

Hydroponics Farming: An Innovative Business Plan for Sustainable Agriculture

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ABSTRACT

Executive Summary:

Seeds and Mist is a hydroponics business operating in a 5000 sq. ft. facility, with an initial investment of 40.73 lakhs. Our clientele includes hotels, multi-commodity retail stores and supermarkets.

Our mission is to provide high-quality and natural crops to our customers while promoting sustainable farming practices. With a focus on hydroponics, we aim to deliver fresh and pesticide-free vegetables and herbs year-round. With this we also aim to provide training to those who are willing to grow their own crops at their house, promoting self-reliance.

The capital required for the setup of the farm would cost 40.73Lakhs and 1.58Lakhs of monthly working capital, an early profits of rupees 93,84,046.87 can be earned in this business, after calculation with the expected sales we have arrived to a conclusion for the Break Even Point (BEP) of 15.08 months.

Currently in the parts of North Karnataka there aren't any such ventures operating so we have come with the idea of setting up the hydroponics farm and supply healthy vegetables to our customers. We are mainly into growing Lettuce, Bok choy and Swiss chard which can be grown into hydroponics setup and because of their benefits for the nutritional values.

In the future we tend to expand our business from 5000sq. ft. to 1 acre (43,000 sq. ft.) which will be 8 times bigger than what we are operating currently, which means higher yield higher profits.

About Us

We Seeds & Mist a hydroponics vertical farming start-up, aims to supply crops to urban population with natural, healthy, fresh green leafy vegetables.

1. INTRODUCTION

Seeds & Mist, as a hydroponic vertical farming venture, is on a mission to transform agriculture for a sustainable future. Our innovative farming approach seamlessly blends advanced technology, sustainability practices, and precision farming techniques. This fusion of elements is specifically designed to address the continuously increasing demand for fresh produce that's sourced locally.

Seeds & Mist is aligning with the broader landscape of vertical farming, where innovation is essential. We likely employ cutting-edge automation to control environmental factors like temperature, humidity, and nutrient levels. By doing so, they can significantly improve crop yield and resource efficiency.

Furthermore, Seeds & Mist may also consider vertical integration into other parts of the supply chain, such as processing and distribution. This move can reduce operational costs and enhance profitability.

Our Vision:

Our vision at Seeds & Mist is to transform the agricultural landscape by increasing access to and environmental friendliness of fresh, sustainable products. Through our passion to hydroponic vertical farming, we hope to help create a better globe.

Our Mission:

Our mission is to produce high quality vegetables with less usage of land, and to grow crops without pesticides.

Market Opportunity:

Fresh, regionally sourced produce is seeing an increase in demand. With changing consumer tastes and a pressing need for sustainable agriculture, Seeds & Mist is well-positioned to take a sizable chunk of this expanding market.

Market Analysis:

Seeds & Mist Hydroponic Vertical Farming is a forward-thinking venture dedicated to the innovative fusion of hydroponic vertical farming and sustainable agriculture. To establish a strong presence in this dynamic market, it's essential to understand the current landscape, growth potential, and industry trends.

Product:

- Lettuce Romania,
- Lettuce Butterhead,
- Bok Choy,
- Swiss Chard

Price:

- Lettuce Romania= Rs. 445
- Lettuce Butterhead= Rs. 445
- Bok Choy= Rs. 285
- Swiss Chard= Rs. 576

Place:

The products are supplied to the urban areas of North Karnataka, in the supermarkets, Multi-commodity retail stores, Hotels and Restaurants.

Promotion:

- Exhibition in local markets
- Social media promotion
- Word of mouth
- Advertising in events

SWOT Analysis

STRENGTHS <ul style="list-style-type: none"> • Innovative Technology. • Sustainability Focus. • Local Community Engagement. • Vertical Integration. 	WEAKNESSES <ul style="list-style-type: none"> • High Initial Investment. • Market Competition.
OPPORTUNITIES <ul style="list-style-type: none"> • Growing Market. • Partnerships and Collaborations. • Technology Advancements. • Local Sourcing Trend 	THREATS <ul style="list-style-type: none"> • Market Saturation. • Consumer Preferences.

Products and services

Our Products are Lettuce Romania, Lettuce Butter Head, Bok Choy, and Swiss chard. We provide services to Multi-commodity retail stores, Restaurants and Hotels

Funding Requirements

We are looking for finance the amount of Rs.40,00,000/- to help us establish and solidify our presence. This funding will help with marketing campaigns, facility, and technological advancements.

Seeds & Mist Hydroponics Farming Business Model Canvas

Key Partners:	Key Activities:	Value propositions:	Customer relationship:	Customer segment:
Distributor- Nutrients Seeds and other raw materials Hydroponics Setup Polyhouse setup Solar panels	Temperature control Water purification Hydroponic setup Growing plants without soil Generating electricity from solar power	Fresh vegetables Natural and Healthy vegetables No impact on environment Fast growth	Site tour (educational) Instagram engagement Discounts Training on Hydroponics	Geographical segmentation: People located in North Karnataka Psychographic segment: People who are health conscious (People having an active interest in one's health, who are
	Key Resources:	Competitive advantage:	Channels	

	<p>INR 10 lakhs from owner's equity</p> <p>INR 40 lakhs from term loan</p> <p>Land – (Own)</p> <p>Trade mark of the name “Seeds and Mist”</p>	<p>Training people the method of hydroponics</p> <p>Optimal utilization of land</p> <p>Reduction of middle men by direct selling to customers</p>	<p>Awareness: Instagram, YouTube, Facebook etc.</p> <p>Purchase: Retail outlets, E-commerce website.</p> <p>Delivery: Through minivans to the retail outlets, hotels, etc.</p>	<p>concerned with nutrition & fitness.)</p> <p>Behavioral segment: Who buy from Retail stores, Supermarket</p> <p>Demographic segment: Age group of 18 – 30, 31 – 50.</p>
Cost Structure:		Revenue Streams:		
<p>Setup of Hydroponics farm- 40.23 lakh (One time fixed cost)</p> <p>Cost of permit or license- 50,000 (One time fixed cost)</p> <p>Utilities- (Fixed - Recurring)</p> <p>Seeds, Nutrients, other raw materials- (Variable)</p> <p>Transportation- (Variable)</p>		<p>Sales to Supermarkets- 50%</p> <p>Sales to Hotels and Restaurants- 30%</p> <p>Profit from trainings- 20%</p>		

Business Model Canvas explained:

Key partners:

- Distributor for Seeds- (Bannari Amman Sugars Ltd., Coimbatore, Tamil Nadu)
- Distributor for Nutrients- (HiMedia laboratories private Ltd., Mumbai, Maharashtra)
- Distributor for Other raw materials- (Kaveri agri products, Hosur, Tamil Nadu)
- Hydroponics Setup- (Greentech India, Pune, Maharashtra)
- Polyhouse setup- (Rudra enterprise, Pune, Maharashtra)
- Solar panels: (Loom solar, Faridabad, Haryana)

Key Activities:

- Temperature control: Temperature control is a critical aspect of hydroponics, as it affects the growth and health of plants. The ideal temperature range for hydroponic plants varies depending on the type of plant, but generally falls between 65-75°F (18-24°C) during the day and around 55-65°F (13-18°C) at night.
- Water purification: Water purification in hydroponics is the process of removing impurities and contaminants from the nutrient solution used in the system. This is important to ensure the health and well-being of the plants, as well as to prevent the buildup of toxins in the system
- Growing plants without soil: Plants are grown in a nutrient-rich water solution or a special growing medium like coconut coir or perlite. This method provides plants with the nutrients they need to grow, and it allows for precise control over the growing conditions
- Generating electricity from solar panels: The solar panels are setup on the roof of Polyhouse which will absorb sun rays and convert it to electricity which can be used in the hydroponics farm.

Key Resources:

- Physical Resources: The physical resource will be the hydroponics farm setup of pipes and Polyhouse which will be used to grow vegetables
- Intellectual property: The trademark “Seeds & Mist” is an intellectual property where we will be providing training and necessary help to the people who are willing to setup their small farm at house
- Financial resources: The financial resources are the one from the owners where 10 Lakhs will be invested from their hand, 40 Lakhs will be raised from the loan provided by bank and the land required to start the business will be own land from the promoters of the business.

Value Proposition:

- Fresh vegetables: The vegetables grown in the farm will be supplied to the customers will be fresh.
- Natural and Healthy vegetables: We grow Natural and healthy vegetables which will be free from adulteration and pest.

- No impact on environment: The process we use to grow the plants will not impact environment in any ways.
- Fast growth: The yield in hydroponics is fast and customers get the crops fast according to their requirement.

Competitive advantage:

- Training people the method of hydroponics: Apart from growing and selling the vegetables we also provide training to people who are in need, who want to setup their own hydroponics farm at their house.
- Optimal utilization of land: We will setup a farm in the vertical manner where we will utilize the land to fullest.
- Reduction of middle men by direct selling to customers: We will be cutting down the middle men to sell our products to our customers, we market and sell our products by our won directly to the customers which will be B2B business.

Customer Relationship:

- Site tour (educational): To gain the people's trust in our product we will have the site tour or educational tour for the people and students as well at our farm site.
- Discounts: To attract more customers we will provide them with exciting offers and discounts to the customers.
- Training on Hydroponics: We even build our relationship with people by training them on how to do the hydroponics farming at their premises.

Channels:

- Awareness: Instagram, Facebook, YouTube etc.
- Purchase: Retail outlets, E-commerce website.
- Delivery: Through minivans to the retail outlets, hotels, etc.

Customer segment:

- Geographical segmentation: People located in North Karnataka
- Psychographic segment: People who are health conscious (People having an active interest in one's health, who are concerned with nutrition & fitness.)
- Behavioural segment: Who buy from Retail stores, Supermarket
- Demographic segment: Age group of 18 – 30, 31 – 50.

Cost Structure:

- Setup of Hydroponics farm- 40.23 lakh (One time fixed cost)
- Cost of permit or license- 50,000 (One time fixed cost)
- Utilities- (Fixed - Recurring)
- Transportation- (Variable)
- Seeds, Nutrients, other raw materials- (Variable)

Revenue stream:

- Sales from Supermarket and Retail stores- 50%: We will be getting our 50% of the revenue from the sales to the supermarket.
- Sales from Hotels and Restaurants- 40%: 40% of the sales will be from Hotels and restaurant and lastly
- Profit from training- 1500/ person (7 days) - 10%: The remaining 10% of the revenue will be from the training to the people.

Financial Plan

Hydroponics Setup in 5000 Sq. Feet.

Area:

Project Size= 5000 Sq. feet

Project Type= Automatic control green house

Project capacity= 12,500 Net cups

System type= NFT for leafy crops and herbs

Capital Budget:

Farm setup = 20Lakh

Temp. Controlled Polyhouse =18Lakh

Solar panel setup = 1.35Lakh

Total = 40.23Lakh

*Setup includes- Pipe, Fitting, Net cups, Stand etc.

One-Time Requirements:

Particulars	Amount
Polyhouse Setup	18,00,000/-
Pipe Setup/Stand Platform	20,00,000/-
Water Pumps	2000/-
pH Meter	2000/-
Water Tanks	30,000/-
Net Cups	50,000/-
Licensing	50,000/-
Air Pump	4,000/-
Solar Panels	1,35,000/-
Total	40,73,000/-

Working capital requirement:

Expenses/ Month	Amount
Labour	30,000/-
Electricity	5,000/-
Seeds	10,000/-
Seedling Tray	5,000/-
Coco Peat	20,000/-
Water	10,000/-
Nutrients	5,000/-
pH Balance	2,000/-
Packaging	11,250/-
Transportation	20,000/-
Maintenance	30,000/-
Marketing	10,000/-
Total	1,58,250/-
Yearly expenses	18,99,000/-

Production: in a year.

Crop type	No. of plants	KG/Cycle/Plant	Cycle/Yr.	KG in 9 cycle	Total production in KG
Lettuce Romania	3125	0.25	9	7031.3	
Lettuce Butter head	3125	0.25	9	7031.3	
Bak Choy	3125	0.2	9	5625	
Swiss Chard	3125	0.2	9	5625	25312.5

Crop Type	Selling Price (In Rs./KG)	Forecasted Monthly Sales (In KGs)	Weightage of Expected Sale	Weighted Average Expected Monthly Sales	Weighted Average Selling Price	Average Selling Price
Lettuce Romania	445	750	0.3	225	133.5	445.75

Lettuce Butter Head	445	625	0.25	156.25	111.25	
Bok Choy	285	500	0.2	100	57	
Swiss Chard	576	625	0.25	156.25	144	
Total				638KGs		

Profit: (Yearly)

Total production	Selling price	Total Selling	Yearly expenses	Profit
25,312.50	445.75	11283046.87/-	18,99,000/-	93,84,046.87/-

BEP: Break-even point

$$= \frac{\text{Fixed cost}}{\text{Selling price per unit} - \text{Variable cost per unit}}$$

$$\frac{4073000}{445.75 - 22.33} = 9619 \text{ Units for Break-even sales}$$

$$\frac{9619}{637.5} = 15.08 \text{ Months Break-even Point}$$

∴ Break-even point is 16 months

2. CONCLUSION

More than just a farming company, Seeds & Mist symbolizes a significant revolution in agriculture by upholding sustainability, technological precision, community involvement, and a wide range of products. We cordially invite you to collaborate with us in reinventing agriculture's future and promoting a healthier, more sustainable planet.

3. REFERENCE

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