



MEDICINAL AND AROMATIC PLANT NURSERY

Introduction

The process of plant cultivation includes many steps. One of them is propagating the plants and growing them to a desired age. This is the first step of the process. The process of propagating the plants by sowing seeds in a large area is usually done in a nursery. These nurseries are designed to facilitate smooth growth of baby plants. These nurseries sell these saplings or seedlings (baby plants) to various businesses involved in plant cultivation, to commercial gardeners, agriculture farms, forestry, etc.

Medicinal and Aromatic Plant Nursery is specialized in growing plants that act as raw materials to various pharmaceutical and drug industries is referred to as. Medicinal and aromatic plants include a wide range of flora like Basil, Ashwagandha, Rosemary, Aloe Vera, Lemon Grass, etc. These plants are easily accessible, affordable and easy to grow.

Market Potential

The main purpose of establishing such nurseries is to contribute towards the agricultural sector and the economy as a whole. A nursery is an effort made to bring together all the resources together and grow plants to a desired age. Such nurseries are encouraged by government (AYUSH ministry government of India and various state governments) and thus has huge demand in the market. These medicinal plants act as a base for traditional medicines and are much cheaper than the modern medicines and formulations. These plants are in huge demand since they are culturally familiar, technically simple, financially affordable and generally effective. Hence, the business proves to be profitable since most of the south Asia relies on traditional medicinal methods. There is huge export demand in Asian countries of such plants grown in India.

Product Uses

- These baby plants are used to further transplant the saplings or seedlings.
- The Medicinal and Aromatic Plants are popular for a number of health benefits.
- Medicinal Plant acts as a raw material to various medicines.
- Aromatic Plant are exploited for essential oil extraction for applications.
- Used in cosmetics, flavoring and fragrance, spices, herbal beverages, etc.
- Used to cure various diseases such as cough and cold, blood pressure, cancer, etc.

Assumptions

I. Model project has been prepared based on following assumptions:

- Land: 1 acre area of Land is owned. (Larger the area, higher is the profitability; since there is huge market potential for such plants thus marketing is not a problem)
- Area:
 - a. Proposed area for nursery raising (i.e., the mother bed) is 40,000 sq. ft.
 - b. Other activities area is around 3560 sq. ft.
- Power: Power Consumption is negligible, hence a DG Set of 20 KVA power is included.
- Land Development: The Land development cost includes:
 - a. Water Storage Tank
 - b. Rain water Harvesting System
 - c. Storm Water Drainage Network
 - d. Water and Sewage Treatment Plant
 - e. Boundary Bamboo Fencing
 - f. Developing the Mother Bed Area (40,000 sq. ft.): 50 mother beds (40 ft.* 20 ft. being size of each bed) with an internal walking space.
 - g. Hiring Charges of Tractors, etc.
- Civil Works and Building: It includes:
 - a. Office Area
 - b. Equipment Storage Area
 - c. Overhead Tent
- Security: Provision for round the clock Security within the nursery.
- Preliminary and Preoperative period is 6 months.
- Principal Repayment and Interest on Term Loan: The principal amount has been repaid half-yearly and the interest on term loan has been charged quarterly.
- Working Capital in the form of KCC and interest on the same has been charged half-yearly.
- These plants are grown using biofertilizer only. No chemical fertilizers to be used.

II. Nursery Plants chosen for the DPR and its particulars:

| Name of the Plant | Grown in month | Yearly Production (in units) in 40000 sq. ft. |
|-------------------|--------------------|---|
| Lemon Grass | January – March | 43000 |
| Basil | April – June | 130000 |
| Aloe Vera | July – August | 108000 |
| Rosemary | September | 88000 |
| Ashwagandha | October – December | 150000 |

LEMON GRASS

Lemon grass (*Cymbopogon schoenanthus L.Spreng*) is used as stimulant carminative, antiperiodic and perfumery, herbal tea, hair oil, scent and soap making. The soil should be well pulverized for forming the seed bed and it should be a raised bed one. Leaf mould and farm yard manure are also added to the soil while forming the bed.

When the seedlings are about 2 months old or, about 12 to 15 cm high, they are ready for transplanting.



BASIL (TULSI)

Basil (*Ocimum sanctum Linn*) plant is used for treatment of common cold, cough, tonsillitis, asthma, diabetes, earache and in preparation of many Ayurvedic formulations. The plant can be grown under partially shaded conditions but with low oil contents.

Raised seed beds of 15 x 4 x 9 ft size should be thoroughly prepared and well manured by the addition of farm yard manure. After sowing, the seeds in the nursery, a mixture of farm yard manure and soil should be spread in a thin layer over the seeds and irrigate with a sprinkler hose. The seedlings are ready for transplanting in about 6 weeks' time at 4-5 leaf stage. A spray of 2% urea solution on the nursery plants at 15 to 20 days before transplanting helps in getting healthy seedlings for transplanting.



ALOE VERA

Aloe vera (*Aloe barbadensis Mill*) is used for burn, wound, liver complaints, intestinal worms, uterine disorders. It is widely used in preparation of cosmetic products. The plant grows well in hot and dry climate.

Onset of monsoons is the best time for planting of Aloe. The crop can be planted throughout the year under irrigated conditions. The crop responds well to the application of farm yard manure and compost.



ROSEMARY

Rosemary (*Salvia Rosmarinus*) is a fragrant herb native to the Mediterranean region. It has a warm, bitter taste and it provides a nice flavor and aroma to many foods. In addition, rosemary can be used in tea or as an essential oil or liquid extract.

Rosemary is a rich source of antioxidants and anti-inflammatory compounds, which are thought to help boost the immune system and improve blood circulation.

The month of September to October is suitable for sowing such plants. Good drainage system enables proper growth of Rosemary.



ASHWAGANDHA

Ashwagandha (*Withania somnifera* L. Dunal) also known as Indian ginseng, is an important ancient plant, the roots of which have been employed in Indian traditional systems of medicine, Ayurveda and Unani. It is propagated by seeds.

Fresh seeds are sown in well prepared nursery beds. For export, a well-maintained nursery is a prerequisite. The nursery bed usually raised from ground level is prepared by thorough mixing with compost and sand. Seeds are treated in carbendazim to control wilt and seed borne diseases. Seeds are sown and covered thinly using sand. The seeds germinate in 5 to 7 days. About 35 days old seedlings are transplanted in the main field.



Cost of Project

| Particulars | Amount (Rs. In Lakhs) |
|---|--------------------------|
| Land (own) (1 acre) | - |
| Civil works and Buildings | 77.25 |
| Land Development Cost (Annexure) | 11.15 |
| Miscellaneous Fixed Assets | 1.60 |
| D G Set (20 KVA) | 1.50 |
| Escalation & Contingencies (2%) | 1.83 |
| Preliminary & Preoperative Expenses (Annexure) | 6.51 |
| Sub-total (A) | 99.84 |
| Working Capital Margin @25% of Total WC Requirement | 1.25 |
| Total Project Cost | 101.09 |
| Total Working Capital Required (Lump sum) (B) | 5.00 |
| MEANS OF FINANCE | |
| Total Funds Required(A+B) | 104.84 |
| <u>Loan Component-</u> | |
| TERM LOAN (60% of A) | 59.91 |
| WORKING CAPITAL (60% of B) | 3.75 |
| Total | 63.66 |
| Equity | 41.19 |
| Total | 104.84 |

Detailed Cost Element

| Sl. No. | Particulars | Amount (Rs. in Lakhs) |
|---------|---|--------------------------|
| 1 | Water Storage Tank | 0.70 |
| 2 | Water treatment plant and water connection cost | 5.00 |
| 3 | Boundary Bamboo Fencing {(140 ft.* 280 ft.)@60} | 0.50 |
| 4 | Cost of Developing Mother Bed (40000 sq. ft.) | 4.80 |
| 5 | Rent on hiring tractors, etc | 0.15 |
| | Total | 11.15 |

Contingencies and Escalations

It has been assumed at approximately 2% at cost.

Preliminary Expenses

| Particulars | Amount (Rs. in Lakhs) |
|--|--------------------------|
| Incorporation Expenses | 0.05 |
| Project Report Preparation and Consultation | 0.50 |
| Feasibility and Engineer's/Architect's Report and Plans | |
| Legal Charges - Drafting for agreements, contracts, stamp paper, notary and affidavit cost | 0.05 |
| Security Guard and others | 4.41 |
| Interest Cost for period before commercial operations | 1.50 |
| Total | 6.51 |

Salary

| Designation | Manpower | Amount (Rs. In lakhs) |
|-----------------------------|----------|--------------------------|
| Agricultural technician | 1 | 2.52 |
| Office staff cum Accountant | 1 | 1.44 |
| Skilled Workers | 2 | 2.16 |
| Workers (Contract Basis) | 3 | 1.35 |
| Security Guard | 2 | 2.40 |

Profitability Statement

| Particulars | Amount (Rs. In Lakhs) | | | | |
|-------------------------------------|-----------------------|--------------|--------------|--------------|--------------|
| | Year- 1 | Year- 2 | Year- 3 | Year- 4 | Year- 5 |
| <u>A. INCOME</u> | | | | | |
| Production during the year | 508620 | 534051 | 560754 | 588791 | 618231 |
| Annual turnover | 71.22 | 76.28 | 80.09 | 84.09 | 88.30 |
| Total income during the year | 71.22 | 76.28 | 80.09 | 84.09 | 88.30 |
| <u>B. OPERATING EXPENSES</u> | | | | | |
| Raw Material | 23.72 | 25.40 | 26.67 | 28.01 | 29.41 |
| Salary | 9.87 | 10.07 | 10.27 | 10.47 | 10.68 |
| Repair & Maintenance | 1.42 | 1.53 | 1.60 | 1.68 | 1.77 |
| Power & utilities | 0.47 | 0.47 | 0.48 | 0.49 | 0.50 |
| Depreciation and Amortization | 4.72 | 4.72 | 4.72 | 4.54 | 4.54 |
| Total Operating Expenses | 40.20 | 42.19 | 43.75 | 45.20 | 46.90 |
| Operating Profit (A-B) | 31.02 | 34.09 | 36.34 | 38.90 | 41.40 |
| <u>C. FINANCIAL EXPENSES</u> | | | | | |
| Interest on term loan | 4.91 | 4.18 | 3.46 | 2.73 | 2.00 |
| Interest on working capital | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 |
| <u>D. Other Expenses</u> | | | | | |
| Administrative and general Expenses | 1.42 | 1.53 | 1.60 | 1.68 | 1.77 |
| Total Expenses | 6.65 | 6.03 | 5.38 | 4.73 | 4.09 |
| Profit Before Tax | 24.37 | 28.06 | 30.97 | 34.17 | 37.31 |
| Provision for Tax | 6.09 | 7.02 | 7.74 | 8.54 | 9.33 |
| Profit after Tax (PAT) | 18.28 | 21.05 | 23.23 | 25.63 | 27.98 |
| Dividend Declared | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Retained Profit | 18.28 | 21.05 | 23.23 | 25.63 | 27.98 |

Breakeven Point

| SL | Particulars | Year - 1 | Year - 2 | Year - 3 | Year - 4 | Year - 5 |
|-----------|-------------------------------|--------------|--------------|--------------|--------------|--------------|
| A. | Net Sales | 71.22 | 76.28 | 80.09 | 84.09 | 88.30 |
| B. | Variable Cost | | | | | |
| | Raw Material | 23.72 | 25.40 | 26.67 | 28.01 | 29.41 |
| | Power and Utility | 0.47 | 0.47 | 0.48 | 0.49 | 0.50 |
| | Total Variable Cost | 24.18 | 25.88 | 27.16 | 28.50 | 29.91 |
| C. | Contribution (A-B) | 47.04 | 50.40 | 52.93 | 55.59 | 58.39 |
| D. | Fixed Cost | | | | | |
| | Salary | 9.87 | 10.07 | 10.27 | 10.47 | 10.68 |
| | Repair and Maintenance | 1.42 | 1.53 | 1.60 | 1.68 | 1.77 |
| | Interest on Term Loan | 4.91 | 4.18 | 3.46 | 2.73 | 2.00 |
| | Interest on WC Loan | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 |
| | Depreciation and Amortization | 4.72 | 4.72 | 4.72 | 4.54 | 4.54 |
| | Total Fixed Cost | 21.24 | 20.81 | 20.36 | 19.75 | 19.31 |
| E. | Breakeven Point | 45% | 41% | 38% | 36% | 33% |
| F. | Cash BEP | 35% | 32% | 30% | 27% | 25% |

Debt-Service Coverage Ratio

| SL | Particulars | Year - 1 | Year - 2 | Year - 3 | Year - 4 | Year - 5 |
|----------|-----------------------------|--------------|--------------|--------------|--------------|--------------|
| i | Profit | 18.28 | 21.05 | 23.23 | 25.63 | 27.98 |
| ii | Depreciation | 4.72 | 4.72 | 4.72 | 4.54 | 4.54 |
| iii | Interest on term loan | 4.91 | 4.18 | 3.46 | 2.73 | 2.00 |
| A | Total (i + ii + iii) | 27.91 | 29.95 | 31.40 | 32.90 | 34.53 |
| i | Interest on term loan | 4.91 | 4.18 | 3.46 | 2.73 | 2.00 |
| ii | Principal repayment | 8.56 | 8.56 | 8.56 | 8.56 | 8.56 |
| B | Total (i + ii) | 13.47 | 12.74 | 12.01 | 11.29 | 10.56 |
| | DSCR A / B) | 2.07 | 2.35 | 2.61 | 2.91 | 3.27 |

Interest on Term Loan and Principal Repayment

Refer Annexure I for Loan Repayment Schedule.

We have assumed the repayment tenure of term loan for a period of 7 years, rate of interest being @ 8.5% with the moratorium period being 6 months.

Address of Vendors

| Name of Vendor | Address and Contact Number |
|--------------------------------------|---|
| Chhajed Garden Agro Services Pvt Ltd | C/o Sanjay Nursery, Loni Kalbhor, Solapur Road, Pune, India. Ph No. 9860335845 |
| Plants Guru | 65, Gramsevak Prakshin Kendra, Pune Solapur Road, Manjari Farm, Haveli, Pune, Maharashtra, India. Ph No. 8468888666 |
| Floral Seed Company | 3/3, Vasant Vihar Enclave, P.O. New Forest, Dehradun, Uttarakhand, India. Ph No. 9412059668 |

ANNEXURE - 1

| Year | Month 1 | Month 2 | Month 3 | Month 4 | Month 5 | Month 6 | Month 7 | Month 8 | Month 9 | Month 10 | Month 11 | Month 12 | Annually |
|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|----------|----------|----------|
| I | | | | | | | | | | | | | |
| Principal | | | | | | | | | | | | | |
| Opening | 59.91 | 59.91 | 59.91 | 59.91 | 59.91 | 59.91 | 55.63 | 55.63 | 55.63 | 55.63 | 55.63 | 55.63 | |
| Repaid | | | | | | 4.28 | | | | | | 4.28 | 8.56 |
| Closing | 59.91 | 59.91 | 59.91 | 59.91 | 59.91 | 55.63 | 55.63 | 55.63 | 55.63 | 55.63 | 55.63 | 51.35 | |
| Interest | | | 1.27 | | | 1.27 | | | 1.18 | | | 1.18 | 4.91 |
| II | | | | | | | | | | | | | |
| Principal | | | | | | | | | | | | | |
| Opening | 51.35 | 51.35 | 51.35 | 51.35 | 51.35 | 51.35 | 47.07 | 47.07 | 47.07 | 47.07 | 47.07 | 47.07 | |
| Repaid | | | | | | 4.28 | | | | | | 4.28 | 8.56 |
| Closing | 51.35 | 51.35 | 51.35 | 51.35 | 51.35 | 47.07 | 47.07 | 47.07 | 47.07 | 47.07 | 47.07 | 42.79 | |
| Interest | | | 1.09 | | | 1.09 | | | 1.00 | | | 1.00 | 4.18 |
| III | | | | | | | | | | | | | |
| Principal | | | | | | | | | | | | | |
| Opening | 42.79 | 42.79 | 42.79 | 42.79 | 42.79 | 42.79 | 38.51 | 38.51 | 38.51 | 38.51 | 38.51 | 38.51 | |
| Repaid | | | | | | 4.28 | | | | | | 4.28 | 8.56 |
| Closing | 42.79 | 42.79 | 42.79 | 42.79 | 42.79 | 38.51 | 38.51 | 38.51 | 38.51 | 38.51 | 38.51 | 34.23 | |
| Interest | | | 0.91 | | | 0.91 | | | 0.82 | | | 0.82 | 3.46 |
| IV | | | | | | | | | | | | | |
| Principal | | | | | | | | | | | | | |
| Opening | 34.23 | 34.23 | 34.23 | 34.23 | 34.23 | 34.23 | 29.95 | 29.95 | 29.95 | 29.95 | 29.95 | 29.95 | |
| Repaid | | | | | | 4.28 | | | | | | 4.28 | 8.56 |
| Closing | 34.23 | 34.23 | 34.23 | 34.23 | 34.23 | 29.95 | 29.95 | 29.95 | 29.95 | 29.95 | 29.95 | 25.67 | |
| Interest | | | 0.73 | | | 0.73 | | | 0.64 | | | 0.64 | 2.73 |
| V | | | | | | | | | | | | | |
| Principal | | | | | | | | | | | | | |
| Opening | 25.67 | 25.67 | 25.67 | 25.67 | 25.67 | 25.67 | 21.40 | 21.40 | 21.40 | 21.40 | 21.40 | 21.40 | |
| Repaid | | | | | | 4.28 | | | | | | 4.28 | 8.56 |
| Closing | 25.67 | 25.67 | 25.67 | 25.67 | 25.67 | 21.40 | 21.40 | 21.40 | 21.40 | 21.40 | 21.40 | 17.12 | |
| Interest | | | 0.55 | | | 0.55 | | | 0.45 | | | 0.45 | 2.00 |
| VI | | | | | | | | | | | | | |
| Principal | | | | | | | | | | | | | |
| Opening | 17.12 | 17.12 | 17.12 | 17.12 | 17.12 | 17.12 | 12.84 | 12.84 | 12.84 | 12.84 | 12.84 | 12.84 | |
| Repaid | | | | | | 4.28 | | | | | | 4.28 | 8.56 |
| Closing | 17.12 | 17.12 | 17.12 | 17.12 | 17.12 | 12.84 | 12.84 | 12.84 | 12.84 | 12.84 | 12.84 | 8.56 | |
| Interest | | | 0.36 | | | 0.36 | | | 0.27 | | | 0.27 | 1.27 |
| VII | | | | | | | | | | | | | |
| Principal | | | | | | | | | | | | | |
| Opening | 8.56 | 8.56 | 8.56 | 8.56 | 8.56 | 8.56 | 4.28 | 4.28 | 4.28 | 4.28 | 4.28 | 4.28 | |
| Repaid | | | | | | 4.28 | | | | | | 4.28 | 8.56 |
| Closing | 8.56 | 8.56 | 8.56 | 8.56 | 8.56 | 4.28 | 4.28 | 4.28 | 4.28 | 4.28 | 4.28 | -0.00 | |
| Interest | | | 0.18 | | | 0.18 | | | 0.09 | | | 0.09 | 0.55 |