

Specification for Water Activity Meter

S.No.	Particulars	Specification
1.	Type	The equipment should be static, bench-top model for indoor use.
2.	Weight	< 5 kg
3.	Operating environment	The equipment should be able to function between environmental temperature range of 5-50°C and 20-90% relative humidity
4.	Power source	100/230V; 50/60Hz
5.	Water activity (a_w) measurement range	0.040 – 1.000 a_w , preferably with trend indicator
6.	Accuracy	Not more than $\pm 0.005 a$ with high degree of repeatability and reproducibility
7.	Measurement time/Read Time	≤ 6 minute
8.	Temperature and humidity adjustment	The equipment should have provision for automatic temperature and RH adjustment
9.	Sample port/size (Dish capacity)	10-30 ml
10.	Sample versatility	The equipment should be able to measure water activity of diverse food products in solid, liquid, or semi-liquid forms
11.	Display	Clear digital display (TFT/LED/LCD etc)
12.	Standard accessories	Sample cups (10 Cups if reusable/ at least 100 if disposable cups)
13.	Optional accessories	Printer : To print data straight from the equipment in real time. Other optional accessories may also be mentioned in the offer document
14.	Standards	Should conform to international standards such as ISO, CE, EMC etc

15.	Data communication	USB port for data transfer
16.	Proof of sale	The supplier should produce proof of supply of the equipment to laboratories of ICAR institutes or CSIR laboratories.
17.	Installation	Supply of the equipment would be deemed complete after the supplier delivers the equipment at ICAR-NRC on Litchi, installs the equipment, and provide demonstration and user training to the indenting officer.
18.	Warranty	Atleast one year on-site warranty

BOD INCUBATOR

- Temperature from 5°C to 50°C $\pm 0.5^\circ$ C. Double walled.
- Inside anodized Aluminum/Stainless steel & outside Mild steel sheet painted in epoxy powder coating.
- With perforated adjustable metal shelves. To work on 220 / 230 volts A.C.
- Two air circulating fan & transparent unbreakable Acrylic transparent door inside. Supplied with Electronic Digital Temperature/ humidifier Controller cum indicator.
- Two hours backup with 10 KVA online UPS.
- Two years warranty against any manufacturing defect.,

Specifications for stereo binocular microscope/ Trinocular Stereozoom microscope with photography attachment

- Zoom Ratio 6.7 : 1 or more
- Working distance 110 mm or more
- Transmitted and reflected LED light source
- 10x eyepiece with field number 22 or more
- Magnification Range 4.5x- 45x or more.
- live image C-MOS camera 5 mpg with image analysis software and compatible output device.
- 2 years warranty against manufacturing defect.

Note: Standard brands like Olympus, Nikon, Lica etc. will be preferred.

15. Bill of material for installation of standalone Irrigation System with Generator and Borewell in 4 Ha area:

Sl. No.	Particulars	Size	Total	Unit
1	Providing and lowering of submersible pump with casing, 10 HP having discharge of 180 LPM at 150 MTR head, suction and delivery pipes, Filter, Gravel packing, installation, earthing, control panel, panel box, Starter, Wiring, submersible cable, GI pipes upto Head Unit Etc. in complete	10 HP	1	Set
2	G. I. Head Unit, By pass Assembly with Butter fly Valve, Dual battery of Hydrocyclone Filter, Disc Filter with changeover arrangement, Pressure release valve, Air release Valve, Butter Fly Valve, Fertilizer tank, Foundation complete in all respect.	3"	1	Set
3	Supply and laying PVC pipe of reputed brand conforming IS standards in the trench be provided (transporting, loading and unloading, included, along with Flush valve, PVC bend, Tee, Solvent cement, MTA, FTA, Air release Valve as the joining of pipes should be done with high quality solvent cement:			
	i) 110 MM 4 KG/CM2	110 mm	312	Mtr
	ii) 75 MM 4 KG/CM2	75 mm	342	Mtr
	iii) 63 MM 4 KG/CM2	63 mm	784	Mtr
4	Excavation trenches of required width of pipes, cable, including excavation for sockets and dressing of sides, ramming of bottoms, depth upto 600 mm including getting out the excavated soil and then returning the soil as required, in layers not extending 20 cm in depth including consolidating each deposited layer by ramming, watering etc. and disposing off surplus excavated soil within a lead of 50 m, Trenching is also inclusive of Road cutting at any place as required	18 " wide and 30" Depth	1438	Mtr
5	Providing, laying and joining 16 mm Plain lateral CL - 2 confirming international standards with Gromate, take off, Joiner 16 mm x 17 mm and connection with Pipe Line	16 mm	8100	Mtr
6	Providing, laying and joining 16 mm Emitting pipe lateral CL -2 confirming international standards with Tee 16 mm, End Cap and connection with 16 Pipe Lateral Line at all plant location wherever required as a loop of 10 Mtr Length for the fully grown plants.	16 mm	519	Set
7	Providing, laying and joining 16 mm Emitting pipe lateral CL -2 confirming international standards with Tee 16 mm, End Cap and connection with 16 pipe Lateral Line at all Plant location where ever required as a loop of 5 Mtr Length for the fully grown plants.	16 mm	470	Set
8	Valve for 90/75 mm PVC pipes for manifold and section of submain consisting of Butterfly valve flanged end, Tee, Elbow with necessary fitting over and under the ground.	90/75/63 mm	11	Set

9	Generator 25 KVA ISI Mark with lubricant, wiring to control pannel, MCB, Foundation, Base and necessary fittings to start Submersible Pump, Earthing as per requirement in complete	25 KVA	1	Set
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Note:

1. Each plant must be provided with a LOOP of Emitting pipe lines for even distribution of water in the canopy area.
2. The four Ha (4.00 Ha) area should be divided into four section with Irrigation time of Two Hours/day/section in Peak water requirement period.
3. The system must possess an efficient Filtration unit with pressure meter, venturi, emitters and the required accessories
3. Provision for automisation of the system should be taken into consideration in future.

Index

- A: 8m x 8m (144 plants)
- B: 8m x 8m (50 plants)
- C: Triangular pond
- D: 8m x 8m (108 plants)
- E: 8m x 8m (144 plants)
- F: 4m x 3m (180 plants)
- - - : Sub-roads

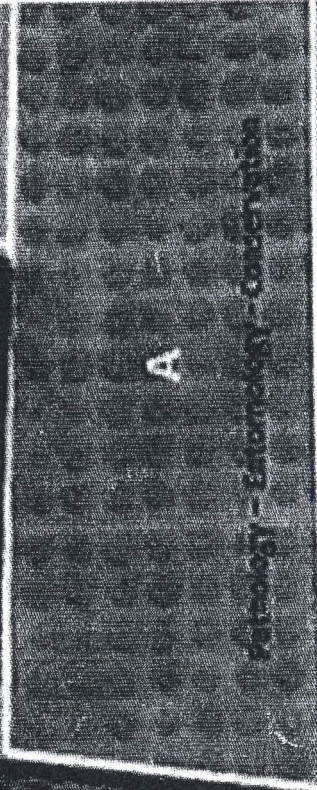
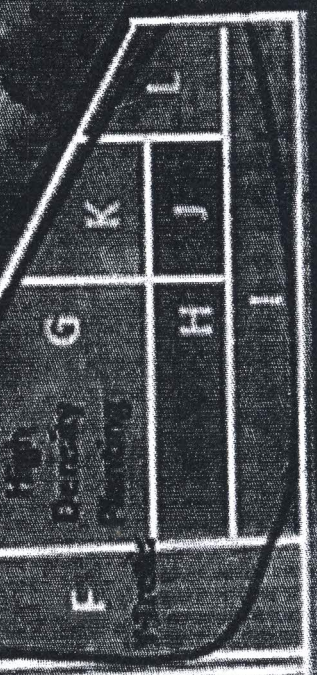
A

Photology - Estimation - Conservation

- G: 5m x 3m (90 plants)
- H: 4m x 4m (24 plants)
- I: 6m x 6m (48 plants)
- J: 2m x 2m (55 plants)
- K: 5m x 5m (25 plants)
- L: 3m x 3m (49 plants)
- : Central road

Allotted site for borewell and power source

Central Road



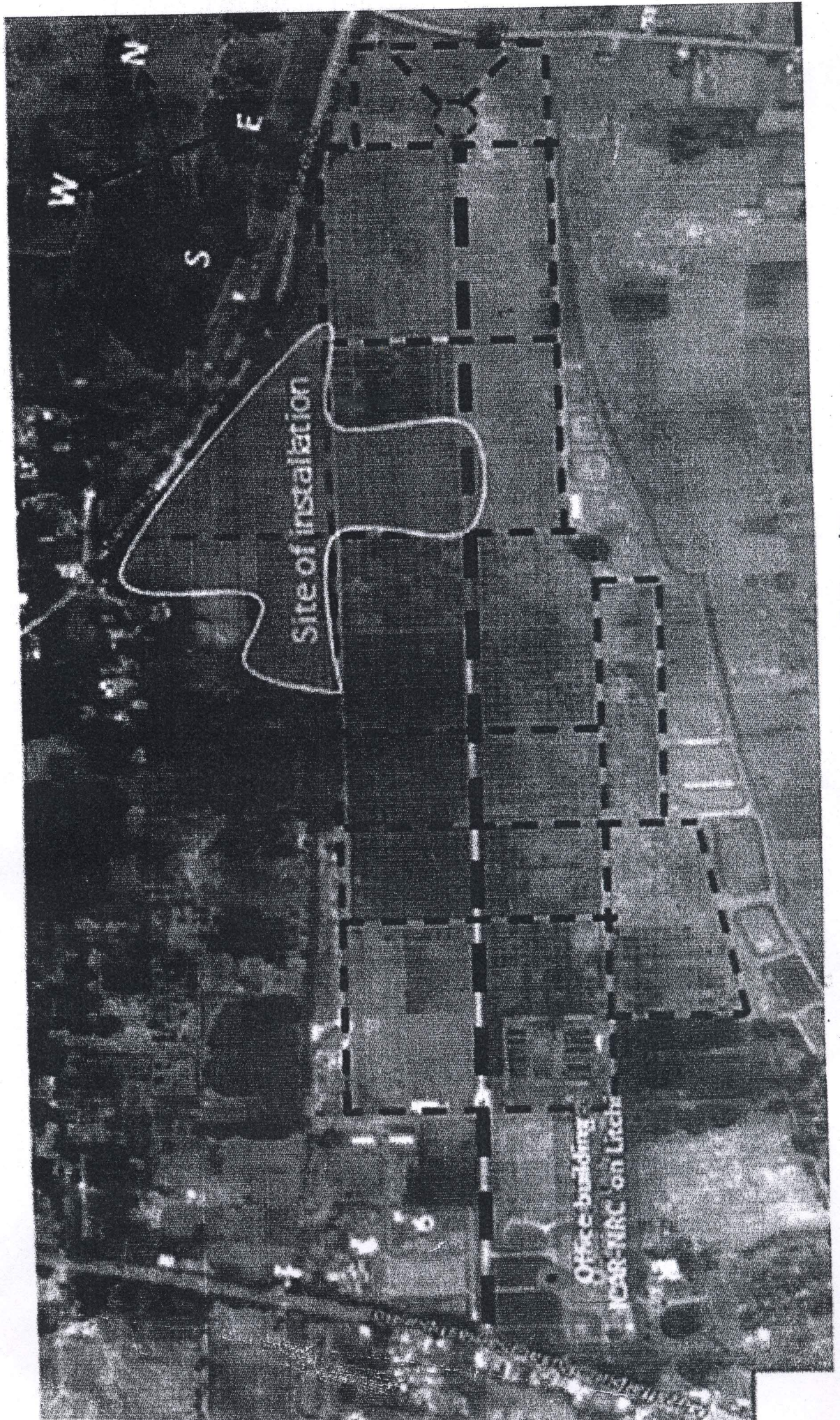


Fig. 2. Location of the installation site

Specification for Twin Litchi Pulper

1 No.

- Suitable for two stage extraction of pulp from litchi fruits
- The machine should have an in-feed hopper from where the product is dumped into the pulper.
- The skin & seeds of the products should come out of other side.
- The machine should have set of sieve and set of **Nylon Brush**
- Capacity: 2.5-3 T/hr with 10-12 HP motor
- All the pulp contacting part of the equipment should be made up of **food grade** stainless steel
- The equipment should be robust, **smooth finish** and easy to maintain & clean
- Suitable for nonstop continuous pulping process and ISO certified.

Specification for Centrifuge

Basic features

1. Compact floor mounted model with minimal foot print and castor for easy movement; Refrigerated (2-4°C)
2. Max Speed (RPM): 15,000 or more with 4-6 x 50 ml tubes and minimum 20,000xG
3. Multiple rotor choice for 0.2 ml, 0.5 ml, 1.5 /2.0 ml tubes, 5 ml, 15 ml, 30 ml and 50 ml; All rotor should have minimum 20000 G force
4. Facility (Rotor) to run the Micro titer plate (MTP) / 96 well PCR plate (two at the same time) at 10,000 rpm or more.
5. Capacity to spin 72 Eppendorf tubes 1.5 ml/ 2.0 ml at the same time
6. Light Weight Carbon fibre rotors with easy to load and remove without any tools
7. Facility to store run program, Standby cooling and power save mode
8. Microprocessor based control system, LED display, inbuilt safety device, automatic rotor recognition, timer (1-99 minutes); Low noise (≤ 50 db)

Others:

1. The main unit with rotor for 15 ml and 50 ml to be essentially quoted. All other accessories/ rotors, to be quoted in option.
2. Suitable voltage stabilizer to be provided with the machine.
3. Installation and demonstration on-site, ISO certified manufacturer and supplier.
4. User/Technical/Maintenance Manual, Certificate of calibration to be supplied.

* Firm should provide compliance to each features in tabular form while submitting quote for equipment