



ICAR - SUGARCANE BREEDING
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TAMILNADU

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NOTICE INVITING TENDER THROUGH GOVERNMENT e-MARKETPLACE (GeM)
FOR PURCHASE OF INFRARED GAS ANALYZER (PORTABLE PHOTOSYNTHESIS
SYSTEM) AT ICAR-SUGARCANE BREEDING INSTITUTE, COIMBATORE, TAMIL
NADU.

Online Bids under two bid systems (viz. Technical Bid & Financial bid) are invited on behalf of the Director, ICAR-Sugarcane Breeding Institute, Coimbatore - 641007 (Tamil Nadu) through GeM.

The details of tender is enumerated in the following annexures. Please read the annexures attached before bidding.

Annexure-I	General Terms & Conditions
Annexure-II	Technical Specification of Infrared Gas Analyzer (Portable Photosynthesis System)

IMPORTANT NOTES: -

- I. Bids received on GeM portal only will be considered. Bids in any other form sent through sealed cover/email/post/fax etc. will be rejected.
- II. The bidders are required to deposit **Bid security/ Earnest Money Deposit (EMD) of Rs.1,80,000/- (Rupees one lakh eighty thousand only)** in the form of Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee from any of the commercial banks payable to the Director, ICAR - Sugarcane Breeding Institute, Coimbatore – 641007, **within 5 working days of bid opening**, failing which the bid will be treated as incomplete & lead to rejection of the bid without making any reference to the bidder.
- III. ICAR-SBI reserves the right to accept / reject any or all the tenders in part / full without assigning any reason thereof.
- IV. Any change / corrigendum/ extension of opening date in respect of this tender shall be issued through websites only and no press notification will be issued in this regard. Bidders are therefore requested to regularly visit our website for updates.
- V. In case, any holiday is declared by the Government on the day of opening, the tenders will be opened on the next working day at the same time. The Institute reserves the right to accept or reject any or all the tenders.
- VI. The bidders are required to furnish / upload copies of the following documents:
 1. Signed & scanned copy of Firm's registration.

2. Signed & scanned copy of GST Registration certificate.
3. Signed & scanned copy of PAN Card.
4. **Technical Bid** : Signed and Scanned Copy of Completely filled Technical Verification data sheet (Technical Compliance Statement) must be submitted for each quoted configuration..
5. **Financial bid** : Financial bid indicating item-wise price for the items mentioned in the technical bid is to be uploaded separately.

SIGNED AND SCANNED COPY OF MAKE AND MODEL OF ALL SYSTEMS, SUB SYSTEMS AND ADDITIONAL ITEMS SHOULD BE MENTIONED IN THE TECHNICAL BID AND COMPLETE TECHNICAL DETAILS PROVIDED IN THE FORM OF BROCHURES AND WRITE-UPS, FAILING WHICH THE TECHNICAL BID OF THE FIRM WILL BE REJECTED SUMMARILY.

NOTE:

EACH OF THE ABOVE DOCUMENTS ARE TO BE UPLOADED AS A SEPARATE FILE. THE BIDS WITHOUT THE ABOVE DOCUMENTS WILL BE REJECTED SUMMARILY.

Bidders are required to furnish the following undertaking:

We agree to supply the above goods and allied services. We confirm that the same will meet the description, specification and other technical details as required in the tender enquiry.

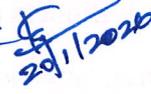
We conform that we agree to all other terms and conditions of your tender enquiry including the terms of delivery, period of delivery and warranty provision.

We have furnished all the information, as required in the tender enquiry and attached the relevant documents.

We confirm that our offer will remain valid for acceptance for **180 days** after the date of opening of tenders.

(In case a tenderer desires to put some additional/modified stipulations, terms and conditions etc. the same may be clearly indicated).


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ANNEXURE-I

i. **Terms of delivery:**

**Delivery at site viz. – ICAR - SUGARCANE BREEDING INSTITUTE,
COIMBATORE-641007 (TAMIL NADU)**

ii. **Performance Security:** To ensure due performance of the contract, performance security is to be furnished by the successful bidder for an amount of 3% of the value of the goods or as fixed by the Competent Authority in the form of Account payee Demand draft / Fixed Deposit Receipt / Bank Guarantee in favour of the Director, ICAR-Sugarcane Breeding Institute, Coimbatore payable at Coimbatore to be furnished **within 15 days** from the date of supply of the item.

iii. **Delivery period for goods:** Within **15 days** from the date of the purchase order

iv. Erection/installation and commissioning (if required, depending on the goods ordered) are to be completed within **10 days** of delivery of the goods at site.

v. **Payment Terms:** Payment will be made after delivery of the item and satisfactory installation of the item.

vi. **Price structure:**

- a) The tenderer shall quote for the complete requirement of goods and services and for the full quantity as shown against in **Annexure –II.**
- b) The rates and prices quoted shall be in Indian Rupees only.
- c) All duties, taxes and levies payable by the supplier under the contract shall be included in the quoted price. The purchaser will not pay any such duties, taxes and levies separately.
- d) The rates and prices quoted by the supplier shall remain firm and fixed during the currency of the contract and shall not be subject to variation on any account, whatsoever, including statutory variations, if any.
- e) The quotation/offer shall remain valid for acceptance for a period not less than 180 days after the specified date of opening of the offers.
- f) TDS on Income Tax/GST will be deducted as per existing rules and the same will be remitted to the department concerned.

vii. At the time of awarding the contract, the purchaser reserves the right to increase or decrease by up to 25%, the quantity of goods and services as specified in the list of requirements, without any change in the unit price or other terms and conditions.

viii. The supplier shall at all times indemnify the purchaser, at no cost to the purchaser, against all third party claims of infringement of patent, trade mark or industrial design rights arising from the use of the goods or any part thereof, with respect to the goods quoted by the supplier in its offer.

- ix. Notwithstanding the above, the purchaser reserves the right to accept or reject any quotation or annul the tendering process and reject all quotations at any time prior to award of the contract, without assigning any reason, whatsoever, and without incurring any liability or obligation, whatsoever, to the affected tenderer or tenderers.
- x. **The Successful Bidder shall have to deliver the performance security** either by a Bank Guarantee / FDR or a Bank Draft in favour of the Director, Sugarcane Breeding Institute, Coimbatore for an amount of 3% contract value, **valid up to 60(sixty) days after the date of completion of all contractual obligations by the Supplier**, including the warranty obligations.

xi. Receipt of goods and terms of payment:

Payment term for supply of goods, including erection/ installation and commissioning (as and if applicable): -

Immediately on receiving the goods at site, the purchaser will verify the quantities of the items supplied as specified in the delivery challan of the supplier and also check for any superficial damage etc. in the goods so supplied and issue a provisional receipt accordingly. If the goods supplied do not require erection/installation and commissioning at site, the purchaser, within three working days of issue of the provisional receipt, will issue acceptance certificate (of the goods) to the supplier, provided the goods supplied are acceptable in terms of the contract. However, if the goods supplied also need erection/installation and commissioning, the purchaser will issue acceptance certificate within two working days, after successful erection/installation and commissioning. The supplier will then send its invoice along with the purchaser's acceptance certificate and other accompanying documents to the paying authority for payment.

The paying authority will release the full payment to the supplier as due in terms of the contract, within fifteen working days of receipt of supplier's invoice, purchaser's receipt certificate and other accompanying documents, provided the same are in order.

xii. Paying Authority: The Director, Sugarcane Breeding Institute, Coimbatore - 641 007.

xiii. Liquidated Damage Clause:

If any time during the performance of the contract, the supplier encounters conditions hindering timely delivery of the goods, the supplier shall promptly inform the purchaser in writing the fact of the delay and the likely duration of the same. After receipt of supplier's communication, the purchaser shall decide as to whether to cancel the contract for the un-supplied portion after the existing delivery period, or to extend the delivery period suitably issuing an amendment to the contract. If the supplier fails to deliver the goods and/or perform the services within the contractual delivery period for reasons other than circumstances beyond supplier's control (which will be determined by the purchaser) and the purchaser extends the delivery

period, the purchaser will also deduct from the contract price, as liquidated damages, a sum equivalent to 0.5% (half per cent) of the delivered price of the delayed goods or unperformed services for each week of delay or part thereof until actual delivery or performance. The maximum limit of such deduction will, however, be 10% (ten per cent) of the contract price of the delayed goods or services.

Further, during such delayed period of supply and/or performance, the supplier shall not be entitled to any increase in price and cost, whatsoever, on any ground. However, the purchaser shall be entitled to the benefit of any decrease in price and cost on any ground, whatsoever, of the goods and services, supplied during the period of delay.

xiv. **Warranty Clause: ONE Year**

xv. **Dispute Resolution Mechanism**

If any dispute or difference arises between the purchaser and the supplier relating to any matter connected with the contract, the parties shall make every effort to resolve the same amicably by mutual discussions. However, if the parties fail to resolve the dispute or difference by such mutual discussion within 30 days, either the purchaser or the supplier may give notice to the other party of its intention to refer the same to arbitration. The arbitration shall commence thereafter. The arbitration shall be conducted by a sole arbitrator, who will be appointed by the Secretary, ICAR and the procedure to be followed in this respect will be as per the Indian Arbitration and Conciliation Act, 1996. The venue of the arbitration shall be the place from where the contract is issued.


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Annexure I
Technical Specifications of Infrared gas analyzer (Portable Photosynthesis system)

Infrared gas analyzer (IRGA) / Portable Photosynthesis System should be ideal for measuring photosynthesis parameters in sugarcane crop grown in field and it must include control facility of light, CO₂, H₂O, temperature, Flow etc.

- 1. The CO₂ and H₂O Infrared gas analyzer must be located in the sensor head/ head which is near to the sample chamber/sample cuvette.**
- 2. CO₂ Gas Analyzer and concentration control.**
 - i. Type: Absolute non-dispersive infrared gas analyzer.
 - ii. Quantity: two number
 - iii. CO₂ measurement range: 0 to 3000 $\mu\text{mol mol}^{-1}$ or better
 - iv. Precision: $\leq 0.1 \mu\text{mol mol}^{-1}$ or better.
 - v. CO₂ Control Range: 0 to 1900 $\mu\text{mol mol}^{-1}$ or better.
 - vi. CO₂ Cartridge with Lifetime: >7 hours after puncture or better.
 - vii. Accuracy: Within 1% of reading at 200 $\mu\text{mol mol}^{-1}$ or above
- 3. H₂O Gas Analyzer and concentration control**
 - i. Type: Absolute non-dispersive infrared gas analyzer
 - ii. Quantity: two number
 - iii. H₂O measurement range: 0 to 70 mmol mol^{-1} or better.
 - iv. Precision: $\leq 0.01 \text{mmol mol}^{-1}$ or better.
 - v. H₂O Control Range: 0 – 85% RH or better.
 - vi. Accuracy: within 1.5% of reading at >5 mmol mol^{-1}
- 4. Pressure**
 - i. Console pressure sensor: Range 50 to 100 kPa or better with accuracy $\pm 0.4 \text{ kPa}$
 - ii. Signal Noise: $\leq 0.004 \text{ kPa}$ peak-to-peak with 4-second signal averaging
 - iii. Chamber pressure sensor: Range: -2 to 2 kPa
 - iv. Control Range: 0 to 0.1 kPa
- 5. Temperature**
 - i. Operating Temperature Range: 0 to 48 °C or better.
 - ii. Temperature Control Range: Leaf Temperature: $\pm 10 \text{ }^\circ\text{C}$ from ambient.
 - iii. Temperature control block type: Thermistor
 - iv. Thermistor with Range: -10 to 55 °C or better; Accuracy: $\pm 0.15 \text{ }^\circ\text{C}$ or better.
 - v. Leaf temperature sensor: Type E fine-wire thermocouple
 - vi. Sensitivity Range: -10 to 55 °C or better; Accuracy: $< \pm 0.5 \text{ }^\circ\text{C}$ total
- 6. Light Measurement and control system**
 - i. PAR measurement range: 0 to 2900 $\mu\text{mol m}^{-2} \text{ s}^{-1}$ or better with Accuracy: $\pm 5\%$.
 - ii. Light source must be suitable for sugarcane leaf and it must be adjustable.
- 7. Leaf chamber:**
 - i. The leaf chamber should have maximum leaf area of 9 cm^2 or better.
 - ii. The system should be supplied with different Chamber Apertures to accomplish different measuring area.

8. Air Flow rate:

Leaf chamber flow rate must be range of 0 to 1350 $\mu\text{mol s}^{-1}$ or better (for low to highly photosynthetic leaf/scientific experiments).

9. Photosynthesis measurement Parameters:

Sample CO_2 and reference CO_2 , Sample H_2O and reference H_2O , flow, leaf temperature, transpiration, VPD, stomatal conductance, CO_2 assimilation/Net photosynthesis, Intercellular CO_2 concentration etc.

10. Console:

Display: sunlight-readable TFT LCD with capacitive touch screen, high resolution. Dimensions: More than 25 cm diagonal size for display graphical and numeric measurement simultaneously in real time measurement. Instrument should have diagnostic facility for monitoring errors.

Memory: 2 GB RAM with 7 GB Flash memory or better.

11. The system should have the options to connect at least five external sensors such as soil temperature, soil moisture sensors etc. so that these parameters can be measured simultaneously with leaf gaseous exchange.
12. User-cleanable optics and simple maintenance procedures to minimize down time and maintenance costs of IRGAs.
13. The system should have the facility to add/upgrade Chlorophyll Fluorescence Measurement facility for measuring F_v/F_m , Quantum yield of PSII, NPQ and ETR.
14. **Communication:** Data transfer facility to PC through communication ports or through USB Storage device.
15. **Rechargeable battery:** Lithium ion type with capacity: 6500 mAh or more.
Battery: 3 Nos. or more for operation in field to work up to 10 hours or more.
16. **Accessories:** Tripod (1 No.), Chemicals: Soda lime for CO_2 scrub (1 bottle); Silica gel for H_2O scrub (1 bottle); $>7\text{g}$ CO_2 cartridges (100 nos.); Battery charger with adapter; Power supply to console. Data Downloading software and other essential software's (if any) along with Printed manual.
17. A standard warranty for one year should cover the instrument, its components, and software.
18. The bidder is required to provide certification affirming the absence of any manufacturing defects in the instrument.
19. Apart from the compliance statement, the bidder is required to provide supporting documents highlighting the desired specification. Online resources (website link) may be provided in case of constraint in file size.
20. List of Five best publication having citation of the given instrument.
21. The quoted price must cover the instrument cost along with taxes (GST and customs) and any other charges, as well as transportation to the institute.
22. There should be minimum five installations of the instrument in research/educational institutes. The list should be provided.

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