



राष्ट्रीय केला अनुसंधान केन्द्र
(भारतीय कृषि अनुसंधान परिषद)
तोगामलै रोड, थायनुर पोस्ट,
तिरुचिरापल्लि. - ६२० १०२. तमिलनाडु

National Research Centre for Banana
(Indian Council of Agricultural Research)
Thogamalai Road, Thayanur P.O.
Tiruchirapalli - 620 102, Tamil Nadu, India

F.No.25(1)/2016-SP/ 2235 - 2243

Dated : 11.04.2016

To

Sir/s,

Quotations are invited by the Director, NRC for Banana, Trichy, for the supply of the following items as per the specifications given below.

S.No.	Name of the article	Qty. Reqd.
1.	<p>LYSIMETER (Digital Gravimetric Weighing Lysimeter) Size: 2 m Diameter x 1 m Depth –Cylindrical – Two numbers to be installed in the field with following specifications :- Building/Tank Material : Stainless Steel/Mild Steel Minimum 6 mm Thickness (Welded properly without any leakage) with taper at Bottom for Leached Collection. Weighing Equipment : Load Cells (weighing sensors)–Precision – Output to be connected to a data logger or a Digital Panel meter Soil Capacity : Up to 4000 kg. Seepage water Determination : Suction Cups evacuated through motorized pump. Probe to be installed : Electronic Tensiometer , FDR Soil Moisture Sensor, Leaf Wetness Sensor, Soil Temp Probe Two Depths Each and one reference each. Data recording: An hourly interval Battery recharge through solar panel regularly / weekly Data retrieval port from data logger through / pen drive to analyse in computer. Optional output through GPRS modem should be quoted. Outer Tank: Fabricated from this gauge Stainless Steel/Mild steel to be painted Complete installation and training should be provided to the user free of cost. Other optional / essentials accessories to be quoted Lysimeter's Data logger specification : Enclosed as Annexure I TWO YEARS FREE WARRANTY.</p>	2 Nos.

Note : Leaflet / Broucher of the model quoted should be enclosed, failing which, the offer will be rejected.

Tel : Director : 0431 - 2618104, Off : 0431 - 2618106, 2618084 Farm : 0431 - 2618301
Fax : 0431 - 2618115 E-mail : directornrcb@gmail.com, nrcbdirector@gmail.com

1. Quotations should be inclusive of all packing, forwarding, Insurance, freight etc. Quotations exclusive of packing and freight charges etc. should indicate the amount that shall be charged on this account.
2. Complete descriptions, specifications and make of the goods should be given in the quotations. Necessary literature and pamphlets if any also be sent along with the quotation. Rate per unit should also be given precisely and delivery period clearly mentioned.
3. **THE FIRM SHOULD INVARIABLY QUOTE THE TIN, CST NO. ETC. ON THE BODY OF THE LETTERHEAD IN WHICH THE QUOTATION IS SENT, IF NOT YOUR QUOTATION WILL BE REJECTED.**
4. The quotation should be F.O.R. destination and should be kept open for 180 days from the date of quotations. Delivery at the Institute premises at NRCB Office Cum Laboratory Building, Near Thayanur Santhai, Thogamalai Road, Tiruchirappalli-620102/NRCB Research Farm Podavur Village, Inampuliyur Post, Via-Kuzhumani, Tiruchirappalli-639 103 (Tamil Nadu) is preferable.

5. The quotations should be adressed in the name of **"DIRECTOR, NATIONAL RESEARCH CENTRE FOR BANANA, Near Thayanur Santhai, Thayanur Post, Thogamalai Road, Tiruchirappalli - 620 102 (T.N.)"**, should reach on **26.04.2016 (TUESDAY) by 12.00PM**, in a sealed cover super scribing **"QUOTATIONS FOR THE SUPPLY & INSTALLATION OF DIGITAL GRAVIMETRIC WEIGHING LYSIMETER (2 NOS.)"**. **FAILURE TO DO SO WOULD RESULT IN REJECTION OF QUOTATION.**

The right to accept or to reject all or any of the quotation in part or full is reserved.

NOTE : You are requested to send your quotations through "SPEED POST" only and not through "Courier service".


17/4/2016
ASSISTANT ADMINISTRATIVE OFFICER
FOR DIRECTOR

Copy to:


1. Chairman (SPAC)
2. Member Secretary (SPAC)
3. The Chairman (PMEC) – for uploading in NRCB Website.
4. The Nodal Officer (CPPP) - for uploading in CPP Portal.
5. Pvt. Secy. to Director.

LYSIMETER'S DATA LOGGER SPECIFICATION :

Engineering Specification Required for Data Logger	Specifications
<p>Analog Input Channel</p> <p>Input Range Auto Ranging Sensor Source Impedance Sensor Excitation</p> <p>Cold Junction Thermistor Analogue channel Accuracy (Differential) (Single Ended)</p> <p>DIGITAL INPUT: SD12 WETSENSOR Relay Channel</p>	<p>12 Differential. Each provided with +ve , -ve and 0V, power and power return terminal. Individually configurable for differential voltage, 3-wire resistance, bridge, potentiometer, or for a pair of single-ended voltage or 2-wire resistance measurements (up to 24 in total). 4 Ranges : - 1.4 V to 2.7 V Maximum Optional-Adaptive <11 K <20 nF</p> <p>20uA current source for Resistance and precision 3V for bridge and potentiometric measurement. To be provided at each terminal cluster. Built in, 0.1 precision 10 K Thermister.</p> <p>Isothermality <0.1 deg c per 1deg c/hr temp. Change 0.036% + 148uV for -0.17V to 2.7 V range 0.043% + 119uV for - 1.7 V to 2.7 V range 2 x Fast, 30 KHz, 30 us de-bounce 2xslow, 100 Hz, 5 ms de-bounce Accept logic level (low <0.8 V, high >2.4 V) or open collector or voltage-free switch closure inputs Huge Additional input capacity for SD12 Sensor 1 x WET Sensor Channel 2 plus 4 with optional relay expansion card Functions for Alarm, control, scripts or switching power to sensors. Relay switching controlled by independent Activate and Rest conditions, safety conditions (limit duration of Active and Rest periods), with optional additional recording while Active, and optional pulsing. Conditions expressed as custom formulae and evaluated at defined repeat rates or on a digital event.</p>
Logger status	Logger, program, memory and battery status, and error log.
Program settings	Modify selected aspects of program behaviour without interrupting program execution.
On demand measurements	Measurement values charted on demand at any time, for setting up and checking that 'all is well'
Data download	Chart and table views of downloaded data, export as text file. Caching to optimize download times of large datasets
Program editor	Multifunction logger program editor displays the logging program, with point and click programming interface.

Online help	Detailed context-sensitive Help and reference
Simulator program	This can simulate the logger which is logging the suppliers sensors and operating irrigation valves in a mid-latitude maritime climate. For experimenting with program outcomes
Command line tool	Downloads and manages logged data and error log. Can run in a Windows scheduled task to automate data download.
Document library	Folder containing rich product documentation and application note resources
Firmware update	Update to most recent firmware version
Calculation methods	No calculation, average, min., max., mean, sum, linear scaling, slope and intercept, linearization table, comparator, thermocouple, soil moisture, pore conductivity and custom formulae.
Custom sensor library	User-defined custom sensor library, including configuration notes created with built-in HTML editor.
Recordings	Individual readings, statistics, total, integral, wind (including direction and vector average, gust, wind roses), conditional
Scripts	Custom scripts, executed at a defined repeat rate, including conditional branches (IF...ELSEIF...ELSE...ENDIF), recording, switching relays and use of variables
Variables	For use in custom formulae and scripts
Program settings	Variables and critical control parameters optionally configured to be adjusted while the program runs.
Video tutorial	Instructions for building up a sophisticated program in easy stages
Internal battery	6 x AA alkaline cells
External power	: 10 to 15VDC, 2A via screw terminals or network cabling OUT: 2.5A via network cabling and through a solar regulated power.
Backup	The logger draws current from internal battery or external supply, whichever provides the higher voltage, so internal battery serves as backup supply if external power fails. Internal backup capacitor retains program state and maintains the clock for >1 hour for battery change or if both supplies fail
Low power detection	3.09V to 3.42V shutdown to self-preservation mode 4.1 V analogue readings fail User defined minimum power for analogue measurements powered via PWR Bank A or B (below). Measurements invalidated if requirement not met.
Program repeat rate	Multiples of 1s
Real time clock	± 1 minutes per month typical, capable of operating at -20 to +60 °C
Cloud Link	Cloud Base connectivity for data management and

	automatic data retrieval.
Input protection	All terminals protected to $\pm 15\text{VDC}$, 24VAC, including battery reverse polarity
Regulatory compliance	Surge tested IEC61000-4-5 PASS A ESD tested IEC61000-4-2 PASS A EMC tested IEC61000-4-3 PASS A CE Compliant FCC Compliant
Environmental	Operating: -20 to + 60 °C
Enclosure	Fitted with cable glands, IP65
Data storage	4 MB FLASH memory. Storage capacity (compressed): 2.5 million values (typical). Auto-wrap option (i.e. overwrite earliest data when memory full) and/or manual deletion of data without interrupting logging.
Activity indicator	Every 10s, LED signals logging and error status


Assistant Administrative Officer
 ICAR-NRC for Banana,
 Trichy-102. (TN)

11/29/2016