**Please fill out questionnaire and send to**

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**GREENHOUSE QUESTIONNAIRE**

**Country**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Customer data**:

1. Customer/ farm name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Farm location: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Net area for design:\_\_\_\_\_\_ Ha.
2. Tel/Fax: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ E- Mail: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Crop data**:

1. Crop: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Varieties: \_\_\_\_\_\_\_\_\_\_\_\_

1. Bed spacing: \_\_\_\_\_\_\_(m). Plant spc.: \_\_\_\_\_\_\_\_(m). No. of rows/ bed \_\_\_\_\_\_\_\_

1. Max. Water requirement: \_\_\_\_\_ mm/d ,\_\_\_\_\_ mm./hr., \_\_\_\_\_ l/plant per day

**Area/ Land Data**

1. Gross area: \_\_\_\_\_\_\_\_\_\_\_ ha. Gross Greenhouse Dimensions: GH1 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ GH2\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ GH3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Altitude above sea level: \_\_\_\_\_\_\_\_\_\_\_\_\_\_m.
2. Attach scale topographic map (1:500 - 1:2500) or a sketch with dimensions,

include/indicate the following check-list on the drawing:

* + Row direction.
  + Boundaries of the sub-area / blocks.  Roads.
  + Leveling / Slopes (%) within a greenhouse (down hill).  North arrow.
  + Water canals / Structures / Reservoirs.  Future expansion.
  + Location of water source and its altitude.  Logistic center.
  + Existing pipelines.

**Greenhouse data**

1. Number of spans: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Width of spans: \_\_\_\_\_\_\_\_\_\_m.
2. Number of beds per span: \_\_\_ Number of beds per house: \_\_\_ 12. Height of beds \ tables: \_\_\_\_\_\_ m. Height of gutters \_\_\_\_\_\_\_\_\_\_\_ m.
3. If substrate: Growing in Troughs / Pots .

Distance between troughs: \_\_\_\_\_\_\_\_\_\_\_\_ m.

Pots per table: No. of rows: \_\_\_\_\_\_ No. of pots per row: \_\_\_\_\_\_

**Soil /Substrate Data**

1. Soil type: \_\_\_\_\_\_\_\_\_\_. Percent of: clay \_\_\_\_. Silt \_\_\_\_\_. Sand \_\_\_\_\_

1. Soil characteristics: pH \_\_\_\_\_\_\_ . Salinity \_\_\_\_\_\_\_\_. Depth \_\_\_\_\_\_m.

Existence of stones in soil: yes/no

1. Substrate type: volcanic tuff / Cinder / rock wool / coconut fiber / other\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Water data**

1. Indicate water source: Lake/ Dam/ River/ Borehole/ Recycled Water/\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Existing infrastructure:

Canal - type: Concrete / Earth cross section: \_\_\_\_\_\_\_m2

Pipes - type : \_\_\_\_\_\_\_\_\_\_\_ diameters: \_\_\_\_\_\_\_ mm/inch

Water Tank / Reservoir: \_\_\_\_\_\_\_\_\_\_\_\_ (m^3) covered / uncovered

1. Water quality:

T.S.S.: \_\_\_\_\_\_\_\_ mg/l. pH: \_\_\_\_\_\_. Salinity/EC: \_\_\_\_\_\_\_\_

Carbonates: \_\_\_\_\_\_ mg/l. Total Iron (Fe++): \_\_\_\_\_\_ mg/l

Existence of: Algae - yes/no . Sand - yes/no . Silt/clay - yes/no 20. Water recycling system: required / not required

**Pumping / Energy Data:**

21. Existing pump:

Pumps - make: \_\_\_\_\_\_\_\_\_\_\_ type: \_\_\_\_\_\_\_\_\_ model:\_\_\_\_\_\_\_\_\_\_\_

R.P.M. \_\_\_\_\_\_\_\_\_. Diameter of impeller: \_\_\_\_\_\_\_\_mm.

3

Capacity \_\_\_\_\_\_\_\_\_\_\_ m /hr. Head: \_\_\_\_\_\_m. (at ground level) 22. Required pumps: Electric / Diesel

Horizontal / Submersible / Vertical Turbine /\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Required no. of units \_\_\_\_\_\_\_\_\_\_\_\_ Including stand by units - yes/no

1. Frequency: 50 / 60 hz. Voltage: 380 – 415v. /\_\_\_\_\_\_\_\_\_
2. Existing transformator: \_\_\_\_\_\_\_\_\_KVA. Available KVA for pumping: \_\_\_\_

Location (indicate on map)

**Climate Data**

1. Mean max.: evaporation \_\_\_\_\_\_\_ mm/d. Temperature \_\_\_\_\_\_\_ oC
2. Relative humidity during day time - average: \_\_\_\_\_ extremes: \_\_\_\_\_\_

**Technical/ Operational Data**

1. Max allowed irrigation time: hr per day: \_\_\_\_\_\_\_\_\_\_\_\_\_. Days per week: \_\_\_\_\_\_\_\_
2. Irrigation interval: \_\_\_\_\_\_\_\_\_\_\_\_days / \_\_\_\_\_\_\_\_\_\_\_\_ times per day.

1. **Drip System:**

Required type of dripper: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ / PC/ CNL /Arrow\_\_\_\_\_\_\_\_\_\_\_

Flow Rate: \_\_\_\_\_\_\_\_\_\_\_\_\_ l/hr. Dripper spacing \_\_\_\_\_\_\_\_\_\_\_ m.

Number of laterals per bed:\_\_\_\_\_\_\_\_\_\_\_ Net length of beds: \_\_\_\_\_\_\_\_ m.

Plants spacing \ population \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. **Mini Sprinklers System:**

Purpose of System:Cooling / Humidity / Irrigation / Germination

Upside-down / on ground / on roof /\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Required type of mini sprinklers: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Flow rate: \_\_\_\_\_\_\_\_\_\_ l/hr.

Spacing between sprinklers: \_\_\_\_\_\_\_\_\_\_\_\_\_m. No of laterals per span \_\_\_\_\_\_\_\_\_\_\_

Height of mini sprinklers above plants \_\_\_\_\_\_ \_\_\_\_m. Above ground \_\_\_\_\_\_\_\_m

1. **Service valve**/**Wetting system**: - manual hand showers

Number of valves per house \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Number of valves to be utilized simultaneously per house: \_\_\_\_\_\_\_\_\_ per project \_\_\_\_\_\_

1. **Valves**: hydraulic / electric / ball inside / outside greenhouse.
2. Required type of primary **filtration:** Gravel/Screen/Disk/Hydro cyclone/Auto:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Required type of **fertilization**: venturi / pressure tank / injector / mixer /\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ . Number of fert. channels \_\_\_\_\_\_\_\_\_ w/wo Acid:\_\_\_\_\_\_\_\_\_.

1. Required type of **automation / control**: non / automatic metering valve/ manual remote control / computer rem. control / auto back flushing/ EC-PH Control

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Climate control** in GH: Yes / No

1. Required type of **mainline**: PVC/ P.E./ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Submains**: PVC/ P.E./\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Drip Submains: subsurface/ elevated at \_\_\_\_ m. height

Mini spr. Submains: subsurface/ elevated at m. height

1. Shifts design: concentrated / scattered blocks

No. of valves per house: \_\_\_\_\_\_\_\_

1. Notes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Minimal Requirements For Quotation Submission:**

Bill of Material:

* + Detailed.
  + Semi-Detailed.

Preliminary Costing.

* + Drawing.
  + Assemblies Drawings.
  + Technical Description.
  + Other \_\_\_\_\_\_\_\_\_\_\_\_\_

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_

**SKETCH**