Quotation Notice

No. 01/2015

Sealed Quotations are invited by the Principal, College of Agricultural Engineering and Technology, NAU., Dediapada for the Purchase of Various Engineering Laboratory Instruments/Equipment etc. from the manufacturing company/companies, Dealers/Suppliers of these items. The detail specifications, Terms and conditions of supply are attached. Write in Bold letter "Quotation for Soil Water Lab/Farm Machinery/Process Food/Renewable Energy Lab..... " on the top of cover and send the quotation at the following address by Registered Post/Courier/Post/ with **₹ 500/-** quotation fee (not refundable) in Cheque/DD in favour of **"NAU Fund A/c."** The last date for submission of filled Quotation is **17/08/2015** up to 5:00 p.m. in the office of Principal, College of Agricultural Engineering and Technology, NAU., Parsi Tekra, Dediapada, 393 040 Di. Narmada

Dediapada
D. 31/07/2015

Principal
College Of Agril. Engg. & Tech.
NAU., Dediapada

College of Agricultural Engineering & Technology

NAU., Dediapada- 393040 Di. Narmada

Farm Machinery Power Equipments

Sr. No.	Items	Specifications	Qty	Brand name of manufacture	Price/ pcs ₹	Discount Offer	Time Limit of Supply items	Any other terms and condition
1.	Laser Leveler	**Transmitter :**Laser wavelength 635nm, Laser class classll/lll Output range Diameter 800m, Rotation speed 600rpm to 1100rpm Horizontal accuracy: ± 0.05mm/m, Grade Accuracy: ± 0.3mm/m, Grade range X axis: -lXl + lYl =15%, Leveling range ± 50 , Size : 220×200×280mm, **Survey Receiver Rod Eye Reception**: 1800, Capture height: 2" / 50 mm, Body: Moulded plastic, Clamp capacity: 70mm **Mast Receiver :**360 degree Laser receiver with case and clamp for mounting Reception: 3600, Capture height: 8" / 203 mm, Coarse / Fine Accuracy Body: Shock resistant, polycarbonate / Die cast Aluminium Clamp capacity: 25 to 45mm **Control Panel:**Power Input: 12V / 24VDC, 10Amp.Max Power Output: 12V / 24VDC, 10Amp.Max Coarse / Fine Selection, Display: Day visible LEDs, Charging circuit for transmitter battery **Tripod and Scale Combo with carry case:** Open Tripod Height:2650MM Collapsed tripod Height:2000MM Telescopic Scale: 4m, **Battery Pack for Transmitter:** 2 No.s Rechargeable Lead acid UPS batteries and 1 Battery case. **Battery Charger:** 12 VDC Charger from control box Power Mast Electric Operated Power Mast, 12VDC Power Supply From Control Box Used for initial setting of Mast Receiver for auto operation of Laser Leveler **Power / Solenoid / Control Cables:** PVT multi core with Military grade screw couplers, Hydraulic Control System, Consisting of 12v solenoid operated direction Control valves & hoes ,Hydraulic Cylinder ,Double action 2.2 ton capacity @ 50bar **Drag / Box scraper:** 2 m WIDE, 0.6 Cu m CAPACITY	01					
2.	Multicrop Thresher	A high capacity thresher, which can handle multiple crops including paddy, soybean maize, wheat, Groundnuts with minimum machine adjustments. Besides, the machine can be attached to a 35 HP Tractor for its portability and also the thresher can run by the tractor engine power. Input: 35-45 hp (26.1 to 33.6 kW); Diesel engine/ Tractor Capacity: 5 to 10 quintals of clean grains per hour	01					
3.	Offset Disc Harrow	2 gang , 14 disc and dia. 60 cm each gang, High quality Boron steel 12 discs, Width of cut 1350-1400 mm	01					

4.	Reaper cum Binder	Cutting width (mm) : 1200 Cutting height (mm) : 50 – 70 Working Capacity(ha/h) : 0.4 Power Requirement (hp/kW) : 10.2/7.5, Air-cooled, Diesel engine. It consists of a frame, cutter bar, handles fitted with clutch and brakes, seat for the driver, two drive wheels, one wheel below the seat for steering, crop gathering unit and twine	01					
5.	Fuel Flow meter	Capacity-minimum-1 litr/h, Capacity-maximum-50 litr/h Inaccuracy-1 %, For motor having capacity upto 80 kW .It should give Total fuel consumption, Instant fuel consumption, Engine operating time in various mode (idling, optimal, Overload) Display-Electronic	01					
6.	Carpentry Table	**Teakwood Table 6' x 2.5'** **Top size:** L 6' x W 2.5' x H 1.5' on 3" x 1.5" Frame with Center support, **Height:** 30" , Center Partition of water proof 18 mm Plywood in length and width **Leg:** 4" x 4" Square 6 legs with 3" x 1.5" with around and Center support	05					
7.	Workshop Table	**Teakwood Working Table 6' x 3'** **Top size:** L 6' x W 3' x H 1.5' on 3" x 2" Frame with Center support **Height:** 3' **Leg:** 4" x 4" Square 6 legs with 3" x 1.5" with around and Center support	05					
8.	Workshop Cupboard	H78" x W36" x D19" made from 20-22 swg. Steel sheet, 4 adjustable self. All parts are finished with high quality powder coating & locking system.	10					
9.	Workshop Rack (Locker)	H6' x W4' x D18" made from 18-20 swg. Heavy Steel sheet, 6 adjustable self. All parts are finished with high quality powder coating	10					
10.	Tractor operator sprayer	Chemical tank: 600/1000 ltr capacity powersprayer Discharge (free): 50 lpm Working pressure: 100 psi (7bar) Pump rpm: 950 Total no. of nozzles & type: 10 No swivel type	01					
11.	Bund former / maker	height 20-24 cm and width 20-30 cm	01					

12.	Sugarcane planter	• Planting of sugarcanes in two rows. • Opening of furrows at a spacing of 75 cm. Placement of sets in the furrows • Dropping of fertilizer below the sets • Dispensing the insecticide solution over the sets • Covering the sets with soil and providing light compaction to minimize sett and soil moisture loss						
13.	Anvil	20 kg	10					
14.	Swedge block	30 kg	10					
15.	Pipe Wise	1 to 150 mm pipe adjustable vise	10					
16.	Bench Vises	5 to 150 mm adjustable	06					
17.	Electric Hand Drill Machine	Rotary Hammer Drill **Amps** 10.0Amps, **Watts Out** 750-900W, **No Load Speed** 0-1,200 / 0-3,500rpm, **Blows/Min** 0-56,000bpm,	01					
18.	Power wood cutter	**AMps** 15Amps, **Watts Out** 1500-2000W, **No Load Speed** 4200rpm, **Blade Diameter** 7-1/4" **Depth of Cut at 45°** 1.9", **Depth of Cut at 90°** 2.55"	02					
19.	Hand Grinder	4” disc dia, 1440 -2500 rpm Watts Out 1000-1500 W	02					
20.	Stubble saver	Working width 600 to 700 mm, Field capacity 0.15 to 0.20 ha/h PTO operated, no. of blade-8	01					

Note: *Specifications of all the machines and equipments are approximate small variations may be allowed.*

College of Agricultural Engineering & Technology

NAU., Dediapada- 393040 Di. Narmada

Soil Water Engineering Instruments

Sr. No.	Items	Specifications	Qty	Brand name of manufacture	Amount / pcs ₹	Discount Offer	Time Limit of Supply items	Any other terms and condition
1.	Hydrostatic Bench	i) Water manometer: 0 to 500 mm. ii) Mercury manometer: 0 to 500 mm. ii) Bourdon gauge : 0 to 3 kg/cm2 iii) Aneroid barometer 954 - 1073 mbar iv) Hygrometer 10 - 100% RH v) Thermometer: 0 to 50 °C vi) Hydrometer: 0.7 - 2.0 vii) Vernier hook gauge: 0 to 150 mm, ± 0.05 mm viii) Archimedes' apparatus ix) Pascal's apparatus x) Capillary attraction plates xi) Capillary tubes: 3 units xii) Capillary viscometer: 2 to 10 cSt. xiii) Falling sphere viscometer: 10 to 850 St xiv) Specific gravity bottle: 0 to 25 ml xv) Beakers, containers and pipette: 2 units each xvi) Dead weight pressure tester xvii) Hydrostatic pressure tester xviii) Metacentric height apparatus xix) Storage tank: 100 L; stainless steel xx) Circulation pump: 40 LPM @ 2m head xxi) Triple Beam Balance xxii) microcontroller based system with data logger.	01					
2.	Flow Probe	*1*. Range: 0.3-19.9 FPS (0.1-6.1 MPS) 2. Accuracy: 0.1 FPS 3. Averaging: True digital running average. Updated once per second. 4. Display: LCD, Glare and UV Protected 5. Datalogger: 30 sets, MIN, MAX, and AVG 6. Features: Timer, Low battery warning 7. Sensor Type: Protected Turbo-Prop propeller with magnetic pickup. 8. Expandable Length: 3.7 to 6 ft (1.1 to 1.8 m) (FP111); 5.5 to 15 ft (1.7 to 4.6 m) (FP211); 2.5 to 5.5 ft (0.76 to 1.7 m) (FP311) 9. Materials: Probe: PVC and anodized aluminium with SS water bearing, Computer: ABS/Polycarbonate housing with polyester overlay 10. Power: Internal Lithium Battery, Approx 5 year life with typical use, Non-Replaceable 11. Operating Temperature: -4° to 158° F (-20° to 70° C) 12. Carrying Case: The Flow Probe is shipped in a padded carrying case. 13. Laptop (4 GB RAM, 500 HDD	01					
3.	Automatic Water level stage Recorder	Micro controller based Automatic Water Level with this data logger for the collection of real time data automatically.The micro controller internal memory along with an additional 128K EEprom, a real time clock with an LCD (16 X 2) to display	01					

4.	TDR Soil Moisture Meter	**Specification for Portable hand measurement device:** 1. Measuring moisture in soil, sand,Gravel and other material. Incl. Battery Charger and carrying case. 2. Power Consumption : Probe turned on – ca. 100mA, Measurement – ca. 350mA 3. Measurement per charge: 20°C / Background Illum Max Mode – Continuous Measurement – ca. 5000 4. Storage Temperature : -30 °C bis 80 °C 5. Operating temperature : -20 °C bis 70 °C 6. Charging temperature : 10 °C bas 30 °C 7. Charging Voltage : Nom. 12V, Max.15V, Min.12V 8. Charging time : At exhaustively discharged accumulator.2h 9. Accumulator : Ni-MH (4x1.2V) (AA), 200mAh,> 1500 Measurements **Specification for Probe:** 1. cable length 3-4 m 2. Power Supply : 7V……24V-DC 3. Power Consumption: 100mA @ 12V/DC during 2….3sec of measuring 4. Moisture measuring range : Accuracy (in % volumetric water content) Conductivity range: 0….6dS/m 6….15dS/m >15dS/m Moisture range 0..40% : ±2% ±3% with Access tube Moisture range 40…70%: ±3% ±4% Probe Repeating Accuracy: ±0.3% ±0.5% Temperature caused drift of electronics (full range) : ±0.3% Soil temperature measuring range :-15^{0}C…..50^{0}C Soil temperature measuring accuracy: ±0.2^{0}C Measurement volume :3.0L ^ 180 x 150 mm diameter Operating Temperature :-15^{0}C…..50^{0}C Access tubes : compatible with probe 50 nos	03					
5.	Plastic limit apparatus	Porcelain evaporating dish about 120mm dia (25 nos) Spatula Ground glass plate – 20cm x 15cm (25 nos) Rod – 3mm dia. and about 10cm long (25 nos) Balance, with an accuracy of 0.01g	04					
6.	Box Sextant	Stanley London 3-inch Brass Sextant with Gear-Driven Control. German Silver scale and vernier readout, magnifying lens, telescope, and filters. The sextant measures 4 inches tall. Gear-driven adjustment of the elevation angle, and a built-in magnifier	02					

7.	Jodhpur Permeability Apparatus	1. Top cap fitted with water inlet and air rlease vent. 2. Dynamic compaction base plate. 3. Perforated base plate. 4. Perforated top plate. 5. Static compaction flanged end plug. 3 cm high. 6. Static compaction flanged end plug. 2.5 cm high. 7. Dolly for cutter 8. Centering ring for cutter. 9. Wire gauge (4 nos. 200 mesh X 79 mm dia.) 10. Pad of 25 filter papers, (79 mm dia.) 11. Copper wool pad. 12.Plastic funnel. 13.Pinch cocks 14. Flexible tubing 3 m 15.Wooden stand for mounting 16. Permeameter mould(capacity 0.3 litres, Cross-sectional area 50 cm square, effective height 6 cm.) Split Collar. 17. 2.5 Kg. dynamic Raming Tool 18. Bottom Tank Constant head tank glass tube with air intake tube. 19. Spare brass tube and rubber bung or vacuum saturation. 20. Set of stand pipes. 21. Core cutter (capacity 0.3 litres, cross-sectional area 50 cm sq., height 6 cm.)	01					
8.	Core Cutter With rammer	**Steel Rammer** - With solid mild steel foot 140 mm diameter and 75 mm height with a concentrically screwed 25 mm diameter solid mild steel staff. The overall length of the rammer including the foot as well as the staff should be approximately 900 mm. The rammer (foot and staff together) should weigh approximately 9 kg **Cylindrical Core-Cutter** - of seamless steel tube, 130 mm long and 10 cm internal diameter, with a wall thickness of 3 mm, bevelled at one end **Steel Dolley** - 2.5 cm high and 10 cm internal diameter with a wall thickness of 7.5 mm with a lip to enable it to be fitted on top of the core-cutter **Palette Knife** - A convenient size is one having a blade approximately 20 cm long and 3 cm wide Accessories like Palette Knife, Grafting Tool or Spade or Pick Axe etc.	03					

9.	Electronic Direct Shear test apparatus	- Max. force forward/reverse: 6 kN - Speed range: 0.00001 – 12 mm/minute - Different speeds may be selected for forward and reverse drive - Speed/load limitations: none - Displacement movements: 0,03 µm - Rapid approach speed (unloaded): 12 mm/min. - Forward/reverse cycles: programmable up to 20 mm - Number of cycles: no limit to number which may be programmed - Microswitches prevent piston overtravel and dynamometer overload - Leverage system allows applied weights to be amplifi ed by 10, 9, 7.92 and 6.125 - A small handwheel serves to sustain/release the vertical load - Supports are provided for transducers, dial gauges and dynamometers. Dimensions (without packing): 1016 x 572 x 1548 mm (h) Weight (without packing): 100 kg Dimensions (packed): 1100 x 700 x 1250 mm (h) Weight (packed): 140 kg.	01					
10.	Tangent clinometers	1.Cylindrical bubble of 50 x 9 mm conforming to IS : 1632-1960 and having a sensitivity of 20±4 minutes per 2 millimetre run. 2.The sighting vane marked with tangent graduations from +0.04 to -0.04. The graduations being at an interval corresponding to 0.005 and each line of 0.02. 3.The object vane marked with graduations from + 0.4 to - 0.4. The distance between the extreme graduations of this scale 164 ± 0.5 mm. The graduations on the scale shall be at an interval corresponding to 0.005 and each line of 0.02. 4. The distance from the sighting hole to the inside of object vane of the lowest graduation of - 0.4 on the pitch vane shall be 220 mm.	04					
11.	Pedometer Electronic	3 dimensional sensor technology,LCD Display, Motion sensitivity adjustment, Displays number of steps with Step counter, holder, battery. Lithium ion battery with approximately 6 months life	02					

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Process Food Engineering

Sr .No.	Items	Specifications	Qty	Brand name of manufacture	Amount/ pcs ₹	Discount Offer	Time Limit of Supply items	Any other terms and condition
1.	Load test on single phase induction motor with Control Panel	**The set up consists of** 1 HP single phase induction motor, suitable for 230 V, 50 Hz, Ac supply base frame mounted **Control Panel:** Voltmeter 0-230 V AC 1 Nos, Ammeter 0-10 A AC 1 Nos, Suitable Fuse Box, Necessary Switches	01					
2.	Load Banks	**3-Phase Load Banks** Three Phase variable Resistive Load Bank 0-10 A in 5 Steps **1-Phase Load Banks** Single Phase Variable Resistive Load Banks 230 V, 0-10 A in 5 Steps	01					
3.	Single Phase Motor	0.25 HP, 1500 RPM, Foot mounted single phase induction motor	01					
4.	Three Phase Motor	0.75HP, 1000 RPM, Foot Mounted Three Phase Induction Motor	01					
5.	Starter	• 1HP, 1.6-2.5 Ampere, Direct On Line Three Phase Starter • 1 HP, Single Phase Direct On Line Starter	02					
6.	Main Switch	-Triple Pole Neutral, 32 amp/415 volt	02					
7.	Transformer	Small Model for laboratory purpose Single Phase, 230-240 volt Supply Step Down transformer	02					
8.	Lead Acid Battery with Battery Charger	12 V, 65 Amp hour capacity with Battery Charger	02					
9.	Foot Operated Sealing Machine	• 26" Blade size power supply of AC 220V, 50Hz, • adjustable heat controller, • adjustable bag rest, • energy regulator for sealing pouches, • Adjustable electronic timer, Tiltable sealing jaw	01					
10.	Refrigerator (310 ltr)	310 litr. Capacity, 5 Star (Branded)	01					

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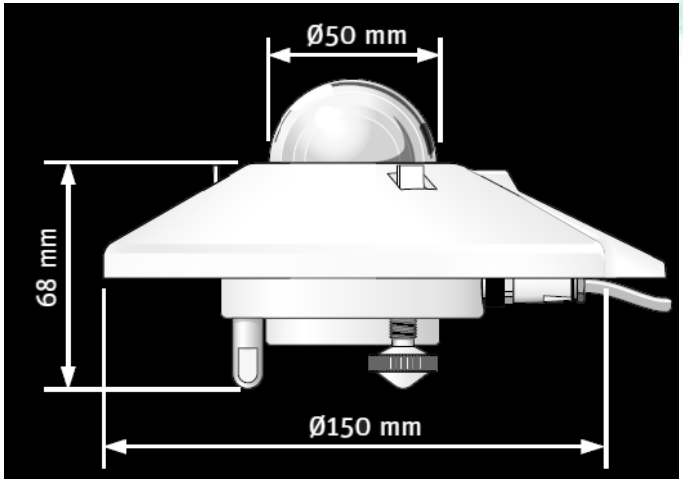
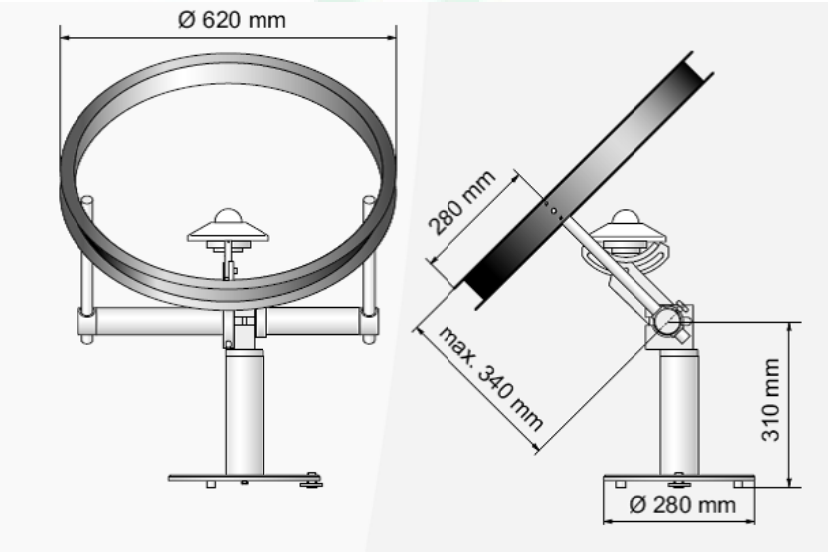
Renewable Energy Instruments								
Sr.No.	**Items**	**Specifications**	**Qty**	**Brand name of manufacture**	**Amount/ pcs**	**Discount Offer**	**Time Limit of Supply items**	**Any other terms and condition**
1.	Pyranometer	Range 0-1300W/m2, digital, Complete solar radiation sensor, microprocessor electronic Integrator with printer, real clock, calendar and data battery back-up. Timer programmable	1					
2.	Wind Energy Training System	Wind generator of 0.7 KW will generate power of 2.1Kwh Through the SPV Modules of 0.9 Kw the generation will be 2.4 Kwh	1					
3.	Solar Concentrating Cooker with tracking system	Solar Scheffler cooker, 7 sq.m area, with temperature range 600-700°C, Saint Globins glass reflector	01					
4.	Solarimeter	Range- 0-1400W/m^2, Digital Display, Power: 9V Battery	05					
5.	Pyranometer with shading ring		01					

Particulars	**Specifications**
PYRANOMETER	
Classification to ISO 9060:1990	Secondary Standard
Spectral range (50% points)	285 to 2800nm
Sensitivity	7 to 14_V/W/m²
Impedance	10 to 100_
Expected output range (0 to 1500 W/m²)	0 to 20mV
Maximum operational irradiance	4000 W/m²
Response time (63%) Response time (95%)	< 1.7s < 5s
Zero offsets (a) thermal radiation (at 200 W/m²) (b) temperature change (5 K/h)	 < 7 W/m² < 2 W/m²
Non-stability (change/year)	< 0.5%
Non-linearity (100 to 1000 W/m²)	< 0.2%

Directional response (up to 80° with 1000 W/m² beam)	< 10 W/m²
Spectral selectivity (350 to 1500 nm)	< 3%
Temperature response	< 1% (-10°C to +40°C)
Tilt response (0° to 90° at 1000 W/m²)	< 0.2%
Field of view	180°
Accuracy of bubble level	< 0.1 °
Detector type	Thermopile
Operational temperature range	-40°C to +80°C
Storage temperature range	-40°C to +80°C
Humidity range	0 to 100% non-condensing
Ingress Protection (IP) rating	67
Recommended applications	Meteorological networks, PV panel and thermal collector testing, materials testing
Connecting cable length	Minimum 5 meters



SHADING RING	
Ring width / radius rate	0.185
View angle (as seen from instrument)	10.6 º
Weight, including typical instrument	Approximate 7.0 kg
Correction table should be provided to compensate the diffuse radiation intercepted by the ring from the sky	
1. Suitable for all latitudes and surfaces in the tilted North-South plane, 2. Compatible with above Pyranometer, 3. The ring should be of U-profile, which should intercept the circumsolar part of the sky far more constantly over a whole year than an I-profile 4. The U-profile should provide a rigid construction	
Applications:	
1. To be used with above Pyranometer to shield the instrument from direct radiation. 2. The combination of above Pyranometer and shadow ring should offer a simple solution to the problem of measuring diffuse radiation from the sky. The shadow from the ring should cover the Pyranometer dome completely.	



Terms and Conditions of the Tender:

1. Rates should be inclusive of all taxes, Octroi, F.O.R. to our Office/Laboratory including installation and demonstration.
2. Duly filled Quotation in sealed envelope should reach the Principal, College of Agricultural Engineering and Technology, NAU., Dediapada by post/courier/register Ad. before **17/08/2015** up to 5:00 p.m. along with **₹ 500/-** quotation fee (not refundable) in Cheque/DD in favour of **"NAU Fund A/c."**
3. Please write on top of envelope ***"Quotation for Farm Machinery/ Soil Water Lab/Process Food/Renewable Energy Lab..... "***And mention clearly sender's name and address.
4. Quotations shall be opened as and when Committee will decide.
5. The prescribed configuration is not a mandatory. Higher configuration or latest Model will also be permitted (only selected Item).
6. Lowest price shall not be only criteria since our main emphasis will be on quality of the product quoted.
7. However, if committee deems proper, the negotiation for the final price will be done with the tenderers. First chance will be given to the lowest price in the chronological order.
8. The committee is empowered to reject any or all the Quotations without giving any reason. This shall not be challengeable in the office/court.
9. No correspondence shall be entertained after submission of Quotations.
10. Delivery should be made within a month after receiving supply order at **College of Agricultural Engineering and Technology, Parsi Tekra, Dediapada 393 040, Di. Narmada.**
11. No advance payment will be made.
12. No penalty or penal interest will be paid due to delay in payment on account of unforeseeable reasons.
13. Payment will be made only after satisfactory supply and installation/Demonstration.
14. Warranty period against any manufacturing defects of material should be clearly mentioned.
15. Discount if any offered, may please be specified.
16. Authorized dealer should enclose authorization certificate (Attested photocopy) of manufacturing company.
17. Attach the separate sheet mentioning detail specification along with literature.
18. Provide **the list of your valued customers of the said items in state Agricultural University, ICAR Centers, Other Government and Semi Government Bodies. NGOs etc in India.**
19. In case of dispute, decision of the Registrar, Navsari Agricultural University, Navsari will be final and acceptable to all the parties.
20. The jurisdiction for any legal dispute shall be Navsari District only.