Market Access Plan for Orange

TA-6782 IND: Enhancing Market Linkages for Farmer Producer Organizations

March 2023

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1 Crop Background

Orange is a type of Citrus, that is cultivated across the world in large quantities. It is known for its high Vitamin C content and provides numerous health benefits. It is consumed across the world, either as fresh fruit or as processed products such as juice, marmalades, and jams. Citrus *reticulata* is the commercial species of orange cultivated in India.

1.1 Global Scenario

1.1.1 Production

According to FAO, the total area under orange cultivation is more than 38 lakh hectares producing 754 lakh MT of oranges, spread across Asia, Europe, and Americas. Brazil is the top producer of oranges producing 167 lakh MT which is 22% of the world's orange production. India is the second largest both in terms of area under production and quantity of production. Productivity of orange in India is at 14.71 MT/ha (2020), which is significantly lower than the estimated global productivity of 19.43 MT/ha and Brazil's productivity of 29.17 MT/ha.

Table 1: Top 10 Countries by Orange Production – 2020

S. No.	Country	Production (MT)	Area (ha)	Productivity (MT/ha)
1	Brazil	1,67,07,897	5,72,698	29.17
2	India#	98,54,000	6,70,000	14.71
3	China	76,41,167	3,93,598	19.41
4	United States of America	47,66,350	2,03,840	23.38
5	Mexico	46,48,620	3,27,756	14.18
6	Spain	33,43,960	1,41,130	23.69
7	Egypt	31,57,960	1,24,725	25.32
8	Indonesia	27,22,952	71,416	38.13
9	Iran	22,25,615	59,723	37.27
10	Italy	17,72,770	84,160	21.06
	World	**7,54,58,588**	**38,84,586**	**19.43**

Source: FAO Stat

 # India's production figures provided here differs from the figure published by Government of India. The difference can be attributed to the citrus varieties that are considered as "Orange" by FAO and by Government of India. As per data published by Government of India, with a production of 62 lakh MT (2020-21), India would be the 3rd largest orange producer in the world.

The global production of oranges has remained in the range of 725 to 755 lakh MT between 2016 to 2020. The average annual growth rate from 2016 to 2020 is only 0.6%. The below table indicates the world production trend through the production of top 10 countries in terms of orange production quantity over the last 5 years.

Table 2: Production Trend of Top 10 Orange Producing Countries – 2016 to 2022 (MT)

S. No.	Countries	2016	2017	2018	2019	2020
1	Brazil	1,69,80,379	1,74,92,882	1,68,41,549	1,70,90,362	1,67,07,897
2	India#	75,81,000	76,47,000	83,67,000	95,09,000	98,54,000
3	China	84,14,043	83,12,248	80,90,798	79,10,242	76,41,167
4	Mexico	46,03,253	46,29,758	47,37,990	47,36,715	46,48,620
5	United States of America	55,22,940	46,15,760	35,35,340	48,32,570	47,66,350
6	Spain	36,73,915	33,57,163	36,39,850	32,26,870	33,43,960
7	Egypt	29,39,084	31,47,545	30,85,986	30,67,630	31,57,960
8	Indonesia	21,38,474	22,95,325	25,10,420	25,63,486	27,22,952
9	Iran	15,61,134	17,55,632	21,84,676	23,08,730	22,25,615
10	Turkey	18,50,000	19,50,000	19,00,000	17,00,000	13,33,975
	World	**7,29,96,598**	**7,33,94,532**	**7,34,58,495**	**7,59,92,531**	**7,54,58,588**

Source: FAO Stat

 # India's production figures provided here differs from the figure published by Government of India. The difference can be attributed to the citrus varieties that are considered as "Orange" by FAO and by Government of India.

1.1.2 Important Varieties

World over, hundreds of orange / mandarin varieties are cultivated and consumed. Many varieties are grown and consumed locally. Valencia and Navel oranges are the widely traded varieties due their good shelf life, physical appearance, and consumer preference. The table below briefs on the major orange varieties across the world.

Table 3: Major Orange Varieties across the World		
Mandarin Orange	They have loose skin, are small in size and have a flattened appearance. They are sweet and easy-to-peel, making it a suitable variety for fresh consumption. Nagpur Orange and Kinnow are popular varieties of Mandarins in India. Apart from India, major Mandarin producing regions are China, Turkey, Japan, Spain, Brazil, Egypt, Morocco, Italy, South Korea, and United States of America.	
Navel Orange	Naval orange are large and seedless but with a thick, easily removed rind therefore most popular for eating out-of-hand or in salads. Limonene content results in bitterness therefore undesirable for processing. It is commercially grown in Brazil, Spain, United State of America, Paraguay, South Africa, Australia, and Japan.	
Valencia Orange	Valencia orange is smaller than the Navel, with a thinner, tighter rind, and is juicier and richer in flavor. It needs a warm climate to grow, and is grown widely Spain, Brazil, Egypt, South Africa, Australia, and United State of America.	
Seville Orange	Seville orange provides sour taste and is known for its strong, acidic flavor and good aroma. They are suitable for marmalade preparation due to their sour taste. They are primarily grown in United States of America and Spain.	
Blood Orange	Blood oranges have a deep red colour flesh and a reddish skin. They have a unique sweet and mildly tart flavor. Major blood orange producing regions are Italy, Spain, South Africa, and United States of America.	
Source: http://www.iifpt.edu.in/pmfme/dpr-orangerte.pdf		

1.1.3 Global Trade

Global trade of oranges in 2020 was valued at USD 5.6 billion through export-import of 77 lakh MT. Spain is the largest exporter, exporting 16.43 lakh MT, closely followed by Egypt (14.9 lakh MT) and South Africa (12.59 lakh MT).

Table 4: Top 10 Countries by Orange Exports – 2020			
S. No.	**Countries**	**Quantity (MT)**	**Value ('000 USD)**
1	Spain	16,43,400	14,52,567
2	Egypt	14,90,421	13,95,320
3	South Africa	12,59,671	11,70,267
4	United States of America	5,03,195	5,05,769
5	Netherlands	3,78,428	1,55,314
6	Greece	3,22,221	1,44,010
7	Turkey	2,82,940	1,17,560
8	Australia	1,82,022	2,67,035
9	Portugal	1,61,258	54,773
10	India	1,41,300	1,06,586
	World	**77,15,527**	**56,44,079**
Source: FAO Stat			

European countries are the major importers, with 6 out of top 10 importers in the world. China, though is the 3rd largest producer, imports significant volume of oranges due to its high domestic consumption. United State of America is both a top exporter and importer, importing primarily from Brazil. Netherlands, as the transit hub of Europe, is both a large exporter and importer of oranges. Bangladesh imports (~50%) most of its requirement from India.

Table 5: Top 10 Countries by Orange Imports – 2020			
S. No.	**Countries**	**Quantity (MT)**	**Value ('000 USD)**
1	Netherlands	6,21,712	5,55,454
2	Germany	5,02,555	5,07,998
3	France	4,77,192	4,92,192
4	Russia	4,27,347	3,07,894
5	Saudi Arabia	4,04,576	2,24,937
6	China	2,93,187	3,07,929
7	Bangladesh	2,70,925	1,50,896
8	United Kingdom	2,67,000	2,50,370

Table 5: Top 10 Countries by Orange Imports – 2020			
S. No.	**Countries**	**Quantity (MT)**	**Value ('000 USD)**
9	Italy	2,15,634	1,90,365
10	United States of America	2,05,074	2,21,824
	World	**73,00,098**	**62,55,752**
Source: FAO Stat			

Orange exports have grown at an annual rate of only 0.75% between 2016 and 2020. The market share of Spain and Egypt, the top 2 exporters, has remained nearly the same, while South Africa is seeing an increasing trend. Turkey and Morocco are saw a decreasing trend in exports from 2018 to 2020. Netherlands' orange imports are increasing over the years driven by demand from other European markets.

Table 6: Export Trend of Top 10 Orange Exporting Countries – 2016 to 2020 (MT)						
S. No.	**Countries**	**2016**	**2017**	**2018**	**2019**	**2020**
1	Spain	15,61,187	16,18,255	15,28,224	17,78,848	16,43,400
2	Egypt	13,38,801	13,63,019	12,00,000	18,17,406	14,90,421
3	South Africa	10,63,857	11,70,559	12,78,379	11,86,404	12,59,671
4	United States of America	6,77,708	5,88,118	5,04,338	4,84,567	5,03,195
5	Turkey	4,02,949	3,90,159	4,49,763	2,38,679	2,82,940
6	Netherlands	2,53,672	3,49,744	3,55,678	3,38,092	3,78,428
7	Greece	4,61,455	2,77,261	3,13,772	2,64,352	3,22,221
8	Australia	1,74,505	1,89,590	1,85,205	2,00,271	1,82,022
9	China	1,07,425	1,77,057	1,84,753	1,65,813	1,17,907
10	Morocco	97,262	1,63,332	1,47,029	1,45,996	1,07,624
11	India#	30,126	22,776	13,522	54,577	1,41,300
	World	**74,31,548**	**75,51,745**	**74,96,605**	**78,33,034**	**77,15,527**
Source: FAO Stat *# India was not among the top 10 exporters from 2016-2020. It has been included in the table for purpose of comparison*						

Table 7: Import Trend of Top 10 Orange Importing Countries – 2016 to 2020 (MT)						
S. No.	**Countries**	**2016**	**2017**	**2018**	**2019**	**2020**
1	Netherlands	5,42,129	5,85,172	5,89,138	5,96,217	6,21,712
2	France	5,03,291	5,17,182	4,89,302	4,96,506	4,77,192
3	Germany	4,87,111	4,62,228	4,72,653	4,61,292	5,02,555

Table 7: Import Trend of Top 10 Orange Importing Countries – 2016 to 2020 (MT)						
S. No.	**Countries**	**2016**	**2017**	**2018**	**2019**	**2020**
4	Russia	4,51,822	4,28,481	4,65,431	4,47,805	4,27,347
5	Saudi Arabia	4,17,597	3,87,500	4,02,797	4,05,376	4,04,576
6	China	2,21,797	3,57,992	3,90,109	4,32,093	2,93,187
7	U.K.	2,83,369	2,76,048	2,66,228	2,61,163	2,67,000
8	Iraq	2,12,243	2,07,983	3,00,611	2,30,000	1,14,117
9	United Arab Emirates	2,37,796	2,15,242	1,99,839	2,02,305	2,04,576
10	United States of America	1,61,228	1,86,877	2,22,942	1,90,359	2,05,074
11	India#	56,014	48,881	83,701	72,902	41,534
	World	**70,83,938**	**72,38,847**	**74,88,132**	**73,40,380**	**73,00,098**

Source: FAO Stat

 # India is not among the top 10 importers. It has been included in the table for purpose of comparison

1.2 Indian Scenario

1.2.1 Production

India is one of the largest producers of oranges in the world, with an estimated annual production of 62.73 lakh MT over an acreage of 4.65 lakh hectares. India's productivity of 13 MT/ha is much lower than the global average of 19-20 MT/ha, and less than half of the largest producer Brazil (29-30 MT/ha). The production volume has remained in the same level of 61-62 lakh MT over the last 4 years from 2018-19 to 2021-22.

Table 8: India – Orange Production, Area under Cultivation & Productivity – 2017-18 to 2021-22			
Year	**Production (MT)**	**Area (ha)**	**Productivity (MT/ha)**
2021-22#	62,73,202	4,65,048	13.49
2020-21	62,19,381	4,76,511	13.05
2019-20	61,27,934	4,54,216	13.49
2018-19	62,42,996	4,68,680	13.32
2017-18	51,01,211	4,28,306	11.91

Source: Department of Agriculture and Farmers Welfare, Government of India; # 3rd estimate

Madhya Pradesh is the leading producer of oranges in India, producing 35% of India's annual production in 2021-22. The top 3 producers, Madhya Pradesh, Punjab, and Maharashtra, account for more than 70%

of India's production. Maharashtra's annual productivity (8.55 MT/ha) is nearly 35% lower than India's productivity (13.05 MT/ha), and half of Madhya Pradesh's productivity (16.88 MT/ha), and less than one-third of Punjab's productivity (26.78 MT/ha).

Table 9: Top 10 States in Orange Production in India – 2021-22#

S. No.	States	Production (MT)	Area (ha)	Productivity (MT/ha)
1	Madhya Pradesh	22,28,962	1,32,027	16.88
2	Punjab	12,54,598	46,841	26.78
3	Maharashtra	10,21,664	1,19,548	8.55
4	Haryana	5,70,883	24,400	23.40
5	Rajasthan	4,37,330	38,700	11.30
6	Assam	2,09,337	14,926	14.02
7	Karnataka	1,70,129	7,343	23.17
8	Arunachal Pradesh	84,051	14,495	5.80
9	Mizoram	54,168	16,567	3.27
10	Manipur	48,015	4,838	9.92
	India	**62,19,381**	**4,76,511**	**13.05**

Source: Department of Agriculture and Farmers Welfare, Government of India; # 3rd estimate

The top 3 producing States, Madhya Pradesh, Punjab, and Maharashtra have remained in the same position over the last 5 years. Haryana and Rajasthan are the other 2 States consistently in the top 5 producing States.

Table 10: Top 5 States in Production from 2017-18 to 2021-22

2021-22#	2020-21	2019-20	2018-19	2017-18
Madhya Pradesh	Madhya Pradesh	Madhya Pradesh	Madhya Pradesh	Madhya Pradesh
Punjab	Punjab	Punjab	Punjab	Punjab
Maharashtra	Maharashtra	Maharashtra	Maharashtra	Maharashtra
Haryana	Rajasthan	Haryana	Rajasthan	Rajasthan
Rajasthan	Haryana	Rajasthan	Haryana	Assam

Source: Department of Agriculture and Farmers Welfare, Government of India; # 3rd estimate

Maharashtra's production is steadily increasing at an annual growth rate of 5%, growing from 7.98 lakh MT in 2017-18 to 10.22 lakh MT in 2021-22. The State accounted for 16% of India's production in 2021-22, and its share in India's production has also grown over the last 4 years.

Table 11: Maharashtra – Orange Production, Area under Cultivation and Productivity – 2017-18 to 2021-22				
Year	**Production (MT)**	**Area (ha)**	**Productivity (MT/ha)**	**% of India's Production**
2021-22#	10,21,664	1,19,548	8.55	16.29%
2020-21	9,40,648	1,16,091	8.10	15.12%
2019-20	8,99,598	1,02,725	8.76	14.68%
2018-19	8,74,437	1,09,728	7.97	14.01%
2017-18	7,97,952	1,07,324	7.43	15.64%
Source: Department of Agriculture and Farmers Welfare, Government of India; # 3rd estimate				

District-wise production of oranges in Maharashtra is provided in the table below. Amravati is the top producing district (greater than 50% of State's production), while Nagpur is the second largest producer. Buldhana, Akola, and Beed have high productivity, which could be attributed to new orchards being set-up in the districts.

Table 12: Top 10 Districts in Orange Production in Maharashtra – 2021-22#				
S. No.	**States**	**Production (MT)**	**Area (ha)**	**Productivity (MT/ha)**
1	Amravati	5,95,223	70,836	8.40
2	Nagpur	1,31,842	21,974	6.00
3	Buldhana	74,251	3,098	23.97
4	Akola	73,500	5,250	14.00
5	Ahmednagar	50,327	6,645	7.57
6	Wardha	28,990	4,460	6.50
7	Washim	24,377	2,566	9.50
8	Parbhani	13,334	1,815	7.35
9	Yavatmal	12,270	1,500	8.18
10	Beed	9,360	520	18.00
	Maharashtra	**10,21,664**	**1,19,548**	**8.55**
Source: Department of Agriculture, Government of Maharashtra; # 3rd estimate				

1.2.2 Important Varieties

India produces different varieties of oranges, with Nagpur Orange and Kinnow being the common and widely available varieties. The table below provides brief on major orange varieties grown in India.

Table 13: Major Orange Varieties in India		
Nagpur Orange	Nagpur oranges are known for their good flavor and taste. The fruits are green to orange/yellow in colour, and smaller in size compared to other orange varieties. It has a thin rind with easily peelable skin. They are grown in Maharashtra and Madhya Pradesh.	
Kinnow Orange	Kinnow is medium-sized, juicy variety orange. It has a bright orange glossy appearance with a medium-thick rind. Punjab is the major Kinnow producing states in India. Haryana and Himachal Pradesh are other Kinnow producing States.	
Khasi Orange	Khasi oranges are yellow to bright orange in colour with a smooth surface. They have thin rind with loose jacket. They are grown in Northeastern States – Assam and Meghalaya primarily.	
Coorg Orange	Coorg oranges is a high-juice variety with yellow pulp. The fruit has a spherical shape with flattened ends, with yellowish orange skin. It is primarily grown in Karnataka.	
Darjeeling Orange	Darjeeling oranges are small sized with yellowish to orange peel with a thin rind. It provides a sweet flavor and is highly juicy. It is grown in West Bengal and Sikkim.	
Source: https://nhb.gov.in/pdf/fruits/citrus/cit013.pdf		

1.2.3 Trade – International

Though India is the second largest orange producer in the world, it was the 10th largest exporter in 2020. This is primarily due to strong domestic demand for oranges due to high consumption. The exports increased at a good pace from 2017-18 to 2020-21, at an annual growth rate of 80%, driven by strong demand from Bangladesh. Exports in 2021-22 say a fall of 25% from 2020-21, on account of climate-related issue affecting production and quality, and also import tariffs by Bangladesh.

Table 14: Orange Exports from India – 2017-18 to 2021-22		
Year	**Quantity (MT)**	**Value (₹ Crs)**
2021-22	1,19,548	406.16
2020-21	1,62,540	453.58
2019-20	93,749	253.06
2018-19	43,098	247.94
2017-18	15,840	34.84
Source: Agri Exchange – APEDA		

India's exports are driven by Bangladesh, as there is significant demand for Nagpur Orange in the country. In 2021-22, exports to Bangladesh accounted for 86% of India's exports.

Table 15: Orange Export Quantity and Value for Top 5 Destinations from India – 2021-22			
S. No.	**Country**	**Quantity (MT)**	**Value (₹ Crs)**
1	Bangladesh	1,03,961	370
2	Nepal	15,363	34
3	Bhutan	95	1
4	U.A.E	63	.38
5	Bahrain	51	.18
	India	**1,19,548**	**406.16**
Source: Agri Exchange – APEDA			

Exports to Bangladesh has grown significantly from 2017-18 to 2020-21, which has been the primary driver for India's growth in orange exports. Apart from Bangladesh and Nepal, India also exports to the Middle East market – U.A.E, Oman, and Qatar are top importers in that region. Exports to the Middle East market is seeing a decline that can be attributed to multiple factors such as COVID-19 related restriction, quality and production issues, and stronger demand in Middle East for oranges from Egypt and South Africa.

Table 16: Export Trend of Top 5 Orange Importing Countries from India – 2017-18 to 2021-22 (MT)						
S. No	**Country**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**2021-22**
1	Bangladesh	7,236	29,126	76,275	1,41,263	1,03,961
2	Nepal	7,646	12,638	16,027	20,214	15,363
3	U.A.E	469	635	883	443	63
4	Oman	128	237	151	109	.25
5	Qatar	148	175	173	85	2
	India	**15,840**	**43,098**	**93,749**	**1,62,540**	**1,19,548**
Source: Agri Exchange – APEDA						

1.2.4 Trade – Domestic

Orange is traded across the country, through private / unorganized channels and through the Government notified *mandis*. The price in domestic trade is dependent on supply-demand dynamics.

Major markets for oranges are the *mandis* either in large urban centers or near high orange producing regions. Below table provides the total arrivals and average modal price in *mandis* with highest orange arrivals during 2021, as per AGMARKNET.

Table 17: Arrivals and Modal Price in Major Orange *Mandis* – 2021

Mandis	**Arrival (MT)**	**Average Modal Price (₹/quintal)**
Mumbai (Maharashtra)	42,671	2,775
Bengaluru (Karnataka)	30,973	5,633
Kolkata (West Bengal)	29,812	2,181
Srinagar (Jammu & Kashmir)	20,835	4,482
Hyderabad (Telangana)	18,052	2,049
Nagpur (Maharashtra)	14,488	1,550
Azadpur (Delhi)	10,766	2,242
Patna (Bihar)	5,738	2,341
Jammu (Jammu & Kashmir)	4,738	2,845
Varanasi (Uttar Pradesh)	4,105	2,894

Source: AGMARKNET

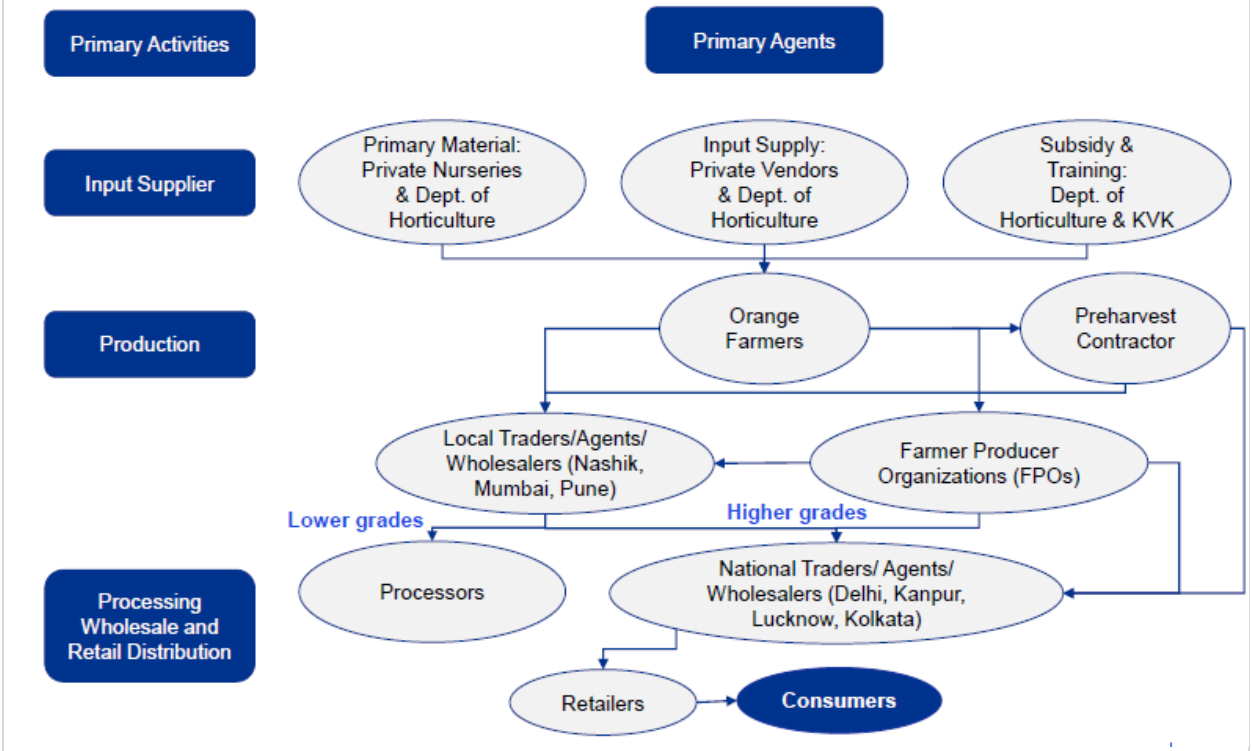
Mumbai, Pune, and Nagpur are the major consumption centers in Maharashtra. The arrivals of orange in these *mandis* is provided in the table below.

Table 18: Orange Market Arrivals in Major Cities of Maharashtra – 2021 (MT)			
Months	**Mumbai**	**Nagpur**	**Pune**
January	10,745	1,295	3,139
February	12,159	3,930	3,823
March	3,858	2,522	3,820
April	1,135	0	0
May	0	0	0
June	0	0	0
July	0	0	0
August	900	0	0
September	1,518	106	0
October	4,547	2,735	0
November	2,641	2,110	0
December	5,168	1,790	0
Total	**42,671**	**14,488**	**10,782**
Source: AGMARKNET			

1.2.5 Value Chain Map

The orange value chain starts from nurseries / institutions supplying saplings to farmers. Trainings are provided through Government Departments and Krishi Vigyan Kendras. Orange farmers sell their produce to local traders / *mandis* or pre-harvest contractors harvest. Oranges are supplied from local *mandis* to major consumption markets across the country. The structure of orange value chain is provided in the figure below.

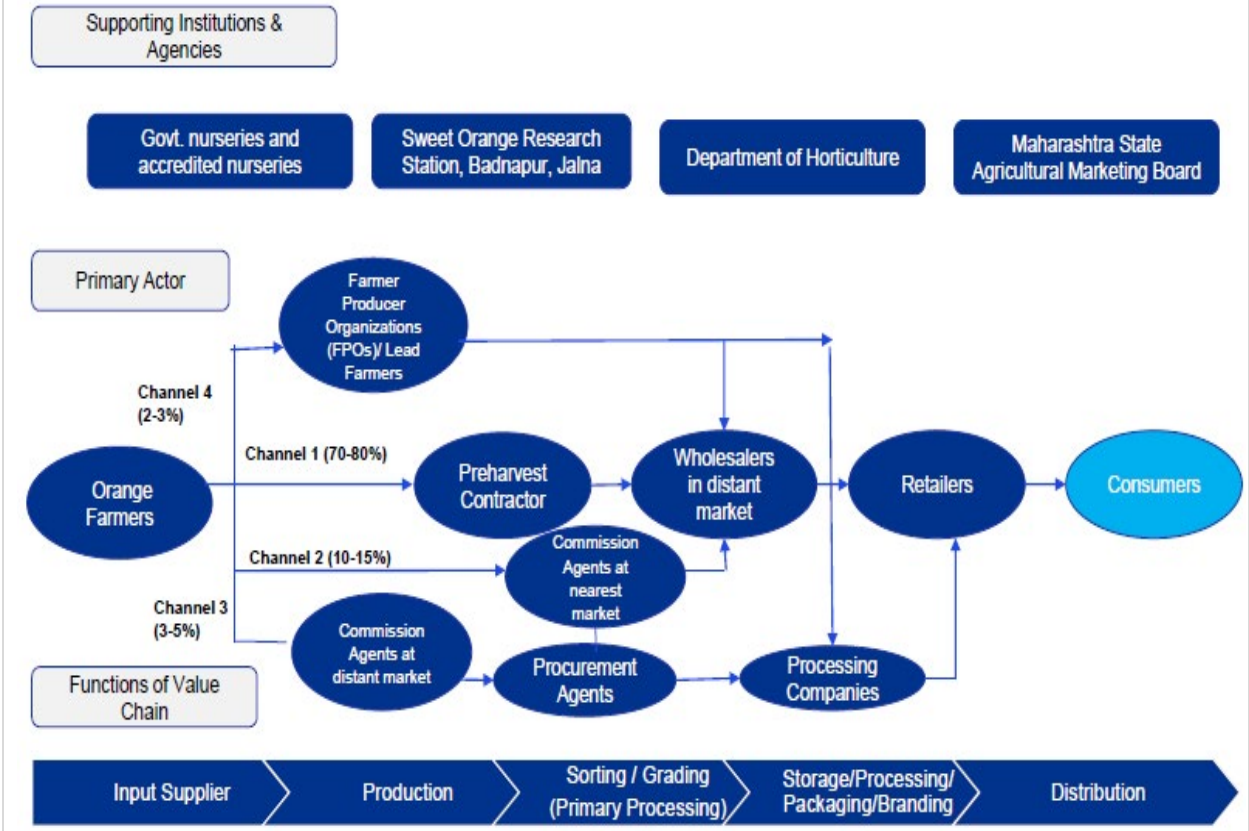
Figure 1: Structure of Orange Value Chain



Source: Information Source: Mapping Study Report on Agribusiness Industry & Value Chain Players in the State of Maharashtra (2018-19)

There are multiple marketing channels for orange to reach consumers from farmers. Pre-harvest contractor route is the major channel for farmers to sell their oranges from their orchards. The commodity flow through these marketing channels is detailed in the figure below.

Figure 2: Commodity Flow and Trade Analysis of Orange



Source: Information Source: Mapping Study Report on Agribusiness Industry & Value Chain Players in the State of Maharashtra (2018-19)

2 Marketing Strategy

Individual farmers and FPOs face issues in accessing profitable markets for their produce. Key challenges for them are their remote locations, high transportation costs, limited market information / knowledge of requirements, and the lack of marketing skills. The following market strategy has been prepared with a focus on providing information that helps FPOs in accessing reliable and profitable markets, while ensuring their produce meets market standards. In addition, it is envisaged that the FPOs have better bargaining power, some of the value chain activities are shifted towards them and there is a win-win situation for both FPOs and associated value chain actors / market players. Also, while providing information on opportunities, associated risks have also been highlighted. Prior to a detailed market segment-wise strategy, some of the common and cross-cutting interventions that are required at the end of FPOs for better market access are given below:

Commodity resource mapping and Know Your Farmers (KYF): FPOs should keep information on acreage of cultivable land under different crops, approximate marketable crop available with the farmers in the season, etc. This will help FPOs to have an idea of the volumes to be handled in the season and plan to effectively market their produce eventually.

Aggregate large volumes of produce: FPOs can establish long-term business relationship only if they are able to consistently supply sufficient quantity of produce, as per the buyer requirements. FPOs can increase procurement catchment area to consistently meet minimum requirement quantities.

Flexibility with payment terms: Many markets function on credit cycle, which can vary from as low as 5-7 days to as high as 30-60 days. FPOs should have sufficient working capital to made credit cycle and farmer payments.

Have good market intelligence: FPOs should have good market intelligence to decide on store / sell decisions and to determine which market to send the produce to. Market intelligence can be collected through online sources such as Government data and news articles, and through on-ground network of contacts in different parts of the country. Keeping a tab on market situations in target export markets will help FPOs in market entry and expansion.

Appointment of manager: FPOs can appoint a manager for its market linkage business. This will help in better sales planning, coordination with buyers for purchase and payment timelines. It can also appoint a manager for procurement activities. For FPOs to expand its business and supply to more buyers, it is necessary to have strong procurement, and appointment of manager can help in establishing the same.

Diversify supply options: All types of markets and customers come with both opportunity and risks for FPOs. This document also details on potential risks that FPOs might face in each market. To mitigate risks, FPOs should ensure that it deals in multiple markets and with multiple customers in each market. In addition, to get quality commensurate pricing, FPOs need to supply each market with its required quality of produce.

This section details out the strategy that the FPOs can adopt to supply oranges in the major market segments, namely, 1) Export Markets, 2) Domestic Markets, 3) Organized retail and eCommerce, 4) HoReCa, and 5) Processors. Key components of this section are:

2.1 Export Markets

Regions / countries covered under export markets are those to which orange is either exported or can be exported from India. Export markets are classified as 1) Indian Sub-Continent, 2) Middle East, and 3) Others.

2.1.1 Indian Sub-continent

Indian Sub-continent market includes the following countries – Bangladesh, Pakistan, Nepal, Bhutan, Sri Lanka, and Maldives.

2.1.1.1 Characteristics of the Segment

In this market, India currently exports to Bangladesh, Bhutan, Afghanistan, and Nepal. Bangladesh is the major importer of Indian oranges, especially the Nagpur orange variety. It accounted for nearly 86% of our orange exports in 2021-22[1]. Nepal is also increasing orange imports from India. Bhutan and Afghanistan are minor markets for Indian oranges in the India Sub-continent region.

[1] APEDA

The Indian Sub-continent market consists of countries that are in the lower-middle income to middle income category. Hence, the customers are more price sensitive and less stringent in terms of quality.

2.1.1.2 Competitors

Other Countries:

Bangladesh market has a strong preference for Nagpur orange variety while Nepal doesn't have preference for any specific variety. Bangladesh, the major market in this region for Indian orange, imports oranges from Bhutan, Egypt, and South Africa also. Bhutan has a cost advantage as its oranges are duty free. Oranges from India, Egypt, South Africa, and other countries attract an import duty of as high as 90% on dollar value of the fruits. Oranges from Egypt and South Africa, though expensive in comparison to Indian oranges, have better physical appeal.

Within India:

Competitors of Nagpur orange exports to Indian Sub-continent market is the Kinnow variety orange from Punjab. Though Maharashtra is the major exporter to Bangladesh, West Bengal, Punjab, Karnataka, and Madhya Pradesh also export oranges to Bangladesh. Oranges to Nepal are supplied majorly from Uttar Pradesh and Bihar, due to close proximity.

2.1.1.3 Maintaining Quality Standards and Supply

The quality requirements of markets in Indian Sub-continent, mainly Bangladesh, are not very stringent. Oranges with a mix of superior and medium quality are accepted in the Bangladesh market as per the following grading criteria.

Grade and Appearance	• Superior and Medium (Grade 1 & 2) • At least 100-120 g in weight and 40 mm in diameter • Yellowish green in colour
Criteria for Rejection	• High maturity, fully ripened • Disease / fungus infested, large brown marks on peel, dried or shriveled skin

Oranges exported to these countries (Bangladesh, Nepal, Bhutan) generally do not require waxing or cold storage. This is because of the less transit duration (2 to 3 days by truck) from Vidarbha region to these countries.

Supply to Bangladesh and other export markets of Nagpur oranges is done in the peak arrival season of November to February. Transit to Bangladesh is done through Kolkata by road. Exports to Bangladesh is uncertain in the current period (December 2022) due to high import duty imposed by the Bangladesh Government. Hence, FPOs should not invest in the infrastructure primarily dependent on the Bangladesh market.

2.1.1.4 Pricing

The pricing is dependent on the prevailing market prices in the Vidarbha region. Since there is significant competition within the region to export to Bangladesh, along with quality requirements in line with the domestic market, the premium fetched is only in the range of 5%-10% from market prices. As per APEDA data, the average price of orange exported to Bangladesh in 2021-22 is ₹35 per kg, and to Nepal in 2021-22 is ₹22 per kg.

The logistics cost of exporting to Bangladesh from Vidarbha region is in the range of ₹10-15 per kg by road. FPOs shall also incur a cost of ₹1-1.50 per kg for washing, sorting, and grading, and in case waxing is done, an additional cost of ₹1-1.50 per kg. Exports to Bangladesh are sent in plastic crates, costing ₹4-5 per kg.

2.1.2 Middle East

The Middle East market includes countries such as United Arab Emirates (UAE), Saudi Arabia, Iran, Oman, Egypt, Qatar, Iraq, Kuwait, Syria, Israel, Jordan, and Bahrain.

2.1.2.1 Characteristics of the Segment

The Middle East market has significant Indian diaspora and Indian origin population. Hence, this market has significant demand for many Indian horticulture crops. The purchasing power of consumers in these markets are also high, and they demand high quality fruits and vegetables.

India currently exports oranges in small quantities to UAE, Bahrain, Saudi Arabia, Qatar, and Oman. Exports to the Middle East has declined rapidly over the last 2 years.

2.1.2.2 Competitors

Within India:

Maharashtra is the largest exporter to Middle East market. Small quantities for exports come from Madhya Pradesh and Rajasthan also.

Other countries:

Many countries in the Middle East are high income countries and is an important market for all major orange producing countries. Oranges to the Middle East are imported primarily from Egypt (a country part of the Middle East region), South Africa, and Spain. Pakistan also exports its famous Kinnow variety oranges to many countries in this region. The Valencia orange variety (from Egypt and South Africa) are the preferred oranges in this market. This is due to its good physical appeal and taste.

Table 19: Seasonality of Orange Arrivals in the Middle East from major Competing Countries for Nagpur Orange

Countries	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Egypt												
South Africa												
Spain												
Maharashtra												

Legend key: Peak season | Lean season

2.1.2.2.1 Competitive advantage with Egypt for orange exports

Egypt is the leading exporter of oranges in the world. It has consistently increased its share in global orange trade. Large-scale cultivation and wide adoption of optical sorters that ensure the right quality fruit is exported has helped Egypt grow its orange exports. Egyptian currency devaluation and lower labour costs have helped to keep the oranges price competitive in the international market.

2.1.2.3 Maintaining Quality Standards and Supply

The Middle East market demands high quality fruits and vegetables, hence only Grade A oranges from India are suitable for the market. Nagpur oranges of bigger size (50-70 mm) and greater than 150 g weight with greenish yellow colour are most preferred.

CODEX standards are universally acceptable standards for agriculture produce trade. CODEX standards for orange can be accessed through this link – https://www.fao.org/fao-who-codexalimentarius/sh-proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXS%2B245-2004%252FCXS_245e.pdf. Summary of CODEX standards' specified quality for oranges are summarized in the table below.

Peel Colour	• Green colour on peel should ideally be less than 1/5th of surface area. • Oranges grown in high humidity and high temperature areas can have green surface area more than 1/5th
Minimum Juice Content	45%
Class	• Extra Class – Superior quality and free of defects (5% tolerance) • Class I – Good quality, slight defect in shape, colour, skin allowed (10% tolerance) • Class II – Those that do not qualify for the above classes but quality minimum requirement (10% tolerance)
Size	• Oranges below 53 mm in diameter are not allowed • Size 13 (lowest size) – 53 to 60 mm • Size 0 (highest size) – 92 to 100 mm
Packaging	• Each package should be of a single class with same origin, variety, and quality • Packing material should be clean and new and should comply with Recommended International Code of Practice for Packaging and Transport of Fresh Fruits and Vegetables (CAC/RCP 44-1995, Amd. 1-2004)

To maintain quality supply to the Middle East, FPOs should invest in the infrastructure for washing, waxing, sorting, and packaging of oranges. Wax coating on the oranges increase their appeal along with the fruit's shelf life. Facilities for pre-cooling and cold storage is also required so that oranges can be prepared for the long transit duration to the Middle East markets.

Supply to Middle East market can be done either through Air or Sea. Air transport, though fast, can significantly increase the landing cost of the fruits. This can make it uncompetitive in comparison to oranges from Egypt and South Africa. Sea route to UAE takes about 8 days from Mumbai port, and hence oranges need to be kept in temperature-controlled containers.

FPOs intending to directly export to the Middle East markets can register their packhouse with APEDA, to make it APEDA recognized packhouse, or export through an APEDA recognized packhouse. FPOs directly exporting should ensure that MRL is within prescribed limited of the importing country. The prescribed limits shall be checked by APEDA recognized laboratories through a fixed sampling procedure.

2.1.2.4 Pricing

The procurement price by exporters for Nagpur oranges to be sold to Middle East markets can be 15-20% above the prevailing market prices for top grade produce. FPOs can get premium price for their produce by undertaking additional post-harvest activities such as washing, waxing, and pre-cooling. These activities, though generally done by traders / exporters, can also be done by FPOs to fetch higher prices.

FPOs shall also incur a cost of ₹1-1.50 per kg for washing, sorting, and grading, and in case waxing is done, an additional cost of ₹1-1.50 per kg. Pre-cooling cost and logistics cost to Mumbai ports is also to be accounted when deciding on pricing.

The costs associated with exporting to UAE are certifications of ₹1500-2000 per container, port handling charges of ₹40,000-60,000 per container, and custom handling agent charges of ₹8,000-10,000 per container for documentation. The shipping charges to Dubai port is 1,500-2,500 USD per reefer container full load.

2.1.3 Potential Export Markets

Oranges / Mandarins are consumed across the world, both as table fruit and juice form and other processed products. Valencia, Navel, Seville, Tangerine are the major varieties that are in high demand. Other export markets such as North America, South America, Europe, and Africa are themselves top producers of different varieties of orange. The long sea transit duration makes it unviable to export oranges from India to the American markets.

Though Nagpur orange is a unique variety known for its sweet and juicy pulp, it has limited export potential in the international market. Apart from the reasons mentioned above, two other reasons for the lack of demand for Nagpur orange from export markets are:

- **Low physical appeal:** Valencia variety oranges that are grown globally have better physical appeal due to their bright orange colour, shiny pulp, bigger size, and firmness.
- **Loose (skin) jacket:** The peel and pulp in Nagpur orange is not firmly attached to each other. Due to this gap between the peel and pulp, these oranges cannot be de-peeled through machines. This acts as a discouraging factor for global juice manufacturers to utilize Nagpur orange

Targeting lucrative markets such as Europe and increasing market share in the Middle East markets require significant investment in marketing to present the uniqueness of Nagpur orange variety. Since Nagpur oranges cannot compare to its global rivals in physical appeal, its pleasant flavor, sweet taste, and high Vitamin C content can be leveraged as the unique selling point. Along with tough competition from other countries exporting orange, European markets have high quality and compliance standards, making it difficult for any type of fresh produce to be exported. Exporting to Europe will require focused interventions such as:

- Get globally recognized certifications – Global GAP, Fair Trade
- Integrated Pest Management to keep residue levels under control
- Marketing through participation in global fairs to increase visibility and thus create demand
- Tie up with organized retail chains to gain entry into the European market
- Organic market is rapidly growing in Europe. Creating a niche market through the organic route can fetch premium pricing and reduce competition

2.1.4 Establishing Connects

To export produce it is necessary to understand the major export routes and to establish connects with relevant companies / personnel. The selection of export route for an FPO should be done as per the quality of produce available for export, human capital to handle export related compliances, financial capabilities, and risk-taking ability.

Exports can be done through two routes:

Export Route	Description
Through an exporter from India	Companies / individuals specialize in exporting of agriculture and horticulture commodities to specific export markets. FPOs can supply produce as per required quality specifications to the exporters. The exporters buy the products from FPOs and then exports the products.
Through an importer at the importing country	FPOs can identify importers in the importing country. Importers are companies / individuals that obtained the necessary permissions in the importing country to import specific agriculture and horticulture commodities

Export Route	Establishing Connects
Through an exporter from India	● Trade fairs (physical and virtual) conduct by APEDA. Details are published on https://apeda.gov.in/apedawebsite/trade_promotion/International_trade_event ● Other National Trade Fairs conducted by various Organizations / Association. These events are published on various platforms such as: ○ https://krishijagran.com/events ○ https://www.kisaanhelpline.com/agriculture-events ○ https://www.2exhibitions.com/agriculture-and-forestry/ ● Online trade websites such as www.indiamart.com and www.exportersindia.com ● Buyer-Seller meets organized under the MAGNET project
Through an importer at the importing country	● Trade fairs (physical and virtual) conduct by APEDA. Details are published on https://apeda.gov.in/apedawebsite/trade_promotion/International_trade_event ● Other National Trade Fairs conducted by various Organizations / Association. These events are published on various platforms such as: ○ https://krishijagran.com/events ○ https://www.kisaanhelpline.com/agriculture-events ○ https://www.2exhibitions.com/agriculture-and-forestry/ ● International Trade Fairs such as: ○ Fruit Logistica: yearly event at Berlin, Germany is one of the most important events for fruit trade across the world ○ Asia Fruit Logistica: yearly event conducted in Asia – at Hong Kong / Bangkok ○ Fruit Attraction: yearly event at Madrid, Spain ● International events on horticulture trade are regularly published on the website of CBI – a centre for promotion of imports from developing countries to Europe. www.cbi.eu/events ● www.freshplaza.com, and https://www.hcisingapore.gov.in/events also provides an event calendar on important global fairs for horticulture crops

2.1.5 Advantages and Risks Associated

Each export route mentioned in the above sub-section comes with its risks. Not each export route is suitable for all FPOs, and it is necessary for FPOs to understand the risks before pursuing exports through any of these routes.

Export Route	Risks / Disadvantages	Advantages
Through an exporter from India	● Significant margin from the final export price is taken by the exporter ● FPOs cannot make significant export-oriented investments as export orders may not be assured. Exporters can procure equivalent quality from any other seller at lower prices, if available ● Countries can ban import of oranges from India due to reasons such as repeated non-compliance to MRLs or pest infestations. These are outside the control of the FPO, and can significantly affect FPO's business in case it has high exposure to that export market	● Exporting through this route is suitable for all FPOs, especially for FPOs that handle small quantities ● Payment terms from exporters to FPOs can be for shorter credit time ● Export compliance is handled by the exporter – only quality adherence is taken care by FPOs
Through an importer at the importing country	● FPO should be able to send the minimum required quantity per consignment consistently. This is possible only through strong procurement (from its member farmers, and other growing regions) ● Payment default by importers in case the FPO does not take precautionary measures like Letter of Credit ● Credit timelines for payment from the importer can be as high 30 to 60 days ● FPO requires proper and complete knowledge on export compliance requirements of the importing country ● Rejection of consignment by importing country – shortfall in compliances. Especially for European and North American markets ● Countries can ban import of oranges from India due to reasons such as repeated non-compliance to MRLs or pest infestations. These are outside the control of the FPO, and can significantly affect FPO's business in case it has high exposure to that export market	● Higher margins ● Long-term business opportunity. FPO can become an exporter for other FPOs / market players ● Increased exports through volume and by adding other crops in which the FPO is dealing

2.2 Domestic Markets

Domestic markets here are the Government notified *Mandis* and private traders in large cities across the country.

2.2.1 Characteristics of the Segment

Domestic markets consume all grades of oranges, as it has a wide range of customer segment from exporters to retailers to HoReCa. The demand from domestic market is nearly constant throughout the year, with higher demand during summer months.

Access to different domestic markets across the country can be beneficial to FPOs as they can act as good hedge against price risk. Lower prices in one region do not necessary lead to low prices in another region. Hence, FPOs can sell their produce across different domestic markets.

2.2.2 Competitors

The competitors for domestic market are growers and traders from other major orange producing States. For Maharashtra oranges, these States are Madhya Pradesh, Punjab, and Rajasthan.

Punjab: Punjab is known for its Kinnow variety of orange, which has better physical appeal that Nagpur orange due to their bright orange colour and glossy skin. Department of Horticulture, Punjab has established citrus estates that provides good planting material, input and product testing facility, technical advisory, inputs and farm machinery and market linkage efforts for the farmers. Punjab Agro Industries Corporation Limited (PAIC) has established citrus cleaning, grading and waxing units that can be used by farmers. PAIC has its own citrus processing plant for which they also take supplies from farmers.

Madhya Pradesh: Madhya Pradesh is the top producer of oranges in India growing primarily the Nagpur orange variety. Major producing districts such as Chindwara and Betul are close to Maharashtra border. Nagpur *mandi* is the major hub for orange trade, and there is significant flow of oranges from the said regions in Madhya Pradesh to Nagpur.

Rajasthan: In Rajasthan, Jhalawar district is a leading producer of Nagpur orange and Sri Ganganagar and Hanumangarh districts are major producers of Kinnow. Kota region is also growing into a hub for orange production, with production of both Nagpur Santra and Kinnow varieties. Under its Food Processing

Mission, the State government of Rajasthan is giving 50% subsidy for setting up processing units in these crops. The government is also providing 25% freight subsidy for transportation of these crops to distance exceeding 300 km subject to a maximum of INR 15 lakh per beneficiary per year for a period of 3 years (computable on the basis of rail freight).

Table 20: Seasonality of Orange Arrivals in the Markets from Competing Indian States

States	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Madhya Pradesh												
Punjab												
Rajasthan												
Maharashtra												

Legend key: Peak season, Lean season

Other countries: India imports huge quantities of orange from Egypt, South Africa, and Australia. Valencia is the primary variety that is imported. Valencia is known for its excellent physical appeal, thick skin, and sweet taste.

Table 21: Seasonality of Orange Imports in India from Top Exporting Countries

Countries	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Egypt												
South Africa												
Australia												
Maharashtra												

Legend key: Peak season, Lean season

2.2.3 Maintaining Quality Standards and Supply

Domestic markets accept all grades of orange as there is demand for all grades at respective price points. Grading pattern would differ from market to market. Nagpur orange grading is mainly based on size and weight of the fruit as per below specifications:

Grade	Specifications
Grade 1	112 dana per 20 kg carton

Grade	Specifications
Grade 2	141 dana per 20 kg carton
Grade 3	171 dana per 20 kg carton

Quality requirements of various markets outside Maharashtra to which oranges are supplied are provided below.

Market	Requirements
Azadpur *Mandi*, Delhi	Mixed Quality
Kanpur, Varanasi (Uttar Pradesh)	Mixed Quality
Chandigarh, Jalandhar (Punjab)	Superior Quality (Grade 1)
Kolkata (West Bengal)	Superior Quality (Grade 1)
Katni (Madhya Pradesh)	Superior Quality (Grade 1)
Jammu, Jammu & Kashmir	Medium (Grade 2)

To supply orange to domestic markets, it is necessary that FPOs procure a complete truck load (at least 10 MT) regularly. FPOs should send sorted and graded produce to domestic markets, as top-grade varieties can fetch higher prices.

FPOs along with its member farmers can try extending the harvest timelines to supply during the end of season, i.e., March to May. Extending harvest season might also lead to low quality of fruits due to high heat (summer season). FPOs can store oranges in cold storage towards the end of season and sell after the season to fetch higher prices. During these months (March to May), the supply of Nagpur orange variety from Rajasthan and Madhya Pradesh is limited.

2.2.4 Pricing

Pricing in domestic markets depends on the day-to-day supply-demand dynamics. Hence, FPOs can command good price only by supplying to right markets good quality produce to the market or supplying during lean arrival season. FPOs can sort and grade their produce and get premium price for top grade produce. However, practice of buying graded oranges is not prevalent in all markets as grading and sorting is done by the commission agents or traders, and further supplied to different channels.

The approximate price range for Nagpur oranges of different grades during peak and lean seasons is provided in the table below. The pricing of Kinnow oranges, competitor variety of Nagpur oranges, is usually 10-20% higher.

Variety	Grade	Peak Season – Price Range	Lean Season – Price Range
Nagpur Orange	Grade 1	INR 27-35 per kg	INR 40-60 per kg
	Grade 2	INR 22-27 per kg	INR 25-40 per kg
	Grade 3	INR 10-20 per kg	INR 20-25 per kg

FPOs shall also incur a cost of ₹1-1.50 per kg for washing, sorting, and grading, and in case waxing is done, an additional cost of ₹1-1.50 per kg. The logistics cost for supply to Delhi and Uttar Pradesh markets is ₹5-7 per kg, and further Eastern markets is an additional ₹3-5 per kg. Logistics cost to southern markets such as Hyderabad ₹4-6 per kg, and Bangalore and Chennai would cost ₹10-12 per kg.

www.agmarket.gov.in is the Government portal that provides information on the maximum price, minimum price, and modal price of orange at all key markets in a particular day / week / month where orange is being traded. FPOs can use the portal to understand the pricing trend before sending their produce to distant *mandis*.

The pricing of imported oranges is determined by the demand-supply at global level. Imported oranges are priced significantly higher than Indian varieties. The approximate landing rates for oranges from different countries is provided in the table below:

Exporting Country	Landing Price Range
Egypt	INR 50-70 per kg
South Africa	INR 85-110 per kg
Australia	INR 120-175 per kg

Domestic markets are generally quality agnostic, hence do not usually pay premium for good quality produce. Also, there is demand for all types of grades so that the fruits can be supplied to wide customer base. Selling in domestic markets (through *mandis*, traders) may not be the most profitable channels for the FPOs. FPOs that can sort and grade their produce, should sell their produce through other channels that require specific quality of oranges. Nonetheless, domestic markets are an important channel as they have consistent demand.

2.2.5 Establishing Connects

FPOs can supply to domestic markets either by taking their produce for auction at *Mandis* or by directly supplying to traders in different markets. Connects can be established through visits to *Mandis* in different cities to meet Commission Agents. It can also be done by seeking help from other FPOs or traders dealing in oranges in surrounding geography.

Agriculture / horticulture commodities focused marketplace platforms are effective tool for FPOs to find buyers across the country. Trading option for orange is available on ***Bijak*** mobile application. Online B2B platforms / trade websites such as www.enam.gov.in, www.farmerconnect.apeda.gov.in, www.kisan*mandi*.com, www.farmers*mandi*.in, www.indiamart.com and www.tradeindia.com can also be used for listing of orange.

2.2.6 Advantages and Risks Associated

Selling to major domestic markets decreases the price risk significantly. When prices are low in nearby markets, FPOs can sell their produce to other domestic markets wherever feasible. Consistent supply to major domestic markets is necessary for FPOs to build long-term relationship with buyers. This acts as a significant hedge against price variations in the nearby markets.

Risk of delayed payments or payment defaults is higher when selling to distant domestic markets in comparison to selling in nearby markets. FPOs should also be able to send a complete truck load for optimal logistics cost, thereby should have strong procurement and consistent supply.

2.3 Organized Retail and eCommerce

Organized retail and eCommerce are the fastest growing marketing channels for horticulture crops. Organized retail includes large national retail players like Reliance, More, and DMart, and other regional retail companies. Major eCommerce companies dealing in horticulture crops are BigBasket, Swiggy, Amazon, and Flipkart. Agri supply chain startups that procure from farmers and supply to various channels such as WayCool and Ninjacart are also categorized as eCommerce.

2.3.1 Characteristics of the Segment

The organized retail and eCommerce market targets the mid-premium to premium consumers. Hence, there is significant focus on quality of the produce. The companies in this market segment usually procure from *Mandis* and from traders / village-level aggregators. Over the recent years, there has been considerable focus of these companies on procuring directly from farmers / FPOs by establishing collection centers to reduce costs and have more control over quality. Many companies have also established collection centers in major producing regions for procurement.

2.3.2 Competitors

FPOs looking to supply to companies in this segment are competing with *mandis* and traders across the country. These companies procure from across the country, where required quality at the right price is available. Hence, farmers / FPOs in Madhya Pradesh, Rajasthan and Punjab are also competitors to Maharashtra FPOs looking to supply to Organized Retail and eCommerce customers.

Since the consumers buying from this segment are mid-premium to premium, there is significant demand for Kinnow oranges and imported oranges also. Both these varieties have good physical appearance making them more appealing for retail consumers.

2.3.3 Maintaining Quality Standards and Supply

Organized retail and eCommerce customers generally require high quality (Grade A and B) produce. The key to establishing business relationship with this market is to consistently supply the required quality of oranges.

Parameters	Grade A	Grade B
Colour	Light yellowish green	Light yellowish green
Weight	150-200 g	120-150 g

Parameters	Grade A	Grade B
Size	50-70 mm diameter	40-50 mm diameter
Criteria for rejection	Surface defects or damages, dried skin, shriveled, rotten, major natural brown marks, full yellow, too soft	

This segment requires clean, washed and damage-free oranges. FPOs should build infrastructure for sorting, grading, washing, and packing the oranges, to supply consistently to Organized retailers and eCommerce. To increase the appeal of the fruits, FPOs can also supply waxed oranges. This should be in line with the market requirement, as not all companies in this segment would pay premium for waxed fruits. Efforts can also be done for arranging training sessions for the FPOs by the market players on good marketing practices.

The demand for Nagpur oranges is constant throughout the year, while the supply from FPOs depends on the harvesting seasons in the region. FPOs that can supply predictably and consistently for an extended season would be preferred by the market players in this segment.

2.3.4 Pricing

The pricing for the players in this category is dependent on the prevalent domestic market prices. Since these companies procure from different States to meet their demand, they can easily offset price increase in one market by procuring from another market. In case the price of orange in Nagpur *mandis* are high, the companies can procure from Madhya Pradesh or Rajasthan.

FPOs shall also incur a cost of ₹1-1.50 per kg for washing, sorting, and grading, and in case waxing is done, an additional cost of ₹1-1.50 per kg. FPOs can get a premium of ₹2-2.50 per kg for waxed oranges.

Entering seasonal contracts with customers in this segment is a win-win situation for both the parties. FPOs can supply at a reasonable and assured price, while the companies are guaranteed of required quality and quantity through the season. Pricing is decided on mutual agreement based on previous season(s) markets' price trends.

Prices obtained by supplying to the companies in this market segment may not necessarily be higher than the market prices but FPOs can safeguard themselves against subdued low market prices during peak season.

2.3.5 Establishing Connects

Many market players in the Organized retail and eCommerce segment are actively working towards procuring from farmers and FPOs. They procure from major production regions for each crop, and hence procure Nagpur oranges from Vidarbha region in Maharashtra. FPOs working in Nagpur orange in the Vidarbha region are better positioned to establish tie-ups with this customer segment.

FPOs can try to establish connects with this market segment by:

- Through procurement centers of companies in surrounding region
- Through mutual connects who supply to such companies
- Listing on online trade websites such as www.indiamart.com and www.tradeindia.com
- Listing on agriculture / horticulture specific eCommerce platforms such as Bijak
- Various Government Departments / schemes conduct Buyer-Seller meets. FPOs can meet representatives from companies in this segment
- MAGNET project's Buyer-Seller meets. These Buyer-Seller meets offer platform for FPOs to interact with various market players including Organized retailers and eCommerce players
- Following websites give details on different events including Buyer-Seller meets that happen across the country:
    - https://krishijagran.com/events
    - https://www.kisaanhelpline.com/agriculture-events
    - https://ficci-web.com/events
    - https://www.2exhibitions.com/agriculture-and-forestry/

2.3.6 Advantages and Risks Associated

FPOs that have / can invest in building good post-harvest infrastructure can fetch better returns for their Grade A and B oranges. This segment is growing rapidly, hence making good business relationship with customers of the segment can lead to long term benefits for FPOs. Some companies in these segments also invest in capacity building and post-harvest infrastructure such as collection centers, which the FPOs can leverage. FPOs can enter seasonal contracts with these companies and sell at profitable prices with reduced risk. Payment default risk is also lower with these companies.

Companies in this segment function on credit terms, though credit terms can be as short as 3 days or as long as 30 days. Rejections and price cuts due to quality issues can be common occurrence as they can have strict quality norms. Since these customers procure from different orange production regions and from numerous sellers, the pricing power with FPOs is low during negotiations.

2.4 HoReCa

Hotels, Restaurants and Cafes (HoReCa) segment is a minor consumer of oranges. This segment also includes juice shops, different types of eateries and corporate kitchens.

2.4.1 Characteristics of the Segment

Oranges are used in this segment only in small quantities as they are not major ingredient in food preparation. The major consumption of orange in this segment is for fresh juice preparation. High-end customers in this segment utilize oranges for fresh consumption and dessert preparation also.

HoReCa segment is a highly price sensitive market but less de*mandi*ng in terms of quality. The focus is on volume of juice extracted, as oranges are primarily used for fresh juice preparation in this segment. The segment currently procures from local *mandis* or wholesalers. The requirement of individual customers is in low quantities. The demand from this segment is high during summer season (starting from March till June every year), as the end customer demand for fresh fruit juice is high.

2.4.2 Competitors

For an FPO looking to supply to customers in the HoReCa segment, its competitors are the local *mandis* and wholesalers. The HoReCa customers also tend to have long-standing relationship with select suppliers at *mandis*, as the suppliers understand their day-to-day requirements.

2.4.3 Maintaining Quality Standards and Supply

Oranges of lower grades are suitable for supply to most of HoReCa segment customers. Produce with physical defects are generally accepted in this segment.

Colour	No peel colour preferences
Size	40-50 mm
Weight	75-150 gms
Criteria for Rejection	High damage, disease / fungal infected, dried

FPOs should target for supplying to these customers only if they sort and grade their produce and need market channel for lower grades. Most customers in this segment are less quality conscious and hence can be supplied lower grade oranges.

The requirement for oranges from this segment customers is steady throughout the year, while the supply ability of an FPO can be only during the harvesting season in that region. Customers then might not like to disturb their longstanding relationship, if any, with their regular suppliers at *mandis* or wholesalers who can supply throughout the year (procuring from other States, imported oranges). Hence, FPOs should target to supply to these customers with predictable quality and timeline.

This segment should be targeted mainly for supply in small quantities and at regular intervals. Based on the FPOs understanding of the proportion of lower grades it has after sorting and grading, it can fix a certain number of customers to supply. Supply to these customers should then be done throughout the harvest season, i.e., September / October to March / April. Supply should also be ideally done in in restricted geography due to low order quantity, and frequent deliveries.

2.4.4 Pricing

In accordance with the quality requirement of this segment, the customers are price sensitive. FPOs may not be able to charge premium pricing for their supply consistency and quality standards. The quality required by these customers is generally available in the local *mandis*. Hence, it is necessary to maintain the prevailing market prices when supplying to these customers.

Grade	Peak Season – Price Range	Lean Season – Price Range
Grade 2	INR 22-27 per kg	INR 25-40 per kg
Grade 3	INR 10-20 per kg	INR 20-25 per kg

FPOs should also account in for the cost they would incur when delivering to these customers. Low quantities with frequent deliveries that is required by this segment can lead to high logistics cost.

2.4.5 Establishing Connects

As discussed in the sub-section above, the target customers in this segment are those within a radius of 10-15 kms around the FPOs' packhouse. Establishing connects with this market is either through mutual contacts or through directly approaching potential customers.

2.4.6 Advantages and Risks Associated

HoReCa segment is a good channel, to sell low grade oranges, for FPOs that do sorting and grading of oranges. The customers in this segment also have consistent and predictable demand that can help the FPOs for easy planning. The risk of non-payments is minimized as the daily purchase volume per customer is low.

Since the customers are highly price sensitive, this channel cannot be used for reducing price risk.

2.5 Processors

Processors are manufacturing units of secondary or tertiary processed products of oranges. They can be big processing units, MSMEs or cottage industries.

2.5.1 Characteristics of the Segment

Processors are highly price sensitive customers, and usually procure low grade oranges for processing. Size of processors vary widely from industrial processors to cottage industries; thus their requirement also varies.

2.5.2 Competitors

For an FPO looking to supply to processors its competitors are the local *mandis* and wholesalers. The processors also tend to have long-standing relationship with select suppliers, as the suppliers understand their requirements. Large processors usually procure from multiple states to have consistent supply throughout the year.

Companies manufacturing orange juice prefer importing frozen orange juice concentrate, as it is more cost effective and suitable for juice manufacturing. India imports frozen orange concentrate primarily from Brazil, Israel, and South Africa.

2.5.3 Maintaining Quality Standards and Supply

Nagpur orange is not highly suitable for orange preparation at industrial scale. This is because this variety of orange leaves a bitter taste in the juice. Hence, major juice manufacturers do not procure Nagpur orange variety.

Processors do not usually function with strict quality requirements, especially in terms of colour, size and physical defects.

Colour	No preferences
Size	No preferences
Criteria for rejection	Low pulp quantity, disease / fungal infected, rotten, too sour / bitter taste

2.5.4 Pricing

Industrial processors tend to maintain a procurement price of 10-15% lower than the market price. This is because of the large quantities they usually procure, thus giving an assured market for the suppliers.

Small scale processors and cottage industries operate at the day-to-day market prices. FPOs supplying to them have to match the prices that is prevailing the market for the required grade of oranges.

2.5.5 Establishing Connects

FPOs can supply oranges to processors in its region (district and surrounding districts). FPOs can try to establish connects with this market segment by:

- Approaching processors in their region directly
- Through mutual connects who supply to such companies
- Listing on online trade websites such as www.indiamart.com and www.tradeindia.com
- Various Government Departments / schemes conduct Buyer-Seller meets. FPOs can meet representatives from companies in this segment
- MAGNET project's Buyer-Seller meets. These Buyer-Seller meets offer platform for FPOs to interact with various market players including Processors

2.5.6 Advantages and Risks Associated

Long-term business association with processors ensures a steady market for the lower grade orange produce. Supply to processors can be done in batches as and when sufficient quantity of required quality orange is available with the FPO. Logistics cost can be minimized by doing batched transportation.

Processors usually function on long credit cycles from 15 to 60 days, leading to payment default risk. Industrial processing units may procure in large quantities. While this might provide FPOs with a large business opportunity, this increases the risk of over dependence on single / handful of customers.