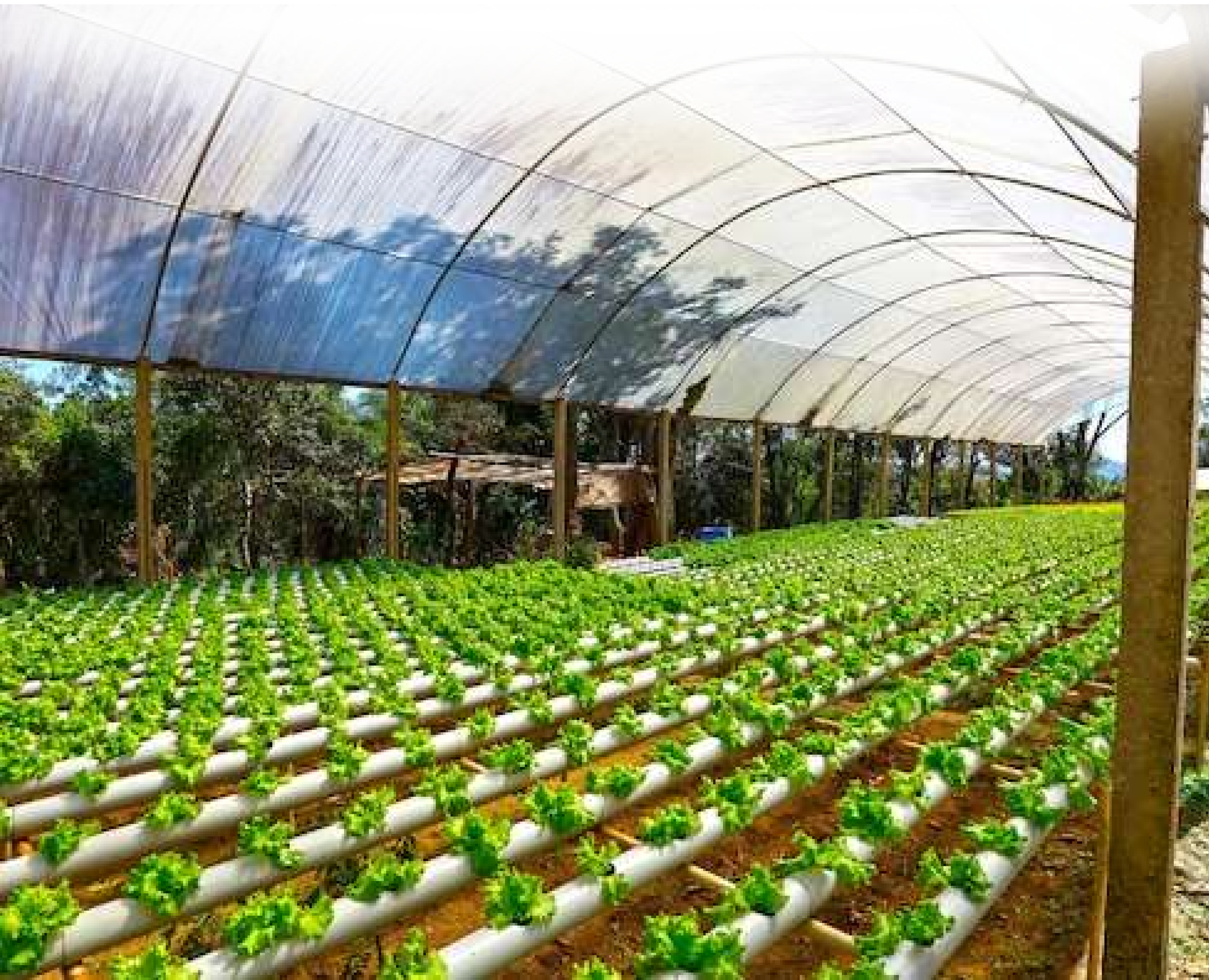
Farlense

Hydroponic Farming in India

A Snapshot of Existing Business Models



Introduction:

Hydroponics refers to soil-less cultivation of plants, using water-based mineral nutrient solution. This hi-tech method of farming has taken the Indian agricultural entrepreneurship ecosystem by storm, with numerous small to mid-sized farms emerging in every major consumption centre of the country.

What sets hydroponically grown produce apart from what is available in the market is its low pesticide residue content. Since these crops are often cultivated in controlled environment, the chances of them getting infected with diseases or pests are much lower as compared to the ones obtained from soil-based farming. The monitoring of abiotic factors including temperature, humidity, light etc. also makes it possible for producers to hydroponically cultivate a vast variety of crops all around the year, irrespective of the farm location.

Understanding the Market:

Net houses and polyhouses started becoming popular with the Indian farming community post 2005-06, primarily because of the financial incentives offered to farmers by central and state governments for setting up these facilities. The concept of new age indoor farms started gaining popularity post 2015 as urban customers asked for safe, traceable food. Farlense has estimated the current market size of the produce obtained from controlled environment agriculture (CEA) in India to be approximately 1.2-1.30 lakh MT annually. This produce is sourced from different types of farms – indoor, polyhouses, and net houses, as classified in the table below.

Controlled Environment Agriculture Infrastructure in India

Type	Net House	Naturally-Ventilated Polyhouse	Fan & Pad Polyhouse	Retractable Roof Polyhouse	Indoor Farm
					
Typical Farm Size	>=0.5 Acre	>1 Acre	>1 Acre	>=0.5 Acre	Typical Farm Size
Average CAPEX (in INR)	15-25 Lakh/Acre onwards	45-55 Lakh/Acre onwards	>1 Acre	75-80 Lakh/Acre onwards	Average CAPEX (in INR)
Operational Expenses	Low	Low	Moderate to High	Moderate to High	Average CAPEX (in INR)
Output Quality	Low	Low	Moderate to High	Moderate to High	Average CAPEX (in INR)
Environment Control	★	★★	★★★	★★★★	★★★★★
No. of Farms in India	High	High	Moderate	Low	Average CAPEX (in INR)

Interestingly, despite being a relatively newer form of farming in India, hydroponics has given rise to a diverse range of farms – both in terms of size as well as business model. The table below shows Farlense's classification of different types of farms based on their operating and business models.

Type	Ag-Tech Farm	Local Farm	Regional Farm	Turnkey Solution Provider	Corporate Farm
Services Offered	• Assist in setting up of CEA infrastructure, crop production and sale • Develop a partner farm network with an established buy back arrangement	• Farms involved in the production and sale of crops.	• Similar to local farms except they operate in multiple regions	• Develop technical DPRs and supply hydroponic production kits and training to clients. • May or may not offer market linkages for completed projects.	• Large scale farms developed by business houses for the production and sale of crops.
Markets Catered	2-3 Regions	1 Region	2-3 Regions	Pan-India	Leading Metro Cities

Given the high operational costs that these farms incur to execute precision farming, the selling price of hydroponically grown crops is higher than their soil-grown alternatives (~1.5 to 3.5 times). However, the realization of higher prices by producers depends on the sales channels they choose.

The crop basket generally consists of exotic vegetables and salad greens, with consumer groups ranging from high income households and expat communities to health-conscious individuals in tier-1 cities. In certain cases, farms also cater to the HoReCa segment – local cafes and hotels to fast food chains and food service companies.

Since the urban population is increasing and disposable incomes are rising, the picture seems rosy so far, doesn't it? This is because we have not yet addressed the most critical link in determining the viability of any hydroponic farm – the sales channels.

These primarily include the following: direct-to-consumer, modern trade stores, hotels, restaurants, cafes (HoReCa segment), local mandi and export. Each one of them comes with its own characteristics, some of which have been highlighted in the table given below.

Channels of Sales for Hydroponically-Grown Produce in India

Type	Own D2C Brand	Serving to Mandi	Serving Modern Trade Stores	Serving HoReCa and Food Service Companies
Quantity per Order	Low-to-high (Depending on customer network)	Bulk	Low-to-moderate (Crop specific)	High
Order Frequency	Daily	Daily	Weekly	2-3 times a week
Produce Quality	Highest (Essential for customer retention)	Moderate	High (Affects shelf offtake and brand perception)	Price>Quality (Value consistent supply and low purchase cost)
Packaging Type	Attractive (Clamshell boxes and sealed air bags)	Order is delivered in crates/cardboard boxes	Attractive (Clamshell boxes and sealed air bags)	Order is delivered in crates, sealed air bags
Average Margins	50-100%	Least	20-25%	Low
Credit Policy	On delivery/In advance	On delivery	1-3 months	1-3 months
Logistics Cots	Highest	High	Low	Moderate
Return Policy	Optional	Not Applicable	Applicable	Inspection done on ordering, post which returns are not accepted
Registration Process	Not Applicable	Not Applicable	Centralized with a vendor onboarding fee	Centralized onboarding with yearly tenders
Nodal Person	Operations manager	Vendor	Procurement head	Procurement head and executive chef

Yes, the demand for hydroponically grown produce is increasing every year, both for domestic and export markets. Yes, investors will keep a close eye on this space and keep pumping in funds for the next few years. But have start-ups found out answers to where to sell and how to produce in order to arrive at profitable and scalable business models?

Contact us to know more about our work with start-ups and established players in this space and how we could help you navigate this challenging yet fast growing segment.

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