

Package of Practice

Sarpagandha Cultivation



**ADVANCING
NORTH EAST**

An Initiative of North Eastern Council (NEC)

Implemented by North Eastern Development Finance Corporation Limited (NEDFi)

SARPAGANDHA

SCOPE OF THE CROP: NE states of India having rich tribal culture, bio-diversity etc. offers immense scope for production of medicinal plants like sarpagandha, pipili, ginseng etc. These plants can be grown in small plantations, large farms and also as single species, intercrop etc. They can also be incorporated in agro-forestry models.

VARIETIES: R.S-1, local collections from wild

BACKGROUND OF THE CROP:

BOTANICAL NAME: Rauvolfia serpentina

The plant is also known as Indian Snakeroot. It is an important herbal or medicinal plant mostly grown in hilly areas of Himalayan regions. Sarpagandha plant roots can get 50-60 cm deep into the soil with tuberous branches.

ESSENTIAL PARTS: Roots and Leaves

CHEMICAL COMPOSITION: Contains bioactive chemicals including ajmaline, deserpidine, rescinnamine, serpentine and yohimbine.

MARKET POTENTIAL: As its domestic demand is quite large, importers, buyers within the country, processors etc. throng the markets for procurement of this plant every year. As the production is much less in India, the internal market itself is highly potential.

MEDICINAL USES:

- ✓ It is used for the treatment of high blood sugar
- ✓ Cures insomnia, hysteria and hypertension
- ✓ Used in different countries as sedative and tranquilizer.
- ✓ The long tapering snake-like roots are rich source of reserpine used in manufacture of hypertensive and sedative drug.

PLANTATION AND MANAGEMENT:

- **SOIL:** Sandy alluvial loam to red lateritic loam having acidic to neutral reaction.
- **CLIMATE:** Temperature range of 10-30 degree C is favorable for the plants.
- **PROPAGATION:** Seeds, root cuttings and stem cuttings.
- **PLANTING TIME:** June and July. The seedlings which are 7.5-12 cm high are dug out from nursery beds and planted.
- **FERTILIZER:** Organic manure @ 20-30 t/ha and NPK@ 20:30:30 kg/ha .
- **IRRIGATION:** Fortnightly during hot dry season and once a month during winter.
- **PEST AND DISEASES:** Caterpillar and Die-back, leaf spot
- **HARVESTING AND YIELD:** Harvested after 2 or 3 years from planting. In addition to the tap root, fibrous secondary roots should also be collected as they are rich in alkaloid content.

About 2000 kg of dried roots can be obtained from 1 hectare.



FIG 1: SARPAGANDHA DRIED ROOTS



FIG 2: SARPAGANDHA PRODUCT

SOURCE: GOOGLE IMAGE

SARPAGANDHA FARM ECONOMICS:

PARAMETERS	APPROX AMOUNT IN Rs
CAPITAL INVESTMENT	
INITIAL EXPENSES	
LAND HOLDING	Own land
LAND DIGGING	20,000
FENCING	5,000
COST OF POWER TILLER (Self driven)	160000
SOIL LEVELLING, TILLERING INCLUDING DIESEL COST	15000
STOREHOUSE CONSTRUCTION COST 100SQ FT@200/-PER SQ FT	20,000
TOTAL	2,20,000
IRRIGATION AND IMPLEMENTS	
TUBEWELL/SUBMERSIBLE PUMP COST	10,000
PUMP AND ELECTRICAL INSTALLATION	20,000
AGRICULTURAL EQUIPMENTS	4,000
TOTAL	34,000
TOTAL CAPITAL INVESTMENT	2,54,000
RECURRING COST	
ESSENTIAL CREDENTIALS	
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 (FROM 2ND YEAR)-- 12 MANDAYS@350/-PER MANDAYS PER	12,600

Model Project Profile

HARVESTING, SO TOTAL-36 MAN DAYS IN 1ST YR,	
FERTILISER AND OTHER CHEMICALS	15,000
TOTAL	27,600
PLANTING AND MULCHING MATERIAL	
(15000 PLANTS PER ACRE) (RS 7/PLANT)= 1,05,000	1,05,000
MULCHING BY USING BLACK POLYTHENE MULCH	10,000
MISCELLANEOUS LUMPSUM	5,000
TOTAL	1,20,000
TOTAL RECURRING COST	1,47,600
GRAND TOTAL(CAPITAL COST+ RECURRING COST)	4,01,600

INCOME STATEMENT	
PARAMETERS	APPROX AMOUNT (Rs)
TOTAL PRODUCTION OF DRIED ROOTS-800 KG/ACRE AFTER ONE YEAR, SELLING PRICE-600-800/KG	4,80,000
PROFIT AND LOSS STATEMENT	
PARAMETERS	APPROX AMOUNT (Rs)
CAPITAL INVESTMENT	2,54,000
RECURRING COST	1,47,600
TOTAL INVESTMENT UPTO 1 YEAR	4,01,600
TOTAL INCOME (In 2ND YEAR)	4,80,000
TOTAL PROFIT AFTER IN TWO YEARS	3,32,400

MEANS OF FINANCE

Particulars	Amount In Rs.....
Margin Money (25%)	100400
Bank Loan (75%)	301200
Total Project Cost	401600

PROJECTED PROFITABILITY STATEMENT

(Amount in Rs.....)

Model Project Profile

PARTICULARS/YEAR	1ST YEAR	2ND YEAR	3RD YEAR
INCOME			
TOTAL PRODUCTION OF DRIED ROOTS-800 KG/ACRE AFTER ONE YEAR, SELLING PRICE-600-800/KG	0	480000	480000
TOTAL INCOME	0	480000	480000
EXPENDITURE			
PLANTING AND MULCHING MATERIAL (15000 PLANTS PER ACRE) (RS 7/PLANT)= 1,05,000	1,05,000		
MULCHING BY USING BLACK POLYTHENE MULCH	10,000		
MISCELLANEOUS LUMPSUM	5,000		
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, SO TOTAL-36 MAN DAYS IN 1ST YR,	12,600	864	864
FERTILISER AND OTHER CHEMICALS	15,000	15,000	15,000
TOTAL EXPENDITURE	147600	15864	15864
GROSS PROFIT (A-B)	-147600	464136	464136
Interest on bank loan	0	51204	12801
Depreciation (10%-wdvm)	21400	19260	17334
Total D+E	21400	70464	30135
Net profit (C-F)	-169000	393672	434001

FINANCIAL ANALYSIS

(Amount in Rs.....)

Particular / Year	0 year	1st year	2nd year	3rd year
Expenses				
Initial Cost	2,54,000			
Recurring cost	1,47,600	147600	15864	15864
TOTAL COST	401600	147600	15864	15864
BENEFIT				
TOTAL BENEFIT	0	0	480000	480000
NET BENEFIT	0	-147600	464136	464136
DF @ 15 %	1	0.87	0.76	0.66
PWC	0	128412	12057	10470

Model Project Profile

PWB	0	0	364800	316800
NPW	530661			
BCR (@15%DF)	4.51:1			
DF@50%	1	0.67	0.44	0.3
PWC	401600	98892	6980	4759
PWB	0	0	211200	144000
NPW	-157031			
IRR (%)	42.01			

REPAYMENT SCHEDULE

PROJECT PERIOD : 3 YEARS

MORATORIUM PERIOD : 1 YEAR INCLUDING PROJECT PERIOD

BANK ROI : 8.5% pa

(Amount in Rs.....)

Particulars	1st year	2nd year	3rd year
Opening Balance	301200	301200	150600
Interest @8.50 p a	0	25602	12801
1st Yr Interest Deferred to 2nd year		25602	
Principal	0	150600	150600
Total Return (Principal + Interest)	0	201804	163401
Closing Balance	301200	150600	0

DEBT SERVICE COVERAGE RATIO

(Amount in Rs.....)

PARTICULARS/ YEAR	1 ST	2ND	3RD
(A) Total Income:			
Net Profit	-169000	393672	434001
Depreciation	21400	19260	17334
Interest on loan	0	25602	12801
Total=	-147600	438534	464136
(B) Total Commitment:			
Bank Loan	0	150600	150600
Interest loan	0	25602	12801

Model Project Profile

Total =	0	176202	163401
DSCR (A/B)=	0.00	2.49	2.84
Average DSCR=	1.78		

DEPRECIATION SCHEDULE

(Amount in Rs.....)

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