



REGIONAL AGRICULTURAL RESEARCH STATION
AMBALAVAYAL, WAYANAD - 673 593
KERALA AGRICULTURAL UNIVERSITY

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No: D.1204/2017(vi)

Dated: 22.02.2021

RE-TENDER NOTICE

Tender Number	No: D.1204/17(vi)
Tender Cost	1500/-
GST (18%)	270/-
Date and time for receipt of tender	12.03.2021 at 11.00am
Last date and time for opening of tender	12.03.2021 at 11.30 am
Designation and address of officer to whom the quotation is to be addressed	The Associate Director of Research Regional Agricultural Research Station Ambalavayal, Wayanad, Kerala, Pin 673593
Place of supply	Ambalavayal , Wayanad, Kerala ,Pin 673593
Superscription: "Tender for Construction and commissioning of Air - Conditioned High Tech primary hardening Unit (Mist chamber) – D/1204/17(vi)"	

Sealed competitive tenders are invited for the supply and installation of following items specified under schedule VI at RARS , Ambalavayal

Schedule VI: Construction and commissioning of Air - Conditioned High Tech primary hardening Unit (Mist chamber)

Tender Cost: 1770/- (including GST)

1. Details of work : The work includes setting up and commissioning of a microprocessor based fully automated mist chamber suitable primary hardening of tissue cultured plants. The environmental parameters like Temperature, Relative Humidity and Light should be automatically controlled within the limits specified.

2. Required range of environmental parameters within the mist chamber

Sl. No	Parameter	Requirements / Range
1.	Temperature	20 – 30 °C Throughout the year
2.	Relative Humidity	Up to 95 %
3.	Light	Grow light system with PAR lamps

3. Size of the unit : The overall size of the unit should be 30m² (6m x 5m) excluding the vestibule. The working area of the mist chamber should be 25m² (5m x 5m). The side and centre height of the unit should be 2.5m and 3.5m respectively. A cooling zone of size 1m x 5m x 2.5m should be provide at one side for ECS system. The size of the vestibule should be (1.8m × 1.5m × 2.5m).

4. Model / Type : Dome shaped Even Span

5. Structure : All Structures, Rafters, Purlins, Trusses should be made with hot dip galvanized steel structural elements. The structure should be designed to withstand a wind load up to 140 kmph. Galvanized tubular structure i.e. GI square sections of minimum size 45 mm x 2mm should be used for structural elements. All metallic parts such as clamps, screws, nuts fitting etc should be GI coated for avoiding corrosion.

False ceiling should be provided at gutter height inside the mist chamber, using 6mm, double layered PC sheet with thermal controls on top. Automatic air modulation system should me made available above the false roof. Motorized ventilators with automatic temperature control mechanism for controlling roof top heat should be provided.

Cladding material should be fixed by using Anodized Aluminium profile.

Suitable foundation should be with cement concrete (1:3:6) and plastering 1:6 should be provided. Curtain walls of 60 cm above and 60 cm below GL should be provided. 50 cm cemented flooring should be provided all around the unit.

6. Cladding : The working area should be covered with four layered 10mm polycarbonate UV stabilized sheet meeting BL-4 standards. Minimum required technical specifications of the cladding material are as follows:
 Light transmission: 80 – 85%
 Thickness: -10mm multiwalled (Four layer)
 Sound insulation dB: 18
 Both side UV stabilized
 Safe Fire Performance: Self-extinguishing and difficult to ignite
7. Glazing : Plastic unbreakable, resistant to liquids and chemicals.
8. Aluminium profile for fixing cladding material : Anodized, Strengthened, sealed internal shell of size 50mm and approximate weight of 0.35kg per m length. Screws should be of high-quality GI or SS nonmagnetic.
9. Vestibule / Buffer Room : The vestibule of size 1.8m × 1.5m × 2.5m should be covered with 6mm multi-layered metallic UV stabilized polycarbonate sheet. Double door, normally lockable made with 6mm polycarbonate sheet with top and bottom tracks, jamb should be provided.
10. Shading System : Shading using 75% Agro shading net (Green colour) should be provided with provisions for manually rolling. It should be possible to roll the shade net up or down as per requirement.
11. Humidification System : The humidification system should create fine mist inside the chamber and increases the relative humidity with the following specifications:
 Fogger discharge range: 7 lph
 Operating Pressure: 4.0 bar
 Fogger density: One fogger 0.3 – 0.4 m²
 Head Control Unit: The same head control to be used for humidity & irrigation.
 Average droplet size - 50 to 100 µm.
 Patten - four-way nozzle, hanging type.
 Pipe: 16 mm LLDPE (10 kg/cm²) BLACK colour
 Pumping System: 1 HP Monoblock pump, Filter (Screen) as per ISI standards and water Storage: 500 l tank, PVC pipes and connectors.
12. Temperature Control System : Forced type dual cooling system using Air conditioner and backup ECS cooling.
 4 numbers of Air conditioners of capacity 1.5 ton (1800 BTU/h) suitable for biotech structures. AC units with 3/5-star energy rating, eco-friendly refrigerant is to be used.
 Backup ECS construction should be by using eco-friendly materials.

Cooling pad size: 5m x 1.2 m x 10 mm

Cooling Media: 10mm cellulose pad

Tray side and Top: GI sheets minimum 18 swg

Filtration: Screen IS 25 to 55 viscous filter

Pumping System: 1 HP Monoblock pump for pumping with a water Storage tank of capacity 500l.

Heating system using Far infrared ray radiation backed up with commercial heating backup arrangements.

13. Grow Light System : Special Photosynthetically Active Radiation
Lamp :- Intensity with fluorescent light and photosynthetically Active Radiation lamps (PACRa) W 1.7 to 2.6160 are specific action spectra lamps for photosynthesis.
PAR illumination 100 $\mu\text{moles}/\text{m}^2/\text{s}$ additive as per DIN and IEC standard using High Flex Fluorescent Lighting system and LED Lamps.
14. Air curtain : Electronically balanced air curtain with double blower and automated ON/OFF operation w.r.t. door opening at the entrance.
15. Automatic Control System : Microprocessor Photosynthesis control Panel :- (User friendly) for TEMPERATURE, HUMIDITY and LIGHT duly fixed in Pre Entry Area
Relative Humidity + Temperature Real Time Microprocessor Controller
Input : RH+Temperature Sensor
Display, RH : Upper : 4 digit, 7 segment (14.2 mm) green LED display
Display, Temperature : Lower : 4 digit, 7 segment (14.2 mm) red LED display
Accuracy : RH : +/- 3% RH
Temperature : +/- 0.3% °C
16. Plant workstation : Three work bench each of size: 3.4 m x 0.8 m x 0.6 m (L x W x H).
Stand/Legs: should be of galvanized steel - Steel expanded metal bench top approximate 19 mm-25.4 mm diamond shape & G.I Supporting frame. - G.I. rust resisting benching.
17. Plumbing : Water connection with one tap in Mist chamber/ compartment with elbow operated tap, distributed through corrosion free pre coated GI pipe of appropriate diameter (19 mm or 12.7 mm) will be provided.
12.7 mm & 19 mm GI Pipe :- ISI make B -class L-bow & T :- ISI standard.
18. Wiring : Nearest electrical supply point is located about 150 m and power has
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to be taken from this by UG cable.

The Control Panels with proper terminations should be placed in Buffer Room with all safety cut-off devices as per ISI standards. All electrical wires should be of FR grade multistrand copper wire of desired load with a 18W LED light in Buffer room.

Each system components should have its own electric line/ circuits with individual circuit breakers/ MCB's and conducting of ISI standards.

Terms and conditions

1. Tender form

The tender form may be downloaded from the following link in the internet www.kau.in/tenders

2. **The cost of tender form** will be accepted by way of DD in favour of Associate Director, Regional Agricultural Research Station. Ambalavayal , Pin – 673593
3. **Earnest Money Deposit:** An EMD(1% of the amount quoted) should be remitted by separate DD drawn in favour of Associate Director, Regional Agricultural Research Station. Ambalavayal Pin – 673593
4. The tender should be accompanied by a duly signed agreement in Kerala stamp paper worth Rs. 200/- (Rupees Two hundred only) in the format that can be downloaded from the website www.kau.in/tenders
5. The sealed cover containing the tender documents should be superscribed as **“Tender for Construction and commissioning of Air - Conditioned High Tech primary hardening Unit (Mist chamber) ”** at RARS Ambalavayal”. **The cover should contain the DDs for Tender cost, EMD and the Agreement as mentioned above**
6. The successful bidder tenders should execute an agreement in Kerala Stamp paper worth Rs. 200/- (Rupees Two hundred only) and furnish a security deposit of 5% of cost of the rate quoted in the form of term deposit/bank guarantee/demand draft drawn in favour of Associate Director, Regional Agricultural Research Station. Ambalavayal Pin – 673593, Wayanad District payable at the State Bank of India, Kolagappara (IFSC: SBIN0070615), when directed from this office.
7. The rate quoted, tax and other charges if any should be separately stated.
8. The Associate Director has the right to accept or reject any or all of the offers without assigning any reason.
9. The successful bidder should conduct the work/supply of the item within 15 days from the date of receipt of work/supply order.
10. If any harthal/strike/any unexpected holiday occurs on the date of opening of tender, the tender will be opened at the same time on the next working day
11. All the rules and regulation applicable to government tender will be applicable to this tender also.

Special Conditions:

1. Tender insisting payment in advance either full or part for releasing the documents through bank are liable for rejection.
2. Leaflets/brochures containing technical features on the different models of the items quoted should be attached with the tender.
3. In the case of electrically operated equipment, the circuit diagram will have to be supplied.
4. Payment will be made after satisfactory installation and demonstration of the equipment.
5. Operation manual and guarantee cards of the equipment's wherever required should be supplied along with equipment.
6. The supplier should attach the client list for the equipment's along with their performance certificate, spare parts availability and service facilities at or nearest to the station.
7. Details of warranty offered should be clearly stated in the tender. Details of maintenance service contract offered after expiry of normal warrantee and after-sales service facilities available should be indicated.
8. Evidence of exclusive/authorised distributorship from foreign principals should be provided along with the offers for overseas products.
9. The under signed reserves the authority to accept or reject any or all of the offers for any particular item without assigning any reason whatsoever.
10. Complete deduction or reduction in number of any equipment listed, if necessary, at the time of purchase without assigning any reason will be at the discretion of the Associate Director.
11. The decision of the under signed in finalizing the tender shall be final and binding.

*Enquiries if any may be mailed to rarsamb@kau.in or contact 04936-260421.

Sd/-
Dr. K. Ajith Kumar
Associate Director of Research