

ASSESSMENT OF IMPACT OF COVID-19 ON PRODUCTION AND FORTIFICATION PROCESSES OF EDIBLE OIL, MILK AND WHEAT FLOUR INDUSTRIES

A Survey Report



Prepared by
Karnataka Health Promotion Trust (KHPT)

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Assessment of Impact of COVID-19 on Production and Fortification Processes of Edible Oil, Milk and Wheat Flour Industries: A Survey Report

Publisher

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PREFACE

The COVID-19 pandemic has impacted lives and livelihoods across the country. Keeping the food supply running is arguably the most essential activity, and the industry has faced its fair share of challenges, especially during lockdown. We launched this survey to better understand the experience of food companies, especially the impact of COVID-19 on the production and fortification process during the pandemic. The picture that emerged is one full of challenges and changes, but also optimism that the industry will emerge even stronger.

We at KHPT extend our thanks to all the industry representatives who took the time to participate in this study.



EXECUTIVE SUMMARY

KHPT conducted an industry survey to understand the overall impact on production as well as fortification for the edible oil industry, milk dairies and wheat flour mills due to COVID-19-related restrictions. The survey was conducted in two phases; first quantitative, followed by qualitative interviews with those who participated in the quantitative phase. Industry participation was through invitation, however, a few voluntary responses were also received from the edible oil industry. The survey reference period was from April -June, 2020, and was conducted in the language of preference of the participant industry representative. About 129 edible oil industries, 52 milk dairies and 37 roller wheat flour mills spread across 12 different states participated in the quantitative phase and about 8 edible oil, 4 milk and 5 wheat flour industries took part in the qualitative part of the survey.

The proportion of edible oil and milk industry units with fortified brands in the open market is significant in comparison with the wheat flour industry, which has very few. The wheat flour industry mostly provides a dedicated supply of fortified flour to state governments. Among those who participated, 62% of edible oil industry representatives and 44% of milk industry representatives were reported to have fortified brands, while a majority of wheat flour industry representatives (30 of 37) were reported to be supplying fortified flour to the government.

The temporary suspension of operations due to the COVID-19 lockdown was greatest in the edible oil industry, with 49% of edible oil representatives with fortified brands reporting a temporary shutdown. However, the milk industry, due to the perishable nature of the product, and the wheat flour industry, as a major supplier to government, reported fewer shutdowns. Even though all three staple industries are categorised under essential services, the flexibility allowed for their operations differed on the ground. The impact was severe during the first few weeks of lockdown, and things gradually settled down after various issues were sorted out with the local government.

All three industries reported challenges due to the absence of employees. Movement of labour and the fear of COVID-19 restricted employees' attendance. However, industries took measures like arranging

accommodation, additional pay, providing meals etc., to encourage employee attendance. Similarly, all three staple industries reported disruptions in payment receivables and consequent challenges in cash flow during this period.

Reduced logistic services including transportation had a great impact on all three industries. Milk industries were the worst affected as they had to continue operations due to the perishable nature of their product. The initial confusion in categorising support services as essential services resulted in disruptions in operation. Inter-state transportation was hugely affected, especially during the initial lockdown period. The milk industry again reported losses due to spoilage of raw material, more than edible oil and the wheat flour industry. All three industries reported challenges in machine maintenance and repairs due to shutdowns in operations.

Retail production was strongly affected in all three industries; significantly, 77% of milk industries which are not fortifying their product reported the greatest impact, followed by 60% of non-fortifying wheat flour mills. However, milk industries which are fortifying milk faced a moderate impact of less than 25% reduction in retail production. Since the wheat flour industry supplies primarily to the government, retail production was not affected. Among the edible oil industries, 42% of non-fortifying industries reported greater impact and about 47% reported moderate impact in retail production.

All three industries reported an increase in production costs. Over 70% of the milk industry and more than 50% of both oil and wheat flour industries reported an increase in production costs. High labour costs, adopting COVID-related safety measures at plants, increased transportation costs and the increased cost of procuring packaging material contributed to increased production cost.

The fortification process was largely unaffected in all three industries. However, 30% of edible oil industries reported shortages in the supply of premix. A few industries reported challenges in accessing NABL-accredited laboratories for quality assurance testing. However, these challenges were addressed in due course as transportation conditions improved. Industries reported that they utilised the existing stocks of premix during this period and continued the fortification process. The cost of premix remained the same, with over 50% of all three industries reporting no change in premix cost. However, 26% of edible oil industries, 30% of milk dairies and 35% of wheat flour mills reported that there was increase in premix procurement costs. An analysis of industries which reported increases in production costs showed that less than 30% of industries which reported an increase in production cost also reported an increase in premix procurement cost, suggesting that an increase in premix cost had less impact on the overall production cost. There was a greater association of industries reporting increased production costs with those reporting increased transportation costs, logistic supply costs and reduced demand. This was particularly relevant to the milk industry.

The industries surveyed did not report any significant change in the demand for fortified products, despite increased demand for immunity-boosting products due to COVID-19. All three industries reported greater awareness about the importance of fortification in the context of COVID-19, with 56% of the milk industry, 44% oil and 42% of the wheat flour industry acknowledging the role of micronutrients in maintaining immunity and fortification in ensuring the same.

Industries reported several key learnings during the period, including the importance of local technical support services like machine maintenance, availability of trained staff, and maintaining minimum stock positions of essential input material to be better prepared for any future adverse events. Government agencies at different levels actively worked with all stakeholders to address the bottlenecks and pave way for the resumption of routine industrial activities. The importance of involving all stakeholders in managing adverse situations was highlighted by many industries. There were several instances of setting up joint coordination groups working together to address the situation. Several industries also stressed on the importance of increasing public awareness on the role of fortified food in addressing micronutrient deficiencies and boosting immunity in the context of COVID-19.

01



Scope and Purpose

This document summarises the combined results of an online survey and telephonic interviews that were undertaken by the Karnataka Health Promotion Trust (KHPT) with funding support from the Global Alliance for Improved Nutrition (GAIN) to understand the impact of the COVID-19 pandemic on the production and fortification process of edible oil industries, milk dairies and roller flour mills in India.

02



Background

COVID-19 has impacted all of us in many ways. Food business operators (FBOs) faced multiple challenges due to the lockdown and this had an impact on food production. Disrupted access to fresh foods, along with consumer preferences for cheaper foods, are leading to increased consumption of foods that are often a poor source of micronutrients. This makes the large-scale fortification of staple foods particularly important. GAIN and KHPT are working together to address the micronutrient deficiency in the country through staple food fortification. We have engaged with the edible oil industry, milk dairies and wheat flour mills to provide technical assistance for fortification. It was crucial to connect with stakeholders and be responsive to the emerging needs during the lockdown. Industries we had already engaged were requested to participate in a nationwide survey to hear their challenges. Through the responses received from the survey, we obtained an understanding of the impact of COVID-19 on businesses in general and fortification in particular.



03



Objectives of the survey

- To understand the impact of COVID-19 on production and the overall business of FBOs-edible oil, milk and wheat flour
- To understand the impact of COVID-19 on fortifying staples like edible oil, milk and wheat flour.

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Survey Design and Details

The survey was conducted in two phases. The survey reference period was from April -June, 2020, as the focus of the questions in the survey was the period of lockdown between April and June. Consent was taken from all participants who participated in both the quantitative and qualitative survey.

In the first phase, namely the quantitative phase, “SurveyMonkey”, an online survey tool was used to collect data from the respondents. The data collection was conducted in the month of July and August. The quantitative method aimed at gathering information about what proportion of industries faced production-related challenges as well as the percentage change in production during this period. Further, inputs on reasons contributing to the disruption in operations, impact on the fortification process and if the fortification process was adversely affected were also collated.

The second phase involved qualitative data collection from select representative plants through telephone-based interviews of the plant managers, which were conducted in the month of September. The qualitative in-depth telephonic interviews related to how industries tried to address the challenges to production, specifically those related to sourcing of premix, availability of packaging material, technical issues during the fortification process, managing requirements for technical support, etc. The data collected through in-depth interviews were coded and analysed and the summary of the findings has been compiled.

Only industries trained and supported by KHPT-GAIN and former implementation partners (IIHMR, Vatsalya, CECOEDECON) of GAIN were considered for participation in the quantitative survey. For the telephonic interviews, industries were shortlisted on the basis of participation in the quantitative survey and were reported to be fortifying their products (both in the open market or through government supply).

We received responses from 129 oil industries, 52 milk dairies and 37 roller wheat flour mills across the country, out of 409 oil industries, 81 milk dairies and 123 roller flour mills invited in the first phase of the survey. We received responses from 17 industries which included 8 oil, 4 milk and 5 wheat flour industries in the second phase, i.e., telephonic interviews.

The survey questionnaire for Phase I consisted of 11 questions with basic information about plant, type of products produced, and questions about the current response to the COVID-19 crisis with respect to the production as well as fortification process. Phase II of the survey consisted of 5 specific questions to capture more in-depth information with regard to the impact of the coronavirus pandemic on production, as well as the fortification process. The first phase of the survey was available in English, Hindi and other regional languages like Kannada, Malayalam, Telegu and Tamil for the convenience of respondents. The qualitative phase was conducted in the language convenient to the respondent.

To encourage active industry participation in the survey, KHPT adopted an incentivising approach. Certificates of participation were issued by GAIN and KHPT to all participants who completed the first round of the survey. Free testing of one fortified edible oil sample from an NABL accredited laboratory was offered to the industries which participated in Phase II of the survey.

05



Who Took the Survey

Only industries trained and supported by KHPT-GAIN and former implementation partners (IIHMR, Vatsalya, CECOEDECON) of GAIN were considered for participation in the quantitative survey. Out of a total of 409 edible oil industries, 129 industries participated in the survey. The percentage of participation of industries from KHPT intervention states was higher when compared with that from other states where the industries were being trained and supported by other implementation partners of GAIN. The details of industries which participated in the quantitative survey are as follows:



Table 1: No. of industries which participated in phase I (Quantitative Survey)

Edible oil industries (Overall participation - 31.5 %)

States		Invited	Participated	% Participation
				
KHPT Intervention States	Andhra Pradesh	34	37	27.38
	Uttar Pradesh	87	39	
	Bihar	8	3	
	Karnataka	12	4	
	Tamil Nadu	46	18	
	Telangana	10	10	
	Puducherry	1	1	
Other states	Gujarat	66	3	4.15
	Haryana	6	1	
	Madhya Pradesh	19	4	
	Maharashtra	26	4	
	Rajasthan	94	5	
Total		409	129	

Milk processing dairies (Overall participation - 64.19 %)

States	Invited	Participated	% Participation
			
Andhra Pradesh	11	23	64.19
Karnataka	13	2	
Maharashtra	3	1	
Puducherry	1	1	
Tamil Nadu	25	14	
Telangana	9	8	
Uttar Pradesh	6	2	
Haryana	13	1	
Total	81	52	

Roller flour mills (Overall participation – 30.08 %)

States 	Invited 	Participated 	% Participation 
Andhra Pradesh	2	2	30.08
Tamil Nadu	2	2	
Uttar Pradesh	24	1	
Kerala	7	1	
Punjab	1	1	
Himachal Pradesh	80	27	
Meghalaya	6	2	
Odisha	1	1	
Total	123	37	

The qualitative study was conducted with a sample size of 17 industries, which included 8 oil, 4 milk and 5 wheat flour industries. Telephonic consent of all the industries was taken prior to interviews. The details of industries which participated in the qualitative survey are as follows:

Table 2: No. of industries which participated in phase II (Qualitative survey)

 States	No. of Industries which participated 	
 Edible Oil Industries	Uttar Pradesh	3
	Andhra Pradesh	2
	Telangana	1
	Tamil Nadu	2
 Milk Processing Dairies	Uttar Pradesh	1
	Andhra Pradesh	1
	Telangana	1
	Tamil Nadu	1
 Roller Flour Mills	Himachal Pradesh	3
	Andhra Pradesh	1
	Punjab	1
Total	17	

06



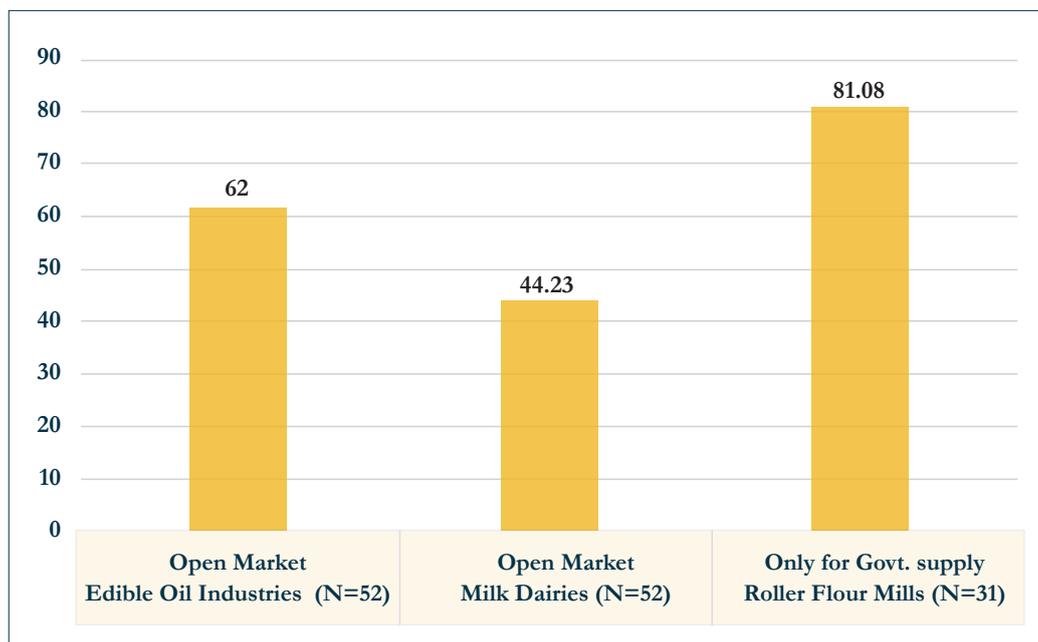
Industries (%) reporting Fortified Brands in the Market and Government Supply

The proportion the of units in the edible oil and milk industry offering fortified brands in the open market is significant in comparison with the wheat flour industry. The wheat flour industry mostly provides a dedicated supply of fortified flour to state governments.

Out of the 129 edible oil industries which participated in the survey, 80 (62 %) have an open market presence of fortified oil brands. 23 (44.23%) milk dairies out of 52 milk dairies which participated have an open market presence of fortified milk variants and out of 37 roller flour mills surveyed, a majority of the mills (31) are supplying to safety net programs like the Public Distribution System (PDS).



Figure 1: Proportion of companies reporting presence of fortified brands or products in the market



07



Results

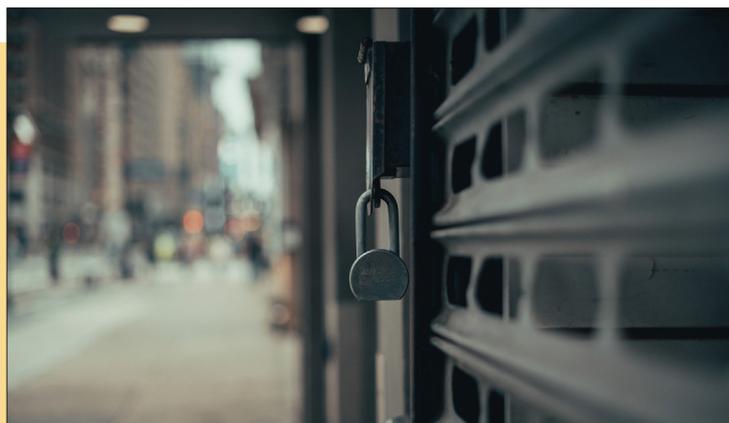
7.1 Effect of the COVID-19 Pandemic on Edible Oil Industries, Milk Dairies and Roller Flour Mills



The pandemic has had a substantial negative impact on industries. The top hurdles faced by companies were the absence of employees, reduced logistic services, temporary shutdown of production due to the lockdown and disruptions in payments received.

7.1.1. Temporary shutdowns due to lockdown by government

Due to the lockdown imposed by the government, 48.75% of edible oil industries (fortifying) and 32.65% edible oil industries (non-fortifying) reported a temporary shutdown of operations. The impact of the lockdown was felt less in the milk and wheat flour industry as compared to the oil industry, considering milk and wheat flour were essential commodities since the start of lockdown. 17% of fortifying dairies reported being temporarily shut down due to the lockdown, whereas 24% of non-fortifying milk dairies reported a temporary shutdown. 33% of roller flour mills not fortifying reported a temporary shutdown, whereas 19% of roller flour mills fortifying their product reported temporary shutdowns. COVID-19 impacted units/plants in different ways; those plants supplying products to the government fared better. The impact was severe during the first few weeks and things gradually settled down after various issues were sorted out with the local government. Units also developed their own strategies to deal with various issues that the lockdown presented. Government support and solutions were crucial in managing the situation and continuing production and distribution activities.

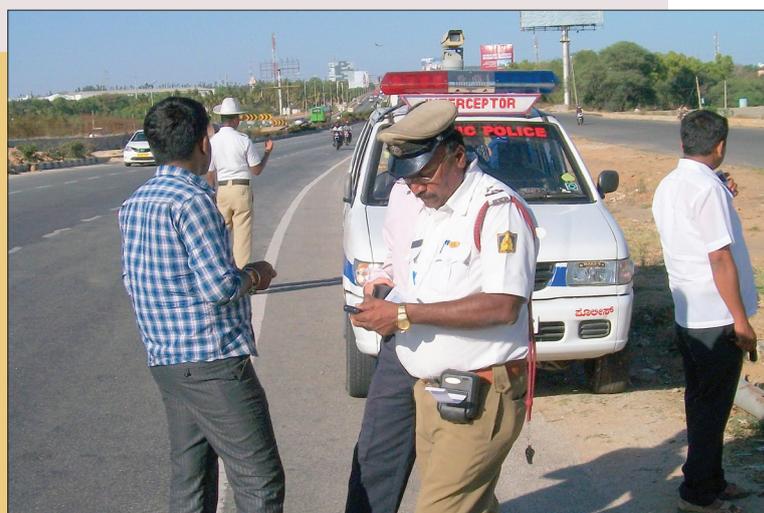


“ They (government) were very helpful, and so whenever we used to put a point across them they used to understand it properly and help out. - a roller flour miller from Himachal Pradesh ”

7.1.2. Impact due to absence of employees

The absence of employees was a major issue and impacted all industries to a large extent. Almost 50% of edible oil industries fortifying their product and 36% not fortifying reported being affected by the absence of employees. In case of milk processing dairies, 26% of those fortifying and 55% of those not fortifying reported being affected due to the absence of employees. 64% of roller flour mills fortifying and 50% those not fortifying reported being affected. Due to the lockdown, there was difficulty in movement of labourers from their place of residence to the workplace. From the qualitative interviews, we were able to gather information about some instances where the police did not allow the movement of labourers. There were also COVID-related anxieties among the labourers, which also had an impact on workforce. There were rumours among workers and fear about coronavirus complications which had an impact on the workforce and its morale.

“ Movement of labour from residences to workplaces was restricted, it took time for the government to understand the issues and ease movement. - an oil miller from Andhra Pradesh ”



Initially, this had an impact on labourer availability, but gradually they were back and working. Units employed different strategies to retain their workforce, such as arranging for their stay, providing meals, and offering bonus and extra payments. There was also a feeling that some of the labourers took advantage of the situation to evade work. The workforce was also reduced because of government orders at some places.

“

Production got largely impacted due to unavailability of labour.
- an oil miller from
Uttar Pradesh

”

7.1.3. Impact due to disruptions in payment receivables

When it comes to disruption in payment receivables, roller flour mills were found to be most affected among all three industries. 45% of roller flour mills fortifying and 16% of those not fortifying reported that there were disruptions in payment receivables. In the case of edible oil industries, the proportion was 27% edible oil industries fortifying and 34% of those not fortifying. Only 8% of milk dairies fortifying and 41% of those not fortifying reported disruptions in payment receivables.

7.1.4 Impact due to reduced logistic services like transportation and unavailability of packaging materials

Reduced logistic services during the period of lockdown were a major problem for the industries. 41% of edible oil industries fortifying and 34% of those not fortifying reported issues of reduced logistic services. In case of milk dairies, 26% of dairies fortifying and 58 % of those not fortifying were affected due to reduced logistic services. As far as roller flour mills are concerned, the impact was reported by 45% of the mills fortifying and 50% of the mills not fortifying. Transport issues emerged at different levels due to restricted movement across state borders, and lack of clarity among police personnel regarding movement of essential commodities, leading to obstruction of movement of vehicles and labourers. However, these issues were taken up by the government and efforts were made to resolve them.

“

We have formed industries groups and associations at initial level only to work with the administration and police and inform them. As a result, we did not face major issues. - an oil miller from
Andhra Pradesh

”

The challenges that the plants faced varied; these challenges can be categorized as logistic challenges and problems caused due to categorization of essentials and non-essentials. Most of the units had stocks in storage and were able to meet demand. However, the challenge was with packaging materials for most of the units. This was a challenge because of two reasons; one, that units slowly began to run out of packaging materials and two, because other packaging material industries were not considered essential services and were not operational.



7.1.5 Impact due to spoilage of raw materials

The industries which had stocked raw materials as routine practice did not face any related challenges. Findings from the survey have shown that milk processing dairies were the most affected among all the three industries. 4% of milk dairies fortifying their product and 20% of those not fortifying reported the spoilage of raw materials stored. However, in the case of edible oil industries, the impact was felt by only 6% industries fortifying their product and 10% of those not fortifying. Only 16% of roller flour mills fortifying reported the spoilage of stored raw materials.

7.1.6 Impact due to machines requiring maintenance

The maintenance and repair of machines and vehicles used for transportation was also a challenge. Garages were closed and the supply of spare parts for the units and also for vehicles was not available. Procuring the parts required for repair of the mill or any machinery at the plant and getting repairs done became extremely difficult during lockdown. 17% of edible oil industries fortifying their product and 10% of those not fortifying reported being affected due to machinery requiring maintenance during the lockdown period. In case of milk dairies, 4% those fortifying and 20% of those not fortifying reported being affected. 22% of roller flour mills fortifying their product reported the impact due to machinery requiring repairing and maintenance.

“

Machines also need regular maintenance. One of my trucks had a problem and needed part replacement. The parts were supposed to come from Delhi as they were not available nearby anywhere around Chandigarh or Himachal Pradesh. Because of that, the truck couldn't move for almost a month. - a roller flour miller from Himachal Pradesh

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Figure 2: Impact on edible oil industries

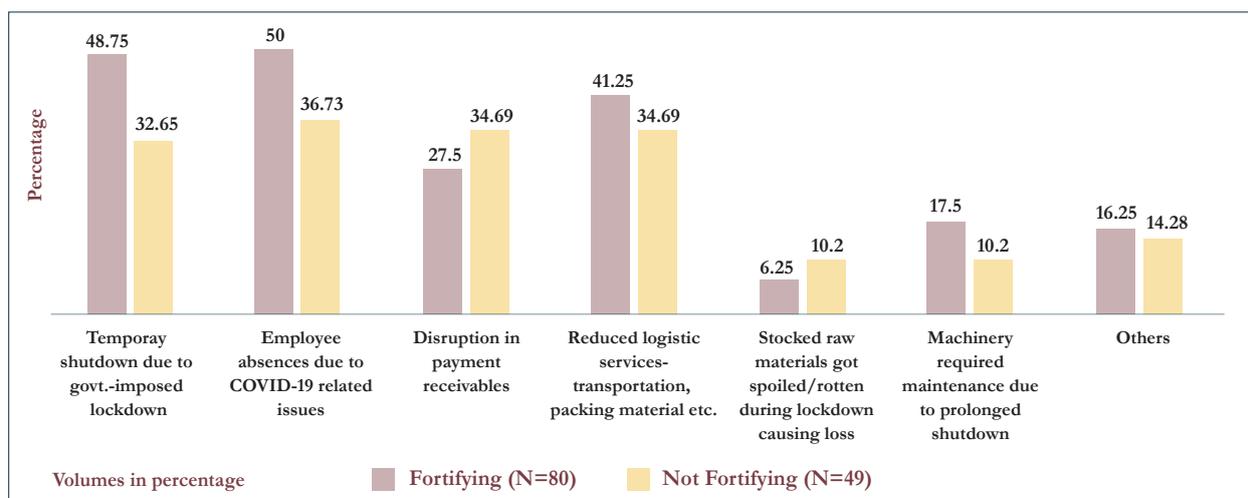


Figure 3: Impact on milk dairies

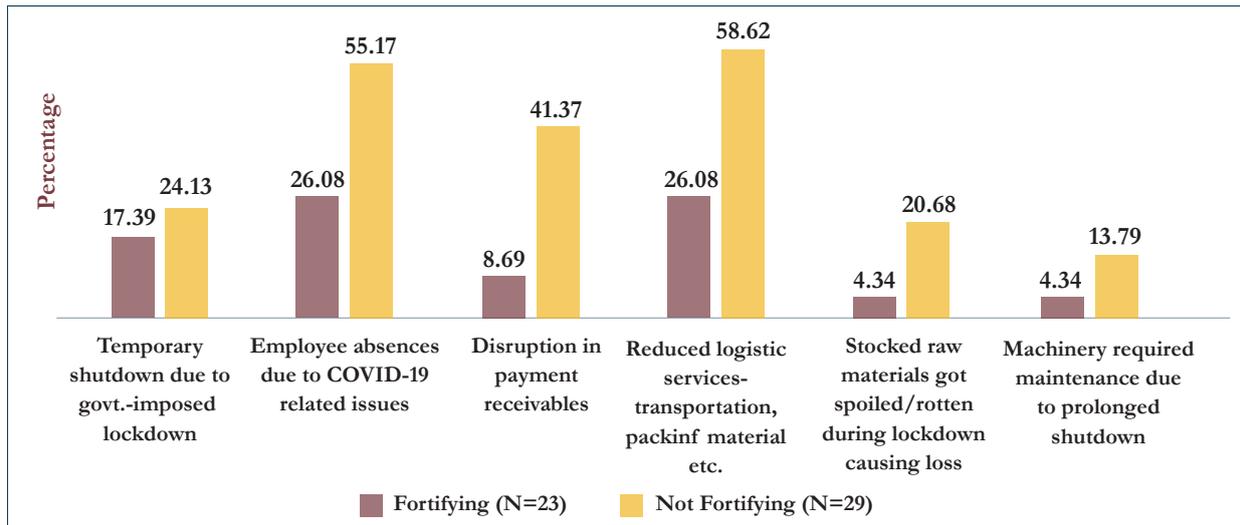
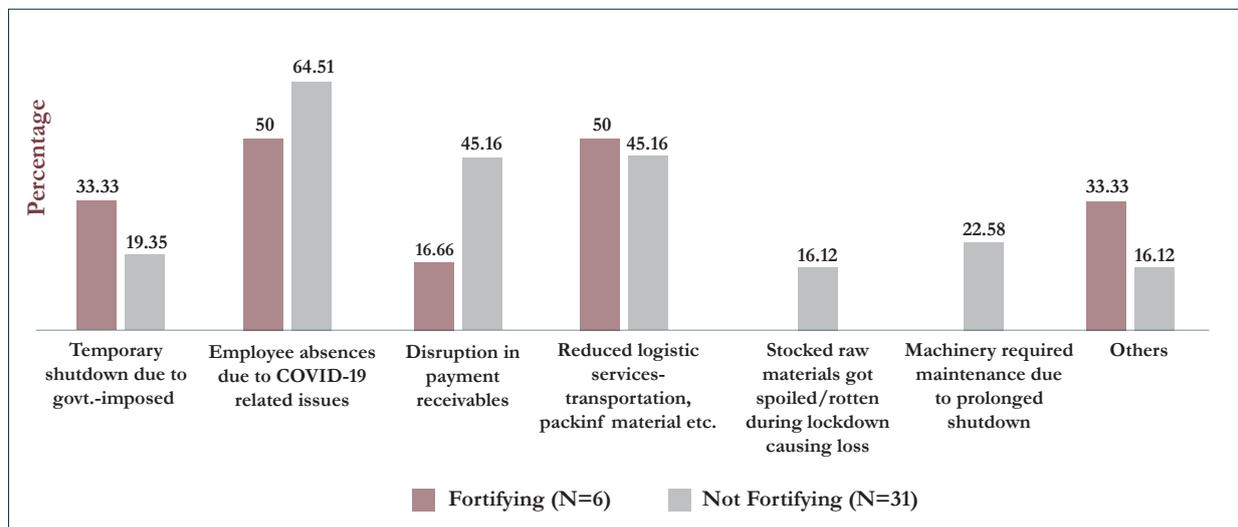


Figure 4: Impact on roller flour mills



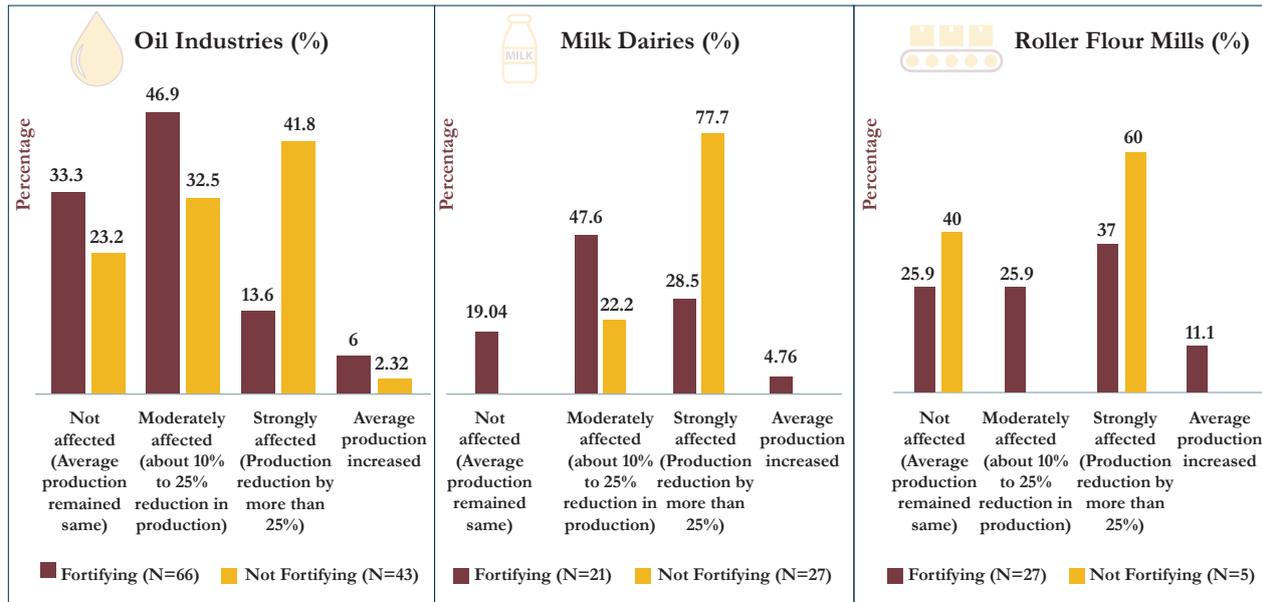
Note: The sum of the percentages exceeds 100 because respondents could choose more than one answer.

7.2 Effect of COVID-19 on retail production of industries



Retail production was found to be strongly affected among milk dairies [6 (28%) of those fortifying and 21 (77%) of those not fortifying], followed by roller flour mills [10 (60%) fortifying and 3 (37%) not fortifying] and edible oil industries [19 (13%) fortifying and 18 (41%) not fortifying]. The problems faced were often interlinked and challenges faced in production were at times not directly due to the inability of a particular industry to deal with the situation. The industries rely on several ingredients in order to produce food products, ranging from raw materials to packaging materials, vehicles etc. Therefore, the categorization of industries as essential and non-essential was a major barrier that affected the working of the industries and their ability to deliver. Those industries recognized as essential required the support of industries categorized as non-essential for the supply of packaging materials, maintenance of machinery and vehicles, supply of premix etc.

Figure 5: Impact of COVID-19 on retail production of industries



7.3 COVID-19 pandemic and production cost

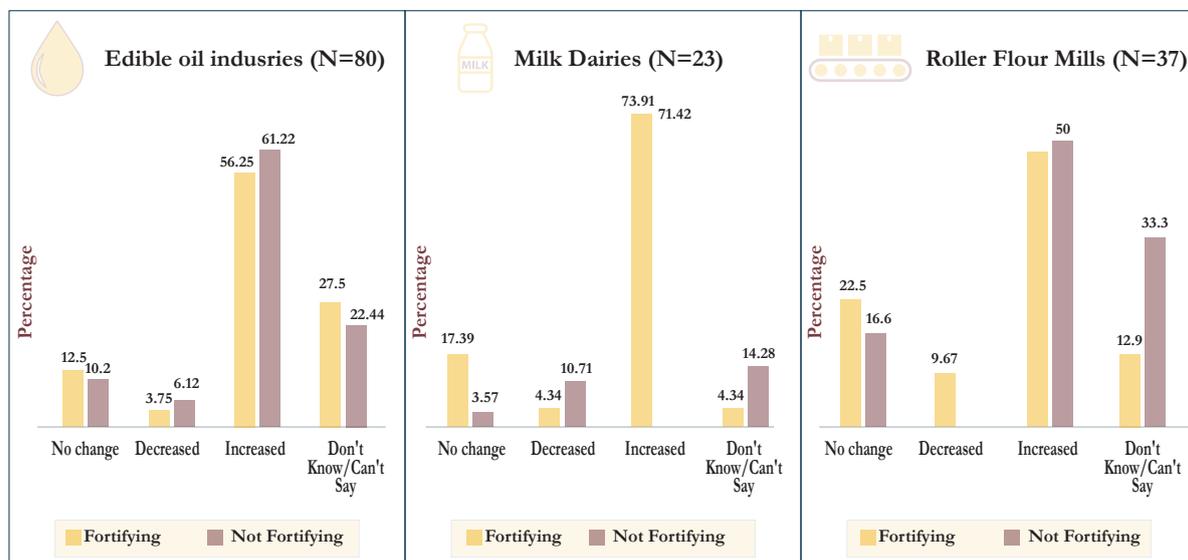
The cost of production was found to be significantly affected and increased due to the pandemic situation among all the three industries, irrespective of whether they are fortifying their products or not. Possible reasons for the increased cost of production were the higher costs to produce, process and distribute the products, an increase in automation, other measures such as physical distancing and the use of protective gear and training, along with reduced manpower, increased transportation cost, an increase in labour cost, and an increase in the price of packaging materials. Industries have had to bear extra expenses in order to retain the workforce and manage production activities.

“

We have hired a definite number of vehicles for a time-period based on tender, so we cannot reduce the number of vehicles; even if they are not moving, we have to pay the charges. Also, whether we are sending 200 crates of milk pouches or 20 crates of milk pouches, we have to use different vehicles for different locations. - a milk dairy official in-charge from Uttar Pradesh

”

Figure 6: Impact of COVID-19 on production cost of industries



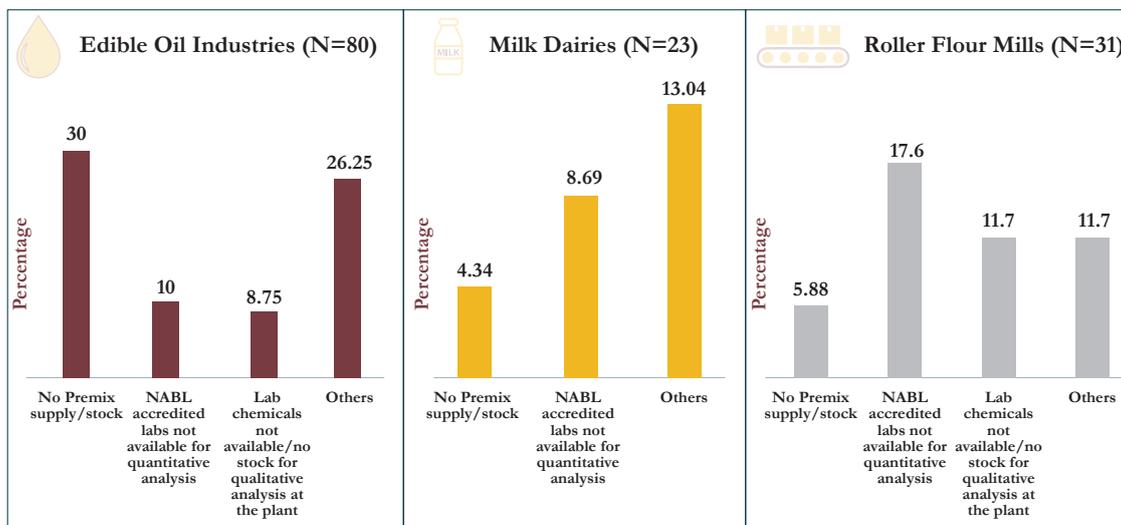


7.4 Impact of COVID-19 on the fortification process

Most of the units included in the study did not face major challenges when it came to fortification. The pandemic had a negative impact on edible oil industries, with 30% of industries reporting a shortage or unavailability of premix. In contrast, only 4% of milk dairies and 5% of roller flour mills said the crisis had an impact on the availability of the premix. Disrupted access to NABL laboratories for quantitative analysis was reported by 10% of edible oil industries, 8% of milk dairies and 17% of roller flour mills, respectively. The unavailability or laboratory chemicals for qualitative analysis was reported by 8% of edible oil industries and 11% of roller flour mills.

Fortification was not affected profoundly for industries which had a stock of premix which would last them anywhere between two weeks and two-three months. However, there were challenges with the industries which ran out of the premix stock as the premix manufacturing industries were not operational, being non-essential manufacturing industries. After the lockdown period was over, the procurement of premix became difficult because of the rise in prices of premix. Fortification was facilitated by various means, with the help of government assistance, utilizing available stock, planning for procurement of premix and also utilizing their own lab services for quality checks in instances where industries were supplying to government safety net programs.

Figure 7: Impact of COVID-19 on fortification by industries

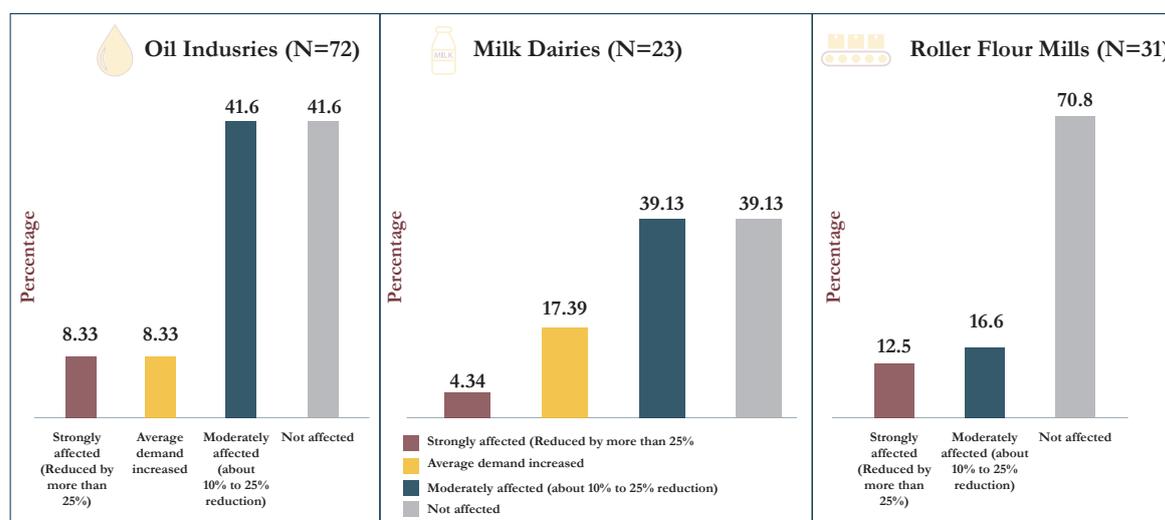


Note: The sum of the percentages may or may not 100 because respondents could choose more than one answer or skip the question.

7.5 COVID-19 and the demand for fortified products

“Immune boosting” is a trending topic during the COVID-19 pandemic. However, with regard to demand to fortified food products, no significant increase was reported in the demand for fortified foods. Among milk dairies only, 17% of industries reported an increase in the demand for fortified products. The reason could be the perception among the population about consuming milk to enhance immunity and fight against coronavirus infections (especially with milk as prescribed by Ministry of AYUSH). Fortified food products available in the Indian market are enriched with immune-boosting vitamins and minerals, but there was no increase in demand reported, possibly due to a lack of awareness among the general population about the importance of fortified products and their role against COVID-19. With regard to changes in marketing strategy, one of the milk industries from Telangana state launched a marketing campaign using FM radio as a channel for communication.

Figure 8: Impact of COVID-19 on demand of fortified products

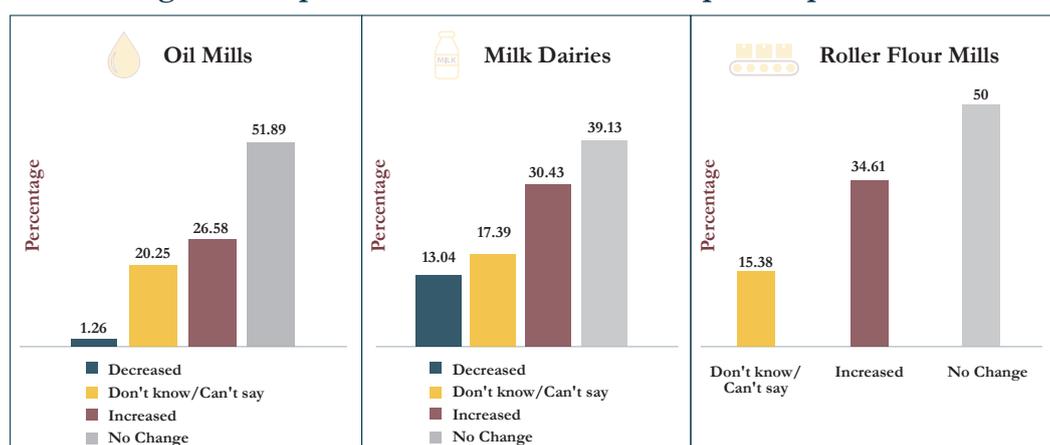


7.6 Effect of COVID-19 on cost of premixes procured

More than 50% of edible oil industries reported no change in the cost of premix whereas 26% of industries found the cost of premix to have increased. Around 40% of milk processing dairies reported no change in the cost of premix, whereas 30% found the cost of premix to have increased. Around 50% of roller flour mills also reported no change in the cost of the premix, whereas 34% found the cost of premix to have increased. Based on the responses received during telephonic interviews, it was found that few roller flour mills reported the increase in the cost of premix because of the increased transportation cost.

“ We also had to pay extra for hiring a vehicle, because the situation of COVID-19 and lockdown was like that, we also had to compromise. - a roller flour miller from Himachal Pradesh ”

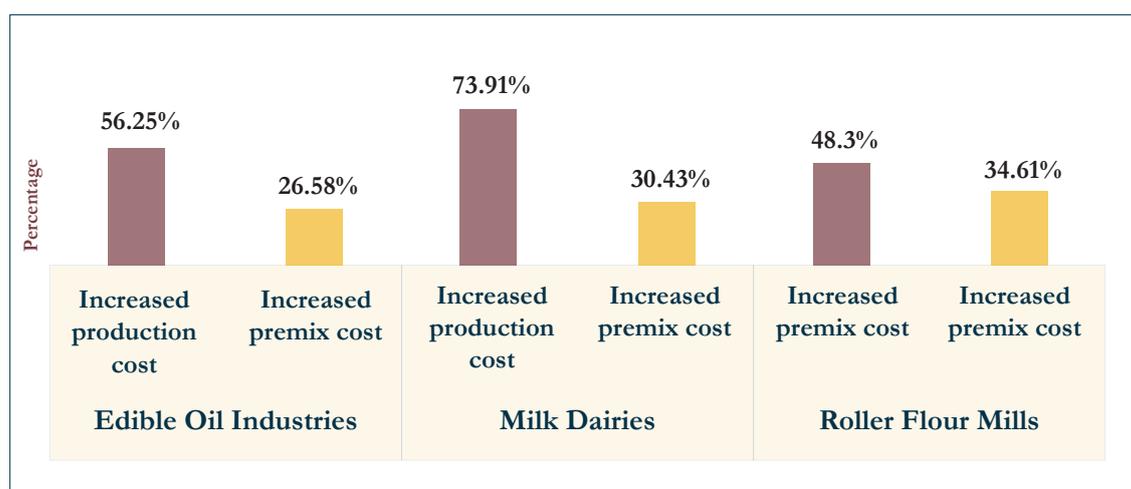
Figure 9: Impact of COVID-19 on cost of premix procured



7.7 Number of industries reporting increase in production cost and cost of premix

Among edible oil industries, 45 industries (56%) reported an increase in production cost whereas only 21 (27%) oil industries reported an increase in the cost of premix as well. Among milk dairies fortifying their product, 17 (74%) dairies reported an increase in the production cost, whereas only 7 (30%) reported an increase in cost of the premix. About 15 (48%) flour mills reported an increase in production cost and 9 (34%) mills reported an increase in the cost of premix procured. The increase in the cost of premix may be attributed to the increased cost of transportation or courier service charges. Since similar responses were received from the industries across the country, the impact may not be considered to be geography-specific. From the data, it could also be established that there was no significant impact of increased premix cost on the increased cost of production.

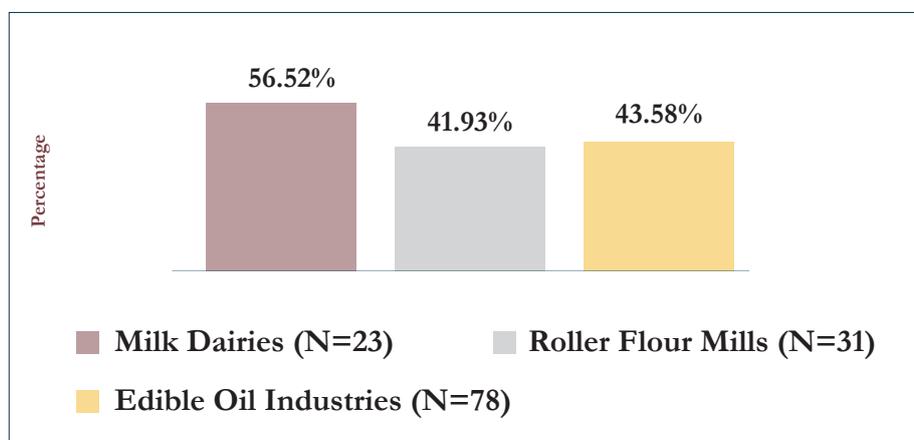
Figure 10: Proportion of industries reporting an increase in production cost and cost of premix



7.8 Awareness about the importance of fortification in fighting COVID-19

Awareness about the importance of fortification in fighting COVID-19 was high among milk dairies (56.52%), followed by edible oil industries (43.58%) and roller flour mills (41.93%). The reason could be the presence of more technically sound workers and dairy technologists in milk dairies when compared to edible oil and flour mills.

Figure 11: Proportion of industries having awareness about the importance of fortification in fighting COVID-19

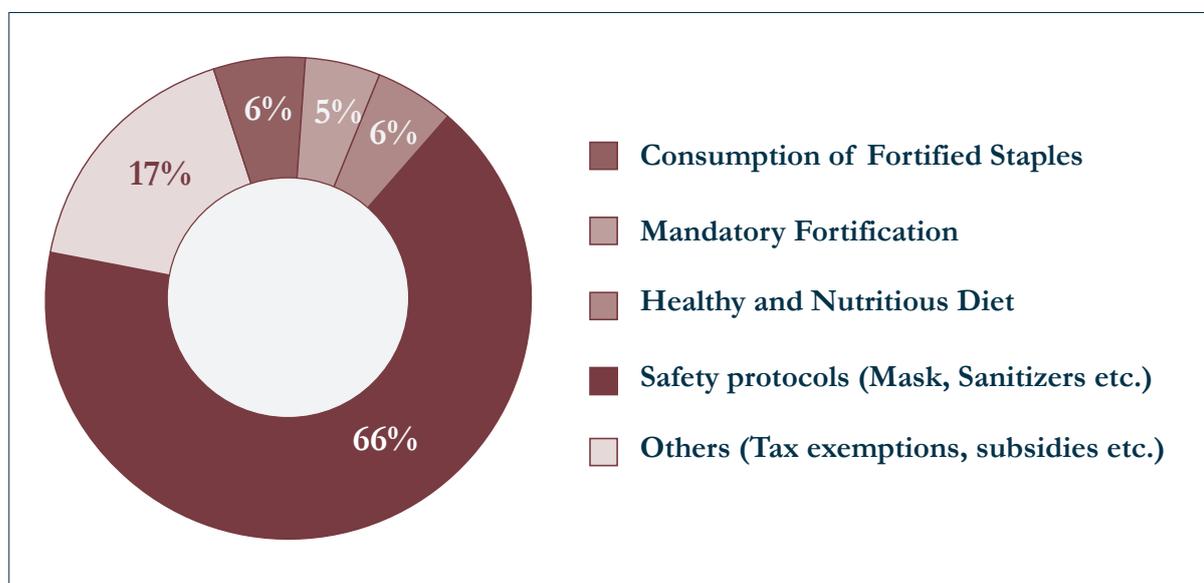


7.9 Measures suggested by industries to cope with COVID-19



66% of industries (edible oil industries, milk dairies and roller flour mills) suggested adopting safety protocols like wearing of masks, using sanitizers, hand washing etc. to fight against COVID-19. A significant proportion of the respondents emphasized diet-related modifications in order to cope-up with COVID-19; 6% of industries found a healthy and nutritious diet to be a weapon to fight against COVID-19, 5% of industries suggested making food fortification a mandatory practice, whereas 6% of industries suggested the consumption of fortified staples enriched with immune-boosting vitamins and minerals to fight against the pandemic.

Figure 12: Measures suggested by industries to cope up with the pandemic



08



Industry Feedback and Learnings



From the qualitative survey of the industries, we were able to gather in-depth and detailed perspectives from the industries with respect to all aspects of food production and fortification. Food safety has been a very important aspect for consumers, food business operators (FBOs) and regulators. COVID-19 has reintroduced some technical aspects of Good Manufacturing Practices (GMP) and Good Hygiene Practices (GHP) such as social distancing, hygiene, hand washing technique, sanitiser usage, disinfection, fumigation, and good practices when sneezing.

“

The workforce has become sincerer in following product as well as personal safety protocols. Prior to the COVID-19 pandemic, they were not taking safety precautions too seriously. But now due for fear for life, they have started to take things seriously. - A roller flour miller from Himachal Pradesh

”

Industries also had to increase their production in order to deal with increased demand in some instances. They managed to deliver more in a limited period, and an important lesson learned was how to meet the demand with the given resources.

“

In 10 days, we had to supply government with supply tonnage of 2 months, because people were engaged in panic buying and started storing double or triple than usual. That was a big challenge to produce and supply in such a short time. - - a roller flour miller supplying wheat flour to government programs from Himachal Pradesh

”

Preparing for future unexpected needs and keeping required materials in stock are important lessons learned by industries. Although it is a practice across industries to stock raw materials, the present pandemic situation highlighted the need to stock not only raw materials, but also packaging materials, and few spare parts for machinery.

Technology can be very useful, is what a few industries mentioned in terms of being connected for making important day to day decisions and monitoring the working of the industries/plants.

“

Technology has been given significance and technology only has helped people get out of COVID-19 situation. There are a number of activities like taking approval, meetings, discussions etc. which we can manage smoothly using technology only. - A dairy plant in-charge

”

In terms of felt need, creating more awareness among the general population regarding the benefits of fortification has been expressed by many industries. Industries also felt that there is a need to set up NABL accredited laboratories within their states as currently they have to send their samples to other states and there is sometimes difficulty in maintaining the quality of the product, considering the distance.

09



Conclusion and Recommendations



COVID-19 is an unparalleled public health emergency, with particularly severe impacts on the lives of the most vulnerable. Not a single country including India has remained unaffected by the COVID-19 pandemic, with millions of cases and thousands of deaths across the states. Findings of the survey have indicated the negative impact on industrial activities of all three staples and a hike in prices of the food products because of the increased production cost among all the surveyed industries. Along with problems of unavailability of cheaper food products, lockdown strategies to mitigate the spread of the virus and the concurrent economic crisis in India could increase the burden of hunger and exaggerate the existing forms of malnutrition and increase their prevalence, including micronutrient deficiencies.

In the context of a deepening crisis of hunger and malnutrition brought by the COVID-19 pandemic, food fortification with essential vitamins and minerals becomes even more important in helping to make a more nutritious diet affordable and available to all. It is well known now that fortification is an inexpensive and efficient way to increase the micronutrient content of foods that people consume every day. Food fortification programs must be strengthened and protected during the COVID-19 pandemic to support healthy immune systems and to help shield the population from increased malnutrition due to COVID-related food production challenges and economic challenges. By acting jointly and proactively, governments, food industries and development agencies can ensure that the production, distribution, and consumption of fortified foods continues to support health and resilience to infection during and beyond the COVID-19 pandemic.

A. For the governments

- ◆ The emergency management plan for ensuring essential supplies and services should include critical supportive services and must consider involving industry representatives in managing the situation.
- ◆ Take measures to create awareness among general public on the importance of fortified foods using different platforms like television, web, and social media communications.
- ◆ Set up mechanisms for inter and intra state transportation of essential material during emergency situations, besides sensitising local law enforcing authorities on creating an enabling environment for industries to operate in crisis situations.

B. For the food production industries

- ◆ Develop and adhere to Standard Operating Procedures (SOPs) to manage crisis situations. Develop local alternative options to reach out in case of requirement in crisis situations.
- ◆ Ensure fortification quality assurance in line with national fortification standards.
- ◆ Continue efficient production and quality assurance systems with a very well trained workforce to ensure sustained production and distribution of fortified food products.
- ◆ Ensure a definitive and affordable premix supply in order to sustain production even during unprecedented times.
- ◆ Invest in marketing and advertising to inform consumers about the health benefits of fortified foods.

C. For the development agencies

- ◆ Establish connections with the industry to understand evolving situations, identify challenge areas and facilitate stakeholder interactions to improve the situation.
- ◆ Build the capacity of the industry to adopt safety protocols, develop and share education material and support cross-learning among the industries.
- ◆ Sensitize the industries about the importance of food fortification and provide them technical trainings to adopt fortification.



Annexures

Annex I - Questionnaire developed for the Quantitative Survey (Edible Oil Industries)

About Survey			
<p>1. Survey is being conducted by GAIN-KHPT to understand the impact of COVID related measures during the recent period on edible oil producing industry across the country.</p> <p>2. All information sought are pertaining to the lockdown period - March to June 2020 month (3 months)</p> <p>3. The information shared will be kept confidential and anonymous. No data of individual plant will be published or shared in any manner. Overall survey findings will be used to enhance understanding of impact of COVID related measures on industry, specifically on fortification process.</p> <p>4. Participants who complete the survey will be awarded with “Participation Certificate” signed by GAIN and KHPT</p> <p>5. Among those who complete the survey, select plants will be requested by survey team to participate in telephonic interview. Industry participating in telephone interview will be able to avail one time free fortificant analysis of their fortified brand in a NABL accredited lab free of cost.</p>			
Consent for participation in the survey:			
<p>This survey is being conducted by GAIN-KHPT to understand the impact of COVID related measures during the recent period on edible oil, Milk dairies and wheat flour producing industry across the country. The information shared will be kept confidential and anonymous. No data of individual plant will be published or shared in any manner. Overall survey analysis findings will be used to enhance understanding of impact of COVID related measures on industry, specifically on fortification process. You are encouraged to participate in the survey, with primarily academic interest. You can choose not to respond to any question. In case you have any queries and want to seek clarification, you can contact KHPT at the email: khptblr@khpt.org.</p>			
I agree to take part in the survey		<p>1. Yes</p> <p>2. No</p>	
Full name:			
Company name:			
District:			
S. No.	Question	Responses	Remarks / Instructions
Production related questions			
1	Type edible oil produced/packed at the plant?	<p>1. Refined sunflower oil</p> <p>2. Refined rice bran oil</p> <p>3. Refined palm super olein oil</p> <p>4. Refined palm olein oil</p> <p>5. Refined palm kernel oil</p> <p>6. Refined soya been oil</p> <p>7. Mustard oil</p> <p>8. Groundnut oil</p> <p>9. Coconut oil</p> <p>10. Blended vegetable oil</p> <p>11. Kacchi Ghani</p> <p>12. Rice bran oil</p> <p>13. Others,</p> <p>13 A. specify</p>	<p>Multiple selection list specific to type of industry included</p> <p>Choose any option applicable to you. Choose multiple options if required. If type of oil you produce is not listed, add it by choosing others and specify</p>

2	Has the coronavirus pandemic affected your industry in any of the following ways?	<ol style="list-style-type: none"> 1. Temporary shutdown due to Govt imposed lockdown. 2. Employee absences due to COVID 19 related issues. 3. Disruption in payment receivables. 4. Reduced logistic services - transportation, packing material etc. 5. Stocked raw materials gone spoiled/rotten during lockdown causing loss 6. Machinery required maintenance due to prolonged shutdown. 7. Others, please specify 	<p>Multiple option selection list along with text to capture other reasons.</p> <p>Choose any option applicable to you. If none applicable, leave blank. If factor is not listed, add it by choosing others and specify</p>
3	How have your RETAIL production (B to C) been affected by the coronavirus pandemic between April to June month in comparison to same period in the last year?	<ol style="list-style-type: none"> 1. Not affected (Average production remained same) 2. Moderately affected (about 10% to 25% reduction in production) 3. Strongly affected (Production reduced by more than 25%) 4. Average production increased 5. Not Applicable 	<p>Single choice selection option</p> <p>Choose most appropriate option applicable to your plant. If your plant does not have retail production, choose 'Not applicable'</p>
4	How have your BULK supply (B to B) been affected by the coronavirus pandemic between April to June month in comparison to same period in the last year?	<ol style="list-style-type: none"> 1. Not affected (Average production remained same) 2. Moderately affected (about 10% to 25% reduction in production) 3. Strongly affected (Production reduced by more than 25%) 4. Average production increased 5. Not Applicable 	<p>Single choice selection option</p> <p>Choose most appropriate option applicable to your plant. If your plant does not have bulk selling, choose 'Not applicable'</p>
5	How has production cost affected at your plant during this period?	<ol style="list-style-type: none"> 1. Increased 2. Decreased 3. No change 4. Don't know / Cant say 	<p>Single choice selection option</p> <p>Choose most appropriate option applicable to your plant. Choose 'Don't know / Can't say' if you are not sure or do not wish to respond.</p>
Fortification related questions			
6	Do you have fortified brands in the market?	<ol style="list-style-type: none"> 1. Yes 2. No 3. Only for government supply 	<p>If you do not have any fortified edible oil brand produced from the plant, choose 'No'. You will be taken to last section of survey.</p> <p>If you do not have any fortified edible oil brand, but if you are fortifying for government supply only, please choose third option.</p>

7	Has the coronavirus pandemic affected the fortification of your products?	Has the coronavirus pandemic affected the fortification of your products? 1. No Premix supply/stock 2. NABL accredited labs not available for quantitative analysis 3. Lab chemicals not available/no stock for qualitative analysis at the plant 4. Any other, 4 A. please specify	Multiple option selection list along with text to capture other reasons Choose any option applicable to you. If none applicable, leave blank. If factor is not listed, add it by choosing others and specify
8	Has the pandemic affected the demand of your fortified brands in market?	1. Not affected 2. Moderately affected (about 10% to 25% reduction) 3. Strongly affected (Reduced by more than 25%) 4. Average demand increased	Single choice selection option
9	Was there change in premix procurement cost during this period?	1. Increased 2. No Change 3. Decreased 4. Don't know / Cant say	Single choice selection option Choose most appropriate option applicable to your plant. Choose 'Don't know / Can't say' if you are not sure or do not wish to respond.
10	Do you think fortification has a role in fighting COVID-19?	1. Yes 2. No 3. Maybe 4. Don't know / Cant say	Single choice selection option Choose most appropriate option applicable to your plant. Choose 'Don't know / Cant say' if you are not sure or do not wish to respond.
11	Please write 3 measures that would be most helpful as you cope with the COVID crisis.		Enter your suggestions in three boxes provided

Annex II - Questionnaire developed for the Quantitative Survey (Milk Processing Dairy Industries)

About Survey			
<p>1. Survey is being conducted by GAIN-KHPT to understand the impact of COVID related measures during the recent period on milk processing dairies across the country.</p> <p>2. All information sought are pertaining to the lockdown period - March to June 2020 month (3 months)</p> <p>3. The information shared will be kept confidential and anonymous. No data of individual plant will be published or shared in any manner. Overall survey findings will be used to enhance understanding of impact of COVID related measures on industry, specifically on fortification process.</p> <p>4. Participants who complete the survey will be awarded with “Participation Certificate” signed by GAIN and KHPT</p> <p>5. Among those who complete the survey, select plants will be requested by survey team to participate in telephonic interview. Industry participating in telephone interview will be able to avail one time free fortificant analysis of their fortified brand in a NABL accredited lab free of cost.</p>			
Consent for participation in the survey:			
<p>This survey is being conducted by GAIN-KHPT to understand the impact of COVID related measures during the recent period on edible oil, Milk dairies and wheat flour producing industry across the country. The information shared will be kept confidential and anonymous. No data of individual plant will be published or shared in any manner. Overall survey analysis findings will be used to enhance understanding of impact of COVID related measures on industry, specifically on fortification process. You are encouraged to participate in the survey, with primarily academic interest. You can choose not to respond to any question. In case you have any queries and want to seek clarification, you can contact KHPT at the email khptblr@khpt.org.</p>			
I agree to take part in the survey	1. Yes 2. No		
Full name:			
Company name:			
District:			
S. No.	Question	Responses	Remarks / Instructions
Production related questions			
1	Type edible oil produced/packed at the plant?	1. Standardized pouch 2. Toned milk pouch 3. Double toned milk pouch 4. Skimmed milk pouch 5. Full cream milk pouch 6. Standardized UHT 7. Toned milk UHT 8. Double toned milk UHT 9. Skimmed milk UHT 10. Full cream milk UHT 11. Any other, specify	<p>Multiple selection list specific to type of industry included</p> <p>Choose any option applicable to you. Choose multiple options if required. If type of oil you produce is not listed, add it by choosing others and specify</p>

2	Has the coronavirus pandemic affected your industry in any of the following ways?	<ol style="list-style-type: none"> 1. Temporary shutdown due to Govt imposed lockdown. 2. Employee absences due to COVID 19 related issues. 3. Disruption in payment receivables. 4. Reduced logistic services - transportation, packing material etc. 5. Stocked raw materials gone spoiled/rotten during lockdown causing loss 6. Machinery required maintenance due to prolonged shutdown. 7. Others, please specify 	<p>Multiple option selection list along with text to capture other reasons.</p> <p>Choose any option applicable to you. If none applicable, leave blank. If factor is not listed, add it by choosing others and specify</p>
3	How have your RETAIL production (B to C) been affected by the coronavirus pandemic between April to June month in comparison to same period in the last year?	<ol style="list-style-type: none"> 1. Not affected (Average production remained same) 2. Moderately affected (about 10% to 25% reduction in production) 3. Strongly affected (Production reduced by more than 25%) 4. Average production increased 5. Not Applicable 	<p>Single choice selection option</p> <p>Choose most appropriate option applicable to your plant. If your plant does not have retail production, choose 'Not applicable'</p>
4	How have your BULK supply (B to B) been affected by the coronavirus pandemic between April to June month in comparison to same period in the last year?	<ol style="list-style-type: none"> 1. Not affected (Average production remained same) 2. Moderately affected (about 10% to 25% reduction in production) 3. Strongly affected (Production reduced by more than 25%) 4. Average production increased 5. Not Applicable 	<p>Single choice selection option</p> <p>Choose most appropriate option applicable to your plant. If your plant does not have bulk selling, choose 'Not applicable'</p>
5	How has production cost affected at your plant during this period?	<ol style="list-style-type: none"> 1. Increased 2. Decreased 3. No change 4. Don't know / Cant say 	<p>Single choice selection option</p> <p>Choose most appropriate option applicable to your plant. Choose 'Don't know / Can't say' if you are not sure or do not wish to respond.</p>
Fortification related questions			
6	Do you have fortified brands in the market?	<ol style="list-style-type: none"> 1. Yes 2. No 3. Only for government supply 	<p>If you do not have any fortified edible oil brand produced from the plant, choose 'No'. You will be taken to last section of survey.</p> <p>If you do not have any fortified edible oil brand, but if you are fortifying for government supply only, please choose third option.</p>

7	Has the coronavirus pandemic affected the fortification of your products?	<ol style="list-style-type: none"> 1. No Premix supply/stock 2. NABL accredited labs not available for quantitative analysis 3. Any other, 3 A. please specify 	Multiple option selection list along with text to capture other reasons Choose any option applicable to you. If none applicable, leave blank. If factor is not listed, add it by choosing others and specify
8	Has the pandemic affected the demand of your fortified brands in market?	<ol style="list-style-type: none"> 1. Not affected 2. Moderately affected (about 10% to 25% reduction) 3. Strongly affected (Reduced by more than 25%) 4. Average demand increased 	Single choice selection option
9	Was there change in premix procurement cost during this period?	<ol style="list-style-type: none"> 1. Increased 2. No Change 3. Decreased 4. Don't know / Can't say 	Single choice selection option Choose most appropriate option applicable to your plant. Choose 'Don't know / Can't say' if you are not sure or do not wish to respond.
10	Do you think fortification has a role in fighting COVID-19?	<ol style="list-style-type: none"> 1. Yes 2. No 3. Maybe 4. Don't know / Can't say 	Single choice selection option Choose most appropriate option applicable to your plant. Choose 'Don't know / Can't say' if you are not sure or do not wish to respond.
11	Please write 3 measures that would be most helpful as you cope with the COVID crisis.		Enter your suggestions in three boxes provided

Annex III - Questionnaire developed for the quantitative survey (Roller Flour Mills)

About Survey			
<p>1. Survey is being conducted by GAIN-KHPT to understand the impact of COVID related measures during the recent period on roller wheat flour mills across the country.</p> <p>2. All information sought are pertaining to the lockdown period - March to June 2020 month (3 months)</p> <p>3. The information shared will be kept confidential and anonymous. No data of individual plant will be published or shared in any manner. Overall survey findings will be used to enhance understanding of impact of COVID related measures on industry, specifically on fortification process.</p> <p>4. Participants who complete the survey will be awarded with “Participation Certificate” signed by GAIN and KHPT</p> <p>5. Among those who complete the survey, select plants will be requested by survey team to participate in telephonic interview. Industry participating in telephone interview will be able to avail one time free fortificant analysis of their fortified brand in a NABL accredited lab free of cost.</p>			
Consent for participation in the survey:			
<p>This survey is being conducted by GAIN-KHPT to understand the impact of COVID related measures during the recent period on edible oil, Milk dairies and wheat flour producing industry across the country. The information shared will be kept confidential and anonymous. No data of individual plant will be published or shared in any manner. Overall survey analysis findings will be used to enhance understanding of impact of COVID related measures on industry, specifically on fortification process. You are encouraged to participate in the survey, with primarily academic interest. You can choose not to respond to any question. In case you have any queries and want to seek clarification, you can contact KHPT at the email khptblr@khpt.org.</p>			
I agree to take part in the survey	1. Yes 2. No		
Full name:			
Company name:			
District:			
S. No.	Question	Responses	Remarks / Instructions
Production related questions			
1	Type edible oil produced/packed at the plant?	1. Wheat flour - Atta 2. Maida 3. Any other, specify	Multiple selection list specific to type of industry included Choose any option applicable to you. Choose multiple options if required. If type of oil you produce is not listed, add it by choosing others and specify

2	Has the coronavirus pandemic affected your industry in any of the following ways?	<ol style="list-style-type: none"> 1. Temporary shutdown due to Govt imposed lockdown. 2. Employee absences due to COVID 19 related issues. 3. Disruption in payment receivables. 4. Reduced logistic services - transportation, packing material etc. 5. Stocked raw materials gone spoiled/rotten during lockdown causing loss 6. Machinery required maintenance due to prolonged shutdown. 7. Others, please specify 	<p>Multiple option selection list along with text to capture other reasons.</p> <p>Choose any option applicable to you. If none applicable, leave blank. If factor is not listed, add it by choosing others and specify</p>
3	How have your RETAIL production (B to C) been affected by the coronavirus pandemic between April to June month in comparison to same period in the last year?	<ol style="list-style-type: none"> 1. Not affected (Average production remained same) 2. Moderately affected (about 10% to 25% reduction in production) 3. Strongly affected (Production reduced by more than 25%) 4. Average production increased 5. Not Applicable 	<p>Single choice selection option</p> <p>Choose most appropriate option applicable to your plant. If your plant does not have retail production, choose 'Not applicable'</p>
4	How have your BULK supply (B to B) been affected by the coronavirus pandemic between April to June month in comparison to same period in the last year?	<ol style="list-style-type: none"> 1. Not affected (Average production remained same) 2. Moderately affected (about 10% to 25% reduction in production) 3. Strongly affected (Production reduced by more than 25%) 4. Average production increased 5. Not Applicable 	<p>Single choice selection option</p> <p>Choose most appropriate option applicable to your plant. If your plant does not have bulk selling, choose 'Not applicable'</p>
5	How has production cost affected at your plant during this period?	<ol style="list-style-type: none"> 1. Increased 2. Decreased 3. No change 4. Don't know / Cant say 	<p>Single choice selection option</p> <p>Choose most appropriate option applicable to your plant. Choose 'Don't know / Can't say' if you are not sure or do not wish to respond.</p>
Fortification related questions			
6	Do you have fortified brands in the market?	<ol style="list-style-type: none"> 1. Yes 2. No 3. Only for government supply 	<p>If you do not have any fortified edible oil brand produced from the plant, choose 'No'. You will be taken to last section of survey.</p> <p>If you do not have any fortified edible oil brand, but if you are fortifying for government supply only, please choose third option.</p>

7	Has the coronavirus pandemic affected the fortification of your products?	<ol style="list-style-type: none"> 1. No Premix supply/stock 2. NABL accredited labs not available for quantitative analysis 3. Spot iron test kit 4. Any other, 4. A. please specify 	<p>Multiple option selection list along with text to capture other reasons</p> <p>Choose any option applicable to you. If none applicable, leave blank. If factor is not listed, add it by choosing others and specify</p>
8	Has the pandemic affected the demand of your fortified brands in market?	<ol style="list-style-type: none"> 1. Not affected 2. Moderately affected (about 10% to 25% reduction) 3. Strongly affected (Reduced by more than 25%) 4. Average demand increased 	Single choice selection option
9	Was there change in premix procurement cost during this period?	<ol style="list-style-type: none"> 1. Increased 2. No Change 3. Decreased 4. Don't know / Cant say 	<p>Single choice selection option</p> <p>Choose most appropriate option applicable to your plant. Choose 'Don't know / Can't say' if you are not sure or do not wish to respond.</p>
10	Do you think fortification has a role in fighting COVID-19?	<ol style="list-style-type: none"> 1. Yes 2. No 3. Maybe 4. Don't know / Cant say 	<p>Single choice selection option</p> <p>Choose most appropriate option applicable to your plant. Choose 'Don't know / Cant say' if you are not sure or do not wish to respond.</p>
11	Please write 3 measures that would be most helpful as you cope with the COVID crisis.		Enter your suggestions in three boxes provided

Annex IV - Interview guide developed for the qualitative survey (All Industries)

1. Can you explain/elaborate how the COVID- 19 pandemic has affected the production in your company/plant? How did you deal with these issues/challenges or what were the strategies adopted?
Probe further if response does not cover adequate information, including issues like:
 - ✓ Procurement of raw materials
 - ✓ Maintenance
 - ▶ Labourers
 - ▶ Demand (Bulk and retail)
 - ▶ Transportation Etc.
 - Can you also tell us if fortification process is affected? Why do you think so and how?
 - ▶ Premix supply
 - ▶ Quality testing
 - ▶ Packaging materials, pricing etc.
2. How has the pandemic affected the production cost? How have you/your plant dealt with it?
 - ▶ If yes, what contributed to the increase? How much increase?
 - Transport
 - Maintenance
 - Labourers etc.
 - ▶ If no, what are the measures taken to sustain the production cost?
3. Can you tell us if there have been any policy changes with regard to production related to fortification at your plant as a result of the pandemic? What were these changes and how have they affected fortification?
 - ▶ Probe:
 - ▶ planning to add new fortified product or brand (If yes) Can you please elaborate on what factors influenced these decisions?
 - ▶ policy changes in sourcing of raw material, premix, sales policy etc.
 - ▶ Adopted new marketing strategy?
4. How can KHPT/GAIN provide support with regard to fortification?
5. (Optional) Are there any important learnings from dealing with COVID-19 challenges that you want to share with us or even with other industries?

Annex V - Participant information sheet developed for qualitative survey

Name of the Interviewee:

Name of the Interviewer:

Name of company:

Plant details:

City/state:

Designation:

Type of company (oil / milk / wheat flour):

Products fortified:

Date:

Notes (any queries raised before or after recording stops):.....

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