

**PROJECT PROFILE  
ON SPROUT  
MAKING UNIT**

## **Table of Contents**

INTRODUCTION	3
PRODUCTS AND ITS APPLICATION	3
DESIRED QUALIFICATION FOR PROMOTER	3
INDUSTRY OUTLOOK/TREND	3
MARKET POTENTIAL AND MARKETING ISSUES, IF ANY	4
RAW MATERIAL REQUIREMENTS	4
MANUFACTURING PROCESS	5
MANPOWER REQUIREMENT (PER MONTH)	7
LAND	7
MACHINERY SPECIFICATIONS	7
<b>Utilities</b>	8
<b>Other Contingent Expenses</b>	8
Working Capital (per month)	8
TOTAL CAPITAL INVESTMENT	8
IMPLEMENTATION SCHEDULE	8
INSTALLED CAPACITY & CAPACITY UTILIZATION	9
FINANCIAL ANALYSIS	9
SALES CALCULATION	9
Net Profit Ratio	10
Break-even Point	10
<b>References</b>	10
Seed dealers are locally available	11
DISCLAIMER:	11
DISCLAIMER:	11

## INTRODUCTION

Now people can realise the relationship between diet and health. Sprouts are mainly young plants produced through germination of seeds. Despite being low in calories, sprouts are a rich source of nutrients and beneficial plant compounds. Their vitamin and mineral content based on the types of sprouts. The sprouting process increases nutrient levels, making sprouts richer in protein, folate, magnesium, phosphorus, manganese and vitamins C and K. Sprouts also tend to contain higher levels of essential amino acids, with certain individual amino acids increasing by as much as 30%.

In recent past, there has been a growing consumption of sprouts. Today every departmental store sell sprout and sprouted foods. Many different types of seeds can be sprouted. Here is a list of the most common types of sprouts available on the market:

- Bean and pea sprouts: Such as lentil, adzuki, garbanzo, soybean, mung bean, black bean, kidney bean, green pea and snow pea sprouts.
- Sprouted grains: Such as brown rice, buckwheat, amaranth, kamut, quinoa and oat sprouts.
- Vegetable or leafy sprouts: Such as radish, broccoli, beet, mustard green, clover, cress and fenugreek sprouts.
- Nut and seed sprouts: Such as almond, radish seed, alfalfa seed, pumpkin seed, sesame seed or sunflower seed sprouts.

## PRODUCTS AND ITS APPLICATION

- Sprouts are mainly consumed as raw food, but may also be lightly cooked before you eat them.
- They are also easy to add to a wide variety of meals and snacks.
- It is very good food for diabetic patients.
- Some of the sprouts like Alfalfa's has cholesterol-lowering ability. It is also used as a medicinal herbs. Alfalfa used as a Ayurvedic medicine to treat conditions caused by inflammation and oxidative damage.
- Sprouts improves the metabolic health. It also protects from heart diseases.

## DESIRED QUALIFICATION FOR PROMOTER

Sprout making does not require proper skills and technology know-how.

## INDUSTRY OUTLOOK/TREND

Global Bean Sprouts Market is valued at 4105 million USD in 2020 is expected to reach 4376.9 million USD by the end of 2026. Sprouts are perishable items. India exported seeds for sprouts to other countries such Netherlands, USA, UAE, Japan, Bangladesh, etc. During 2020-21, India exported

around INR 40642 lakh worth of seeds. Some of the sprouts like Brussels sprouts are exported directly. In the year 2020-21 India exported INR 1.77 lakh of Brussel sprouts.

**HS Code: 12099190**

Year	Exports Value in Rs. Lakhs
2021-22 (April-June)	13,747.69
2020-21	40642.02
2019-20	35,721.82
2018-19	45927.97

Source: Ministry of Commerce & Industries, Govt. of India

## MARKET POTENTIAL AND MARKETING ISSUES, IF ANY

Peoples in ancient India and Southeast Asia first cultivated sprouts. It was not until the second half of the 20th century, however, that sprouts began to gain popularity in the West. Since their debut on the Western palate in the 1970s, sprout production has exploded, and sprouts of all kinds are now regulars in many grocery stores, sandwich shops, and local markets across the country. In India there are about 20 types of microgreens are produced. The most commonly consumed sprout varieties are alfalfa, mung bean, red clover, radish, broccoli and wheat grass. Sprouts are available in most of the supermarkets and departmental store. Hotels and restaurant chains are also big buyers of sprout. With the recent coronavirus outbreak, the demand for functional foods to improve body immunity is on the rise. Initially, germinated legume seeds were the major type of sprouts consumed in the human diet whereas sprouted cereal grains have been mainly utilized as fodder for animals. The growing popularity observed for sprouts is mainly due to their positive health impact. Other than food products, sprouts have good demand as a herbs in the preparation of Ayurvedic medicines.

## RAW MATERIAL REQUIREMENTS

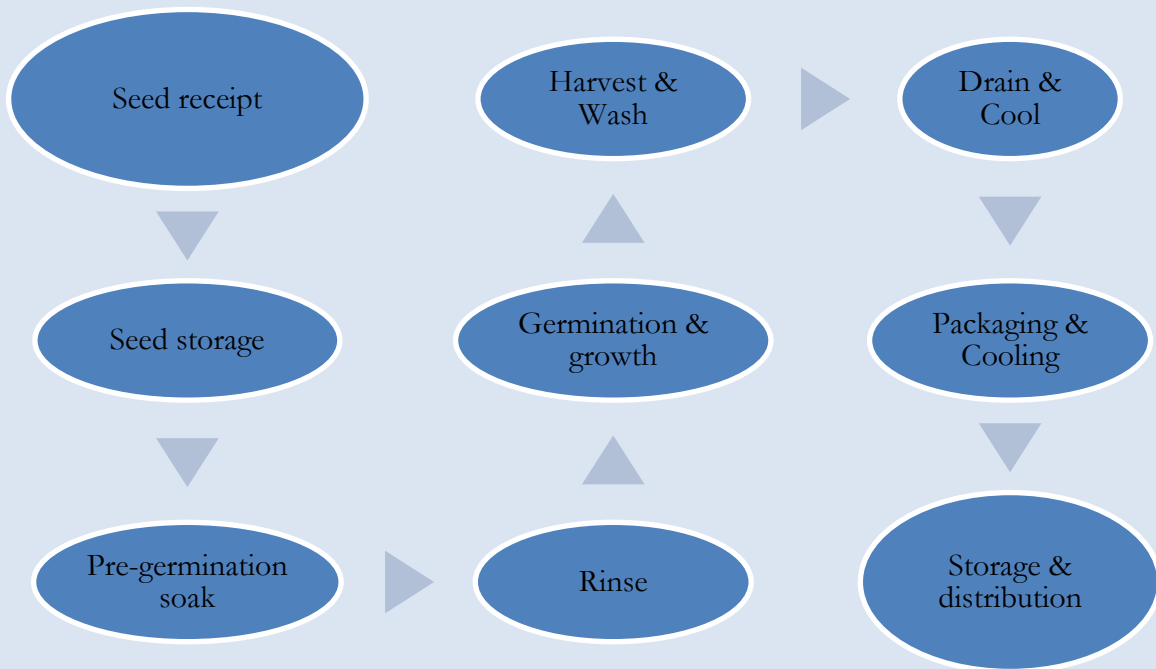
### Raw materials requirement (per month)

Particulars	Value (Rs.)
Raw materials, Seeds*	40,000
Packaging materials	10,000

\*The cost varies according to type of seeds used for germination.

# MANUFACTURING PROCESS

Process flow chart of preparation of sprouts:



The end product is generally a sprout measuring 1/8–2 inches (2–5 cm) long.

- Add seeds to a bowl or containers, and cover them with 2–3 times the amount of cool water.
- Let them soak overnight or about 8–12 hours.
- Drain and rinse the sprouts well with cool water. Drain them again, removing as much water as possible.
- Store the sprouts out of direct sunlight and at room temperature for 3 days. Rinse and drain them thoroughly every 8–12 hours.
- On day 4, relocate the sprouts to an area with indirect sunlight to allow for photosynthesis. Continue to rinse and drain them well every 8–12 hours.
- On day 5 or 6, your sprouts are ready to eat.

Due to the high risk of microbial seed contamination and subsequent amplification of bacteria during the sprouting process, sprouters take several steps to minimize the risk of future sprout-related foodborne illnesses. The most effective procedure shown to reduce microbial concentrations has been soaking the seeds in 20,000 ppm solution of Calcium hypochlorite. Sprouters often avoid these decontamination steps, because high concentrations of these antimicrobial solutions can affect germination rates and yield.

Retail Sprouting Industry Best Practices		
PROCESS STEP	SOURCE OF CONTAMINATION	CONTROL MEASURES
Receiving (Seeds or Sprouts)	<ul style="list-style-type: none"> <li>• Bacterial contamination</li> </ul>	<ul style="list-style-type: none"> <li>• Approved source (purchase specifications – grown for human food, grown under Good Agricultural Practices (GAPs) including manure management, labeled with lot number for trace back to source)</li> <li>• Stored and handled under sanitary conditions during distribution</li> <li>• Inspection for torn bags or containers, rodent evidence (feces, urine – fluoresces in UV light)</li> <li>• Product condition (not wet or moldy)</li> </ul>
Seed Storage at Retail	<ul style="list-style-type: none"> <li>• Cross-contamination</li> <li>• Rodent Infestation</li> </ul>	<ul style="list-style-type: none"> <li>• Stored in clean, sanitized bins/containers</li> <li>• Seeds protected after opening</li> <li>• Have SSOPs in place (cleaning &amp; sanitizing, maintenance, pest control, etc.)</li> </ul>
Seed Treatment (Soaking & Rinsing)	<ul style="list-style-type: none"> <li>• Unsafe water</li> <li>• Physical contamination</li> <li>• Bacterial contamination</li> </ul>	<ul style="list-style-type: none"> <li>• Use a public water supply or test private well water on a regular basis</li> <li>• Screen for stones and other debris</li> <li>• Protect all seeds from contamination especially if scarification is done to change germination</li> <li>• Disinfection treatment</li> </ul>
Germination (Sprouting)	<ul style="list-style-type: none"> <li>• Dirty equipment</li> <li>• Unsafe water</li> <li>• Unsafe soil (if used for sprouts)</li> <li>• Airborne contamination</li> <li>• Bacterial growth</li> <li>• Ill employees with infections</li> </ul>	<ul style="list-style-type: none"> <li>• Hot &amp; cold water available</li> <li>• Use potable irrigation water for sprouting seeds</li> <li>• Clean &amp; sanitize all surfaces that irrigation water and sprouts contact</li> <li>• Wash hands before and after handling sprouts</li> <li>• No broken or cracked utensils or equipment</li> <li>• Building enclosed</li> <li>• Testing irrigation water for <i>Salmonella</i> and <i>E. coli</i> O157:H7</li> </ul>
Post-Germination (Harvesting/Packaging or Repackaging)	<ul style="list-style-type: none"> <li>• Unsafe water</li> <li>• Ill employees with infections</li> </ul>	<ul style="list-style-type: none"> <li>• Use potable water rinse</li> <li>• Adequate and accessible restrooms and hand washing facilities</li> </ul>

	<ul style="list-style-type: none"> <li>• Inadequate label information</li> <li>• Unsafe packaging materials</li> </ul>	<ul style="list-style-type: none"> <li>• No bare hand contact with sprouts</li> <li>• Exclusion or restriction of ill employees</li> <li>• Sprout package label contains sprouter's name, address, lot code and "Keep Refrigerated" instructions</li> <li>• Food grade packaging materials</li> </ul>
Storage & Display	<ul style="list-style-type: none"> <li>• Bacterial Growth</li> <li>• Cross-contamination</li> </ul>	<ul style="list-style-type: none"> <li>• Store/display at 41°/5°C or less</li> <li>• Protect sprouts from contamination</li> </ul>

## MANPOWER REQUIREMENT (PER MONTH)

Type	Number	Cost (Rs.)
Manager cum owner	1	27,000
Labour (skilled)	1	10,000
Labour (un-skilled)	1	8,000
Sales person	1	15,000
Total per month		60,000
Total per annum		7,20,000

## LAND

Particulars	Units	Value (in Rs.)
Covered area, building (assume own land or rented)	200 Sq. Ft.	10,00,000

## MACHINERY SPECIFICATIONS

Sl. No.	Description	Price (Rs.)
1.	Containers for sprouting	20,000
2	Metal shelf	30,000
3	Flat trays	10,000
4	Lights	2,000
5	Water tanks	10,000
6	Water pumps	10,000
7	Water heating pipes	3,000
	Total	85,000
8	Furniture and fixtures	25,000

An entrepreneur can install automatic sprout making machine as well. It will cost him around INR 1 lakh rupees. Total machineries can be installed in INR 1.5 lakhs.

## Utilities

Item	Total Amount (Rs.)
Power	2,000
Water	3,000
<b>Total</b>	<b>5,000</b>

## Other Contingent Expenses

Particulars	Total Amount (Rs.)
Postage/Stationery	1,000
Travelling expenses and transport charges	10,000
Repair/Maintenance.	1,000
Sales Expenses	5,000
Advertisement/Publicity	8,000
Insurance	2,000
Consumable Stores	3,000
<b>Total</b>	<b>30,000</b>

## Working Capital (per month)

Particulars	Total Amount (Rs.)
Staff and labour	60,000
Raw material	50,000
Utilities	5,000
Other contingent expenses	30,000
<b>Total</b>	<b>1,45,000</b>
<b>Working Capital (for 3 Months)</b>	<b>4,35,000</b>

## TOTAL CAPITAL INVESTMENT

Fixed capital (machinery + Building)	Rs. 11,50,000
Working capital (for 3 months)	Rs. 4,35,000
<b>Total</b>	<b>Rs. 15,85,000</b>

## IMPLEMENTATION SCHEDULE



Project Stages	Months.....			
	1	2	3	4
Acquisition of Land				
Building construction				
Ordering of Machinery				
Delivery of Machinery				
Term/Wkg Loan Sanction				
Installation of Machinery				
Commissioning of Plant				
RM/Inputs Procurement				
Manpower Appointments				
Commercial Production				

## INSTALLED CAPACITY & CAPACITY UTILIZATION

The installed capacity of the plant is 150 MT per year. The capacity utilization of 50%, 60% and 70%, 80% and 90% has been considered during first, second, third, fourth and fifth year respectively.

## FINANCIAL ANALYSIS

Cost of Production (per annum)	(Rs)
Total recurring expenditure	21,00,000
Depreciation on building @10%	1,00,000
Depreciation on machinery and equipment @ 10%	1,50,000
Interest on total investment @ 10%	1,50,000
<b>Total (INR)</b>	25,00,000 or 25.00 lakh

## SALES CALCULATION

Particulars	1 <sup>st</sup> year	2 <sup>nd</sup> year	3 <sup>rd</sup> year	4 <sup>th</sup> year	5 <sup>th</sup> year
Capacity Utilization	50%	60%	70%	80%	90%
Total Capacity (tonnes)	30	30	30	30	30
Production	15	18	21	24	27
Sale price per ton (in Rs. lakh)	1.6	1.7	1.8	1.9	2
Total Sales (in Rs. lakh)	24	30.6	37.8	45.6	54

## PROFITABILITY CALCULATION (per annum) (in Rs. Lakh)

Particulars	1 <sup>st</sup> year	2 <sup>nd</sup> year	3 <sup>rd</sup> year	4 <sup>th</sup> year	5 <sup>th</sup> year
Total Sales (in Rs. lakh)	24	30.6	37.8	45.6	54
Less: Cost of Production					
Staff Salary	0.6	0.66	0.72	0.79	0.86
Raw Materials	6.00	7.00	8.00	9.00	10.00
Utilities	0.60	0.65	0.70	0.75	0.80
Contingent Expense	0.30	0.32	0.35	0.38	0.41
Pre-operative cost	0.50	0.50	0.50	0.50	0.50

Depreciation on building	1.00	0.90	0.80	0.70	0.65
Depreciation on machinery	0.15	0.14	0.13	0.12	0.11
Interest on capital Investment	1.60	1.60	1.60	1.60	1.60
Total Cost of Production	10.75	11.77	12.8	13.84	14.93
Profit before tax (Total Sales – Cost of production)	13.25	18.83	25.00	31.76	39.07
Tax @ 30%	3.98	5.65	7.50	9.53	11.72
Profit after Tax	9.28	13.18	17.50	22.23	27.35
Net Profit Ratio	38.65	43.08	46.30	48.75	50.65

## Net Profit Ratio

$$\frac{\text{Profit}}{\text{Turn over per year}} \times 100 \text{ per year}$$

## Break-even Point

Particulars	1 <sup>st</sup> year	2 <sup>nd</sup> year	3 <sup>rd</sup> year	4 <sup>th</sup> year	5 <sup>th</sup> year
Total Sales (in Rs. lakh)	24	30.6	37.8	45.6	54
<b>Fixed Cost</b>					
Staff Salary (40%)	0.24	0.26	0.29	0.32	0.34
Contingent Expense (40%)	0.12	0.13	0.14	0.15	0.16
Depreciation on building (10%)	1.00	0.90	0.80	0.70	0.65
Depreciation on machinery (10%)	0.15	0.14	0.13	0.12	0.11
Interest	1.60	1.60	1.60	1.60	1.60
Total Fixed Cost	3.11	3.03	2.96	2.89	2.86
Profit after Tax	9.28	13.18	17.50	22.23	27.35
Break Even Point	25.11%	18.69%	14.47%	11.50%	9.47%

$$\text{B.E.P} = \frac{\text{Fixed cost}}{\text{Fixed cost} + \text{profit}} \times 100$$

### Addresses of Raw Material and Plant Machinery Suppliers

- Solutions Packaging, No. 541, floor 1st floor, Solution Packaging Harikrishnapura, Ludhiana , Punjab, Milarganj, Ludhiana-141001, Punjab, India.
- M/s. Techmac Engineering Works, 310, Usha Kiran Building, Commercial Complex, Azadpur, Delhi-110033.
- M/s. Engineers Syndicate, A-2, F.F. Ring Road, Rajouri Garden, New Delhi-110027

### References

- Sprout Packaging video: <https://www.youtube.com/watch?v=FrFP5fFCnwk>
- Sprout Germination (Home) Video: <https://www.youtube.com/watch?v=LZVUmK5gDUM>

## **Seed dealers are locally available**

There is statutory requirement of FSSAI license for setting up of food processing industry. Moreover, MSME & GST registration, APEDA registration, HACCP certification, GMP certification, IEC Code for Export of end products and local authority clearance may be required for Shops and Establishment, for Fire and Safety requirement and registration for ESI, PF and Labour laws may be required if applicable. Entrepreneur may contact State Pollution Control Board wherever it is applicable.

### **DISCLAIMER:**

This is an indicative illustration of project profile; the above calculation can vary with the locations. Only few machine manufacturers are mentioned in the profile, although many machine manufacturers are available in the market. The addresses given for machinery manufacturers have been taken from reliable sources, to the best of knowledge and contacts. However, no responsibility is admitted, in case any inadvertent error or incorrectness is noticed therein. Further, the same have been given by way of information only and do not carry any recommendation.

### **DISCLAIMER:**

"The document users/third parties shall verify the facts and figures at their end and shall be solely responsible for any action taken by it based on this document. BRIEF & SIDBI, its directors, employees or any office shall not be liable for loss of whatsoever nature arising by using the content of this document."