



Maharashtra Agribusiness Network (MAGNET) Project

Toolkit for preparation of DPR Mango

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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.
 - A Pulping Unit or a Freeze-Drying Unit can be used for processing pulps of Banana, Custard Apple, Sapota, Guava and Strawberry (as per availability in user's catchment zone).
 - Similarly, an IQF Unit can be used for processing products of Okra, Chilies, Pomegranate Arils, cut/diced products of guava, strawberry 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 equipment's, **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 mango (primarily) and other compatible MAGNET crops could also be handled in the same facility. While proposing multi-fruit handling (i.e., Mango 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 and Women Led/Women Owned FPOs applicants only, the equity contribution should be at least 5% of the total project cost. Thus, CMRC/ Women Led or Women Owned FPOs (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: MANGO

Mango at Glance

-  India is the largest producer of Mango for production and area followed by China and Indonesia.
-  Indonesia has the highest productivity of Mango, followed by Ecuador
-  Uttar Pradesh, Karnataka and Bihar are the 3 highest mango producing states in India
-  Maharashtra produces 28% mangoes of the total production in India
-  The average productivity of Mango in India is 8.65 MT/Ha while Maharashtra has the productivity of 2.88 MT/ha and ranks 6th in the country
-  Ecuador is the largest exporter and USA is the largest importer of mango

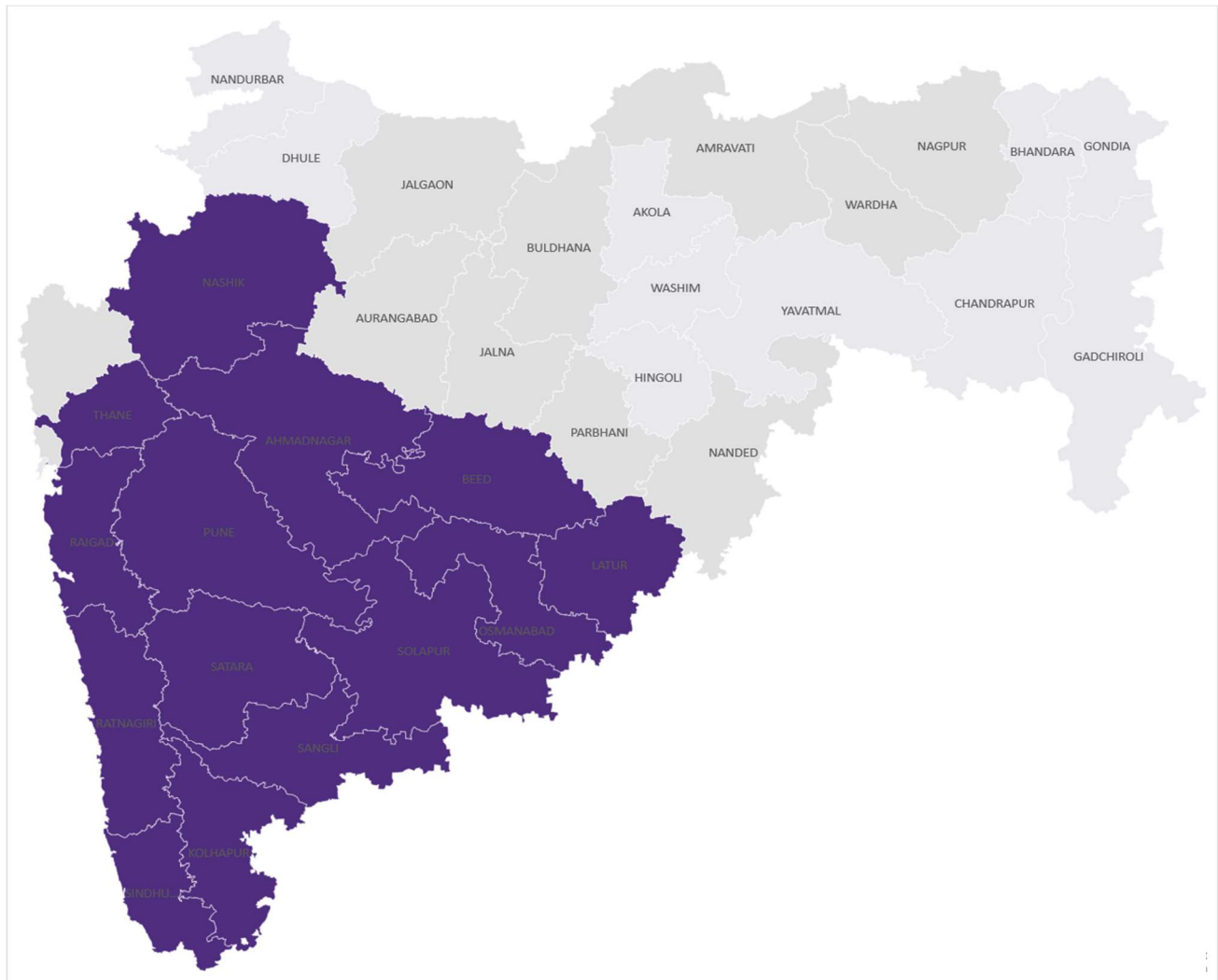
The Mango (*Mangifera indica* L.; Family: Anacardiaceae) is a perennial woody plant native to south and southeast Asia, from where it has spread to the different part of the world and become one of the most cultivated fruits in the tropics. It is being cultivated in southern Asia for nearly six thousand years. In India it is grown for more than 400 years. Mango Cultivation is the leading fruit crop of India and considered to be the king of fruits. Mango fruit is utilized at all stages of its development both in its immature and mature stage. Raw fruits are used for making chutney, pickles and juices.

3. MAGNO SNAPSHOT

India	Total Production in India	16.72 million MT
	Total Area under cultivation in India	1.93 million hectares
	Top 5 Mango producing States	Uttar Pradesh, Karnataka, Bihar, Telangana, Tamil Nadu
	Agri Export Zone	Maharashtra (Alphonso and Kesar Mango)

Maharashtra	Total Production in Maharashtra	4.69 million MT
	Average yield in Maharashtra	2.87 MT/ha (2021-22)
	Top Mango producing Districts in MH	Ratnagiri, Sindhudurg, Pune, Raigad
	Seasonality of Mango in Maharashtra	April to June

4. MANGO CLUSTERS IDENTIFIED UNDER MAGNET



District	Area in '000 ha	Quantity in '000 MT	Productivity (MT/ha)
Ratnagiri	62.28	132.88	2.13
Sindhudurg	33.92	73.95	2.18
Pune	4.85	38.77	8.00
Raigad	14.57	31.45	2.16
Osmanabad	3.87	28.16	7.29
Ahmednagar	5.89	27.94	4.74
Latur	2.27	15.55	6.85
Beed	1.45	14.48	10.00
Palghar	10.72	12.28	1.15
Solapur	1.73	12.20	7.05
Satara	2.24	8.48	3.79
Sangli	1.39	8.35	6.00
Nashik	4.93	7.85	1.59
Kolhapur	2.32	6.98	3.01
Thane	2.48	2.42	0.98

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	Mango – Market Profile	MANGO - Market profile (apeda.gov.in)
2	MAGO – NHB Report	MANGO (nhb.gov.in)
3	Export Potential of Indian Mangoes	Export Potential of Indian Mangoes SCR.cdr (icar.gov.in)
4	Mango Exports Information	All You Need To Know About Mango Exports In India - Bijak Blog
5	Post Harvest Management of Mangoes	preface-mango.pdf (agmarknet.gov.in)
6	Mango Pulp Markets	Mango Pulp (apeda.gov.in)
7	Mango Pulp – Market Intelligence Report	Mango_Pulp_Report.pdf (apeda.gov.in)

Project Components & Technology			
Sr. No	Components	Links	Document Page no
1	Sorting, Grading, Washing	http://www.nccd.gov.in/PDF/Cold-chain%20Awareness%20Booklet.pdf	8
2	Pre-cooling unit		8
3	Cold room (staging)		9
4	Cold storage units		9
5	Ripening Chamber		19
6	Refer van		9
7	Mango Pickle Line	<ul style="list-style-type: none"> MACHINERY FOR PICKLE MAKING ICAR-Indian Institute of Horticultural Research (iihr.res.in) au116e.pdf (fao.org) How is RAW MANGO PICKLE with BULK FOOD CUTTING and PACKAGING MACHINES? - (Aam KERI Ka Achar) #food (youtube.com) 	
8	Amchur (Dry Mango powder) processing plant	<ul style="list-style-type: none"> Purios by Prakruto 100% Natural Alphonso Mango Powder 	
9	Canning and Pulping Line	<ul style="list-style-type: none"> (31) Mango Pulp Processing Line-Suitable for Mango, Tomato, Crusted apple, Guva, Banana, Etc., - YouTube Mango Pulp Processing Plant (youtube.com) कैसे शुरू करें फ्रूट पल्प प्रोसेसिंग व्यवसाय How to Start Fruit Pulp Processing Business (youtube.com) 	
10	IQF Line	<ul style="list-style-type: none"> Mango Chilling, Dicing, IQF Processing Line by Innotec Systems BV (youtube.com) 	

		<ul style="list-style-type: none"> • OctoFrost™ IQF Processing for Fruits and Tropical Fruits IQF Freezing Mango 3D Visualization (youtube.com) • OctoFrost Frozen - IQF Fruit: Mango (youtube.com) 	
11	Freeze Drying Line	<ul style="list-style-type: none"> • (31) How Freeze Drying Works - YouTube • (31) KEMOLO freeze dryer lyophilizer good price for sale Freeze drying lyophilization process for food - YouTube 	
12	Frozen Storage	<ul style="list-style-type: none"> • Freezing of fruits and vegetables (fao.org) • DE-11: Lesson 24. STORAGE OF FROZEN FOODS (iasri.res.in) 	

Disclaimer: The links herein are provided as a reference resource for research of applicants. MAGNET Project, MAGNET Society and Grant Thornton (PISC) give no warranty and accept no responsibility or liability for the accuracy, or the completeness of the content in these resources. The links herein may include research work of any institution or even technology overview by some technology supplier. MAGNET Project, MAGNET Society and PISC do not recommend or endorse works of any specific institution or any specific supplier or any specific make of technology or products. The links may contain information on certain processing activities (especially high value adding tertiary processing activities) which are not promoted by MAGNET for grant assistance. Users must refer to EOI Guidelines in this context or may contact MAGNET office for guidance.

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

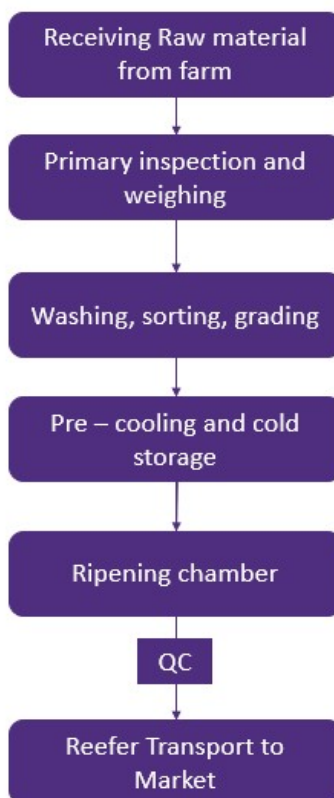
MODEL – I: PACKHOUSE OPERATIONS

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

i) Key Facilities:

S. No.	Type of facilities proposed to be created	Total Capacity	Total No. of Units
1	Packhouse (Washing-Sorting-Grading- Packing Line)	2 TPH	1
2	Pre-cooling	6 MT	1
3	Staging cold room	30 MT	1
4	Cold Storage	80 MT	1
5	Ripening chamber	20 MT (5 MT x 4)	4 Chambers
6	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		33.04	60%	19.82
2	Non-Technical Civil Works		-	0%	-
3a	Main P&M		109.74	60%	65.84
3b	Utilities		72.65	60%	36.00
4	Reefer Van		13.11	60%	7.87
5	Misc. Fixed Assets		-	0%	-
6	Contingencies		-	0%	-
7	Working Capital Margin		-	0%	-
	Subtotal		228.54		
8	Preliminary & Pre-operative Expenses		11.43	60%	6.86
	Total		239.97		136.39

iv) Means of Finance

Means of Finance	Proposed Amount (Rs. Lakhs)	Eligible Cost (Rs. Lakhs)	% of Total Cost
Promoter Equity		47.99	20%
Bank Term Loan		55.59	23%
Matching Grant		136.39	57%
Total		239.97	100%

*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
A	Technical Civil Work						
1	Washing-Sorting-Grading-Packing Area	200.00	0.1	20.00	3.60	23.60	As per cost norms
2	Pre-cooling Chamber	30.00	-	-	-	-	Consolidated cost norms applied in P&M
3	Staging Cold Room	50.00	-	-	-	-	
4	Cold Storage	75.00	-	-	-	-	
5	Ripening Chambers	60.00	-	-	-	-	
6	Machine room	20.00	0.1	2.00	0.36	2.36	As per cost norms
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)	20.00	0.1	2.00	0.36	2.36	As per cost norms
	Sub Total (A)	455.00		28.00	5.04	33.04	
B	Non-Technical Civil Works						
1	Administrative Office	-	-	-	-	-	Ineligible
2	Canteen	-	-	-	-	-	
3	Internal Roads/ Compound Wall	-	-	-	-	-	
	Sub Total (B)			-	-	-	
	Grand Total (A+B)	455.00		28.00	5.04	33.04	

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
A	Main Plant & Machinery								
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 (including complete refrigeration and insulation system)	80 MT	1 Set	Critical	8.00	8.00	1.44	9.44	As per cost norms
4	Ripening Chamber	20 MT (5 MT X 4 Chambers)	1 Set	Critical	1.00	20.00	3.60	23.60	As per cost norms
5	Washing-Sorting-Grading-Packing Line	2 TPH	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	Optional					
d	Conveyor Belt		1	Critical					
e	Sorting Tables		2	Critical					
f	Weighing Machines		1 unit x 50 KG, 1 Unit X 100 Kg	2					
g	SS Packing Tables		2	Critical					
h	Strapping Machine		1	Optional					
	Subtotal (A)					93.00	16.74	109.74	
B	Utilities								
1	Transformer	80 KVA	1	Critical	1.15	1.15	0.21	1.36	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	3 Phase-Electrification including power & controls cabling, PCC & MCC panel, Earthing, Internal Lighting, etc	Misc.	1 Set	Critical	4.00	4.00	0.72	4.72	Eligible cost as per market rate analysis
3	Solar Power system (On grid/Off grid)	60 KW	1	Optional	32.73	32.73	5.89	38.62	As per cost norms
4	DG Set	60 KVA	1	Critical	6.00	6.00	1.08	7.08	
5	Automatic Power Factor Controller	80 KVA	1	Critical	0.72	0.72	0.13	0.85	
6	Servo Voltage Stabilizer	80 KVA	1	Critical	0.77	0.77	0.14	0.91	
7	RO Plant	1 KLPH	1	Critical	1.75	1.75	0.32	2.07	
8	Effluents Treatment Plant (ETP)	10 KLD	1 Set	Critical	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	4.55	4.55	0.82	5.37	1% of technical civil area
11	Plastic Crates	20 Kg	400	Critical	0.00275	1.10	0.20	1.30	As per cost norms
12	Plastic Pallets	1 MT	110	Critical	0.025	2.75	0.50	3.25	
13	Hand pallet truck	2 MT	1	Critical	0.30	0.30	0.05	0.35	
	Subtotal (B)					61.57	11.08	72.65	
B	Reefer Van								
1	Reefer Van (Positive Temp)	4 MT	1	Optional	11.11	11.11	2.00	13.11	As per cost norms
	Subtotal (C)					11.11	2.00	13.11	
	Grand Total (A+B+C)					165.68	29.82	195.50	

8. MODEL II – PACKHOUSE OPERATIONS AND PICKLE LINE

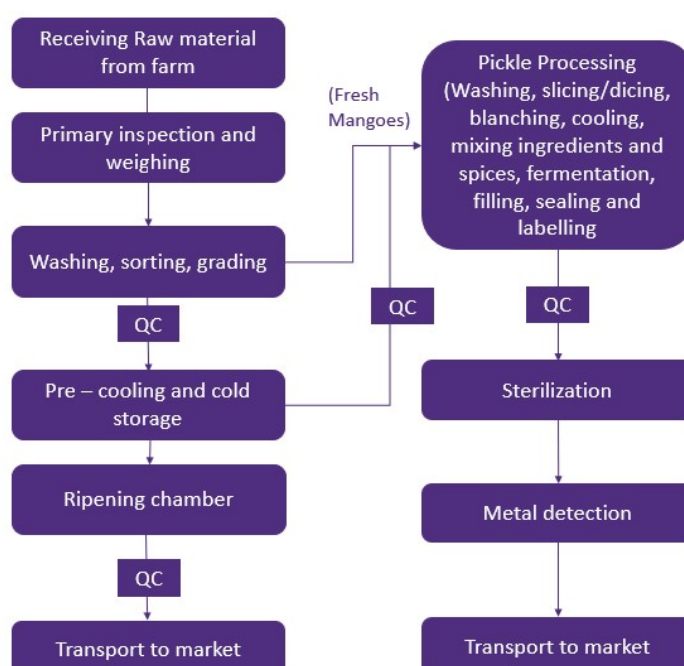
MODEL – II: PACKHOUSE OPERATIONS AND PICKLE LINE

Target MAGNET Crop	Primary Crop: Mango Secondary Crops: Any other MAGNET crops suitable for project
Project Category	(Recommended as) Small Sized
Description	The proposed project primarily involves primary pack-house operations (washing-sorting-grading-packing), cold storage and ripening facility for Mango and other compatible MAGNET crops. The facility also includes a small-scale pickle production unit. The facility shall enable trade of fresh and ripened mangoes and other compatible MAGNET Crops. Further, the pickle unit will enable processing and marketing of pickles of mangoes & other compatible MAGNET Crops. For efficient operations of the facility, a suitable pre-cooling, staging cold room, cold storage as well as utilities that are required to support the main operations are incorporated.
Preferred Applicant Profile	Low Capital Investment & Competitive Businesses - Can be pursued by any applicant eligible as per Eligibility Criteria

i) Key Facilities:

S. No.	Type of facilities proposed to be created	Capacity	No. of Units
1	Packhouse (Washing-Sorting-Grading-Packing Line)	2 TPH	1
2	Pre-cooling	6 MT	1
3	Staging Cold Room	30 MT	1
4	Cold storage	80 MT	1
5	Ripening chamber	20 MT (5 MT x 4)	4 Chambers
6	Pickle Line	5 TPD	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		52.51	60%	31.51
2	Non-Technical Civil Works		-	0%	-
3a	Main P&M		144.85	60%	86.91
3b	Utilities		78.04	60%	43.37
4	Reefer Van		-	60%	-
5	Misc. Fixed Assets		-	0%	-
6	Contingencies		-	0%	-
7	Working Capital Margin		-	0%	-
	Subtotal		275.39		
8	Preliminary & Pre-operative Expenses		13.77	60%	8.26
	Total		289.16		170.05

iv) Means of Finance

Means of Finance	Proposed Cost (Rs. Lakhs)	Eligible Amount (Rs. Lakhs)	% of Total Cost
Promoter Equity		57.83	20%
Bank Term Loan		61.28	21%
Matching Grant		170.05	59%
Total		289.16	100%

*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							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
A	Technical Civil Work						
1	Pre-cooling Chamber	30.00	-	-	-	-	Consolidated cost norms considered in P&M
2	Staging Cold Room	50.00	-	-	-	-	
3	Cold Storage area	75.00	-	-	-	-	
4	Ripening Chambers	60.00	-	-	-	-	
5	Washing-Sorting-Grading-Packing Area	200.00	0.10	20.00	3.60	23.60	As per cost norms
6	Pickle Unit Area	150.00	0.10	15.00	2.70	17.70	
7	Machine room area	20.00	0.10	2.00	0.36	2.36	
8	Testing Lab Area	15.00	0.10	1.50	0.27	1.77	
9	Water tank - UGT	LS		2.00	0.36	2.36	Actual requirement of water will vary as per applicant's end use
10	Water tank - OHT	LS		2.00	0.36	2.36	
11	Toilets (Separate for Male & Female)	20.00	0.10	2.00	0.36	2.36	As per cost norms
	Sub Total (A)	620.00		44.50	8.01	52.51	
B	Non-Technical Civil Works						
1	Administrative Office	-	-	-	-	-	Ineligible
2	Canteen	-	-	-	-	-	
3	Internal Roads/ Compound Wall	-	-	-	-	-	
	Sub Total (B)			-	-	-	
	Grand Total (A+B)	620.00		44.50	8.01	52.51	

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
A	Main Plant & Machinery								
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 (including complete refrigeration and insulation system)	80 MT	1 Set	Critical	8.00	8.00	1.44	9.44	As per cost norms
4	Ripening Chamber (Ethylene injections & monitoring, CO2 sensing, temperature sensing and refrigeration with puff panels)	20 MT (5 MT X 4 Chambers)	4	Critical	1.00	20.00	3.60	23.60	As per cost norms
5	Washing-Sorting-Grading-Packing Line	2 TPH	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	Optional					
d	Conveyor Belt		1	Critical					
e	Sorting Tables		2	Critical					
f	Weighing Machines	1 unit x 50 KG, 1 Unit X 100 Kg	2	Critical					
g	SS Packing Tables		2	Critical					
h	Strapping Machine		1	Optional					
6	Pickle Line (Mango Pickle Line)	5 TPD	1 set		25.00	25.00	4.50	29.50	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
a	Washing tank, preparation tables, cutting/slicing machine	For 5 TPD capacity	1 Set	Critical					
b	Pickle blending machine, pickle filling machine, mixing tanks			Critical					
c	Lug capping machine			Critical					
d	Trolleys & elevators			Critical					
7	Pickle Bottle Steriliser			Optional	1.75	1.75	0.32	2.07	As per cost norms
8	Metal Detector			Critical	2.00	2.00	0.36	2.36	Eligible cost as per market rate analysis
9	Lab equipment's	Misc. (As required for plant operations)	1 Set	Optional	1.00	1.00	0.18	1.18	Eligible cost as per market rate analysis
	Subtotal (A)					122.75	22.10	144.85	
B	Utilities								
1	Transformer	80 KVA	1	Critical	1.15	1.15	0.21	1.36	As per cost norms
2	3 Phase-Electrification including power & controls cabling, PCC & MCC panel, Earthing, Internal Lighting, etc	Misc.	1 Set	Critical	4.00	4.00	0.72	4.72	Eligible cost as per market rate analysis
3	Solar Power system (On grid/Off grid)	60 KW	1	Optional	32.73	32.73	5.89	38.62	As per cost norms
4	DG Set	60 KVA	1	Critical	6.00	6.00	1.08	7.08	As per cost norms
5	Automatic Power Factor Controller	80 KVA	1	Critical	0.72	0.72	0.13	0.85	
6	Servo Voltage Stabilizer	80 KVA	1	Critical	0.77	0.77	0.14	0.91	

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
7	Water Softening/ RO Plant	1 KLPH	1	Critical	1.75	1.75	0.32	2.07	
8	Effluents Treatment Plant (ETP)	10 KLD	1 Set	Critical	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	Fire Safety Equipment's	Misc.	1 Set	Critical	6.20	6.20	1.12	7.32	1% of technical civil Area
11	Plastic Crates	20 KG	400	Critical	0.00275	1.10	0.20	1.30	As per cost norms
12	Plastic Pallets	1 MT	110	Critical	0.025	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
	Subtotal (B)					66.14	11.90	78.04	
	Grand Total (A+B)					188.89	34.00	222.88	

9. MODEL III – PACKHOUSE OPERATIONS AND DRY MANGO POWDER (AMCHUR) PROCESSING LINE

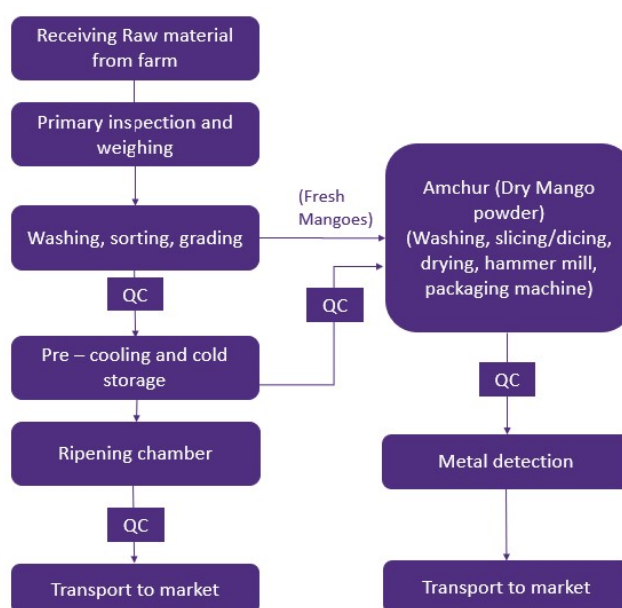
MODEL – III: PACKHOUSE OPERATIONS AND DRY MANGO POWDER (AMCHUR) PROCESSING LINE

Target MAGNET Crop	Primary Crop: Mango Secondary Crops: Any other MAGNET crops suitable for project
Project Category	(Recommended as) Small Sized
Description	The proposed project primarily involves primary pack-house operations (washing-sorting-grading-packing), cold storage and ripening facility for Mango and other compatible MAGNET crops. The facility also includes a small-scale Dry Mango Powder production unit. The facility shall enable trade of fresh and ripened mangoes and other compatible MAGNET Crops. Further, the mango powder unit will enable processing and marketing of mango powder. For efficient operations of the facility, a suitable pre-cooling, staging cold room, cold storage as well as utilities that are required to support the main operations are incorporated.
Preferred Applicant Profile	Low Capital Investment & Competitive Businesses - Can be pursued by any applicant eligible as per Eligibility Criteria

i) Key Facilities:

S. No.	Type of facilities proposed to be created	Capacity	No. of Units
1	Packhouse (Washing-Sorting-Grading-Packing Line)	2 TPH	1
2	Pre-cooling	6 MT	1
3	Staging Cold Room	30 MT	1
4	Cold storage	80 MT	1
5	Ripening chamber	20 MT (5 MT x 4)	4 Chambers
6	Amchur (Dry Mango powder) processing plant	6 TPD	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		43.66	60%	26.20
2	Non-Technical Civil Works		-	0%	-
3a	Main P&M		159.30	60%	95.58
3b	Utilities		83.38	60%	45.10
4	Reefer Van		-	60%	-
5	Misc. Fixed Assets		-	0%	-
6	Contingencies		-	0%	-
7	Working Capital Margin		-	0%	-
	Subtotal		286.34		
8	Preliminary & Pre-operative Expenses		14.32	60%	8.59
	Total		300.65		175.46

iv) Means of Finance

Means of Finance	Proposed Cost (Rs. Lakhs)	Eligible Amount (Rs. Lakhs)	% of Total Cost
Promoter Equity		60.13	20%
Bank Term Loan		65.06	22%
Matching Grant		175.46	58%
Total		300.65	100%

*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							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
A	Technical Civil Work						
1	Pre-cooling Chamber	30.00	-	-	-	-	Consolidated cost norms considered in P&M
2	Staging Cold Room	50.00	-	-	-	-	
3	Cold Storage area	75.00	-	-	-	-	
4	Ripening Chambers	60.00	-	-	-	-	
5	Washing-Sorting-Grading-Packing Area	200.00	0.10	20.00	3.60	23.60	As per cost norms
6	Dry Mango Powder Unit Area	75.00	0.10	7.50	1.35	8.85	
7	Machine room area	20.00	0.10	2.00	0.36	2.36	
8	Testing Lab Area	15.00	0.10	1.50	0.27	1.77	
9	Water tank - UGT	LS		2.00	0.36	2.36	Actual requirement of water will vary as per applicant's end use
10	Water tank - OHT	LS		2.00	0.36	2.36	
11	Toilets (Separate for Male & Female)	20.00	0.10	2.00	0.36	2.36	As per cost norms
	Sub Total (A)	545.00		37.00	6.66	43.66	
B	Non-Technical Civil Works						
1	Administrative Office	-	-	-	-	-	Ineligible
2	Canteen	-	-	-	-	-	
3	Internal Roads/ Compound Wall	-	-	-	-	-	
	Sub Total (B)			-	-	-	
	Grand Total (A+B)	545.00		37.00	6.66	43.66	

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
A	Main Plant & Machinery								
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 (including complete refrigeration and insulation system)	80 MT	1 Set	Critical	8.00	8.00	1.44	9.44	As per cost norms
4	Ripening Chamber (Ethylene injections & monitoring, CO2 sensing, temperature sensing and refrigeration with puff panels)	5 MT/Batch	4	Critical	1.00	20.00	3.60	23.60	As per cost norms
5	Washing-Sorting-Grading-Packing Line	2 TPH	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	Optional					
d	Conveyor Belt		1	Critical					
e	Sorting Tables		2	Critical					
f	Weighing Machines	1 unit x 50 KG, 1 Unit X 100 Kg	2	Critical					
g	SS Packing Tables		2	Critical					
h	Strapping Machine		1	Optional					

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
6	Amchur (Dry Mango powder) processing plant	6 TPD (Raw Mango)							
a	Preparatory line (Washer, slicer, fruit preparation tables)	For 6 TPD Line	1 Set	Critical	39.00	39.00	7.02	46.02	As per cost norms
b	Dryer			Critical					
c	Hammer mill			Critical					
d	Packaging machines			Critical					
e	Trolleys, elevators, etc.			Critical					
7	Metal Detector			Critical	2.00	2.00	0.36	2.36	Eligible cost as per market rate analysis
8	Lab equipment's	Misc. (As required for plant operations)	1 Set	Optional	1.00	1.00	0.18	1.18	Eligible cost as per market rate analysis
	Subtotal (A)					135.00	24.30	159.30	
B	Utilities								
1	Transformer	120 KVA	1	Critical	1.73	1.73	0.31	2.04	As per cost norms
2	3 Phase-Electrification including power & controls cabling, PCC & MCC panel, Earthing, Internal Lighting, etc	Misc.	1 Set	Critical	6.00	6.00	1.08	7.08	Eligible cost as per market rate analysis
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
3	DG Set	80 KVA	1	Critical	5.68	5.68	1.02	6.70	As per cost norms
4	Automatic Power Factor Controller	120 KVA	1	Critical	1.08	1.08	0.20	1.28	

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
5	Servo Voltage Stabilizer	120 KVA	1	Critical	1.15	1.15	0.21	1.36	
6	Water Softening/ RO Plant	1 KLPH	1	Critical	1.75	1.75	0.32	2.07	
7	Effluents Treatment Plant (ETP)	10 KLD	1 Set	Critical	2.00	2.00	0.36	2.36	
8	Sewage Treatment Plant (STP)	5 KLD	1 Set	Critical	6.67	6.67	1.20	7.87	
9	Fire Safety Equipment's	Misc.	1 Set	Critical	5.45	5.45	0.98	6.43	1% of technical civil Area
10	Plastic Crates	20 KG	400	Critical	0.00275	1.10	0.20	1.30	As per cost norms
11	Plastic Pallets	1 MT	110	Critical	0.025	2.75	0.50	3.25	
12	Hand pallet truck	2 MT	1	Critical	0.30	0.30	0.05	0.35	Eligible cost as per market rate analysis
	Subtotal (B)					70.66	12.72	83.38	
	Grand Total (A+B)					205.66	37.02	242.68	

10. MODEL IV – PACKHOUSE OPERATIONS AND PULPING & CANNING LINE

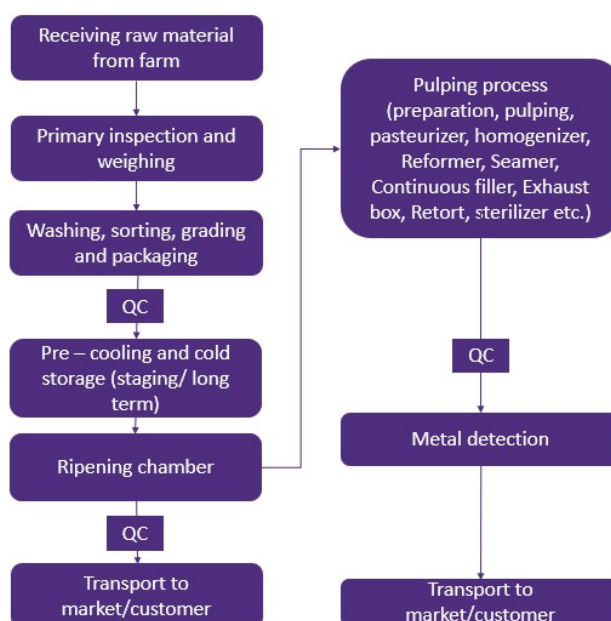
MODEL – IV: PACKHOUSE OPERATIONS AND PULPING & CANNING LINE

Target MAGNET Crop	Primary Crop: Mango Secondary Crops: Any other MAGNET crops suitable for project
Project Category	(Recommended as) Large Sized
Description	The proposed project primarily involves primary pack-house operations (integrated washing-sorting-grading-packing), ripening chamber and secondary processing (pulping-canning line) for mango crop. The project also includes a pulping-canning line for production and marketing of mango pulp. For efficient operations of the facility, a suitable pre-cooling, staging cold room, cold storage, refer van (for transportation), as well as utilities that are required to support the main operations are incorporated.
Preferred Applicant Profile	High Capital Investment & 'Tough to Compete' Businesses – which may be pursued by highly seasoned and experienced applicants

i) Key Facilities:

S. No.	Type of facilities proposed to be created	Capacity	No. of Units
1	Packhouse (Washing-Sorting-Grading-Packing Line)	4 TPH	1
2	Pre-cooling	12 MT (6 MT x 2)	2
3	Staging Cold Room	30 MT	1
4	Cold storage	200 MT	1
5	Ripening chamber	40 MT (10 MT x 4)	4 Chambers
6	Pulping & Canning Line	2 TPH	1
7	Utilities	Transformer, DG Set, APFC, Stabilizer, Steam Boiler, 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		78.77	60%	47.26
2	Non-Technical Civil Works		-	0%	-
3a	Main P&M		287.92	60%	172.75
3b	Utilities		185.49	60%	87.87
4	Reefer Van		13.64	60%	8.18
5	Misc. Fixed Assets		-	0%	-
6	Contingencies		-	0%	-
7	Working Capital Margin		-	0%	-
	Subtotal		565.81		
8	Preliminary & Pre-operative Expenses		20.00	60%	12.00
	Total		585.81		328.06

iv) Means of Finance

Means of Finance	Proposed Cost (Rs. Lakhs)	Eligible Amount (Rs. Lakhs)	% of Total Cost
Promoter Equity		117.16	20%
Bank Term Loan		140.59	24%
Matching Grant		328.06	56%
Total		585.81	100%

*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
A	Technical Civil Work						
1	Pre-cooling Chamber	60.00	-	-	-	-	Consolidated cost norms applied in P&M
2	Staging Cold Room	50.00	-	-	-	-	
3	Cold Storage	190.00	-	-	-	-	
4	Ripening Chambers	120.00	-	-	-	-	
5	Primary Processing Area (Washing-Sorting-Grading)	300.00	0.10	30.00	5.40	35.40	As per cost norms
6	Processing (Pulping) and Canning Area	150.00	0.10	15.00	2.70	17.70	
7	Testing Lab Area	15.00	0.10	1.50	0.27	1.77	
8	Boiler area	50.00	0.10	5.00	0.90	5.90	
9	Weighbridge Civil Works	LS		1.75	0.32	2.07	Eligible cost as per market rate analysis
10	Water Tank- UGT	LS		6.00	1.08	7.08	Actual requirement of water will vary as per applicant's end use
11	Water Tank- OHT	LS		4.00	0.72	4.72	
12	Toilets (Separate for Male & Female)	35.00	0.10	3.50	0.63	4.13	As per cost norms
	Sub Total (A)	970.00		66.75	12.02	78.77	
B	Non-Technical Civil Works						
1	Administrative Office	-	-	-	-	-	Ineligible
2	Canteen	-	-	-	-	-	
3	Internal Roads/ Compound Wall	-	-	-	-	-	
	Sub Total (B)	-		-	-	-	
	Grand Total (A+B)	970.00		66.75	12.02	78.77	

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
A	Main Plant & Machinery								
1	Pre-cooling Chamber	6 MT	2	Critical	25.00	50.00	9.00	59.00	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	200 MT	1	Critical	0.10	20.00	3.60	23.60	As per cost norms
4	Ripening Chamber	10 MT each x 4 chambers	4	Critical	1.00	40.00	7.20	47.20	As per cost norms
5	Washing-Sorting-Grading Packing Area	4 TPH							
a	Fruit Washer		1	Critical	40.00	40.00	7.20	47.20	As per cost norms
b	Size Grader		1	Optional					
c	Surface Dryer Fan Conveyor		1	Critical					
d	Conveyor Belt		1	Critical					
e	Sorting Tables		4	Critical					
f	Weighing Machines	1 unit x 50 KG, 1 Unit X 100 Kg	2	Critical					
g	SS Packing Tables		4	Critical					
h	Box Strapping Machine		1	Optional					
i	HVAC Cooling system for packhouse with microbial filter		1	Optional					
6	Pulping & Canning Line	2 TPH Line (input basis)							

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
a	Preparatory line (conveyor, sorting & grading, washing, weighing)	For 2 TPH Line	1 Set	Critical	67.00	67.00	12.06	79.06	As per cost norms
b	Pulping Line (fruit mill, pulper, pasteurizer, etc.)			Critical					
c	Canning line (Reformer, Seamer, Continuous filler, Exhaust box, Retort, steriliser)			Critical					
7	Metal Detector (Conveyor Belt)		1	Critical	5.00	5.00	0.90	5.90	Eligible cost as per market rate analysis
8	Lab equipment's	Misc. (As required for plant operations)	1 Set	Critical	2.00	2.00	0.36	2.36	Eligible cost as per market rate analysis
	Subtotal (A)					244.00	43.92	287.92	
B	Utilities								
1	Transformer	160 KVA	1	Critical	2.30	2.30	0.41	2.71	As per cost norms
2	3 Phase-Electrification including power & controls cabling, PCC & MCC panel, Earthing, Internal Lighting, etc	Misc.	1 Set	Critical	8.00	8.00	1.44	9.44	Eligible cost as per market rate analysis
3	DG Set	120 KVA	1	Critical	8.52	8.52	1.53	10.05	As per cost norms
4	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
5	Automatic Power Factor Controller	160 KVA	1	Critical	1.44	1.44	0.26	1.70	As per cost norms
6	Servo Voltage Stabilizer	160 KVA	1	Critical	1.48	1.48	0.27	1.75	
7	Air compressor with air dryer	54 CFM	1	Critical	4.54	4.54	0.82	5.36	

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
8	Water Softening/ RO Plant	2 KLPH	1	Critical	3.50	3.50	0.63	4.13	
9	ETP	20 KLD	1 Set	Critical	6.00	6.00	1.08	7.08	
10	STP	10 KLD	1 Set	Critical	13.33	13.33	2.40	15.73	
11	Fire Safety Equipment's	Misc.	1 Set	Critical	9.70	9.70	1.75	11.45	1% of technical civil area
12	Plastic Crates	20 KG	800	Critical	0.00275	2.20	0.40	2.60	As per cost norms
13	Plastic Pallets	1 MT	230	Critical	0.025	5.75	1.04	6.79	
14	Hand pallet truck	2 MT	2	Critical	0.30	0.60	0.11	0.71	Eligible cost as per market rate analysis
15	Battery Operated Forklift	1MT	1	Critical	10.00	10.00	1.80	11.80	
16	Dock Doors		1	Optional					As per cost norms
17	Dock Levellers		1	Optional	7.00	7.00	1.26	8.26	
18	Dock Shelter		1	Optional					
19	Weighbridge (Excluding Civil Works)	60 MT	1	Optional	7.00	7.00	1.26	8.26	
20	PLC System		1	Optional	5.00	5.00	0.90	5.90	
21	Steam boiler with accessories (Oil fired)	500 Kg	1	Critical	15.00	15.00	2.70	17.70	
22	Cooling Tower	150 TR	1	Critical	1.50	1.50	0.27	1.77	
23	Water Chiller	50 TR	1	Critical	9.33	9.33	1.68	11.01	
	Subtotal (B)					157.20	28.30	185.49	
C	Reefer Vans								
1	Reefer Van 1- Positive temp	4 MT	1	Optional	11.56	11.56	2.08	13.64	As per cost norms
	Subtotal (C)					11.56	2.08	13.64	
	Grand Total (A+B+C)					412.75	74.30	487.05	

11. MODEL V – PACKHOUSE OPERATIONS AND INDIVIDUAL QUICK FREEZING (IQF) LINE

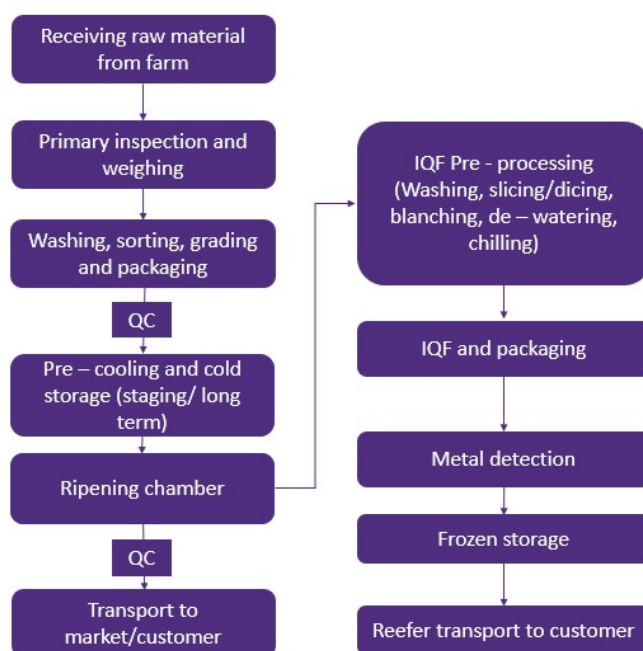
MODEL – V: PACKHOUSE OPERATIONS AND INDIVIDUAL QUICK FREEZING (IQF) LINE

Target MAGNET Crop	Primary Crop: Mango Secondary Crops: Any other MAGNET crops suitable for project
Project Category	(Recommended as) Large Sized
Description	The proposed project primarily involves primary pack-house operations (semi-automatic washing-sorting-grading-packing) and ripening chambers for processing mango and other MAGNET crops. Further, it involves an IQF Line with frozen storage for production and storage of IQF products. For efficient operations of the facility, suitable pre-cooling, staging cold rooms, cold storage, refer vans (for transport to markets), as well as utilities that are required to support the main operations are incorporated.
Preferred Applicant Profile	High Capital Investment & 'Tough to Compete' Businesses – which may be pursued by highly seasoned and experienced applicants

i) Key Facilities:

S. No.	Type of facilities proposed to be created	Capacity	No. of Units
1	Packhouse (Washing-Sorting-Grading-Packing Line)	4 TPH	1
2	Pre-cooling	12 MT (6 MT x 2)	2
3	Staging Cold Room	30 MT	1
4	Cold storage	200 MT	1
5	Ripening chamber	40 MT (10 MT x 4)	4 Chambers
6	Frozen Storage	150 MT	1
7	IQF Line	1 TPH	1
8	Utilities	Transformer, DG Set, APFC, Stabilizer, Steam Boiler, 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		89.98	60%	53.99
2	Non-Technical Civil Works		-	0%	-
3a	Main P&M		480.26	60%	288.16
3b	Utilities		216.81	60%	125.15
4	Reefer Van		27.27	60%	16.36
5	Misc. Fixed Assets		-	0%	-
6	Contingencies		-	0%	-
7	Working Capital Margin		-	0%	-
	Subtotal		814.32		
8	Preliminary & Pre-operative Expenses		20.00	60%	12.00
	Total		834.32		495.65

iv) Means of Finance

Means of Finance	Proposed Cost (Rs. Lakhs)	Eligible Amount (Rs. Lakhs)	% of Total Cost
Promoter Equity		166.86	20%
Bank Term Loan		171.80	20%
Matching Grant		495.65	60%
Total		834.32	100%

*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
A	Technical Civil Work						
1	Washing-Sorting-Grading-Packing Area	200	0.10	20.00	3.60	23.60	As per cost norms
2	Ripening Chambers	120	-	-	-	-	Consolidated cost norms applied in P&M
3	Pre-cooling Chamber	60	-	-	-	-	
4	Staging Cold Room	50	-	-	-	-	
5	Cold Storage	190	-	-	-	-	
6	Frozen Cold Storage	140	-	-	-	-	
7	IQF Processing Area	300	0.10	30.00	5.40	35.40	As per cost norms
8	Machine Room	20	0.10	2.00	0.36	2.36	
9	Lab Area	15	0.10	1.50	0.27	1.77	
10	Boiler area	75	0.10	7.50	1.35	8.85	
11	Weighbridge Civil Works	LS		1.75	0.32	2.07	Eligible cost as per market rate analysis
12	Toilets (Separate for Male & Female)	35	0.10	3.50	0.63	4.13	As per cost norms
13	Water Tank- UGT	LS		6.00	1.08	7.08	Actual requirement of water will vary as per applicant's end use
14	Water Tank- OHT	LS		4.00	0.72	4.72	
	Sub Total (A)	1,205.00		76.25	13.73	89.98	
B	Non-Technical Civil Works						
1	Administrative Office	-	-	-	-	-	Ineligible
2	Canteen	-	-	-	-	-	
3	Internal Roads/ Compound Wall	-	-	-	-	-	
	Sub Total (B)	-		-	-	-	
	Grand Total (A+B)	1,205.00		76.25	13.73	89.98	

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
A	Main Plant & Machinery								
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	200 MT	1	Critical	20.00	20.00	3.60	23.60	As per cost norms
4	Ripening Chamber	40 MT (10 MT each X 4)	4	Critical	1.00	40.00	7.20	47.20	As per cost norms
5	Washing-Sorting-Grading-Packing Line (Semi-automatic)	4 TPH Line							
a	Fruit Washer		1	Critical	50.00	50.00	9.00	59.00	As per cost norms
b	Size Grader			Optional					
c	Surface Dryer Fan Conveyor		1	Critical					
d	Conveyor Belt		1	Critical					
e	Sorting Tables		2	Critical					
f	Weighing Machines	1 unit x 50 KG, 1 Unit X 100 Kg	2	Critical					
g	SS Packing Tables		2	Critical					
h	Strapping Machine		1	Optional					
i	HVAC Cooling system for packhouse with microbial filter		1	Optional					
6	IQF Line	1 TPH	1 Set						

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
a	Pre-Processing/Preparatory Line associated with IQF (Includes Flight Elevators, Rod Washer (First Stage Washing), Universal Washer (Second Stage Washing), Belt Blancher, Belt Chiller, Dewatering Vibrator, Inspection Conveyor, SS Supporting Structure, Cutting/ Dicing Machines)	1 TPH (fresh fruit input basis) Line	1 Set	Critical	80.00	80.00	14.40	94.40	As per cost norms
b	IQF Tunnel (including refrigeration)	1 TPH	1 Set	Critical	85.00	85.00	15.30	100.30	
c	Associated Frozen Storage (for IQF)	150 MT	1 Set	Critical	0.15	22.50	4.05	26.55	
7	Form Fill Seal Machine	for 0.5 TPH	1	Optional	32.50	32.50	5.85	38.35	As per cost norms
8	Metal Detector		1	Critical	5.00	5.00	0.90	5.90	Eligible cost as per market rate analysis
9	Lab equipment's	Misc. (As required for plant operations)	1 Set	Optional	2.00	2.00	0.36	2.36	Eligible cost as per market rate analysis
	Subtotal (A)					407.00	73.26	480.26	
B	Utilities								
1	Transformer	350 KVA	1	Critical	4.90	4.90	0.88	5.78	As per cost norms
2	3 Phase Electrification including power & controls cabling, PCC & MCC panel, Earthing, Internal Lighting, etc	Misc.	1 Set	Critical	21.00	21.00	3.78	24.78	Eligible cost as per market rate analysis

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)	250 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	PLC System		1 Set	Optional	5.00	5.00	0.90	5.90	As per cost norms
5	Dock Doors		1	Optional	7.00	7.00	1.26	8.26	
6	Dock Levellers		1						
7	Dock Shelter		1						
8	DG Set	250 KVA	1	Critical	14.50	14.50	2.61	17.11	
9	Automatic Power Factor Controller	350 KVA	1	Critical	3.15	3.15	0.57	3.72	
10	Servo Voltage Stabilizer	350 KVA	1	Critical	2.92	2.92	0.53	3.44	
11	RO Plant	2 KLPH	1	Critical	3.50	3.50	0.63	4.13	
12	ETP	20 KLD	1 Set	Critical	4.00	4.00	0.72	4.72	
13	STP	10 KLD	1 Set	Critical	13.33	13.33	2.40	15.73	
14	Air Compressor with Desiccant Air Drier	54 CFM	1 Set	Critical	4.54	4.54	0.82	5.36	
15	Fire Safety Equipment's	Misc.	1 Set	Critical	12.05	12.05	2.17	14.22	1% of technical civil area
16	Weighbridge (Excluding Civil Works)	60 MT	1	Optional	7.00	7.00	1.26	8.26	As per cost norms
17	Plastic Crates	20 KG each	1000	Critical	0.00275	2.75	0.50	3.25	
18	Plastic Pallets	1 MT each	400	Critical	0.025	10.00	1.80	11.80	
19	Hand pallet truck	2 MT each	2	Critical	0.30	0.60	0.11	0.71	Eligible cost as per market rate analysis
20	Battery Operated Forklift	1 MT each	2	Optional	10.00	10.00	1.80	11.80	
21	Steam Boiler (Oil fired)	750 Kg	1	Critical	22.50	22.50	4.05	26.55	As per cost norms
	Subtotal (B)					183.74	33.07	216.81	
C	Reefer Van (negative temperature)	4 MT	2	Optional	11.56	23.11	4.16	27.27	As per cost norms
	Subtotal (C)					23.11	4.16	27.27	
	Grand Total (A+B+C)					613.85	110.49	724.34	

12. MODEL VI – PACKHOUSE OPERATIONS AND FREEZE-DRYING LINE

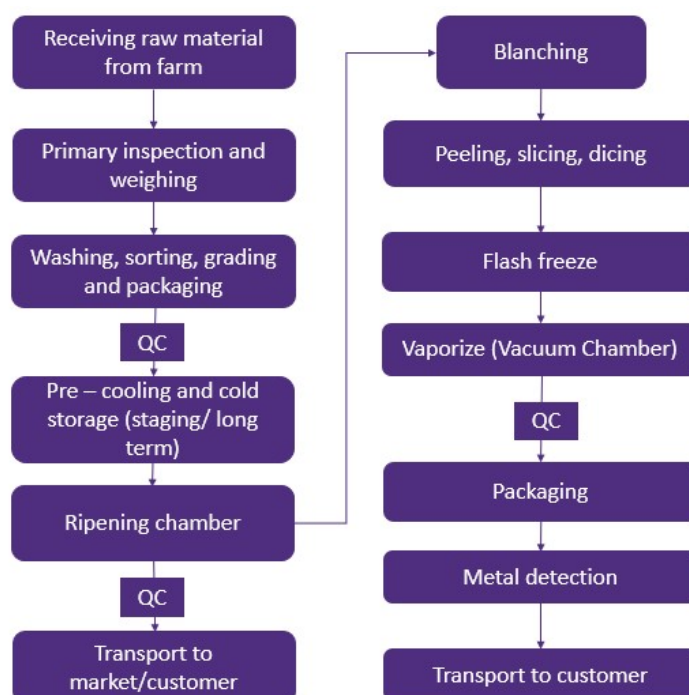
MODEL – VI: PACKHOUSE OPERATIONS AND FREEZE-DRYING LINE

Target MAGNET Crop	Primary Crop: Mango Secondary Crops: Any other MAGNET crops suitable for project
Project Category	(Recommended as) Large Sized
Description	The proposed project primarily involves primary pack-house operations (semi-automatic washing-sorting-grading-packing) and Ripening Chambers for Mango and other compatible MAGNET crops. Further, it involves freeze drying line for production of freeze-dried products. For efficient operations of the facility, suitable pre-cooling, staging cold rooms, cold storage as well as utilities that are required to support the main operations are incorporated.
Preferred Applicant Profile	High Capital Investment & 'Tough to Compete' Businesses – which may be pursued by highly seasoned and experienced applicants

i) Key Facilities:

S. No.	Type of facilities proposed to be created	Capacity	No. of Units
1	Packhouse (Washing-Sorting-Grading-Packing Line)	4 TPH	1
2	Pre-cooling	12 MT (6 MT x 2)	2
3	Staging Cold Room	30 MT	1
4	Cold storage	160 MT	1
5	Ripening chamber	40 MT (10 MT x 4)	4 Chambers
6	Freeze Drying Line	0.5 TPH	1
7	Utilities	Transformer, DG Set, APFC, Stabilizer, Steam Boiler, 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		513.89	60%	308.33
3b	Utilities		207.10	60%	124.20
4	Reefer Van		-	60%	-
5	Misc. Fixed Assets		-	0%	-
6	Contingencies		-	0%	-
7	Working Capital Margin		-	0%	-
	Subtotal		808.02		
8	Preliminary & Pre-operative Expenses		20.00	60%	12.00
	Total		828.02		496.75

iv) Means of Finance

Means of Finance	Proposed Cost (Rs. Lakhs)	Eligible Amount (Rs. Lakhs)	% of Total Cost
Promoter Equity		165.60	20%
Bank Term Loan		165.66	20%
Matching Grant		496.75	60%
Total		828.02	100%

*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
A	Technical Civil Work						
1	Washing-Sorting-Grading-Packing Line Area	200	0.10	20.00	3.60	23.60	As per cost norms
2	Ripening Chambers	120	-	-	-	-	Consolidated cost norms applied in P&M
3	Pre-cooling Chamber	60	-	-	-	-	
4	Staging Cold Room	50	-	-	-	-	
5	Cold Storage	120	-	-	-	-	
6	Processing Area (Freeze Drying)	300	0.10	30.00	5.40	35.40	As per cost norms
7	Machine room	20	0.10	2.00	0.36	2.36	
8	Testing Lab	15	0.10	1.50	0.27	1.77	
9	Boiler Civil Area	50	0.10	5.00	0.90	5.90	
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)	35	0.10	3.50	0.63	4.13	As per cost norms
	Sub Total (A)	970.00		73.75	13.28	87.03	
B	Non-Technical Civil Works						
1	Administrative Office	-	-	-	-	-	Ineligible
2	Canteen	-	-	-	-	-	
3	Internal Roads/ Compound Wall	-	-	-	-	-	
	Sub Total (B)	-		-	-	-	
	Grand Total (A+B)	970.00		73.75	13.28	87.03	

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
A	Main Plant & Machinery								
1	Pre-cooling Chamber	6 MT	2	Critical	25.00	50.00	9.00	59.00	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	160 MT	1	Critical	16.00	16.00	2.88	18.88	As per cost norms
4	Ripening Chamber	40 MT (10 MT each X 4)	4	Critical	1.00	40.00	7.20	47.20	As per cost norms
5	Washing-Sorting-Grading-Packing Line	4 TPH Line	1 set						
a	Fruit Washer	For 4 TPH Line	1	Critical	50.00	50.00	9.00	59.00	As per cost norms
b	Size Grader		1	Optional					
c	Surface Dryer Fan Conveyor		1	Critical					
d	Conveyor Belt		1	Critical					
e	Sorting Tables		2	Critical					
f	Weighing Machines	1 unit x 50 KG, 1 Unit X 100 Kg	2	Critical					
g	SS Packing Tables		2	Critical					
h	Strapping Machine		1	Optional					
i	HVAC Cooling system for packhouse with microbial filter		1	Optional	5.00	5.00	0.90	5.90	Eligible cost as per market rate analysis
6	Processing line (Freeze Drying)	0.5 TPH Line (input basis)	1 Set		252.50	252.50	45.45	297.95	As per cost norms

Plant & Machinery									
									Rupees in Lakh
a	Preparatory line (Washer, inspection conveyor, sorting and grading, preparation table)	For 0.5 TPH Line	1 Set	Critical					
b	Flake separator and deseeding machine		1 Set	Critical					
c	Processing line (Peeler, slicer, dicer, blanching unit)			Critical					
d	Refrigeration for freeze dryer		1 Set	Critical					
e	Freeze dryer		1 Set	Critical					
f	Packaging machine		1	Critical					
g	Dehumidifier		1	Critical					
6	Lab equipment's	Misc. (As required for plant operations)	1 Set	Critical	2.00	2.00	0.36	2.36	Eligible cost as per market rate analysis
7	Metal Detector		1	Critical	5.00	5.00	0.90	5.90	Eligible cost as per market rate analysis
	Subtotal (A)					455.50	81.99	537.49	
B	Utilities								
1	Transformer	300 KVA	1	Critical	4.20	4.20	0.76	4.96	As per cost norms
2	3 Phase Electrification including power & controls cabling, PCC & MCC panel, Earthing, Internal Lighting, etc	Misc.	1 Set	Critical	18.00	18.00	3.24	21.24	Eligible cost as per market rate analysis

Plant & Machinery									
									Rupees in Lakh
3	Solar Power system (On grid/Off grid)	220 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	220 KVA	1	Critical	12.76	12.76	2.30	15.06	As per cost norms
5	PLC System		1	Optional	5.00	5.00	0.90	5.90	
6	Automatic Power Factor Controller	300 KVA	1	Critical	2.70	2.70	0.49	3.19	
7	Servo Voltage Stabilizer	300 KVA	1	Critical	2.50	2.50	0.45	2.95	
8	Air Compressor with Air Dryer	54 CFM	1 Set	Critical	2.50	2.50	0.45	2.95	
9	RO Plant	2 KLPH	1	Critical	3.50	3.50	0.63	4.13	
10	Effluent Treatment Plant (ETP)	30 KLD	1 Set	Critical	6.00	6.00	1.08	7.08	
11	Sewage Treatment Plant (STP)	15 KLD	1 Set	Critical	20.00	20.00	3.60	23.60	
12	Fire Safety Equipment's	Misc.	1 Set	Critical	9.70	9.70	1.75	11.45	1% of technical civil area
13	Dock Doors		1	Optional					As per cost norms
14	Dock Levellers		1	Optional	7.00	14.00	2.52	16.52	
15	Dock Shelter		1	Optional					
16	Weighbridge (Excluding Civil Works)	60 MT	1	Optional	7.00	7.00	1.26	8.26	
17	Boiler with Accessories	500 Kg	1	Critical	15.00	15.00	2.70	17.70	
18	Cooling Tower with Accessories	150 TR	1	Critical	1.50	1.50	0.27	1.77	
19	Hand Pallet truck	2 MT	1	Critical	0.30	0.30	0.05	0.35	Eligible cost as per market rate analysis
20	Forklift	1 MT	1	Optional	10.00	10.00	1.80	11.80	
21	Plastic Crates	20 KG	400	Critical	0.00275	1.10	0.20	1.30	As per cost norms
22	Plastic Pallets	1 MT	190	Critical	0.025	4.75	0.86	5.61	
	Subtotal (B)					175.51	31.59	207.10	
	Grand Total (A+B)					611.01	109.98	720.99	

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

S.No.	District	Mango		
		Area ('000 Ha)	Production ('000 MT)	Productivity (MT/Ha)
1	Ahmednagar	5.89	27.94	4.74
2	Akola	0.70	2.18	3.13
3	Amravati	0.07	2.16	30.00
4	Aurangabad	0.73	2.92	4.01
5	Beed	1.45	14.48	10.00
6	Bhandara	0.12	0.98	7.96
7	Buldhana	0.26	0.44	1.70
8	Chandrapur	0.08	0.56	7.00
9	Dhule	0.29	4.29	15.00
10	Gadchiroli	1.30	5.80	4.46
11	Gondia	0.18	1.01	5.46
12	Hingoli	0.09	0.79	8.50
13	Jalgaon	0.39	0.62	1.60
14	Jalna	0.88	9.67	11.05
15	Kolhapur	2.32	6.98	3.01
16	Latur	2.27	15.55	6.85
17	Nagpur	0.76	1.89	2.50
18	Nanded	0.85	10.19	11.99
19	Nandurbar	0.95	2.38	2.50
20	Nashik	4.93	7.85	1.59
21	Osmanabad	3.87	28.16	7.29
22	Palghar	10.72	12.28	1.15
23	Parbhani	0.43	1.60	3.77
24	Pune	4.85	38.77	8.00
25	Raigad	14.57	31.45	2.16
26	Ratnagiri	62.28	132.88	2.13
27	Sangli	1.39	8.35	6.00
28	Satara	2.24	8.48	3.79
29	Sindhudurg	33.92	73.95	2.18
30	Solapur	1.73	12.20	7.05
31	Thane	2.48	2.42	0.98
32	Wardha	0.04	0.14	4.00
33	Washim	0.04	0.21	5.00
34	Yavatmal	0.15	0.28	1.93

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

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

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