PROJECT REPORT ON

Cucumber Under Polyhouse

SUBMITTED BY

Promoter Name
xxxxxxxxxxxxxxxxxx

Project Location
Xxxxxxxxxxxxxxxxxxxxxx

PREPARED BY:
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C O N T E N T S

CHAPTER - I

ABOUT THE PROMOTER

1.	Name:	xxxxxxxxxxxxxxxxx
2.	Address:	xxxxxxxxxxxxxxxxx
3.	Education:	xxxxxxxxxxxxxxxxx
4.	Date of Birth:	xxxxxxxxxxxxxxxxx
5.	Experience:	xxxxxxxxxxxxxxxxx
6	Project Location :	xxxxxxxxxxxxxxxxx
7.	Constitution :	xxxxxxxxxxxxxxxx

CHAPTER – II

PROJECT DESCRIPTION

Introduction

European Cucumber is one of the important high value vegetable crops cultivated in green houses and to the some extent under shade net house in milder climatic regions. It is rich in vitamin-A, C and minerals. In addition to the quantum jump in yield, the superior quality and substantial reduction in the use of pesticides, makes it an economic and eco friendly produce to grow Cucumber in green houses round the year.

Greenhouse variants of cucumber are much longer than the other types of cucumbers. They are also heavier. The skin tone of the cucumbers is forest green and the texture is softer meaning that many greenhouse owners cover their cucumbers individually to protect them from bruises.

Nowadays the trend of growing cucumbers in greenhouses is parallel to growing tomatoes. The reason for this is that the cucumber is a type of semi-tropical vegetable that needs moisture, temperature, humidity, high light and fertiliser. If ailments and insects can be prevented cucumbers can yield in record numbers, but the cucumber is more sensitive to low temperatures than tomatoes. Progressive growers are opting for growing greenhouse cucumbers and it can be a profitable business, however for growing cucumbers in a greenhouse the plant roots require excellent aeration. It is imperative to have a good drainage system. The soil needs to be made friable and organic substance need to be added to it. The seedless and long European cucumbers have become more popular compared to the North American varieties. The benefit of the European varieties is that one can eat them without peeling. Often the thin skinned varieties are shrink wrapped and waxed to evade excessive moisture loss. This cucumber does not require pollination as it is a parthenocarpics species. The European cucumbers are not resistant to all types of insects. Like their American counterparts they fall prey to certain diseases. To counter the menace of insect attack natural predators and useful insects can be used. The cucumber plants require plenty of sunlight and extra artificial light can be used for quickening the growth and germination. Just like the greenhouse tomato the greenhouse cucumber needs a perfect balance of nutrients for yielding good crops. It needs a generous amount of fertilisers though. Water requirement of the cucumber plants is also quite high. It is ideal to use warm water for hydrating the soil. When setting up the greenhouse it is important to ensure consistent growth of fruits and vegetables within it.

Production Technology

The success of projects will mainly depend on the adoption of innovative technology for both production and post harvest management. Salient features of the Production Technology that will be followed are outlined below.

Project Location:

It is possible to produce the Cucumber in polyhouse commercially in almost all locations of the country . However, the availability of good quality water, labour and infrastructures facilities such as electricity, road and communication are the factors taken in to account for selection of location.

Polyhouse Shed:

The structural material, which will be used for polyhouse, is of G. I. pipes. The polythene film will be U.V. stabilized of 250-micron thickness. The polyfilm has to be replaced after 3 to 5 year. To reduce light intensity during summer, the shade net of 50% will be used and Lime will be painted on the polyfilm. The four way foggers will be used for maintaining required humidity in the polyhouse.

Growing beds and soil sterilization

The soil inside the polyhouse is loosened to fine tilth and then beds are formed at 75cm width with 45cm height and eaving 45cm working space between two beds. Before bed formation, well decomposed organic manure or Vermicompost along with sand, saw dust is added to soil @ 10kg per m2. The beds are drenched with 4% formaldehyde (4litres/m2 of the bed) and covered with polythene sheet for 3-5 days. Afterwards, the polythene is removed; the beds are raked repeatedly every day to remove the trapped formaldehyde fumes completely prior to planting.

Planting, pruning and training

The ready seedlings are planted at spacing of 60cm between rows as paired row system by keeping 30 cm between plants on raised beds. Before planting, the seedlings are sprayed with Imidacloprid (0.3mVl) to prevent any sucking pest infestation in the polyhouse. Watering the bed is done daily with a rose can till the seedlings get established well. Afterwards drip irrigation is started daily to supply 2-3 litres of water per square meter per day depending on the local weather condition.

Fertigation

The total dose of 150 kg each of N: P205:~O per hectare using water soluble fertilizers is given through fertigation for entire crop growth period of 6-8 months. Water soluble fertilizer supplying 19% each NPK is used at the rate of 2.5-4g/m2 for every fertigation by giving twice a week starting from third week after planting.

Disease and pest control

Thrips and mites: It is a sucking pest affects most of the green house crops. Minute insects with fringed wings, serious during dry periods (high temperature). Affected leaves show upward (thrips) and downward (mites) curling and it also market value and quality of fruits due to scnipping on the fruit surface. To control thrips, spraying of Acephate (1g/l) or Imidac10prid (O.3mlll) or Fipronil (Imlll) is given.
Bacterial wilt: It is caused by soil bacterium which is naturally present in the acidic soils of coastal area. Sudden wilting of plant is observed due to blockage in the xylem vessels. Drenching with Streptocyc1ine (1.5g/l) is generally practised

Post Harvest Handling and Storage

Fruits are graded to size and colour to ensure a uniform attractive pack. Shrink wrapping each fruit and storing at 7-8°C will enhance storability up to 45-60 days.

CHAPTER – III

MARKET POTENTIAL

Marketing of Cucumber is the crucial factor for the success of the project. There is tremendous potential for cultivating Cucumber through poly houses. In India, Cucumber is grown for its mature fruits and is widely used as salad. It has attained a status of high value crop in India in the recent years and occupies a pride place among vegetables in Indian cuisine, because of its delicate taste and rich content of ascorbic acid and other vitamins and minerals. The mature fruits of Cucumber are eaten raw.

Cucumber consumption in India is increasing now-a-days due to increasing demand by urban consumers. There is a good demand for export too. The export market needs fruits with longer shelf life, medium size, tetra lobed fruits with an attractive dark colour, mild pungency and good taste. But, the supply is inadequate due to low productivity of the crop. But there is increased demand for Cucumber by the consumers and lot of farmers are also showing interest in the cultivation of this crop under protected conditions, as this type is having definite qualitative and quantitative advantage over the traditional cultivation.

CHAPTER – IV
SWOT ANALYSIS

Strengths:

- Domestic market for Cucumber is growing.
- The Governments have identified vegetables in polyhouse as a sunrise sector and are providing strong support through various policies and schemes.

WEAKNESS:

- High capital investment
- Demand fluctuate according to different seasons
- Unavailability of skilled manpower
- Incidence of pest and diseases many a times becomes unmanageable.
- Poor marketing linkage and poor market infrastructure.
- Non-availability of adequate quality planting material.
- Poor post-harvest management infrastructure. Due to the perishable nature of the products it's important to have enough transportation and good logistics facilities.
- Negligence to research relating to technical factors

OPPORTUNITY:

- There is tremendous demand for Cucumber due to the growing popularity of western life style
- Access to metropolises like Kolkata, Chennai, Mumbai and Delhi etc. and other big cities enhances the possibilities for tapping market of these states.
- Growing consumer base with higher income is expected to add demand in new market
- Availability of new and unique varieties

THREATS:

- Uncertainty in weather conditions and frequent occurrence of natural calamities like cyclone and drought.
- Uncertainty about market stability
- Exploitation by middlemen in the market chain.
- High incidence of pest and diseases.

V. ECONOMICS OF THE PROJECT

A. PROJECT PROFILE (Financial)

Sr. No.	PARAMETERS	VALUE
1	Unit Size in sq.m.	4,000
2	Product	Cucumber
3	Cost of the project	33,76,000
4	Bank loan/Farmers Share	10,12,800
5	Subsidy entitement from	23,63,200
7	Financial Indicators	
	BCR at 15% DF	1.15 :1
	NPW at 15% DF Rs.	9,72,376
	I R R %	35
7	Average DSCR	6.0
8	Interest Rate (% per annum)	8.07
9	Repayment	7 years

B. BASIS & PRESUMPTIONS

Sr. No.	Particular	Unit	Quantity
I.	**Techno-economic parameters**		
	Mortality	**%**	5
	Plant density	plants per sq.m.	3.5
	Total no of plants	Nos.	14000
	Payback period		7 years
II.	**Expenditure norms**		
	Cost of seedling	Rs./ seedling	12
	Fertilizer per annum	sq ft.	40
	Pesticides per annum	sq ft.	40
	No of semiskilled workers	Nos.	4
	Cost of one semiskilled worker per annum	Rs.	84,000
II.	**Income norms**		
	Sale price of Cucumber	Rs./Kg	20
	Yield per plant per crop cycle	Kg.	2.5
	Crop cycles per year		2
	Subsidy received from N.H.M. treated as F.D. in bank @ 6%		
	This amount of subsidy is used for repayment of loan		

C. TOTAL COST OF PROJECT

Sr. No.	Particular	Unit	Unit rate in Rs.	Quantity	Amount in Rs.
I.	Cost of Greenhouse along with Micro, Fogging and Drip Irrigation System & initial Planting	SQ.M.	844	4,000	33,76,000
			TOTAL		**33,76,000.00**

D. MEANS OF FINANCE

Sr. No.	Particular	Amount in Rs.
1	Bank loan/ Farmers Share @ 30%	10,12,800
2	Subsidy entitement from Rajasthan Horticulture Mission @ 70%	23,63,200
	TOTAL	**33,76,000.00**

E. PROJECTION OF PERFORMANCE & PROFITABILITY

Sr. No.	Particular	Unit	Unit rate in Rs.	Quantity	I year	II year	III year	IV year	V year	VI year	VII year
I.	**Income**										
a.	Sale of Cucumber										
	Total Number of plants	Nos.			14,000	14,000	14,000	14,000	14,000	14,000	14,000
	Yield per plant per crop cycle	Kg			2.5	2.5	2.5	2.5	2.5	2.5	2.5
	Total yield per annum (Crop cycles per annum- 2)	Kg			70,000	70,000	70,000	70,000	70,000	70,000	70,000
	Selling price	Rs./kg			20	20	20	20	20	20	20
	Total Income	Rs.			14,00,000	14,00,000	14,00,000	14,00,000	14,00,000	14,00,000	14,00,000
b.	Interest on Subsidy @ 6%				1,41,792	1,41,792	1,41,792	1,41,792	1,41,792	1,41,792	1,41,792
c.	Subsidy				0	0	0	0	0	0	23,63,200
			TOTAL (B)		**15,41,792**	**15,41,792**	**15,41,792**	**15,41,792**	**15,41,792**	**15,41,792**	**39,04,992**
II.	**Expenditure**										
a.	Cost of Raw Materials										
	Fertilisers	per sq.m.	40	4,000	1,60,000	1,60,000	1,60,000	1,60,000	1,60,000	1,60,000	1,60,000
	Pesticides & fungicides	per sq.m.	40	4,000	1,60,000	1,60,000	1,60,000	1,60,000	1,60,000	160000	160000
b.	Cost of Consumbles										
	Packaging material	per kg	0.50	70,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000
c.	Cost of Utilities										
	Electricity, Water	per sq.m.	25	4,000	1,00,000	1,00,000	1,00,000	1,00,000	1,00,000	1,00,000	1,00,000
d.	Cost of Manpower										
	Semiskilled workers	per annun	84,000	4	3,36,000	3,36,000	3,36,000	3,36,000	3,36,000	3,36,000	3,36,000
e.	Overhead Expenses										
	Transportation	per month	1000	12	12,000	12,000	12,000	12,000	12,000	12,000	12,000
	Marketing expenses 1% of sales				14,000	14,000	14,000	14,000	14,000	14,000	14,000
			TOTAL (A)		**8,17,000**	**8,17,000**	**8,17,000**	**8,17,000**	**8,17,000**	**8,17,000**	**8,17,000**
III	**Net Income**		**TOTAL (A+B)**		**7,24,792**	**7,24,792**	**7,24,792**	**7,24,792**	**7,24,792**	**7,24,792**	**30,87,992**

F. Financial Analysis

Particulars		I year	II year	III year	IV year	V year	VI year	VII year
Capital Costs		33,76,000						
Recurring cost		8,17,000	8,17,000	8,17,000	8,17,000	8,17,000	8,17,000	8,17,000
Total Cost		**41,93,000**	**8,17,000**	**8,17,000**	**8,17,000**	**8,17,000**	**8,17,000**	**8,17,000**
Benefit		15,41,792	15,41,792	15,41,792	15,41,792	15,41,792	15,41,792	39,04,992
Depreciated value of Machinery & equipments @ 15%								14,46,616
Total Benefit		**15,41,792**	**15,41,792**	**15,41,792**	**15,41,792**	**15,41,792**	**15,41,792**	**53,51,608**
Net Benefit		**-26,51,208**	**7,24,792**	**7,24,792**	**7,24,792**	**7,24,792**	**7,24,792**	**45,34,608**
Discounting Factor@ 15%		0.87	0.76	0.66	0.57	0.50	0.43	0.38
NPV cost at 15% DF		36,47,910	6,20,920	5,39,220	4,65,690	4,08,500	3,52,944	3,07,192
NPV benefits at 15% DF		13,41,359	11,71,762	10,17,583	8,78,821	7,70,896	6,66,054	14,68,277
NPW at 15% DF	**9,72,376**							
BCR at 15% DF	**1.15 :1**							
IRR %	**34.64**							

G. Term Loan Repayment

Rate of interst - % per annum **:** 8.07

Opening balance of term loan **:** 10,12,800

Year	Loan Outstanding	Gross Surplus	Principal	Interest	Total Repayment	Net Surplus	DSCR
1	10,12,800	7,24,792	144686	81682	226368	4,98,424	3.2
2	8,68,114	7,24,792	144686	70013	214699	5,10,093	3.4
3	7,23,429	7,24,792	144686	58345	203030	5,21,762	3.6
4	5,78,743	7,24,792	144686	46676	191361	5,33,431	3.8
5	4,34,057	7,24,792	144686	35007	179692	5,45,100	4.0
6	2,89,371	7,24,792	144686	23338	168024	5,56,768	4.3
7	1,44,686	30,87,992	144686	11669	156355	29,31,637	19.7
						Avg. DSCR	**6.0**