

Package of Practice

Patchouli Cultivation



ADVANCING
NORTH EAST

An Initiative of North Eastern Council (NEC)

Implemented by North Eastern Development Finance Corporation Limited (NEDFi)

PATCHOULI

SCOPE OF THE CROP:

Patchouli is an important aromatic crop native to Philippines. It is cultivated for its essential oil used in cosmetics. Production of patchouli oil in India is negligible (about 100-150 kg/year), as against the global production of around 700-800 t /year. Presently, India is importing over 200 tonnes of the oil from Indonesia, Malaysia and Singapore. Hence, there is a good scope of growing patchouli as main crop or intercrop with other plantation crops

VARIETIES: Java, Jahore, Singapore, Indonesia etc.

BACKGROUND OF THE CROP:

- **SCIENTIFIC NAME:** Pogostemon patchouli
- **FAMILY:** Lamiaceae
- **ECONOMIC PARTS USED:** Leaves
- **BOTANICAL DESCRIPTION:** The plant is perennial, small bushy herb which yields fragrant leaves containing sweet smelling essential oil. The leaves are simple, leathery with dentate margins pale to purplish green in colour .Flowers are borne both in axillary and terminal spikes but seed is not produced.
- **ECONOMIC IMPORTANCE:** While 92% of the oil is non-oderiferous, the rest is made up of mixture of sesquiterpenes of which norpatchoulenol and b-patchoulene are major aroma compounds making it a complex contributing to its characteristic odor. The oil has a strong fixative properties and blends very well with oils of sandal wood, vetiver, clove etc giving strength and tenacity for making heavy perfumes of lasting odor.

USES AND HEALTH BENEFITS:

- Patchouli is being mainly used in perfumes, soaps and tobacco products
- Patchouli leaves are used to make herbal tea and herb is used to make Ayurveda medicine
- Patchouli oil works as Anti-depressant, helps soothing inflammation
- It is used to treat skin conditions such as dermatitis, acne, dry or cracked skin, healing cuts and wounds etc
- It helps in easing symptoms of conditions like cold, headache and stomach upset.

CHALLENGES:

- The land selected for patchouli cultivation should be flood free and not subjected to water stagnation for any length of period

- Individual beds should be leveled to ensure quick surface drainage
- Patchouli thrives best in hot and humid conditions

CULTIVATION AND MANAGEMENT:

- **SOIL:** It requires well-drained, fertile, slightly acidic and deep loamy soil rich in humus and nutrients
- **CLIMATE:** Patchouli can grow up to an altitude of 800-1000 m above MSL and under a fairly heavy and eventually distributed rainfall ranging from 150-300 cm per annum
- **SEASON OF PLANTING:** April-September (with irrigation) and June-September (rainfed)
- **PROPAGATION:** By stem cuttings
- **IRRIGATION:** The field is irrigated frequently until the plants establish and immediately after transplanting, the field must be irrigated every day for the first 3 to 4 days and subsequently on alternate days for 10 to 15 days
- **MANURING:** A basal dose of 25 kg N, 50 kg P and 50 kg K in the form of Urea, SSP and MOP.
- **HARVESTING:** The first crop is ready for harvesting 4 to 6 months after transplanting. Subsequent harvests can be taken after every 3-4 months depending on soil fertility and climate. The first 2 or 3 harvests gives good yield and high quality oil
- Yield of fresh leaves is 8000kg/acre which on shade drying reduces to 1600kg and on distillation yields 60kg of oil
- **PEST AND DISEASES:** Root knot nematode attacks patchouli plant, heavily infested plants are stunted in growth and wilt. Application of Furadan@ 20 kg/ha and Dasanit 150 kg/ ha checks the infection.

The crop gets affected by Leaf Blight. Brown spots appear near the margin when the plants are one year and spots enlarge irregularly, cover the entire lamina and dries up. Application of two sprays of Dithane Z-78 0.5% is the recommended control measure.



FIG 1: PATCHOULI PLANT



FIG2: PATCHOULI OIL

SOURCE: GOOGLE IMAGE

FARM ECONOMICS:

FARM ECONOMICS OF PATCHOULI CULTIVATION IN ONE ACRE OF LAND AREA		
CAPITAL INVESTMENT		
SL NO	PARAMETERS	APPROX AMOUNT IN Rs
A	INITIAL EXPENSES	
1	LAND HOLDING	OWN LAND
2	LAND DIGGING	20,000
3	FENCING	10,000
4	COST OF POWER TILLER (SELF DRIVEN)	1,60,000
5	SOIL LEVELLING AND TILLERING INCLUDING DIESEL COST	15,000
6	STOREHOUSE CONSTRUCTION COST 100 SQ FT @ 200/-PER SQ FT	20,000
	TOTAL	2,25,000
B	IRRIGATION AND IMPLEMENTS	
1	TUBEWELL/ SUBMERSIBLE PUMP COST	10,000
2	PUMP AND ELECTRICAL INSTALLATION	20,000
3	AGRICULTURAL EQUIPMENTS	4,000
4	DRYING PLATFORM (OIL EXTRACTION)	25,000
	TOTAL	59,000
	TOTAL CAPITAL INVESTMENT	2,84,000
	RECURRING COST	

Model Project Profile

C	ESSENTIAL CREDENTIALS	
1	COST OF LABOUR (1. LAND PREPARATION COST-12 MANDAYS@ 350/-PER MANDAYS, 2. PLANTING-12 MANDAYS @350/-PER MANDAYS, 3.FENCING-12 MANDAYS @ 350/-PER MANDAYS, 4. HARVESTING (1 TIME IN 1ST YEAR/3 TIME IN REST YEARS)-12MANDAYS @ 350/-PER MANDAYS PER HARVESTING, TOTAL-48 MANDAYS, 5. OIL EXTRACTION-12 MANDAYS @ 350/-PER MAN DAYS	16800
2	FERTILISER AND OTHER AGRO CHEMICALS LUMPSUM	15000
	TOTAL	31,800
D	PLANTING AND MULCHING MATERIAL	
1	PATCHOULI PLANTING MATERIAL (15000 / ACRE) (4/- /PLANTING MATERIAL)	60,000
2	MULCHING (USING BLACK POLYTHENE MULCH)	20,000
3	MISCELLANEOUS	20,000
	TOTAL	1,00,000
	TOTAL RECURRING COST	1,31,800
	GRAND TOTAL (CAPITAL COST + RECURRING COST)	4,15,800
	INCOME STATEMENT	
SL NO	PARAMETERS	APPROX AMOUNT IN Rs
1	TOTAL PRODUCTION OF OIL - 60 KG/ ACRE AFTER 1 YEAR, SELLING PRICE-1650/ KG	99,000
2	FRESH HERB PRODUCTION, 55 q/ ACRE ie 5500 kg/ acre AFTER 3-4 CUTTINGS IN A YEAR, SELLING PRICE OF HERB- 150/ KG (DEDUCTING THE INCOME OF OIL AS IN 5500 KG OF HERBS,60 KG OIL IS INCLUDED)	726000
	TOTAL INCOME	8,25,000
	PROFIT AND LOSS STATEMENT	
SL NO	PARAMETERS	APPROX AMOUNT IN Rs
1	CAPITAL INVESTMENT	2,84,000
2	RECURRING COST	1,31,800
3	TOTAL INVESTMENT UPTO 1 YEAR	4,15,800
4	TOTAL INCOME	8,25,000
5	TOTAL PROFIT AFTER 1 YEAR	6,93,200

NOTE: Patchouli is ready for harvesting 6 months after transplanting and subsequent harvests can be done at 3-5months interval upto 3 years

MEANS OF FINANCE

Model Project Profile

Particulars	Amount In Rs.....
Margin Money ((25%)	103950
Bank Loan (75%)	311850
Total Project Cost	415800

PROJECTED PROFITABILITY STATEMENT

(Amount in Rs.....)

	PARTICULARS/YEAR	1ST YEAR	2ND YEAR	3RD YEAR
A	INCOME			
A-1	TOTAL PRODUCTION OF OIL - 60 KG/ ACRE FROM 2ND YEAR, SELLING PRICE-1650/ KG	0	99,000	99,000
A-2	FRESH HERB PRODUCTION, 55 q/ ACRE ie 5500 kg/ acre AFTER 3-4 CUTTINGS IN A YEAR, SELLING PRICE OF HERB- 150/ KG (DEDUCTING THE INCOME OF OIL AS IN 5500 KG OF HERBS,60 KG OIL IS INCLUDED) (25% PRODUCTION IN 1ST YEAR)	206250	7,26,000	7,26,000
	TOTAL INCOME	206250	8,25,000	8,25,000
B	EXPENDITURE			
B-1	PATCHOULI PLANTING MATERIAL (15000 / ACRE) (4/- /PLANTING MATERIAL)	60,000		
B-2	MULCHING (USING BLACK POLYTHENE MULCH)	20,000		
B-3	MISCELLANEOUS	20,000	20000	20000
B-4	LABOUR 1. LAND PREPARATION -- MANDAYS 2. PLANTING-12 MANDAYS , 3.FENCING-12 MANDAYS, 4. HARVESTING (1 TIME IN 1ST YEAR/3 TIME IN REST YEARS)-12 MANDAYS PER HARVESTING , TOTAL-48 MANDAYS @Rs.350 /- FOR 1ST YEAR) 5. OIL EXTRACTION-12 MANDAYS @ 350/-PER MAN DAYS (72 MANDAYS FOR 2ND & 3RD YEAR)	16,800	25200	25200
B-5	FERTILISER AND OTHER AGRO CHEMICALS LUMPSUM	15,000	15,000	15,000
	TOTAL EXPENDITURE	1,31,800	60200	60200
C	GROSS PROFIT (A-B)	74,450	7,64,800	764800
D	Interest on bank loan	26507	25742	12871
E	Depreciation (10%-wdvm)	23900	21510	19359
F	Total D+E	50407	47252	32230
G	Net profit (C-F)	24043	717548	732570

FINANCIAL ANALYSIS

(Amount in Rs.....)

Model Project Profile

Particular / Year	1st year	2nd year	3rd year
Expenses			
Initial Cost	2,84,000		
Recurring cost	1,31,800	60200	60200
TOTAL COST	415800	60200	60200
BENEFIT			
TOTAL BENEFIT	74450	764800	764800
NET BENEFIT	-341350	704600	704600
DF @ 15 %	0.87	0.76	0.66
PWC	361746	45752	39732
PWB	64772	581248	504768
NPW	703558		
BCR (@15%DF)	2.57:1		
DF@50%		0.44	0.3
PWC		26488	18060
PWB		336512	229440
NPW	292700		
IRR (%)	74.93		

REPAYMENT SCHEDULE

Project Period : 3 years

Moratorium period : 11 MONTHS INCLUDING PROJECT PERIOD

Bank ROI: 8.5%

(Amount in Rs.....)

Particulars	1st year	2nd year	3rd year
Opening Balance	311850	302850	151425
Interest @8.50 p a	26507	25742	12871
Principal	9000	151425	151425
Total Return (Principal + Interest)	35507	177167	164296
Closing Balance	302850	151425	NIL

DEBT SERVICE COVERAGE RATIO

(Amount in Rs.....)

PARTICULARS/ YEAR	1ST	2ND	3RD
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Model Project Profile

(A) Total Income:			
Net Profit	24043	717548	732570
Depreciation	23900	21510	19359
Interest on loan	26507	25742	12871
Total=	74450	764800	764800
(B) Total Commitment:			
Bank Loan	9000	151425	151425
Interest loan	26507	25742	12871
Total =	35507	177167	164296
DSCR (A/B)=	2.10	4.32	4.66
Average DSCR=	3.69		

DEPRECIATION SCHEDULE

(Amount in Rs.....)

Particulars	1st yr	2nd yr	3rd yr
Asset Value (On ITEM : A(4,6,) & B of capital cost)	239000	215100	193590
Depreciated value (10%-WDVM)	23900	21510	19359
Closing value	215100	193590	174231