



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

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No: D.1204/2017

Dated: 22.01.2021

TENDER NOTICE

Tender Number	No: D.1204/17
Tender Cost	As per schedule
GST (18%)	As per schedule
Date and time for receipt of tender	15 .02.2021 at 11.00am
Last date and time for opening of tender	15.02 .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 supply of Machinery Equipments and construction of cool Chamber/Mist chamber – D/1204/17	

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

Schedule 1 : Cool Chamber

Tender Cost : Rs. 3750/-

GST (18%) : Rs.675/-

Sl. No	Item	Specifications	Nos
1	Cool Chamber	<ul style="list-style-type: none">• Room size: Three rooms of 3000×3000×2500mm³ having common partition• Temperature: 2 - 4 °C (room 1), 5 to 10 °C (room 2) and 10 to 15 °C (room 3)• Humidity: 85 – 95%• Storage capacity: 3 – 3.5 ton• Room Construction: 60 mm PUF panel laminated with 0.5mm PCGI outside and 0.5mm SS304 inside for wall & Ceiling along with Door of size 900x2100mm. Common partition will be SS304 on both sides. Floor panel will be 60mm Puff panel with PCGI at bottom and 1mm Thick GI on top and Finished with Anti skid Vinyl flooring• Refrigeration system: Air-cooled unit with all standard accessories of Emerson make of capacity 6 to 7 KW matching evaporator with expansion valve evaporator to have having SS casing• Humidifier: automatic system with humidity Controller and sensor, Capacity of 5-6 Liter per hour• Control panel and Micro Processor based controller for cold room with Data Logger: Control panel to be supplied with all safety system and operation of cold room to be programmed through microprocessor controller .• Data logger provided which can be taken to system after certain internal and downloaded to system• Lighting inside cold room: Vapour proof lighting to be provided• Racks/ Shelving inside each cold room: vendor to consider SS rack/ shelving of size 6 nos. of 1000x 400 x 1800 mm with 4 shelving , each shelve to capable of carrying weight of 50 kg• Low side work: 10 m copper piping with 13 mm insulation , refrigerant , outdoor stand , electrical wiring between units , support clamps , drain piping up to 4 m, lighting witch , installation of refrigeration unit and Puff panels	3

Schedule II : Vacuum frying Machine**Tender Cost : Rs. 3300/-****GST (18%) : Rs.594/-**

Sl. No	Item	Specifications	Nos
1	Vacuum Frying Machine	<ul style="list-style-type: none">• Capacity : 50 litres• Input capacity : 25-35 kg• Frying temperature : 70- 110⁰ C• Frying chamber volume : 150-160 litres• Material of construction : SS304• Heating source : Electric/LPG/steam• Type of position : Vertical• Frying oil volume : 100-120 litres• Digital temperature display : PID control with K type thermocouple• Batch time in minutes : 40 -60 minutes• Chips loading and unloading : Manual• Oil storage tank : 200 litres	1

Schedule III: Electrical Lab Equipments

Tender Cost : Rs.1500/-

GST (18%) : Rs.270/-

Sl No.	Item	Specifications	Nos.
1	Electric Roaster	<ul style="list-style-type: none">• Capacity: 25 kg per batch• Connected power: 0.25 HP geared motor• Heater coil: 4KW• Material of construction: SS304• Finish (SS): Uniform Matt Finish	1
2	Ribbon blender (350 LTR)	<ul style="list-style-type: none">• Capacity: 100 LTR• Connected power: 2 HP• Material of construction: SS 304	1
3	1. Semi solid dozer (Filling machine)	<ul style="list-style-type: none">• Material of construction: Stainless Steel 304• Sheet thickness: 1.5 mm, 1 mm• Finish: Dull Matt• Fills per minute: 60 Nos.• Single dozing capacity: 20g to 5000g	1
	2. Compressor	<ul style="list-style-type: none">• Connected power: 3 HP	1
4	Jack cutter	<ul style="list-style-type: none">• 0.5 HP motor• Material SS 304	1
5	Retort packing machine	<ul style="list-style-type: none">• Chamber size: 550 mm × 900 mm• Boiler tank size: 550 mm × 900 mm• Cage size: 300 × 300 × 800 L mm• Size of package: 150 × 200 × 20 mm• Package material: Multi layer• Resulting capacity: 64 packages per batch• Dimension of process vessel: 550/900 mm	1

Schedule IV: Equipments and Machinery

Tender Cost : Rs.640/-

GST (18%) : Rs.115/-

Sl. No	Item	Specifications	Nos
1	Elisa Reader with software	<ul style="list-style-type: none"> • Wavelength range 400–750 nm • Photometric range 0.0–3.5 OD • Linearity $\leq 1.0\%$ from 0.0–2.0 OD; $\leq 2.0\%$ from 0.0–3.0 OD • Accuracy $\pm 1.0\%$ or 0.010 from 0.000–3.000 OD at 490 nm • Precision 1.0% or 0.005 OD from 0.0–2.0 OD; 1.5% from 2.0–3.0 OD • Resolution 0.001 OD • Filter wheel capacity 8 • Plate shaking 3 speeds: low, mid, high; duration: 0–999 sec • Read time 6 sec at single wavelength, 10 sec at dual wavelengths • Data output Onboard graphical thermal printer and USB2 interface with PC or Mac data stations • Data storage Calendar/clock function; 64 assay protocols • Flexible configurations with ability to read flat-, U-, or V-bottom microplates or 8- or 12-well strip plates • Automatic calibration before each reading • Variable-speed plate-shaking capability • Easy-access 8-position filter wheel with 6 standard filters [415, 450,490,595,655 and 750 nm] • Should have integrated Thermal Printer • USB2 port for external computer control with software and suitable PC • Data and protocol presentation on LCD display • Onboard data storage of protocols, standard curves, and graphs • Self-diagnostic capabilities to detect lamp burnout at startup • Motorized door for plate loading 	1

Schedule V: Equipments and Machinery

Tender Cost : Rs.600/-

GST (18%) : Rs.108/-

Sl. No	Item	Specifications	Nos
1	Automated Microplate Washer	<ul style="list-style-type: none">• Residual Cell Volume : < 2µl per well• Soak Time : 0-9.9 sec in strip mode• 0-59 min in plate mode• Available Manifolds : 8 and 12 Way• Storage Capacity : 75 kits• Compatible Plate Types : Any flat-,U- or V-bottom 96-well plate• Operating Temperature : 15-30°C• Volume Range : 50-3000 µl• Wash Buffer capacity : 2L• Rinse Buffer capacity : 2L• Waste Bottle : 2L• Precision : +/- 5% CV• Method : 6 single-cycle washing methods• Repetition [Wash Cycle] : 1 – 9 Times <p>Automated Programmability of needle positions to an accuracy of 0.1 0.1 mm of bottom washing, crosswise aspiration and overflow washing. Dispenser speed control Plate Shaking Option Waste Bottle Sensor Upto 75 Programmable Washing sequences Removable and autoclavable plate carrier Standard aerosol protection cover Integrated Vacuum and dispensing pumps LCD Screen</p> <p>Should have service support based in Kerala from manufacturer for the quoted model, support document to be submitted</p>	1

Schedule VI: Equipments and Machinery

Tender Cost : Rs.590/-

GST (18%) : Rs.106/-

Sl.No	Item	Specifications	Qty
1	96 Well Gradient Thermal Cycler	<ul style="list-style-type: none">• Gradient Thermal Cycler with Peltier heating and cooling based system.• Block of 96 x 0.2ml capacity & should have the option to upgrade to 384well also• Should have a maximum ramp rate of 5 deg C/second and average ramp rate of 3.3 degC/sec• Should have adjustable heated lid• Should have block and calculated temperature control modes.• Should have a temperature range of 0-100 deg C• Should have a temperature accuracy of ± 0.2 deg C• Should have a temperature uniformity of ± 0.4 deg C well to well within 10 seconds of arrival at 90 deg C• System should have Gradient Block with uniform ramping with a linear gradient with 8 different annealing temperatures with a programmable range of 1-24 Degree Celsius,• Should have a gradient range of 30-100 deg C• Should have a semi-graphical, text based display and have USB ports• Should have a memory of >1000 programs with further expansion through a USB Flash drive for transfer of files.• Should have option for graphical or text based programming• Should have PCR License for Research.• Should have service support based in Kerala from manufacturer for the quoted model, support document to be submitted.• Should have CE Certification.	1
2	UPS	<ul style="list-style-type: none">• Should come with suitable UPS for power back up	1

Schedule VII: Equipments and Machinery

Tender Cost : Rs.400/-

GST (18%) : Rs.72/-

Sl. No	Item	Specifications	Nos
1	Laboratory Refrigerator	<ul style="list-style-type: none">• Capacity: 300Ltr• Plastic inner chamber• Outer body of GI• Temperature range: 1-10 deg Cel.• Frost free	1

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

Tender Cost : Rs.1500/-

GST (18%) : Rs.270/-

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 be 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 pmol /m²/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 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
- The cost of tender form. GST and EMD will be accepted by way of separate DDs in favour of Associate Director, Regional Agricultural Research Station. Ambalavayal , Pin – 673593
 - 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
 - The tender should be accompanied by an 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
 - The sealed cover containing the tender documents should be superscribed as “Tender for supply of Machinery and Equipment” at RARS Ambalavayal”. **The cover should contain the DDs for tender cost, GST, EMD and the Agreement as mentioned above**
 - The successful tenders should execute and 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.
 - The rate quoted, tax and other charges if any should be separately stated.
 - The Associate Director has the right to accept or reject any or all of the offers without assigning any reason.
 - The successful Tender shall initiate the work/supply the item within one week of award and should finish the supply within one month.
 - If any hartal/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
 - 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 services 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

- To: 1. Notice Board
2. Panchayath Office, Ambalavayal
 3. Village Office, Ambalavayal
 4. Krishibhavan , Ambalavayal
 5. KAU web site (www.kau.in>tenders)

