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SHAPING A VIBRANT INDIA

## **Maharashtra Agribusiness Network (MAGNET) Project**

### **Toolkit for preparation of DPR Pomegranate**

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## 1. KEY NOTES

1. These project plans are designed to assist as a ready sample for reference/ adoption by the applicants wishing to submit their DPRs for consideration of grant assistance under Output II of the MAGNET Project (GoM).
2. While these sample project plans are designed keeping a specific MAGNET crop as the target crop, users must understand that in majority cases most facilities are relevant for processing of other MAGNET crops as well. For instance:
  - A Washing-Sorting-Grading Facility can be used for processing of all MAGNET crops (as per availability in the user's catchment zone). Facilities having round grader can ensure most of the round MAGNET fruits can be graded in the same facility.
  - Similarly, an IQF Unit can be used for processing products of Okra, Chillies, Pomegranate Arils, cut/diced products of guava, strawberry, mango, etc.

Case to case basis, applicants may have to make certain variations or add specific machinery to enable processing of some crops. It is important that users understand that handling multiple MAGNET crops (based on availability in the catchment zone) is desirable to ensure year-round operations as well as technical and financial viability of the plants.

Users also need to ensure that at least 70% of the plant capacities must be utilized for MAGNET crops and the spare capacity can be utilized for non-MAGNET crops. [Only exception will be allowed in case of strawberries, wherein (in locations like Mahabaleshwar) applicants may not have abundant availability of other MAGNET crops].

3. **Users must understand that MAGNET does a profile screening and evaluates if the applicant's profile (in terms of recent year turnovers; experience in manufacturing and/or trading of same/ similar value-added products; technical and technology knowhow; backward and forward linkages, etc.) demonstrates applicant's abilities to handle proposed activities and final products marketing.**
4. Users may kindly note that **MAGNET's key focus is on Primary Processing and Preservation and some Secondary Processing in integration** is also acceptable. MAGNET does not prefer/ promote high value adding tertiary processing, except on a case to case (merit) basis. In this context, a "PREFERRED PROJECT PROMOTER PROFILE" has been shared with each model.
5. The plans comprise major required technical civil works, key plant & machinery and utility equipment required for sound implementation and operation thereafter. Also, while designing the sample project plans, best efforts have been taken to include critical components; This does not restrict the user to add/reduce/modify the project components. While care has been taken to ensure ideal and optimum provision of all required civil areas/capacities and quantities of equipments, **users must conduct their own research and, after thorough discussions with their prospective suppliers/ project consultants, design (i.e., capacities, quantities, etc.) their own projects accordingly.**
6. The project cost calculations are based on cost norms (of MIDH/MOFPI, wherever applicable). While preparing DPR, **users must necessarily seek quotations from key suppliers to arrive at their own project cost** accordingly. However, users must also note that grant, if the project is selected, shall be accorded as per prevailing cost norms.
7. This project plans herein are designed to handle pomegranate (primarily) and other compatible MAGNET crops could also be handled in the same facility. While proposing multi-fruit handling (i.e., pomegranate and other MAGNET crops), users must take necessary care to incorporate changes in project components, if any.
8. "As per guidelines of Output II (Matching Grant Component, MAGNET Project, GoM), the promoter's contribution (equity) should be at least 20% of the total project cost. Thus, in the Means of Finance presented in each plan of this report, the Promoter Contribution is conservatively restricted to 20% of the Total Project Cost. While designing their own projects, project promoters may require infusing greater percentage of equity, based on term loan being sought from FI and grant being sought from MAGNET.

Exception: In case of CMRC applicants only, the equity contribution should be at least 5% of the total project cost. Thus, CMRC (applicant) users, may require restructuring their means of finance, also based on term loan being sought from FI and grant being sought from MAGNET. "

9. As per guidelines of Output II (Matching Grant Component, MAGNET Project, GoM), the limit of eligible Preliminary & Pre-operative expenses (for grant consideration) is maximum 5% of the eligible project cost or Rs. 20 Lakh, whichever is lower. Thus, P&P expenses in each of the plans presented in the project cost are conservatively restricted to same extent only. While designing their own projects, users may require provisioning for greater/ lesser amount of P&P, based on requirement of the project.
10. In the Project Cost of each of the plans presented herein this report, provision for components such as Working Capital Margin, Misc. Fixed Assets and Contingencies has not been made. As per guidelines of Output II (Matching Grant Component, MAGNET Project, GoM), these components are not eligible for grant. However, while designing their own projects, users may require provisioning for these components, based on requirement of the project.
11. The cost of utilities and material handling equipment will be considered under eligible project cost subject to restriction of eligible cost of same being maximum 25% of the total project cost.
12. Users may refer this report as reference/ guidance for developing their own project plans, however necessarily in conjunction with the EOI Guidelines.






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## 2. CROP PROFILE: POMEGRANATE

Pomegranate is an important fruit crop of arid and semiarid regions of the world. It has both cultivated (*Punica granatum L.*) and wild types (*Punica protopunica*). Pomegranate tree originated in the region extending from Iran to the Himalayas in northern India and has been cultivated since ancient times throughout the Mediterranean region of Asia, Africa and Europe.

Recently, it has been recognised as superfood because of the high concentration antioxidant, which has increased the consumption of the fruit especially in the western market. In India, pomegranate has a significant importance because of its use as traditional medicine in Ayurveda.

### Pomegranate at Glance

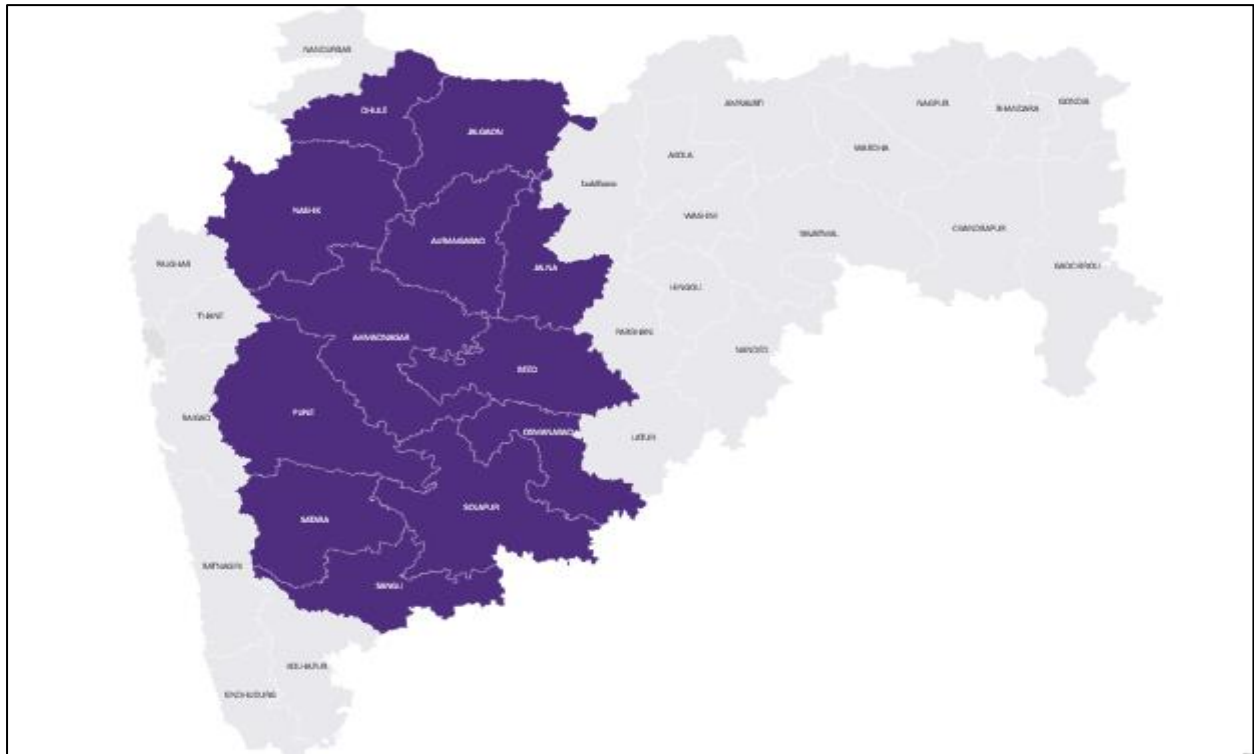
-  India is the 3<sup>rd</sup> largest producer of Pomegranate in terms of production followed by Iran
-  India is the only country in the world where pomegranate is available throughout the year (January – December).
-  Maharashtra, Gujarat, and Karnataka are the top 3 Pomegranate producing States in India
-  Maharashtra is the largest exporter of fresh Pomegranate in India
-  The average productivity of Pomegranate in India 11.45 MT/Ha with Telangana being the highest followed by Gujarat and Andhra Pradesh

## 3. POMEGRANATE SNAPSHOT

<b>India</b>	Total Production in India	2.90 million MT
	Total Area under cultivation in India	0.25 million Hectare
	Top 5 Pomegranate producing States	Maharashtra, Gujarat, Karnataka, Andhra Pradesh, Madhya Pradesh
	Agri Export zone of Pomegranate	Maharashtra
	India's share in global exports	3%

<b>Maharashtra</b>	Total Production in Maharashtra	1.69 million MT
	Average yield in Maharashtra	10.85 MT/ha (2021-22)
	Top Pomegranate producing Districts in MH	Nashik, Solapur, Ahmednagar, Pune, Sangli
	Export Position of India	6 <sup>th</sup>
	Seasonality of Pomegranate in Maharashtra	Round the year in Maharashtra

#### 4. POMEGRANATE CLUSTERS IDENTIFIED UNDER MAGNET



District	Area in '000 ha	Quantity in '000 MT	Productivity (MT/ha)
Solapur	47.377	331.639	7.00
Ahmednagar	37.076	357.091	9.63
Nashik	26.059	443.050	17.00
Pune	9.569	95.690	10.00
Sangli	9.151	146.418	16.00
Dhule	8.309	83.094	10.00
Aurangabad	4.900	34.300	7.00
Satara	2.997	32.000	10.68
Osmanabad	2.825	28.190	9.98
Beed	2.644	79.314	30.00
Jalna	2.636	29.735	11.28
Jalgaon	0.497	8.946	18.00

Source: Area and Production Statistics, Ministry of Agriculture and Farmers Welfare: 2021-22

## 5. SOME USEFUL LINKS – MARKET INTELLIGENCE AND TECHNOLOGY

Market Intelligence		
Sr. No	Description	Web - Links
1	Market opportunities for Indian pomegranate	<a href="#">Pomegranate Report.pdf (apeda.gov.in)</a>
2	Pomegranate overview	<a href="#">POMEGRANATE (nhb.gov.in)</a>
3	Pomegranate – Grading and packaging standards	<a href="#">STANDARD FOR POMEGRANATE (fao.org)</a>
4	Export potential of Bhagwa variety	<a href="#">Status report of Bhagava.pdf (icar.gov.in)</a>
5	APEDA specifications for packaging	<a href="#">F-and-V-Reprt-revised.pdf (apeda.gov.in)</a>
6	Pomegranate Processing Technologies	<a href="https://youtu.be/vkSxzPqbcNg">https://youtu.be/vkSxzPqbcNg</a>
7	Pomegranate export	<a href="https://youtu.be/_gUBToI0mhE">https://youtu.be/_gUBToI0mhE</a>
8	Pomegranate packaging and export	<a href="https://youtu.be/fYWtSIPKaFA">https://youtu.be/fYWtSIPKaFA</a>

Project Components & Technology			
Sr. No	Components	Links	Document Page no
1	Packhouse (Washing, Sorting, Grading Line)	<a href="http://www.nccd.gov.in/PDF/Cold-chain%20Awareness%20Booklet.pdf">http://www.nccd.gov.in/PDF/Cold-chain%20Awareness%20Booklet.pdf</a>	8
2	Pre-cooling		8
3	Staging Cold Room		9
4	Cold Storage		9
5	Blast Freezer	<a href="https://www.youtube.com/watch?v=WulyeVKN-lw">https://www.youtube.com/watch?v=WulyeVKN-lw</a>	
6	Frozen Storage	<ul style="list-style-type: none"> <li><a href="#">Freezing of fruits and vegetables (fao.org)</a></li> <li><a href="#">DE-11: Lesson 24. STORAGE OF FROZEN FOODS (iasri.res.in)</a></li> </ul>	
7	Arils extraction line	<ul style="list-style-type: none"> <li><a href="https://youtu.be/hbrFUZbZdME">https://youtu.be/hbrFUZbZdME</a></li> <li><a href="https://youtu.be/xDZu4AZSgIk">https://youtu.be/xDZu4AZSgIk</a></li> </ul>	
8	Reefer van	<a href="http://www.nccd.gov.in/PDF/Cold-chain%20Awareness%20Booklet.pdf">http://www.nccd.gov.in/PDF/Cold-chain%20Awareness%20Booklet.pdf</a>	9

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## 6. PREFERRED PROJECT PROMOTER PROFILE

### A. High Capital Investment & 'Tough to Compete' Businesses – which may be pursued by highly seasoned and experienced applicants

- VCO/FPO**, who is eligible as per eligibility *criteria* under Matching Grant (Output II) Guidelines of the MAGNET Project, **as well as** has been involved in manufacturing and/or trading of same/ similar value-added products of MAGNET/Non-MAGNET crops in recent years and has developed significant credentials in domestic and/or export markets. This should be supported by relevant documentation such as past **trade history, Contracts/ MoU/ Lol** with existing and potential buyers of project products.
- The promoter's experience and detailed project report exhibit considerable understanding of - technical and technology knowhow, market potential and market dynamics for the proposed products, risks and opportunities involved.
- Turnover & Net Worth**
  - **For VCO** – The audited turnover figures of recent 3 years and latest certified Net Worth (with supporting documents) of the company/firm demonstrate promoter's capabilities to invest in and operate the proposed project.
  - **For FPO** - The audited turnover figures of recent 3 years and the current Paid-up Capital (and reserves) of the company/co-operative demonstrate promoter's capabilities to invest in and operate the proposed project.

### B. Moderate Capital Investment & Competitive Businesses – may be pursued by applicants having some relevant experience

- VCO/ FPO**, who is eligible as per eligibility criteria under Matching Grant (Output II) Guidelines of the MAGNET Project, **as well as** has been involved in manufacturing and/or trading of agri/food products of MAGNET/Non-MAGNET crops in recent years and has developed significant credentials in domestic and/or export markets.
- The promoter's experience and detailed project report exhibit considerable understanding of - technical and technology knowhow, market potential and market dynamics for the proposed products, risks and opportunities involved.
- Turnover & Net Worth**
  - **For VCO** – The audited turnover figures of recent 3 years and latest certified Net Worth (with supporting documents) of the company/firm demonstrate promoter's capabilities to invest in and operate the proposed project.
  - **For FPO** - The audited turnover figures of recent 3 years and the current Paid-up Capital (and reserves) of the company/co-operative demonstrate promoter's capabilities to invest in and operate the proposed project.

### C. Low Capital Investment & Competitive Businesses – may be pursued by applicants having some relevant experience

- Any applicant (VCO/ FPO/ CMRC/ Other)** who eligible as per eligibility criteria under Matching Grant (Output II) Guidelines of the MAGNET Project.



## **7. MODEL I - PACKHOUSE OPERATIONS**

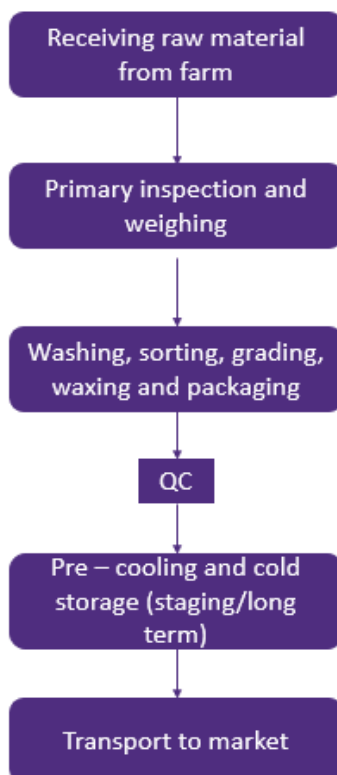
## MODEL – I: PACKHOUSE OPERATIONS

<b>Target MAGNET Crop</b>	Primary Crop: <b>Pomegranate</b> Secondary Crops: Any other MAGNET crops suitable for project
<b>Project Category</b>	(Recommended as) <b>Small Sized</b>
<b>Description</b>	The proposed project primarily involves primary pack-house operations (semi-automatic washing-sorting-grading-packing) and cold storage for pomegranate crop. For efficient operations of the facility, a suitable pre-cooling, staging cold room, refer van (for transport to markets), as well as utilities that are required to support the main operations are incorporated.
<b>Preferred Applicant Profile</b>	<b>Low Capital Investment &amp; Competitive Businesses - Can be pursued by any applicant eligible as per Eligibility Criteria</b>

### i) Key Facilities

S. No.	Type of facilities proposed to be created	Capacity	No. of Units
1	Packhouse (Washing, Sorting, Grading Line)	2 TPH	1
2	Pre-cooling	6 MT	1
3	Staging Cold Room	30MT	1
4	Cold Storage	80 MT	1
5	Utilities	Transformer, DG Set, APFC, Stabilizer, Crates and Pallets	1 Set

### ii) Process Flow



### iii) Project Cost:

S. No.	Components	Proposed Cost	Eligible Cost*	Grant on Eligible Cost (%)	Matching Grant (Rs. Lakhs)
1	Technical Civil Works		34.81	60%	20.89
2	Non-Technical Civil Works		-	0%	-
3a	Main P&M		93.22	60%	55.93
3b	Utilities		78.34	60%	34.65
4	Reefer Van		13.64	60%	8.18
5	Misc. Fixed Assets		-	0%	-
6	Contingencies		-	0%	-
7	Working Capital Margin		-	0%	-
	<b>Subtotal (A)</b>		<b>220.01</b>		<b>119.65</b>
8	Preliminary & Pre-operative Expenses		11.00	60%	6.60
	<b>Total</b>		<b>231.01</b>		<b>126.25</b>

### iv) Means of Finance

Means of Finance	Proposed Amount (Rs. Lakhs)	Eligible Cost (Rs. Lakhs)	% of Total Cost
Promoter Equity		58.56	25%
Bank Term Loan		46.20	20%
Matching Grant		126.25	55%
<b>Total</b>		<b>231.01</b>	<b>100%</b>

\*The project cost calculations are based on cost norms (of MIDH/MOFPI, wherever applicable). While preparing DPR, users must necessarily seek quotations from key suppliers to arrive at their own project cost accordingly. However, users must also note that grant, if the project is selected, shall be accorded as per prevailing cost norms.

**Civil Works (Puff Panels/ Brick Wall)**

Rupees in Lakh

Sr. No.	Description	Area (Sq. Meter)	Cost Norm Per Sq.m	Total Cost (As per Cost Norm)	Taxes	Total Eligible Cost	Remark
<b>A</b>	<b>Technical Civil Work</b>						
1	Pre-cooling Chamber	30	-	-	-	-	Consolidated cost norms considered in P&M
2	Staging Cold Room	50	-	-	-	-	
3	Cold Storage	75	-	-	-	-	
4	Pack-house	200	0.10	20.00	3.60	23.60	As per cost norms
5	Testing lab area	15	0.10	1.50	0.27	1.77	
6	Machine room	20	0.10	2.00	0.36	2.36	
7	Water tank - UGT	LS		2.00	0.36	2.36	Actual requirement of water will vary as per applicant's end use
8	Water tank - OHT	LS		2.00	0.36	2.36	
9	Toilets (Separate for Male & Female)	20	0.10	2.00	0.36	2.36	As per cost norms
	<b>Sub Total (A)</b>	<b>410.00</b>		<b>29.50</b>	<b>5.31</b>	<b>34.81</b>	
<b>B</b>	<b>Non-Technical Civil Works</b>						
1	Administrative Office	-	-	-	-	-	Ineligible
2	Canteen, Internal Roads	-	-	-	-	-	
3	Boundary Wall	-	-	-	-	-	
	<b>Sub Total (B)</b>			-	-	-	
	<b>Grand Total (A+B)</b>	<b>410.00</b>		<b>29.50</b>	<b>5.31</b>	<b>34.81</b>	

Plant & Machinery									
									Rupees in Lakh
Sr. No	Plant and Machinery	Capacity	Quantity	Critical/Optional	Cost Norm per unit	Total Cost (All Units)	Taxes	Total Eligible Cost	Remark
<b>A</b>	<b>Main Plant &amp; Machinery</b>								
1	Pre-cooling Chamber	6 MT	1	Critical	25.00	25.00	4.50	29.50	As per cost norms
2	Staging Cold Room	30 MT	1	Critical	15.00	15.00	2.70	17.70	As per cost norms
3	Cold Storage	80 MT	1 Set	Optional	0.10	8.00	1.44	9.44	As per cost norms
4	<b>Pack-house (Semi-automatic Washing-Sorting-Grading-Packing)</b>	<b>2 TPH</b>	1 Set						
a	Fruit Washer	For 2 TPH Line	1	Critical	25.00	25.00	4.50	29.50	As per cost norms
b	Surface Dryer Fan Conveyor		1	Critical					
c	Round Fruit Grader		1	Critical					
d	Conveyor Belt		1	Critical					
e	Sorting Tables		2	Critical					
f	Wax Coating line		1	Optional					
g	Weighing Machines	1 unit x 50 KG, 1 Unit X 100 Kg	2	Critical					
h	SS Packing Tables		2	Critical					
i	Box Strapping Machine		1	Optional					
j	Cooling system for process hall (HVAC)		1	Optional	5.00	5.00	0.90	5.90	Eligible cost as per market rate analysis
5	Lab equipment's		1	Optional		1.00	0.18	1.18	
	<b>Subtotal (A)</b>					<b>79.00</b>	<b>14.22</b>	<b>93.22</b>	
<b>B</b>	<b>Utilities</b>								
1	Transformer	120 KVA	1	Critical	1.73	1.73	0.31	2.04	As per cost norms

Plant & Machinery									
Rupees in Lakh									
Sr. No	Plant and Machinery	Capacity	Quantity	Critical/Optional	Cost Norm per unit	Total Cost (All Units)	Taxes	Total Eligible Cost	Remark
2	Electrification	Misc.	1 Set	Critical	6.00	6.00	1.08	7.08	
3	Solar Power system (On grid/Off grid)	80 KW	1	Optional	35.00	35.00	6.30	41.30	As per cost norms; Grant on solar system capped at Rs. 35 lakhs
4	DG Set	80 KVA	1	Critical	5.68	5.68	1.02	6.70	As per cost norms
5	Automatic Power Factor Controller	120 KVA	1	Critical	1.08	1.08	0.20	1.28	
6	Servo Voltage Stabilizer	120 KVA	1	Critical	1.15	1.15	0.21	1.36	
7	RO Plant	1 KLPH	1	Optional	1.75	1.75	0.32	2.07	
8	Effluents Treatment Plant (ETP)	10 KLD	1 Set	Optional	2.00	2.00	0.36	2.36	
9	Sewage Treatment Plant (STP)	5 KLD	1 Set	Critical	3.75	3.75	0.68	4.43	
10	Fire Safety Equipment's	Misc.	1 Set	Critical	4.10	4.10	0.74	4.84	1% of technical civil area
11	Plastic Crates	20 KG	400	Critical	0.00	1.10	0.20	1.30	As per cost norms
12	Plastic Pallets	1 MT	110	Critical	0.03	2.75	0.50	3.25	
13	Hand pallet truck	2 MT	1	Critical	0.30	0.30	0.05	0.35	Eligible cost as per market rate analysis
	<b>Subtotal (B)</b>					<b>66.39</b>	<b>11.95</b>	<b>78.34</b>	
<b>C</b>	<b>Reefer Van</b>	4 MT	1	Optional	11.56	11.56	2.08	13.64	As per cost norms
	<b>Subtotal (C)</b>					<b>11.56</b>	<b>2.08</b>	<b>13.64</b>	
	<b>Grand Total (A+B+C)</b>					<b>156.95</b>	<b>28.25</b>	<b>185.20</b>	

## **8. MODEL II – PACKHOUSE OPERATIONS & ARILS EXTRACTION LINE**

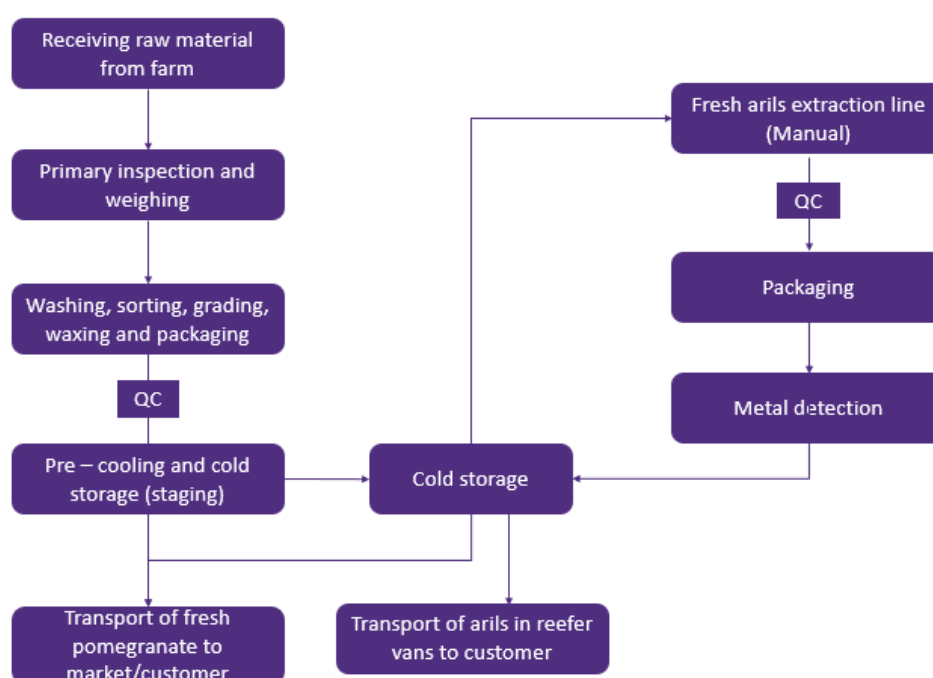
## MODEL – II: PACKHOUSE OPERATIONS & ARILS EXTRACTION LINE

<b>Target MAGNET Crop</b>	Primary Crop: <b>Pomegranate</b> Secondary Crop: Any other MAGNET crops suitable for project (Other MAGNET crops can be handled in Packhouse Operation; Arils extraction is specifically for Pomegranates)
<b>Project Category</b>	(Recommended as) <b>Large Sized</b>
<b>Description</b>	The proposed project primarily involves primary pack-house operations (semi-automatic washing-sorting-grading-packing) and cold storage for pomegranate crop. Further, it involves manual line for pomegranate arils extraction. For efficient operations of the facility, a suitable pre-cooling, staging cold room, refer van (for transport to markets), as well as utilities that are required to support the main operations are incorporated.
<b>Preferred Applicant Profile</b>	<b>Moderate Capital Investment &amp; Competitive Businesses – Can be pursued by any applicant eligible as per Eligibility Criteria</b>

### i) Key Facilities:

S. No.	Type of facilities proposed to be created	Capacity	No. of Units
1	Packhouse (Washing, Sorting, Grading Line)	2 TPH	1
2	Pre-cooling	6 MT	1
3	Staging Cold Room	30MT	1
4	Cold Storage	200 MT	1
5	Arils Extraction Line (Manual)	0.8 TPH	1
5	Utilities	MAP Packaging Line, Transformer, DG Set, APFC, Stabilizer, Crates and Pallets etc.	1 Set

### ii) Process Flow





### iii) Project Cost:

S. No.	Components	Proposed Cost	Eligible Cost *	Grant on Eligible Cost (%)	Matching Grant (Rs. Lakhs)
1	Technical Civil Works		65.79	60%	39.47
2	Non-Technical Civil Works		-	0%	-
3a	Main P&M		169.01	60%	101.41
3b	Utilities		125.75	60%	58.93
4	Reefer Van		13.64	60%	8.18
5	Misc. Fixed Assets		-	0%	-
6	Contingencies		-	0%	-
7	Working Capital Margin		-	0%	-
	<b>Subtotal (A)</b>		<b>374.18</b>		<b>207.99</b>
8	Preliminary & Pre-operative Expenses		18.71	60%	11.23
	<b>Total</b>		<b>392.89</b>		<b>219.22</b>

### iv) Means of Finance

Means of Finance	Proposed Amount (Rs. Lakhs)	Eligible Cost (Rs. Lakhs)	% of Total Cost
Promoter Equity		95.10	24%
Bank Term Loan		78.58	20%
Matching Grant		219.22	56%
<b>Total</b>		<b>392.89</b>	<b>100%</b>

\*The project cost calculations are based on cost norms (of MIDH/MOFPI, wherever applicable). While preparing DPR, users must necessarily seek quotations from key suppliers to arrive at their own project cost accordingly. However, users must also note that grant, if the project is selected, shall be accorded as per prevailing cost norms.

Civil Works (Puff Panels/ Brick Wall)							
Rupees in Lakh							
Sr. No.	Description	Area (Sq. Meter)	Cost Norm Per Sq.m	Total Cost (As per Cost Norm)	Taxes	Total Eligible Cost	Remark
<b>A</b>	<b>Technical Civil Work</b>						
1	Pre-cooling Chamber	30	-	-	-	-	Consolidated cost norms considered in P&M
2	Staging Cold Room	50	-	-	-	-	
3	Cold Storage	190	-	-	-	-	
4	Washing-Sorting-Grading-Packing Area	200	0.10	20.00	3.60	23.60	As per cost norms
5	Arils Processing & Packing Area	200	0.10	20.00	3.60	23.60	
6	Machine room	20	0.10	2.00	0.36	2.36	
7	Toilets (Separate for Male & Female)	20	0.10	2.00	0.36	2.36	
8	Weighbridge Civil Works	LS		1.75	0.32	2.07	Eligible cost as per market rate analysis
9	Water Tank- UGT	LS		6.00	1.08	7.08	Actual requirement of water will vary as per applicant's end use
10	Water Tank- OHT	LS		4.00	0.72	4.72	
	<b>Sub Total (A)</b>	<b>710.00</b>		<b>55.75</b>	<b>10.04</b>	<b>65.79</b>	
<b>B</b>	<b>Non-Technical Civil Works</b>						
1	Administrative Office	-	-	-	-	-	Ineligible
2	Canteen	-	-	-	-	-	
3	Internal Roads/ Compound Wall	-	-	-	-	-	
	<b>Sub Total (B)</b>	<b>-</b>		<b>-</b>	<b>-</b>	<b>-</b>	
	<b>Grand Total (A+B)</b>	<b>710.00</b>		<b>55.75</b>	<b>10.04</b>	<b>65.79</b>	

Plant & Machinery									
Rupees in Lakh									
Sr. No	Plant and Machinery	Capacity	Quantity	Critical/Optional	Cost Norm per unit	Total Cost (All Units)	Taxes	Total Eligible Cost	Remark
<b>A</b>	<b>Main Plant &amp; Machinery</b>								
1	Pre-cooling Chamber	6 MT	1	Critical	25.00	25.00	4.50	29.50	As per cost norms
2	Staging Cold Room	30 MT	1	Critical	25.00	25.00	4.50	29.50	As per cost norms
3	Cold Storage (including complete refrigeration and insulation system)	200 MT	1 Set	Critical	20.00	20.00	3.60	23.60	As per cost norms
<b>4</b>	<b>Washing-Sorting-Grading-Packing Line (Semi-automatic)</b>	<b>2 TPH Line</b>							
a	Fruit Washer		1	Critical	25.00	25.00	4.50	29.50	As per cost norms
b	Round Fruit Grader		1	Critical					
c	Surface Dryer Fan Conveyor		1	Optional					
d	Conveyor Belt		1	Critical					
e	Sorting Tables		2	Critical					
f	Wax Coating line		1	Critical					
g	Weighing Machines	1 unit x 50 KG, 1 Unit X 100 Kg	1	Critical					
h	SS Packing Tables		2	Critical					
i	Box Strapping Machine		1	Optional					
j	Cooling system for IPH (HVAC)			Optional					
<b>5</b>	<b>Arils Extraction Line (Manual Line)</b>	<b>800 KG/Hr (fresh fruit input basis) Line</b>	<b>1 Set</b>		10.00	10.00	1.80	11.80	Eligible cost considered as per market rate
a	Cutting Equipment/Tools	Misc.	1 Set	Critical					
b	SS tables (for cutting)		20	Critical					

Plant & Machinery									
Rupees in Lakh									
Sr. No	Plant and Machinery	Capacity	Quantity	Critical/Optional	Cost Norm per unit	Total Cost (All Units)	Taxes	Total Eligible Cost	Remark
c	SS Trays	20 KG	320	Critical					
d	Weighing Machines	1 unit of 1kg, 1 unit of 500 gms, 1 unit of 2 KG	3	Critical					
6	Conveyor Type Tray Sealing Machine – Vacuum & Gas Flushing (For Packing)	400 kg/hr	1	Critical	28.23	28.23	5.08	33.31	As per cost norms
7	Metal Detector		1	Critical	5.00	5.00	0.90	5.90	Eligible cost considered as per market rate
	<b>Subtotal (A)</b>					<b>143.23</b>	<b>25.78</b>	<b>169.01</b>	
<b>B</b>	<b>Utilities</b>								
1	Transformer	160 KVA	1	Critical	2.30	2.30	0.41	2.71	As per cost norms
2	Electrification	Misc.	1 Set	Critical	8.00	8.00	1.44	9.44	
3	Solar Power system (On grid/Off grid)	120 KW	1	Optional	35.00	35.00	6.30	41.30	As per cost norms; Grant on solar system capped at Rs. 35 lakhs
4	DG Set	120 KVA	1	Critical	8.52	8.52	1.53	10.05	As per cost norms
5	Automatic Power Factor Controller	160 KVA	1	Critical	1.45	1.45	0.26	1.71	
6	Servo Voltage Stabilizer	160 KVA	1	Critical	1.54	1.54	0.28	1.81	
7	Water Softening/RO Plant	1 KLPH	1	Optional	1.75	1.75	0.32	2.07	
8	Effluents Treatment Plant (ETP)	10 KLD	1 Set	Optional	2.00	2.00	0.36	2.36	
9	Sewage Treatment Plant (STP)	5 KLD	1 Set	Critical	6.67	6.67	1.20	7.87	
10	Dock Doors		1	Optional	7.00	7.00	1.26	8.26	

Plant & Machinery									
Rupees in Lakh									
Sr. No	Plant and Machinery	Capacity	Quantity	Critical/Optional	Cost Norm per unit	Total Cost (All Units)	Taxes	Total Eligible Cost	Remark
11	Dock Levelers		1	Optional					
12	Dock Shelter		1	Optional					
13	Weighbridge (Excluding Civil Works)	60 MT	1	Optional	7.00	7.00	1.26	8.26	
14	Fire Safety Equipment's	Misc.	1 Set	Critical	7.10	7.10	1.28	8.38	1% of technical civil area
15	Plastic Crates	20 KG	800	Critical	0.00	2.20	0.40	2.60	As per cost norms
16	Plastic Pallets	1 MT	230	Critical	0.03	5.75	1.04	6.79	
17	Hand pallet truck	2 MT	1	Critical	0.30	0.30	0.05	0.35	Eligible cost considered as per market rate
18	Battery Operated Forklift	1 MT	1	Optional	10.00	10.00	1.80	11.80	
	<b>Subtotal (B)</b>					<b>106.57</b>	<b>19.18</b>	<b>125.75</b>	
<b>C</b>	<b>Reefer Van</b>	4 MT	1	Optional	11.56	11.56	2.08	13.64	As per cost norms
	<b>Subtotal (C)</b>					<b>11.56</b>	<b>2.08</b>	<b>13.64</b>	
	<b>Grand Total (A+B+C)</b>					<b>258.35</b>	<b>46.50</b>	<b>304.86</b>	

## **9. MODEL III – PACKHOUSE OPERATIONS & FROZEN ARILS EXTRACTION LINE**

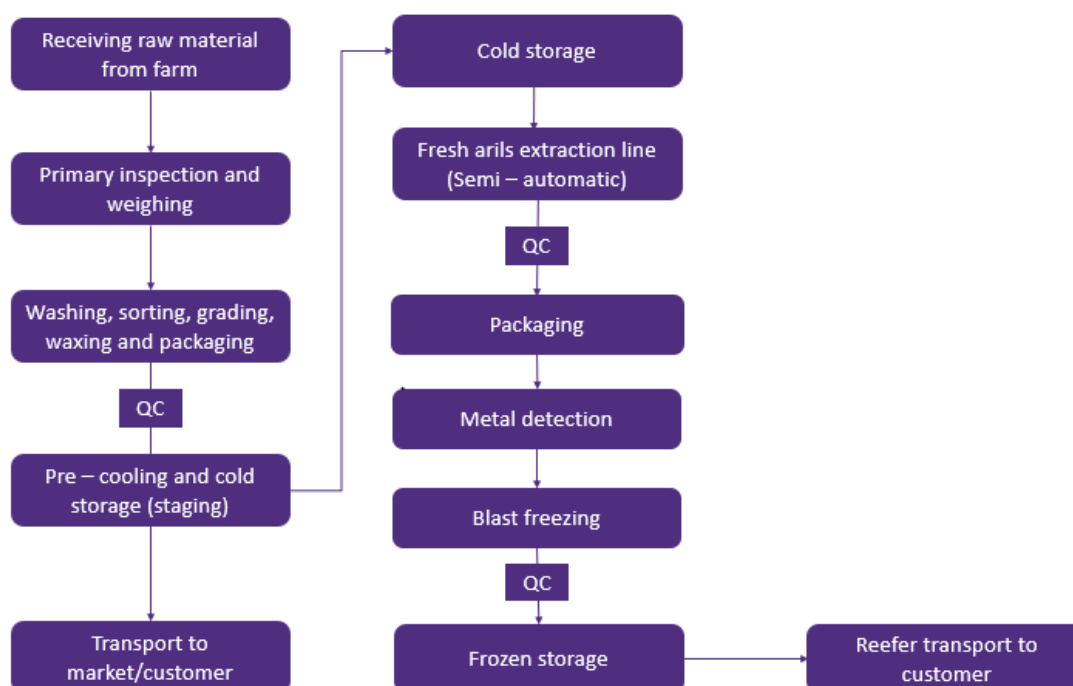
### MODEL – III: PACKHOUSE OPERATIONS & FROZEN ARILS LINE

<b>Target MAGNET Crop</b>	Primary Crop: <b>Pomegranate</b> Secondary Crop: Any other MAGNET crops suitable for the project
<b>Project Category</b>	(Recommended as) <b>Large Sized</b>
<b>Description</b>	The proposed project primarily involves primary pack-house operations (semi-automatic washing-sorting-grading-packing) and cold storage for pomegranate crop. Further, it involves semi-automatic line for pomegranate arils extraction along with IQF/Blast freezing line for arils. For efficient operations of the facility, suitable pre-cooling, staging cold rooms, refer vans (for transport to markets), as well as utilities that are required to support the main operations are incorporated.
<b>Preferred Applicant Profile</b>	<b>Moderate Capital Investment &amp; Competitive Businesses – Can be pursued by any applicant eligible as per Eligibility Criteria</b>

#### i) Key Facilities

S. No.	Type of facilities proposed to be created	Total Capacity	Total No. of Units
1	Packhouse (Washing, Sorting, Grading, Waxing Line)	4 TPH	1
2	Pre-cooling	12 MT	2
3	Staging Cold Room	30 MT	1
4	Blast Freezer	0.5 MT per batch	1
5	Cold Storage	300 MT	1
6	Frozen Storage	100 MT	1
7	Utilities	Transformer, DG Set, APFC, Stabilizer, Crates and Pallets	1 Set

#### ii) Process Flow



### iii) Project Cost:

S. No.	Components	Proposed Cost	Eligible Cost *	Grant on Eligible Cost (%)	Matching Grant (Rs. Lakhs)
1	Technical Civil Works		87.03	60%	52.22
2	Non-Technical Civil Works		-	0%	-
3a	Main P&M		241.31	60%	144.79
3b	Utilities		167.99	60%	80.52
4	Reefer Van		20.45	60%	12.27
5	Misc. Fixed Assets		-	0%	-
6	Contingencies		-	0%	-
7	Working Capital Margin		-	0%	-
	<b>Subtotal (A)</b>		<b>516.78</b>		<b>289.79</b>
8	Preliminary & Pre-operative Expenses		20.00	60%	12.00
	<b>Total</b>		<b>536.78</b>		<b>301.79</b>

### iv) Means of Finance

Means of Finance	Proposed Amount (Rs. Lakhs)	Eligible Cost (Rs. Lakhs)	% of Total Cost
Promoter Equity		127.64	24%
Bank Term Loan		107.36	20%
Matching Grant		301.79	56%
<b>Total</b>		<b>536.78</b>	<b>100%</b>

\*The project cost calculations are based on cost norms (of MIDH/MOFPI, wherever applicable). While preparing DPR, users must necessarily seek quotations from key suppliers to arrive at their own project cost accordingly. However, users must also note that grant, if the project is selected, shall be accorded as per prevailing cost norms.



Civil Works (Puff Panels/ Brick Wall)							Rupees in Lakh
Sr. No.	Description	Area (Sq. Meter)	Cost Norm Per sq.m	Total Cost (As per Cost Norm)	Taxes	Total Eligible Cost	Remark
<b>A</b>	<b>Technical Civil Work</b>						
1	Pre-cooling Chamber	60	-	-	-	-	Consolidated cost norms considered in P&M
2	Staging Cold Room	50	-	-	-	-	
3	Cold Storage	340	-	-	-	-	
4	Frozen Storage	95	-	-	-	-	
5	Blast Area	20	-	-	-	-	
6	Pack-house	300	0.10	30.00	5.40	35.40	As per cost norms
7	Arils Processing & Packing Area	250	0.10	25.00	4.50	29.50	
8	Lab Area	20	0.10	2.00	0.36	2.36	
9	Machine room	20	0.10	2.00	0.36	2.36	
10	Weighbridge Civil Works	LS		1.75	0.32	2.07	Eligible cost as per market rate analysis
11	Water Tank- UGT	LS		6.00	1.08	7.08	Actual requirement of water will vary as per applicant's end use
12	Water Tank- OHT	LS		4.00	0.72	4.72	
13	Toilets (Separate for Male & Female)	30	0.10	3.00	0.54	3.54	As per cost norms
	<b>Sub Total (A)</b>	<b>1,185.00</b>		<b>73.75</b>	<b>13.28</b>	<b>87.03</b>	
<b>B</b>	<b>Non-Technical Civil Works</b>						
1	Administrative Office	-	-	-	-	-	Ineligible
2	Canteen, Internal Roads	-	-	-	-	-	
3	Boundary Wall	-	-	-	-	-	
	<b>Sub Total (B)</b>	<b>-</b>		<b>-</b>	<b>-</b>	<b>-</b>	
	<b>Grand Total (A+B)</b>	<b>1,185.00</b>		<b>73.75</b>	<b>13.28</b>	<b>87.03</b>	

Plant & Machinery									
									Rupees in Lakh
Sr. No	Plant and Machinery	Capacity	Quantity	Critical/Optional	Cost Norm per unit	Total Cost (All Units)	Taxes	Total Eligible Cost	Remark
<b>A</b>	<b>Main Plant &amp; Machinery</b>								
1	Pre-cooling Chamber	6 MT Each	2	Critical	25.00	50.00	9.00	59.00	As per cost norms
2	Staging Cold Room	30 MT Each	1	Critical	15.00	15.00	2.70	17.70	As per cost norms
3	Cold Storage (including complete refrigeration and insulation system)	300 MT	1 Set	Optional	30.00	30.00	5.40	35.40	As per cost norms
<b>4</b>	<b>Washing-Sorting-Grading-Packing Line (Semi-automatic)</b>	<b>4 TPH Line</b>							
a	Fruit Washer		1	Critical	40.00	40.00	7.20	47.20	As per cost norms
b	Round Fruit Grader		1	Critical					
c	Surface Dryer Fan Conveyor		1	Optional					
d	Conveyor Belt		1	Critical					
e	Sorting Tables		4	Critical					
f	Wax Coating line		1	Critical					
g	Weighing Machines	2-unit x 50 KG, 1 Unit X 100 Kg	3	Critical					
h	SS Packing Tables		4	Critical					
i	Strapping Machine		2	Optional					
j	Cooling system for process hall (HVAC)		1	Critical					
<b>5</b>	<b>Arils Extraction Line (Semi-automatic)</b>	<b>1 TPH (fresh fruit input basis) Line</b>	<b>1 Set</b>						
a	Fruit Conveyor	Misc.	1 Set	Critical	25.00	25.00	4.50	29.50	Eligible cost considered as per market rate

Plant & Machinery									
Rupees in Lakh									
Sr. No	Plant and Machinery	Capacity	Quantity	Critical/Optional	Cost Norm per unit	Total Cost (All Units)	Taxes	Total Eligible Cost	Remark
b	Cutting Equipment/Tools	Misc.	1 Set	Critical					
c	SS tables (for cutting)		25	Critical					
d	Arils Carrying System with disinfectant		1 Set	Critical					
e	Wastage Removal System		1 Set	Critical					
f	Weighing Machines	1 unit of 1kg, 1 unit of 500 gms, 1 unit of 2 KG	3	Critical					
6	Blast Freezer (including refrigeration)	0.5 MT per batch	1 Set	Critical	17.50	17.50	3.15	20.65	As per cost norms Applicant may alternatively choose to go for IQF technology
7	Associated Frozen Storage	100 MT	1 Set	Critical	0.15	15.00	2.70	17.70	As per cost norms
8	Metal Detector (Conveyor Belt)		1	Critical	5.00	5.00	0.90	5.90	Eligible cost considered as per market rate
9	Lab equipment	Misc. (As required for plant operations)	1 Set	Critical	2.00	2.00	0.36	2.36	
	<b>Subtotal (A)</b>					<b>204.50</b>	<b>36.81</b>	<b>241.31</b>	
<b>B</b>	<b>Utilities</b>								
1	Transformer	200 KVA	1	Critical	3.20	3.20	0.58	3.78	As per cost norms
2	Electrification	Misc.	1 Set	Critical	10.00	10.00	1.80	11.80	

Plant & Machinery									
Rupees in Lakh									
Sr. No	Plant and Machinery	Capacity	Quantity	Critical/Optional	Cost Norm per unit	Total Cost (All Units)	Taxes	Total Eligible Cost	Remark
3	Solar Power system (On grid/Off grid)	160 KW	1	Optional	35.00	35.00	6.30	41.30	As per cost norms; Grant on solar system capped at Rs. 35 lakhs
4	Dock Doors		1	Optional	7.00	7.00	1.26	8.26	As per cost norms
5	Dock Levelers		1	Optional					
6	Dock Shelter		1	Optional					
7	DG Set	160 KVA	1	Critical	11.36	11.36	2.04	13.40	
8	Automatic Power Factor Controller	200 KVA	1	Critical	1.80	1.80	0.32	2.12	
9	Servo Voltage Stabilizer	200 KVA	1	Critical	1.85	1.85	0.33	2.18	
10	RO Plant with UV System	2 KLPH	1	Optional	11.00	11.00	1.98	12.98	
11	ETP	30 KLD	1 Set	Optional	6.00	6.00	1.08	7.08	
12	STP	10 KLD	1 Set	Critical	13.33	13.33	2.40	15.73	
13	Fire Safety Equipment's	Misc.	1 Set	Critical	11.85	11.85	2.13	13.98	
14	Weighbridge	60 MT	1	Optional	7.00	7.00	1.26	8.26	As per cost norms
15	Plastic Crates	20 KG each	1500	Critical	0.00	4.13	0.74	4.87	
16	Plastic Pallets	1 MT each	330	Critical	0.03	8.25	1.49	9.74	
17	Hand pallet truck	2 MT each	2	Critical	0.30	0.60	0.11	0.71	Eligible cost considered as per market rate
18	Battery Operated Forklift	1 MT each	1	Critical	10.00	10.00	1.80	11.80	
	<b>Subtotal (B)</b>					<b>142.37</b>	<b>25.63</b>	<b>167.99</b>	
<b>C</b>	<b>Reefer Van</b>	6 MT	1	Optional	17.33	17.33	3.12	20.45	As per cost norms
	<b>Subtotal (C)</b>					<b>17.33</b>	<b>3.12</b>	<b>20.45</b>	
	<b>Grand Total (A+B+C)</b>					<b>364.20</b>	<b>65.56</b>	<b>429.76</b>	

**Annexure I: District wise Area and Production of Pomegranate for Maharashtra: 2021- 22**

S.No.	District	Pomegranate		
		Area ('000 Ha)	Production ('000 MT)	Productivity (MT/Ha)
1	Ahmednagar	37.076	357.091	9.63
2	Akola	0.180	1.434	7.97
3	Amravati	0.044	0.484	10.93
4	Aurangabad	4.900	34.300	7.00
5	Beed	2.644	79.314	30.00
6	Bhandara	0.003	0.005	1.41
7	Buldhana	0.514	11.906	23.15
8	Chandrapur	0.005	0.030	6.00
9	Dhule	8.309	83.094	10.00
10	Gadchiroli	-	-	-
11	Gondia	0.011	0.082	7.76
12	Hingoli	0.120	2.250	18.75
13	Jalgaon	0.497	8.946	18.00
14	Jalna	2.636	29.735	11.28
15	Kolhapur	0.002	0.024	12.00
16	Latur	0.180	2.250	12.50
17	Nagpur	-	-	-
18	Nanded	0.322	2.965	9.21
19	Nandurbar	0.175	0.910	5.20
20	Nashik	26.059	443.050	17.00
21	Osmanabad	2.825	28.190	9.98
22	Palghar	0.000	0.001	7.00
23	Parbhani	0.170	2.421	14.24
24	Pune	9.569	95.690	10.00
25	Raigad	-	-	-
26	Ratnagiri	-	-	-
27	Sangli	9.151	146.418	16.00
28	Satara	2.997	32.000	10.68
29	Sindhudurg	-	-	-
30	Solapur	47.377	331.639	7.00
31	Thane	-	-	-
32	Wardha	0.400	1.200	3.00
33	Washim	0.023	0.230	9.89
34	Yavatmal	0.356	3.583	10.06

Source: Area and Production Statistics, Ministry of Agriculture and Farmers Welfare

Web-link: <http://www.aps.dac.gov.in/Public/Report.aspx>

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