



November, 2021

# **COVID-19 impacts and adaptation in aquatic food supply chains in Egypt**

## **One year into the pandemic**

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We have a global presence across 20 countries in Asia, Africa and the Pacific with 460 staff of 30 nationalities deployed where the greatest sustainable development challenges can be addressed through holistic aquatic food systems solutions.

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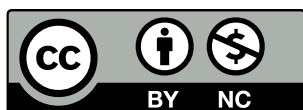
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# Table of contents

<b>1. Overview</b>	<b>3</b>
<b>2. Key findings</b>	<b>3</b>
<b>3. Business adaptations to COVID-19</b>	<b>6</b>
<b>4. Impacts by value chain segment</b>	<b>7</b>
4.1 Feed Mills	7
4.2 Feed Sellers	8
4.3 Fish Hatcheries	8
4.4 Fish Farms	8
4.5 Fish Traders	10
4.6 Fish Retailers	10
<b>Recommendations</b>	<b>12</b>
<b>List of figures</b>	<b>10</b>
<b>References</b>	<b>11</b>

# 1. Overview

In 2020, we conducted a bi-weekly phone survey with 75 fish supply chain actors in Egypt covering the period February to November, to assess impacts of COVID-19 on the availability and price of aquatic foods and production inputs (Middleton *et al* 2021). In June 2021, we conducted a follow-up survey during which we re-surveyed 50 participants (i.e. 25 less than in 2020) regarding their business activities between the months of March and May 2021 using recall interviews by phone. Attrition between the two survey rounds was due to inability to recontact respondents from the first round or respondents declining the second interview. The sample was comprised of the following: feed mills (4), feed sellers (7), fish hatcheries (10), fish farmers (10), traders (7), and retailers (12).

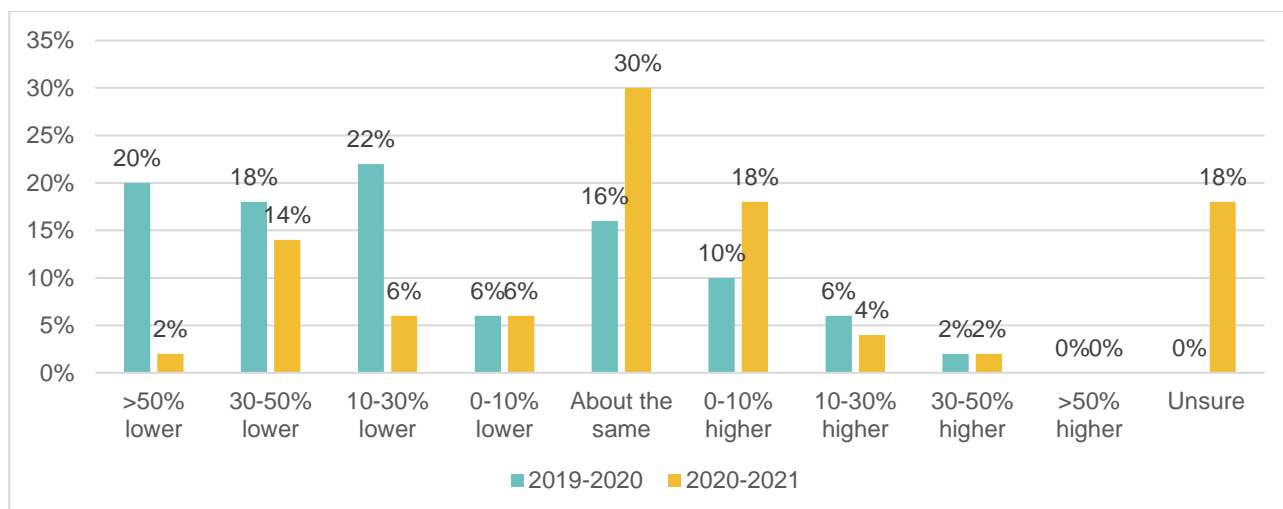
COVID-19 cases in Egypt peaked in June 2020, then again in January and May 2021 (Dong *et al* 2020). The first government-mandated lockdown and travel ban began in March 2020. The 2020 data covered the first three months of the pandemic's impact on Egypt, whereas the second round of data collection allowed for a comparison one year into the pandemic.

## 2. Key findings

All the respondents interviewed during 2021 were operational in most of the survey months. We asked respondents about the total value of their sales during 2019 (pre-pandemic) compared to those in 2020 (the first year of the pandemic), and how their anticipated sales for 2021 compared to sales in 2020 (Figure 1). Two-thirds of respondents experienced a decrease in sales between 2019 and 2020. About 18% of respondents reported that sales had declined by 30-50%, and 20% of respondents reported that sales had declined by >50%. Only 18% of farms reported that their 2020 sales were higher than in 2019, and most of these reported sales only 0-10% higher.

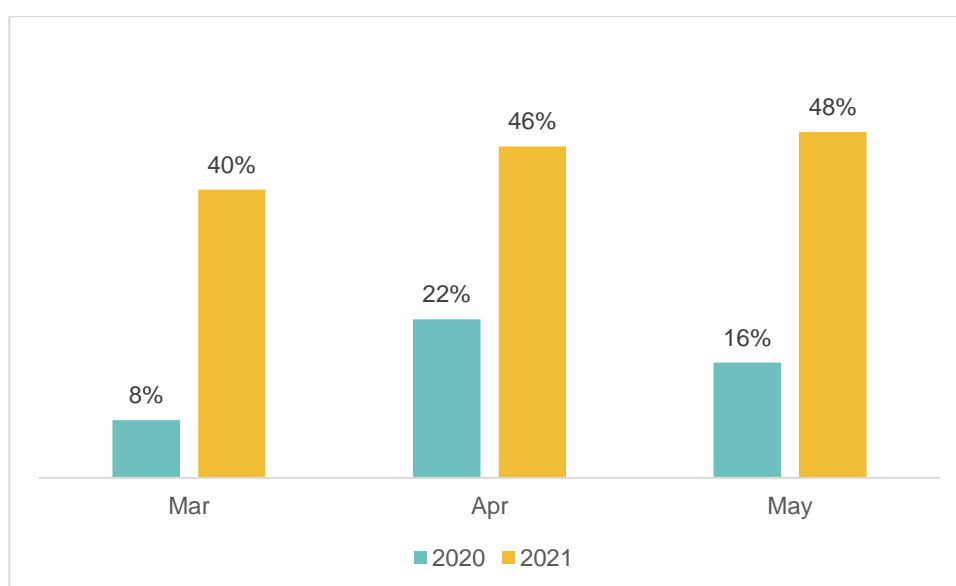
Based on anticipated sales volumes, business activity in 2021 appears to have stabilized somewhat, but at a lower level than before the pandemic. 30% of respondents anticipated that their sales for 2021 would remain the same as in 2020, 28% believed that their sales would be lower, and 24% believed that they would be higher, while 18% had unsure what the outcome would be.

Figure 1 Change and anticipated change in value of sales from 2019 to 2020 and from 2020 to 2021, reported and predicted by the respondents.



Employment in aquaculture value chains rebounded during March through May 2021 as compared to the same period in 2020 (Figure 2). In 2020, the share of respondents hiring male daily labor during these months ranged from 8% to 22%. In contrast, in 2021 numbers ranged from 40% to 48%, suggesting that demand for labor was greater due to higher levels of business activity, and that labor became more available following the relaxation of restrictions on movement. Wages were slightly higher in 2021 than in 2020 (USD 8.16 and USD 7.54 per day, respectively). However, casual labor skewed heavily male, with only 2% of respondents hiring female daily laborers during March and April 2021, and none hired during the same period in 2020. Female wage rates were almost half that of males at USD 4.48 per day in 2021.

Figure 2 Percentage of respondents hiring male daily labour.

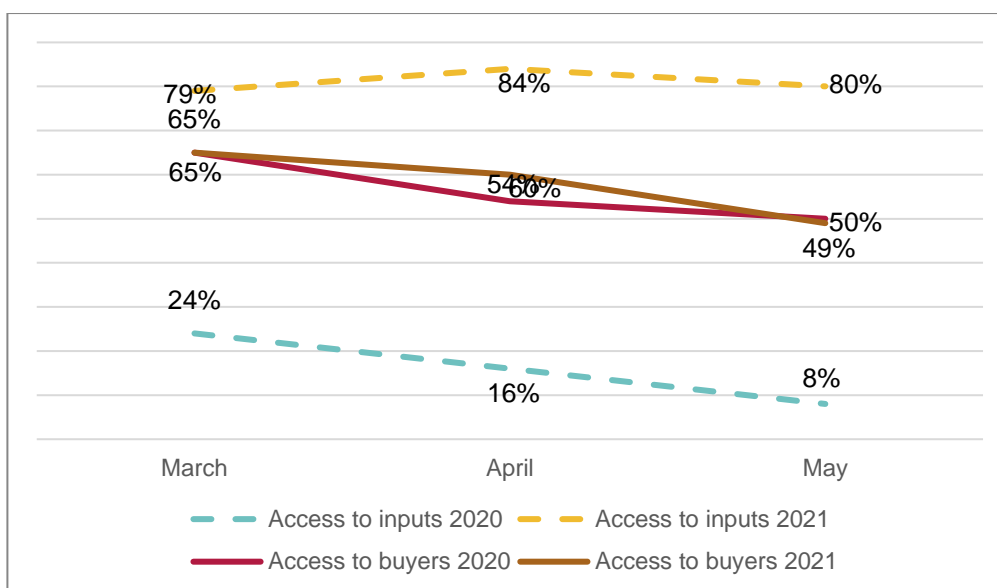


Access to inputs improved significantly in 2021 as compared to 2020 (Figure 3). In 2020, the share of respondents able to access inputs whenever they attempted to do fell from 55% in March, to 48% in April, before rising to 70% in May. In contrast, 98% of respondents reported being able to access inputs whenever needed in March 2021, though this share COVID-19 impacts in Egypt



declined to 70% in May. The percentage of respondents able to access transport whenever they wished to purchase inputs was also much higher in 2021, standing at well over 90% in all three months in 2021, as compared to 52-34% during the previous year. The share of respondents reporting being able to find buyers on all occasions sought also improved sharply. In 2020 this ranged between 54% in March and 45% in May. In contrast, in 2021 these figures increased to more than 90% in March and April, though dropping slightly to 74% in May.

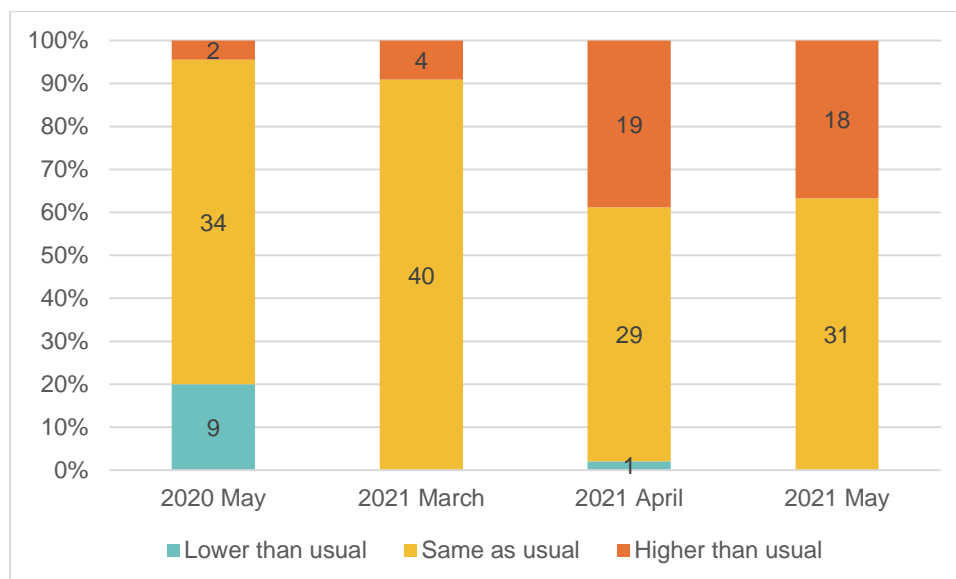
Figure 3 Percentage of respondents able to access inputs and buyers.



The participants were also asked whether they had used online platforms to sell their products. The share of respondents selling products online in 2020 rose from 8% in March, to 10% in April, before dropping to 5% in May. In contrast, in the same months in 2021, the highest share reached was 5%, falling to 3% in May, suggesting that selling was seen as a short-term solution by most respondents.

The percentage of respondents with a sufficient weekly income improved slightly from 78% in May 2020 to 84% in May 2021 (May was the only month included in both survey rounds). However, this improvement in economic status did not appear to be linked to assistance programs, as 94% and 92% of respondents reported receiving no assistance in May 2020 and 2021, respectively, and trade associations and family and friends were the two most frequently reported sources of assistance. Generally, respondents remained mobile throughout the surveyed months, with 98% reporting that they had travelled more than one mile from their place of residence in May 2020, and 100% doing so in May 2021, indicating few movement restrictions due to COVID-19 containment measures at these times. Most respondents purchased the same amount of food as usual (74% in May 2020 compared to 62% in May 2021); however, more people purchased more food than usual in 2021 than in 2020 (Figure 4).

Figure 4 Percentage of respondents reporting less than usual, the same as usual, and more than usual quantities of purchased food.



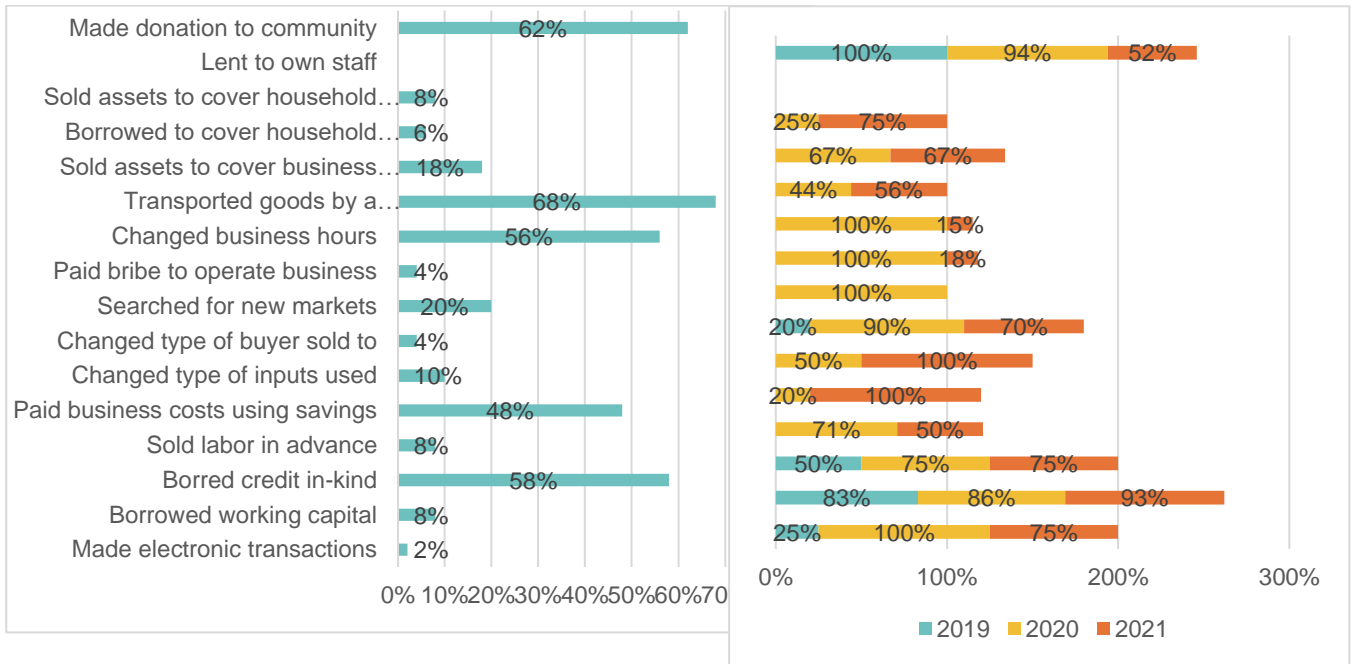
### 3. Business adaptations to COVID-19

We asked respondents about behaviors that we hypothesized might have been adopted as adaptations to COVID-19, and in which years from 2019 to 2021 they had practiced them. Our interpretation of the results is that behaviors that began or increased sharply during 2020 are likely to be adaptations to COVID-19, whereas those already common in 2019 were pre-existing patterns of behavior.

Many respondents appeared to have altered their behavior in adaptation to new challenges posed by COVID-19 (Figure 4). While none of the respondents used electronic transactions in 2019, all respondents used to electronic transactions in 2020 and 2021. The majority of respondents (68%) reported transporting goods by a different route to usual in 2020, suggesting that significant changes in logistical arrangements took place during the first year of the pandemic, likely in response to mobility restrictions imposed by the first March lockdown. Changing business hours was also commonly reported (56% of respondents) in 2020, but this share dropped to 18% in 2021, indicating that businesses reverted to normal working hours as soon as COVID-19 related restrictions were relaxed.

The second most common behavior, reported by 62% of respondents, was making donations to their communities. While this habit was already common in 2019, predating the onset of COVID-19, the percent of respondent making donations decreased in 2020 and further in 2021. Borrowing in-kind credit was another common behavior that increased over time. This practice was common in all years so does not appear to have been an adaptation to circumstances caused by COVID-19, but rather points towards strong social networks that support resilience. Borrowing money and selling assets to cover household costs was new behavior in 2020 and 2021 in response to the pandemic, indicating that the pandemic may be impacting on on livelihoods. Donations, credits, and assets may have played a key role in supporting community resilience during the pandemic.

Figure 5 Percentage of respondents who have shown the respective behaviours in the past three years (2019-2021).



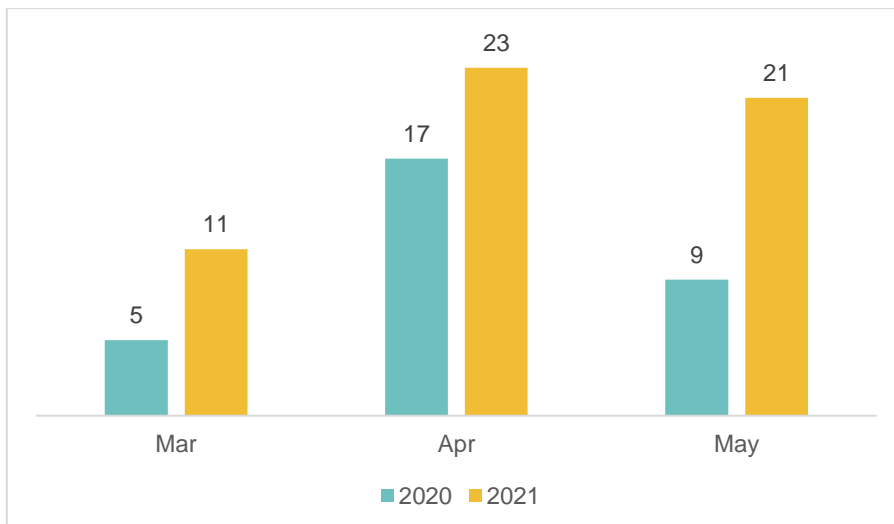
## 4. Impacts by value chain segment

The following subsections detail changes in business operation occurring between March-May 2020 and March-May 2021, for surveyed businesses in six segments of the aquaculture value chain.

### 4.1 Feed Mills

All surveyed feed mills operated in April and May in both years, after a slow start in March, which is the beginning of the fish farming season in Egypt and not related to the COVID-19 pandemic. The number of days operated per month was higher in all three months in 2021 than in 2020 (e.g. 21 days vs 9 days in May) (Figure 5).

Figure 6 Average number of days the business operated in 2020 and 2021.





## 4.2 Feed Sellers

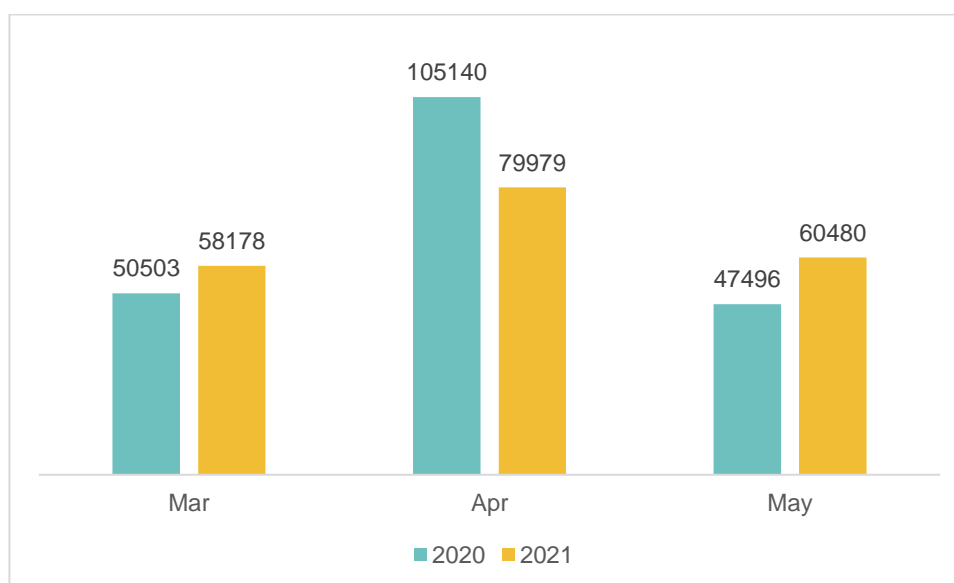
All feed sellers interviewed in Egypt sold pelleted feeds. Similar to feed mills, 100% of the surveyed respondents operated their business in April and May in both years, but the average number of days operated was slightly higher in 2021 compared to 2020 (3 days more on average).

The average sales value per ton of feed was consistently higher in March-May 2021 than in the same period during 2020. The total quantity of sold feed was higher in March for 2021 compared to 2020, 438 tones and 671 tones, respectively. The quantity of sold feed increased from 671 tons in March 2021 to 1612 tons in May 2021, in line with the beginning of seasonal activities.

## 4.3 Fish Hatcheries

All surveyed fish hatcheries operated in both 2020 and 2021, but the average number of operational days per month was considerably higher in 2021, averaging 29, compared to 19 in 2020. The total value of hatchlings sold in 2021 was USD 5328 per month. The total value of sold fry peaked in March in both years (Figure 6). Most hatchlings and fingerlings sold were tilapia (>80%).

Figure 7 Total value of sold fry in USD in 2020 and 2021.

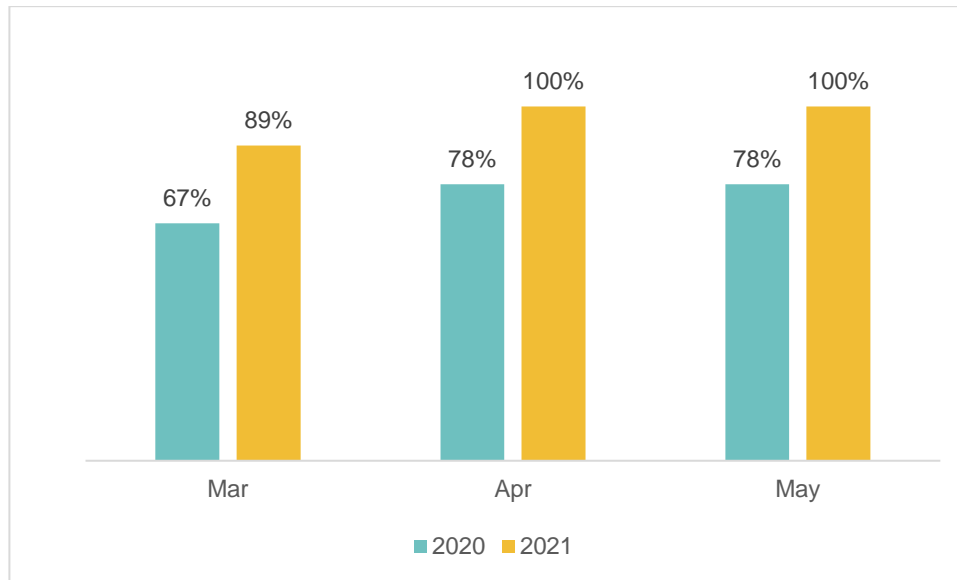


## 4.4 Fish Farms

Most surveyed respondents operated their fish farms in 2020 and all operated in 2021, except during March (90%), which is the beginning of the farming season. Unlike 2020, where respondents indicated a variety of reasons for not operating, such as reduced demand or inability to access credit, in 2021 all respondents reported that being out of season was the main reason for not operating in March.

Access to inputs improved substantially in 2021. The share of surveyed farms able to procure inputs whenever needed was around 22 percentage points higher from March to May 2021 than in 2020, reaching 100% in April and May 2021, up from 78% the previous year (Figure 7)

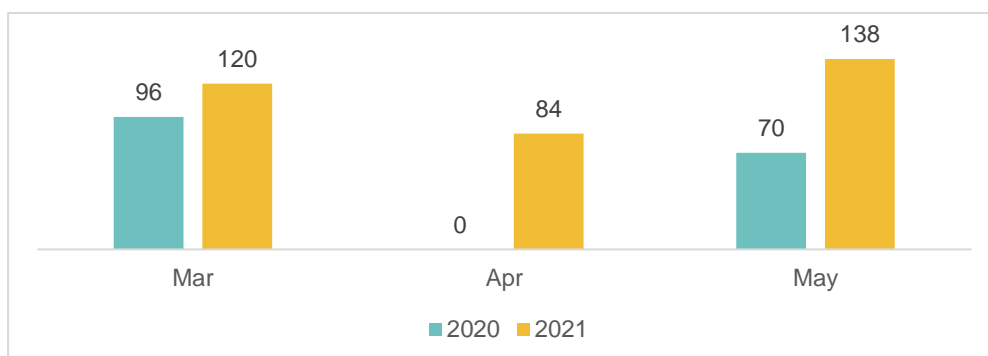
Figure 8 Percentage of respondents who procured input in 2020 and 2021.



The procurement price of feeds in 2021 was quite stable between March and May, at around \$590/t, but higher than during the same months in 2020. The combined average price of floating and sinking pelleted feeds in March 2021 was 20% higher than in March 2020, though this gap narrowed to 11% in May. The quantity of feed procured by surveyed farms was much higher in 2021 than in 2020, especially in April and May (714 tons in April 2021 versus 102 tons in April 2020, and 1,217 tons in May in 2021 versus 416 tons in May 2020), likely reflecting very low sales during these months during the peak lockdown period in 2020.

While the cost of farm inputs increased considerably in 2021 compared to 2020, the average farmgate price of fish sold remained at a similar level in March in both years, and fell during May, from \$1.62/kg in 2020 to \$1.39/kg in 2021. This combination of rising input costs and stagnant or falling prices suggests the profitability of farm operations would have been squeezed. However, more positively, the quantity of sold fish in 2021 was higher than in 2020, especially in May (increasing from 70 tons to 138 tons) (Figure 8).

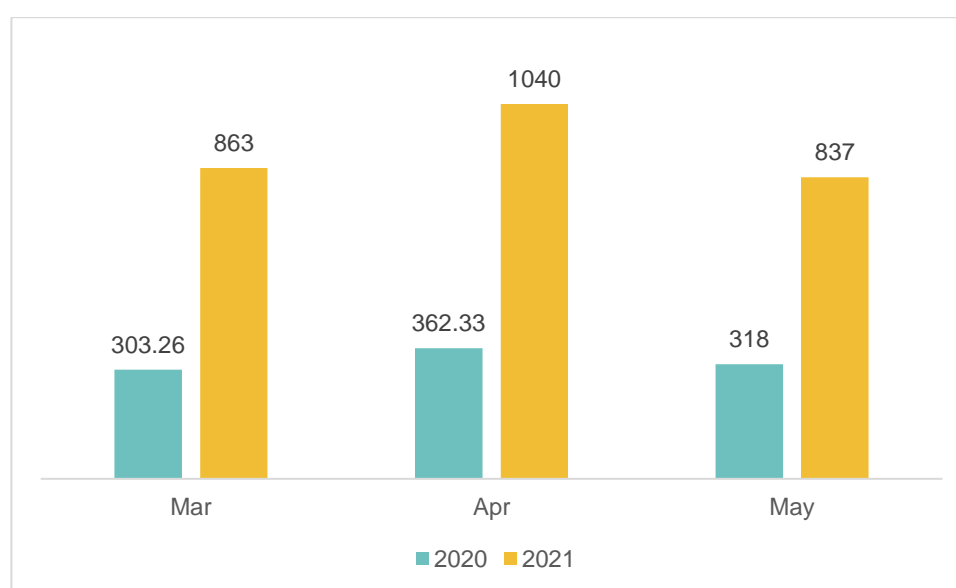
Figure 9 Total quantity of fish sold by farms in tonnes in 2020 and 2021 (t).



## 4.5 Fish Traders

All surveyed fish traders operated their business from March to May in both years. Businesses operated for an average of 5.3 days more per month in 2021 than in 2020. This gap was particularly large in May (15 days in 2020 and 26 days in 2021). The average sales price of farmed fish was slightly lower in 2021 than in 2020 (USD 1.49 and USD 1.39, respectively), but more stable (fluctuating by around 19% in 2020 and 4% in 2021). Despite the lower unit price, the total quantity of fish sold by traders farms in 2021 was approximately three times higher than in 2020, averaging 328 tons per month in 2020 and 913 tons per month in 2021 (Figure 9). Traders sold marine capture fish in small quantities in all three survey months in 2021 (totaling approximately 200 tons per month), whereas only 67 tons was sold in May 2020.

Figure 10 Total quantity of farmed fish sold by traders in 2020 and 2021 (t).



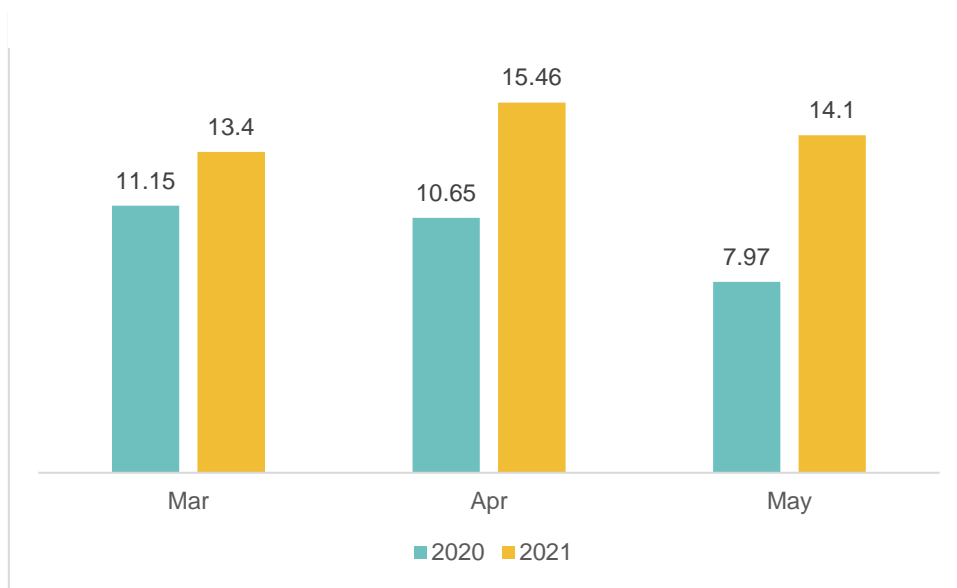
## 4.6 Fish Retailers

The share of fish retailers in operation was higher in 2021 than in 2020. In both years, 83% operated in March, rising to 100% in April and May 2021, compared to 83% and 92% in April and May 2020. The average number of days these businesses remained open also increased, up from 12 days per month in 2020 to 17 days per month in 2021. In 2020, respondents cited a variety of COVID-19-linked reasons for business closures. These included prices being too high, low demand for products, and having to stop operations due to COVID-19. None of these reasons were reported in 2021.

Similar to fish sold by traders, the average retail price of farmed fish sold by surveyed retailers was slightly lower in 2021 than in 2020, averaging about 7% less over the three months, while the total quantity of fish sold in 2021 was higher than in 2020 (Figure 10). In 2020, the quantity sold each month declined steadily from 11 tons in March to 8 tons in May. Monthly sales were more stable in 2021, averaging 14.3 tons per month. Also similar

to traders, retailers sold a small quantity of marine capture fish in each month in both years (less than 2 tons per month).

Figure 11 Total quantity of sold farmed fish, in tons in 2020 and 2021.



## Recommendations

1. Lower rates of employment and wages for female laborers suggests that gender-responsive support systems be implemented to increase equity for women laborers.
2. Evidence and coping behaviors during the pandemic point towards strong social support networks that support resiliency along the value-chain; however, as many people are reducing donations and increasingly relying on their savings and credit to cover household and business costs, short-term credits or loans may be useful moving forward to continue supporting these businesses through the effects of the pandemic. Supporting community communication and networking is also important to ongoing resilience.

## List of figures

Figure 1 Change and anticipated change in value of sales from 2019 to 2020 and from 2020 to 2021, reported and predicted by the respondents.....	4
Figure 2 Percentage of respondents hiring male daily labour. ....	4
Figure 3 Percentage of respondents able to access inputs and buyers.....	5
Figure 4 Percentage of respondents reporting less than usual, the same as usual, and more than usual quantities of purchased food. ....	6
Figure 4 Percentage of respondents who have shown the respective behaviours in the past three years (2019-2021).....	7
Figure 5 Average number of days the business operated in 2020 and 2021.....	7
Figure 6 Total value of sold fry in USD in 2020 and 2021.....	8
Figure 7 Percentage of respondents who procured input in 2020 and 2021.....	9
Figure 8 Total quantity of fish sold by farms in tonnes in 2020 and 2021 (t). ....	9
Figure 9 Total quantity of farmed fish sold by traders in 2020 and 2021 (t). ....	10
Figure 10 Total quantity of sold farmed fish, in tons in 2020 and 2021.....	11



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### **About WorldFish**

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