



## **DETAILED PROJECT REPORT**

### **HIRDA OIL UNIT**

### **UNDER PMFME SCHEME**



National Institute of Food Technology Entrepreneurship and Management

Ministry of Food Processing Industries

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**1. PROJECT SUMMARY**

1. Name of the proposed project	:	Hirda Oil Unit
2. Nature of proposed project	:	Proprietorship/Company/Partnership
3. Proposed project capacity	:	94500 Ltr/annum (40,45,50,55&60% capacity utilization in 1 <sup>st</sup> to 5 <sup>th</sup> Year respectively)
4. Raw material	:	Hirda Fruits
5. Major product outputs	:	Hirda Oil
6. Total project cost	:	Rs. 34.76 Lakh
• Land development, building & Civil Construction	:	Nil
• Machinery and equipment's	:	Rs. 26.90 Lakh
• Miscellaneous Fixed Assets	:	Rs. 2.50 Lakh
• Working capital	:	Rs. 5.36 Lakh
8. Means of Finance		
• Subsidy (max 10lakhs)	:	Rs. 10.00 Lakh
• Promoter's contribution (min10%)	:	Rs. 3.76 Lakh
• Term loan	:	Rs. 16.17 Lakh
• Working Capital Requirement	:	Rs. 4.83 Lakh
9. Profit after Depreciation, Interest & Tax		
• 1 <sup>st</sup> year	:	Rs. 2.02 Lakh
• 2 <sup>nd</sup> year	:	Rs. 5.05 Lakh
• 3 <sup>rd</sup> year	:	Rs. 7.90 Lakh
• 4 <sup>th</sup> year	:	Rs. 10.66 Lakh
• 5 <sup>th</sup> year	:	Rs. 13.71 Lakh
11. Average DSCR	:	Rs. 2.87
12. Term loan repayment	:	5 Years with 6 months grace period

## **2. ABOUT THE PRODUCT**

### **2.1. PRODUCT INTRODUCTION:**

*Terminalia chebula* belongs to the family of Combretaceae attaining a height of 15-24 meters in height. It is known as Myrobalan in English, Haritaki in Sanskrit and Bengali, Harad in Hindi, Karkchettu in Telugu, Kadukkaya in Tamil and Harada Marathi & Gujrati. It is native to Indian subcontinent and Nepal, South West China, Pakistan and in Shri Lanka. In India it is found in West Bengal, Assam, Himalayas, Bihar, Orissa, Madhya Pradesh, Deccan Maharashtra and south India.

The leaves are elliptical in shape with an acute tip, cordate at the base, margins entire, glabrous above with a yellowish pubescence below. The fruit are ellipsoid to ovoid drupes, orange brown in colour and 3-5 cm long.

The main constituents are tannins and phenolic compounds. *T. chebula* is rich source of tannins, having 32% of tannins contents. The chief component of tannin is chebulagic acid, corilagin acid, chebulic acid and gallic acid. It contains fructose, succinic acid, amino acids, beta sitosterol and resins.

Plant has very great medicinal significance and used for treatment of various diseases. *T. chebula* is referred as King of Medicine in Tibet because of its many medicinal properties. It is used for treatment of sore throat, asthma, cough, gout, ulcer, high cough, heat burn, diarrhea, vomiting, piles, bladder problems and dysentery.

## **2.2. MARKET POTENTIAL:**

Ayurvedic management is based on the root cause diagnosis and management. It treats not only physical aspects of diseases but also treats and manages root cause of problem, in contrast of prevalent practice of mere symptoms management. Ayurveda industry uses herbal products which is made from plant extracts and herbs and is used because of medicinal properties and promote wellness.

The government has been undertaking steps to promote Indian herbal industry and wellness. The ministry of AYUSH thus formed to ensure development and propagation of Indian Ayurveda and herbal industry. The Indian government has also incentivized the industry by lowering GST on Ayurveda and herbal products to only 5 % to encourage the processing in sector. The support of the government increasing health insurance coverage and central government health scheme (CGHS) coverage will drive the growth of the sector. The ability of government to promote herbal product at international platform will also play big role.

Rising awareness for chemical free products, adverse effect of chemicals and changing perception about natural product, are increasingly manifesting themselves in the form of traditional medicinal products in market.

Herbal product reaches out to consumer across all income groups. According to a report one in four risks dying from non-communicable diseases before reaching age of 70. All these factors lead to increased demand for herbal therapies in India.

In the recent past, there has been resurgence in the study and use of medicinal plants. Herbal products increasingly become mainstream consumer products manufactured by multinational corporates and sold globally in supermarket chain and variety of other outlets.

There is increase in popularity of the oil obtained from the whole plant or part of plant to promote balance and harmony between mind and body, providing active ingredients, defined constituents and specific biological effects, these acts as driving factor for growth of Hirda oil industry.

### **2.3. RAW MATERIAL DESCRIPTION:**

The raw material requirement for production of Hirda oil is Hirda fruits.

## **3. PROCESS FLOW CHART**

### **EXTRACTION OF OIL**

#### **HARVESTING OF FRUIT**

Mature fruit of Hirda is collected in summer in May – June. fruits are collected when they turn yellow. 40 – 50kg of dried fruits are received per tree per year. The seeds can be collected as soon as they fall and are cleaned.

#### **SEEDS CLEANING**

The seeds are cleaned to remove any sign of dirt, impurities and blemishes on the seeds. This includes separation of tissues and pebbles also to protect the processing equipment and to enable production of high-quality oil.

#### **DRYING OF THE OIL SEEDS**

To remove hull effectively moisture content of 10% is needed, which required drying prior to dehulling. The kernels are dried at 100°C for 6hrs. Hot air is circulated through oil seeds to achieve some loss of water followed by cooling.

## DEHULLING

The objective of dehulling is to separate seed coat which helps in reducing anti nutritional factors in seeds.

## CONDITIONING

The objective of conditioning is to obtain optimum plasticity necessary prior for flake production prior to oil extraction. It involves heating the oil seeds in presence of water. Conditioning also improves flowability of oil by reducing viscosity of oil and easier oil extraction.

## EXTRACTION

Extraction of the oil from the mesh is achieved with the help of screw, hydraulic or centrifugal presses. Centrifugal method is not very efficient hence screw or hydraulic press is used. This method is known as dry method.

When hot water as steam is used to extract oil from ruptured cells of oil seeds, after removal of moisture oil is extracted. this method is known as wet extraction method.

## **REFINING OF OIL**

Crude oil can be consumed but it is refined to obtain improve shelf life and makes it more edible. Crude oil obtained from extraction contain several non-triglyceride components which must be removed. In refining process, undesirable component is removed through physical and chemical process.

## NEUTRALIZATION

The objective of neutralization is to remove FFA and polar lipids from crude oil. The crude oil is treated with sodium hydroxide solution (caustic soda) or sodium carbonate. The process is called alkali neutralization.

## DEGUMMING

Degumming targets impurities like phospholipids and other polar lipids (gums). The Objective of degumming is to reduce gums in extracted oil as these gums can cause discoloration in oil after heating.

The oil is subjected to water degumming process immediately following extraction. In this process, water is added into the oil. After certain period, hydrated phosphatides can be separated either by decantation or by centrifugal removal.

## BLEACHING

Like degumming, bleaching is also important step in refining of oil. The process of bleaching is performed for the removal of pigment (chlorophyll or carotenoid) and auto oxidation products using charcoal or clay. The bleached oil is removed from adsorbent by filtration.

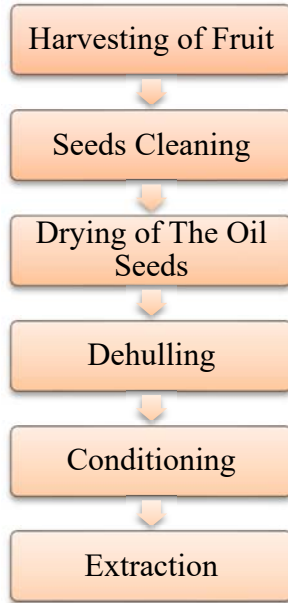
## DEODORIZING

Deodorization involves vacuum steam distillation 190 – 230°C, 0.5- 10 mbar. The volatile compound together with undesirable odorant present in the fat or oil is removed in this step. The process is carried out for 2 hours followed by cooling.

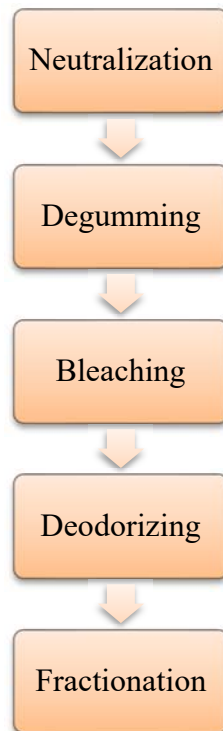
## FRACTIONATION

It involves allowing the oil to stand for some time at low temperature so that glycerides which naturally occurs in oil, with high melting point can be solidified and removed from the oil by filtration. Over time glycerides can increase acidity of oil by releasing free fatty acids in oil.





Flow Chart of Oil Extraction Process



Flow Chart of Oil Refining Process

## **4. ECONOMICS OF THE PROJECT**

### **4.1. BASIS & PRESUMPTIONS**

1. Production Capacity of Hirda Oil is 350 Ltr. per day. First year, Capacity has been taken @ 40%.
2. Working shift of 8 hours per day has been considered.
3. Raw Material stock is for 7 days and Finished goods Closing Stock has been taken for 7 days.
4. Credit period to Sundry Debtors has been given for 20 days.
5. Credit period by the Sundry Creditors has been provided for 7 days.
6. Depreciation and Income tax has been taken as per the Income tax Act, 1961.
7. Interest on working Capital Loan and Term loan has been taken at 11%.
8. Salary and wages rates are taken as per the Current Market Scenario.
9. Power Consumption has been taken at 24 KW.
10. Increase in sales and raw material costing has been taken @ 5% on a yearly basis.

## 4.2. CAPACITY, UTILIZATION, PRODUCTION & OUTPUT

<b><u>COMPUTATION OF PRODUCTION OF HIRDA OIL</u></b>		
<b>Items to be Manufactured</b>		
Hirda Oil		
Total working Hours	8	
Plant capacity Per Day	350	Ltr
Working days in a month	25	Days
Working days per annum	300	
Wastage Considered	10%	
Raw material requirement	105000	Ltr
Final Output per annum after wastage	94500	Ltr
Final Product to be packed in 1 Ltr. Bottles		
Number of Bottles per annum	94500	1 Ltr. Bottle

<b>Production of Hirda Oil</b>		
<b>Production</b>	<b>Capacity</b>	<b>Ltr</b>
1st year	40%	37,800
2nd year	45%	42,525
3rd year	50%	47,250
4th year	55%	51,975
5th year	60%	56,700

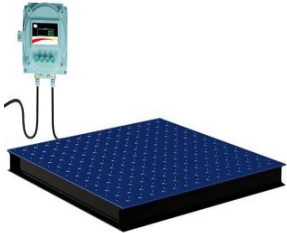


<b>Raw Material Cost</b>			
<b>Year</b>	<b>Capacity Utilisation</b>	<b>Rate (per kg.)</b>	<b>Amount (Rs. in lacs)</b>
1st year	40%	58.00	24.36
2nd year	45%	61.00	28.82
3rd year	50%	64.00	33.60
4th year	55%	67.00	38.69
5th year	60%	70.00	44.10





<b>COMPUTATION OF SALE</b>					
<b>Particulars</b>	<b>1st year</b>	<b>2nd year</b>	<b>3rd year</b>	<b>4th year</b>	<b>5th year</b>
Op Stock	-	882	992	1,103	1,213
Production	37,800	42,525	47,250	51,975	56,700
Less : Closing Stock	882	992	1,103	1,213	1,323
<b>Net Sale</b>	<b>36,918</b>	<b>42,415</b>	<b>47,140</b>	<b>51,865</b>	<b>56,590</b>
Sale price per bottle	170.00	179.00	188.00	197.00	207.00
<b>Sales (in Lacs)</b>	<b>62.76</b>	<b>75.92</b>	<b>88.62</b>	<b>102.17</b>	<b>117.14</b>

### 4.3. PREMISES/INFRASTRUCTURE


The approximate total area required for complete factory setup is 3000-4000 Sq. ft. for smooth production including storage area. It is expected that the premises will be on rental.

#### 4.4. MACHINERY & EQUIPMENTS

Machine Name	Description	Machine Image.
Electronic Weighing Scale	It is used to weigh the amount of raw material received from the supplier after unloading from vehicle. It is provided with indicator which helps in simple weighing and tared weighing. It provides reliable and accurate weighing.	
Seed Cleaning & Grading Machine	Seed cleaning and grading machine helps to clean various seeds and grading such as wheat, corn, coffee beans etc. it consists of vibratory sifter, destoner, bucket elevator and motors. The sifter is used for removal of impurities such as leaves, sticks and impurities from grain stream. Destoner removes stones, metals and other high-density material.	
Tray Dryer	Industrial tray drying machine / Hot air-drying machine is made with stainless steel and equipped with plastic, stainless steel and customized drying racks.	

<p>Seed Dehulling Machine</p>	<p>The hulling machine is especially designed for hulling of the seeds and separation of husk of kernel in oil milling plant. The machine works on the principle of twisting, shearing and tearing the kernels for removal of hulls. Then the husks are separated by vibrating screens and air currents depending on the bulk densities.</p>	
<p>Hydraulic Oil Press Machine</p>	<p>Hydraulic oil press machine is used for extraction of sesame oil, peanut oil and other oils. Hydraulic oil press machine uses the principle of liquid static pressure transmission to hydraulic pressure as the transmission medium to squeeze oil and pressed out of squeezing equipment.</p>	
<p>Multifunctional Oil Refinery Equipment</p>	<p>It consists of Refining tank, steam generator, deodorization tank and filter press.</p>	
<p>Oil Filling &amp; Packaging Machine</p>	<p>Oil filling machine consists of filling nozzle, when filling sealing ring is opened and when filling is completed the sealing is blocked up. Consist of cap pressing machine, bottle caps automatically go into bottle cap slot by adopting cap pulling device. The machine consists of conveyor to convey filled and empty bottles. The machine can be used for glass bottle as well as plastic bottle.</p>	

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Material handling and other Equipment's	These Equipment's are used for material handling. Other equipment's like water pumps, motors, etc are also used.	

Machine	Unit	Rate	Price
Seed Cleaning & Grading Machine	1	340000	340000
Tray Dryer	1	120000	120000
Seed Dehulling Machine	1	180000	180000
Hydraulic Oil Press Machine	1	150000	150000
Multifunctional Oil Refinery Equipment	1	1700000	1700000
Oil Filling & Packaging Machine	1	150000	150000
Material handling and other equipment's (Bins, trolley, weighing machine, etc.)	-	`50000	50000

**Note:** Total Machinery cost shall be Rs 26.90 lakh including equipment's but excluding GST and Transportation Cost.

#### 4.5. MISCELLANEOUS FIXED ASSETS

- Water Supply Arrangements
- Furniture & Fixtures
- Computers & Printers

#### 4.6. TOTAL COST OF PROJECT

<b>COST OF PROJECT</b>	
	(in Lacs)
<b>PARTICULARS</b>	<b>Amount</b>
Land & Building	Owned/Rented
Plant & Machinery	26.90
Miscellaneous Assets	2.50
Working capital	5.36
<b>Total</b>	<b>34.76</b>

#### 4.7. MEANS OF FINANCE

<b>MEANS OF FINANCE</b>	
<b>PARTICULARS</b>	<b>AMOUNT</b>
Own Contribution (min 10%)	3.76
Subsidy @35%(Max. Rs 10 Lac)	10.00
Term Loan @ 55%	16.17
Working Capital (Bank Finance)	4.83
<b>Total</b>	<b>34.76</b>



**4.8. TERM LOAN:** Term loan of Rs. 16.17 Lakh is required for project cost of Rs. 34.76 Lakh

**4.9. TERM LOAN REPAYMENT& INTEREST SCHEDULE**

REPAYMENT SCHEDULE OF TERM LOAN								
							Interest	11.00%
Year	Particulars	Amount	Addition	Total	Interest	Repayment	Closing Balance	
<b>1st</b>	Opening Balance							
	1st month	-	16.17	16.17	-	-	16.17	
	2nd month	16.17	-	16.17	0.15	-	16.17	
	3rd month	16.17	-	16.17	0.15	-	16.17	
	4th month	16.17	-	16.17	0.15	-	16.17	
	5th month	16.17	-	16.17	0.15	-	16.17	
	6th month	16.17	-	16.17	0.15	-	16.17	
	7th month	16.17	-	16.17	0.15	0.30	15.87	
	8th month	15.87	-	15.87	0.15	0.30	15.57	
	9th month	15.57	-	15.57	0.14	0.30	15.27	
	10th month	15.27	-	15.27	0.14	0.30	14.97	
	11th month	14.97	-	14.97	0.14	0.30	14.67	
	12th month	14.67	-	14.67	0.13	0.30	14.37	
					1.59	1.80		
<b>2nd</b>	Opening Balance							
	1st month	14.37	-	14.37	0.13	0.30	14.07	
	2nd month	14.07	-	14.07	0.13	0.30	13.77	
	3rd month	13.77	-	13.77	0.13	0.30	13.48	

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4th month	13.48	-	13.48	0.12	0.30	13.18
5th month	13.18	-	13.18	0.12	0.30	12.88
6th month	12.88	-	12.88	0.12	0.30	12.58
7th month	12.58	-	12.58	0.12	0.30	12.28
8th month	12.28	-	12.28	0.11	0.30	11.98
9th month	11.98	-	11.98	0.11	0.30	11.68
10th month	11.68	-	11.68	0.11	0.30	11.38
11th month	11.38	-	11.38	0.10	0.30	11.08
12th month	11.08	-	11.08	0.10	0.30	10.78
				<b>1.40</b>	<b>3.59</b>	
<b>3rd</b>	<b>Opening Balance</b>					
1st month	10.78	-	10.78	0.10	0.30	10.48
2nd month	10.48	-	10.48	0.10	0.30	10.18
3rd month	10.18	-	10.18	0.09	0.30	9.88
4th month	9.88	-	9.88	0.09	0.30	9.58
5th month	9.58	-	9.58	0.09	0.30	9.28
6th month	9.28	-	9.28	0.09	0.30	8.98
7th month	8.98	-	8.98	0.08	0.30	8.68
8th month	8.68	-	8.68	0.08	0.30	8.38
9th month	8.38	-	8.38	0.08	0.30	8.08
10th month	8.08	-	8.08	0.07	0.30	7.79
11th month	7.79	-	7.79	0.07	0.30	7.49
12th month	7.49	-	7.49	0.07	0.30	7.19
				<b>1.00</b>	<b>3.59</b>	

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<b>4th</b>	Opening Balance						
	1st month	7.19	-	7.19	0.07	0.30	6.89
	2nd month	6.89	-	6.89	0.06	0.30	6.59
	3rd month	6.59	-	6.59	0.06	0.30	6.29
	4th month	6.29	-	6.29	0.06	0.30	5.99
	5th month	5.99	-	5.99	0.05	0.30	5.69
	6th month	5.69	-	5.69	0.05	0.30	5.39
	7th month	5.39	-	5.39	0.05	0.30	5.09
	8th month	5.09	-	5.09	0.05	0.30	4.79
	9th month	4.79	-	4.79	0.04	0.30	4.49
	10th month	4.49	-	4.49	0.04	0.30	4.19
	11th month	4.19	-	4.19	0.04	0.30	3.89
	12th month	3.89	-	3.89	0.04	0.30	3.59
					<b>0.61</b>	<b>3.59</b>	
<b>5th</b>	Opening Balance						
	1st month	3.59	-	3.59	0.03	0.30	3.29
	2nd month	3.29	-	3.29	0.03	0.30	2.99
	3rd month	2.99	-	2.99	0.03	0.30	2.69
	4th month	2.69	-	2.69	0.02	0.30	2.40
	5th month	2.40	-	2.40	0.02	0.30	2.10
	6th month	2.10	-	2.10	0.02	0.30	1.80
	7th month	1.80	-	1.80	0.02	0.30	1.50
	8th month	1.50	-	1.50	0.01	0.30	1.20
	9th month	1.20	-	1.20	0.01	0.30	0.90
	10th month	0.90	-		0.01	0.30	0.60

			0.90			
11th month	0.60	-	0.60	0.01	0.30	0.30
12th month	0.30	-	0.30	0.00	0.30	-
			<b>0.21</b>	<b>3.59</b>		
DOOR TO DOOR MORATORIUM PERIOD	60	MONTHS				
REPAYMENT PERIOD	6	MONTHS				
	54	MONTHS				

#### 4.10. WORKING CAPITAL CALCULATIONS

<b>COMPUTATION OF CLOSING STOCK &amp; WORKING CAPITAL</b>					(in Lacs)
<b>PARTICULARS</b>	<b>1st year</b>	<b>2nd year</b>	<b>3rd year</b>	<b>4th year</b>	<b>5th year</b>
<b><u>Finished Goods</u></b>					
	1.18	1.35	1.54	1.74	1.95
<b><u>Raw Material</u></b>					
	0.57	0.67	0.78	0.90	1.03
<b>Closing Stock</b>	<b>1.75</b>	<b>2.02</b>	<b>2.32</b>	<b>2.64</b>	<b>2.98</b>

<b>COMPUTATION OF WORKING CAPITAL REQUIREMENT</b>					
<b>TRADITIONAL METHOD</b>					(in Lacs)
<b>Particulars</b>	<b>Amount</b>	<b>Own Margin</b>		<b>Bank Finance</b>	
Finished Goods & Raw Material	1.75				
Less : Creditors	0.57				
<b>Paid stock</b>	<b>1.18</b>	<b>10%</b>	<b>0.12</b>	<b>90%</b>	<b>1.06</b>
<b>Sundry Debtors</b>	<b>4.18</b>	<b>10%</b>	<b>0.42</b>	<b>90%</b>	<b>3.77</b>
	<b>5.36</b>		<b>0.54</b>		<b>4.83</b>
<b>MPBF</b>					<b>4.83</b>
<b>WORKING CAPITAL LIMIT DEMAND ( from Bank)</b>					<b>4.83</b>
<b>Working Capital Margin</b>					<b>0.54</b>

#### 4.11. SALARY & WAGES

<b><u>BREAK UP OF LABOUR CHARGES</u></b>			
<b>Particulars</b>	<b>Wages</b>	<b>No of</b>	<b>Total</b>
	<b>Rs. per Month</b>	<b>Employees</b>	<b>Salary</b>
Plant Operator	15,000	3	45,000
Supervisor	18,000	1	18,000
Skilled (in thousand rupees)	12,000	2	24,000
Unskilled (in thousand rupees)	8,000	3	24,000
<b>Total salary per month</b>			<b>1,11,000</b>
<b>Total annual labour charges</b>	<b>(in lacs)</b>		<b>13.32</b>

<b><u>BREAK UP OF STAFF SALARY CHARGES</u></b>			
<b>Particulars</b>	<b>Salary</b>	<b>No of</b>	<b>Total</b>
	<b>Rs. per Month</b>	<b>Employees</b>	<b>Salary</b>
Administrative Staff	6,500	1	6,500
Manager	18,000	1	18,000
Accountant	15,000	1	15,000
<b>Total salary per month</b>			<b>39,500</b>
<b>Total annual Staff charges</b>	<b>(in lacs)</b>		<b>4.74</b>

## 4.12 POWER REQUIREMENT

<b>Utility Charges (per month)</b>		
<b>Particulars</b>	<b>value</b>	<b>Description</b>
Power connection required	24	KWH
consumption per day	192	units
Consumption per month	4,800	units
Rate per Unit	10	Rs.
power Bill per month	48,000	Rs.

## 4.13. DEPRECIATION CALCULATION

<b>COMPUTATION OF DEPRECIATION</b>			(in Lacs)
<b>Description</b>	<b>Plant &amp; Machinery</b>	<b>Miss. Assets</b>	<b>TOTAL</b>
Rate of Depreciation	<b>15.00%</b>	<b>10.00%</b>	
<b>Opening Balance</b>	-	-	-
Addition	26.90	2.50	29.40
Total	26.90	2.50	29.40
Less : Depreciation	4.04	0.25	4.29
<b>WDV at end of Year</b>	<b>22.87</b>	<b>2.25</b>	<b>25.12</b>
Additions During The Year	-	-	-
Total	22.87	2.25	25.12
Less : Depreciation	3.43	0.23	3.65
<b>WDV at end of Year</b>	<b>19.44</b>	<b>2.03</b>	<b>21.46</b>
Additions During The Year	-	-	-
Total	19.44	2.03	21.46
Less : Depreciation	2.92	0.20	3.12
<b>WDV at end of Year</b>	<b>16.52</b>	<b>1.82</b>	<b>18.34</b>
Additions During The Year	-	-	-
Total	16.52	1.82	18.34
Less : Depreciation	2.48	0.18	2.66
<b>WDV at end of Year</b>	<b>14.04</b>	<b>1.64</b>	<b>15.68</b>
Additions During The Year	-	-	-
Total	14.04	1.64	15.68
Less : Depreciation	2.11	0.16	2.27
<b>WDV at end of Year</b>	<b>11.94</b>	<b>1.48</b>	<b>13.41</b>

**4.14. REPAIR & MAINTENANCE:** Repair & Maintenance is 2.5% of Gross Sale.

**4.15. PROJECTIONS OF PROFITABILITY ANALYSIS:**

<b>PROJECTED PROFITABILITY STATEMENT</b>					<b>(in Lacs)</b>
<b>PARTICULARS</b>	<b>1st year</b>	<b>2nd year</b>	<b>3rd year</b>	<b>4th year</b>	<b>5th year</b>
Capacity Utilisation %	<b>40%</b>	<b>45%</b>	<b>50%</b>	<b>55%</b>	<b>60%</b>
<b><u>SALES</u></b>					
<b>Gross Sale</b>					
Hirda Oil	62.76	75.92	88.62	102.17	117.14
<b>Total</b>	<b>62.76</b>	<b>75.92</b>	<b>88.62</b>	<b>102.17</b>	<b>117.14</b>
<b><u>COST OF SALES</u></b>					
Raw Material Consumed	24.36	28.82	33.60	38.69	44.10
Electricity Expenses	5.76	6.62	7.62	8.76	9.64
Depreciation	4.29	3.65	3.12	2.66	2.27
Wages & labour	13.32	15.32	17.46	19.91	22.30
Repair & maintenance	1.57	1.90	2.22	2.55	2.93
Packaging	1.26	1.52	1.77	2.04	2.34
<b>Cost of Production</b>	<b>50.55</b>	<b>57.84</b>	<b>65.79</b>	<b>74.62</b>	<b>83.57</b>
<b>Add: Opening Stock /WIP</b>	<b>-</b>	<b>1.18</b>	<b>1.35</b>	<b>1.54</b>	<b>1.74</b>
<b>Less: Closing Stock /WIP</b>	<b>1.18</b>	<b>1.35</b>	<b>1.54</b>	<b>1.74</b>	<b>1.95</b>
Cost of Sales	49.37	57.67	65.60	74.41	83.37
<b>GROSS PROFIT</b>	<b>13.39</b>	<b>18.26</b>	<b>23.02</b>	<b>27.76</b>	<b>33.78</b>
	<b>21.34%</b>	<b>24.05%</b>	<b>25.98%</b>	<b>27.17%</b>	<b>28.83%</b>
Salary to Staff	4.74	5.78	6.76	7.30	8.40
Interest on Term Loan	1.59	1.40	1.00	0.61	0.21
Interest on working Capital	0.53	0.53	0.53	0.53	0.53
Rent	3.60	3.96	4.36	4.79	5.27
selling & adm exp	0.91	1.37	1.55	1.94	2.34
<b>TOTAL</b>	<b>11.37</b>	<b>13.04</b>	<b>14.20</b>	<b>15.17</b>	<b>16.75</b>
NET PROFIT	2.02	5.22	8.82	12.59	17.02
	<b>3.22%</b>	<b>6.87%</b>	<b>9.95%</b>	<b>12.32%</b>	<b>14.53%</b>
Taxation	-	0.17	0.92	1.93	3.32
PROFIT (After Tax)	2.02	5.05	7.90	10.66	13.71

#### 4.16. BREAK EVEN POINT ANALYSIS

<b>BREAK EVEN POINT ANALYSIS</b>					
<b>Year</b>	<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>
<b>Net Sales &amp; Other Income</b>	62.76	75.92	88.62	102.17	117.14
Less : Op. WIP Goods	-	1.18	1.35	1.54	1.74
Add : Cl. WIP Goods	1.18	1.35	1.54	1.74	1.95
<b>Total Sales</b>	<b>63.94</b>	<b>76.09</b>	<b>88.81</b>	<b>102.38</b>	<b>117.35</b>
<b>Variable &amp; Semi Variable Exp.</b>					
Raw Material Consumed	24.36	28.82	33.60	38.69	44.10
Electricity Exp/Coal Consumption at 85%	4.90	5.63	6.47	7.45	8.19
Wages & Salary at 60%	10.84	12.66	14.53	16.32	18.42
Selling & administrative Expenses 80%	0.73	1.09	1.24	1.55	1.87
Interest on working Capital	0.530989	0.530989	0.530989	0.530989	0.530989
Repair & maintenance	1.57	1.90	2.22	2.55	2.93
Packaging	1.26	1.52	1.77	2.04	2.34
<b>Total Variable &amp; Semi Variable Exp</b>	<b>44.18</b>	<b>52.15</b>	<b>60.37</b>	<b>69.15</b>	<b>78.38</b>
<b>Contribution</b>	<b>19.76</b>	<b>23.94</b>	<b>28.44</b>	<b>33.23</b>	<b>38.97</b>
<b>Fixed &amp; Semi Fixed Expenses</b>					
Electricity Exp/Coal Consumption at 15%	0.86	0.99	1.14	1.31	1.45
Wages & Salary at 40%	7.22	8.44	9.69	10.88	12.28
Interest on Term Loan	1.59	1.40	1.00	0.61	0.21
Depreciation	4.29	3.65	3.12	2.66	2.27
Selling & administrative Expenses 20%	0.18	0.27	0.31	0.39	0.47
Rent	3.60	3.96	4.36	4.79	5.27
<b>Total Fixed Expenses</b>	<b>17.74</b>	<b>18.72</b>	<b>19.62</b>	<b>20.65</b>	<b>21.95</b>
<b>Capacity Utilization</b>	<b>40%</b>	<b>45%</b>	<b>50%</b>	<b>55%</b>	<b>60%</b>
<b>OPERATING PROFIT</b>	<b>2.02</b>	<b>5.22</b>	<b>8.82</b>	<b>12.59</b>	<b>17.02</b>
<b>BREAK EVEN POINT</b>	<b>36%</b>	<b>35%</b>	<b>34%</b>	<b>34%</b>	<b>34%</b>
<b>BREAK EVEN SALES</b>	<b>57.40</b>	<b>59.51</b>	<b>61.27</b>	<b>63.60</b>	<b>66.09</b>



## 4.17. PROJECTED BALANCE SHEET

<b>PROJECTED BALANCE SHEET</b>					<b>(in Lacs)</b>
<b>PARTICULARS</b>	<b>1st year</b>	<b>2nd year</b>	<b>3rd year</b>	<b>4th year</b>	<b>5th year</b>
<b><u>Liabilities</u></b>					
Capital					
opening balance		12.78	13.82	15.72	18.38
Add:- Own Capital	3.76				
Add:- Retained Profit	2.02	5.05	7.90	10.66	13.71
Less:- Drawings	3.00	4.00	6.00	8.00	11.00
Subsidy/grant	10.00				
Closing Balance	12.78	13.82	15.72	18.38	21.08
Term Loan	14.37	10.78	7.19	3.59	-
Working Capital Limit	4.83	4.83	4.83	4.83	4.83
Sundry Creditors	0.57	0.67	0.78	0.90	1.03
Provisions & Other Liab	0.40	0.50	0.60	0.72	0.86
<b>TOTAL :</b>	<b>32.95</b>	<b>30.60</b>	<b>29.12</b>	<b>28.42</b>	<b>27.80</b>
<b><u>Assets</u></b>					
<b>Fixed Assets ( Gross)</b>	29.40	29.40	29.40	29.40	29.40
Gross Dep.	4.29	7.94	11.06	13.72	15.99
<b>Net Fixed Assets</b>	<b>25.12</b>	<b>21.46</b>	<b>18.34</b>	<b>15.68</b>	<b>13.41</b>
<b>Current Assets</b>					
Sundry Debtors	4.18	5.06	5.91	6.81	7.81
Stock in Hand	1.75	2.02	2.32	2.64	2.98
Cash and Bank	1.90	2.06	2.55	3.28	3.60
<b>TOTAL :</b>	<b>32.95</b>	<b>30.60</b>	<b>29.12</b>	<b>28.42</b>	<b>27.80</b>

## 4.18. CASH FLOW STATEMENT

<b>PROJECTED CASH FLOW STATEMENT</b>					<b>(in Lacs)</b>
<b>PARTICULARS</b>	<b>1st year</b>	<b>2nd year</b>	<b>3rd year</b>	<b>4th year</b>	<b>5th year</b>
<b><u>SOURCES OF FUND</u></b>					
Own Margin	3.76				
Net Profit	2.02	5.22	8.82	12.59	17.02
Depreciation & Exp. W/off	4.29	3.65	3.12	2.66	2.27
Increase in Cash Credit	4.83	-	-	-	-
Increase In Term Loan	16.17	-	-	-	-
Increase in Creditors	0.57	0.10	0.11	0.12	0.13
Increase in Provisions & Oth lib	0.40	0.10	0.10	0.12	0.14
Sunsidy/grant	10.00				
<b>TOTAL :</b>	<b>42.03</b>	<b>9.08</b>	<b>12.15</b>	<b>15.49</b>	<b>19.56</b>
<b><u>APPLICATION OF FUND</u></b>					
Increase in Fixed Assets	29.40				
Increase in Stock	1.75	0.27	0.30	0.32	0.34
Increase in Debtors	4.18	0.88	0.85	0.90	1.00
Repayment of Term Loan	1.80	3.59	3.59	3.59	3.59
Drawings	3.00	4.00	6.00	8.00	11.00
Taxation	-	0.17	0.92	1.93	3.32
<b>TOTAL :</b>	<b>40.13</b>	<b>8.91</b>	<b>11.66</b>	<b>14.75</b>	<b>19.24</b>
Opening Cash & Bank Balance	-	1.90	2.06	2.55	3.28
Add : Surplus	1.90	0.16	0.49	0.73	0.32
<b>Closing Cash &amp; Bank Balance</b>	<b>1.90</b>	<b>2.06</b>	<b>2.55</b>	<b>3.28</b>	<b>3.60</b>

**4.19. DEBT SERVICE COVERAGE RATIO**

<b><u>CALCULATION OF D.S.C.R</u></b>					
<b>PARTICULARS</b>	<b>1st year</b>	<b>2nd year</b>	<b>3rd year</b>	<b>4th year</b>	<b>5th year</b>
CASH ACCRUALS	6.31	8.70	11.02	13.32	15.98
Interest on Term Loan	1.59	1.40	1.00	0.61	0.21
<b>Total</b>	<b>7.89</b>	<b>10.10</b>	<b>12.02</b>	<b>13.92</b>	<b>16.19</b>
<b><u>REPAYMENT</u></b>					
Instalment of Term Loan	1.80	3.59	3.59	3.59	3.59
Interest on Term Loan	1.59	1.40	1.00	0.61	0.21
<b>Total</b>	<b>3.39</b>	<b>4.99</b>	<b>4.60</b>	<b>4.20</b>	<b>3.81</b>
<b>DEBT SERVICE COVERAGE RATIO</b>	<b>2.33</b>	<b>2.02</b>	<b>2.61</b>	<b>3.31</b>	<b>4.25</b>
<b>AVERAGE D.S.C.R.</b>	<b>2.87</b>				