

# Maharashtra Agribusiness Network (MAGNET) Project

## Toolkit for preparation of DPR Custard Apple

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# Table of Contents

|   |           |
|---|-----------|
| <b>1. KEY NOTES</b>   | <b>1</b>  |
| <b>2. CROP PROFILE: CUSTARD APPLE</b>                               | <b>3</b>  |
| <b>3. CUSTARD APPLE SNAPSHOT</b>                                    | <b>3</b>  |
| <b>4. CUSTARD APPLE CLUSTERS IDENTIFIED UNDER MAGNET</b>            | <b>4</b>  |
| <b>5. SOME USEFUL LINKS – MARKET INTELLIGENCE AND TECHNOLOGY</b>    | <b>5</b>  |
| <b>6. PREFERRED PROJECT PROMOTER PROFILE</b>                        | <b>6</b>  |
| <b>7. MODEL I – PACKHOUSE OPERATIONS &amp; PULP PROCESSING LINE</b> | <b>7</b>  |
| <b>8. MODEL II – PACKHOUSE OPERATIONS &amp; FREEZE-DRYING LINE</b>  | <b>14</b> |

## 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, a Pulping Unit or a Freeze-Drying Unit can be used for processing pulps of Banana, Custard Apple, Sapota, Guava, Strawberry, and Mango (as per availability in user's catchment zone).

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 custard apple (primarily) and other compatible MAGNET crops could also be handled in the same facility. While proposing multi-fruit handling (i.e., Custard apple 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: CUSTARD APPLE

### Custard Apple at Glance



Total production of Custard Apple in India was 0.39 million MT in 2021-22



It is grown commercially in the Philippines, West Indies, Florida, Middle East, India, Malaysia, and Thailand



Maharashtra, Madhya Pradesh, and Gujarat are the top 3 Custard Apple producing States in India.



Maharashtra produces 30.5% of total production and ranks 1<sup>st</sup> in the country

The productivity of Custard Apple in India is 8.45 MT/Ha while Maharashtra has productivity of 7.6 MT/Ha in 2021-22

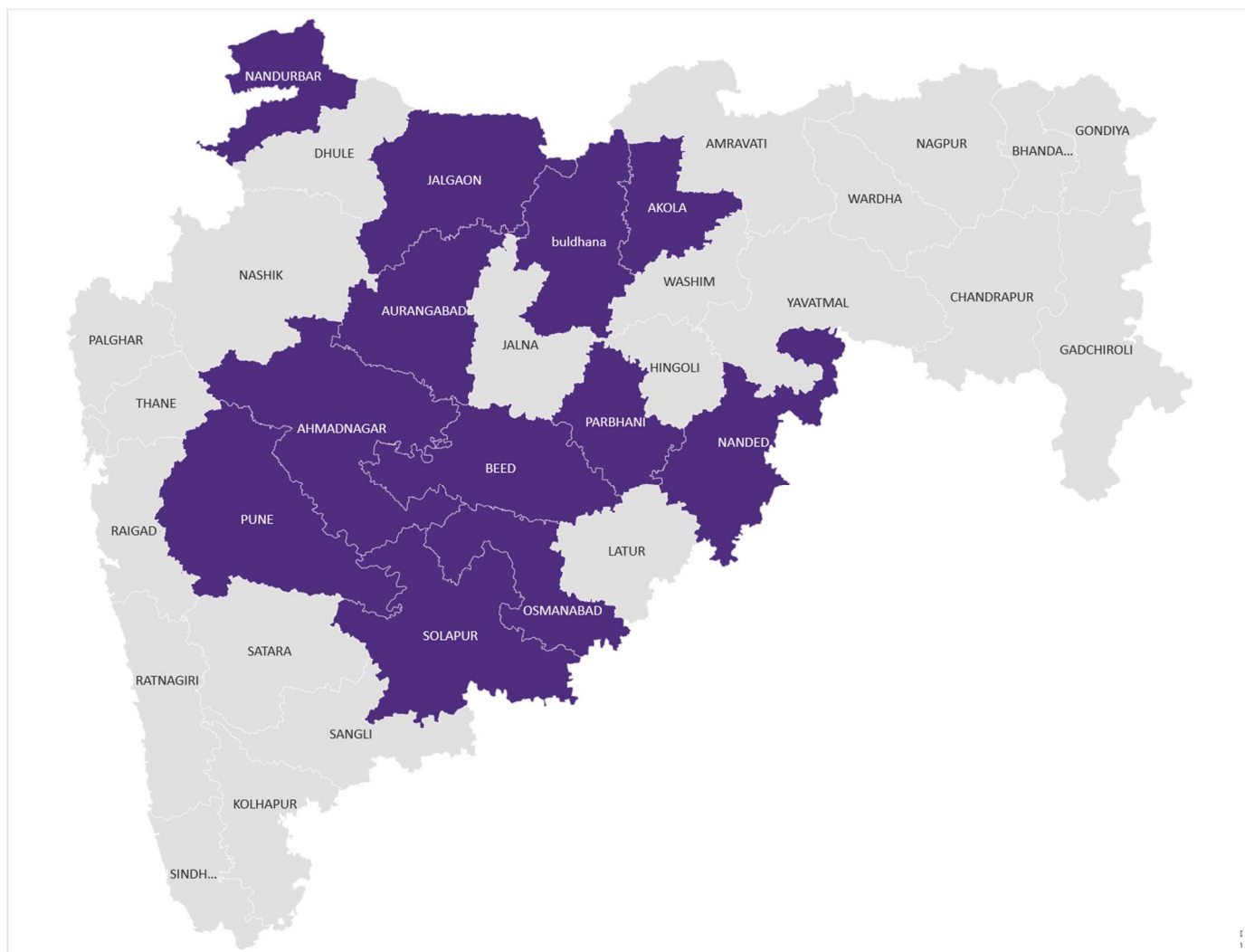
Custard apple (*Annona squamosa* L.) is an edible tropical fruit and is also called sugar apple or sweetsop. Although the exact original home of custard apple is still being debated, experts agree that its native habitat extends from Southern Central America to tropical South America. Custard apple seeds are well known for their interesting pharmacological activities, especially for antitumor activity. Custard apple is one of the most important fruits in Maharashtra. In India, custard apple is cultivated in very few states with Maharashtra being the largest producer.

## 3. CUSTARD APPLE SNAPSHOT

|       |                                       |  |
|-------|---------------------------------------|--|
| India | Total Production in India             | 0.39 million MT                                    |
|       | Total Area under cultivation in India | 0.046 million Ha                                   |
|       | Top Custard Apple producing States    | Maharashtra, Gujarat, Madhya Pradesh, Chhattisgarh |
|       | Agri Export zones of Custard Apple    | No Agri Export Zone                                |

|             |   |                                 |
|-------------|---|---------------------------------|
| Maharashtra | Total Production in Maharashtra             | 0.11 million MT                 |
|             | Average yield in Maharashtra                | 7.6 MT/ha (2021-22)             |
|             | Top Custard Apple producing Districts in MH | Pune, Ahmednagar, Beed, Solapur |
|             | Seasonality of Custard Apple in Maharashtra | Round the year                  |

#### 4. CUSTARD APPLE CLUSTERS IDENTIFIED UNDER MAGNET



| District   | Area in '000 ha | Quantity in '000 MT | Productivity (MT/ha) |
|------------|-----------------|---------------------|----------------------|
| Pune       | 4.396           | 43.960              | 10.00                |
| Ahmednagar | 2.730           | 20.456              | 7.49                 |
| Beed       | 1.637           | 14.737              | 9.00                 |
| Solapur    | 1.462           | 10.234              | 7.00                 |
| Buldhana   | 0.818           | 2.335               | 2.85                 |
| Osmanabad  | 0.715           | 5.230               | 7.31                 |
| Nanded     | 0.620           | 1.527               | 2.46                 |
| Akola      | 0.595           | 4.165               | 7.00                 |
| Aurangabad | 0.465           | 1.949               | 4.19                 |
| Jalgaon    | 0.431           | 3.448               | 8.00                 |
| Parbhani   | 0.425           | 2.806               | 6.60                 |
| Nandurbar  | 0.152           | 1.120               | 7.37                 |

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                   | Packaging specifications for custard apple | <a href="#">Brochure_04_Pomogranate_Custard_Apple.pdf (apeda.gov.in)</a>                |
| 2                   | Custard apple – Maharashtra scenario       | <a href="#">Custard apple thrives in Maharashtra's dryland farms (villagesquare.in)</a> |

| Project Components & Technology |                           |   |                  |
|---------------------------------|---------------------------|---|------------------|
| Sr. No                          | Components                | Links   | Document Page no |
| 1                               | Sorting, Grading, Washing | <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 unit          |   | 8                |
| 3                               | Cold room (staging)       |   | 9                |
| 4                               | Cold storage units        |   | 9                |
| 5                               | Ripening Chamber          |   | 19               |
| 6                               | Refer van                 |   | 9                |
| 7                               | Pulping Line              | <ul style="list-style-type: none"> <li><a href="https://youtu.be/y9kqZZmvl0U">https://youtu.be/y9kqZZmvl0U</a></li> <li><a href="https://youtu.be/1pR88xhD8_Q">https://youtu.be/1pR88xhD8_Q</a></li> <li><a href="https://youtu.be/8SNebRjhbqQ">https://youtu.be/8SNebRjhbqQ</a></li> </ul> |                  |
| 8                               | Freeze Drying Line        | <ul style="list-style-type: none"> <li><a href="https://youtu.be/eE993Vs7j8s">https://youtu.be/eE993Vs7j8s</a></li> <li><a href="https://youtu.be/1onmmdK_lqI">https://youtu.be/1onmmdK_lqI</a></li> </ul>  |                  |
| 9                               | Blast Freeze              | <a href="https://www.youtube.com/watch?v=WulyeVKN-lw">https://www.youtube.com/watch?v=WulyeVKN-lw</a>   |                  |
| 10                              | 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>   |                  |

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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/ LoI** 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 & PULP PROCESSING LINE**

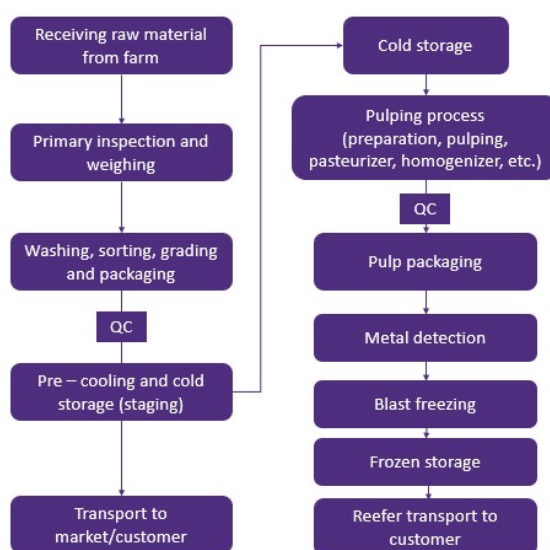
## MODEL – I: PACKHOUSE OPERATIONS & PULP PROCESSING LINE

|                                    |  |
|------------------------------------|--|
| <b>Target MAGNET Crop</b>          | Primary Crop: <b>Custard Apple</b><br>Secondary Crops: 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) for Custard Apple crop and other compatible MAGNET crops. Further, it involves pulping and blast freezing line (with frozen storage) for production of frozen pulps. For efficient operations of the facility, suitable pre-cooling, staging cold rooms, reefer 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 – may be pursued by applicants having some relevant experience</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 Chamber                        | 6 MT  | 1            |
| 3      | Staging Cold Room                          | 30 MT   | 1            |
| 4      | Cold Storage                               | 80 MT   | 1            |
| 5      | Pulping Line                               | 1 TPH   | 1            |
| 6      | Blast Freezer                              | 1.5 MT per batch  | 1            |
| 7      | Frozen Cold Storage                        | 100 MT  | 1            |
| 8      | 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                |               | 61.66          | 60%                        | 36.99                      |
| 2      | Non-Technical Civil Works            |               | -              | 0%                         | -                          |
| 3a     | Main P&M                             |               | 221.25         | 60%                        | 132.75                     |
| 3b     | Utilities                            |               | 177.90         | 60%                        | 75.19                      |
| 4      | Reefer Van                           |               | 20.45          | 60%                        | 12.27                      |
| 5      | Misc. Fixed Assets                   |               | -              | 0%                         | -                          |
| 6      | Contingencies                        |               | -              | 0%                         | -                          |
| 7      | Working Capital Margin               |               | -              | 0%                         | -                          |
|        | <b>Subtotal</b>                      |               | <b>481.26</b>  |                            |                            |
| 8      | Preliminary & Pre-operative Expenses |               | 20.00          | 60%                        | 12.00                      |
|        | <b>Total</b>                         |               | <b>501.26</b>  |                            | <b>269.20</b>              |

### iii) Means of Finance

| Means of Finance | Proposed Amount (Rs. Lakhs) | Eligible Cost (Rs. Lakhs) | % of Total Cost |
|------------------|-----------------------------|---------------------------|-----------------|
| Promoter Equity  |                             | 131.80                    | 26%             |
| Bank Term Loan   |                             | 100.25                    | 20%             |
| Matching Grant   |                             | 269.20                    | 54%             |
| <b>Total</b>     |                             | <b>501.26</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                                     | Washing-Sorting-Grading-Packing Line    | 200              | 0.10               | 20.00                         | 3.60        | 23.60               | As per cost norms  |
| 2                                     | Pre-cooling Chamber                     | 30               | -                  | -                             | -           | -                   | Consolidated cost norms applied in P&M                           |
| 3                                     | Staging Cold Room                       | 50               | -                  | -                             | -           | -                   |  |
| 4                                     | Cold Storage Area                       | 75               | -                  | -                             | -           | -                   |  |
| 5                                     | Frozen storage area                     | 95               | -                  | -                             | -           | -                   |  |
| 6                                     | Blast Freezer Area                      | 15               | -                  | -                             | -           | -                   |  |
| 7                                     | Processing (Pulping) and Packaging Area | 100              | 0.10               | 10.00                         | 1.80        | 11.80               | As per cost norms  |
| 8                                     | Steam Boiler Civil Works                | 50               | 0.10               | 5.00                          | 0.90        | 5.90                |  |
| 9                                     | Machine area                            | 20               | 0.10               | 2.00                          | 0.36        | 2.36                |  |
| 10                                    | Toilets (Separate for Male & Female)    | 20               | 0.10               | 2.00                          | 0.36        | 2.36                |  |
| 11                                    | Laboratory Area                         | 15               | 0.10               | 1.50                          | 0.27        | 1.77                |  |
| 12                                    | Weighbridge Civil Works                 | LS               |                    | 1.75                          | 0.32        | 2.07                | Eligible cost as per market rate analysis                        |
| 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                |  |
|                                       | <b>Sub Total (A)</b>                    | <b>670.00</b>    |                    | <b>52.25</b>                  | <b>9.41</b> | <b>61.66</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>670.00</b>    |                    | <b>52.25</b>                  | <b>9.41</b> | <b>61.66</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                               | Critical          | 8.00               | 8.00                   | 1.44  | 9.44                | As per cost norms                         |
| <b>4</b>          | <b>Washing-Sorting-Grading-Packing Line</b>  | <b>2 TPH Line</b> | <b>1 set</b>                    |                   |                    |                        |       |                     |   |
| 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          |                    |                        |       |                     |   |
| d                 | Conveyor Belt  |                   | 1                               | Critical          |                    |                        |       |                     |   |
| e                 | Sorting Tables   |                   | 2                               | Critical          |                    |                        |       |                     |   |
| g                 | Weighing Machines  |                   | 1 unit x 50 KG, 1 Unit X 100 Kg | 2                 |                    |                        |       |                     |   |
| h                 | SS Packing Tables  |                   | 2                               | Critical          |                    |                        |       |                     |   |
| i                 | Strapping Machine  |                   | 1                               | Optional          |                    |                        |       |                     |   |
| <b>5</b>          | <b>Pulping Section</b>   | <b>1 TPH</b>      |                                 |                   |                    |                        |       |                     |   |
| a                 | Preparatory line (conveyor, sorting & grading, washing, weighing)  | For 1 TPH         | 1 Set                           | Critical          | 15.00              | 10.00                  | 1.80  | 11.80               | As per cost norms                         |
| b                 | Flake Separator Machine  |                   |                                 | Critical          | 10.00              | 10.00                  | 1.80  | 11.80               | Eligible cost as per market rate analysis |
| c                 | Pulping Line (Fruit Mill, Double stage pulper, Pulp mixer and filler, Pulp collection tank, Steam Jacketed Kettle, Pasteurizer etc.) |                   |                                 | Critical          | 20.00              | 20.00                  | 3.60  | 23.60               |   |
| 6                 | Metal Detector (Conveyor Belt)   |                   | 1                               | Critical          | 5.00               | 5.00                   | 0.90  | 5.90                | 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  |
| 7                 | Blast Freezer (Including refrigeration and PEB structure)   | 1.5 MT/ Batch                            | 1        | Critical          | 52.50              | 52.50                  | 9.45         | 61.95               | As per cost norms   |
| 8                 | Frozen Storage  | 100 MT                                   | 1        | Critical          | 0.15               | 15.00                  | 2.70         | 17.70               | As per cost norms   |
| 9                 | Lab equipments  | Misc. (As required for plant operations) | 1 Set    | Critical          | 2.00               | 2.00                   | 0.36         | 2.36                |   |
|                   | <b>Subtotal (A)</b>   |  |          |                   |                    | <b>187.50</b>          | <b>33.75</b> | <b>221.25</b>       |   |
| <b>B</b>          | <b>Utilities</b>  |  |          |                   |                    |                        |              |                     |   |
| 1                 | Transformer   | 220 KVA                                  | 1        | Critical          | 3.52               | 3.52                   | 0.63         | 4.15                | As per cost norms   |
| 2                 | Electrification including power & controls cabling, PCC & MCC panel, Earthing, Internal Lighting, etc | Misc.                                    | 1 Set    | Critical          | 11.00              | 11.00                  | 1.98         | 12.98               |   |
| 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                 | DG Set  | 160 KVA                                  | 1        | Critical          | 11.36              | 11.36                  | 2.04         | 13.40               | As per cost norms   |
| 5                 | Automatic Power Factor Controller   | 220 KVA                                  | 1        | Critical          | 1.98               | 1.98                   | 0.36         | 2.34                |   |
| 6                 | Servo Voltage Stabilizer  | 220 KVA                                  | 1        | Critical          | 2.04               | 2.04                   | 0.37         | 2.40                |   |
| 7                 | Air Compressor with Air Drier   | 54 CFM                                   | 1 Set    | Critical          | 2.50               | 2.50                   | 0.45         | 2.95                |   |
| 8                 | RO Plant  | 2 KLPH                                   | 1        | Critical          | 3.50               | 3.50                   | 0.63         | 4.13                |   |
| 9                 | ETP   | 20 KLD                                   | 1 Set    | Critical          | 4.00               | 4.00                   | 0.72         | 4.72                |   |
| 10                | STP   | 10 KLD                                   | 1 Set    | Critical          | 13.33              | 13.33                  | 2.40         | 15.73               |   |
| 11                | Fire Safety Equipments  | Misc.                                    | 1 Set    | Critical          | 6.70               | 6.70                   | 1.21         | 7.91                | 1% of technical civil area                                      |
| 12                | Plastic Crates  | 20 KG                                    | 600      | Critical          | 0.00               | 1.65                   | 0.30         | 1.95                | As per cost norms   |
| 13                | Plastic Pallets   | 1 MT                                     | 150      | Critical          | 0.03               | 3.75                   | 0.68         | 4.43                |   |
| 14                | Hand pallet truck   | 2 MT                                     | 2        | Critical          | 0.30               | 0.60                   | 0.11         | 0.71                | Eligible cost 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  |
| 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                | Steam Boiler with Accessories       | 500 Kg   | 1        | Critical          | 15.00              | 15.00                  | 2.70         | 17.70               |   |
| 21                | Cooling Tower with Accessories      | 150 TR   | 1        | Critical          | 1.50               | 1.50                   | 0.27         | 1.77                |   |
| 22                | Water Chiller                       | 50 TR    | 1        | Critical          | 9.33               | 9.33                   | 1.68         | 11.01               |   |
|                   | <b>Subtotal (B)</b>                 |          |          |                   |                    | <b>150.76</b>          | <b>27.14</b> | <b>177.90</b>       |   |
|                   |                                     |          |          |                   |                    |                        |              |                     |   |
| <b>C</b>          | <b>Reefer Vans</b>                  | 6MT      | 1        | Optional          | 17.33              | 17.33                  | 3.12         | 20.45               | As per cost norms<br>Negative temperature van |
|                   | <b>Subtotal (C)</b>                 |          |          |                   |                    | <b>17.33</b>           | <b>3.12</b>  | <b>20.45</b>        |   |
|                   |                                     |          |          |                   |                    |                        |              |                     |   |
|                   | <b>Grand Total (A+B+C)</b>          |          |          |                   |                    | <b>355.60</b>          | <b>64.01</b> | <b>419.60</b>       |   |

## **8. MODEL II – PACKHOUSE OPERATIONS & FREEZE- DRYING LINE**



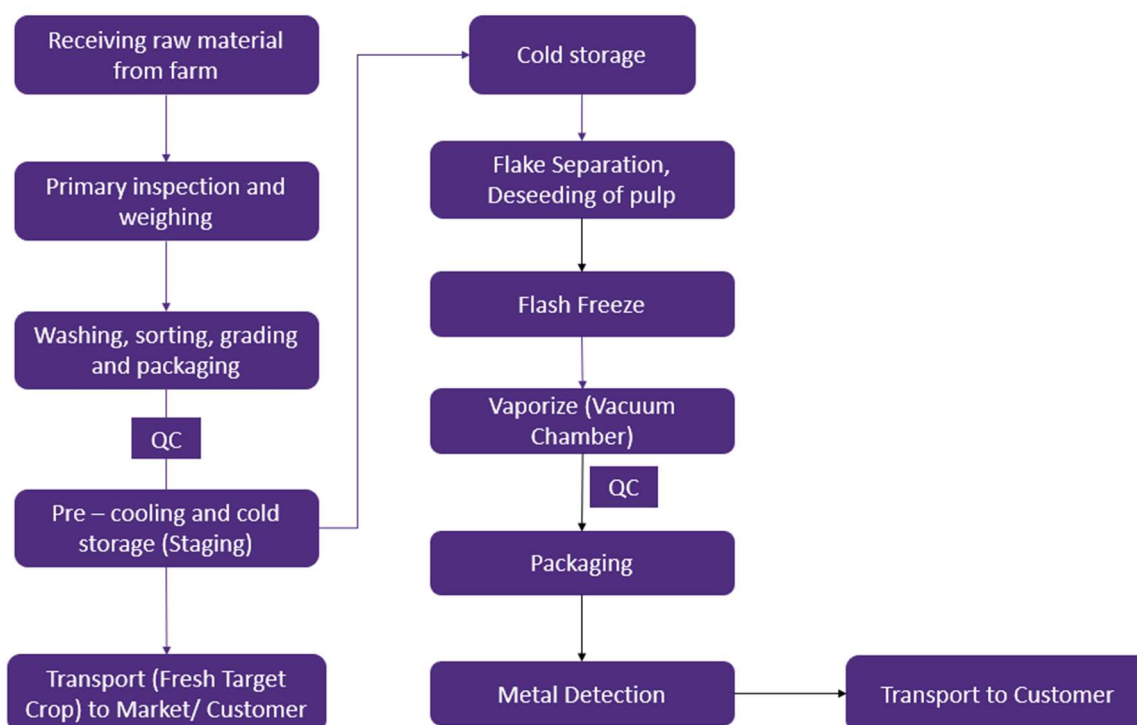
## MODEL – II: PACKHOUSE OPERATIONS & FREEZE-DRYING LINE

|                                    |  |
|------------------------------------|--|
| <b>Target MAGNET Crop</b>          | Primary Crop: <b>Custard Apple</b><br>Secondary Crops: 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) for Custard Apple 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, as well as utilities that are required to support the main operations are incorporated. |
| <b>Preferred Applicant Profile</b> | <b>High Capital Investment &amp; Tough to Compete Businesses - which may be pursued by highly seasoned and experienced applicants</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 Chamber                        | 6 MT  | 1            |
| 3      | Staging Cold Room                          | 30 MT   | 1            |
| 4      | Cold Storage                               | 100 MT  | 1            |
| 5      | Freeze Drying Line                         | 0.5 TPH   | 1            |
| 6      | Utilities                                  | Transformer, DG Set, APFC, Stabilizer, Crates and Pallets | 1 Set        |

### ii) Process flow:



## ii) Project Cost:

| S. No. | Components                           | Proposed Cost | Eligible Cost* | Grant on Eligible Cost (%) | Matching Grant (Rs. Lakhs) |
|--------|--------------------------------------|---------------|----------------|----------------------------|----------------------------|
| 1      | Technical Civil Works                |               | 88.80          | 60%                        | 53.28                      |
| 2      | Non-Technical Civil Works            |               | -              | 0%                         | -                          |
| 3a     | Main P&M                             |               | 394.71         | 60%                        | 236.83                     |
| 3b     | Utilities                            |               | 164.97         | 60%                        | 98.98                      |
| 4      | Reefer Van                           |               | -              | 60%                        | -                          |
| 5      | Misc. Fixed Assets                   |               | -              | 0%                         | -                          |
| 6      | Contingencies                        |               | -              | 0%                         | -                          |
| 7      | Working Capital Margin               |               | -              | 0%                         | -                          |
|        | <b>Subtotal</b>                      |               | <b>648.47</b>  |                            |                            |
| 8      | Preliminary & Pre-operative Expenses |               | 20.00          | 60%                        | 12.00                      |
|        | <b>Total</b>                         |               | <b>668.47</b>  |                            | <b>401.08</b>              |

## iii) Means of Finance

| Means of Finance | Proposed Amount (Rs. Lakhs) | Eligible Cost (Rs. Lakhs) | % of Total Cost |
|------------------|-----------------------------|---------------------------|-----------------|
| Promoter Equity  |                             | 133.69                    | 20%             |
| Bank Term Loan   |                             | 133.69                    | 20%             |
| Matching Grant   |                             | 401.08                    | 60%             |
| <b>Total</b>     |                             | <b>668.47</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                                     | Washing-Sorting-Grading-Packing Line | 200              | 0.10               | 20.00                         | 3.60         | 23.60               | As per cost norms  |
| 2                                     | Pre-cooling Chamber                  | 30               | -                  | -                             | -            | -                   | Consolidated cost norms applied in P&M                           |
| 3                                     | Staging Cold Room                    | 50               | -                  | -                             | -            | -                   |  |
| 4                                     | Cold Storage                         | 95               |                    |                               |              |                     |  |
| 5                                     | Processing Area (Freeze Drying)      | 350              | 0.10               | 35.00                         | 6.30         | 41.30               | As per cost norms  |
| 6                                     | Machine room                         | 20               | 0.10               | 2.00                          | 0.36         | 2.36                |  |
| 7                                     | Testing Lab                          | 15               | 0.10               | 1.50                          | 0.27         | 1.77                |  |
| 8                                     | Laboratory Area                      | 15               | 0.10               | 1.50                          | 0.27         | 1.77                |  |
| 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               | 0.10               | 3.50                          | 0.63         | 4.13                | As per cost norms  |
|                                       | <b>Sub Total (A)</b>                 | <b>765</b>       |                    | <b>75.25</b>                  | <b>13.55</b> | <b>88.80</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>35.00</b>     |                    | <b>75.25</b>                  | <b>13.55</b> | <b>88.80</b>        |  |

| Plant & Machinery |  |                                   |              |                   |                    |                        |       |                     |                   |
|-------------------|--|-----------------------------------|--------------|-------------------|--------------------|------------------------|-------|---------------------|-------------------|
|                   |  |                                   |              |                   |                    |                        |       |                     | Rupees in Lakh    |
| Sr. No            | Plant and Machinery  | Capacity                          |              | 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   | 100 MT                            | 1            | Critical          | 10.00              | 10.00                  | 1.80  | 11.80               | As per cost norms |
| <b>4</b>          | <b>Washing-Sorting-Grading-Packing Line</b>  | <b>2 TPH Line</b>                 | <b>1 set</b> |                   |                    |                        |       |                     |                   |
| 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                 | Conveyor Belt  |                                   | 1            | Critical          |                    |                        |       |                     |                   |
| d                 | Sorting Tables   |                                   | 2            | Critical          |                    |                        |       |                     |                   |
| e                 | Weighing Machines  | 1 unit x 50 KG, 1 Unit X 100 Kg   | 2            | Critical          |                    |                        |       |                     |                   |
| f                 | SS Packing Tables  |                                   | 2            | Critical          |                    |                        |       |                     |                   |
| g                 | Strapping Machine  |                                   | 1            | Optional          |                    |                        |       |                     |                   |
| <b>5</b>          | <b>Processing line (Freeze Drying)</b>   | <b>0.5 TPH Line (input basis)</b> | <b>1 Set</b> |                   |                    |                        |       |                     |                   |
| a                 | Preparatory line (Washer, inspection conveyor, sorting and grading, preparation table) | For 0.5 TPH Line                  | 1 Set        | Critical          | 252.50             | 252.50                 | 45.45 | 297.95              | As per cost norms |
| b                 | Flake separator and deseeding machine  |                                   | 1 Set        | Critical          |                    |                        |       |                     |                   |
| c                 | Refrigeration for freeze dryer   |                                   | 1 Set        | Critical          |                    |                        |       |                     |                   |
| d                 | Freeze dryer   |                                   | 1 Set        | Critical          |                    |                        |       |                     |                   |
| e                 | Packaging machine  |                                   | 1            | Critical          |                    |                        |       |                     |                   |

| Plant & Machinery |   |  |       |                   |                    |                        |              |                     |   |
|-------------------|---|--|-------|-------------------|--------------------|------------------------|--------------|---------------------|---|
| Rupees in Lakh    |   |  |       |                   |                    |                        |              |                     |   |
| Sr. No            | Plant and Machinery   | Capacity                                 |       | Critical/Optional | Cost Norm per unit | Total Cost (All Units) | Taxes        | Total Eligible Cost | Remark  |
| f                 | Dehumidifier  |  | 1     | Critical          |                    |                        |              |                     |   |
| 6                 | Metal Detector (Conveyor Belt)  |  | 1     | Critical          | 5.00               | 5.00                   | 0.90         | 5.90                | Eligible cost as per market rate analysis                       |
| 7                 | Lab equipment's   | Misc. (As required for plant operations) | 1 Set | Critical          | 2.00               | 2.00                   | 0.36         | 2.36                |   |
|                   |   |  |       |                   |                    |                        |              |                     |   |
|                   | <b>Subtotal (A)</b>   |  |       |                   |                    | <b>334.50</b>          | <b>60.21</b> | <b>394.71</b>       |   |
|                   |   |  |       |                   |                    |                        |              |                     |   |
| <b>B</b>          | <b>Utilities</b>  |  |       |                   |                    |                        |              |                     |   |
| 1                 | Transformer   | 250 KVA                                  | 1     | Critical          | 4.00               | 4.00                   | 0.72         | 4.72                | As per cost norms   |
| 2                 | Electrification including power & controls cabling, PCC & MCC panel, Earthing, Internal Lighting, etc | Misc.                                    | 1 Set | Critical          | 12.50              | 12.50                  | 2.25         | 14.75               |   |
| 3                 | Solar Power system (On grid/Off grid)   | 180 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  | 180 KVA                                  | 1     | Critical          | 10.44              | 10.44                  | 1.88         | 12.32               | As per cost norms   |
| 5                 | PLC System  |  | 1     | Optional          | 5.00               | 5.00                   | 0.90         | 5.90                |   |
| 6                 | Automatic Power Factor Controller   | 250 KVA                                  | 1     | Critical          | 2.25               | 2.25                   | 0.41         | 2.66                |   |
| 7                 | Servo Voltage Stabilizer  | 250 KVA                                  | 1     | Critical          | 2.31               | 2.31                   | 0.42         | 2.73                |   |
| 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 | Optional          | 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          | 7.65               | 7.65                   | 1.38         | 9.03                | 1% of technical civil area                                      |
| 13                | Dock Doors  |  | 1     | Optional          | 7.00               | 7.00                   | 1.26         | 8.26                | As per cost norms   |

| Plant & Machinery |                                     |          |     |                   |                    |                        |              |                     |   |
|-------------------|-------------------------------------|----------|-----|-------------------|--------------------|------------------------|--------------|---------------------|---|
| Rupees in Lakh    |                                     |          |     |                   |                    |                        |              |                     |   |
| Sr. No            | Plant and Machinery                 | Capacity |     | Critical/Optional | Cost Norm per unit | Total Cost (All Units) | Taxes        | Total Eligible Cost | Remark                                    |
| 14                | Dock Levelers                       |          | 1   | Optional          |                    |                        |              |                     |   |
| 15                | Dock Shelter                        |          | 1   | Optional          |                    |                        |              |                     |   |
| 16                | Weighbridge (Excluding Civil Works) | 60 MT    | 1   | Optional          | 7.00               | 7.00                   | 1.26         | 8.26                |   |
| 17                | Plastic Crates                      | 20 KG    | 400 | Critical          | 0.00               | 1.10                   | 0.20         | 1.30                |   |
| 18                | Plastic Pallets                     | 1 MT     | 130 | Critical          | 0.03               | 3.25                   | 0.59         | 3.84                |   |
| 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               |   |
|                   | <b>Subtotal (B)</b>                 |          |     |                   |                    | <b>139.80</b>          | <b>25.16</b> | <b>164.97</b>       |   |
|                   | <b>Grand Total (A+B)</b>            |          |     |                   |                    | <b>474.30</b>          | <b>85.37</b> | <b>559.68</b>       |   |

## Annexure I: District wise Area and Production of Custard Apple for Maharashtra: 2021- 22

| S.No. | District   | Custard Apple  |                      |                      |
|-------|------------|----------------|----------------------|----------------------|
|       |            | Area ('000 Ha) | Production ('000 MT) | Productivity (MT/Ha) |
| 1     | Ahmednagar | 2.730          | 20.456               | 7.49                 |
| 2     | Akola      | 0.595          | 4.165                | 7.00                 |
| 3     | Amravati   | 0.152          | 0.365                | 2.40                 |
| 4     | Aurangabad | 0.465          | 1.949                | 4.19                 |
| 5     | Beed       | 1.637          | 14.737               | 9.00                 |
| 6     | Bhandara   | 0.016          | 0.054                | 3.37                 |
| 7     | Buldhana   | 0.818          | 2.335                | 2.85                 |
| 8     | Chandrapur | 0.019          | 0.133                | 7.00                 |
| 9     | Dhule      | 0.090          | 0.530                | 5.89                 |
| 10    | Gadchiroli | 0.050          | 0.250                | 5.00                 |
| 11    | Gondia     | 0.011          | 0.048                | 4.36                 |
| 12    | Hingoli    | 0.015          | 0.160                | 10.67                |
| 13    | Jalgaon    | 0.431          | 3.448                | 8.00                 |
| 14    | Jalna      | 0.142          | 0.578                | 4.07                 |
| 15    | Kolhapur   | 0.013          | 0.024                | 1.88                 |
| 16    | Latur      | 0.160          | 1.425                | 8.91                 |
| 17    | Nagpur     | -              | -                    | -                    |
| 18    | Nanded     | 0.620          | 1.527                | 2.46                 |
| 19    | Nandurbar  | 0.152          | 1.120                | 7.37                 |
| 20    | Nashik     | 0.256          | 1.965                | 7.68                 |
| 21    | Osmanabad  | 0.715          | 5.230                | 7.31                 |
| 22    | Palghar    | 0.069          | 0.181                | 2.63                 |
| 23    | Parbhani   | 0.425          | 2.806                | 6.60                 |
| 24    | Pune       | 4.396          | 43.960               | 10.00                |
| 25    | Raigad     | -              | -                    | -                    |
| 26    | Ratnagiri  | -              | -                    | -                    |
| 27    | Sangli     | -              | -                    | -                    |
| 28    | Satara     | -              | -                    | -                    |
| 29    | Sindhudurg | -              | -                    | -                    |
| 30    | Solapur    | 1.462          | 10.234               | 7.00                 |
| 31    | Thane      | 0.004          | 0.029                | 6.88                 |
| 32    | Wardha     | 0.031          | 0.186                | 6.00                 |
| 33    | Washim     | 0.206          | 1.442                | 7.00                 |
| 34    | Yavatmal   | 0.055          | 0.303                | 5.51                 |

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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