

PROJECT REPORT ON
COLOR CAPSICUM (UNDER POLYHOUSE)



SUBMITTED BY

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NODAL TRAINING INSTITUTE

Institute of Horticulture Technology, Greater Noida

SUBMITTED UNDER

Agri Clinics & Agri Business Center Scheme

Sponsored by-

Ministry of Agriculture & Farmers Welfare, Government of India

National Institute of Agricultural Extension Management

(MANAGE), Hyderabad & NABARD

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2021 - 22

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CHAPTER - I**HIGHLIGHTS OF THE PROJECT REPORT****A. ABOUT THE PROMOTER****PARTICULARS****ABOUT THE PROMOTER**

- | | |
|------------------------------|---|
| 1. Name | : Lalit Pratap Singh |
| 2. Address | : Institute of Horticulture Technology, Greater Noida. 201308 |
| 3. Contact Number | : 9410002687 |
| 4. Date of Birth | : 15.05.1990 |
| 5. Educational Qualification | : M.Sc Vegetable Sciences |
| 6. Project Location | : IHT, Greater Noida |
| 7. Professional Experience | : 8 years in Technology Demonstration and Training |
| 8. Constitution | : Proprietorship |

B. PROJECT PROFILE (FINANCIAL)

PARAMETERS	VALUES
1. Unit Size in sq.m.	4000
2. Product	Colour Capsicum
3. Cost of the Project	5,045,500
4. Bank Loan	3,784,125
5. Margin Money	1,261,375
6. Financial Indicators	
BCR at 15% DF	1.34:1
NPW 15% DF(Rs.)	2,556,432
IRR (%)	60.22
Average DSCR	2.2
7. Interest Rate (% per annum)	12
8. Repayment period	5 years

CHAPTER - II

PROJECT DESCRIPTION

Introduction

Coloured capsicum (sweet pepper or bell pepper) 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 capsicum in green houses round the year.

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 colour capsicum 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.

Varieties:

Following are some of the important varieties

Green – Indra

Yellow- Swarna, Orobelle

Red- Bomby

Nursery and seedling raising

Seedlings are raised in pro-trays placed inside a net house or polyhouse to prevent from insect infestation. Vermicompost and sand @ 1:1 or well decomposed, nutrient enriched and sterilized coco peat is used as the growing medium for nursery production. The pro-trays are initially filled with growing medium and shallow depressions of about 0.5cm depth are made in each cell for seeds sowing. Each cell is sown with one seed and germination starts in 5-7 days of sowing. Seedlings may be sprayed with Acephate (0.75 ml/litre of water) to ..avoid any thrips infection. The seedlings will be ready for planting in 30-35 days after sowing. About 40g seed is required to plant 1000m² of green house area.

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 (0.3mVI) 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. Capsicum plants are trained to retain 2-4 stems per plant. Pruning is done at weekly interval starting from 15-20 days after transplanting. At every node the tip splits in to two giving rise to one strong branch and one weak branch which is removed retaining the strong branch. This operation needs to be done once in a week. From 4th month onwards the pruning operation will be done once in 10 days.

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 scnippping on the fruit surface. To control thrips, spraying of Acepate (1g/l) or Imidaciprid (O.3mIII) or Fipronil (ImIII) 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

Harvesting and yield

Harvesting of capsicum fruits starts from 60 days of planting in case of green colour capsicum, 80-90 days in case of yellow and red fruited hybrids. Harvesting continues up to 170-180 days at 10 days interval in green and up to 200-250 days in red and yellow. Fruits that are mature green, yellow when it is 75% yellow and red when it is 100% red are harvested and kept in cool place. A yield of 8-10 MT/acre/year can be expected from a single crop. Average individual fruit varies from 150-200g.

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 Colour Capsicum is the crucial factor for the success of the project. There is tremendous potential for cultivating capsicum through poly houses. In India, capsicum is grown for its mature fruits and is widely used in stuffing and baking. It is also used in salad and soup preparation. 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 pleasant flavor coupled with rich content of ascorbic acid and other vitamins and minerals. The mature fruits (green, red and yellow) of Colour Capsicum are eaten raw or widely used in stuffings, bakings, pizza and burger preparations.

Colour Capsicum 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 capsicum 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

EXTENSION ACTIVITIES

1. Starting a business of Colour Capsicum cultivation in polyhouse requires planning and preparation. Before starting Colour Capsicum cultivation the entrepreneurs/ farmers are generally advised to undergo training. They can contact Department of Agriculture staffs/ Agriculture University etc. for the purpose. However availability of training facilities & resources are inadequate. Hence I will provide training on Colour Capsicum cultivation in polyhouse to farmers both onsite and off-site. During training program special thrust on fertigation management, insect & pest management & kind of records to be kept in the farm will be also given.
2. For the farmers of nearby locality, visits will be arranged on my polyhouse unit & they will be educated on scientific lines regarding various aspects of cultivation practices. It will help them to improve their knowledge and skill regarding scientific cultivation practices so as to enable them to adopt the same.
3. Consultancy will be provided for setting up of Colour Capsicum cultivation under polyhouse.
4. I will take Initiatives to strengthen linkages between State Departments, Flower Traders, NGO's and farmers.
5. For farmers who have decided to avail bank for cultivation of Colour Capsicum under polyhouse, assistance will be provided to prepare their bankable project report.
6. For the marketing of Colour Capsicum fruits, farmers will be provided necessary support & guidance.
7. Visits of farmers will be arranged to flower exhibitions & trade shows with the prime objective of exposing them the technological innovations.
8. Nowadays internet has become important tool to get latest information. There are various websites available on cultivation of Colour Capsicum under polyhouse, which provides useful content. This information will be shared to farmers.
9. Educational tours of farmers will be arranged to progressive farmers & research stations which will motivate them to adapt good cultivation practices.

CHAPTER - V

SWOT ANALYSIS

Strengths:

- Domestic market for Colour Capsicum is growing.
- High returns from the crop compared to traditional food crops.
- The Governments have identified Colour Capsicum in polyhouse as a sunrise sector and are providing strong support through various policies and schemes.

Opportunities:

- There is tremendous demand for Colour Capsicum 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

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

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.

CHAPTER - VI
ECONOMICS OF THE PROJECT

A. BASIS & PRESUMPTIONS

PARTICULARS	UNIT	QUANTITY
I. Techno-economic parameters		
Mortality	%	5
Plant density	Plants/sq.m.	3
Total no. of plants	Nos.	12,000
Replanting will be done from 2nd year		
Repayment period	Years	5
II. Expenditure norms		
Cost of seedling	Rs./seedling	15
Fertilizer per annum	Rs./sq.m.	50
Pesticides per annum	Rs./sq.m.	50
No of semiskilled workers	Nos.	4
Cost of one semiskilled worker	Rs./annum	60,000
III. Income norms		
Sale price of Capsicum	Rs./kg.	55
Yield of Capsicum	Kg./sq.m.	12

Subsidy receives @36% from NABARD treated as F.D. in bank @6%. This amount of subsidy is used for repayment of loan

B. TOTAL COST OF PROJECT

PARTICULARS	UNIT	UNIT RATE	QUANTITY	AMOUNT
		Rs.		Rs.
I. Cost of Polyhouse with drip & fogger system	Sq.m.	844	4,000	<u>3,376,000</u>
				3,376,000
II. Initial cost of cultivation				
Bed material & preparation	Rs./sq.m.	50	4,000	200,000
Planting material	Rs./sapling	15	12,000	180,000
Fertilizers & manures	Rs./sq.m.	50	4,000	200,000
Insecticides & Pesticides	Rs./sq.m.	50	4,000	200,000
Manpower & supervision	Rs./sq.m.	20	4,000	<u>80,000</u>
				860,000
III. Irrigation infrastructure				
Open/Tube well	Nos.	150,000	1	150,000
Water storage tank	Ls.			50,000
Pipeline	Mtrs.	150	150	22,500
Electric pump & electrification	Nos.	35,000	1	35,000
Generator Set (10 KVA)	Nos.	45,000	1	<u>45,000</u>
				302,500
IV. Infrastructure				
Cost of Labour Quarter (20'x10' x 1 Nos.)	Sq.ft.	400	200	80,000
V. Mechanization				
Cost of Sprayer & other equipments	Ls.			25,000
VI. Post Harvest Infrastructure				
Grading/packing room	Sq.ft.	600	670	402,000
TOTAL COST OF PROJECT				5,045,500

C. MEANS OF FINANCE

PARTICULARS	UNIT	UNIT RATE	AMOUNT Rs.
1. Term loan	%	75	3,784,125
2. Own contribution	%	25	<u>1,261,375</u>
		TOTAL	5,045,500
3. Subsidy entitlement under ACABC @ 36%			1,816,380

D. PROJECTED PROFITABILITY*(Value in Rs.)*

PARTICULARS	UNIT	UNIT RATE	QUANTITY	IYEAR	IIYEAR	IIIYEAR	IVYEAR	VYEAR
I. Income								
Sales of Colour Capsicum	Kg	55	48,000	2,640,000	2,640,000	2,640,000	2,640,000	2,640,000
Interest on Subsidy @ 6%	%			108,983	108,983	108,983	108,983	0
Subsidy				0	0	0	0	1,816,380
			TOTAL(A)	2,748,983	2,748,983	2,748,983	2,748,983	4,456,380
II. Expenditure								
a. Cost of Raw Materials								
Fertilisers	/sq.m.	50	4,000	200,000	200,000	200,000	200,000	200,000
Pesticides & fungicides	/sq.m.	50	4,000	200,000	200,000	200,000	200,000	200,000
b. Cost of Consumbles								
Packaging material	/kg of capsicum	0.5	48,000	24,000	24,000	24,000	24,000	24,000
c. Cost of Utilities								
Electricity, Water	/sq.m.	25	4,000	100,000	100,000	100,000	100,000	100,000
d. Cost of Manpower								
Semiskilled workers	Nos.	60,000	4	240,000	240,000	240,000	240,000	240,000
e. Overhead Expenses								
Transportation	/month	1,000	12	12,000	12,000	12,000	12,000	12,000
Marketing expenses @1% of total sales				26,400	26,400	26,400	26,400	26,400
Cost of replantation				0	180,000	180,000	180,000	180,000
			TOTAL(B)	802,400	982,400	982,400	982,400	982,400
III. Net Income			TOTAL(A-B)	1,946,583	1,766,583	1,766,583	1,766,583	3,473,980

F. FINANCIAL ANALYSIS*(Value in Rs.)*

PARTICULARS	I YEAR	II YEAR	III YEAR	IV YEAR	V YEAR	TOTAL
Capital Costs	5,045,500					
Recurring Costs	802,400	982,400	982,400	982,400	982,400	
TOTAL COST	5,847,900	982,400	982,400	982,400	982,400	
Benefit	2,748,983	2,748,983	2,748,983	2,748,983	4,456,380	
Depreciated Value of Building,Fencing, borewell etc @10%					282,211	
Depreciated value of Machinery & equipments @15%					1,586,950	
TOTAL BENEFIT	2,748,983	2,748,983	2,748,983	2,748,983	6,325,541	
NET BENEFIT	-3,098,917	1,766,583	1,766,583	1,766,583	5,343,141	
Discounting Factor @15%	0.87	0.76	0.66	0.57	0.5	
NPV Cost at 15% DF	5,087,673	746,624	648,384	559,968	491,200	7,533,849
NPV Benefits at 15% DF	2,391,615	2,089,227	1,814,329	1,566,920	2,228,190	10,090,281
NPW at 15% DF	2,556,432					
BCR at 15% DF	1.34:1					
IRR%	60.22					

G. TERM LOAN REPAYMENT

Rate of interest - % per annum : 12

Opening balance of term loan : 3,784,125

(Value in Rs.)

Year	Loan Outstanding	Net Income	Principal	Interest	Total Repayment	Net Surplus	DSCR
1	3,784,125	1,946,583	756,825	454,095	1,210,920	735,663	1.6
2	3,027,300	1,766,583	756,825	363,276	1,120,101	646,482	1.6
3	2,270,475	1,766,583	756,825	272,457	1,029,282	737,301	1.7
4	1,513,650	1,766,583	756,825	181,638	938,463	828,120	1.9
5	756,825	3,473,980	756,825	90,819	847,644	2,626,336	4.1
						Average DSCR	2.2