

**Department of Olericulture  
College of Horticulture  
KAU P.O, Vellanikkara-680 656  
Ph No.0487-2370432-380, Email: olerivka@kau.in**

**RE-TENDER NOTICE \***

No. / Oleri 127/14 dated 27.02.2015

Sealed tenders are invited for the supply of the following equipments/conduct of the following works for the project on "Establishment of Advanced Centre for Tropical Vegetable Research" implemented at Dept. of Olericulture, whose specifications are given as annexure.

**The tender documents and conditions**

**1. Tender form**

The tender form may be downloaded from the following web link in the Internet:  
<http://www.kau.edu/tenders>.

**Cost of tender forms**

<b>Cost of Work</b>	<b>Cost of Tender Form</b>
i) Up to Rs.50000/-	i) Rs.300/-
ii) Above Rs.50000/- up to Rs.10.0 lakhs	ii) 0.2 % of cost of work subject to a minimum of Rs.500/- and maximum of Rs.2000/-
iii) Above Rs.10 lakhs up to Rs.2 crores	iii) Rs.5000/-
iv) Above Rs.2 crores up to Rs.5 crores	iv) Rs.7500/-
v) Above Rs.5 crores up to Rs.10 crores	v) Rs.10000/-
vi) Above Rs.10 crores	vi) Rs.15000/-

2. Each tender should be accompanied by tender fee and an Earnest Money Deposit (EMD) of 1% of the total rupee equivalent cost of the quoted items (subject to minimum of Rs.500/-) by way of **two crossed Demand Drafts separately** for tender fee and EMD drawn in favour of **The Professor and Head, Department of Olericulture, College of Horticulture, Vellanikkara, KAU P.O.-680656, Thrissur**, payable at **SBT KAU branch (Code-70670)**. Late and incomplete tenders and tenders without EMD, tender fee and agreement will not be accepted.

<b>Cost of Work</b>	<b>Amount of EMD</b>
i) Up to Rs.2 crores	i) 2.5% of the project cost, subject to a maximum of Rs.50,000/-
ii) Above Rs.2 crores up to Rs.5 crores	ii) Rs.1.0 lakh
iii) Above Rs.5 crores up to Rs.10 crores	iii) Rs.2.0 lakhs
iv) Above Rs.10 crores	iv) Rs.5.0 lakhs

3. The tender should be accompanied by an agreement in Kerala Stamp Paper worth Rs.100/- (Rupees one hundred only) and format can be downloaded from the above website. Withdrawal of tenders after its acceptance or failure to supply the equipment/ conduct of work or not according to the specification will entail cancellation of the tender and forfeiture of the EMD.

4. The successful tender should execute an agreement in Kerala Stamp Paper worth Rs.100/- (Rupees one hundred only) and furnish a security deposit of 5% of the cost of the equipment / work quoted in the form of term deposit/bank guarantee/demand draft drawn in favour of **Professor and Head, Department of Olericulture, College of Horticulture, Vellanikkara, KAU P.O.-680656, Thrissur** payable at the State Bank of Travancore, KAU Campus Branch, Vellanikkara when directed from this office. The format for the agreement can be downloaded from the above website. Firms who are exempted from payment of EMD should furnish copy of the currently valid certificate from the Store Purchase Department, Govt. of Kerala.

5. The cost of the item, tax and other charges should be separately stated. We are exempted (regd. with DSIR) from payment of customs and excise duty for our procurements and hence prices/rates quoted should be exclusive of these.

6. a) The exact specifications, details of make, model, name of manufacturer, warranty details etc. of the equipment/item must be clearly specified. Original brochures with detailed technical literature and illustrations of the units quoted are to be included along with the offer. Details of trainings offered, warranty, maintenance service contract offered after expiry of normal warranty, spare parts availability and after-sales-service facilities available should be indicated. Offers without these are liable to be rejected.

b) The exact specifications, details of work, model, etc. of the work must be clearly specified. Details of trainings offered, maintenance service offered, spare parts availability and after-installation-service facilities available should be indicated. Offers without these are liable to be rejected.

7. In the case of electrically operated equipment, the circuit diagram will have to be supplied. If the power requirement is beyond 20 Amp / 220 volts then the quote should be inclusive of the new power line drawing for the operation of equipment. This should be quoted separately.
8. Offers shall be made **CIF Cochin** by airfreight for imported instruments and **F.O.R** destination for indigenous items. For imported items, charges for insuring up to final inland destination against all risks including total loss for CIF value plus 10% should be included in the insurance charge. Prices inclusive of VAT and other taxes and Installation charges may be indicated separately wherever applicable.
9. The rates quoted should be inclusive of all charges and period of firmness of the quoted prices should be clearly stated in the offer. The period of firmness shall not be a date earlier to 31-3-2015. The **Professor and Head** shall have the right to extend firmness period for 90 more days without change in quoted rates.
10. Prices quoted should be valid up to one year or beyond.
11. The decision of the **Professor and Head** in finalizing the tenders shall be final and binding.
12. If any bandh/hartal/strike/any unexpected holidays occur on the date of opening of tender, the tender will be opened at the same time on the next working day.
13. On acceptance, the supply order will be placed and the invoice should be addressed to **Professor and Head, Department of Olericulture, College of Horticulture, Vellanikkara, KAU P.O.-680656, Thrissur** The payment will be effected only after satisfactory supply, installation of the item/conduct of work at **Department of Olericulture** in working condition and necessary demonstration by authorized service personnel.
14. The successful tenderer should supply the items to the **Department of Olericulture, College of Horticulture, Vellanikkara, KAU P.O.-680656** / carry out the works, within two weeks from the date of the receipt of the supply / work order. **Professor and Head, Department of Olericulture, College of Horticulture, Vellanikkara, KAU P.O.-680656, Thrissur** reserves the right to remove the defaulted name from the list of suppliers permanently or for a specific period.
15. Tenders insisting payment in advance either full or part for releasing the documents through bank are liable for rejection.
16. **List of Users:** Must include a list of user of the same model of the equipment along with valid email ID and phone no and other contact details. In case the list is NOT provided or incomplete, the quotation will NOT be considered for technical/price comparison. Evidence of exclusive/authorized distributorship from foreign principals should be provided along with the offers for overseas products.

17. Tenders will be received up to 12.30 PM on 16/03/2015
18. Tenders will be opened at 02.30 PM on 16/03/2015 in the presence of the tenderers present at that time.
19. The supply should be effected / works should be completed before 28/03/2015
20. **Professor and Head, Department of Olericulture, College of Horticulture, Vellanikkara, KAU P.O.-680656, Thrissur** has the right to accept or reject any or all of the offers without assigning any reason.
21. All the rules and regulation applicable to Government Tenders will be applicable to this tender also.

**ANNEXURE**

Sl. No	Item	Qty	Specifications
1	<b>Cold Storage Facility for Vegetables and Seeds.</b>	1	<p><b>External Room Dimensions (L X B X H):</b> 12 X 12 X 8.5 feet external</p> <p><b>Thickness of rooms :</b> 60 mm thick puff panels. sheets contain 5mm thick PPGI Pre fabricated puff panels with cam locks density of 42kg/m<sup>3</sup></p> <p><b>Floor insulation and thickness:</b> Floor PPGI outer (pre painted galvanized iron ) 6mm marine ply wood 2mm aluminum chaqured plate</p> <p><b>Wall &amp; Ceiling Insulation and thickness:</b> Wall and ceiling 60 mm thick RPUF with PPGI inside and outside not less than 0.5 mm thick</p> <p><b>Density of puff insulation :</b> 38 to 40 kgm<sup>3</sup></p> <p><b>In coming product temperature :</b> Not more than 30 deg c</p> <p><b>Ambient temperature:</b> + 38 deg C</p> <p><b>Desired temperature range :</b> +4 to deg c to +8 deg c for seeds 12 degc</p> <p><b>Product storage;</b> Vegetables and fruits, seeds</p> <p><b>Pull down :</b> 10 to 12 hrs</p> <p><b>No of Doors:</b> 1 nos : 60 mm thick puff panels. Swing doors required size 34''x 78'' clear opening flush fit door with sweep gasket bottom, posi-ceal closure with door.</p> <p><b>Refrigerating machine capacity :</b> 20000 BTU/HR 2 nos split type unit slim and sleek with 304 stainless steel body</p> <p><b>specification refrigerating machines :</b> cfm 3200, 14 feet through, size 2210 x 480 x 450 evaporator – volt 230/1/50 Reciprocating Hermatic compressor Volt 450/3/50Dimension- 1100 x 444 x 658Refrigerant R22</p> <p><b>Humidifier 1set :</b> ES3-M- OEM (steam production 3 kg) 230 v 50/60 hz pogo MAKE Italy</p> <p><b>De humidifier 1 set :</b> Bry-Air Dehumidifier Model FFB-300 (Refer ordering procedure Part I) below sheets should be attached with tender</p> <p>• Physical facts and assumption sheet</p>

2	Setting up of a <b>Hydroponic unit</b> in 280M <sup>2</sup> With two fish tanks and 6 grow beds.	1	<ul style="list-style-type: none"> <li>• Dehumidifier Calculation Sheet</li> <li>• System Flow Diagram</li> <li>• Guarantee, Terms &amp; Conditions</li> <li>• Brochure on Dehumidifier</li> </ul> <p><b>Refrigerant : R 22</b></p> <p><b>Electrical Control panel for refrigerating machines :</b> Separate Alarm Signal for Hp / LP for both compressor Display in Deg.C &amp; Deg.F Delay in LP alarm for initial start Room Light switch incorporated.</p> <p><b>Racks inside the cold room:</b> 2.700 x 600 x 1850 3tire x 3 Nos (3 row inside the cold room ) <b>Corner Plates:</b> Corner Plates is galvanized and of thickness of 1.5mm <b>Base Plates:</b> Base Plate is galvanized and of thickness of 1.8 mm</p> <p><b>Crates : Size – 600 x 400 x 320</b></p> <p><b>No of crates required – 50 nos JALI PERFORATED BOTTOM. 4 SIDES PERFORATED</b></p> <p><b>Power Backup Generator :</b> 20KVA diesel engine Model 3285GM,<b>3Cylinder ALTERNATOR</b> 20KVA, 0.8 pf (lag), 16kW, 415V, three phases, 4wire, 50Hz, screen protected drip proof (SPDP) with IP23 protection, class H insulation and single bearing type. Including AMF</p> <p><b>Components and Capacity</b></p> <ol style="list-style-type: none"> <li>a) Fish culture tank (50 kL volume)</li> <li>b) Gravel grow beds (20 kL volume)</li> <li>c) Deep water culture grow beds (70 kL volume)</li> <li>d) Azolla grow beds (10 kL volume)</li> <li>e) Biofilter and Clarifier made of bricks and cement (5kL volume). The items/components used should be preferably of ISI standards.</li> <li>f) Aerator room (4 feet length x 3 feet breath x 2 feet height) – setting up of aerator channel of pressure 14.7 kPa (distributed to fish tank and plant grow beds). The structure should have the capacity of 150 kL water (50 kL in the fish tank and 100 kL in the plant grow beds).</li> <li>g) Walk ways 1.5 ft x length (73 feet) x 4 + 1.5 ft x 45 feet x 3 = 427 sq ft,</li> <li>h) Rain shelter - 73 feet in length and 45 feet in width including the 6-tier vertical garden along the sides of the rain shelter with irrigation facility</li> <li>i) Setting up of two submersible pumps of flow rate 16 kL/hr each and the items/components used should be preferably of ISI standards.</li> <li>j) Setting up of testing and monitoring equipments (that include parameters of temperature, pH, Ammonia, Nitrite, Nitrate and dissolved oxygen). The items/components used should be</li> </ol>
---	--	---	--

			preferably of ISI standards.
3	<b>Refrigerator</b>	1	k) Training and maintenance of the system to be done on need base for one year. LG, 180 litres , 4 star, power cool , single door
4	<b>High resolution laser printer</b>	1	Print, Copy, Scan, One-touch Screen Print, Eco Mode, <b>Speed Up</b> to 20ppm in A4 (21ppm in Letter), First Print Out Time (Mono) Less than 8.5 seconds (From Ready Mode), <b>Resolution</b> - Up to 1200 x 1200dpi effective output, Duplex Manual
5	<b>Document scanner</b>	1	Desktop document camera with the following specifications (Auto select resolution, SXGA/ WXGA/ XGA , 90 degree vertical and horizontal rotation, 5 mega pixels sensor, easy audio, video record, remote control, USB, VGA & Composite, SD card slot and microscope adaptor)
6	<b>Data Processor</b>	1	15.6 inch screen size HDWLED display, 1366 x 768 pixels resolution, wireless lan, Intel HD graphics and processor, battery, AC adapter, 2GB DDR3 system memory with expandable memory up to 4GB, DVD RW Drive with dual layer support, 64 Bit Linux OS, Celeron dual core processor, 500GB storage capacity.
7	<b>Gas Analyser</b>	1	For O <sub>2</sub> /CO <sub>2</sub> measurement with LCD display, auto power-off, should include printer, incorporated with system probes, measuring kit with filters, rubber septums and software, rechargeable battery and high accuracy.
8	<b>Shrink wrapping machine</b>	1	Shrink wrapping machine with window width 400mm, window height 200mm, packet size-500x350x180mm, product weight- 10kg and speed- 0 to 10m/min
9	<b>Protected Structure</b>		<b>MODEL: Naturally Ventilated, Tropical Model, Tubular structure</b> with gable vent, sliding side Curtains/rolling curtains, Rain guards(on all sides with at least 1.2 m length) and without corridor, and with double door. <b>DESIGN:</b> a) The structure designs should be in accordance with <b>Israel steel structure standard 1225</b> . b) Israeli structural loads standard 414/1982 and 414/1992. <b><u>STRUCTURE SPECIALITIES</u></b> The Green house should be with gable vent and assembled at site without welding by nuts, bolts, clamps and washers alone. The structure should be fully dismantled and re-assembled. The foundations and joints to be fitted with crimped end pipes. <b><u>MAXIMUM TEMPERATURE REDUCTION.</u></b> Temperature inside the green house should be +_ 1 degree centigrade than the out side temp. <b><u>HIGHEST STRUCTURE STRENGTH</u></b> The structure should with stand a wind velocity of 140 km /hr with

the highest quantity of pipe used per square meter for its construction.

Average Pipe to be used - 5.74kg/m<sup>2</sup>

Pipe thickness - 2mm., G.I., B'Class.

Top ventilation width – 1.2 m

Gable ventilation width - Average 2mtr.

Size of the greenhouse	L -in mtr	W-in mtr	Area m <sup>2</sup>
	20	20	400
Double door size	2	2.5	5
Total area			405

Cultivable area - 400m<sup>2</sup>

Total ventilated area – 360

Percentage of ventilation with floor area  $\geq 90\%$

### **STRUCTURE DIMENSIONS**

Center height – 7 mtr

Gutter height – 4 mtr

Total length – 20 mtr

Total width – 20 mtr

Span width – 10 mtr

Bay length – 4 mtr

Top ventilation - 1.2mtrx20.3mtrx2

Side ventilation - 3.5mtrx20mtrx4

Gable ventilation - 2mtr x 20mtr x2

### **MATERIALS TO BE USED FOR THE CONSTRUCTION WITH DETAILED SPECIFICATION**

**Pipes:** All pipes should be of 2 mm thick hot dipped zinc galvanized (275gsm) with ISI mark, grade class

**Clamps:** All clamps are to be 3mm & 2mm thick 275gsm galvanized

Nuts, bolts & self drilling screw: All nuts, bolts & self drilling screws should be stainless steel 202grade.

**UV sheet for roofing :** MAKE Giniger Plastic LTD. Israel.200 micron thick ,UV stabilised Light transmission 86%, light diffusion 55%, antidust, anti drip OR make ESSEN MULTIPACK LTD.Properties: IR reflective –cooling,diffused 70% antidust,antidrip/fogg,UV stabilised 200 micron thick , expected temp reduction of 3<sup>0</sup>C compared with other UV films.

**Rain water gutter:** 1400micron thick HDPE transparent gutter.60cm width make- ESSEN multipack Ltd.India.

**Skirting:** With the HDPE woven UV stabilised fabric,150gsm thick

make PICKPLAST.ISRAEL or INTERWRAP POLYMER PRODUCTS LTD. INDIA

**Sliding curtain :** UV stabilized ,cross laminated, multilayer film (90gsm)make-SUPREME INDUSTRIES LTD.INDIA With 20 mm GI pipe, rolling handles and with 200micron thick 5 layered U.V sheet

**Antivirus net:** For ventilation & pest prevention 40mesh,105gsm thick. make- M/S GARWARE WALL ROPES L TD.-PUNE 30%, colour Red,MONOFILEMENT LIGHT DIFFUSING NET -120GSM THICK, make - M/S GARWARE WALL ROPES L TD.-PUNE.

**Rolling curtain(optional) :** With 20 mm GI pipe, rolling handles and with 200micron thick 5 layered U.V sheet

**Light diffusing net (monofilament):** 30%, colour Red,MONOFILEMENT LIGHT DIFFUSING NET -120GSM THICK, make - M/S GARWARE WALL ROPES L TD.-PUNE.

**Sliding curtain support net :** Make M/S GARWARE WALL ROPES L TD.-PUNE.

**Aluminium profile:** Triple spring locking, 0.9mm thick with smooth edges. Wt 190 grm/mtr.Make HINDALCO

**Zigzag wire:** Make-AGRIPLAST (Tech) India (p) Ltd.Hosur.

**Double door :** With hinges and locks fixed without any gap in between to make it 100% insect proof. Outer door Provided with door closure and with lock and key of Godrej

### STRUCTURE DETAILS

**FOUNDATION PIPE:** Length – 0.9 mtr

**FOUNDATION PIT:** Depth. – 0.75 mtr

#### FOUNDATION WORK DETAIL:

CONCRETING OF THE FOUNDATION PIPE:

Section	Dia. mm.	Length of one Piece in mtr.	Nos	Total Length Mtr.
Foundation pipes	65	0.90	18	16.2
Pillar pipes	65	4	18	72
Structure Arches Pipes	50	13.50	12	162
Arch support pipes	25	10.10	12	121.20
Pillar connecting pipes(cross pipes)	40	10	12	120
Gable side centre pillar pipes	40	4.5	4	18
Purling pipes	32	6	29	174.00
Antivirus net fixing pipes	25	4	10	40
Rain guard pipes and stay	25	15	4	60
Length wise wind reinforcementpipes(staypipes	40	5.60	6	33.60
Width wise reinforcement	40	5.60	4	22.40

pipes				
<b>Gable side wind reinforcement pipes</b>	32	4.8	16	76.80
<b>Double door pipes</b>	25	6	10	60

**GUARANTEE**

- 1. The structure should be designed and fabricated to withstand a wind velocity 140km/hr.**
- 2. The GI pipes and fittings should be guaranteed for 7 years.**
- 3. UV sheet, antivirus net, shade net HDPE- gutter should be guaranteed for 3 years, against UV degradation.**
- 4. Temperature inside the green house should be +\_ 1 degree Centigrade than the out side temp.**

10 **5KWp Solar Power Generating System W/O UPS**

1 No 5000Wp Solar PV Panel & 240V, 70A Solar Charge Controller with energy maximize suitable for connecting 10KW Online UPS with Metallic Solar panel Mounting Standard Structure, AJB (4 in 1 out ), & Series Connector etc  
Certifications & Standards

11 **High Definition Digital Video Camera**

1 No IEC, C E, ETV, JET & Application class A certified  
18.00 megapixels APS-C CMOS sensor, JPEG, RAW (14-bit) RAW+JPEG Large simultaneous recording possible. TTL secondary image-registration, Phase detection - ISO Sensitivity Stills:100-6400(-12800) ISO Sensitivity Video: 100-6400 Image Stabilization : Lens, 9 AF points - Optical viewfinder: AF Point-9 points, Cross AF-Center point cross-type Live view/EVF/Movie: Contrast AF- YES, Phase Detection AF-None, One-Shot AF, AI Servo AF, AI Focus AF, Manual focusing (MF) - Continuous Shooting : 3.7fps, Recording size and frame rate- 1920 x 1080 (Full HD) - Recording size/Frame rate: FHD 1080P(25p,24p),HD 720P (60p, 50p) SD(30p,25p), AF at movie shooting: None Movie digital zoom: yes, Variable angle LCD screen, - Size:3. inch wide TFT, Resolution: 1.04 million dots Vari-angle: Yes, Touch Panel: None, Display Off sensor: None, Shooting speed - 3.7 frames per second , Lenses to be supplied: 18- 55 mm f 3.5 - 5.6 with optical image stabilization, 55 - 250 mm f 4 - 5.6 with optical image stabilization.

**Accessories**

100 mm macro f 2.8 lens (close-up magnification up to life size (1:1).  
32 gb SD card( Class 10, Speed 45 mbps or higher)  
Tripod stand suitable for video capture and still capture .Back pack with separate compartment for carrying lens and cameras (reputed brands only ) Or Bag with a laptop compartment which can carry 14 inch laptop, should have tripod / water bottle holder. Electrically operated digital dry cabinet for storing electronic equipments and lenses - 60 liter capacity

			Warranty period may be specified
12	Shaker	1 No	For staining/distaining Gel. Platform dimension 30×30 cm, speed 20-50rpm
13	Inverter	1 No	3.6 KVA /36V Pure Sine Wave Multy Inverter with 4 Nos 130 AH Fully Tubular Batteries ( C10 Rating ) ) with battery stand. 2 Year warranty for Inverter & 3 Years for Battery
14	Ice flaker	1 No	Insulated stainless steel cabin, corrosion free interiors and exteriors. Capacity 75 to 100kg/day. Bin capacity minimum 25kg, castor wheels for easy movement. Microprocessor based temperature control, auto cut off facility on water supply.
15	AC	1 No	1.5 ltr capacity, five star specification
16	Printer	1 No	Laser, with scanner and photocopying facility

**\* Those who have already submitted a tender vide our notification dt.22/0/2015 need provide only additional information, if any, in this regard.**

**Sd/-  
Professor & Head**