

Project Based Components

Ripening Chamber

Construction of 28 MT Capacity of Ripening Chamber (4 Chambered)

Directorate of Horticulture
Department of Agriculture
Govt. of Bihar

Disclaimer: This is just a model DPR prepared based on assumptions for reference purpose only. The project cost and financial projections may vary project to project as per technology selection, nature of civil work, price of raw materials etc.

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विशेष जानकारी हेतु किसान कॉल सेंटर में संपर्क करें: 18001801551

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1. Introduction

Fruits are a good source of vitamins and minerals and play an important role in preventing vitamin C and vitamin A deficiencies. People who eat fruits as part of an overall healthy diet generally have a reduced risk of chronic diseases. However, health benefits of fruits depend on how they are ripened. The best course will be to allow them to ripen on the plant itself. After proper maturity, fruits ripen in nature by using many physical and biochemical events. This process is irreversible and leads to senescence. It is not always possible to wait for the fruit to ripen naturally. More often than not, they need to be transported over long distances and if they had been harvested in a ripe stage, they get spoilt before reaching their destination. For such situations, farmers harvest them much before they get ripe. The traders then ripen them artificially at the destination using certain chemicals.

It is being observed that most climacteric fruits in Bihar are ripened with industrial grade calcium carbide. Industrial-grade calcium carbide usually contains traces of arsenic and phosphorus, and, thus, use of this chemical for this purpose is illegal in most countries. The Food Safety and Standards Authority of India (FSSAI) has banned calcium carbide under the Prevention of Food Adulteration (PFA) Act, 1954.

2. Problem Statement and Business Opportunity

When we buy fruit and vegetables at the supermarket, we expect them to be unblemished and ready to eat. To ensure that the fruits reach their ideal degree of ripeness exactly when they are offered for sale, many fruit and vegetable varieties are ripened in special ripening chambers after picking. To allow this to happen, the climatic conditions in the ripening chambers need to be precisely monitored and controlled.

To ensure that the fruit does not reach its ideal degree of ripeness until it reaches the supermarket shelf, it is essential to control the ripening process. This is done in ripening chambers, where the fruit is stored in the transport box on pallets or shelves under controlled conditions. Ripening of the fruit can be slowed down or accelerated by adjusting the temperature and humidity as well as by providing a targeted supply of ethylene gas and regulating the CO₂ concentration.

Bananas, for example, typically reach maturity for eating within 4 to 8 days in ripening chambers. For this, they require temperatures between 14 °C and 23 °C (57,2 °F and 73,4 °F) and a high humidity of >90 % RH. To ensure that all fruits ripen evenly and there

is no harmful accumulation of CO₂ in the ripening chamber, a uniform air circulation and fresh air supply must also be ensured.

In light of the above problems faced by consumers, farmers, traders, XYZ (Name of the promoter/Entrepreneur) finds the suitable economic opportunity in establishing modern state of art ripening chamber unit.

2.1 Business Model of Proposed Ripening Chamber

(Name of the Promoter) is establishing modern state of art Banana ripening chamber Unripen Bananas will be procured, stored and ripened using ethylene, under controlled temperature and produce will be sold in the market¹.

2.2 Benefits of Establishing Ripening Chambers

- Ethylene being a natural hormone does not pose any health hazard. It has been known for a long time that treatment of unripe fruits with ethylene would merely stimulate natural ripening until the fruit itself starts producing ethylene in large quantities.
- It is a de-greening agent, which can turn the peel from green to perfect yellow (in the case of bananas) and maintain the sweetness and aroma of the fruit, thus value addition in the fruit is possible as it looks more appealing.
- Increased shelf life of fruits
- Acceptance among consumers for such fruits are high.
- Acceptance in international market is high

2.3 Intended Impact of the Project

Generating Local Employment

Modern state of art Ripening Chamber unit will generate local employment. It is estimated that it would generate direct employment of about 4 workers and indirect employment of another 6-7 workers. Most of the manpower requirement will be met from the local area.

Local Economic Cluster Development

Local Economic cluster would develop in the vicinity of the ripening unit there by increased economic of scale. Such would attract other investors as well for setting up similar or related units i.e., Cold Storage, environmentally controlled retail outlets etc.

¹ Promoter/Entrepreneur can adopt various business strategy for operation of ripening chambers. It can be operated on rental model as well. Trader and farmers can store fruits and get it ripened. Promoter can charge amount for the service they would provide to the farmers and traders etc.

3. Location of the Proposed Ripening Chamber Unit

Ripening unit will be established inblock of district of Bihar. Location is well connected with national and state highway. Nearby railway station is less than 10 km of the project site.

4. Financial Assistance from Bihar Horticulture Development Society

Since ripening chamber of 28 MT capacity is being established, so as per MIDH guidelines project cost would be 28 Lakh, XYZ promoter/Entrepreneur/FPC/FPOs would get 9.80 lakh subsidies (35%) from Bihar Horticulture Development Society based on the recommendation of Joint Inspection team. Guidelines² for availing financial assistance are given in **Annexure -i**.

5. Technical Specification of Construction of Ripening Chamber

During construction all mandatory rules & regulations (BIS, ISO, IS etc.) relevant to the items will be complied with. Detailed technical specifications³ are mentioned in **Annexure-ii**

² This subsidy is Credit Linked subsidy, so bank loan is compulsory, Loan amount should be equal, or more than subsidy amount any individual/ firm and FPOs/FPCs want to avail.

³ For getting deeper understanding about Ripening Chamber, please refer “**Guidelines & minimum System Standards for Implementation in Cold-chain Components**” <https://nhb.gov.in/pdf/NCCDGuidelines2014-15.pdf>
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6. Financial Analysis

6.1 Civil Work-Tentative Cost

S. No.	Details of Civil Construction	Tentative Cost (INR)
1	<ul style="list-style-type: none"> Dry Shed Dimension of Each Ripening Room (4 Ripening Room): 11.5 (L) x20.55(W)x11.5 (H) Dispatch bay: 55'(L)x15'(L)x11.5 	10,80,000
2	Chiller Room PUF thickness :80 mm Total Dimension of all 4 chamber (50'x21'x11') and 4 insulated doors Both side GI PP, sheet thickness (GST 18% Included)	10,00,000
Total (A)		20,80,000

6.2 Plant & Machinery Cost

S. No.	Tentative List of Machines	No.	Tentative Cost of Machines (In Rs.)
1	Refrigeration system Evaporator Unit & Condensing unit with control panel (GST 18% Included)	4 (1 Each Chamber)	3,45,000
2	Plastic Crates	800	2,00,000
3	Ripening system, CO ₂ Exhaust system, fire safety measures and other associated machineries Ethylene Generator and Dosing device and Pre-Operative Expenses	-	3,25,000
Total (B)			8,70,000
Grand Total (A+B)			29.50 Lakh

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7. Project at a Glance-Financial

S. No	Particulars	Particulars
1	Name of the Unit	:
2	Constitution	:
3	Date of Incorporation	:
4	PAN	:
5	CIN or registration number	:
6	GST	:
7	Registered Office	:
8	Factory Address	:
9	Type of Unit	:
10	Nature of Project	Banana Ripening Chamber
11	Production capacity per year	2555 MT per year
12	Cost of Project	29.50 Lacs
13	Promoter's Contribution	4.50 Lacs
14	Proposed Term Loan	25.00 Lacs
15	Cash Credit Limit	5 Lacs
16	Proposed Employment	5 no. of manpower
17	NP Ratio	1st year - 3.59%
		2nd Year - 3.92%
		3rd Year - 4.27%
		4th Year - 4.59%
		5th Year - 4.87%
18	Gross DSCR	3.30
19	Net DSCR	5.63
20	Break Even Point	88.02% (1st Year at 60% capacity utilization)

Detailed financial status of the project is appended as **annexure v**. It is compulsory for promoter/ entrepreneurs to submit detailed financial status of the project along with DPR for getting to understand about financial viability of the project.

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8. Tentative layout of the Proposed Ripening Unit

Tentative layout⁴ plan is given below



Note: Assembling area and Area required for movement of vehicle not shown

For Above Ripening chamber approx. 3850 Square feet area required (Built up area: 2200 Square feet and Open Space: 650 Square feet as assembling area and 1000 Square feet area for movement of Vehicle)
Representative photographs are appended as **Annexure-iii**

⁴ Layout must be duly prepared and signed by chartered engineer

Annexure-i: Guidance for Availing Financial Assistance

General Guidelines for Availing Financial Assistance from Bihar Horticulture Development Society.

An entrepreneur/ FPO/FPC can avail assistance for establishment of ripening chamber @ 35% of admissible project cost as credit linked and back ended subsidy. The admissible cost for ripening chamber is Rs. 1.00 lakh per MT (Max 300 MT). Ripening chambers can be designed for multi-tiered pallet-based storing or structures for basic storage.

Subsidy amount would be decided only after physical verification by Joint Inspection Team (JIT). First installments (50%) will be released after construction of civil structure and purchasing of equipment and machineries. Once the commercial operation start, second installments (50%) will be released duly verified by JIT.

Model DPR- Ripening Chamber

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Annexure-ii General Technical Parameters for Construction of Ripening Chamber

General Technical Parameters for Construction of Ripening Chamber

Following general technical parameters to be followed for establishing small to large size ripening chambers

Sr. No.	Items / Particular	Technical Specifications
1	Civil Structure - building design	<ul style="list-style-type: none"> Civil Structure <ol style="list-style-type: none"> Structural Safety - Structural design as per BIS Code Adherence to local Building Regulations Concrete floor with sufficient load bearing capacity
2	Ripening Room	<ul style="list-style-type: none"> 11 cubic metres of storage space is considered equivalent to 1 Metric Ton ripening capacity. Number of chambers may vary from four to eight depending on ripening cycle in terms of number of days. Chambers will be generally identical in dimension. Ripening Room Chambers should be designed and constructed to hermetically seal with appropriate closures / doors. The airflow within the ripening rooms is to be designed to penetrate all boxes of fruit with an even airflow throughout the room resulting in all fruit being ripened uniformly Ripening doors should be designed for minimal gas leakage.
3	Temperature & Humidity levels Heat Load Calculation and Refrigerant	<ul style="list-style-type: none"> Ripening is preferred at a lower temperature but above level of chilling injury. System has to be designed to achieve prescribed ripening conditions in terms of temperature and relative humidity for target fruits. Generally, RH level of 90-95% is recommended to prevent moisture loss Eco-friendly refrigerant is recommended
4	Ethylene Generator and Dosing device	<ul style="list-style-type: none"> Ethylene may be introduced in ripening chambers in one of the three ways by using independent ethylene generator with regulator; ethylene cartridges and ethylene-nitrogen mixture (5% ethylene + 95% nitrogen) cylinder. Whichever method is used, the duty holder should ensure that there are adequate means of dispersing the ethylene gases throughout the ripening room on its release.
5	Specification for Air circulation	<ul style="list-style-type: none"> When fruits are ripening, they release carbon dioxide which will build up in a ripening room. The CO₂ production begins as the fruit ripens enters the "climacteric" phase, or the period when bananas release ethylene

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	and Ventilation System	<p>and have an elevated rate of respiration (along with a great deal of other physiological changes). Respiration involves the uptake of oxygen, the release of carbon dioxide, and the breakdown of starches. Carbon dioxide concentrations above 1% (10,000 ppm) will retard ripening, delay the effects of ethylene and cause quality problems.</p> <ul style="list-style-type: none"> • Suitable venting system consisting of fans/dampers/open – shut valves should be installed to maintain CO₂ concentration below 5000 ppm
6	Sensor and Control devices	<ul style="list-style-type: none"> • Suitable sensors are controlled devices should be used for maintaining following parameters. For this, temperature & humidity loggers and Ripening Chamber Air Analysis Kit (for Ethylene and CO₂ levels) may be used. i. Temperature; ii. Relative humidity iii. Ethylene concentration; iv. CO₂ Concentration
7	Pallet Racking and Material Handling	<ul style="list-style-type: none"> • Ripening unit with single tier stacking should have a manually operated pallet lifting and carrying device. • For multi-tier stacking motorized forklift should be provided.
8	Some useful Appliances and Instruments	<ul style="list-style-type: none"> • Weighing Scales and Fruit Inspection Instruments such as a. Weighing Scale b. Firmness Tester c. Refractometer d. Sizers and Callipers e. Produce Knife
9	Safety Certification	<ul style="list-style-type: none"> • Various fire detection and prevention systems and devices are commercially available and use of these is good practice. These include detectors for heat and smoke; fixed water-sprinkling system, inert gas snuffing systems • All devices used shall have been tested at low temperatures and shown to be satisfactory. • Certification for safe storage of ethylene and for system for prevention of ignition and explosion from competent authority, as per statutory requirement, if any, must be taken. Similarly, safety for workers against suffocation must be ensured. Certification from following Certification Authority is necessary- a. Factory Inspector b. Fire Fighting Inspector c. Electrical Safety Inspector

- Above Parameters are indicative, may vary depends on capacity and business operation.
- All Mandatory rules & regulations (BIS, ISO, IS etc.) relevant to the item must be complied with.

Annexure-iii: -Representative Photographs



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Annexure-iv: List of Machineries/PUF panel Supplier

#	Name of the Company
1	ICE Make
2	Frick India Ltd
3	Trufrost Butler
4	Carrier Transicold
5	Blue Star
6	Panasonic Life Solution India Pvt. Ltd.

Note: This is just an indicative list; investors may explore other machineries suppliers

Model DPR- Ripening Chamber

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Annexure-v: Detailed Financial Projection of the Project

Model DPR- Ripening Chamber

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BANANA RIPENING CHAMBER

Project at a glance

S.No	Particulars		Particulars
1	Name of the Unit	:	
2	Constitution	:	
3	Date of Incorporation	:	
4	PAN	:	
5	CIN or registration number	:	
6	GST	:	
7	Registered Office	:	
8	Factory Address	:	
9	Type of Unit	:	
10	Nature of Project	:	Banana Ripening Chamber
11	Production capacity per year	:	2555 MT per year
12	Cost of Project	:	29.50 Lacs
13	Promoter's Contribution	:	4.50 Lacs
14	Proposed Term Loan	:	25.00 Lacs
15	Cash Credit Limit	:	5 Lacs
16	Proposed Employment	:	5 no. of manpower
17	NP Ratio	:	1st year - 3.59%
			2nd Year - 3.92%
			3rd Year - 4.27%
			4th Year - 4.59%
			5th Year - 4.87%
18	Gross DSCR	:	3.30
19	Net DSCR	:	5.63
20	Break Even Point	:	88.02% (1st Year at 60% capacity utilization)

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BANANA RIPENING CHAMBER

COST OF PROJECT

In Lacs

S.No.	Particulars	Supplier	Amount
1	Civil Construction	As per Industry Standards	₹ 10,80,000.00
2	Plant and Machinery		₹ 15,45,000.00
3	Other Assets		₹ 2,50,000.00
4	Pre-operative Expenses		₹ 75,000.00
Total Project Cost			₹ 29,50,000.00

MEANS OF FINANCE

S.No.	Particulars	Percentage	Amount
1	Owners Contribution	15.25%	₹ 4,50,000.00
2	Term Loan	84.75%	₹ 25,00,000.00
		Total Funds	₹ 29,50,000.00

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Loan Amortization Schedule

Loan Terms			Results & Summary	
Loan Amount	25,00,000.00	Annual Interest Rate	2.874%	
Annual Interest	12.00%	Number of Scheduled Payments	28	
Loan Period in Years	7	Total Scheduled Payments	36,73,169.45	
Payment Frequency	Quarterly	Total Interest	11,73,169.45	
Compound Frequency	Annual	Actual Number of Payments	28	
Payment Type	End of Period	Total of Payments	36,73,169.45	
First Payment Date	6/30/2023	Total Interest	11,73,169.45	
		Estimated Saved Interest	0.00	
<input checked="" type="radio"/> Amortization Schedule <input type="radio"/> Payment Schedule <input type="checkbox"/> Rounding On			Quarterly Payment	1,31,184.62
			Pay Off Date	3/30/2030

Amortization Schedule

No.	Payment Date	Scheduled Payment	Additional Payment	Total Payment	Interest	Principal	Balance
							25,00,000.00
1	6/30/2023	1,31,184.62	0.00	59,341.26	71,843.36	59,341.26	24,40,658.74
2	9/30/2023	1,31,184.62	0.00	61,046.57	70,138.05	61,046.57	23,79,612.17
3	12/30/2023	1,31,184.62	0.00	62,800.89	68,383.74	62,800.89	23,16,811.28
4	3/30/2024	1,31,184.62	0.00	64,605.62	66,579.00	64,605.62	22,52,205.66
5	6/30/2024	1,31,184.62	0.00	66,462.21	64,722.41	66,462.21	21,85,743.45
6	9/30/2024	1,31,184.62	0.00	68,372.16	62,812.46	68,372.16	21,17,371.29
7	12/30/2024	1,31,184.62	0.00	70,336.99	60,847.63	70,336.99	20,47,034.29
8	3/30/2025	1,31,184.62	0.00	72,358.29	58,826.33	72,358.29	19,74,676.00
9	6/30/2025	1,31,184.62	0.00	74,437.68	56,746.94	74,437.68	19,00,238.32
10	9/30/2025	1,31,184.62	0.00	76,576.82	54,607.80	76,576.82	18,23,661.50
11	12/30/2025	1,31,184.62	0.00	78,777.43	52,407.19	78,777.43	17,44,884.07
12	3/30/2026	1,31,184.62	0.00	81,041.29	50,143.33	81,041.29	16,63,842.78
13	6/30/2026	1,31,184.62	0.00	83,370.20	47,814.42	83,370.20	15,80,472.58
14	9/30/2026	1,31,184.62	0.00	85,766.04	45,418.59	85,766.04	14,94,706.54
15	12/30/2026	1,31,184.62	0.00	88,230.73	42,953.90	88,230.73	14,06,475.82
16	3/30/2027	1,31,184.62	0.00	90,766.24	40,418.38	90,766.24	13,15,709.57
17	6/30/2027	1,31,184.62	0.00	93,374.62	37,810.00	93,374.62	12,22,334.95
18	9/30/2027	1,31,184.62	0.00	96,057.96	35,126.66	96,057.96	11,26,276.99
19	12/30/2027	1,31,184.62	0.00	98,818.41	32,366.21	98,818.41	10,27,458.57
20	3/30/2028	1,31,184.62	0.00	1,01,658.19	29,526.43	1,01,658.19	9,25,800.38
21	6/30/2028	1,31,184.62	0.00	1,04,579.58	26,605.04	1,04,579.58	8,21,220.80
22	9/30/2028	1,31,184.62	0.00	1,07,584.92	23,599.71	1,07,584.92	7,13,635.89
23	12/30/2028	1,31,184.62	0.00	1,10,676.62	20,508.00	1,10,676.62	6,02,959.26
24	3/30/2029	1,31,184.62	0.00	1,13,857.17	17,327.45	1,13,857.17	4,89,102.09
25	6/30/2029	1,31,184.62	0.00	1,17,129.13	14,055.50	1,17,129.13	3,71,972.96
26	9/30/2029	1,31,184.62	0.00	1,20,495.11	10,689.52	1,20,495.11	2,51,477.85
27	12/30/2029	1,31,184.62	0.00	1,23,957.82	7,226.81	1,23,957.82	1,27,520.04
28	3/30/2030	1,31,184.62	0.00	1,27,520.04	3,664.59	1,27,520.04	0.00

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विशेष जानकारी हेतु किसान कॉल सेंटर में संपर्क करें: 18001801551

YEARLY SUMMARY OF BANK LOAN

Year	Opening Balance	Interest	Principal Repayment	Balance
1st Year	25,00,000.00	2,76,944.15	2,47,794.34	22,52,205.66
2nd Year	22,52,205.66	2,47,208.83	2,77,529.66	19,74,676.00
3rd Year	19,74,676.00	2,13,905.27	3,10,833.22	16,63,842.78
4th Year	16,63,842.78	1,76,605.29	3,48,133.21	13,15,709.57
5th Year	13,15,709.57	1,34,829.30	3,89,909.19	9,25,800.38
6th Year	9,25,800.38	88,040.20	4,36,698.29	4,89,102.09
7th Year	4,89,102.09	35,636.40	4,89,102.09	0.00
	Total	11,73,169.45	25,00,000.00	

Following assumptions are taken for Term Loan:

1. Interest will be charged at 12% per annum on reducing basis.
2. Repayment will be paid as EMI in quarterly basis.
3. As the Term Loan is of Rs. 25 Lacs for 7 Years, its quarterly EMI will be Rs.1,31,185/-

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विशेष जानकारी हेतु किसान कॉल सेंटर में संपर्क करें: 18001801551

BANANA RIPENING CHAMBER
COMPUTATION OF PLANT CAPACITY

Particulars	Particulars	Unit
Item to be ripened	Banana	
Time to ripen 1 lot	96	hours
Total hours per year	8760	hours
Total number of lots	91	lots
Production capacity per year	2555000	Kgs

PRODUCTION AND SALES ESTIMATION

Particulars	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year
Production capacity utilization	60.00%	64.00%	68.00%	72.00%	76.00%	80.00%
Production quantity (in Kg)	15,33,000.00	16,35,200.00	17,37,400.00	18,39,600.00	19,41,800.00	20,44,000.00
Sales quantity (in Kg)	15,17,670.00	16,34,178.00	17,36,378.00	18,38,578.00	19,40,778.00	20,42,978.00
Sales price per Kg	27.00	28.35	29.77	31.26	32.82	34.46
Sales per annum (in Rs.)	4,09,77,090.00	4,63,28,946.30	5,16,91,973.06	5,74,73,948.28	6,36,96,333.96	7,04,01,021.88

It is assumed that one lot of banana takes around 96 hours to ripen properly.

It is assumed that sales price per Kg will increase by 5% every year

It is assumed that capacity utilization will start from 60% from year 1 and will increase by 4% every year.

It is assumed that 99% of stock will be sold (including opening stock)

CLOSING STOCK OF FINISHED GOODS

Particulars	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year
Opening Stock	-	15,330.00	16,352.00	17,374.00	18,396.00	19,418.00
Add: Production	15,33,000.00	16,35,200.00	17,37,400.00	18,39,600.00	19,41,800.00	20,44,000.00
Less: Sales	15,17,670.00	16,34,178.00	17,36,378.00	18,38,578.00	19,40,778.00	20,42,978.00
Closing Stock	15,330.00	16,352.00	17,374.00	18,396.00	19,418.00	20,440.00

In Kgs

RAW MATERIAL

Particulars	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year
Opening stock of Raw Materials	-	-	-	-	-	-
Raw Material purchased	16,86,300.00	17,98,720.00	19,11,140.00	20,23,560.00	21,35,980.00	22,48,400.00
Raw Material consumed	16,86,300.00	17,98,720.00	19,11,140.00	20,23,560.00	21,35,980.00	22,48,400.00
Closing stock of Raw Materials	-	-	-	-	-	-

In Kgs

It is assumed that 100% of Raw materials purchased is consumed.

It is further assumed that 10% of stock will go to wastage.

RAW MATERIAL COST

Particulars	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year
RM price per Kg	20.00	21.00	22.05	23.15	24.31	25.53
Cost of RM per Year	3,37,26,000.00	3,77,73,120.00	4,21,40,637.00	4,68,45,414.00	5,19,25,673.80	5,74,01,652.00

In Rs.

It is assumed that cost of Raw Materials will increase by 5% per year.

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विशेष जानकारी हेतु किसान कॉल सेंटर में संपर्क करें: 18001801551

MANPOWER COST

In Kgs

Designation	Nos.	Salary per person	Other benefits per person	Total Emoluments per person	Monthly Cost	Yearly Cost
Skilled Labour	1	15,000.00	3,000.00	18,000.00	18,000.00	2,16,000.00
Unskilled Labour	3	12,000.00	2,400.00	14,400.00	43,200.00	5,18,400.00
Security	1	15,000.00	3,000.00	18,000.00	18,000.00	2,16,000.00
					Total	9,50,400.00

It is assumed that 5 no. of manpower will be required to operate the ripening chamber which included one skilled labour, three unskilled labour and one Security guard

It is assumed that salary cost will increase by 5% every year

ELECTRICITY EXPENSES

Particulars	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year
Usage in Units	24,333.33	25,156.92	25,931.34	26,660.87	27,349.30	28,000.00
Cost per unit	12.00	12.60	13.23	13.89	14.58	15.31
Electricity Expenses per year	2,92,000.00	3,16,977.23	3,43,071.67	3,70,319.48	3,98,752.73	4,28,680.00

It is assumed that electricity cost will increase by 5% every year.

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विशेष जानकारी हेतु किसान कॉल सेंटर में संपर्क करें: 18001801551

BANANA RIPENING CHAMBER**DEPRECIATION**

Year	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year
Civil/ Structure	10,80,000.00	9,72,000.00	8,74,800.00	7,87,320.00	7,08,588.00	6,37,729.20
Depreciation @ 10%	1,08,000.00	97,200.00	87,480.00	78,732.00	70,858.80	63,772.92
Closing Civil/ Structure	9,72,000.00	8,74,800.00	7,87,320.00	7,08,588.00	6,37,729.20	5,73,956.28
Year	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year
Plant and Machinery	18,70,000.00	15,89,500.00	13,51,075.00	11,48,413.75	9,76,151.69	8,29,728.93
Depreciation @ 15%	2,80,500.00	2,38,425.00	2,02,661.25	1,72,262.06	1,46,422.75	1,24,459.34
Closing P & M	15,89,500.00	13,51,075.00	11,48,413.75	9,76,151.69	8,29,728.93	7,05,269.59

Following assumptions are taken for Depreciation:

1. Civil Structure will depreciate by 10% every year and Plant and Machinery will depreciate by 15% every year.
2. Both rates been taken as per Income Tax Act

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विशेष जानकारी हेतु किसान कॉल सेंटर में संपर्क करें: 18001801551

BANANA RIPENING CHAMBER**PROJECTED BALANCE SHEET**

Year	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year
Owners Capital	4,50,000.00	4,50,000.00	4,50,000.00	4,50,000.00	4,50,000.00	4,50,000.00
Bank Loan	22,52,205.66	19,74,676.00	16,63,842.78	13,15,709.57	9,25,800.38	4,89,102.09
Grant	-	-	-	-	-	-
Reserves and Surplus	6,46,074.11	16,41,084.95	30,05,719.63	47,76,986.69	69,78,234.22	96,48,009.04
CC Loan	5,00,000.00	5,00,000.00	5,00,000.00	5,00,000.00	5,00,000.00	5,00,000.00
Unsecured Loan	-	-	-	-	-	-
Current Liabilities	2,77,200.00	3,10,464.00	3,46,361.40	3,85,030.80	4,26,786.36	4,71,794.40
TOTAL :	41,25,479.77	48,76,224.95	59,65,923.81	74,27,727.07	92,80,820.96	1,15,58,905.53
Gross Block	29,50,000.00	25,61,500.00	22,25,875.00	19,35,733.75	16,84,739.69	14,67,458.13
Less: Depreciation	3,88,500.00	3,35,625.00	2,90,141.25	2,50,994.06	2,17,281.55	1,88,232.26
Net Block	25,61,500.00	22,25,875.00	19,35,733.75	16,84,739.69	14,67,458.13	12,79,225.87
Investment	-	-	-	-	-	-
Current Assets						
Raw Materials	-	-	-	-	-	-
Finished Goods	4,13,910.00	4,63,579.20	5,17,223.98	5,75,058.96	6,37,298.76	7,04,362.40
Consumable Stores	-	-	-	-	-	-
Sundry Debtors	5,61,330.00	6,34,643.10	7,08,109.22	7,87,314.36	8,72,552.52	9,64,397.56
Cash & Bank	5,88,739.77	15,52,127.65	28,04,856.86	43,80,614.06	63,03,511.55	86,10,919.70
Other Current Assets	-	-	-	-	-	-
	15,63,979.77	26,50,349.95	40,30,190.06	57,42,987.38	78,13,362.83	1,02,79,679.66
Preliminary Expenses	-	-	-	-	-	-
TOTAL :	41,25,479.77	48,76,224.95	59,65,923.81	74,27,727.07	92,80,820.96	1,15,58,905.53

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BANANA RIPENING CHAMBER
PROJECTED PROFIT AND LOSS ACCOUNT

Year	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year
Sales	4,09,77,090.00	4,63,28,946.30	5,16,91,973.06	5,74,73,948.28	6,36,96,333.96	7,04,01,021.88
Other Income	-	-	-	-	-	-
Total	4,09,77,090.00	4,63,28,946.30	5,16,91,973.06	5,74,73,948.28	6,36,96,333.96	7,04,01,021.88
Cost						
Raw Materials consumed	3,37,26,000.00	3,77,73,120.00	4,21,40,637.00	4,68,45,414.00	5,19,25,673.80	5,74,01,652.00
Running and Maintainance Exp	16,86,300.00	18,88,656.00	21,07,031.85	23,42,270.70	25,96,283.69	28,70,082.60
Electricity Expenses	2,92,000.00	3,16,977.23	3,43,071.67	3,70,319.48	3,98,752.73	4,28,680.00
Manpower Cost	9,50,400.00	9,97,920.00	10,47,816.00	11,00,206.80	11,55,217.14	12,12,978.00
Cost of Production	3,66,54,700.00	4,09,76,673.23	4,56,38,556.52	5,06,58,210.98	5,60,75,927.36	6,19,13,392.60
Add: Opening Stock of Finished Goods	-	4,13,910.00	4,63,579.20	5,17,223.98	5,75,058.96	6,37,298.76
Less: Closing Stock of Finished Goods	4,13,910.00	4,63,579.20	5,17,223.98	5,75,058.96	6,37,298.76	7,04,362.40
Cost of Sales	3,62,40,790.00	4,09,27,004.03	4,55,84,911.74	5,06,00,376.00	5,60,13,687.56	6,18,46,328.96
Gross Profit	47,36,300.00	54,01,942.27	61,07,061.32	68,73,572.28	76,82,646.40	85,54,692.92
Selling Expenses @ 2 per Kg	30,35,340.00	32,68,356.00	34,72,756.00	36,77,156.00	38,81,556.00	40,85,956.00
Administrative Expenses	1,02,442.73	1,15,822.37	1,29,229.93	1,43,684.87	1,59,240.83	1,76,002.55
Profit before Interest and Depreciation	15,98,517.27	20,17,763.90	25,05,075.39	30,52,731.41	36,41,849.56	42,92,734.37
Depreciation	3,88,500.00	3,35,625.00	2,90,141.25	2,50,994.06	2,17,281.55	1,88,232.26
Profit before Interest & Taxation	12,10,017.27	16,82,138.90	22,14,934.14	28,01,737.35	34,24,568.01	41,04,502.11
Interest on Bank Loan (TL)	2,76,944.15	2,77,529.66	3,10,833.22	3,48,133.21	3,89,909.19	4,36,698.29
Interest on Bank Loan (CC)	60,000.00	60,000.00	60,000.00	60,000.00	60,000.00	60,000.00
Profit Before Tax	8,73,073.12	13,44,609.24	18,44,100.92	23,93,604.14	29,74,658.82	36,07,803.81
Income Tax	2,26,999.01	3,49,598.40	4,79,466.24	6,22,337.08	7,73,411.29	9,38,028.99
Profit After Tax	6,46,074.11	9,95,010.84	13,64,634.68	17,71,267.07	22,01,247.53	26,69,774.82
Drawings	-	-	-	-	-	-
Transferred to Reserves & Surplus	6,46,074.11	9,95,010.84	13,64,634.68	17,71,267.07	22,01,247.53	26,69,774.82

We can derive following output from Profit and Loss Account:

1. The business is profitable from 1st Year onwards itself
2. The NP Ratio for 1st Year is 1.58% and same is consistently increasing.
3. The owner has introduced its capital of 4.5 Lacs and same will be recovered in just 1 year
4. Income Tax has been considered at flat 26% on Profit before Tax

BANANA RIPENING CHAMBER

CASH FLOW STATEMENT	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year
Cash flows from operating activities						
Profit / (Loss) before taxation	8,73,073.12	13,44,609.24	18,44,100.92	23,93,604.14	29,74,658.82	36,07,803.81
Adjustments for:						
Depreciation	3,88,500.00	3,35,625.00	2,90,141.25	2,50,994.06	2,17,281.55	1,88,232.26
Interest expense	3,36,944.15	3,37,529.66	3,70,833.22	4,08,133.21	4,49,909.19	4,96,698.29
Working capital changes:						
(Increase) / Decrease in trade and other receivables	(5,61,330.00)	(73,313.10)	(73,466.12)	(79,205.14)	(85,238.16)	(91,845.04)
(Increase) / (Decrease) in inventories	(4,13,910.00)	(49,669.20)	(53,644.78)	(57,834.98)	(62,239.80)	(67,063.64)
Increase / (Decrease) in trade and other payables	2,77,200.00	33,264.00	35,897.40	38,669.40	41,755.56	45,008.04
Cash generated from operations	9,00,477.27	19,28,045.60	24,13,861.89	29,54,360.69	35,36,127.16	41,78,833.73
Interest paid	3,36,944.15	3,37,529.66	3,70,833.22	4,08,133.21	4,49,909.19	4,96,698.29
Income taxes paid	2,26,999.01	3,49,598.40	4,79,466.24	6,22,337.08	7,73,411.29	9,38,028.99
Drawings	-	-	-	-	-	-
Net cash from operating activities	3,36,534.11	12,40,917.54	15,63,562.43	19,23,890.41	23,12,806.68	27,44,106.44
Cash flows from investing activities						
Purchase of property, plant and equipment	(29,50,000.00)	-	-	-	-	-
Purchase of intangible assets	-	-	-	-	-	-
Proceeds from sale of equipment	-	-	-	-	-	-
Proceeds from sale of intangibles	-	-	-	-	-	-
Investment income	-	-	-	-	-	-
Net cash used in investing activities	(29,50,000.00)	-	-	-	-	-
Cash flows from financing activities						
Proceeds from issue of share capital	4,50,000.00	-	-	-	-	-
Proceeds from Grant	-	-	-	-	-	-
Proceeds from long-term borrowings	25,00,000.00	-	-	-	-	-
Payment of long-term borrowings	(2,47,794.34)	(2,77,529.66)	(3,10,833.22)	(3,48,133.21)	(3,89,909.19)	(4,36,698.29)
Cash Credit Loan	5,00,000.00	-	-	-	-	-
Net cash used in financing activities	32,02,205.66	(2,77,529.66)	(3,10,833.22)	(3,48,133.21)	(3,89,909.19)	(4,36,698.29)
Net increase in cash and cash equivalents	5,88,739.77	9,63,387.88	12,52,729.21	15,75,757.19	19,22,897.49	23,07,408.15
Cash and cash equivalents at beginning of period	-	5,88,739.77	15,52,127.65	28,04,856.86	43,80,614.06	63,03,511.55
Cash and cash equivalents at end of period	5,88,739.77	15,52,127.65	28,04,856.86	43,80,614.06	63,03,511.55	86,10,919.70
Cash Balance Control Total	0.00	0.00	0.00	0.00	0.00	0.00

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विशेष जानकारी हेतु किसान कॉल सेंटर में संपर्क करें: 18001801551

BANANA RIPENING CHAMBER**GROSS DSCR ANALYSIS**

Year	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year
Profit after taxation	6,46,074.11	9,95,010.84	13,64,634.68	17,71,267.07	22,01,247.53	26,69,774.82
Interest on loan	2,76,944.15	2,77,529.66	3,10,833.22	3,48,133.21	3,89,909.19	4,36,698.29
Depreciation	3,88,500.00	3,35,625.00	2,90,141.25	2,50,994.06	2,17,281.55	1,88,232.26
CASH ACCRUALS :-	13,11,518.26	16,08,165.50	19,65,609.15	23,70,394.33	28,08,438.27	32,94,705.38
Repayment of term loan	2,47,794.34	2,77,529.66	3,10,833.22	3,48,133.21	3,89,909.19	4,36,698.29
Interest on term loan	2,76,944.15	2,77,529.66	3,10,833.22	3,48,133.21	3,89,909.19	4,36,698.29
REPAYMENT OBLIGATION :-	5,24,738.49	5,55,059.32	6,21,666.44	6,96,266.41	7,79,818.38	8,73,396.59
GROSS DSCR	2.50	2.90	3.16	3.40	3.60	3.77

$$\text{GROSS DSCR (as a whole) = } \frac{\text{Cash Accruals}}{\text{Repayment Obligation}} = \frac{1,33,58,830.89}{40,50,945.63} = 3.30$$

NET DSCR ANALYSIS

Year	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year
Profit after taxation	6,46,074.11	9,95,010.84	13,64,634.68	17,71,267.07	22,01,247.53	26,69,774.82
Depreciation	3,88,500.00	3,35,625.00	2,90,141.25	2,50,994.06	2,17,281.55	1,88,232.26
CASH ACCRUALS :-	10,34,574.11	13,30,635.84	16,54,775.93	20,22,261.13	24,18,529.08	28,58,007.08
Repayment of term loan	2,47,794.34	2,77,529.66	3,10,833.22	3,48,133.21	3,89,909.19	4,36,698.29
REPAYMENT OBLIGATION :-	2,47,794.34	2,77,529.66	3,10,833.22	3,48,133.21	3,89,909.19	4,36,698.29
NET DSCR	4.18	4.79	5.32	5.81	6.20	6.54

$$\text{NET DSCR (as a whole) = } \frac{\text{Cash Accruals}}{\text{Repayment Obligation}} = \frac{1,13,18,783.17}{20,10,897.91} = 5.63$$

BANANA RIPENING CHAMBER**B.E.P. OF THE PROJECT**

Year	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year
A. Sales	4,09,77,090.00	4,63,28,946.30	5,16,91,973.06	5,74,73,948.28	6,36,96,333.96	7,04,01,021.88
B. Variable Cost						
Cost of Materials	3,37,26,000.00	3,77,73,120.00	4,21,40,637.00	4,68,45,414.00	5,19,25,673.80	5,74,01,652.00
Adjustment for stock	(4,13,910.00)	(49,669.20)	(53,644.78)	(57,834.98)	(62,239.80)	(67,063.64)
Adm. Expenses (25%)	25,610.68	28,955.59	32,307.48	35,921.22	39,810.21	44,000.64
Consumables	-	-	-	-	-	-
Power & Fuel	2,92,000.00	3,16,977.23	3,43,071.67	3,70,319.48	3,98,752.73	4,28,680.00
Other Expenses	-	-	-	-	-	-
Interest on W.C Loan	60,000.00	60,000.00	60,000.00	60,000.00	60,000.00	60,000.00
Total Variable Cost	3,36,89,700.68	3,81,29,383.62	4,25,22,371.37	4,72,53,819.72	5,23,61,996.94	5,78,67,269.00
C. Fixed & Semi- Variable Exp.						
Salary & Wages	9,50,400.00	9,97,920.00	10,47,816.00	11,00,206.80	11,55,217.14	12,12,978.00
Running & Maintainance Exp	16,86,300.00	18,88,656.00	21,07,031.85	23,42,270.70	25,96,283.69	28,70,082.60
Selling Expenses	30,35,340.00	32,68,356.00	34,72,756.00	36,77,156.00	38,81,556.00	40,85,956.00
Adm. Expenses (75%)	76,832.04	86,866.77	96,922.45	1,07,763.65	1,19,430.63	1,32,001.92
Interest on Term Loan	2,76,944.15	2,77,529.66	3,10,833.22	3,48,133.21	3,89,909.19	4,36,698.29
Depreciation	3,88,500.00	3,35,625.00	2,90,141.25	2,50,994.06	2,17,281.55	1,88,232.26
Total Fixed & Semi- Var. Exp.	64,14,316.20	68,54,953.43	73,25,500.77	78,26,524.42	83,59,678.20	89,25,949.07
Contribution (A - B)	72,87,389.32	81,99,562.68	91,69,601.69	1,02,20,128.56	1,13,34,337.02	1,25,33,752.88
PV Ratio	17.78	17.70	17.74	17.78	17.79	17.80
Operating Profit	8,73,073.12	13,44,609.24	18,44,100.92	23,93,604.14	29,74,658.82	36,07,803.81
Break Even Point	88.02%	83.60%	79.89%	76.58%	73.76%	71.22%
Margin of Safety (%)	82.22%	82.30%	82.26%	82.22%	82.21%	82.20%

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