

Package of Practice

Grithkumari (Aloe Vera) Cultivation



**ADVANCING
NORTH EAST**

An Initiative of North Eastern Council (NEC)

Implemented by North Eastern Development Finance Corporation Limited (NEDFi)

ALOE VERA

SCOPE OF THE CROP:

NE states of India having rich tribal culture , bio-diversity etc offers immense scope for production of medicinal plants like aloevera and many more. 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.

A large variation in climatic and soil conditions in northeastern India sustain a variety of medicinal plant species, which may be cultivated according to their niche. Aloe vera doesn't require much water and so within a very little amount of irrigation its cultivation can be done successfully.



Figure 1 : Aloe Vera Leaves
SOURCE-GOOGLE

BACKGROUND OF THE CROP :

Aloe Vera is the most popular plant in Indian used to treat many conditions. It is derived from the *Latin word Vera which means true*. Aloe Vera is the true synonym of the word medicine. It has a 420 different plant species. Aloe vera is the most profitable farming worldwide. It is used in different sectors, such as the medical industry, cosmetic industry, food industry, and many more. In different languages, aloe vera is called by various names. Here we show local names of aloe vera in India.

- *Musambar, Gwarpatha & Ghikanwar – Hindi*
- *Korphad – Marathi*
- *Kalabandha – Telugu*
- *Chirrukattalai – Tamil*
- *Lolisara – Kannada*
- *Kattawazha – Malayalam*
- *Kumari – Sanskrit*
- *Ghrithakumari – Bengali*
- *Kunwar – Gujarathi*
- *Kumari & Mushabora – Oriya*

BOTANICAL NAME: Aloe vera

FAMILY: Liliaceae

ESSENTIAL PARTS: Leaves

CHEMICAL COMPOSITION: It contains anti-xylose, mannose, glucose, galacturonic acid, arabinose, galactose, cellulose, and aldopentose. Others are anti-inflammatory, antiviral, antimycotic, antibacterial, and immune stimulating

Aloe vera has qualities of enzymes that are carboxypeptidase, lipase, cellulose, catalase, peroxidase, alkaline phosphatase, liaise, bradykinase, and amylase. These help to reduce inflammation when applied on the skin.

MARKET POTENTIAL: As its domestic demand is quite large, importers, buyers within the country, processors etc through the markets for procurement of this plant every year. As the production is much less in India, the internal market itself is highly potential. Aloe vera farming is cost-effective farming that provides a high profit.

MEDICINAL USES:

- ✓ It contains healthful plant compounds
- ✓ It has antioxidant and antibacterial properties
- ✓ It accelerates wound healing
- ✓ It reduces dental plaque
- ✓ It helps treat canker sores
- ✓ It reduces constipation
- ✓ It may improve skin and prevent wrinkles
- ✓ It lowers blood sugar levels.

CHALLENGES :

- When the Aloe Vera isn't getting enough light it doesn't grow well
- Aloe Vera if gets too much water it suffers from water-logging conditions
- If Aloe Vera is planted in the wrong soil mix then the plant face some horrible consequences
- Aloe Vera when located in a hot window, it turns black and leaf spots can be seen
- If Aloe Vera plant was stressed when we bought it then it also faces challenges regarding the growth of the crop.

PLANTATION AND MANAGEMENT:

- **SOIL:** Aloe vera is best to produce where the pH range of soil is upto 8.5. This plant is suitable to grow in black cotton soils. It is best to produce in the soil that is salty in nature.
- **CLIMATE:** Aloe Vera is a warm tropical crop. It easily cultivated in dry regions, low rainfall areas and in warm, humid conditions. Aloe vera plant is sensitive in severe cold conditions. Aloe vera can't be grown in cold areas.

- **PROPAGATION:** It produces offshoots at the base close to soil level and is use for propagation .
- **PLANTING TIME:** June-July and Sept-Oct. Field is ploughed thoroughly and beds of suitable sizes are formed. Suckers are planted at 90X90 cm spacing.
- **FERTILIZER:** Applied about 8-10 tonnes FYM/ha (farmyard manure/hectare) before the land preparation. 35 kg N (nitrogen), 70 kg P 20 5, Potassium (K20 10 %) per hectare added before the last plowing. 35-40 kg N applied in September-October month and if organic matter is high in the soil, then reduced N drops. 350-400 kg Neem Cake/ ha applied for controlling termites.
- **IRRIGATION:** It doesn't require much water, annually 4-6 irrigation cycles are sufficient for their growth.
- **PEST AND DISEASES:** Caterpillar and Die-back, leaf spot, anthracnose
- **HARVESTING AND YIELD:** The commercial yield is obtained from 2nd year and the plant can be harvested after 7-8 months of planting. The leaves close to the base are cut with the help of scissors or secature or a knife and care must be taken so that the gel from the leaves doesn't drip off.
- At an average around 15 to 20 tonnes / ha of leaves can be obtained and from a well-irrigated plot around 25-30 tonnes/ha can be obtained. The main income is generated after 2 years of crop cultivation.

Model Project Profile

SL NO	PARAMETERS	APPROX AMOUNT IN Rs
FARM ECONOMICS OF ALOE VERA CULTIVATION IN 1 ACRE LAND AREA		
CAPITAL INVESTMENT		
A	INITIAL EXPENSES	
1	LAND HOLDING	Own land
2	LAND DIGGING	20,000
3	FENCING	5,000
4	COST OF POWER TILLER (SELF DRIVEN)	160000
5	SOIL LEVELLING, TILLERING INCLUDING DIESEL COST	15000
6	STOREHOUSE CONSTRUCTION COST 100SQ FT@200/-PER SQ FT	20,000
	TOTAL	2,20,000
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	2,54,000
RECURRING COST		
C	ESSENTIAL CREDENTIALS	
1	COST OF LABOUR (1. LAND PREPARATION COST-12 MANDAYS@350/- PER MAN DAYS, 2.PLANTING-20 MAN DAYS@350/- PER MAN DAYS, 3. FENCING-12 MAN DAYS@350/- PER MAN DAYS, , SO TOTAL-44 MAN DAYS IN 1ST YR	15,400
2	FERTILISER AND OTHER CHEMICALS	15,000
	TOTAL	30,400
D	PLANTING AND MULCHING MATERIAL	
1	SUCKERS COST (PER SUCKER 0.75Rs) (4000 suckers/acre)	3,000
2	MULCHING BY USING BLACK POLYTHENE MULCH	10,000
3	MISCELLANEOUS LUMPSUM	5,000
	TOTAL	18,000
	TOTAL RECURRING COST	48,400
	GRAND TOTAL(CAPITAL COST+ RECURRING COST)	3,02,400
INCOME STATEMENT		
SL NO	PARAMETERS	APPROX AMOUNT (Rs)
1	TOTAL PRODUCTION OF LEAVES- 10 tonnes /ACRE AFTER ONE YEAR, SELLING PRICE-Rs18000/tonnes	1,80,000
PROFIT AND LOSS STATEMENT		
SL NO	PARAMETERS	APPROX AMOUNT (Rs)
1	CAPITAL INVESTMENT	2,54,000
2	RECURRING COST	48,400
3	TOTAL INVESTMENT UPTO 1 YEAR	3,02,400
4	TOTAL INCOME (IN 2ND YEAR)	1,80,000
5	TOTAL PROFIT AFTER ONE YEAR	105600

MEANS OF FINANCE

Model Project Profile

Particulars	Amount In Rs.....
Margin Money (25%)	75600
Bank Loan (75%)	226800
Total Project Cost	302400

PROJECTED PROFITABILITY STATEMENT

(Amount in Rs...)

	PARTICULARS/YEAR	1ST YEAR	2ND YEAR	3RD YEAR	4TH YEAR
A	INCOME				
	SALE OF LEAVES- 10 tonnes /ACRE FROM 2ND YEAR ONWARDS , SELLING PRICE-Rs15000/tonnes	0	180000	180000	180000
	TOTAL INCOME	0	180000	180000	180000
B	EXPENDITURE				
B-1	PLANTING AND MULCHING MATERIAL				
B-2	SUCKERS COST (PER SUCKER O.75Rs) (4000 suckers/acre)	3,000			
B-3	MULCHING BY USING BLACK POLYTHENE MULCH	10,000			
B-4	MISCELLANEOUS LUMP SUM	5,000			
B-5	COST OF LABOUR (1. LAND PREPARATION COST-12 MANDAYS@350/- PER MAN DAYS, 2.PLANTING-20 MAN DAYS@350/- PER MAN DAYS, 3. FENCING-12 MAN DAYS@350/- PER MAN DAYS, , SO TOTAL-44 MAN DAYS IN 1ST YR	15,400	840	840	840
B-6	FERTILISER AND OTHER CHEMICALS	15,000	15,000	15,000	15,000
	TOTAL EXPENDITURE	48400	15840	15840	15840
C	GROSS PROFIT (A-B)	-48400	164160	164160	164160
D	Interest on bank loan	19278	19278	12852	6426
E	Depreciation (10%-wdvm)	21400	19260	17334	15601
F	Total D+E	40678	38538	30186	22027
G	Net profit (C-F)	-89078	125622	133974	142133

FINANCIAL ANALYSIS

Model Project Profile

(Amount in Rs...)

Particular / Year	0 year	1st year	2nd year	3rd year	4th year
Expenses					
Initial Cost	2,54,000				
Recurring cost	48,400	48400	15840	15840	15840
TOTAL COST	302400	48400	15840	15840	15840
BENEFIT					
TOTAL BENEFIT	0	0	180000	180000	180000
NET BENEFIT	0	-48400	164160	164160	164160
DF @ 15 %	1	0.87	0.76	0.66	0.57
PWC	0	42108	12038	10454	9029
PWB	0	0	136800	118800	102600
NPW	284570				
BCR (@15%DF)	4.86:1				
DF@50%	1	0.67	0.44	0.3	0.2
PWC	302400	32428	6970	4752	3168
PWB	0	0	79200	54000	36000
NPW	-180518				
IRR (%)	36.41				

REPAYMENT SCHEDULE

PROJECT PERIOD : 4 YEARS

MORATORIUM PERIOD : 1 YEAR INCLUDING PROJECT PERIOD

BANK ROI : 8.5%

(Amount in Rs...)

Particulars	1st year	2nd year	3rd year	4th year
Opening Balance	226800	226800	151200	75600
Interest @8.50 p a	19278	19278	12852	6426
Principal	0	75600	75600	75600
Total Return (Principal + Interest)	19278	94878	88452	82026
Closing Balance	226800	151200	75600	NIL

Model Project Profile

DEBT SERVICE COVERAGE RATIO

(Amount in Rs...)

PARTICULARS/ YEAR	1ST	2ND	3RD	4TH
(A) Total Income:				
Net Profit	-89078	125622	133974	142133
Depreciation	21400	19260	17334	15601
Interest on loan	19278	19278	12852	6426
Total=	-48400	164160	164160	164160
(B) Total Commitment:				
Bank Loan	0	75600	75600	75600
Interest loan	19278	19278	12852	6426
Total =	19278	94878	88452	82026
DSCR (A/B)=	0.00	1.73	1.86	2.00
Average DSCR=	1.86			

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

