



# IMPACT OF COVID-19 ON AGRICULTURE: A CASE STUDY OF OKRA IN SOUTH GUJARAT

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## ABSTRACT

*The Coronavirus brought health crisis in the world and large number of countries affected by this pandemic and India is also one of them. The coronavirus has affected to almost all industries. The agriculture is considered as backbone of Indian economy and the COVID-19 has affected that also. The lockdown has stopped the transportation especially intra state movement. The present study tries to study impact of COVID-19 on agriculture with a case study of Okra in south Gujarat. For the study the data on business days, price and arrivals were collected from the government agriculture market data portal for the period of April and May for the year 2019 and 2020 and compared. The study found that in April and May 2020 there are less number of traded days (business days) compared to April and May 2019 further the farmers received less average price compare to previous year in April and May. The average arrival were also less disturbed compared to previous year.*

**KEYWORDS:** Covid-19, business days, lockdown, Agri-supply chain, price realization

## 1. INTRODUCTION

In January 2020, China saw an outbreak of a new coronavirus strain now named SARS-CoV-2. Later on it spread in various countries including India. The first case of corona virus was reported in Kerala on 30<sup>th</sup> January, 2020. The Indian Government announced complete lock down on 24<sup>th</sup> March 2020. The lock down was implemented for 68 days in four phases (25<sup>th</sup> March 2020 to 31<sup>st</sup> May, 2020).

### *Impact of COVID 19 on Food Supply Chain*

The lockdown in COVID 19 situation has impacted in all the dimensions of business. The most affected part is supply chain of the products. The transportation was affected and hence the supply chain has heavy impact of that. The consumer behaviour is also changes in such situation which also affected at end level of supply chain – retailer behaviour like stocking of items in uncertain times. In case of perishable products the transportation played instrumental role.

### *Indian Agriculture*

Agriculture is the primary source of livelihood for about 58 percent of India's population, the Gross Value Added (GAV) by agriculture, forestry and fishing was estimated at Rs. 19.48 lakh crore (US\$ 276.37 billion) in FY 20 (IBEF report). According to World Bank, due to COVID-19 impact the India's economy to shrink by 3.2 percent in financial year 2020-2021. During lockdown, closing out the borders, quarantine measures and market supply chain being along with trade disruptions are restricting the people's access to nutritious sources of food, further the intra state transport affected largely (Marwah, 2020). The lockdown was called in harvesting season the agriculture produce is mostly perishable in nature, so farmers are required to sold out at lower prices or hold their unsold produce for a longer time and in both cases farmers incurred losses.

### *Okra Area and Production in South Gujarat*

Okra is one of the major crop in south Gujarat, the major okra producing districts are Surat, Tapi, Navsari, Bharuch and Valsad. The following



table shows District wise (south Gujarat) Estimated Area & Production of Okra Crops Year 2018-19.

**Table 1 District wise Estimated Area & Production of Okra Crop Year 2018-19**

Region	Area	Production
Surat	13207	187275
Narmada	809	7443
Bharuch	2837	28654
Dang	1300	18954
Navsari	6500	82225
Valsad	2127	20185
Tapi	9960	135954
Sub - Total	36740	480690
Middle Gujarat Total	20421	223013
North Gujarat Total	9837	121057
Saurashtra - Kutch Total	8830	99880
Total	75828	924640
Percentage Contribution from South Gujarat	48.45	51.99

<https://doh.gujarat.gov.in/Images/directorofhorticulture/pdf/statistics/Area-Production-horticulture-2018-19.pdf>

As above table shows the 7 districts of south Gujarat had 48.45 percent of total area under cultivation for Okra and 52 percent of total estimated production were belong to the above 7 districts. Thus, in the present study it was tried to investigate the impact of COVID-19 situation in agriculture with special reference to okra in south Gujarat market.

## 2. METHODOLOGY

The present study focuses on the impact of Covid-19 situation on vegetable markets of South Gujarat. For present study the seven major markets of south Gujarat were selected namely Ankleshwar, Bharuch, S.manvi, Songadh, Surat, Valod and Vyara. To compare on the criteria one single vegetable – Okra (lady finger) was selected. The 46.44 percent of the Net Area sown under Okra cultivation were from south Gujarat in 2016-17 and as per estimated the 7 district of Gujarat will produce 50.38 percent of total okra in Gujarat. The data on business days, price and arrivals were collected from the government agriculture market data portal (agmark.gov.in) for the period of April and May for the year 2019 and 2020. The comparison of the seven market on business days, price and arrival quantities were carried out for the month April and May for 2019 and 2020. The collected data were analyzed with the percentages and presented in tabular form.

## 3. RESULT AND DISCUSSION

The data obtained from Agmark.net for the Gujarat state specifically for okra month April & May, 2019 and April & May 2020. The selected districts data were separated and the data of April and May months compared for the years 2019 and 2020.

The table 2 shows the data on total arrival, Number of Days Worked/traded, average arrival and average price per quintal of okra for the month of April and May, 2019 and 2020 respectively. As table depicts in the month of April 2019 the highest arrival of okra reported in surat (1738 t) followed by vyara (1214.7 t) which is 94 percent of total arrival of seven market of south Gujarat whereas in April 2020 highest arrival observed in Surat (878 t) followed by valod (701.2 t). In May 2019 the highest arrival of okra reported in surat (1825 t) followed by vyara (565.7 t) which is 86.88 percent of total arrival of seven market of south.

The diversification of arrivals was observed due restriction on transportation in inter and intra district of Gujarat, in songadh market 205.4 t higher arrival of okra in April 2020 compare to April 2019 which was around 5 times higher as compared to previous year, whereas



**Table: 2 Comparison between April- May 2019 and April- May 2020 for Okra**

Market	Apr-19				May-19				Apr-20				May-20			
	Total Arrival	No. of Days Worked	Average Arrival	Average Price	Total Arrival	No. of Days Worked	Average Arrival	Average Price	Total Arrival	No. of Days Worked	Average Arrival	Average Price	Total Arrival	No. of Days Worked	Average Arrival	Average Price
Ankleshwar	20.71	29	0.71	4083.6	27.73	31	1.79	1533	31.57	26	1.21	2310.57	37.1	27	1.37	1109
Bharuch	18.48	24	0.77	2139.1	27.04	25	1.08	1748	78.8	26	3.03	1538.46	70.9	27	2.62	961.1
S.Mandvi	1.61	28	0.05	3409.9	2.46	27	0.09	1682	1.97	21	0.09	1351.3	2.56	25	0.1	1056
Sonagadh	44.3	24	1.84	3816.3	17.1	27	0.63	1957	249.7	27	9.6	1534.97	2.5	24	0.1	1471
Surat	1738	30	57.93	3366.7	1825	31	58.9	1151	878	26	33.77	1548.96	1016	26	39.07	980.4
Valod	103	30	3.43	4075	286.6	31	9.88	1751	701.2	26	26.97	1418	794	26	30.54	921.2
Vyara	1214.7	26	46.71	4747.8	565.7	30	18.9	2253	7.3	16	0.456	1092.85	13.1	25	0.52	1023

**Total Arrival and Average arrivals - (In tons) Average Price- Rs/Quintal**

Source: AGMARK

In valod market it was also observed around 7 times higher arrivals in April 2020 (difference-598.2) and 2.5 times higher in May 2020 (difference-507.5) compare to previous years April and May months. It shows that due pandemic protocol the breakdown in supply chain of fresh Agricultural produce was observed. As the farmers are not able to sale their produce to towards the surat market, high loss of total 860 t arrivals in April 2020 and 809 t in

May 2020 compare to previous years april and may month. These situations may arise due to lockdown and transportation was affected largely so farmers may choose to sale their product in nearby place. The COVID-19 situation created uncertain environment where the farmers avoid travelling to other market for selling their produce.

**Table:-3 Impact of lockdown on Business Days, Average Price and Average Arrivals for Okra**

Market	Business Days		Average Price		Average Arrival	
	April	May	April	May	April	May
Ankleshwar	-3	-4	-1773.05	-424.08	0.5	-0.42
Bharuch	2	2	-600.67	-786.89	2.26	1.54
S.Mandvi	-7	-2	-2058.6	-626.24	0.04	0.01
Sonagadh	3	-3	-2281.3	-485.79	7.76	-0.53
Surat	-4	-5	-1817.7	-170.37	-24.16	-19.8
Valod	-4	-5	-2657	-829.57	23.54	20.66
Vyara	-10	-5	-3654.95	-1229.85	-46.25	-18.34

The above table shows the comparison between April month and may month for 2019 and 2020 for seven market of south Gujarat. As table

shows in case of business days / trading days were affected in april and may both the months of 2020. In case of month of April 2020 vyara market losses 10



business days followed by S.Mandvi (7 days), surat and valod 4 days each, and Ankleshwar losses 3 days compare to 2019. In month May, 2020 Except Bharuch market all other market losses business days such as Ankleshwar (4 days), S.mandvi (2 days), Songadh (3 days). Surat, Valod and Vyare 5 days loss each market.

An attempt was also made to compare the average price for both the month with last year and it was found that in month of April 2020 the vyara market has low price realisation compare to april 2019 by Rs. 3654.95 per quintal followed by valod (Rs.2657 per quintal), Songadh (Rs. 2281.3 per quintal), S. Mandvi (Rs. 2058.6 per quintal), Surat (Rs. 1817.7 per quintal), Ankleshwar (1773.05 Rs. Per quintal) and Bharuch (Rs.600.67 per quintal). In month of May 2020 the low price realization was observed in all markets. The highest loss observed in vyara market by Rs. 1229.85 per quintal followed by Valod (Rs. 829.57), Bharuch (Rs.786.89), S.Mandvi (Rs. 626.24), Songadh (Rs. 485.79), Ankleshwar (Rs.424.08) and surat (Rs.170.37) markets.

The researcher had also compared the average arrival of quantity per day for the month April and May between 2019 and 2020. It was found that for the month of April 2020 the vyara market affected with less average by 46.25 tons followed by surat by 24.16 tons. Which may be due to less number of traded days and also due to low price realization in that month. However in valod market it is increased by 23.54 tonnes and songadh market 7.76 tones per day. For the month of May 2020 the Surat market affected with less average arrival by 19.8 tons followed by vyara by 18.34 tons. Which may be due to less number of traded days and also due to low price realization in that month. However in valod market it was increased by 20.66 tonnes which shows restriction of inter district and interstate transportation effects and uncertainty, and also health safety, due to that farmers avoid travelling to faraway place to sell their produce for better price realization.

## CONCLUSION

The present study was conducted to access the impact of COVID-19 situation on agriculture especially selling of produce, for that purpose okra which is one of the major vegetable crop of south Gujarat was selected and data on business days, price and arrivals were collected from the government agriculture market data portal. The study found that in April and May 2020 there are less number of traded days (business days) compared to April and May 2019 further the farmers received less average price compare to previous year in April and May. The average arrival were also disturbed compared to previous year and the diversion in case of selling of okra was also observed during the period.

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