

Market Access Plan for Sweet Orange

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

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1 Crop Background

Sweet Orange is a type of Citrus of the species *Citrus sinensis*. It is known for its high Vitamin C content and provides numerous health benefits. It is a common fruit in India, with major varieties being *Mosambi* and *Sathugudi*. It is consumed across the country, either as table fruit or as fresh juice, with little consumption of processed sweet orange products.

1.1 Global Scenario

Sweet Oranges do not have a separate classification in international databases and are grouped under Oranges. The data provided under this section, “Global Scenario”, are for oranges in general, and not specific to sweet oranges.

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’s sweet orange production in 2021-22 is 43.81 lakh MT over a cultivation area of 2.34 hectares. India’s production of orange and sweet orange together is 104 lakh MT with a total cultivation area of 7 lakh hectares.

| S. No. | Country | Production (MT) | Area (ha) | Productivity (MT/ha) |
|--------|--------------------------|--------------------|------------------|----------------------|
| 1 | Brazil | 1,67,07,897 | 5,72,698 | 29.17 |
| 2 | India [#] | 1,06,54,475 | 6,99,345 | 15.23 |
| 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: India Stat – Department of Agriculture and Farmers Welfare, Government of India; Rest of World – FAO Stat

[#] Figures mentioned for India are the sum of production and cultivation of Orange and Sweet Orange in 2021-22

1.2 Indian Scenario

1.2.1 Production

India is one of the largest producers of sweet oranges in the world, with an estimated annual production of 43.81 lakh MT over an acreage of 2.34 lakh hectares. Production quantity has grown at an annual rate of 6% from 2017-18 to 2021-22. The increase in production is driven by increase in cultivation area, while there is slight increase in productivity.

| Year | Production (MT) | Area (ha) | Productivity (MT/ha) |
|----------------------|-----------------|-----------|----------------------|
| 2021-22 [#] | 43,81,273 | 2,34,297 | 18.70 |
| 2020-21 | 39,87,913 | 2,16,528 | 18.42 |
| 2019-20 | 40,48,348 | 2,17,669 | 18.60 |
| 2018-19 | 32,66,171 | 1,87,076 | 17.46 |
| 2017-18 | 32,65,834 | 1,84,617 | 17.69 |

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

Andhra Pradesh is the leading producer of sweet oranges in India, producing 67% of India's annual production in 2021-22. The top 3 producers, Andhra Pradesh, Telangana, and Maharashtra, account for 94% of India's sweet orange production. Maharashtra's productivity (8.84 MT/ha) is less than half of national average (18.70 MT/ha), and nearly one third of other top producers, Andhra Pradesh (25 MT/ha) and Telangana (26.11 MT/ha).

| S. No. | States | Production (MT) | Area (ha) | Productivity (MT/ha) |
|--------|-----------------|------------------|-----------------|----------------------|
| 1 | Andhra Pradesh | 29,55,166 | 1,18,206 | 25.00 |
| 2 | Telangana | 6,03,718 | 23,123 | 26.11 |
| 3 | Maharashtra | 5,73,650 | 64,872 | 8.84 |
| 4 | Madhya Pradesh | 1,23,132 | 7,192 | 17.12 |
| 5 | Punjab | 33,281 | 3,800 | 8.76 |
| 6 | Tripura | 24,381 | 6,122 | 3.98 |
| 7 | Tamil Nadu | 22,460 | 1,521 | 14.77 |
| 8 | Karnataka | 12,805 | 812 | 15.77 |
| 9 | Jammu & Kashmir | 6,410 | 3,329 | 1.93 |
| 10 | Rajasthan | 5,325 | 303 | 17.57 |
| | World | 43,81,273 | 2,34,297 | 18.70 |

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

Telangana has gone ahead of Maharashtra, in terms of production quantity in 2021-22. The top 5 producers have remained the same from 2018-19 to 2017-18.

| Table 4: Top 5 States in Production from 2017-18 to 2021-22 | | | | |
|--|----------------|----------------|----------------|----------------|
| 2021-22[#] | 2020-21 | 2019-20 | 2018-19 | 2017-18 |
| Andhra Pradesh | Andhra Pradesh | Andhra Pradesh | Andhra Pradesh | Andhra Pradesh |
| Telangana | Maharashtra | Maharashtra | Maharashtra | Maharashtra |
| Maharashtra | Telangana | Telangana | Telangana | Telangana |
| Madhya Pradesh | Madhya Pradesh | Madhya Pradesh | Madhya Pradesh | Madhya Pradesh |
| Punjab | Punjab | Punjab | Punjab | Karnataka |

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

Maharashtra production of sweet orange is in the decreasing trend over the last 3 years, though the area under cultivation is increasing. This is due to the lowering productivity, which can be attributed to aging orchards, and climate-related issues such as extreme heat and unseasonal rainfall. Maharashtra's share in India's production is also decreasing over the last 5 years.

| Table 5: Maharashtra – Sweet 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 [#] | 5,73,650 | 64,872 | 8.84 | 13.09% |
| 2020-21 | 6,11,541 | 61,264 | 9.98 | 15.33% |
| 2019-20 | 6,59,646 | 58,903 | 11.20 | 16.29% |
| 2018-19 | 6,22,787 | 54,384 | 11.45 | 19.07% |
| 2017-18 | 6,84,796 | 55,179 | 12.41 | 20.97% |

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

District-wise production of sweet orange in Maharashtra is provided in the table below. Aurangabad is the top producing district accounting for 57% of State's production. Jalna is known for its *Mosambi* variety sweet orange, which has obtained GI tag.

| Table 6: Top 10 Districts in Sweet Orange Production in Maharashtra – 2021-22[#] | | | | |
|--|---------------|------------------------|------------------|-----------------------------|
| S. No. | States | Production (MT) | Area (ha) | Productivity (MT/ha) |
| 1 | Aurangabad | 3,25,822 | 23,273 | 14.00 |
| 2 | Jalna | 48,755 | 20,155 | 2.42 |
| 3 | Nagpur | 45,870 | 6,116 | 7.50 |
| 4 | Beed | 34,384 | 2,456 | 14.00 |
| 5 | Jalgaon | 33,182 | 2,662 | 12.47 |

| Table 6: Top 10 Districts in Sweet Orange Production in Maharashtra – 2021-22 [#] | | | | |
|--|------------|-----------------|---------------|----------------------|
| S. No. | States | Production (MT) | Area (ha) | Productivity (MT/ha) |
| 6 | Amravati | 32,400 | 4,051 | 8.00 |
| 7 | Nanded | 12,750 | 1,700 | 7.50 |
| 8 | Wardha | 11,949 | 1,707 | 7.00 |
| 9 | Ahmednagar | 7,280 | 910 | 8.00 |
| 10 | Buldhana | 5,434 | 236 | 23.03 |
| World | | 5,73,650 | 64,872 | 8.84 |

Source: Department of Agriculture, Government of Maharashtra; # 3rd estimate

1.2.2 Important Varieties

India produces different varieties of sweet oranges, with *Mosambi* and *Sathugudi* being the common and widely available varieties. The table below provides brief on major orange varieties grown in India.

| Table 7: Major Sweet Orange Varieties in India | | |
|--|---|---|
| <i>Mosambi</i> | <i>Mosambi</i> is medium sized sweet orange variety that is green to greenish yellow in colour. It has a leathery and medium-thick rind. It has a yellow pulp and gives a refreshing aroma. It grown in large quantities in Maharashtra, Madhya Pradesh, and Telangana. |  |
| <i>Sathugudi</i> | <i>Sathugudi</i> is similar to <i>Mosambi</i> variety, with medium-thick rind and greenish yellow in colour. It is medium to large in size. It is grown in Andhra Pradesh, Tamil Nadu, and Telangana. |  |
| Batavian | Batavian variety resembles <i>Sathugudi</i> variety. It is light green in colour with yellow spots. It is grown in Andhra Pradesh. |  |
| Jaffa | Jaffa sweet oranges are bright orange in colour and are sweet to taste. They are juicy and have high sugar content. They are widely grown in Israel, and in India, they are grown in Punjab. |  |

1.2.3 Trade – International

Sweet Oranges exports from India are minimal are not tracked separately by Government databases. *Mosambi*, the variety grown in Maharashtra, is not exported in good quantities due to lack of demand. *Mosambi*, when compared to other orange varieties, lacks the attractive physical appeal.

1.2.4 Trade – Domestic

Sweet 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 8: Arrivals and Modal Price in Major Sweet Orange <i>Mandis</i> – 2021 | | |
|---|---------------------|--------------------------------|
| <i>Mandis</i>[#] | Arrival (MT) | Modal price (₹/quintal) |
| Hyderabad (Telangana) | 79,386 | 1,588 |
| Kolkata (West Bengal) | 74,778 | 4,170 |
| Azadpur (Delhi) | 65,353 | 2,190 |
| Mumbai (Maharashtra) | 34,307 | 4,073 |
| Bengaluru (Karnataka) | 31,739 | 5,246 |
| Chennai (Tamil Nadu) | 25,430 | 4,212 |
| Nagpur (Maharashtra) | 23,565 | 3,393 |
| Varanasi (Uttar Pradesh) | 15,161 | 2,659 |
| Lucknow (Uttar Pradesh) | 10,301 | 2,482 |
| Patna (Bihar) | 8,644 | 3,504 |

Source: AGMARKNET

Details of Sweet Orange trade in Andhra Pradesh *Mandis* is not available on AGMARKNET. Andhra Pradesh is the leading producer of Sweet Orange in the country.

Mumbai is the highest consumption market in Maharashtra, while Nagpur is a major producing market for sweet orange in Maharashtra. The monthly arrivals of sweet orange in these markets is provided in the table below.

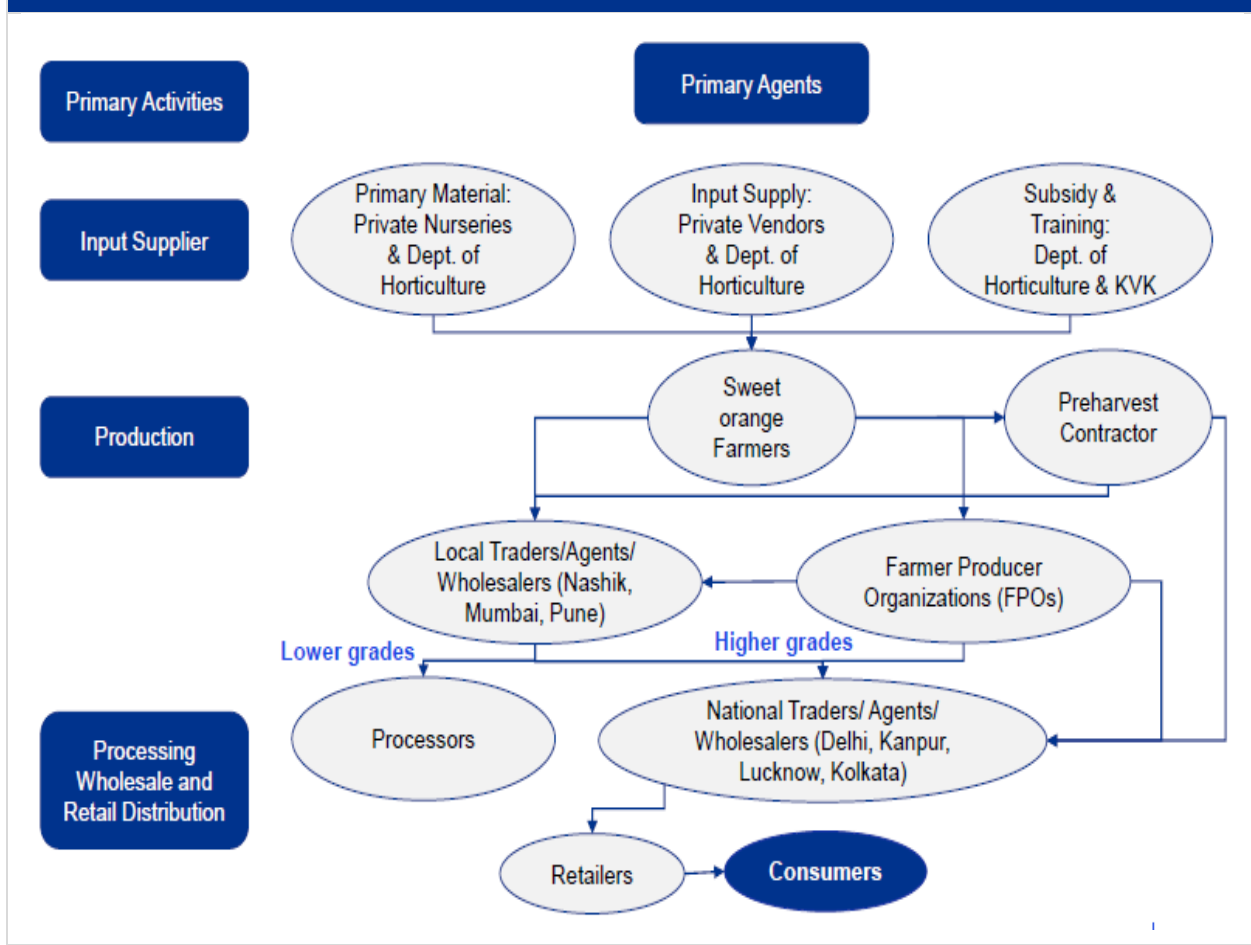
| Table 9: Sweet Orange Market Arrivals in Mumbai and Nagpur – 2021 (MT) | | |
|---|---------------|---------------|
| Months | Mumbai | Nagpur |
| January | 2,306 | 1,158 |
| February | 1,866 | 1,915 |
| March | 2,222 | 550 |
| April | 1,263 | 2,220 |
| May | 921 | 693 |
| June | 1,204 | 4,457 |
| July | 1,507 | 1,890 |
| August | 4,409 | 2,465 |
| September | 3,951 | 1,620 |
| October | 5,628 | 3,795 |
| November | 4,727 | 1,640 |
| December | 4,303 | 1,162 |
| Total | 34,307 | 23,565 |

Source: AGMARKNET

1.2.5 Value Chain Map

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

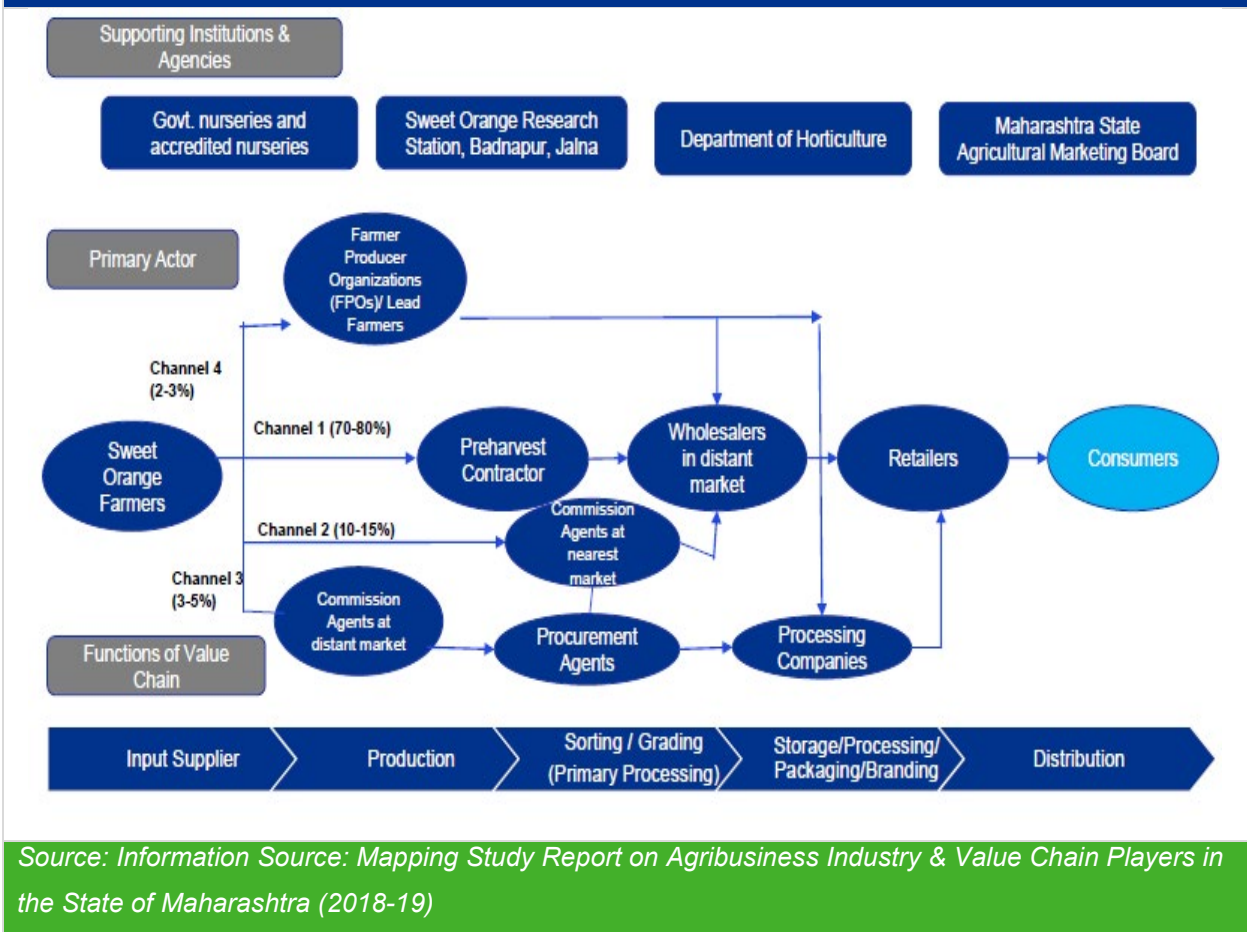
Figure 1: Structure of Sweet Orange Value Chain



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

Figure 2: Structure of Sweet Orange Value Chain



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 business 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 market players 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 market players 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 sweet orange in the major market segments, namely, 1) Domestic Markets, 2) Organized Retail and eCommerce, and 3) HoReCa and Processors. Key components of this section are:



2.1 Domestic Markets

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

2.1.1 Characteristics of the Segment

Domestic markets consume all grades of sweet orange, as they have a wide range of customer segments. The demand from domestic market is 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.

2.1.2 Competitors

Andhra Pradesh, Telangana, and Madhya Pradesh are the major competitors for Maharashtra in sweet orange. Andhra Pradesh sweet oranges are considered to be of better quality than those cultivated in Maharashtra. The *Sathugudi* variety of Andhra Pradesh is a preferred variety of sweet orange. *Mosambi* grown in Telangana is highly demanded by the Uttar Pradesh and Delhi markets, which are major markets for Maharashtra sweet orange.

FPOs should focus on supply during summer months, April to June, when there is high demand and less supply from Andhra Pradesh and Telangana. Supplying good quality sweet orange to important markets during this period can also increase the demand from consumers for sweet orange from Maharashtra. This can help Maharashtra compete during September to December, when it competes with Andhra Pradesh and Telangana.

Table 10: Seasonality of Sweet Orange Arrivals in the Markets from other Competing Indian States

| States | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|----------------|------|------|------|------|------|-----|------|------|------|------|------|------|
| Andhra Pradesh | Peak | Lean | Lean | | | | Peak | | Lean | Lean | Peak | Peak |
| Telangana | | Lean | Lean | | | | Peak | | Lean | Lean | Peak | Peak |
| Madhya Pradesh | Peak | Lean | Peak | Lean | | | | | | | | |
| Maharashtra | | Lean | Lean | Peak | Lean | | | Lean | Lean | Peak | Peak | Lean |

Legend key: ■ Peak season ■ Lean season

2.1.3 Maintaining Quality Standards and Supply

Domestic markets accept all grades of sweet orange as there is demand for all grades at respective price points. Grading pattern would differ from market to market.

| Grade | Specifications |
|---------|--|
| Grade 1 | >250 g and Green Colour |
| Grade 2 | 150-250 g and Light Yellowish Green Colour |
| Grade 3 | <150 gms and Yellow orange Colour |

FPOs can invest in packhouse infrastructure for washing, sorting, and packaging of sweet orange. These activities are currently done by traders or at *Mandis*. Packaging for *Mosambi* can be done in netlon mesh bags. FPOs dealing in high quantities can invest in optical sorters and automatic packaging machines.

Trading of graded produce may not be practiced across all markets. The major markets to which Maharashtra supplies such as Delhi, Jaipur, Kanpur, and Varanasi require mixed quality produce. Nucellar is the preferred variety in these markets.

To supply to distant domestic markets, FPOs need to supply full truck loads (at least 10 MT) for optimal logistics cost.

2.1.4 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 or by 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 sweet orange 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 sweet orange during peak and lean seasons in major Maharashtra markets is provided in the table below.

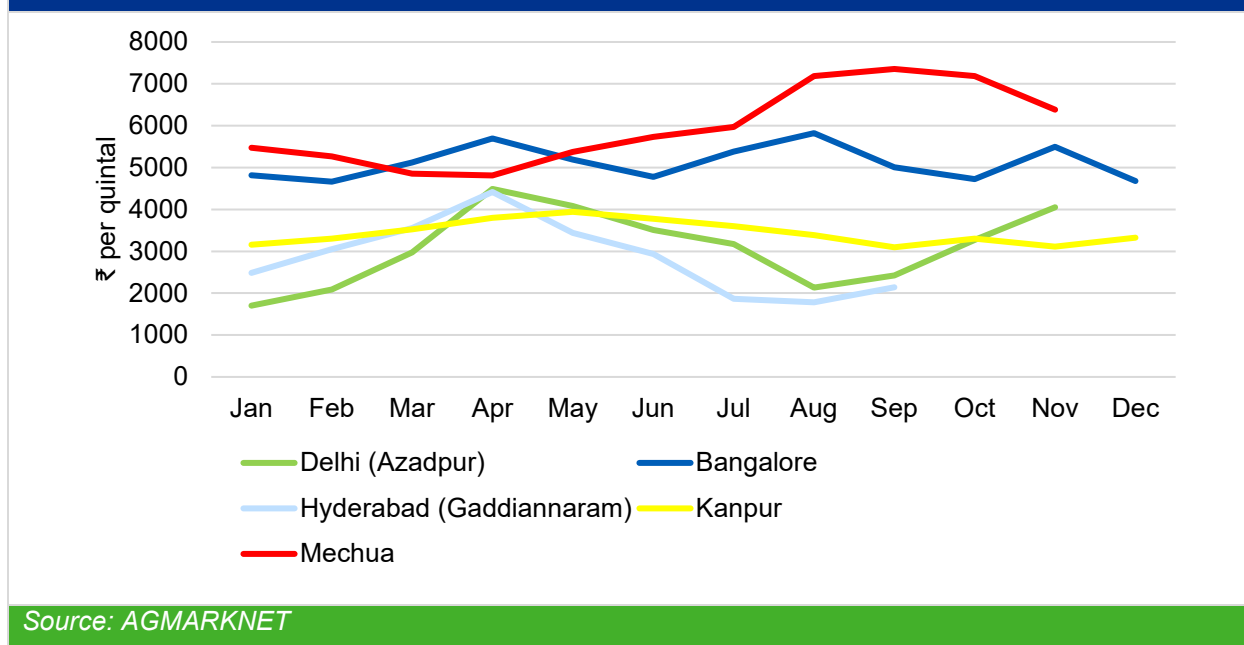
| Grade | Peak Season – Price Range | Lean Season – Price Range |
|---------|---------------------------|---------------------------|
| Grade 1 | ₹25-35 per kg | ₹50-60 per kg |
| Grade 2 | ₹20-25 per kg | ₹35-45 per kg |
| Grade 3 | ₹10-20 per kg | ₹20-30 per kg |

Cost of packaging in crates is ₹5-6 per kg, in CFB boxes is ₹2-3 per kg, and in nano / netlon mesh bags is ₹0.30-0.50 per kg. Washing, sorting, and grading involving manual labor can cost between ₹1-4 per kg, depending on local labour market. Transportation cost is ₹5-7 per kg for Delhi and Uttar Pradesh markets, and additional ₹3-5 per kg for markets further north and Eastern markets.

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

The below chart provides modal price comparison between major sweet orange markets in Maharashtra, and markets of major cities in India. Distant markets or markets in major cities doesn't necessarily provide higher prices than the regional *Mandis*.

Table 11: Sweet Orange Modal Price in markets of major cities in India and major Sweet Orange markets in Maharashtra – 2021-22



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 sweet oranges. Nonetheless, domestic markets are an important channel as they have consistent demand.

2.1.5 Establishing Connects in the Market

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 sweet orange in the vicinity.

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

2.1.6 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.

2.2 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.

2.2.1 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.

2.2.2 Competitors

FPOs looking to supply to companies in this segment are competing with *Mandis* and traders across the major sweet orange producing regions. These companies procure from across the country, where required quality at the right price is available. Hence, farmers / FPOs in Andhra Pradesh, Telangana and Madhya Pradesh are competitors to Maharashtra FPOs looking to supply to Organized Retail and eCommerce market players.

2.2.3 Maintaining Quality Standards and Supply

Organized retail and eCommerce market players 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 sweet orange.

| Parameters | Grade A | Grade B |
|------------------------|--|-------------------|
| Colour | Even Green to Light Green | Greenish yellow |
| Weight | 200 g and above | 120-180 g |
| Size | 60-80 mm diameter | 50-60 mm diameter |
| Criteria for rejection | Surface defects or damages, dried skin, shriveled, rotten, full yellow, too soft | |

This segment requires clean, washed and damage-free sweet orange. FPOs can invest in packhouse infrastructure for washing, sorting, and packaging of sweet orange, as these will assist in delivering the required quality of produce to this market. Packaging for *Mosambi* can be done in netlon mesh bags or as per requirement. FPOs dealing in high quantities can invest in optical sorters and automatic packaging machines.

The demand for sweet orange is 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.

2.2.4 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 sweet orange in Aurangabad / Jalna *Mandis* are high, the companies can procure from Madhya Pradesh or Telangana or Andhra Pradesh.

Cost of packaging in crates is ₹5-6 per kg, in CFB boxes is ₹2-3 per kg, and in nano / netlon mesh bags is ₹0.30-0.50 per kg. Since, these markets take regular supply from FPOs, crates can be reused for supply, reducing packaging cost. Washing, sorting, and grading involving manual labor can cost between ₹1-4 per kg, depending on local labour market.

Entering seasonal contracts with market players 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.

The labour cost involved in washing, sorting, and grading is in the range of ₹1-2 per kg. FPOs should also take into account packaging costs. Since, sweet orange is regularly supplied to the same set of market players, reusable plastic crates can be a cost-effective packaging option.

2.2.5 Establishing Connects in the Market

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 sweet orange from Marathwada region in Maharashtra. FPOs working in sweet orange in the Marathwada region are better positioned to establish tie-ups with this market 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, www.tradeindia.com, www.kisanMandi.com, www.farmersMandi.in
- Listing on agriculture / horticulture specific eCommerce platforms such as Bijak
- Buyer-seller meets conducted by Government Departments or under various government projects/ schemes: FPOs can meet representatives from companies in this segment some list
- Buyer-Seller meets under MagNet project: 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/>

2.2.6 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 sweet orange. This segment is growing rapidly, hence making good business relationship with market players 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, which the FPOs can leverage. 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 market players procure from different sweet orange production regions and from numerous sellers, the pricing power with FPOs is low during negotiations.

2.3 HoReCa and Processors

Hotels, Restaurants and Cafes (HoReCa) are part of this market along with juice shops, different types of eateries and corporate kitchens. Processors can be large industrial units or small-scale cottage industries.

2.3.1 Characteristics of the Segment

HoReCa segment is a large consumer of Sweet Orange, specifically juice shops. Sweet Orange is consumed majorly in 2 ways – table fruit or fresh juice. Hence, juice shops become one of the biggest markets for Sweet Orange. The market is highly fragmented, with micro-scale players (road-side juice shops) as the primary market player. A peculiar feature in this segment is the presence of good number of seasonal market players, who put up juice shops (lemon, sweet orange) during the summer months alone, when the consumption is high.

Processors are highly price sensitive customers, and usually procure low grade sweet oranges for processing. The processing of sweet orange (*Mosambi* variety) into juice is limited, due to development of bitter taste in the juice. Processors produce *Mosambi* concentrate, which is further processed into packed juice. Dabur is the only major packed juice manufacturer that sells *Mosambi* juice in Indian market.

Both segments are highly price sensitive market but less demanding in terms of quality. The focus is on volume of juice extracted, as sweet orange are primarily used for juice preparation in these segment. HoReCa segment currently procures from local *Mandis* or wholesalers, while processors procure across various markets in the country at the most cost-effective prices. The requirement of individual HoReCa market players is in low quantities, while large scale processors require huge quantities daily. The demand from these segments is high during summer season (starting from March till June every year), as the end consumer demand for fruit juice is high.

2.3.2 Competitors

For an FPO looking to supply to market players in the HoReCa segment and small-scale processors, its competitors are the local *Mandis* and wholesalers. The HoReCa market players also tend to have long-standing relationship with select suppliers at *Mandis*, as the suppliers understand their day-to-day requirements. Supplying to industrial processors require competing with major sweet orange producing States such as Andhra Pradesh and Telangana.

2.3.3 Maintaining Quality Standards and Supply

Sweet Orange of lower grades are suitable for supply to most of HoReCa segment market players and processors. Produce with physical defects are generally accepted in this segment.

| | |
|------------------------|---|
| Colour | No peel colour preferences |
| Size | 40-60 mm in diameter is sufficient Lower size fruits are also accepted |
| Weight | 100-150 g is sufficient Lower weight fruits are also accepted |
| Criteria for Rejection | High damage, disease / fungal infected, dried |

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

The requirement for sweet orange from this market players is throughout the year, with high requirement during summer months. The supply ability of an FPO can be only during the harvesting season in that region. Market players 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). Hence, FPOs should target to supply to these market players with predictable price, timeline and throughout their harvest season.

HoReCa 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 market players to supply. Supply to HoReCa market players should then be done throughout the harvest season, i.e., September / October to April / May. Supply should also be ideally done in in restricted geography due to low order quantity, and frequent deliveries.

Processors usually have planned and scheduled requirement, and they procure from multiple suppliers to reduce dependency and minimize supply issues. Based on the FPOs understanding of the proportion of lower grades it has after sorting and grading, it can fix the quantity and schedule of its supply to select processors. Since batched supply can be done, FPOs should target sending complete truck loads to processors.

2.3.4 Pricing

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

| Grade | Peak Season – Price Range | Lean Season – Price Range |
|---------|---------------------------|---------------------------|
| Grade 2 | ₹20-25 per kg | ₹35-45 per kg |
| Grade 3 | ₹10-20 per kg | ₹20-30 per kg |

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

2.3.5 Establishing Connects in the Market

As discussed in the sub-section above, the target market players in HoReCa 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 market players.

For processors, connects can be established by listing on online trade websites such as www.indiamart.com, www.tradeindia.com, www.kisanMandi.com, www.farmersmandi.in. Processors for *Mosambi* are limited in number, as *Mosambi* juice is preferred to be consumed as fresh by customers.

2.3.6 Advantages and Risks Associated

HoReCa and Processor segments are good channels, to sell low grade sweet oranges, for FPOs that do sorting and grading of sweet orange. The market players in this segment also have consistent and predictable demand that can help the FPOs for easy planning. In HoReCa segment, the risk of non-payments is minimized as the daily purchase volume per market player is low.

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

2.4 Export Markets

Trade data for sweet orange is not tracked separately in international databases. India's export data, specific to sweet orange exports / *Mosambi* exports, is not available on Government published resources. Primary research also indicates that *Mosambi* is not exported from Maharashtra. *Mosambi* competes with orange varieties, and hence is less preferred compared to the sweeter and attractive orange varieties.

UNECE has established standards for marketing and commercial quality control of citrus fruits, which includes Indian Sweet Lime (*Mosambi*). UNECE standards for Citrus Fruits can be found in the following link - https://unece.org/fileadmin/DAM/trade/agr/standard/standard/fresh/FFV-Std/English/14_CitrusFruit.pdf. Specific standards for *Mosambi* are mentioned as Indian Sweet Lime. The summary of the quality specifications for *Mosambi* is provided in the table below.

| | |
|-----------------------|--|
| Peel Colour | Fruit should be green in colour but may show yellow patches up to 20% of its surface |
| Minimum Juice Content | 40% |
| Class | <ul style="list-style-type: none"> • 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 qualify minimum requirement (10% tolerance) |
| Size | <ul style="list-style-type: none"> • Fruits below 25 mm in diameter are not allowed • Size Code 1 - >45 mm in diameter • Size Code 2 – 40.1 to 45 mm in diameter • Size Code 3 – 35.1 to 40 mm in diameter • Size Code 4 – 30.1 to 35 mm in diameter • Size Code 5 – 25 to 30 mm in diameter |
| Packaging | <ul style="list-style-type: none"> • Each package should be of a single class with same origin, variety, and quality • Packaging should protect the fruit properly, and the material used should be clean and should be quality that avoids causing both external and internal damages • Each package should mandatorily bear the following details – Identification, Nature of Produce, Origin of Produce, and Commercial Specifications |