

**Package of Practice**

# **Sugandhmantri Cultivation**



**ADVANCING**  
NORTH EAST

**An Initiative of North Eastern Council (NEC)**

Implemented by North Eastern Development Finance Corporation Limited (NEDFi)

## **SUGANDHMANTRI**

**SCOPE OF THE CROP:** Sugandhmantri is occurring sparsely in North-Eastern India mainly confined to Southern part of Tripura, Barak Valley of Assam, Mizoram etc. The North Eastern India with its enhancing beauty characterized by a variety of ecological niche has been a perennial source of curiosities and challenges to human intellect and naturalists. The rich floristic diversity of N.E India and its uniqueness provide tremendous scope for investigation. Sugandhmantri is on high demand, which occurs in restricted population in small patches of its limited habitat.

**VARIETIES OF THE CROP:** Emerald Gem, Purple Sword, Selby, Lemon Glow

### **BACKGROUND OF THE CROP:**

- **SCIENTIFIC NAME:** Homalomena aromatica
- **FAMILY:** Araceae
- **ECONOMIC PART:** Roots
- **CONSTITUENTS:** Thymol, Pinene, Methyl Anthranilate, Indole and Benzyl Alcohol
- **BOTANICAL DESCRIPTION:** It is a rhizomatous aromatic perennial herb, 60 cm tall, stem 1-3 cm in diameter, petiole pale to mid-green, peduncle erect to declinate. Its aromatic rhizomes contain an essential oil which is used for blending in most oriental perfumes.

On steam distillation, the rhizome yields a yellow colored highly aromatic essential oil. The oil is widely used in cosmetics, perfumery and aromatherapy, food and flavor industry due to its great aromatic and healing properties.

### **USES AND HEALTH BENEFITS:**

- The local people of Barak Valley uses Homalomena as a vegetable
- The essential oil has good demand in perfumery and cosmetic industry
- The crude material after extraction of essential oil is largely used in making incense sticks
- Homalomena is used in traditional medicine in the treatment of skin diseases, deafness and as a blood purifier
- Its aromatic oil is used for immune support as well as for treating cold, fighting infection and reducing pain

#### **CHALLENGES:**

- The plant being a sub-tropical species loves warm and humid climate with annual rainfall ranging 2000-3000 mm
- The plant is a moisture and shade loving species and grows best under 40-60 % shade
- The best time of planting is April to June with pre-monsoon shower to the beginning of monsoon

#### **CULTIVATION AND MANAGEMENT:**

- **SOIL:** It prefers well-drained sandy-loam to clay-loam soil with organic litter. It prefers acidic soil with ph: 5-6
- **CLIMATE:** It loves warm and humid climate with high annual rainfall ranging from 2000-3000 mm
- **PLANTING:** Fresh rhizomes with active buds of 3-4 cm size may be sprouted within a month in sandy-loam nursery beds. The rhizome pieces after sprouting are transplanted in May to June at furrows 50 cm X 60 cm spacing and cover with soil upto 5 cm
- **MANURING:** It should be fertilized regularly with liquid plant food

- **IRRIGATION:** It requires a regular watering schedule. Homalomena plants do not like to be dry, nor they like to be sitting in water. The soil should be saturated and be sure to provide good drainage
- **PEST AND DISEASE:** No serious pest and diseases are found to affect the plant
- **HARVESTING:** Rhizomes attaining 15 cm long are chosen for harvesting. The harvesting of the plant can be started from third year onwards but harvesting can be done in 2<sup>nd</sup> year also
- **YIELD:** Average fresh yield of rhizome is about 20,000 kg/ ha and on drying it yields 4000 kg dry rhizomes



### **SUGANDHMANTRI PLANT AND SUGANDHMANTRI PRODUCT**

FARM ECONOMICS OF SUGANDH MANTRI 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	160,000
5	SOIL LEVELLING AND TILLERING INCLUDING DIESEL COST	15,000

6	STOREHOUSE CONSTRUCTION COST 100 SQ FT @ 200/-PER SQ FT	20,000
	TOTAL	<b>225,000</b>
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	284,000
	RECURRING COST	
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 AFTER 2 YEAR-12MANDAYS @ 350/-PER MANDAYS PER HARVESTING, 5. OIL EXTRACTION-12 MANDAYS @ 350/-PER MAN DAYS	12,600
2	FERTILISER ABD OTHER AGRO CHEMICALS LUMPSUM	15000
	TOTAL	27,600
D	PLANTING AND MULCHING MATERIAL	
1	SUGANDHMANTRI PLANTING MATERIAL ( 20,000 SLIPS / ACRE) ( 5/- /PLANTING MATERIAL)	100,000
2	MULCHING ( USING BLACK POLYTHENE MULCH)	20,000
3	MISCELLANEOUS	10,000
	TOTAL	130,000
	TOTAL RECURRING COST	157,600
	GRAND TOTAL (CAPITAL COST + RECURRING COST)	441,600
	INCOME STATEMENT	
SL NO	PARAMETERS	APPROX AMOUNT IN Rs
1	TOTAL PRODUCTION OF OIL - 95 KG/ ACRE AFTER 2 YEAR, SELLING PRICE-4000/ KG	380,000
2	FRESH ROOTS PRODUCTION- 8097.1 KG/ ACRE AFTER 2 YEAR, SELLING PRICE OF ROOTS- 150/ KG , DRY ROOTS PRODUCTION- 1619.4 KG/ACRE, SELLING PRICE- 45 Rs / KG ( DEDUCTING THE QUANTITY OF OIL PRODUCED) (1=2.47 ACRES)	907,438
	TOTAL INCOME	907438

## Model Project Profile

PROFIT AND LOSS STATEMENT		
SL NO	PARAMETERS	APPROX AMOUNT IN Rs
1	CAPITAL INVESTMENT	284,000
2	RECURRING COST	157,600
3	TOTAL INVESTMENT UPTO 2 YEAR	479,200
4	TOTAL INCOME	907438
5	TOTAL PROFIT AFTER 2 YEAR	428,238
	NOTE:Sugandhmantri is ready for harvesting 2 years after planting and subsequent harvests can be done upto 3 years	

## MEANS OF FINANCE

Particulars	Amount In Rs.....
Margin Money ( 25%)	119800
Bank Loan (75%)	359400
Total Project Cost	479200

## Projected profitability statement

( Amount in Rs.....)

	PARTICULARS/YEAR	1ST YEAR	2ND YEAR	3RD YEAR	4TH YEAR	5TH YEAR
A	INCOME					
	TOTAL PRODUCTION OF OIL - 95 KG/ ACRE AFTER 2 YEAR, SELLING PRICE- 4000/ KG			380,000	380,000	380,000
	FRESH ROOTS PRODUCTION- 8097.1 KG/ ACRE AFTER 2 YEAR, SELLING PRICE OF ROOTS- 150/ KG , DRY ROOTS PRODUCTION-1619.4 KG/ACRE, SELLING PRICE- 45 Rs / KG ( DEDUCTING THE QUANTITY OF OIL PRODUCED) (1=2.47 ACRES)			907438	907438	907438

## Model Project Profile

	TOTAL INCOME		0	907,438	907438	907438
B	EXPENDITURE					
B-1	SUGANDHMANTRI PLANTING MATERIAL ( 20,000 SLIPS / ACRE) ( 5/- /PLANTING MATERIAL)	100,000				
B-2	MULCHING ( USING BLACK POLYTHENE MULCH)	20,000				
B-3	MISCELLANEOUS	10,000	10,000	10,000	10,000	10000
B-4	COST OF LABOUR ( 1. LAND PREPARATION COST-12 MANDAYS, 2. PLANTING-12 MANDAYS , 3.FENCING-12 MANDAYS , 4. HARVESTING AFTER 2 YEAR-12MANDAYS PER HARVESTING, 5. OIL EXTRACTION-12 MANDAYS @ 350/-PER MAN DAYS ( 36 MANDAYS IN 1ST & 2ND YEAR) AND 72 MANDAYS FOR REST YEARS	12,600	12600	25200	25200	25200
B-5	FERTILISER AND OTHER AGRO CHEMICALS LUMP SUM	15,000	15,000	15,000	15,000	15000
	TOTAL EXPENDITURE	157,600	37,600	50,200	50,200	50200
C	GROSS PROFIT (A-B)	157,600	-37,600	857238	531576	857238
D	Interest on bank loan	0	53116	87847	20999	11450
E	Depreciation (10%-wdvm)	23900	21510	19359	17423	15681
F	Total D+E	23900	74626	107206	38422	27130
G	Net profit (C-F)	181500	112226	750032	493154	830108

## FINANCIAL ANALYSIS

( Amount in Rs....)

Particular / Year	1st year	2nd year	3rd year	4th year	5th year
Expenses					
Initial Cost	284,000				
Recurring cost	157,600	37,600	50,200	50,200	50200
TOTAL COST	441600	37600	50200	50200	50200
BENEFIT					

## Model Project Profile

TOTAL BENEFIT	-157600	-37600	857238	531576	857238
NET BENEFIT	-599200	-75200	807038	481376	807038
DF @ 15 %	0.87	0.76	0.66	0.57	0.5
PWC	384192	28576	33132	28614	25100
PWB	-137112	-28576	565777	302998	428619
<b>NPW</b>	<b>632092</b>				
<b>BCR (@15%DF)</b>	<b>2.27:1</b>				
DF@50%	0.67	0.44	0.3	0.2	0.13
PWC	295872	16544	15060	10040	6526
PWB	-105592	-16544	257171	106315	111441
<b>NPW</b>	<b>8750</b>				
<b>IRR (%)</b>	<b>50.49</b>				

## REPAYMENT SCHEDULE

Project Period : 5 years

Moratorium period : 2 years including Moratorium period

Bank ROI : 8.5%

( Amount in Rs....)

Particulars	1st year	2nd year	3rd year	4th year	5th year
Opening Balance	359400	359400	359400	247050	134700
Interest @8.50 p a	0	0	30549	20999	11450
Deferred 1st yr & 2nd year Interest to 3rd year	0	0	57298		
Principal	0	0	112350	112350	112350
Total Return (Principal + Interest)	0	0	200197	133349	123800
Closing Balance	359400	359400	247050	134700	22350
Note : Interest Rs.28649/- per year for 2 years deferred to 3rd yr					

## DEBT SERVICE COVERAGE RATIO

( Amount in Rs....)

PARTICULARS/ YEAR	1ST	2ND	3RD	4TH	5TH
(A) Total Income:					
Net Profit	-181500	-112226	750032	493154	830108
Depreciation	23900	21510	19359	17423	15681
Interest on loan	0	0	87847	20999	11450



## Model Project Profile

Total=	-157600	-90716	857238	531576	857238
(B) Total Commitment:					
Bank Loan	0	0	112350	112350	112350
Interest loan	0	0	87847	20999	11450
Total =	0	0	200197	133349	123800
DSCR (A/B)=	0.00	0.00	4.28	3.99	6.92
Average DSCR=	3.04				

## Depreciation schedule

( Amount in Rs....)

Particulars	1st yr	2nd yr	3rd yr	4th yr	5th yr
Asset Value (On ITEM : A(4,6,) & B of capital cost)	239000	215100	193590	174231	156808
Depreciated value (10%-WDVM)	23900	21510	19359	17423	15681
Closing value	215100	193590	174231	156808	141127