

# PROJECT REPORT

Of

## LEMON GRASS OIL

### PURPOSE OF THE DOCUMENT

This particular pre-feasibility is regarding **LEMON GRASS OIL**.

The objective of the pre-feasibility report is primarily to facilitate potential entrepreneurs in project identification for investment and in order to serve his objective; the document covers various aspects of the project concept development, start-up, marketing, finance and management.

[We can modify the project capacity and project cost as per your requirement. We can also prepare project report on any subject as per your requirement.]



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# Lemongrass Oil



## Introduction

Lemongrass oil has a strong lemon-like odour due to high **citral content (75-90%)**. The minimum commercial requirement is **70% citral content**. The major quality checking measures are **its citral content** and **its solubility in alcohol**. This is an essential ingredient in toiletry products such as toilet soaps, bath salts, etc. It is also employed in artificial lemon flavouring and in the manufacture of ionenes. Ionenenes are very important for the production of artificial flavour, perfumes, and soaps and as raw material for vitamin A manufacturing. Here in this article, we intend to explore how to start a small scale lemongrass oil manufacturing business. The oil is of a **reddish-yellow to reddish-brown colour**, with a strong, lemon odour. It is also used in pharmaceutical preparations, such as pain balm, disinfectants, and mosquito repellent cream.

## Formulation of the Scheme:

The scheme is formulated for individual entrepreneur or a group of individuals or company having own or lease land and able to handle the agro-based enterprise. SHG members in cluster may also take such type of scheme.

## Objectives:

- To popularize non-traditional cash crop to improve socio-economic status of farmers.

- To acquire loan by able enterprising farmers for cultivation and processing of Lemongrass for oil.

### Area of operation

In flood free upland situations up-to 1000 m altitude.

### About the crop

**Lemongrass** (*Cymbopogon flexuosus*),

Family:	Poaceae
Variety	Krishna and CKP-25
Economic parts	Fresh herbs.
End product	Lemongrass oil at farming level.
Uses	Oil is the source of Citral which is used as a basic raw material for synthesis of Beta-ionone used for synthesis of a number of useful aromatic compounds and Vitamin-A. This is thus used as substitutes of 'cod liver oil. Citral itself is used in perfumery for various grades of soaps, detergents, cosmetics and flavour agent for soft drinks.
Soil	Well drained deep loam to sandy loam and loamy soil, rich in organic matter, upland situations and irrespective of surface topography
Climate	Warm and humid climate, upto 1000m altitude from MSL receiving well distributed medium to heavy rainfall.
Propagation	Vegetative means by separation of slips.1-2 slips per hill.
Land preparation	Medium range of land preparation or as zero tillage crops in slopes
Gestation period	5 months
Crop cycle	4 years
Cropping option	As irrigated and rainfed crops.

Planting time	April – October
Spacing	Normal planting distance is 45 cm x 45 cm.
Plant population	50000 slips per ha.
Planting method	Planting is done in row to row method in triangular fashion highly desirable in slope land.
Manures:	Mix well 1.5- 2.0 ton FYM / compost per acre during land preparation followed by mulching of agricultural wastes. Organic practice gives better results.
Irrigation	Light irrigation just after planting is beneficial if planted in dry days.
Harvesting	Ground level harvesting is ideal. About 4 -5 harvests in a year and 15 times harvesting in 4 years.
Production:	Fresh herbs 80 MT per hectare per year.
Oil extraction:	steam distillation process and food grade stainless steel unit is used.
Oil recovery:	Commercial oil recovery is 0.6%.
Oil production:	Average 480 kg oil per ha per year.
Oil Price	Presently at 900/-per kg
Economic size of farm	20 acres = 8 ha = 60 bighas

**Model scheme for lemongrass cultivation and oil extraction**  
Economic size of farm: 20 acres = 8 ha = 60 bighas

### **Raw Materials**

The major raw material is **lemon grass**. And the grass plants grow well in soils not suitable for richer production plants. From sandy and rather dry soils yield relatively more oil and oil of higher citral content than plants from very fertile soils.

Heads of expenses	Amount (Rs.)
<b>Capital expense</b>	
1. Construction of distillation shed of size 25 ft x 16 ft x15 ft, pre-cast RCC posts/ iron posts- 8 nos, Tubular iron frame and CGI sheet roofings, brick soling floor.	100,000/
2. <b>Water supply system:</b> 2000 litres water tank at 14 ft height, STW boring, 3 hp diesel pump set, pipes and fittings	60,000/
2. <b>Cost of distillation unit:</b> Hydro-steam and lifting type, capacity 1.0 MT/ batch, made of 304 grade stainless steel with all accessories and tax.	320,000/
3. <b>Installation charges</b>	20,000/
<b>Sub total</b>	<b>5,00,000/</b>

<b>COST OF PROJECT</b>				
S.NO.	PARTICULARS	TOTAL COST	MARGIN 25%	LOAN
1	Land & Building	0.00	0.00	0.00
2	Plant and Machinery	5.00	1.25	3.75
3	0	0.00	0.00	0.00
4	Contingencies	0.00	0.00	0.00
5	Pre and Post operative exp	0.00	0.00	0.00
6	Margin for Working Capital	16.63	4.16	12.47
	Total	<b>21.63</b>	5.41	16.22
<b>MEANS OF FINANCE</b>				
S.NO.	PARTICULARS		AMOUNT	
1	Own Contribution and Unsecured loan		5.41	
2	Term Loan		3.75	
3	Working capital		12.47	
	Total		<b>21.63</b>	
DE Ratio			3.00	

**Per ha Cost of production of Lemongrass up to oil extraction (4-years crop cycle)**

S l	Heads of expenses	Rate/ mds	1st year (Rs.)	2nd year (Rs.)	3rd year(Rs.)	4th year (Rs.)	Total (Rs)	Total mds
1	Land lease		12,000.00	12,000.00	12,000.00	12,000.00	48,000.00	
2	Land preparation per ha	7500	7,500.00	-	-	-	7,500.00	-
3	Cost of planting material @ Rs. 0.40 per slips for 50,000 slips	-	20,000.00	-	-	-	20,000.00	-
4	Planting 75 mandays	200	15,000.00	-	-	-	15,000.00	75.00
5	Manures and Fertilizers + applications	-do-	4,000.00	5,000.00	4,000.00	4,000.00	17,000.00	40.00
6	Weed control 1 time and Intercultural operations	-do-	15,000.00	15,000.00	15,000.00	15,000.00	60,000.00	300.00
7	Plant protection	-do-	500.00	500.00	1,000.00	1,000.00	3,000.00	15.00
8	Harvesting (total 3+4+4+4 =15 times in 4 years)	-do-	56,250.00	56,250.00	56,250.00	56,250.00	2,25,000.00	1,125.00
9	Distillation cost @ Rs.120/ kg oil		72,000.00	72,000.00	72,000.00	72,000.00	2,88,000.00	2,400.00
10	Marketing expenses @ 1% of gross return	-	2,880.00	2,880.00	2,880.00	2,880.00	11,520.00	-
12	Misc. expenses		2,770.00	2,770.00	2,770.00	2,770.00	11,080.00	
	<b>Sub-Total</b>	<b>1 ha</b>	2,07,900.00	1,66,400.00	1,65,900.00	1,65,900.00	7,06,100.00	3,955.00
	<b>Grand Total for 8 ha (Rs. In lacs)</b>	<b>8 ha</b>	16,63,200.00	13,31,200.00	13,27,200.00	13,27,200.00	56,48,800.00	31,640.00

**Manpower:**

Sl. No.	Designation	Numbers	CTC per annum	Total (Rs. In Lacs)
1.	Production Manager	1 (One)	1,80,000/	1.80

2.	Field Supervisor	1 (One)	1,20,000/	1.20
3.	Factory Watchman	1 (One)	72,000/	0.72
	<b>Total</b>	<b>3 (Three)</b>	<b>3,72,000/</b>	<b>3.72</b>

**Total Recurring Expenses:**

Recurring expenses:	Amount (Rs. In Lacs)				
	1st year	2nd year	3rd year	4th year	Total
1. Cost of cultivation, processing and up to oil sale.	16.63	13.31	13.27	13.27	56.49
2. Depreciation on Capital cost @ 10%	0.50	0.50	0.50	0.50	2.00
3. Interest on recurring expenses @ 12%	1.95	1.46	1.10	0.82	5.32
4. Manpower	3.72	3.72	3.72	3.72	14.88
<b>Total Recurring Expenses</b>	<b>22.80</b>	<b>18.99</b>	<b>18.59</b>	<b>18.31</b>	<b>78.69</b>

**Economics of the scheme (Lemongrass cropping in 4-years crop cycle)**

Oil yield/ income		1st year	2nd year	3rd year	4th year	Total
Oil yield (kg)	kg	3840	3840	3840	3840	15,360
Gross income from oil sale @ Rs.per kg		1st year	2nd year	3rd year	4th year	Total
Total Recurring Expenses		3840	3840	3840	3840	15,360
<b>Net Return</b>	1000.00	38,40,000.00	38,40,000.00	38,40,000.00	38,40,000.00	1,53,60,000.00
Oil yield/ income		22,79,888.00	18,99,216.00	18,58,712.00	18,31,334.00	78,69,150.00
	Rs in lac	22.80	18.99	18.58	18.31	78.69

**Assumptions:**

- Cultivation and processing as per package of practices.
- Man-days rate as per prevailing rate.
- Yields and selling rates calculated at lower most rates.
- Planting materials shall be collected from Registered Nurseries / Govt. Nurseries of genuine types/ varieties.
- Marketing factors are considered during crop selection.
- Processing by standardized methods only.
- Value of spent materials is not included in any calculations.
- Promoter's leased land only.
- Returns calculated out based on existing market rates only.
- Crop insurance not included.
- Garden registration, sale tax if any impose by Govt. not included.

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