

# **GROW THE CITY – Urban agriculture for sustainable, local food provisioning and employment**

## **TRANSFORMING DELHI NCT**





# RE-IMAGINE FUTURE OF DELHI



Join our movement to **help our Delhi Farmers!**



**Transforming Delhi Agriculture** with Advance Agriculture Practices

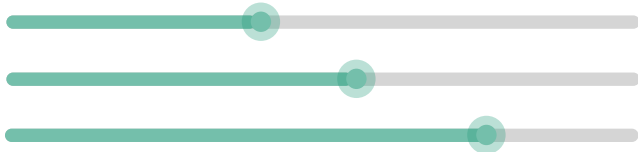
## Positive aspects of urban agriculture to sustainable city development through training and demonstration

From the point of view of environment challenges, government to develop city new dynamics of land use, transformation of urban spaces and promotion of innovative activities, such as urban and peri-urban agriculture, which become cities high economic, social and environmental competences. For this reason, it is important to include both urban and peri-urban agriculture in the urban-regional legislation and in spatial development plans as well as in the economic and social development policies. Therefore it is particularly important to take into consideration the potential contributions of urban agriculture to the different pillars of sustainable city development

# GROWING CONCERN OF DELHI NCR

## Urban Poverty

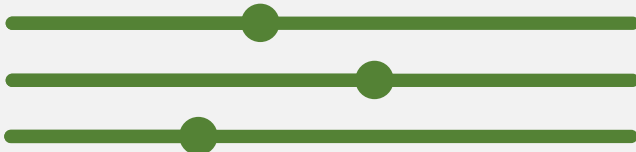
Land reform/City Expansion  
Over population  
Unequal Distribution of Income  
Migration from Rural to Urban  
Slow Job Growth



## Food Insecurity And Malnutrition

[UN agencies estimate](#) that more than 2 billion people do not have regular access to safe, nutritious and sufficient food

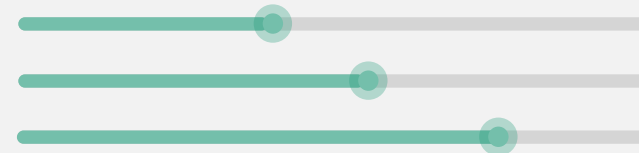
More than 820 million – one out of every nine people – face chronic food deprivation



## Climate Change Impacts

Climate change causes erratic weather patterns, extreme temperatures and changes in natural resources, threatening farmers' ability to sustainably produce and maintain quality crops.

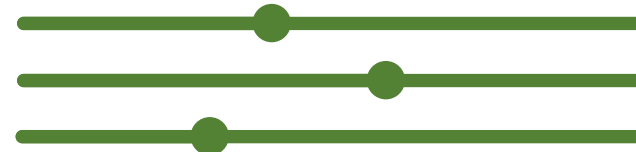
Weather Dependency - Increases difficulty of planting  
Raises flood risk Damages crops



## Water And Waste Management

Given the inevitability of population growth, per capita consumption of water is increasing and to address the requirement of agriculture and industries is growing concern

Waste water from a community contains solid and liquid excreta, derived from houses, street, factories and industries leads to land contamination and cropping issues



# REVOLUTION IN DELHI AGRICULTURE

## ROLE OF URBAN AGRICULTURE

Center of  
Excellence

Skill Training &  
Demonstration

Implementation

### Phase 1

#### Skill Development

- Peri Urban Sector
- Rural Sector
- Low Income Group

### Phase 2

#### Deploy & Utilization

- Farm Service Executives & Resource
- Food Parks, Community Farm
- Kitchen garden, rooftop farm

### Phase 3

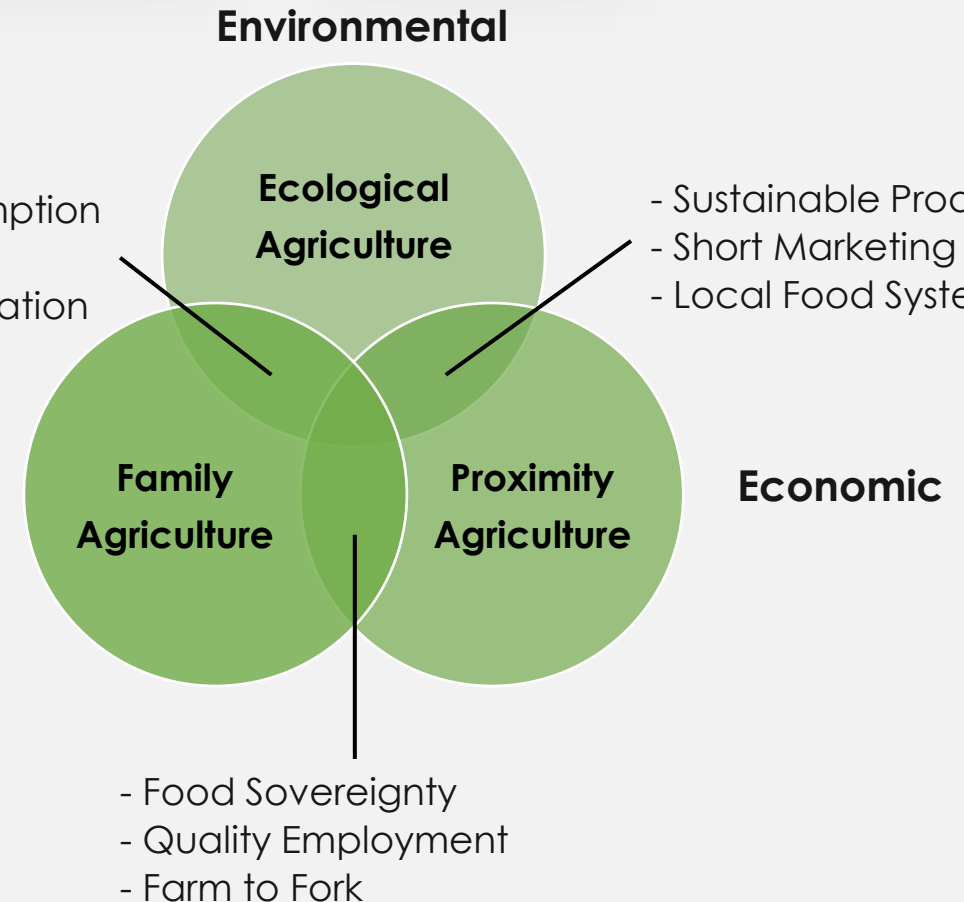
#### Advance Farmer Development Program

- Small land holding farmers
- MSME/FMCG business
- Agri Startup

- Responsible Consumption
- Healthy Food
- Environmental Education

- Sustainable Production
- Short Marketing Circuit
- Local Food System

Social



# CAPACITY BUILDING

## INFRASTRUCTURE AND KNOWLEDGE SUPPORT

The infrastructure and knowledge support regarding urban agriculture & food security has to extended via pilot projects focusing on live demonstration and trainings. Core funding for the programme is provided by central/state govt schemes/CSR aiming to promote agriculture innovation, climate smart agriculture. In the pilot cluster, the partners are implementing the following main strategies:

### LOCAL CAPACITY DEVELOPMENT

The creation of regional training capacity (training of trainers) and Center of excellence in order to demonstrate the technology on urban agriculture. Provide one stop solution for technical and functional support.

### MONITORING SYSTEM

The participating local organizations in order to ensure learning-from-action and provide feedback to policymakers and urban planners on the socio-economic and ecological impacts of their urban agriculture policies and projects

### POLICY DEVELOPMENT & ACTION

Transparent establishment of local multi-stakeholder platforms on urban agriculture, facilitation of gender sensitive, launch local policies to build favorable environment for farmers and co-funding pilot projects.

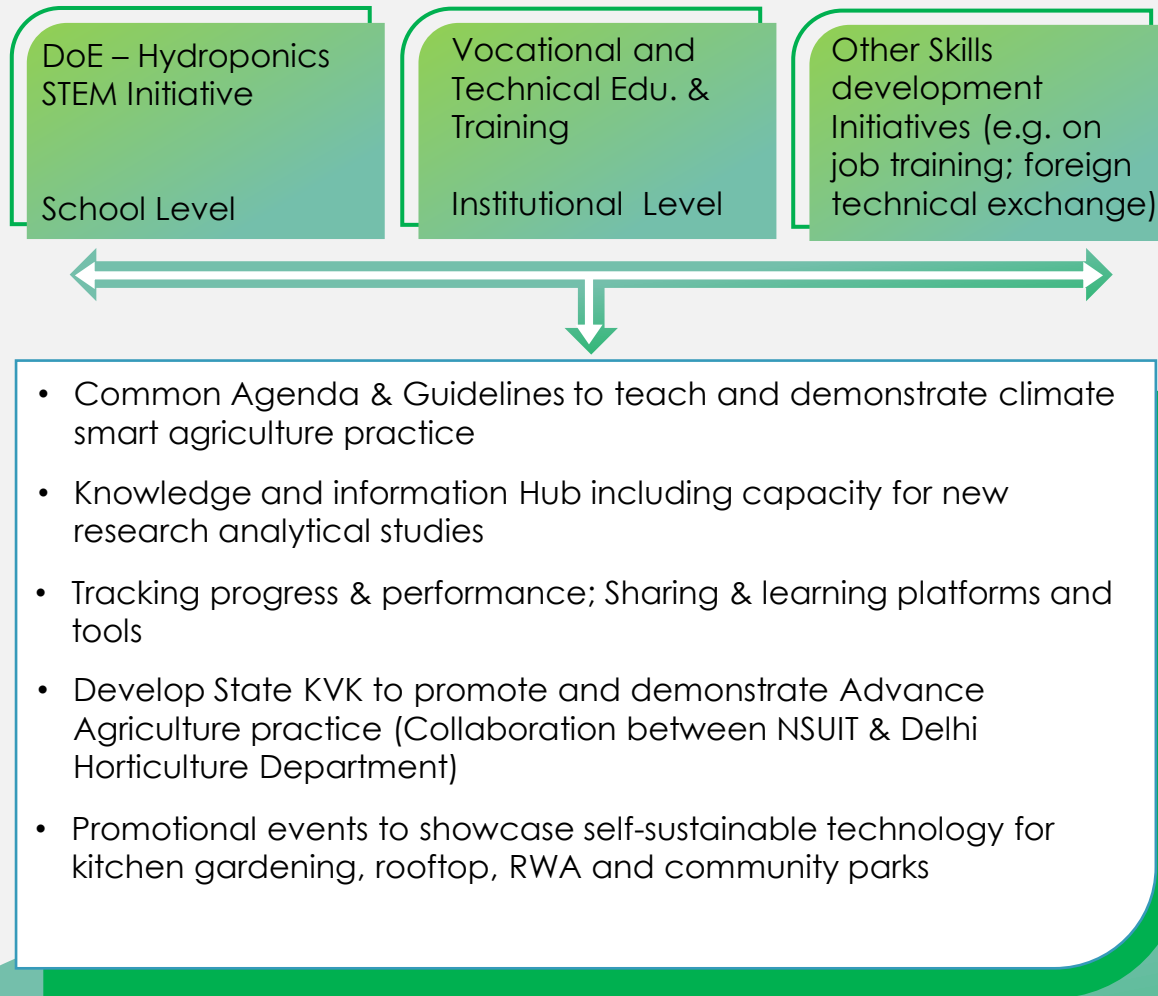
### MEDIA & MARKETING

farmer groups also need more support in micro-enterprise development (eg. home based processing) and marketing (quality control, own label, farmers' markets) and strengthening linkages between various farmer groups and other stakeholders (value chain approach)

### KNOWLEDGE MANAGEMENT & NETWORKING

Integration and dissemination of the experiences gained in the pilot into state level program; centralized platform to share production guidelines and other materials for specific stakeholder categories; maintain databases and websites and publication of Urban Agriculture Magazine.

# AGRICULTURE EDUCATION & SKILL DEV. FRAMEWORK



## ACROSS ALL STAGES

- Partnerships and direct links between research institutes, private players, government institutions and farmers
- Training and education through KVK
- Promotion of value chain platforms, farmer groups and Farmer Producer Organizations
- Linking to government schemes, improvement of the framework conditions by Ministry of Agriculture and Farmers' Welfare





# EMPLOYMENT AND LOCAL FOOD PROVISION

## Urban Agriculture Leads to self sustainable solution

### Social

- Food Security
- Diet and Health
- Personal Well-being
- Community building
- Personal skills
- Active recreation

### Economic

- Productive use of land
- Self supply
- Employment and income
- Reduction of food miles
- New market initiative

### Environment

- Micro climate improvement
- Conversation of urban soil
- Waste and Nutrient recycling
- Enhance biodiversity
- Environment awareness

### Phase 1 - Core Objective of Agriculture skill development

Agri-penures

Employers

Employable

An interventions of skill development resulting above outputs where beneficiaries (trainees) Become Entrepreneurs, Employers and or Employable (B3Es ) cater to following institutions

Kitchen Garden

Rooftop Garden

Food Parks

Schools

Institutions

Hostels

Small Farmers

Commercial Farming

MSME



# OPPORTUNITY FOR DELHI FARMER

## ADVANCE FARMER DEVELOPMENT PROGRAM

### Program Definition

AFDP is conceptualized in order to improve farmer social and economic life. It is an unique program to promote Urban Farming and provide young generation to choose Agriculture as a profession

### Program Objective

Through AFDP, our endeavor is to double the farmer income by 2022. Connecting producers to customer (Farm to Fork), provide digital supply chain to deliver farm produce, access low cost input through group buying. Join a community of experts with advice & mentorship essential for a growing Agri-business



#### ADVANCE AGRICULTURE

Adopting innovative Agriculture practice in addition to traditional approach

Farmer reform and increase Urban Farming

#### DIGITAL SUPPLY CHAIN

Transparent Market linkage  
Minimizing intermediate structure  
Connectivity to local farmer market  
Customer and Farmer connect

#### RENEWABLE ENERGY

Integration of Energy and agriculture  
Self sustainable farm



# ADVANCE AGRICULTURE INITIATIVE 2020

## 2020 Sustainability Target

Responding to the environment challenges and current global pandemic issue, Delhi become independent to grow its own food and develop existing resource into backbone of sustainable solution

PHASE 1 - SKILL DEVELOPMENT

PHASE 2 – DEPLOY & UTILIZATION

PHASE 3 - AFDP

We solve 3 key issues compare to traditional farming  
**Seasonal Dependency, Pesticide food and Carbon footprint.**  
Creating a superior production method for fresh, consistent, year around supply.

1+

Delhi NCT KVK

State owned KVK, disseminate Knowledge, Training & one stop shop for farmer, RWA & Schools

100+

Agri-penure.

Pilot projects for hi-tech hydroponic farms for Peri urban and rural cluster of Delhi NCT

1000+

Skill developed  
**Hydroponic Technician**

Hydroponic Technician Jobs to make scheme a success

20000+

**Awareness Program**

Training to adapt advance agriculture practices for farmers, households, Schools.

3300+

**Tons of fresh produce**

Fresh produce will help farmers to get better margin

# BRING THE CHANGE

## Implementation

Urban agriculture takes place in a multi-sectoral environment, touches on a large number of urban management areas (eg. land use planning, environmental and waste management, economic development, public health, social and community development and involves a large diversity of systems and related actors (input provision, vegetable production, aquaculture, livestock production, processing and marketing). Increasing the contribution of UA in more sustainable urban development requires its inclusion into policy and planning and the involvement of different stakeholders related to UA (urban producers and their organizations, NGOs and researchers, private organizations and different levels and departments of governments) in these processes.

### Legal Initiative

SWD to launch AFDP Pilot Project

Promoting Urban Farming as part of poverty Alleviation programmes

Agriculture Electricity Tariffs should also be applied on Advance Agriculture Practices

### Formal Policy

Advance Agriculture Initiative 2020

Scheme covers:-

- Vertical farming & Protected Farms
- Invite Agripenures
- Public and Private participation
- Encourage Export and exotic crop

### Institution

NULM – Project to train 1000+ Hydroponic Technician

Joint Venture with DPGS to Implement AFDP in Delhi NCT

Develop new state KVK in Dwarka Sector 19 as Centre of excellence

# STAKEHOLDER STRUCTURE

## STRUCTURE

### Initiative

Govt. NCT Delhi

## MOTIVE

Urban Poverty



Food Insecurity And Malnutrition



Climate Change Impacts



Water And Waste Management



## RESEARCH/INFORMATION



Advance Agriculture Policy 2020

## CAPACITY

FUND BY RKVY  
**LEVEL 2 DPR**  
**INR 35 Cr**

### Program Body

DPGS/Hort. Dept

Urban Farming Team

Identification

Centre of Excellence Dwarka, Sec 19

Prioritization

Training & Demonstration

Validation

Implementation

Control

Project Manag. & Monitoring

ADVANCED FARMER DEVELOPMENT PROGRAM (AFDP)

sustainable future Smart City  
Agri-business Urban Farming Farm to Fork  
Innovation community New Generation

FUND BY RASHTRIYA KRISHI VIKAS YOJANA

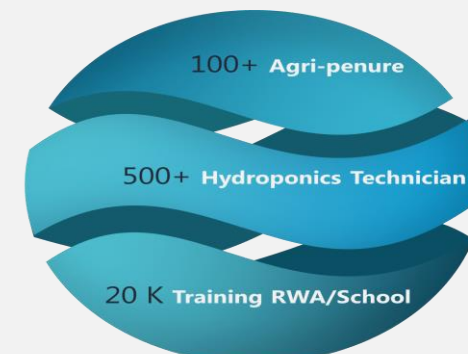
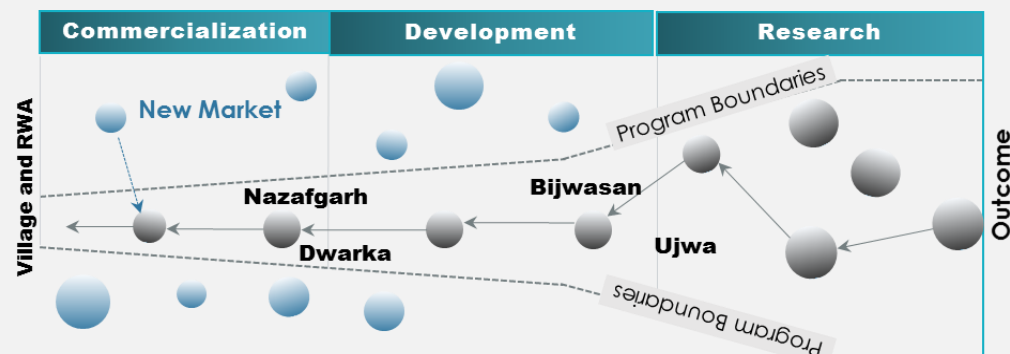
FUND BY SMART KRISHI YOJANA

**LEVEL 1 DPR INR 15 Cr**

### Beneficiaries

South/West Delhi

(Urban & Peri - urban Cluster)



PRODUCTION

FARM INSTALLATION

FARMER SKILL DEVELOPMENT

ACCESS TO NEW TECHNOLOGY

FARM MANAGEMENT

### Market

SWD Veg. Market

Gurugram Veg. Mkt



LOCAL FRUIT & VEG

EXOTIC VEG.

HERBS

**B2B**

**Farmer Market**

**SWD Market**

# DELHI NCT – KRISHI VIGYAN KENDRA (KVK)

## Org Structure

In order to implement AFDP, entities involved constitute the project team / implementation committee as per the project governance structure suggested and as may be required to carry out the project activities effectively.

Steering Committee	<b>Organization Profile</b>
	1 Chairman _____
	2 Member _____
	3 Member _____
	4 Member _____
	5 Member _____
	6 Member _____
Project Team	<b>Project Lead - Head</b>
	Principal Consultant
	Horticulture Agri Training Lead
	Agronomist - Research & Develop
	Finance & Admin
	Project Management Lead
	Marketing Lead



# ADDITION IN COLLABORATION WITH DELHI KVK

## Target New Crops

Vegetables			Herbs	Fruits
Artichoke	Cauliflower	Bell Peppers	Basil	Black Currant
Asparagus	Celery	Hot Peppers	Chicory	Blueberry
Bean (Common)	Chilli	Potato	Chives	Melon
Beetroot	Collard Greens	Pumpkin	Fennel	Pineapple
Bottle Guard (Ghiya)	Cucumber	Radish	Lavender	Red Currant
Bitter Guard (Karela)	Eggplant	Sopnge Guard (Tori)	Lemon Balm	Rhubarb
Broad Bean	Garlic	Tinda	Marjoram	Strawberries
Broccoli	Leek	Spinach	Mint	Watermelon
Brussell Sprout	Lettuce	Sweet Corn	Mustard Cress	
Cabbage Red	Okra (Bhindi)	Sweet Potato	Parsley	
Capsicum Red	Onions	Swiss Chard	Rosemary	
Capsicum Yellow	Pak-choi	Squash (Summer)	Sage	
Carrots	Parsnip	Squash (Winter)	Thyme	
	Pea	Cherry Tomato	Watercress	
	Peppers	Tomato	Cilantro / Coriander	
		Turnip	Dill	
		Zucchini	Oregano	





# TOGETHER WE CAN BUILD THE FUTURE OF URBAN FARMING

JOINING A GROWING MOVEMENT DRIVEN BY  
CONSUMERS WORLDWIDE, WHO EXPECT MORE  
TRANSPARENCY AND BETTER QUALITY. HELP BUILD  
A NEW, FUTURISTIC, TRANSPARENT, AND  
ACCOUNTABLE FARMING SYSTEM!

**Conceptualization**  
**Manisha Saxena**  
**Secretary DoE**



**Financial**



## IMPACT

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**100**

**HI-TECH FARMS**

Farmers will adapt to  
new innovation

**3300+**

**TONS OF FRESH PRODUCE**

Fresh produce will help  
farmers to get better margins

**500+**

**JOBS**

Farmers will adapt to  
new innovation

**1 lakh+**

**PEOPLE AWARENESS**

will be spread directly or  
indirectly through trainings

**GDP**

**GROWTH**

Hi-tech farms will  
contribute more on GDP

**90%**

**WATER SAVING**

Compare to traditional  
farming

**4x**

**TIMES**

Land productivity  
will increase

**100%**

**ECO\_FRIENDLY**

Advance farming will  
also decrease problems  
like parali

## BUDGET ASSUMPTION FOR SCHEME

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# 100

PILOT FARM

With a capacity to  
grow 30 lakhs plants

# 50 Cr

INR

Includes Subsidy, trainings,  
Centre of Excellence,  
market linkage etc.

# 3300

TONS

Produce of 100  
farm/year

# 33 Cr

INR

Annual Revenue for  
farms from 100 Units





# FINANCIAL EXAMPLE FOR SINGLE FARM

With Assumption that by second year Farmer get 50% subsidy on the Farm unit. ROI will be settled in 3 year.

**1****FARM**

1000 Sq/Mtr With a  
capacity to grow  
30000 plants

**70 L****INR (50% subsidy)**

Includes everything  
from greenhouse,  
hydroponic setup and  
automatic sensors

**10-12****LAKH INR**

Operational cost  
as per agriculture  
electricity cost

**33****TONS**

Produce of different  
crops per year

**33 L****INR**

Annual revenue  
from 1 farm  
Calculated with  
approx cost of  
100rs



SUMMARY

FINANCIAL OF PRODUCE FROM 1 FARM

Vegetable/Fruit Name	System Type	Number of Plant	Production Per Plant in kg	Production in KG	Growth Period in days	Annual number of Crops	Wholsale price / Kg	Annual Revenue
Rossa Lettuce	Vertical Tower	6000	0.15	900	60	6	100	5,40,000.00
Iceberg Lettuce	Vertical Tower	5700	0.15	855	60	6	100	5,13,000.00
Arugula	Vertical Tower	5400	0.15	810	60	6	100	4,86,000.00
Basil	Vertical Tower	5700	0.15	855	60	6	100	5,13,000.00
Baby Spinach	Vertical Tower	5400	0.15	810	60	6	100	4,86,000.00
Cherry Tomato	Aerobucket	300	5	1500	180	2	100	3,00,000.00
Capsicum Red	Aerobucket	150	4	600	300	1.2	100	72,000.00
Capsicum Yellow	Aerobucket	150	4	600	300	1.2	100	72,000.00
Chinese Cabbage	Aerobucket	300	1.5	450	120	3	100	1,35,000.00
Red Cabbage	Aerobucket	300	1.5	450	120	3	100	1,35,000.00
Pak Choy	Aerobucket	300	0.15	45	60	6	100	27,000.00
kale	Aerobucket	300	0.15	45	60	6	100	27,000.00
Total		30000						33,06,000



## SUMMARY

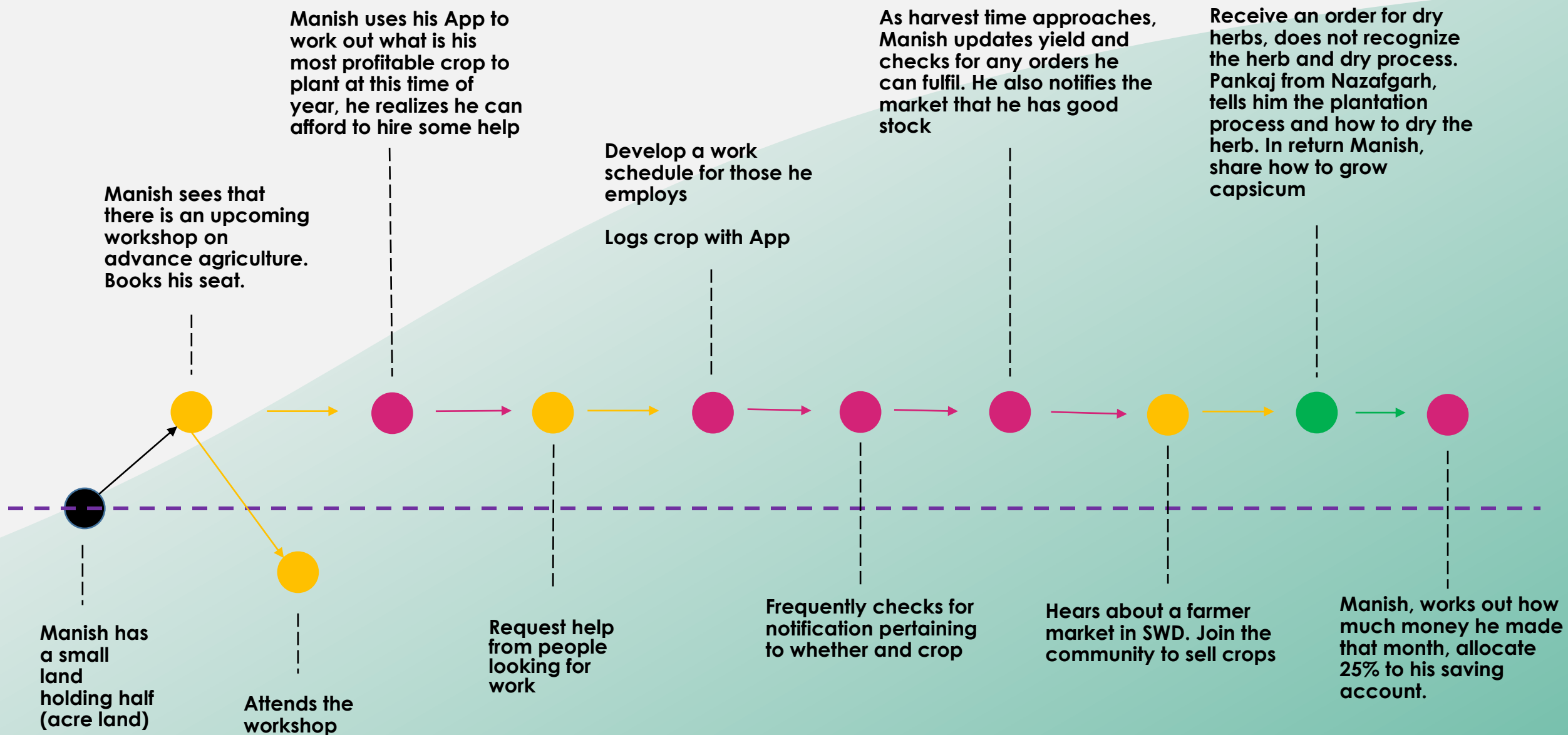
**FINANCIAL OF OPEARATING FARM**

With a assumption of 35 lakh loan from bank and 35 lakh subsidy taken by farmer. The Farmer can have a revenue of 80 lakh after clearing all dues.

Income Statement	Increment	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue						
Revenue from produce sales	5%	33,06,000	34,71,300	36,44,865	38,27,108	40,18,464
Operating expenses						
Nutrients	5%	80,000	84,000	88,200	92,610	97,241
Water & electricity	2%	1,80,000	1,89,000	1,98,450	2,08,373	2,18,791
Salary	10%	6,00,000	6,30,000	6,61,500	6,94,575	7,29,304
Seeds	5%	1,20,000	1,26,000	1,32,300	1,38,915	1,45,861
Maintenance & miscellaneous	5%	60,000	63,000	66,150	69,458	72,930
Total operating expenses		10,40,000	10,92,000	11,46,600	12,03,930	12,64,127
EBITDA	5%	22,66,000	23,79,300	24,98,265	26,23,178	27,54,337
<b>In case of taking loan of 35 lakh at 10% payable total amount after 5 year will be 44.62 lakh with monthly EMI of INR 74365</b>						
12 month emi amount		8,92,380	8,92,380	8,92,380	8,92,380	8,92,380
Profit after loan		13,73,620.00	14,86,920.00	16,05,885.00	17,30,798.25	18,61,957.16

# Case Study

# SMALL LAND OWNER TURN INTO AGRI-PENURE



# YOUNG GEN. – FARMING AS PROFESSION

