



**SHEEL BIOTECH  
LTD.**





## FROM THE CHAIRMAN DESK

Our vision from Sheel Biotech Ltd. is to provide a sustainable and healthy environment to the world with high quality of farming, organized horticultural practices, farm innovations with affordable solutions, protection to the environment and above all to make this world a liveable place for better future.

I wish to congratulate all our SBL partners and business associates in helping us to make vision of our company a reality on ground. I look forward to have similar kind of support and association in the future too.

## WELCOME TO SHEEL BIOTECH LIMITED

Sheel Biotech Limited, incorporated in 1991, is an OHSAS 45001:2018, ISO 9001-2008 & ISO 14001:2004 certified company in the field of Bio-technology, Floriculture, Green Houses, Organic Adoption & Certification and Turnkey Projects with its office at New Delhi and regional offices all over India.

The company is managed by industry experts and professionals with outstanding knowledge in the Floriculture, Horticulture, Agriculture, Biotechnology and Green Houses. Company's Research and Development lab is duly recognised by the Department of Biotechnology (DBT), Department of Science and Technology (DST), Government of India.

SHEEL GREEN | TISSUE CULTURE LABORATORY | FLORICULTURE REAL LIFE ORGANIC | BIO-

FERTILIZER & PESTICIDES | HYDROPONIC ORGANIC ADOPTION & CERTIFICATION | SOLAR

PUMPING SYSTEM | GREEN HOUSE MANUFACTURING & TRADING COMPLETE LAB

INSTRUMENTS ALL TYPE COLD STORAGE SYSTEM | ALL TYPE PACK HOUSE WITH GRADING

MACHINE



# 1. Infrastructure:

## Chamber for seeder machine

- Size - 25'x15'x12':8' (LxWxHc:s)
- Structure made of steel 50mm x 50mm with pre coated GI sheet 0.5 mm thick with false ceiling. With two door & two windows. Roof hut type,
- Foundation wall 1.5' above ground level & 1.5' below ground level. Floor: made by made by PCC (1:5:10) 100 mm thick than CC (1:2:4) 100 mm thick with dully plastered.



## 2. Seeder machine

### DRUM SOWING SEEDER LINE

- Capacity: 12000 to 80000 seedling/hour
  - Max tray dimensions 580x400
  - Drum seeder line
  - Head n. 1 with dibbler drum
  - Head n.2 with sowing drum
  - longitudinal tray advancement
  - Operator right side
  - Vacuum pump for head no 2
  - Sowing kit composition 3 no drum
  - N° of cells for tray 99 cavity
- 
- Rows with direct hole of the drum 9 no's
  - Dibbler 1 no.
  - Color touch screen panel
  - Power supply 400 V three-phase
  - 50HZ Frequency 50 Hz NR 1,00
  - Manual system for the width guide adjustment
  - Series of nozzles per cell on the front side Nr 9.00
  - Air bars within double row of nozzles and seed holding plate with pneumatic
  - Drum coverer for vermiculite and watering unit length 550 mm with 2 drilled
  - bars with mounted conveyer size 3000x565x800mm (L x W x H)
  - Air Compressor to support online system
  - Power supply 400v three phases
  - Water tank, water pump and plumbing work, electrical wiring etc. Electrical wiring as per required



### 3. GERMINATION CHAMBER SIZE: 4M X 4M X 3M (LX WXH)

**Construction:** 80mm prefabricated puff panel

**Steel:** 50mmx50mm with inner/outer pre quoted GI sheet 0.5mm thick.

**Door:-** Air tight Puff Panel door size.2mx1 m

**Temperature Range:** 22° C to 35°C & RH: 70% - 80% Lights: - LED lights 18watts for illumination purpose.

**Foundation:** wall for Germination Chamber 9" wide, 1.5' below earth's surface.1.5' above earth's surface, as kick-board 9" wide, Frame base block height 3 x9"x9"each.

**Floor:** made by PCC (1:5:10)100mm thick than CC (1:2:4) 100mm thick with tiles.

As per Required Temperature Controller, Heater & Humidifier

Germination chamber installed under shed made by pre quoted GI sheet 0.5mm thick with Tubular structure.



## 4. Store Room & Pot Preparation Area

**Length:** 9.0m or as per land Available  
**Width:** 4.5m or as per land Available  
**Ridge Height:** 4.2m  
**Gutter Height:** 3.0 m  
**Design:** Hut/dome shape

**Main Structure:** Made of 2mm thick, GI HS section, including cutting, bended in required shape, complete as per requirements

**Main Column:** 50 \* 50mm

**Roof truss,** 50 \* 50mm

**Horizontal runner**  
etc., 38\*38mm

**Truss member/other support:** 32 \* 32mm  
plus/minus 1 ± mm

**Frame:** All galvanized steel is used and design as per IS875 standards. End wall and side wall framing GI pre coated corner trims, ridge bar and Galvanized gutter trim Brackets & fasteners as required to assemble or welded frame.



**Covering:-** Top and sides of the storage room would be covered with 0.5mm thick GI pre-coated sheet.

- The top of pot sowing area would be covered the same material as the storage room.

- The side of the pot sowing area would be covered with U.V. stabilized 40mesh insect net (white color, 110 GSM).

- This net would be fixed on three sides with aluminum or GI profile and zig-zag spring inserts.

- There would be a door (1m \* 2m)  
**Flooring:** 40mm thick CC flooring anti-slippery with proper drainage slops. Floor to be raised 1.0ft by filing soil from existing level.

**Media wash pit:** one wash pit of Size 2' \* 4' \* 2' made with brick wall and plastered with cement slurry.



## Jet Irrigation System:

Jet Irrigation with motorized system for irrigating sowing portrays in sowing area and One Wash basin having tape & water supply connections, excess irrigation with cocks (2 points). PVC hose pipe of 50' length.

**Storage Tanks:** One overhead Storage water tank of 500 liter capacity. All plumbing fittings of pvc pipes.



## 5. PRIMARY HARDENING CHAMBER

**Length:** 26.0m or as per land Available

**Width:** 9.6m or as per land Available

**Ridge Height:** 4.5m Gutter Height: 3.0 m Span: One,

**Design:** dome shape Total Chamber-1 Nos.

**Main Structure:** Made of 2m thick, GI HS section, including cutting, bended in required shape, complete as per requirements

**Main Column:** 96 x 48mm,

**Roof truss Arch:** 60mm OD Truss Bottom: 43mm OD Horizontal runners etc., 43mm OD

**Truss member/other support:** 43/33mm OD  $\pm$  1 mm

**Frame:** All galvanized steel is used and design as per IS875 standards. End wall and side wall framing Aluminum corner trims, aluminum ridge bar and Galvanized gutter trim Brackets & fasteners as required to assemble frame, and Buffer Room with double door system.



## **Double Door Room:**

Size: 2.1m x 3.0m x 2.4m (L x W x H)

covered with clear 6mm metallic polycarbonate sheet.

**Hinge/Sliding Door:** Size: 1.9m x 0.91m long & wide, normally lockable made with clear 6mm polycarbonate glazing, top & bottom tracks, jambs, flashings & installation hardware - 2 nos." (2 Complete Set).

**Cladding:** Roof, front wall, end wall & side walls of the Greenhouse-sets for rigid covering 200 micron uv stabilized poly sheet fixed with GI Profile and zig zag spring.



### **Fogging System:**

To increase the humidity up to  $80\% \pm 5\%$  by providing 4 way fogging Nozzles hanging type, with fine discharge (28-30 lph) at 4 bar pressure, with pump 2.0 HP, Disc filter etc. complete, spacing 2.5 x 2.5m and having manual control as switch or plug to off and on water supply in foggers of each line.



### **Growing Tunnels:**

having semi-circular(1.5 m) tunnel like pvc frame (removable) placed at 1m distance each in benches covered with fine quality cotton cloth.



## **Boom Irrigation:**

Boomer trolley system that operates on an overhead truss-mounted double rail system. This rail system would be constructed from galvanized iron (GI) pipe and installed along the gutter length in each span of greenhouse with necessary accessories.

The boomer trolley itself would be made of stainless steel (304) and utilize a motorized gear system for its movement, including an automatic stop function at both ends. To maximize space efficiency within the greenhouse, this overhead rail system is necessary.

The system would be including suspended cables and hose pipes fitted to the rail with rollers to facilitate electricity and water supply. The boom arms to be constructed from aluminum and offer adjustable height table height positioning above the seedling trays. Filtration will be provided by a disc filter, ensuring ease of maintenance and serviceability.

A control panel would be equipped with an automatic and manual switching system, along with a safety protector, is required. For optimal spraying, three-way Agar or Tee jet make nozzles would be fitted at 50-60cm intervals on a heavy-duty 25mm aluminum pipe. These nozzles would be allow for user-selectable discharge rates of up to 60 liters per hour, with an operating pressure range of 2.5-4.0 kg/cm<sup>2</sup>. The systems to be ensure direct and even water application to the plants. promoting optimum germination success.



## **Internal Shading: Internal Screen:- Manual Internal 50%**

Aluminet Screen retraction mechanism using rope & pulley. Support Aero wheel, curtain ring, polyester wire having with high abrasion strength- which results smooth operation & long durability

### **Cooling System:**

Pad Area: 9.6m L x 1.5m Hx 100mm thick.

Cooling Pad: Cellulose pad of thickness 4" thick, at velocities of 1 to 3 M/s to give efficiency from 60 to 95%

Framing material. Aluminum.

Plastic Profiles: Water Distribution Tray Gutters, down spout end caps & drip pan, required supporting distribution & returning piping



Plumbing kit: Drilled PVC piping cap, pad retainer, all suspension hardware.

Pump: 220-volt single phase 50 cycles,

Filtration: Mesh SS filter for 30 m efficiency.

Miscellaneous: Fasteners, Galvanized, Rivet- Aluminum.

1. Fan. Axial flow belt driven net protected, Sweep Size: 48", Blade: 6 nos. SS, Motor: 1.5HP, Louvers, auto open able, Qty: 2 Nos In each bay
2. Exhaust fan. heavy duty 18" fan above gutter height with lover and back cover.2 nos on each bay.
3. Air circulation fan: for air circulation in green house, Size: 18 dia, made by SS. 304 grade sheet, Qty: 2.0 no in each bay Net cage: To protect cooling pad from dust and direct entry of insect back side of pad area should be covered with 40 mesh net behind the cooling pad.



**Light:** Normal tube light for visibility in night.

**Climate Control System:** Control system which can monitor

and control Temperature, Humidity. It maintains Greenhouse climate by optimum controlling of equipment's like cooling fan, ventilation, internal shading and lights, Boom Irrigation etc. 10" HMI with buttons, Data logging Feature.

System with inbuilt analog module for sensor connection.

Multi- Set point programming.

Multistage cooling /heating control.

SMS updates over phone.

Data logging is in excel and graphical format.

Computer access from any place using internet.

SENSORS Each of the Chamber have sensors port

Temperature & RH:

Range: Range 0-50°C and 0-100%.

Type: 4-20 mA OUTPUTS

**A) Temperature controller:**

Fan & Pad Control:

Control type: Multiple stage control

Temp. Range: 0.1 to 59.9°C.

Accuracy: "c.

Hysteresis: 0.4°C

**B) Humidity Control-Cyclic and time control fogging system**

Control type: ON/OFF

Range: 30% to 90%.

Real RH: digit (at 45%).

**C) Temperature and RH Sensor**



**Side Vents:** By providing both side rollup side curtain upto side height. Vent area covered with insect net 40 mesh with rollable poly sheet with manual gear box

**Electrical Wiring:** All wires will be of copper and desired load with A grade work. Multiple power plugs, 1 on each side walls of structure for future use of electrical devices/instruments (1 Complete Set).

**Tray Holding Station:** consists of hot dipped galvanized support frame 20mm dia pipe for legs & 32 x 32 Square pipe top & aluminum T-sections, so as to hold the seedling trays in flat position. Growing benches will be 70-80cm in height & width as per design/ tray base size Benches to be planned to utilized maximum area. Foundation size 0.15m x 0.15 m x 0.2 m for benches legs in CM 1:2.4.

**Ground Cover:** Entire floor to be covered with 130 GSM weed mat/ground cover except CC pathway. 2-3 inch thick layer of sand in proper slope shall be provided before laying ground cover

**Civil Work:**

**Foundation:** Insert GI pipes of minimum 80 x 40 mm or more to have foundation depth of 90cm or more depending upon soil type and prevailing wind condition, grouted with cement concrete mixture of 1:2:4 using telescopic insertion of column.

**Brick wall:** 23cm thick brick wall of 1.1 m height (30 cm below and 60 cm above ground level on all the four sides. The walls need to be plastered and painted with water proofing paint.

**Pathway.** CC Pathway made with 1:2:4 cement concrete 4-5 thick. This would be 1.0 m wide along the front wall, 2 m wide along the back wall. There would be provision for proper drain of extra water from boom/foggers from the greenhouse.

**Plinth Protection:** Providing and fixing of 60mm thick interlocking Paver Block of M-30 grade laying on 3" thick PCC (1:3:6) within 1m along the front wall of the structure is required to maintain the cleanliness.



## 6. Secondary Hardening Chamber

Length: 26.0m or as per land Available

Width: 9.6m or as per land Available

Ridge Height: 4.5m

Gutter Height: 3.0 m

Span one.

Design: dome shape

Total Chamber-1 Nos.

Main Structure Made of 2m thick. GI HS section, including cutting, bended in required shape complete as per requirements

Main Column: 96 x 48mm,

Roof truss Arch: 60mm OD

Truss Bottom: 43mm OD

Horizontal runners etc., 43mm OD

Truss member/other support: 43/33mm OD  $\pm$  1 mm

Frame: All galvanized steel is used and design as per IS875 standards. End wall and side wall framing Aluminum corner trims, aluminum ridge bar and Galvanized gutter trim Brackets & fasteners as required to assemble frame, and Buffer Room with double door system.

Double Door Room: Size: 2.1 m x 3.0m x 2.4m (L W x H) covered with clear 6mm metallic polycarbonate sheet. Hinge/Sliding Door: Size: 1.9m x 0.91m long & wide, normally lockable made with clear 6mm polycarbonate glazing, top & bottom tracks, jambs, flashings & installation hardware - 2 nos.



**Cladding 1st Layer:** Top 1 layer and truss portion covered with uv stabilized 200 micron poly sheet having 85% light transmission, Clear, multi-layered, anti-drip anti-fog, films which produce excellent thermal results. The main characteristic is the high dispersion of visible light, which produces homogenized illumination, hence, avoiding shades, and direct light exposure and Anti fog & Anti Dust. Make: Ginegar-Agriplast.

**2nd layer:** Top 2nd layer covered with uv stabilized Agro shade net 50% green colour. Fixed with GI profile and zig-zag spring inside the poly sheet.

All sides covered with uv stabilized nylon insect net 40 mesh 110 GSM with GI profile and zig-zag spring.

**Sprinkler System:** To irrigate the plant by providing sprinkler Nozzles hanging type, with fine discharge (70 lph) at 4 bar pressure, with pump 2.0 HP, Disc filter etc. complete, spacing 2.5 x 2.5m and having manual control as switch or plug to off and on water supply in sprinkler of each line.

**Internal Shading:** Internal Screen:- Manual Internal 50% Aluminet Screen retraction mechanism using rope & pulley, Support Aero wheel, curtain ring, polyester wire having with high abrasion strength- which results



Light: Normal tube light for visibility in night.

Electrical Wiring: All wires will be of copper and desired load with A grade work. Multiple power plugs, 1 no side walls of structure for future use of electrical devices/instruments (1 Complete Set).

Tray Holding Station: consists of hot dipped galvanized support frame 20mm dia pipe for legs & 32 \* 32 Square pipe top & aluminum T-sections, so as to hold the seedling trays in flat position. Growing benches will be 70-80cm in height & width as per design/ tray base size. Benches to be planned to utilized maximum area. Foundation size 0.15m x 0.15 m x 0.2 m for benches legs in CM 1:2:4.

Ground Cover: Entire floor to be covered with 130 GSM weed mat/ground cover except CC pathway, 2-3 inch thick layer of sand in proper slope shall be provided before laying ground cover.

Civil Work:

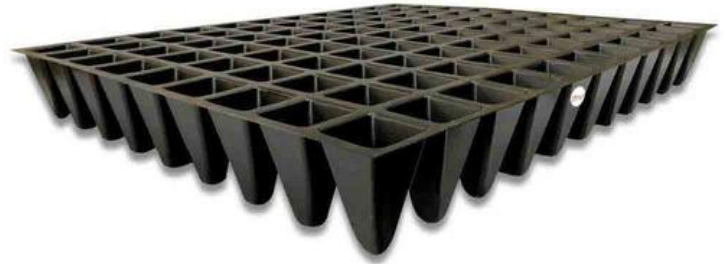
Foundation: Insert GI pipes of minimum 60 x 60 mm or more to have foundation depth of 90cm or more depending upon soil type and prevailing wind condition, grouted with cement concrete mixture of 1:2:4 using telescopic insertion of column. Brick wall: 23cm thick brick wall of 1.1 m height (30 cm below and 60 cm above ground level on all the four sides. The walls need to be plastered and painted with water proofing paint.

Pathway: CC Pathway made with 1:2:4 cement concrete 4-5 thick. This would be 1.0 m wide along the front wall, 2 m wide along the back wall. There would be provision for proper drain of extra water from boom/foggers from the greenhouse.

Plinth Protection: Providing and fixing of 60mm thick interlocking Paver



## 7. Soilless media and seeding trays, Thermocol base, Tools etc



### PRO TRAY 99 CAVITY:

(LxWx H), 360mmx 450mmx60mm Each  
Tray minimum 100 gram: 2000 Kg

### GROWING MEDIA

#### Coco peat Bricks Type

EC: 0.5ms/cm pH: 5.2- 6.8  
2500kg



### VERMICULITE

Particle size : 4 mm pH

Value : 7.5, Qty: 2000 Kg



**PERLITE: 1000 Kg**

**Thermocol Tray: 1000 Nos**

**Weighing Balance: 50Kg- 1 Nos**

**Borewell with Motor**

**Land Development: 7000 Sqft**

**Power Sprayer: 1 Set**

