

Package of Practice

Rosemary Cultivation



ADVANCING
NORTH EAST

An Initiative of North Eastern Council (NEC)

Implemented by North Eastern Development Finance Corporation Limited (NEDFi)

ROSEMARY



Figure 1 : Rosemary Leaves and Oil

SOURCE: GOOGLE IMAGE

SCOPE OF THE CROP:

Rosemary is an evergreen perennial shrub native to the western Mediterranean region (Foster. 1986). In addition to its tradition for essential oils, rosemary is being increasingly utilised for its anti-oxidant properties. It is an aromatic and distinctive herb with a sweet, resinous flavour. Rosemary is often used for seasoning poultry, lamb, stews, and soups.

Numerous biological activities of rosemary are recognized including antioxidant, antibacterial and antifungal, anti-cancer, anti-inflammatory, among others. Therefore it has a vast range of industrial applications such as food and food packaging, pharmaceutical, perfumery and cosmetics industries.

BACKGROUND OF THE CROP :

Scientific name: *ROSEMARINUS OFFICINALIS L.*

ESSENTIAL PARTS: Leaves, the commercial essential oil of rosemary is obtained by distillation of the fresh or dried leaves

Hailing from the shores of the Mediterranean Sea, rosemary does best in warm areas with fair humidity, where it can grow into a shrub several feet in height. In fact, rosemary grows so vigorously in ideal conditions that it can become a bit of a burden if not managed properly. This herb can be grown outdoors as a perennial shrub in Zones 7 and warmer. In colder areas, it should be kept in a pot and brought indoors for the winter.

MEDICINAL USES:

- Improve Brain Function
- Stimulates Hair Growth
- Help Relieve Pain
- Repels Certain Bugs
- Eases Stress
- Increase Circulation
- Help Perk You Up
- Reduce Joint Inflammation.

CHALLENGES:

- Leaves Turn Yellow or Brown from Cultural Problems
- Leaves Stippled Yellow by Spider Mites
- Plants Weakened, Foliage Yellowed by Whiteflies
- Foliage Damaged by Scale
- Growth Stunted and Leaves Damaged by Mealybugs
- Older Leaves Rotted by Botrytis Blight.

PLANTATION AND MANAGEMENT:

- **SOIL:** Rosemary requires a well-drained loamy soil with a pH of 5.5 to 7.0. When the pH is below 5.0, dolomite @ 2.5t/ha should be applied and mixed well in the soil.
- **CLIMATE:** It requires cool winter and mild summer below 30° C. The temperate climatic zones ranging from 900 to 2500 m above MSL are suitable for rosemary cultivation.
- **PROPAGATION:** Select 10 - 15 cm length semi hardwood cuttings before flowering leaving upper few whorls intact at the top, the remaining leaves should be removed from the cuttings before planting. The cuttings should be planted in a mixture of soil, sand and leaf molds in polythene bags for rooting. 3% solution of Panchagavya or 10% CPP solution can be used to soak the cuttings for 20 minutes before planting.
- **PLANTING TIME:** Rosemary rooted cuttings can be planted during the months of June-July and September - October under rainfed conditions. The rooted cuttings of

rosemary should be planted at a spacing of 45 x 45 cm. The central shoot should be removed 6 months after planting to promote lateral shoots.

- **FERTILIZER:** Application of well decomposed farmyard manure @ 50 t/ha and biodynamic compost @ 5 t/ha .Application of vermicompost @ 5 t/ha Application of Neem cake @ 1.25 t/ha .Application of Azospirillum and Phosphobacterium @ 25 kg/ha
Foliar spraying of Panchagavya, an organic preparation @ 3 per cent at monthly intervals should be done. Spraying panchagavya 5 times a year will increase the yield and quality of the green leaves.
- **IRRIGATION:** The crop can be grown under rainfed conditions as a dry farming crop. Irrigating the crop during the drought period will increase herbage yield.
- **PEST AND DISEASES:** Leaf blight , beetles, botrytis blight
- **HARVESTING AND YIELD:** Rosemary leaves are harvested with the onset of flowering. The flowering tips measuring 30-35 cm long with leaves are harvested with a sickle. All the shoots can be used for distillation at the stage when they attain maximum size but before becoming woody. This is because hard wood shoot on distillation gives an undesirable odour of turpentine. In the first year the crop gets ready for harvest at 215 days after planting. In the subsequent years three harvests per year at an equal interval can be taken up. Three harvests at an interval of 3-4 months can be done per year.
- Dried leaves yield ---- 2.5t /ha /year
- Oil yield --- 80-100 kg/ha/year

FARM ECONOMICS OF ROSEMARY CULTIVATION IN 1 ACRE 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	5,000
4	COST OF POWER TILLER	160000
5	SOIL LEVELLING, TILLERING INCLUDING DIESEL COST	15000
6	STOREHOUSE CONSTRUCTION COST 100SQ FT@200/-PER SQ FT	20,000

	TOTAL	220,000
B	IRRIGATION AND IMPLEMENTS	
1	TUBEWELL/SUBMERSIBLE PUMP COST	10,000
2	PUMP AND ELECTRICAL INSTALLATION	20,000
3	AGRICULTURAL EQUIPMENTS	4,000
	TOTAL	34,000
	TOTAL CAPITAL INVESTMENT	254,000
	RECURRING COST	
C	ESSENTIAL CREDENTIALS	
1	COST OF LABOUR (1. LAND PREPARATION COST-12 MANDAYS@350/- PER MAN DAYS, 2.PLANTING-12 MAN DAYS@350/- PER MAN DAYS, 3. FENCING-12 MAN DAYS@350/- PER MAN DAYS, 4. HARVESTING(IN 1st YEAR)-- 12 MANDAYS@350/-PER MANDAYS PER HARVESTING	16,800
2	FERTILISER AND OTHER CHEMICALS	30,000
	TOTAL	46,800
D	PLANTING AND MULCHING MATERIAL	
1	20,500plants/acre, 20,500 cuttings (Rs.2/cutting)	41,000
2	MULCHING BY USING BLACK POLYTHENE MULCH	10,000
3	MISCELLANEOUS LUMPSUM	5,000
	TOTAL	56,000
	TOTAL RECURRING COST	102,800
	GRAND TOTAL(CAPITAL COST+ RECURRING COST)	356,800
	INCOME STATEMENT	
SL NO	PARAMETERS	APPROX AMOUNT (Rs)
1	TOTAL PRODUCTION OF DRIED LEAVES - 1000 KG/ACRE AFTER ONE YEAR, SELLING PRICE-Rs300/KG	300,000
	PROFIT AND LOSS STATEMENT	
SL NO	PARAMETERS	APPROX AMOUNT (Rs)
1	CAPITAL INVESTMENT	254,000
2	RECURRING COST	102,800

Model Project Profile

3	TOTAL INVESTMENT UPTO 1 YEAR	356,800
4	TOTAL INCOME	300,000
5	TOTAL PROFIT AFTER ONE YEAR	197,200
NOTE	In the first year the crop gets ready for harvest at 215 days after planting. In the subsequent years three harvests per year at an equal interval can be taken up. Three harvests at an interval of 3-4 months can be done per year. A successful yield can be obtained upto 3-4years of planting	

MEANS OF FINANCE

(Amount in Rs....)

Particulars	Amount In Rs.....
Margin Money (25%)	89200
Bank Loan (75%)	267600
Total Project Cost	356800

PROJECTED PROFITABILITY STATEMENT

(Amount in Rs...)

	PARTICULARS/YEAR	1ST YEAR	2ND YEAR	3RD YEAR	4TH YEAR
A	INCOME				

Model Project Profile

	TOTAL PRODUCTION OF DRIED LEAVES - 1000 KG/ACRE FROM 2ND , SELLING PRICE-Rs300/KG (25% PRODUCTION IN 1ST YEAR I.E.200 KG)	75000	300000	300000	300000
	TOTAL INCOME	75000	300000	300000	300000
B	EXPENDITURE				
B-1	PLANTING AND MULCHING MATERIAL				
B-2	20,500plants/acre, 20,500 cuttings (Rs.2/cutting)	41,000			
B-3	MULCHING BY USING BLACK POLYTHENE MULCH	10,000			
B-4	MISCELLANEOUS LUMPSUM	5,000	5000	5000	5000
B-5	COST OF LABOUR (1. LAND PREPARATION COST-12 MANDAYS@350/- PER MAN DAYS, 2.PLANTING-12 MAN DAYS@350/- PER MAN DAYS, 3. FENCING-12 MAN DAYS@300/- PER MAN DAYS, 4. HARVESTING (ONE TIME IN 1ST YEAR) TOTAL 48 MANDAYS (FROM 2ND YEAR 48 MANDAYS FOR HARVESTING)	16,800	16800	16800	16800
B-6	FERTILISER AND OTHER CHEMICALS	30,000	30,000	30,000	30,000
	TOTAL EXPENDITURE	102800	51800	51800	51800
C	GROSS PROFIT (A-B)	-27800	248200	248200	248200
D	Interest on bank loan	0	45492	15164	7582
E	Depreciation (10%-wdvm)	21400	19260	17334	15601
F	Total D+E	21400	64752	32498	23183
G	Net profit (C-F)	-49200	183448	215702	225017

FINANCIAL ANALYSIS

(Amount in Rs....)

Particular / Year	1st year	2nd year	3rd year	4th year
<i>Expenses</i>				

Model Project Profile

Initial Cost	254,000			
Recurring cost	102800	51800	51800	51800
TOTAL COST	356800	51800	51800	51800
BENEFIT				
TOTAL BENEFIT	75000	300000	300000	300000
NET BENEFIT	-281800	248200	248200	248200
DF @ 15 %	0.87	0.76	0.66	0.57
PWC	310416	39368	34188	29526
PWB	65250	228000	198000	171000
NPW	248752			
BCR (@15%DF)	1.6:1			
DF@50%	0.67	0.44	0.3	0.2
PWC	239056	22792	15540	10360
PWB	50250	132000	90000	60000
NPW	44502			
IRR (%)	57.63			

REPAYMENT SCHEDULE

Project period : 4 years

Moratorium period : 1 year including Moratorium period

Bank Roi : 8.5%

(Amount in Rs...)

Particulars	1st year	2nd year	3rd year	4th year
Opening Balance	267600	267600	178400	89200
Interest @8.50 p a	0	22746	15164	7582
Deferred 1st yr interest to 2nd Year	0	22746		
Principal	0	89200	89200	89200
Total Return (Principal + Interest)	0	134692	104364	96782
Closing Balance	267600	178400	89200	NIL

DEBT SERVICE COVERAGE RATIO

(Amount in Rs.....)

PARTICULARS/ YEAR	1ST	2ND	3RD	4TH
(A) Total Income:				
Net Profit	-49200	183448	215702	225017
Depreciation	21400	19260	17334	15601
Interest on loan	0	45492	15164	7582
Total=	-27800	248200	248200	248200
(B) Total Commitment:				
Bank Loan	0	89200	89200	89200
Interest loan	0	45492	15164	7582
Total =	0	134692	104364	96782
DSCR (A/B)=	0.00	1.84	2.38	2.56
Average DSCR=	2.26			

DEPRECIATION SCHEDULE

(Amount in Rs...)

Particulars	1st yr	2nd yr	3rd yr	4th yr
Asset Value (On ITEM : A(4,6) & B of Capital Cost)	214000	192600	173340	156006
Depreciated value (10%-WDVM)	21400	19260	17334	15601
Closing value	192600	173340	156006	140405