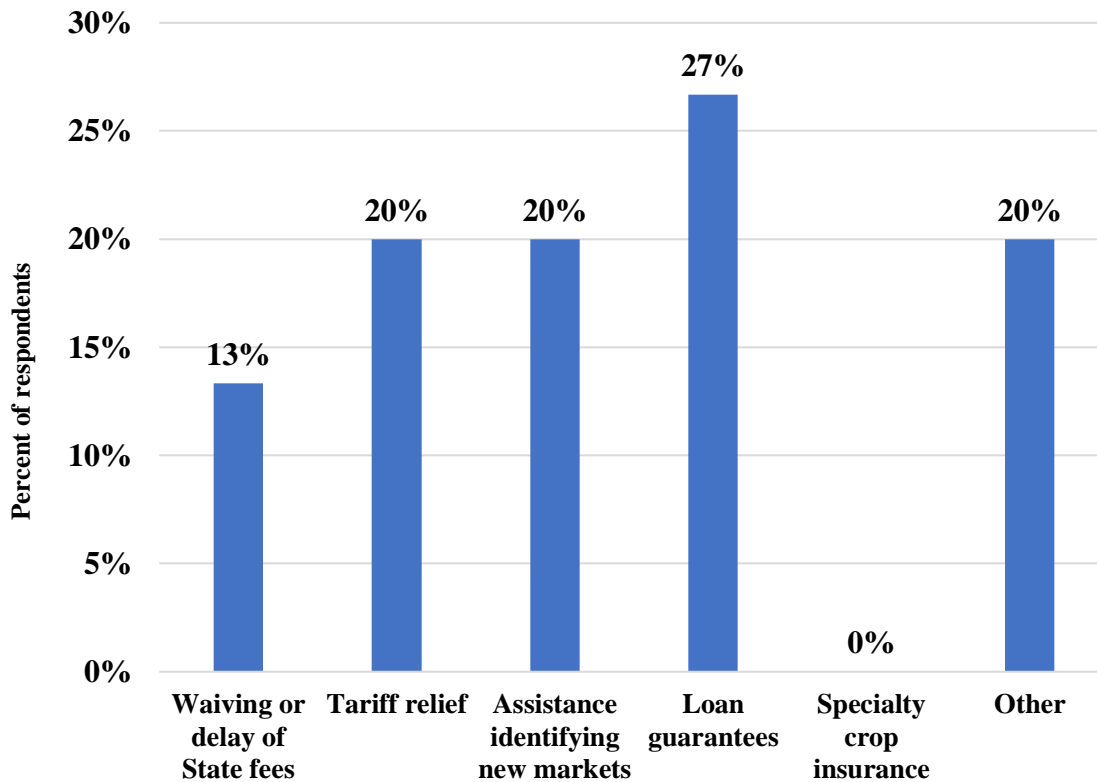
- Federal assistance : 47%
- State assistance : 20%
- Local assistance : 0%
- Assistance from associations : 7%
- Other : 20%
- None : 33%



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

(n = 15)

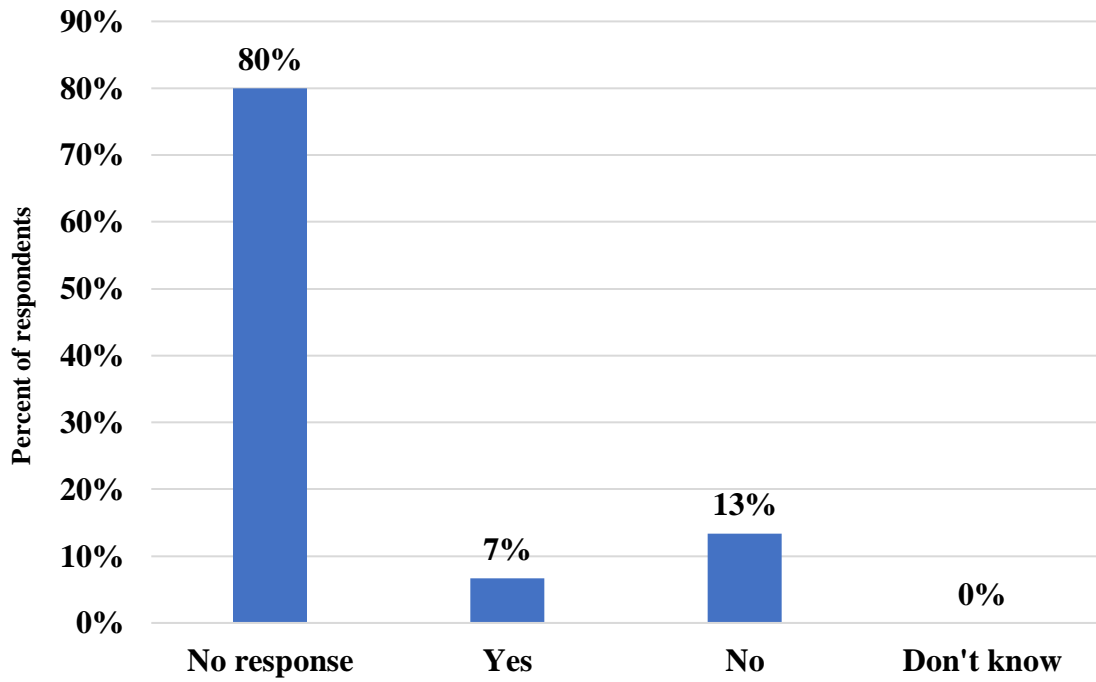
- Waiving or delay of State fees : 13%
- Tariff relief : 20%
- Assistance identifying new markets : 20%
- Loan guarantees : 27%
- Specialty Crop Insurance : 0%
- Other : 20%



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

(n = 15)

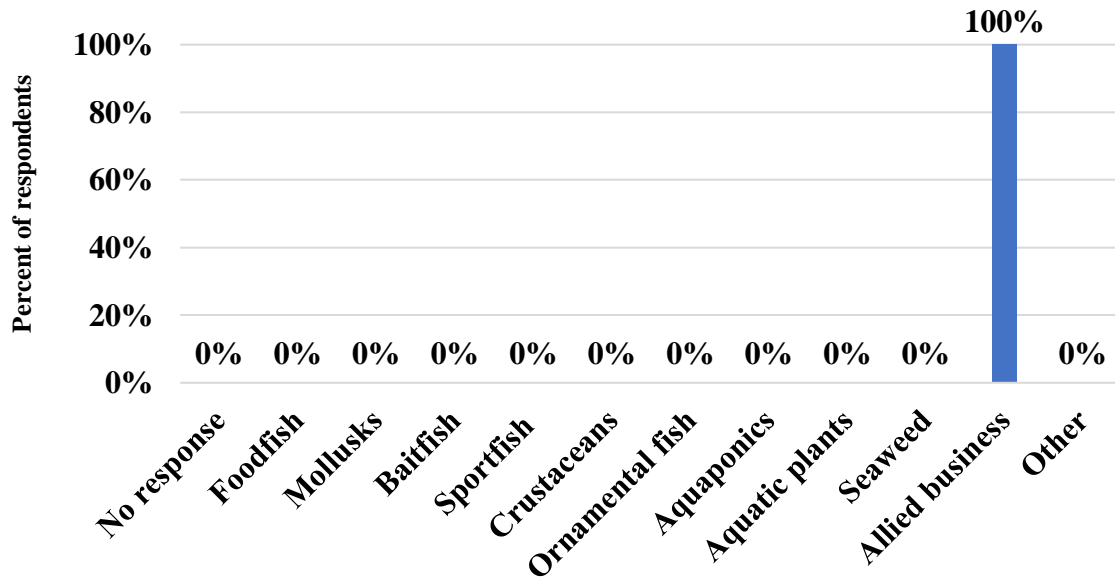
- No response : 80%
- Yes : 7%
- No : 13%
- Don't know : 0%



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

(n = 15)

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



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

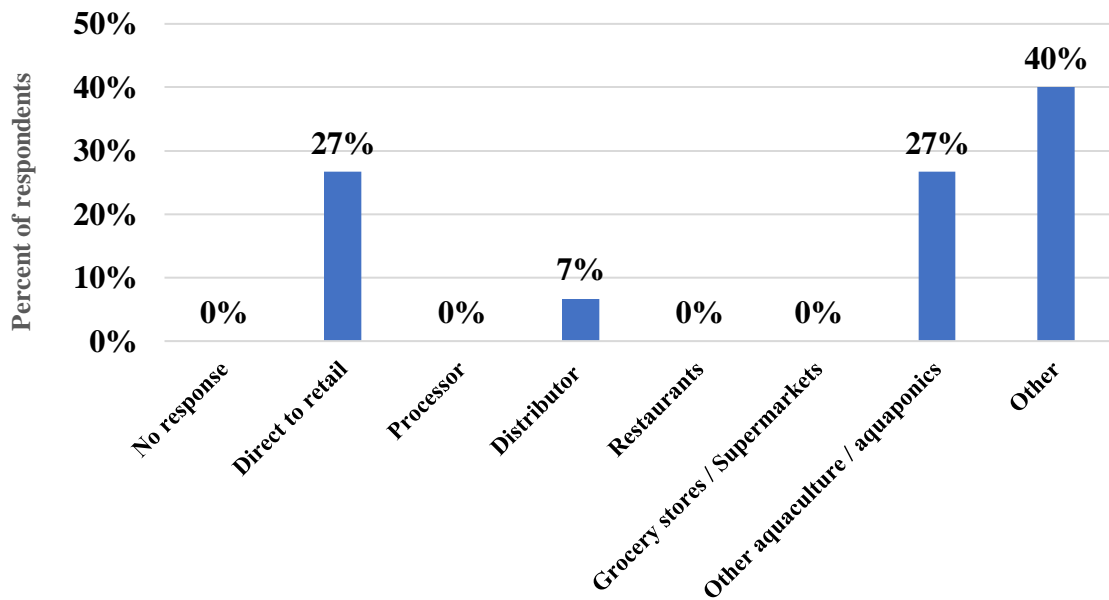
(n = 0)

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

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

(n = 15)

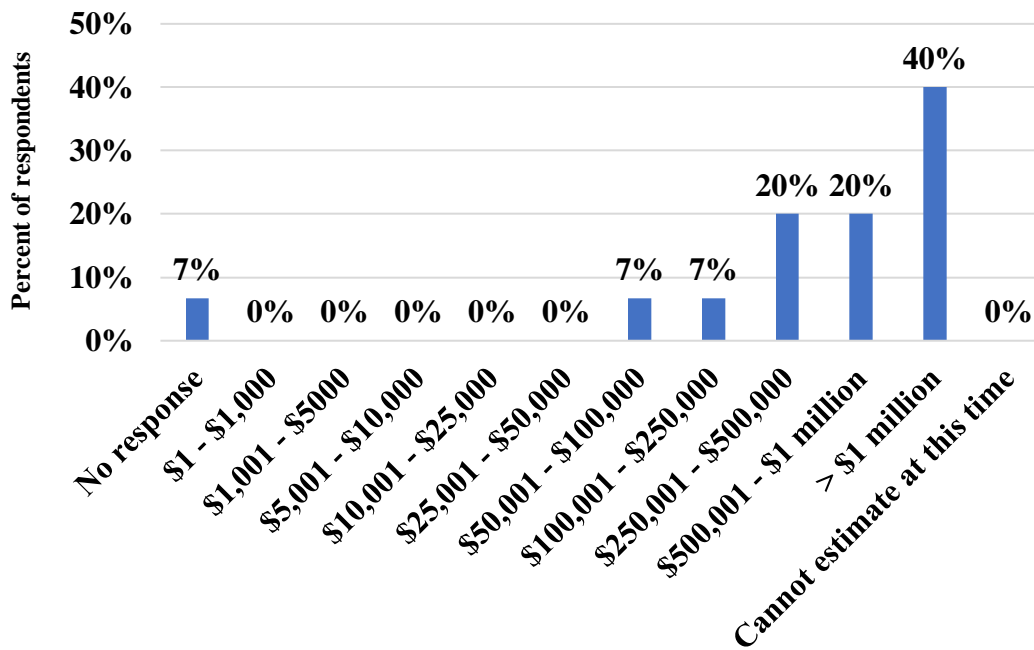
- No response : 0%
- Direct to retail (direct to consumers) : 27%
- Processor : 0%
- Distributor : 7%
- Restaurants : 0%
- Grocery Stores / Supermarkets : 0%
- Other aquaculture/aquaponics farms or businesses : 27%
- Other : 40%



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

(n = 15)

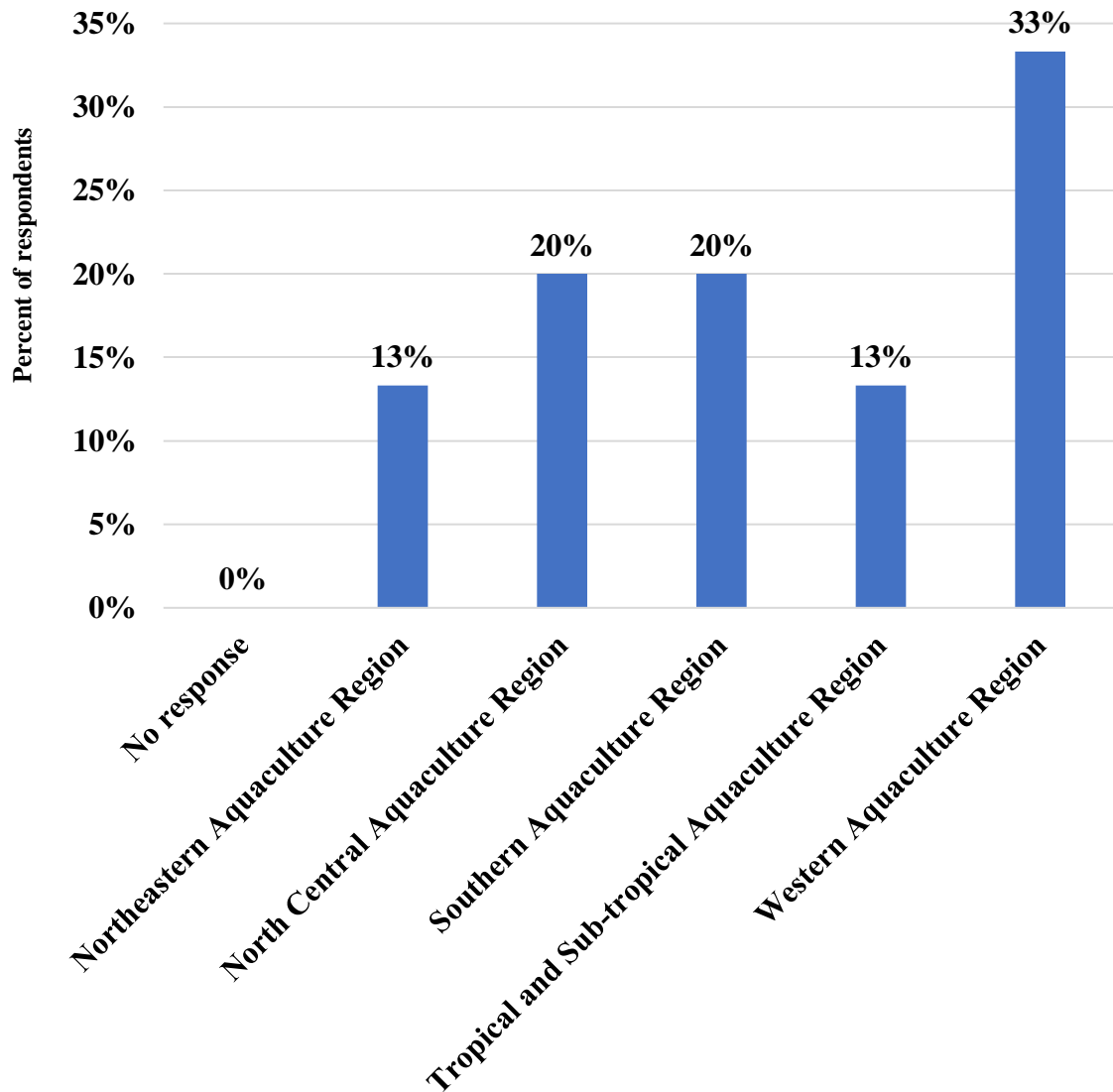
- No response : 7%
- \$1 - \$1,000 : 0%
- \$1,001 - \$5,000 : 0%
- \$5,001 - \$10,000 : 0%
- \$10,001 - \$25,000 : 0%
- \$25,001 - \$50,000 : 0%
- \$50,001 - \$100,000 : 7%
- \$100,001 - \$250,000 : 7%
- \$250,001 - \$500,000 : 20%
- \$500,001 - \$ 1million : 20%
- Greater than \$1 million : 40%
- Cannot estimate at this time : 0%



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

(n = 15)

- No response : 0%
- Northeastern Aquaculture Region : 13%
- North Central Aquaculture Region : 20%
- Southern Aquaculture Region : 20%
- Tropical and Sub-Tropical Aquaculture Region : 13%
- Western Aquaculture Region : 33%



References

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

Accessed April 2020 at:

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

Acknowledgements

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