PROJECT REPORT ON

MANGO CULTIVATION

SUBMITTED BY

Promoter Name:
Xxxxxxxxxxxxxxxxxxx

Project Location:
xxxxxxxxxxxxxxxxxxxxx

Prepared by

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C O N T E N T S

CHAPTER - I

ABOUT THE PROMOTER

PARTICULARS	ABOUT THE PROMOTER
1. Name	: xxxxxxxxxxx
2. Address	: xxxxxxxxxxx
3. Contact Number	: xxxxxxxxxxx
4. Date of Birth	: xxxxxxxxxxx
5. Educational Qualification	: xxxxxxxxxxx
6. Project Location	: xxxxxxxxxxx
7. Constitution	: xxxxxxxxxxx
8. Experience	: xxxxxxxxxxx

CHAPTER – II

PROJECT DESCRIPTION

Introduction

Mango (*Mangifera indica* L.) is the most important commercially grown fruit crop of the country. It is called the king of fruits. India has the richest collection of mango cultivars.India ranks first among world's mango producing countries accounting for about 50% of the world's mango production. The fruit is very popular with the masses due to its wide range of adaptability, high nutritive value, richness in variety, delicious taste and excellent flavour

Production Technology

The success of commercial Mango orchard is depend, among other things, on the adoption of innovative technology for both production and post harvest management. Salient features of the technological innovations that might be followed are outlined below.

Selection of Location

Establishment of mango orchard is a long-term investment and trees continue to produce fruit for longer years. Hence its planting requires proper planning which includes careful selection of site. The land which is chosen for mango orchard is near to main road and market. It has proper irrigation facilities and has a good soil and climate suitable for growth and production of mango trees.

Unit Size

Economic size of the project start from 5 acre 12 guntas which produces sizeable quantity of fruits necessary for regular supply to domestic market.

Field Preparation and Layout

- Selected fields should be deeply ploughed followed by harrowing to root out the perennial weeds and heavy clods.
- This operation provides congenial tilth to young roots for their healthy development.
- Proper levelling of land follows this and a gentle slope is provided in one direction to facilitate irrigation as well as drainage of excess water during rains.
- The soils which have drainage problems, should be provided with adequate trenching from the very beginning to avoid serious damage to young plants due to water stagnation.
- After the proper field preparation one should move for layout.
- Proper layout of an orchard is necessary.
- Like selection of site, any mistake committed in beginning cannot be rectified later on.
- Therefore very careful pre-planning is essential before the actual layout in the field.
- The system of layout to be adopted is decided according to needs.
  Total area: 5 Acres 12 Guntas
  Area for 15feet/4.6m width road all around field 647m: 2976 sq. meters / 0.74 acres
  Water tank of 25ftx12ftx8ft : 27.36 sqmtrs / 0.01 acres
  Net area of plantation (after removing land for roads and water tank): 4.45 acres (5 Ac 12 Gts – 30 Gts = 4 Ac 18 Gts)

Planting Distance

- The main purpose of planning of layout of an orchard is to provide adequate space to the plant for normal development to permit proper intercultural operation and easy passage of air and sunlight for the maintenance or orchard sanitation.
- The planting distance depends on various factors like nature of soil, type of plant weather grafted or seedling and variety.
- In poor soils plants make slow growth, so require less space while in heavy soils growth of plants remain dwarf sized.
- Planting distance depends on vigour of the cultivar.
- Advanced method of raised bed (1ft) with mulching sheet is planned along with pit for better utilization of water, good growth of plants, reduced weeding thereby reducing the recurring costs in subsequent years.

Planting Distance : 12ft x 12ft with 300 plants per acre for the orchard in the net area under cultivation of 4.45acres.

Wind Breaks

- Before planting of mango orchard, it is essential to reserve some place for planting of wind breaks at the border sides of orchard from which hot and high winds and frost are expected.

Digging and Filling of Pits

- The pit size would be 1X1X1m dimension. Raised beds (2ft) with mulching sheet is planned.
- Before filling the pit, a mixture of well - decomposed FYM (50 kg), superphosphate (100 gm), murate of potash (100 gm), 2 kg neem cake, 2 kg vermicompost, 750 g biofertilizers and fenvulrate dust (250g) is prepared and mixed with upper as well as lower soil of the pit.
- The mixture of upper soil is filled first followed by lower soil mixture.
- During filling of pits soil is pressed well so that there is no air pocket inside the pit.
- The upper level of pit is kept 15cm above from the field level.
- After filling, the pits are irrigated to settle down the soil of the pit

Time of Planting

- Mango planting is done during rainy season (July to August) and spring season (February to March) in North India and South India.

Selection of Grafts for Planting

- Mango grafts of desired cultivar are procured from genuine sources as in the long run the performance of the orchad depends on the quality of the plants particularly on the pedigree of the tree, their health and vigour. Normally, sturdy grafts with smooth union having equal thickness of rootstock and scion give good performance in the field and such type of grafts are preferred over weak one.
- Six-month to one year old grafts having upright scion growth with 3-4 scion branches are desirable for planting as compared to scion having too many branches.

Fertilization

Fertilizers may be applied in two split doses , one half immediately after the harvesting of fruits in June/July and the other half in October, in both young and old orchards followed by irrigation if there are no rains. Foliar application of 3 % urea in sandy soils is recommended before flowering. Well decomposed farm-yard manure may be applied every year. For trench application of fertilizers, 400g. each of N and K2O and 200g. of P2O5 per plant should be provided. Micro-nutrients may be applied as per the requirement in the form of foliar sprays.

Irrigation system

The frequency and amount of irrigation to be provided depends on the type of soil, prevailing climatic conditions, rainfall and its distribution and lastly the age of the trees. No irrigation is required during the monsoon months unless there are long spells of drought. Irrigation should be given at 50% field capacity.

Harvest and post harvest management

The orchard starts bearing from sixth year onwards and the economic life of a mango tree exceeds 35 years. Yield of fruits varies considerably according to the variety, climatic conditions, plant population etc. On an average, the yield ranges from 5 to 9 t/acre. Grafted plants start bearing early.

Grading is mainly based on the size, colour and maturity of the fruits. While grading, smaller fruits are separated from the larger ones in order to achieve uniform ripening. Immature, overripe, damaged and diseased fruits are discarded in the process of grading. The fruits are generally harvested early in the season at a pre-mature stage to capture early market. Such fruits are ripened by uniformly dipping in 750 ppm. ethrel (1.8ml./l.) in hot water at 52 ± 2^0 C for 5 minutes. within 4-8 days under ambient conditions. Mature fruits are ripened with lower doses of ethrel for uniform colour development.

The mature green fruits can be stored at room temperature for about 4-10 days depending upon the variety. The harvested fruits are pre-cooled to $10\text{-}12^0$ C and then stored at an appropriate temperature. Wooden or cardboard boxes, rectangular in shape and bamboo baskets having capacity to accommodate 5 to 8kg. of fruit is used for packaging and transportation of mango fruits. The most commonly used containers are ventilated card board boxes of corrugated fibre board (CFB) cartons. Size of the box varies to accommodate 5 to 10 kg. of fruit.

Road transport by trucks is the most popular mode of transport due to easy approach from orchards to the market. Marketing of the produce is mainly controlled by intermediaries like wholesalers and commission agents.

CHAPTER – III

MARKET POTENTIAL

Mangoes account for approximately half of all tropical fruits produced worldwide. India is the largest mango producer, accounting for about half of the global mango production. Indian Mangoes are known for their taste and aroma throughout the world. Entire produce of mango is marketed as fresh fruit and only a limited quantity is given postharvest treatment for export purposes. Less than five per cent of the produced mangoes are processed and mango pulp is the main export product both in terms of volume and value

Distribution is an extremely important phase in the marketing of mangoes. The fruit after harvest has to pass through several agencies before reaching the consumer. Producers do not generally undertake wholesale distribution of mangoes, as it is a common practice to lease out the orchards to pre-harvest contractors-who take care of watch and ward of the crop till maturity and then dispose of the produce as it suits them. Small numbers of producers have direct dealings with the consumers or sell their produce through the commission agents.

The retail distribution is done by growers, contractors, commission agents and wholesalers, stall-holders, shop-keepers and hawkers in varying degrees. To ensure better returns to the growers, and fruits at cheaper rates to the consumers, formation of fruit grower's co-operative sale societies deserves encouragement.

Mango prices vary a great deal from year to year, depending upon each year's total production and various other factors like prevailing prices, demand, transport and marketing facilities. Wholesale prices of mangoes also vary considerably, depending upon the supply and demand of particular varieties, periods of availability, weather conditions, transport facilities, variety, quality, etc. Ordinarily, however, the prices are high at the commencement of the season, declining gradually as the supplies increase. Later on, when the arrivals decrease, they tend to recovery and reach a high level again before the close of the season.

The demand of fresh mango fruits and processed food items in international and domestic market has shown a decent increase. This estimation is creating a necessity for growing more and more mango fruits to cater the growing demand of domestic & international market.

CHAPTER – IV

SWOT ANALYSIS

Strengths:

- High returns from the crop compared to traditional food crops.
- The soil and climatic situation in the Indian regions are very suitable for production of mango.
- There are many established nurseries with supplies good quality saplings of Mango
- The Governments are providing strong support to commercial cultivation of fruit crops through various policies and schemes.
- The mango industry is providing livelihood opportunities to its growers and those involved in its marketing channel.

WEAKNESS:

- The orchard owner farmers do not give required attention and care in using required inputs and adopting improved cultural practices in their mango orchards, except using some insecticides to protect the fruits from insects. Most farmers lack technical knowledge and training in development of commercial mango orchards.
- There is unavailability of expert technical guidance available to the farmers in addressing production related issues which demand immediate attention (like insect damage, pests, etc).
- Poor post-harvest management infrastructure. Due to the perishable nature of the products it's important to have enough transportation and good logistics facilities.
- Lack of effective farmers' organization for initiating collective/group marketing.
- There is need for developing processing industries as there are higher post harvest losses in handling and marketing.
- Smaller land holdings limiting the scope for adoption of intensive crop production

OPPORTUNITY:

- With scarcity of agricultural labor and increasing rural road network, more and more commercial oriented farmers are being attracted to go for development of mango orchards.
- Marketing channel for supply from production to the terminal market centers is developing
- Mango has an established export market and poses bright opportunities for export in the international market whether in fresh or processed forms.
- There is scope to establish mango preservation factories in cooperative sector. This will add income through processing and create additional employment opportunities for the rural people.
- Various cultivars of improved mangoes were developed by research.

THREATS:

- In recent years, insects attack on plant and fruit is reported which are not responding to chemicals being used, this is posing great threat to sustainability of the crop in the long run.
- Untimely rains and severe winter cause an extensive damage to the crop during its flowering season.
- Exploitation by middlemen in the market chain. Frequent road blockade and band has adversely affected supply of products to the distant terminal markets creating a situation when farmers get lower prices, consumers higher prices and traders have increased marketing risk and damages.
- Over supply during the harvest season resulting in very low prices

CHAPTER- V

ECONOMICS OF THE PROJECT

A. BASIS & PRESUMPTIONS

1 Payback period 5 years plus moratorium for the 3 year.

2 Tax on income ignored.

3 Promoters share includes self-contribution plus loan from friends and relatives.

4 There is no change in Government policies and interest rates in next 8 years.

B. PROJECT PROFILE (Financial)

Sr. No.	PARAMETERS	VALUE
1	Mango Variety	Kesar
2	Area in acre	161 Acres
3	Product	Mango Fruits
4	Cost of the project(Rs.)	3,58,08,700
5	Bank loan (Rs.)	2,68,56,525
6	Own Contribution(Rs.)	89,52,175
7	Financial Indicators	
	BC R	1.16 :1
	N P W 15% (Rs.)	1,16,70,466
	I R R %	39.01
	Average DSCR	6.2
8	Interest Rate (% per annum)	12
9	Repayment	5 years plus moratorium for the 3 year

C. TOTAL COST OF PROJECT

SR. NO.	PARTICULAR	UNIT	UNIT RATE(Rs.)	QUANTITY	AMOUNT(Rs.)
1	**Land Development**				
i)	Land levelling & layout	Acre	35000	161	56,35,000
ii)	Raised beds and fertile soil (2ft bed including loose soil and 300 pits per acre)	Acre	20000	161	32,20,000
iii)	Pitting (2ft bed and 300 pits per acre)	Acre	18000	161	28,98,000
iv)	Trench work	Acre	18000	161	28,98,000
v)	Fencing & Gate	MTRS	15300	161	24,63,300
vi)	Farm Road	MTRS	15300	161	24,63,300
	SUB TOTAL – 1				**1,95,77,600**
2	**Irrigation**				
i)	Irrigation Cost of Open/Tube well, electric motor, Pipeline, electric wire	No	150000	1	1,50,000
ii)	Cost of Farm Pond (20m*20m*2m)	No	150000	1	1,50,000
iii)	Cost of Farm Pipline (110mm/4kg)	Mtrs	19500	161	31,39,500
	SUB TOTAL – 2				**34,39,500**
3	**Micro Irrigation**				
	Drip Irrigation	Acre	25000	130	32,50,000
	Sub Total-3				**32,50,000**
4	**Cost of Cultivation**				
a.	Cost of Planting Material				
i)	Planting Material	No of Saplings	40	5500	2,20,000
b.	Initial cost of inputs				
ii)	Fertilizer and Manure	Acre	15500	161	24,95,500
iii)	Insecticide and Pesticide	Acre	15500	161	24,95,500
iv)	Labour Charges	Acre	15000	161	24,15,000
	SUB TOTAL – 4				**76,26,000**
5	**Infrastructure**				
	Packing House (125'x125' x 1 Nos)	Sq.ft.	800	200	1,60,000
	Cost of Cold Storage (15'x10')	Sq.ft.	1000	161	1,61,000
	Water Tank (150'x150 Feet)	Acre	800	161	1,28,800
	Office 4 Rooms	Sq.ft.	800	161	1,28,800
	Water Leveling Lack (200x 200 mtrs)	Mtrs	5000	161	8,05,000
	SUB TOTAL – 5				**13,83,600**
6	**Mechanization**				
i)	Cost of Sprayer & other farm equipments	Ls			50,000
ii)	Generator Set (10 KVA)	Nos	40000	2	80,000
	SUB TOTAL – 6				**1,30,000**
7	**Post Harvest Infrastructure**				
	Functional Pack House	**Sq.ft.**	**600**	**670**	4,02,000
	SUB TOTAL – 7				**4,02,000**
	TOTAL				**3,58,08,700**

D. MEANS OF FINANCE

Sr. No.	Particular	Unit	Quantity	Amount in Rs.
1	Term loan	%	75	2,68,56,525
2	Own contri	%	25	89,52,175
			TOTAL	**3,58,08,700**

E. PROJECTED PROFITABILITY

Sr. No.	Particular	Unit	Unit rate in Rs.	Quantity	I year	II year	III year	IV year	V- VII year	VIII year
I	**Income**									
	Production Capacity	%			0	0	0	50	90	90
a.	Sales of fruits	Ton	80,000	805	-	-	-	3,22,00,000	5,79,60,000	5,79,60,000
b.	Income from Intercropping	acre	35,000	161.00	56,35,000	56,35,000	56,35,000	56,35,000	-	-
				TOTAL	**56,35,000**	**56,35,000**	**56,35,000**	**3,78,35,000**	**5,79,60,000**	**5,79,60,000**
II	**Expenditure**									
a.	Mannures & Fertilisers	acre	15,500	161.00	24,95,500	24,95,500	24,95,500	24,95,500	24,95,500	24,95,500
b.	Insectisides & Pesticides	acre	15,500	161.00	24,95,500	24,95,500	24,95,500	24,95,500	24,95,500	24,95,500
c.	Manpower (For land preparation, planting, Inter -cultural operation,	acre	15,000	161.00	24,15,000	24,15,000	24,15,000	24,15,000	24,15,000	24,15,000
d.	Packaging, Transportation etc.	acre			-	-	-	4,83,000	8,05,000	8,05,000
e.	Overhead (Electricity, Water etc.)	acre	5,000	161.00	8,05,000	8,05,000	8,05,000	8,05,000	8,05,000	8,05,000
f.	Intercropping cost	acre	15,000	161.00	24,15,000	24,15,000	24,15,000	24,15,000	-	-
g.	Contengencies	acre	5,000	161.00	8,05,000	8,05,000	8,05,000	8,05,000	8,05,000	8,05,000
				TOTAL	**1,14,31,000**	**1,14,31,000**	**1,14,31,000**	**1,19,14,000**	**98,21,000**	**98,21,000**
	Net Income			**TOTAL**	**-57,96,000**	**-57,96,000**	**-57,96,000**	**2,59,21,000**	**4,81,39,000**	**4,81,39,000**

F. Financial Analysis

Particulars		I year	II year	III year	IV year	V- VII year	VIII year
Capital Costs		3,58,08,700					
Recurring cost		1,14,31,000	1,14,31,000	1,14,31,000	1,19,14,000	98,21,000	98,21,000
Total Cost		**4,72,39,700**	**1,14,31,000**	**1,14,31,000**	**1,19,14,000**	**98,21,000**	**98,21,000**
Benefit		56,35,000	56,35,000	56,35,000	3,78,35,000	5,79,60,000	5,79,60,000
Depreciated value of buildings, fencing etc. @ 10%							18,85,310
Depreciated value of Machinery & equipments @ 15%							55,705
Closing stock value							22,00,000
Total Benefit		**56,35,000**	**56,35,000**	**56,35,000**	**3,78,35,000**	**5,79,60,000**	**6,21,01,015**
Net Benefit		**-4,16,04,700**	**-57,96,000**	**-57,96,000**	**2,59,21,000**	**4,81,39,000**	**5,22,80,015**
Discounting Factor@ 15%		0.87	0.76	0.66	0.57	0.50	0.33
NPV cost at 15% DF		4,10,98,539	86,87,560	75,44,460	67,90,980	49,10,500	32,40,930
NPV benefits at 15% DF		49,02,450	42,82,600	37,19,100	2,15,65,950	2,89,80,000	2,04,93,335
NPW at 15% DF	**1,16,70,466**						
BCR at 15% DF	**1.16 :1**						
IRR %	**39.01**						

G. Term Loan Repayment

Rate of interst - % per annum **:** 12.0

Opening balance of term loan **:** 2,68,56,525

Year	Loan Outstanding	Net Income	Principal	Interest	Total Repayment	Net Surplus	DSCR
1	2,68,56,525	-57,96,000	0	3222783	3222783	0	-
2	2,68,56,525	-57,96,000	0	3222783	3222783	0	-
3	2,68,56,525	-57,96,000	0	3222783	3222783	0	-
4	2,68,56,525	2,59,21,000	5371305	3222783	8594088	1,73,26,912	3.0
5	2,14,85,220	4,81,39,000	5371305	2578226	7949531	4,01,89,469	6.1
6	1,61,13,915	4,81,39,000	5371305	1933670	7304975	4,08,34,025	6.6
7	1,07,42,610	4,81,39,000	5371305	1289113	6660418	4,14,78,582	7.2
8	53,71,305	4,81,39,000	5371305	644557	6015862	4,21,23,138	8.0
						Avg. DSCR	**6.2**