



MINISTRY OF EDUCATION AND SPORTS

UGANDA SKILLS DEVELOPMENT PROJECT

Technical specifications

For

SUPPLY, DELIVERY, INSTALLATION, TRAINING OF USERS AND COMMISSIONING OF LABORATORY AND WORKSHOP EQUIPMENT FOR BUKALASA AGRICULTURAL COLLEGE AND AFFILIATED VOCATIONAL TRAINING INSTITUTES

CENTRE OF EXCELLENCY: BUKALASA AGRICULTURAL COLLEGE
NETWORKING VTIs: Ssesse farm Institute, Rwentanga Farm Institute, and Kaberamaido Technical Institute

Technical Specifications

**LABORATORY AND AGRICULTURAL WORKSHOP EQUIPMENT FOR BUKALASA AGRICULTURAL COLLEGE (BAC),
RWENTANGA FARM INSTITUTE (RFI), KABREMAIDO TECHNICAL INSTITUTE (KTI) AND SSESE FARM INSTITUTE (SFI)**

Item Nr	Item	Description	Unit	Qty per Institution				
LOT 1: AGROPROCESSING EQUIPMENT				BAC	RFI	KTI	SFI	TOT
	Bread and Cake Baking Equipment							
E1.01	Bread Mixer	<ul style="list-style-type: none"> • Double Motions double speeds. • Microcomputer digital display control panel. • High speed and high-water absorption • Overload and phase absence protection • Capacity: 15kg of flour • Bowl Volume: 50L • Voltage 220/380V • Power: Approx.2.2KW • Stainless steel mixing bowl 	Nr	3		1		4
E1.02	Cake Mixer	<ul style="list-style-type: none"> • Capacity: 30 liters • Body material: stainless steel • Power: 1.1 KW 	Nr	3		1		4
E1.03	Dough Mixer 20ltrs	<ul style="list-style-type: none"> • Commercial spiral dough mixer with 20 lt. bowl. • Removable bowl and liftable head. • All stainless steel • 220-240V/50 Hz, 750W, speed 386RPM stand mixer 	Nr	3		1		4
E1.04	Dough Mixer 40ltrs	<ul style="list-style-type: none"> • Commercial spiral dough mixer with 40 lt. bowl. • Removable bowl and liftable head. • All stainless steel • 220-240V/50 Hz, 1200W, 386 RPM speed 	Nr	3				3
E1.05	Dough Mixer 10ltrs	<ul style="list-style-type: none"> • Commercial spiral dough mixer with 10 lt. bowl. • Removable bowl and liftable head. • All stainless steel 	Nr	3				3

Item Nr	Item	Description	Unit	Qty per Institution				
		<ul style="list-style-type: none"> 220-240V/50 H, 50W 						
E1.06	Manual Dough divider	<ul style="list-style-type: none"> Working mode: manual Dough range: 30-180 g Function: dough cutting Cutting: 36 pcs Dimensions: approx.; 560*485*740 mm Supplied with operation table 	Nr	1		1		2
E1.07	Dough Sheeter	<ul style="list-style-type: none"> All stainless steel Capacity 5Kg 220-240V/50 Hz Power: 0.37 KW Resting width: 26" Belt size 654/1200 	Nr	1		1		2
E1.08	Bread Proofer	<ul style="list-style-type: none"> Double door Capacity: 32 full size pans Shelf spacing: 3.3" 220-240V/50Hz Keep the dough rows in place during conveyor transit Rigidity of framework perfect for automated production lines Level surface: Perforated aluminium sheet under the sheet steel Interchangeability: Removable sheets (for washing) Durability: Metal contact (stainless steel with a line) Adaptability: Customised design possible Stainless steel frame and aluminium tray. High efficiency power consumption. 	Nr	1		1		2
E1.09	Electric Oven	<ul style="list-style-type: none"> Industrial 4 deck baking oven 1260*880*540mm/ External dimensions 860*670*220mm/ Internal dimensions Temp range: +50°C - +400°C Temperature fluctuation: +0.5oC, temperature deviation +2.0°C (+50 + 100°C), + or -3.0°C (+101+200°C) 	Nr	1		1		2

Item Nr	Item	Description	Unit	Qty per Institution				
		<ul style="list-style-type: none"> 50mm SENSOR placement point (at 1/10 of the inner wall size) 500mm Control mode: PID 						
E1.10	Electric Oven	<ul style="list-style-type: none"> Industrial 2 deck baking oven 1260*880*540mm/ External dimensions 860*670*220mm/ Internal dimensions Power: 6.6KW Power: 	Nr	1				1
E1.11	Electric Oven	<ul style="list-style-type: none"> Industrial 1 deck, 2 trays deck baking oven 1260*830*560 mm Power: 6.3KW Power 	Nr	1			1	2
E1.12	Bread Slicer	<ul style="list-style-type: none"> Bread slicer 39 pcs-9mm thickness per piece 0.75KW Voltage 220-240V/50 Hz Dimensions: approx. 650*610*750mm 	Nr	1			1	2
E1.13	Tray Racks	<ul style="list-style-type: none"> Material: gussets of stainless-steel round Capacity; 15 trays Dimensions: 75mm W * 75mm H on both sides with bleeder pipes 	Nr	5			1	6
E1.14	Weighing Scale Digital 10Kg	<ul style="list-style-type: none"> Digital weighing scale Wash down digital scale, Large & clear LCD display, Large square weighing pan -- minimum, 232mm (W)x192mm(D), Portable, Stability Indicator, Detachable Stainless-Steel Weighing Pan, Battery Operation and AC Adapter Capacity -(10000 g x 1 g) 	Nr	10			1	11
E1.15	Weighing Scale Digital 5Kg	<ul style="list-style-type: none"> Digital weighing scale Wash down digital scale, Large & clear LCD display. Large square weighing pan - minimum, 232mm (W)x192mm(D), Portable, Stability Indicator, Detachable Stainless-Steel Weighing Pan, Battery Operation and AC Adapter Capacity-(5000 g x 1 g) 	Nr	10				10

Item Nr	Item	Description	Unit	Qty per Institution				
	Fruit and Vegetable Processing Equipment							
E1.16	Air -blowing washing machine	<ul style="list-style-type: none"> The blower runs the air through tank washer and makes the water keep rolling PLC automatic control Capacity of at least 3T/H Power and Voltage: 3.7kw; 220-380V Dimensions (mm): 3500*970*1140 	Nr	2		1		3
E1.17	Sorting Machine	<ul style="list-style-type: none"> The fruit sorting machine is professional sorting machine for fruits and vegetables. Power 0.75Kw Capacity:(pieces/hr): 600 Voltage: 220V/50Hz Dimensions: Approx. 3800*800*1000mm 	Nr	2		1		3
E1.18	Draining Machine	<ul style="list-style-type: none"> With smooth scraping baffle and water penetrating structure Made of stainless-steel construction (75*45*3) Power: 2.2kw Together the water, vessel Equipped with 2 sets of vibration motors Motor: 1.1kw Total motor designed at the bottom of the machine Dimension: 3300*1000*1200mm Application: Fruit and vegetables Function: Washing and cleaning 	Nr	2		1		3
E1.19	Mango Crusher/Extractor	<ul style="list-style-type: none"> High efficiency low noise, no pollution With material contact parts made of stainless steel Using conical screw, large capacity high rate of juice Motor: 5.5kw Screw spindle rotation direction as viewed from the hopper to the slag tap direction is clock wise Dimension: 3200*2000*3400mm Capacity: 2T/H 	Nr	1				1
E1.20	Lemon Crusher/Extractor	<ul style="list-style-type: none"> Blade material stainless steel 	Nr	1				1

Item Nr	Item	Description	Unit	Qty per Institution				
		<ul style="list-style-type: none"> Capacity: 500-2000ml Power: 120W Voltage: 220-240V/50Hz Power: 120W 						
E1.21	Preheater	<ul style="list-style-type: none"> Material of the main construction and material touching the fruit is made SUS304 stainless steel Detached easily Tubular construction heated by steam When the temperature of the material does not touch the set valve, the material will recycle automatically Power rating: 12000W Voltage: 440V scald Dimension: 3900*1000*1600mm 	Nr	1			1	2
E1.22	Baffle Tank Machine	<ul style="list-style-type: none"> Made of SUS304 stainless steel Single layer tank, inner surface polished 240 mesh Equipped with L.H liquid level meter Method of heating: Steam Tank with manhole breathing cap cleaning tool inlet and outlet. Max. temperature: 120°C Steam heating coil: 8m Capacity: 200litres Mixer power: 1.5Kw Mixer Speed: 65rpm Homogeniser power: 3Kw Homogeniser speed: 3000rpm 	Nr	2			2	4
E1.23	Pulping and Refining	<ul style="list-style-type: none"> The lowest downtime and high output when concentrating fruits e.g. the refiner can run for whole season and only about 4% of waste. Horizontal type: Double partition Material: Stainless steel Pressure: Test pressure 6bars Working pressure: 4bars Pulper capacity: 3t/h 	Nr	1			1	2

Item Nr	Item	Description	Unit	Qty per Institution				
		<ul style="list-style-type: none"> Voltage: 240-380V Dimensions: 800*800*900mm Power: 6Kw 						
E1.24	Tube in tube sterilizer/ Pasteurizer	<ul style="list-style-type: none"> Control cabinet: PLC, HMI Pressure of the whole system: about 50BAR Total motor: 12kw Total consumption of compressed air 90.3m/min Total consumption of steam: 0.2T/H Total consumption of cooling water: 20T/H Capacity: 1T/H Sterilization time: 10-15s Sterilization temperature: 95°C -120°C Dimensions(mm): 1200*920*1400 	Nr	1				1
E1.25	High pressure homogenizer	<ul style="list-style-type: none"> Material: made SUS304 stainless Designed for CIP cleaning Effective cooling facilitates through splash lubrication Continual working pressure: 410MPa Working rate: 200ml/min 	Nr	2			1	3
E1.26	Water Purification Plant	<ul style="list-style-type: none"> Max flow rate Max Gravity feed, 50 Hz: 1.5 L/min Max Pressurized feed, 50 Hz: 1.6 L/min Inlet water temperature 40 to 120°F (4 to 49°C) Inlet port 3/8" OD tubing (supplied) Power 90-240 VAC, 50/ Dimensions (340 W x 428 D x 495 mm H) Inlet Footprint: 30 x 10.5 x 24 cm Sample Flexibility: max. 200 Buffer Volume: 800 ml psi (pounds per square inch) 	Nr	2			1	3
E1.27	Oxygen Generator	<ul style="list-style-type: none"> Designed for dynamic pressure loading Robust design, piping from Stainless Steel (AISI316) Reliable – built for uninterrupted operation Built in purity analyzer for continues monitoring 	Nr	1			1	2

Item Nr	Item	Description	Unit	Qty per Institution				
		<ul style="list-style-type: none"> Automatic start/stop Data-logging Flow rate: 0.4 Nm³/h to 150 Nm³/h Purity: 90% to 95% (based on customer's requirements) Dew point: -50°C Operating temperature: 5°C – 45°C 						
E1.28	SS Transfer Pumps	<ul style="list-style-type: none"> Stainless steel Transfer Pump Maximum Flow rate: 1000-2000 LPH Motor capacity: 1HP 	Nr	2		1		3
E1.29	Automatic rinsing, filling and capping machine	<ul style="list-style-type: none"> Neck operated bottle handling system, hence no height adjustment required for different pack sizes. No bottle - No fill, No cap system. Filling without spillage. Consistent Net Content. Easy change over. Rotary mono blocks construction with SS cladding. All content parts are SS 316. PLC Controlled. VFD for speed control. Cap elevator with ground level hopper. Cap Rinsing system (Optional). Online UV Sterilization for cap. Capacity –60bpm, (Speed based on 1000 ml pack size). 	Nr	1		1		2
E1.30	Semi Auto Shrink wrapper Machine	<ul style="list-style-type: none"> Semi-automatic and manual shrink wrapping machine Sealing frame dimensions: 500x400mm Nominal dimensions of tunnel (LxWxH): 544x410x200mm Power 5.7KW. 415V/3 phase Packing speed: 6-8/min 	Nr	1		1		2
E1.31	Batch coding	<ul style="list-style-type: none"> Continuous Ink jet printer Core life of up to 12,000 hours Maximum Line Speed: 293 m/min (960 ft./min) Print heads: 1 Maximum Lines of Print: 5 	Nr	1		1		2

Item Nr	Item	Description	Unit	Qty per Institution					
		<ul style="list-style-type: none">Display (User Interface): LCD with membrane keyboard							
E1.32	Refractometers	<ul style="list-style-type: none">Digital Refractometer for Brix measurement in FoodPortableDesigned for food sugar analysisTemperature Compensation algorithms based on sucrose solution0 to 85% brix range with an accuracy of ± 0.2%	Nr	50			10	60	
	Maize Processing Equipment								
E1.33	N-70 Huller	<ul style="list-style-type: none">Maize hullerMaterial: Stainless SteelOutput capacity: 250-350 kg/hr	Nr	2			1	3	
E1.34	Motor 11kw (18HP)	<ul style="list-style-type: none">Motor 11kw (18HP)	Nr	5			1	6	
E1.35	Maize Mill	<ul style="list-style-type: none">Grinding Maize MillMaterial: MSOutput Capacity:540-720 Kg/hrPower: 16-20HPRPM: 3600	Nr	2			1	3	
E1.36	Starter and Isolators	<ul style="list-style-type: none">Designed to start items E1.29 and E1.31 respectively	Nr	10			1	11	
E1.37	Frame big for huller and 2 motor	<ul style="list-style-type: none">To accommodate huller items e1.29, E1.30and E1.31	Nr	4			3	7	
E1.38	Analog Weighing Scale	<ul style="list-style-type: none">Analog Weighing Scale, capacity 500 kg	Nr	20			1	21	
E1.39	Bag Closer	<ul style="list-style-type: none">Bag closer machine,Capacity: 5-8 Bags Per Minute,Maximum Sewing Speed: 1600-1800 stitches per minutes	Nr	6			1	1	8
E1.40	Installation Costs		Nr	1			1		2
E1.41	Seed cleaner with Blower and Elevator	<ul style="list-style-type: none">Complete system of comprising a cleaner Blower and ElevatorCapacity: Approx... 50kg/hrPower: 2hpModel TQLQ63 or equivalent	Nr	2			1		3
E1.42	Mixer Fortificants	<ul style="list-style-type: none">Equipment for fortification of maize meal flour with Vitamins and mineralsVolume: 440L	Nr	1			1		2

Item Nr	Item	Description	Unit	Qty per Institution				
		<ul style="list-style-type: none"> Spindle speed: 35RPM Max. Loading capacity: 300Kg Mixer type: Ribbon Voltage: 220-240V Dimensions (L*W*H): 1000*500*720 Power: 3kW Mixing type: Rotating 						
	Rice Processing Equipment							
E1.43	Rice Grader	Rice Mill precision grader <ul style="list-style-type: none"> 220-240V/50Hz Power: 2KW Material: Stainless Steel Capacity: 250Kg/h Screen diameter: 1700mm Screen mesh: 250mu/inch Maximum particle size: Less than 50 	Nr	2		1		3
	Oil Processing Machine							
E1.44	95 Oil Mill	<ul style="list-style-type: none"> 95 Oil Press The rotating speed of worm shaft: 40-50 rpm Transmission rate of gearbox: 19/42*19/57=1:6.63 Power to be matched: 5.5kw (960 rotation/minutes) The length of trigonal belt: 3150-4000(mm) Overall dimension(mm): 1320*540*1020 (length * width * height) Output:4 Tons/day The net weight of machine: about 300kg 	Nr	1		1		2
E1.45	15Kw Motor	<ul style="list-style-type: none"> Appropriate motor for item E1.40 	Nr	1		1		2
E1.46	Frame for Motor	<ul style="list-style-type: none"> Appropriate frame for item E1.40 	Nr	1		1		2
E1.47	250 Oil Filter with motor	<ul style="list-style-type: none"> Oil filter for item E1.40 	Nr	1		1		2
E1.48	Starter and Isolator	<ul style="list-style-type: none"> Appropriate Starter and Isolator for item E1.40 	Nr	2		1		3
E1.49	Installation and Training		Nr	2		1		3
	Diary Production equipment							

Item Nr	Item	Description	Unit	Qty per Institution				
E1.50	Ice Cream Making Machine	<ul style="list-style-type: none"> • ICE CREAM MACHINE, 230 V • Tank capacity: 5- 10 liters • Type: soft serve ice cream machine • Table top model • Output: 10-20 liters per hour 	Nr	4			1	5
E1.51	Yoghurt Making Machine	<p>One flavor frozen yogurt making machine (6238)</p> <p>Feature:</p> <ol style="list-style-type: none"> 1. Floor model 2. Air cooling 3. Single flavor 4. Gravity feed freezer 5. Stainless Steel Panels 6. LED automatic control <p>Freezing cylinder One, 3.2 Liter</p> <p>Mix hopper One, 15 Liter</p> <p>Separate hopper refrigeration (Pre-cooling) maintains mix below 4.4 degree Celsius.</p> <p>Microprocessor controls Microprocessor regulates refrigeration by measuring product viscosity to maintain consistent quality.</p> <p>Mix low light The mix low light turns "on" to alert operator to add mix, preventing cylinder over freezing.</p> <p>Standby Maintains product temperature in the mix hoppers and freezing cylinders below 4.4 degree Celsius during long no-use periods.</p> <p>Counter Records number of dispenses per day and total number of dispenses.</p> <p>Agitator in the hopper Mixture has better liquidity, the temperature of the Mix to be more uniform.</p>	Nr	4			1	5

Item Nr	Item	Description	Unit	Qty per Institution				
		<p>Output 38Liter/Hour (At 4 degree Celsius liquid &24 degree Celsius Ambient)</p> <p>Electrical requirements One dedicated electrical connection is required. Make voltage steady when machine is on.</p> <p>Main motor One, 2.0HP</p> <p>Refrigeration system One compressor: 6486 BTU/hr. R404A Separate hopper refrigeration (pre-cooling): One compressor: 400BTU/hr. R134A (BTU may vary depending on compressor used)</p> <p>Air cooled Minimum clearance of 152 mm on both sides is to achieve optimum performance. Refer to the local situation to regulate the parameters, on basic of the data label.</p> <p>Specification Voltage: 210-230V/50Hz Power: 2.8KW N. W. (KG): 170kg G. W. (KG): 190kg Dimension Net (mm): 917*554*1520 Dimension Packing(mm): 850*645*1665</p>						
E1.52	Automatic Tea and Coffee packing machine	<ul style="list-style-type: none"> Automatic Tea Coffee Packaging Machines, Power: 3 kW Voltage 220-240V/50 Hz Bag size: L=30-160mm; W=20-150mm Speed: 35bags/min 	Nr	2				2

Item Nr	Item	Description	Unit	Qty per Institution				
		<ul style="list-style-type: none"> Dosage: 100g Power: 220V; 50Hz, 2kW Dimensions: 950*850*1900mm 						
	Feed Mill equipment with the items E1.53-E1.87							
E1.53	Auger	<ul style="list-style-type: none"> Transporting materials 1.1KW 3m 	Nr	1			1	2
E1.54	Bag closer	<ul style="list-style-type: none"> Sealing bags One needle single thread chain stitch sewing machine for closing filled bag of jute pp. / pe multiwall paper etc. Sewing speed -5-8 second/bag. Stitch length: 7. 2 mm Motor-1/10hp x 8000 rpm 220 -240V/50Hz 	Nr	1			1	2
E1.55	Bin above hammer mill	<ul style="list-style-type: none"> Holding materials for grinding Capacity:500 kg 	Nr	1			1	2
E1.56	Boiler	<ul style="list-style-type: none"> Steam boiler for animal feeding mill 1-20ton gas/oil fired boiler Capacity: 1-20 ton/h Pressure: 0.7-2 Mpa 	Nr	1			1	2
E1.57	Bucket elevator, single or double application	<ul style="list-style-type: none"> Transporting materials Painted or galvanized overall height up to 23m Power: 1Hp Voltage: 220-240V/50Hz 	Nr	1			2	3
E1.58	Buckets	<ul style="list-style-type: none"> Carrying materials (for feed mill, crop) 50 Ltr, 20 Ltr, 10 Ltr, 15 Ltr, 5Ltr 2 of each size 	Nr	10			25	35
E1.59	Collapsible auger	<ul style="list-style-type: none"> Transporting materials intake hopper, belt drive, inflatable tyre, height adjustable frame (suitable to tow on the road) suitable to tow on the road Conveying length 10 to 12m 	Nr	2			1	3

Item Nr	Item	Description	Unit	Qty per Institution				
E1.60	Compact pellet mill	<ul style="list-style-type: none"> • Ring die diameter: ϕ350mm • Pellet size: ϕ2-8mm • Main power:30kw$\times$2 • Feeder power:0.75kw(converter) • Conditioner power: 2.2kw • Capacity: 3-7t/h 	Nr	3			1	4
E1.61	Computer with feed formulation software program	<ul style="list-style-type: none"> • Appropriate Computer with feed formulation software program 	Nr	1			1	2
E1.62	Conditioner	<ul style="list-style-type: none"> • Feed mill conditioner • Type - Single Shaft Paddle type Conditioner • Features: - Advanced design with Efficient cooking Large inspection windows for ease of maintenance • Equipped with steam jackets to maintain the temperature in chamber 	Nr	2			1	3
E1.63	Cooling tower	<ul style="list-style-type: none"> • Forced Draft Type Water Cooling Tower, Voltage: • 380 /50 Hz/3 Phase, • Power: 10.2~50 kw • Water Flow 100-400T/H 	Nr	1			1	2
E1.64	Counter flow cooler	<ul style="list-style-type: none"> • Counter Flow Pellet Cooler, • Capacity: 2-4 Mt / hr • Material: MS • Power: 1 HP 	Nr	1			1	2
E1.65	Cyclone dust collector	<ul style="list-style-type: none"> • Controlling dust • 10 m/min (cubed) 	Nr	1			1	2
E1.66	Double-deck pellet sieve	<ul style="list-style-type: none"> • Sieve Double Sieve Deck • Capacity; 250Kg to 300kg • Automatic grade • Motor power: 1Hp 	Nr	1			1	2
E1.67	Filter bags for Cyclone	<ul style="list-style-type: none"> • Efficiency: 99.9% approx. • Type: Fabric Dust Collector 	Nr	5			3	8

Item Nr	Item	Description	Unit	Qty per Institution				
		<ul style="list-style-type: none"> Minimum Particle Size: 0.5 Micron 						
E1.68	Grinder	<ul style="list-style-type: none"> Angle Grinder Machine Power:950W Speed; 11000rpm Diameter of Wheel: 125mm 	Nr	4			1	5
E1.69	Hammer mill	<ul style="list-style-type: none"> Grinding animal feed 1 t/hr, 7.5kW, 1.9 x 1.6 x 1.8m 	Nr	1			1	2
E1.70	High capacity pneumatic grain blower suction pressure machine	<ul style="list-style-type: none"> High capacity pneumatic grain blower suction pressure machine 	Nr	1			1	2
E1.71	Holding bin	<ul style="list-style-type: none"> For storage 1000 kg, above mixer 	Nr	2			1	3
E1.72	Hopper	<ul style="list-style-type: none"> For storage 400 kg, compact unit 	Nr	1			1	2
E1.73	Horizontal Mixer	<ul style="list-style-type: none"> For Mixing feed 750 kg, 3 kW 	Nr	2			1	3
E1.74	Magnet	<ul style="list-style-type: none"> Removal of metallic contaminants To be included in hammer mill 	Nr	1			1	2
E1.75	Micro bin	<ul style="list-style-type: none"> For Processing feed 	Nr	1			1	2
E1.76	Pellet mill	<ul style="list-style-type: none"> Animal Feed Pellet Press Capacity 4-12t/h Main motor power 110kw Conditioner power 5.5kw Feeder power 1.5kw Ring die diameter 420mm 	Nr	2			1	3
E1.77	Roller	<ul style="list-style-type: none"> Single roller Working length/ Diameter (mm): 700/300 Drive KW: 1x18.5 Capacity: 0-10tons/hr Dimensions: LxWxH: 1446x1366x875 approx. 	Nr	2			1	3

Item Nr	Item	Description	Unit	Qty per Institution				
E1.78	Screen / sieve	<ul style="list-style-type: none"> For producing different feed particle size 5, 8 and 15 mm 	sets	20			20	40
E1.79	Small scale	<ul style="list-style-type: none"> Weighing materials 10 kg, 0.5 m2, for fine materials 	Nr	1			1	2
E1.80	Storage bin	10 ton	Nr	1			1	2
E1.81	Storage bin	5 ton	Nr	1			1	2
E1.82	Storage bin	1 ton	Nr	1			1	2
E1.83	Trough screw conveyor for horizontal installation	<ul style="list-style-type: none"> Transporting materials (Max incline 100) trough galvanized conveying distance up to 32 m 	Nr	1			1	2
E1.84	Vent mill	<ul style="list-style-type: none"> Grinding and delivery of product into mixer 1000 kg/hr; 11 kW 	Nr	1			1	2
E1.85	Vertical batch mixer	<ul style="list-style-type: none"> Mixing feed 250 kg; 1.5kW 	Nr	1			1	2
E1.86	Vertical mixer	<ul style="list-style-type: none"> Mixing feed 250 kg; 1.5kW; As a unit Height 2.5 Length 2.25 Depth 1.5 	Nr	1			1	2
E1.87	Weighing bascule	<ul style="list-style-type: none"> Weighing materials 100 kg; 0.8 x 0.8 x 1. m (L x W x H); Movable balance 	Nr	2			1	3
LOT 2: BASIC CROP AND SOIL SCIENCE EQUIPMENT			Unit	BAC	RFI	KTI	SFI	TOT
	Laboratory equipment							
E2.01	Aluminum dishes	Aluminum Dishes 43mm dia x 12.5mm height (Pack of 100)	Nr	10		4		14
E2.02	Nickel crucibles	<ul style="list-style-type: none"> Nickel crucible Capacity: 50ml Día x H: 44mmx51mm Thickness 0,021 inches 	Nr	10		10		20
E2.03	pH meter	<ul style="list-style-type: none"> Handheld pH/mV/C meter, pH range -2.00 to <u>16 pH @ 0.01 pH</u>, ISE range ±699.9mV @0.1mV, ORP range ±1999 @1mV, 	Nr	3		3		6

Item Nr	Item	Description	Unit	Qty per Institution				
		<ul style="list-style-type: none"> Temp. range -20.0 to 120°C @0.1°C. Complete with manual, spare electrode with protective rubber boat 						
E2.04	Centrifuge	<ul style="list-style-type: none"> Electric Laboratory 6 Bucket Centrifuge Max RPM: 4000 Display: digital Voltage 220-240V/50Hz 	Nr	3		4		7
E2.05	Incubator	Microbiological with 5 shelves, <ul style="list-style-type: none"> three shelves are removable, 240/50hzV, capacity 73 liters, internal dimensions = 400x480x380mm, temp range 0 to 200oC, fluctuation ±0.25oC at 38Oc 	Nr	5		3		8
E2.06	Autoclave	<ul style="list-style-type: none"> Operating Pressure 15 PSI Operating temperature: 121deg C Capacity: 35 ltrs. Chamber Dimensions: 300x500mm Construction: SS 304 Power Consumption: 2Kw Sterilization time: 0-99 mins. Voltage: 230V Control: Digital Gross Weight: 77kg 	Nr	10		3		13
E2.07	Autoclave	Top Loading <ul style="list-style-type: none"> Floor standing, top loading, 65L capacity, Fully programmable, timed free steaming, electro polished S/Steel chamber, hold warm /delayed start, guaranteed precision and versatility in sterilization, ultra-quick swift lock door mechanism, low loading height, direct steam, excellent load capacity for up to 3 baskets, counter balanced lid for easy opening, single phase power supply, 	Nr	20		3		23

Item Nr	Item	Description	Unit	Qty per Institution				
		<ul style="list-style-type: none"> Power supply 240V/50Hz, complete with user manual and accessories: Indicator strips: Changes from yellow to blue after specific conditions of time, steam and temperature, pack of 100 strips, 15min/121°C Sterilizing box for petri dishes. Stainless steel, for dishes up to 100mm diam., with lid Sterilizing box pipette round. Stainless steel, length 407mm, depth 64mm Installation and user training to be provided 						
E2.08	Microwave	Microwave Oven. <ul style="list-style-type: none"> Effect Range 20-100%; Temperature Range 25-100°C; Temperature Accuracy (- 0.5°C) within 25-70°C; Temperature Variation (- 0.4°C) at 40°C; Balanced effect with 100mL H₂O load and 100mL H₂O Sample; Timer 1 sec - 99min 99sec; Continuous Run; Timer override-works as a count up timer for an indefinite period of time; Safety Switch Off At 105°C chamber temperature; Capacity 8L; Power 230-240V 50Hz 	Nr	10		3		13
E2.09	Water bath	Digital Stirred Bath. E.g. Clifton NE4-D Digital Stirred bath or equivalent. <ul style="list-style-type: none"> Digital, Capacity 14L, Power 1250W, Perforated stainless-steel shelf, Complete with Stainless steel gabled lids, 	Nr	7		3		10
E2.10	Water distillation system	<ul style="list-style-type: none"> Water distillation system Output 500L/hour Voltage 415V/50Hz 	Nr	2		2		4
E2.11	Vitamin/mineral analyzer	Wavelength range: 350-2500 nm Resolution: 3 nm @ 700 nm and 6 nm@ 1400/2100 nm Scanning time: 100 milliseconds	Nr	3				3

Item Nr	Item	Description	Unit	Qty per Institution				
		Signal-to-noise ratio: VNIR: 9,000:1 @ 700 nm SWIR 1: 9,000:1 @ 1400 nm SWIR 2: 4,000:1 @ 2100 nm Stray light: VNIR: 5000:1 (0.02%) NIR: 10,000:1 (0.01%) Wavelength reproducibility: 0.1 nm Wavelength accuracy: 0.5 nm Channels: 2151 VNIR detector: (350-1000 nm) 512 element silicon array SWIR 1 & 2 detectors: (1001-1800 nm) & (1801-2500 nm) Graded Index InGaAs Photodiode, TE Cooled Communications: Wired: 10/100 Base T Ethernet port with Ethernet cross-over cable Wireless: 802.11g/n wireless card Dimensions: (H x W x D) 12.7 x 36.8 x 29.2 cm (5 x 14.5 x 11.5in) Operating temperature: 0 to 40° C (32 to 104° F)						
E2.12	Gas cylinder with gas regulator and tubing	Aluminum Dishes 43mm dia x 12.5mm height (Pack of 100) NEED TO BE MODIFIED	Nr	10				
	Basic Laboratory and Crop Science Equipment							
	Soil Laboratory							
E2.13	Atomic absorption Spectrometer	Fully automatic Atomic absorption spectrometer using WinLab 32 software. Specifications: Hardware System Double beam optical system Wavelength 189-900nm		1	1			2

Item Nr	Item	Description	Unit	Qty per Institution				
		Detector High efficiency segmented solid state detector Light source Electrode discharge lamps (EDL) Flame gas Fully automated gas box Control Software – actuated ignition wit air/acetylene. Sample area 25cmwidex25cm cm deep sample compartment Power 220-240V/50Hz Dimensions 70x65x65cm (Wxdxh) Accessories Auto sampler for instrument calibration Mercury /hydride system Auto Prep 50 sample- dilution system						
E2.14	Autoclave	<ul style="list-style-type: none"> Operating Pressure 15 PSI Operating temperature: 121°C Capacity: 35 ltrs. Chamber Dimensions: 300x500mm Chamber Dimensions: 300x500mm Power Consumption: 2Kw Gross Weight: 77kg 	Nr	5	1			6
E2.15	Automatic pipettes (Adjusted volume pipettes)	<ul style="list-style-type: none"> Large and readable display that is fully visible during pipetting; Innovative soft grip preventing heat transfer to the pipette inside; Simple click mechanism for changing the pipette volume; Ultra UV resistance; Convenient button for changing the tips; Compatible with most of the tips available on the market. Set consisting of one each 0.5-10µL, 2-20 µL, 5-50 µL, 10-100 µL 	sets	4	2			6
E2.16	Block digester with digesting tubes	<ul style="list-style-type: none"> Number of tube holes 60-80, Tube diameter 24-26mm, Max temperature 450 °C, 	Nr	1	1			2

Item Nr	Item	Description	Unit	Qty per Institution				
		<ul style="list-style-type: none"> power 230v, thermocouple Temp control knob 						
E2.17	EC meter	<ul style="list-style-type: none"> For measurement of the electrical conductivity in a solution. Commonly used in hydroponics, aquaculture and freshwater systems to monitor the amount of nutrients, salts or impurities in the water. Display: Digital PH range: 0-14 	Nr	4	2			6
E2.18	Electron microscope	<ul style="list-style-type: none"> Magnification 15 ~ x 300.000 (Effective Magnification: x100,000) Resolution: 3nm (at 30kv SE Image) Accelerating Voltage: 1KV ~ 30KV Electron Gun: Tungsten Filament (W) Detector: SE Detector (optional: BSE/EDS) Stage: 5 Axis Full Auto Stage, X: 40mm, Y: 60mm, T: -20 ~ 90 R: 360°, Z: 0 ~ 60mm Sample size: 65mm (H), 130mm (Diameter) Vacuum system: Turbo Molecular Pump Auto Functions: Start, Focus, Filament, Brightness/contrast OS: Windows Operation: Key Board/Mouse Dimensions/weight: Approx. 770(W) x 880(L)x 1500(H)mm, 400kg 	Nr	1	1			2
E2.19	Hygrometer	Features: <ul style="list-style-type: none"> Measures both the actual humidity and temperature displaying the relative humidity Working temp: 0- 50°C Power supply – one Battery AAA Material: ABS 	Nr	2	1			3

Item Nr	Item	Description	Unit	Qty per Institution				
E2.20	Infra-red thermometer	<ul style="list-style-type: none"> Dual laser for accurate targeting with fast (0.15s) response time at 12" (30.5cm) distance two laser points converge to 1" target spot, Temperature range: -58 to 1100°F (-50 to 600°C) 0.10 to 1.00 adjustable emissivity increases measurement accuracy for different surface 0.1°F/°C max resolution, Auto power off 	Nr	10	1			11
E2.21	Lab grinder machine (Multipurpose)	<ul style="list-style-type: none"> For small scale, high speed grinding of hard brittle materials with a grain six 6 to 7 mm; Stainless grinding chamber, volume 50ml, and steel cutter; Grinding speed 2000 revolution/min. Maximum running time 5 min. With electric overload protection and lid contact safety switch. Dimensions 120 x 105 x 225 mm; weight 2kg, 220 - 240V, 1pH, 50Hz, Accessories: 30 X 150mm diameter brass sieves, 0.50, 1.0 and 4.0mm. 	Nr	5	1			6
E2.22	Light microscope	<ul style="list-style-type: none"> Light microscope, Optical System: Parfocal distance 45mm Color Corrected Infinity System Optical System; Observation tube: Sieden top of 30° Binocular. Optional Trinocular with 100% binocular or 100% photo; Eyepiece: Wide field high eye point WF 10x (FN20); Nosepiece: Quadruple reversed; Coarse/Fine focusing: Coaxially positioned control knobs, coarse 42mm/rotation, fine 0.2mm/rotation. Min. increment 2µm. Coarse motion torque adjustable. Cross travel. Hard coated surface, vertical movement range is 25mm; Sub stage Illumination: 6V/30W Quartz Halogen lamp / Attachable mirror set6V/30W Quartz 	Nr	3	1	1	1	6

Item Nr	Item	Description	Unit	Qty per Institution				
		<ul style="list-style-type: none"> Halogen lamp / Attachable mirror set; 2048 x 1536-pixel resolution (Or the equivalent) 						
E2.23	Lux meter (Light)	<ul style="list-style-type: none"> Digital Lux meter/Digital Illuminance Light Meter with LCD Display 0.1-50,000 Lux Range 	Nr	4	1			5
E2.24	pH meter (soil)	<ul style="list-style-type: none"> Portable water quality measurement meter for field and lab measurements of electrical conductivity (EC), pH and total dissolved solids (TDS); water proof, with rechargeable batteries, and 2m long cable; battery life of at least 150hr of continuous use; probe with calibration check; variable conversion factor from at 0.5-0.7; automatic from 0-50°C; carrying case; instruction manual; <p>Specifications:</p> <ul style="list-style-type: none"> pH (range 0-14, resolution 0.1, accuracy ± 0.1); EC (mS/cm) (range 0-4, resolution 0.01, accuracy $\pm 2\%$); TDS (ppm, mg/L) (range 0-1999, resolution 1, accuracy $\pm 2\%$); Temp (°C) (range 0-60, resolution 0.1, accuracy ± 0.5). Voltage: 240V 	Nr	10	1			11
E2.25	Photoelectric flame photometer	<ul style="list-style-type: none"> Flame spectrophotometer, digital flame photometer Measure range: K: 0 ~ 10mmol / L, Na: 0 ~ 200mmol / L Size: 400mm *250mm *500mm 	Nr	4	1			5
E2.26	Shakers	Shakers (YDS test sieve shaker for soil; 75/100/200 mm	Nr	1	1			2
E2.27	Sieves of different mesh	<p>These economical sieves feature stainless steel mesh and steel frames.</p> <ul style="list-style-type: none"> The set of six sieves includes the following mesh sizes: 5 (4,000 micron), 10 (2,000 micron), 35 (500 micron), 60 (250 micron), 120 	Nr	2	1			3

Item Nr	Item	Description	Unit	Qty per Institution				
		(125 micron), and 230 (63 micron). • Includes lid and catch pan. Sieve Diameter: approximately 7".						
E2.28	Slides and covers	Microscope <i>Slides</i> , 100 Blank <i>Slides</i> with 100 <i>Cover Glass</i>	Set	20	10			30
E2.29	Soil auger	Hand Soil Auger Feature the sampler is made of stainless steel, without pollution to sample Pedal type, more convenient, fast, reduce the labor intensity Takes 20CM of the soil samples each time. Specifications Internal diameter: 35mm External diameter: 40mm Total length: 1m	Set	10	2			12
E2.30	Soil drying Ovens	<ul style="list-style-type: none"> Stainless Steel Soil Drying Ovens, Capacity: 0-100 Kg Maximum temperature: 300°C Voltage: 230-240V/50Hz 	Nr	5	1			6
E2.31	Soil Samplers	<ul style="list-style-type: none"> Highly useful for sampling soils. The sample collects into rings inside the sampler. Specifications: Consists of a split tube accommodating ten things brass rings 60 mm x 25.4 mm long. A shoe with hardened cutting edge is screwed at one end. A driving head with ball check valve is fitted at the other end. The flaps mounted inside the cutting shoe prevent the cohesion less soil falling down while lifting the sampler. Spares: Body consisting of split pipe threaded at both the ends and shoe. Head Assembly: Set of 10 rings 60 mm O.D. and 25.4 mm long. 	Nr	4	2			6
E2.32	Soil Test Kit	Tool box containing chemicals used for determining five soil properties (pH, K, P, SOM and N) and most commonly used to determine soil fertility	Nr	10	10			20
E2.33	Tensiometer	Standard tensiometer • Maximum measuring depth: 100 cm • Measuring accuracy: ± 2.5 hPa	Nr	20	3			23

Item Nr	Item	Description	Unit	Qty per Institution				
		<ul style="list-style-type: none"> • Measuring range: 0...850 hPa • Porous material (cups): ceramic • Reading accuracy: 2% • Registration type: manual • Volume of material needed: 20 ml • Applications: Irrigation research, Soil moisture measurements 						
E2.34	Vacuum pump - 2XZ sliding vane	<ul style="list-style-type: none"> • Direct Connected Vacuum Pump • Pumping speed L/S: 2 • Speed (r.p.m): 1400 • Motor power (kW): 037 	Nr	4	1			5
E2.35	Water Analysis kit	<ul style="list-style-type: none"> • Fresh water aquaculture test kit. • A complete outfit for pond fish culture, ideal for fresh water analysis. • Nine critical test factors can be efficiently and accurately determined on-site. • Designed with field analysis as a priority; all reagents, components and accessories are arranged in pre-drilled form. Short form instructions are provided in a handy lid label for easy access. Long form instruction booklet provides detailed instructions and test kit diagram. • Unit is supplied complete with lab ware, accessories, sampling bottle, and reagents for 50 tests of each factor 	Nr	2	1			3
E2.36	Weighing balances	<ul style="list-style-type: none"> • Digital • Readability 0.0001; • weighing capacity 250g, • weighing pan 90 mm 	Nr	18	1		2	23
E2.37	Portable soil tester	Portable For measuring Firmness	Nr	3	4			7
	Bio Lab							

Item Nr	Item	Description	Unit	Qty per Institution				
E2.38	AWETA firmness sensor	<ul style="list-style-type: none"> Determine maturity based on fruit firmness 	Nr	5	1			6
E2.39	Data logger	<p>The data logger measures and stores the relevant measured variables: temperature, relative humidity, air pressure, light as well as acceleration in three axes by means of a vibration sensor. Therefore, this data logger is ideal for monitoring vibrations on machines while simultaneously measuring and recording the relevant environmental conditions of the system.</p> <ul style="list-style-type: none"> - 3-Axis acceleration up to 800 Hz - 4 GB SD memory card - Evaluation software - Small design: 86.8 x 44.1 x 22.2 mm / 3.4 x 1.7 x 0.87 in - Temperature, Humidity, Air pressure, Vibration, and Light 	Nr	4	3			7
E2.40	Digital fruit firmness tester - penetrometer (for soft fruit)	<p>Handheld CPT penetrometer composes of:</p> <ul style="list-style-type: none"> A measuring body with 2 push handles and an accurate hydraulic reading dial (range up to 10,000 kN/m² (= 10,000 kPa), accuracy $\pm 8\%$ of FS) equipped with drag pointer 3 stainless steel sounding rods (D = 15 mm, L = 450 mm) 1 stainless steel sounding rods (D = 10 mm, L = 450 mm) with a 1 cm² conical tip 3 conical tips, i.e. a 2 cm² (D = 16 mm), a 4 cm² (D = 22 mm), and a 6 cm² (D = 28 mm) tip 3 open ended spanners Cone wear gauge to check the dimensions of the conical tips Compact aluminum carrying case Measurement data conversion chart Calibration certificate and instruction manual Supplied with extra sounding rods for testing to a depth of max. 3 meter and a hand operated auger 	Nr	4	3			7
E2.41	Electric oven (drier)	<ul style="list-style-type: none"> Thermostatic Hot Air laboratory oven minimum 72L; 1.8KW; 	Nr	2	1			3

Item Nr	Item	Description	Unit	Qty per Institution				
		<ul style="list-style-type: none"> Temperature range: R. T+20~300; CE Certified Electric Heating laboratory oven Application: Mainly used for drying, baking, heat treatment, disinfection, heat preservation, and other temperature tests, for scientific research institutions 						
E2.42	GPS	<ul style="list-style-type: none"> GPS MAP 62st; Receiver Channels: 12. GPS Antenna: High Sensitivity, Quad Helix. WAAS Capable: Yes. Acquisition Time: 0:15 - 0:45. Accuracy: ± 15m. DGPS: <3m. Waterproof Standard: IPX7. Maximum, Unit Size (HWD): 2.4" x 6.3" x 1.4". Unit Weight: 9.2 oz. Display Type: Transflective, 65K color TFT. Display Size: 1.6" x 2.2". 	Nr	10	2			12
E2.43	Hand Dynamometer Digital Sensor	<ul style="list-style-type: none"> Measures the pressing force of a gripping hand 	Nr	1	1			2
E2.44	iButton measuring sensor	<ul style="list-style-type: none"> Measuring temperature alone 	Nr	1	1			2
E2.45	Lab Minolta colorimeter (colour analyzer)	<ul style="list-style-type: none"> Determine fruit maturity based on colour 	Nr	5	2			7
E2.46	Moisture meter	<ul style="list-style-type: none"> Grain moisture meters, Range 5 to 30% water content, Sample volume-100ml, Operating temperature-0 -4 degrees Centigrade, storage-20degrees centigrade, Temperature compensation 	Nr	4	2			6
E2.47	Plastic trays for autoclave	<ul style="list-style-type: none"> To fit inside the autoclave 	Nr	5	5			10
E2.48	Pressure tester	<ul style="list-style-type: none"> For measuring Firmness 	Nr	2	1			3
E2.49	RBG camera (pigment/colour analyzer)	<ul style="list-style-type: none"> Determine fruit maturity based on colour 	Nr	2	1			3

Item Nr	Item	Description	Unit	Qty per Institution				
E2.50	Refractometer	<ul style="list-style-type: none"> Refractometer to measure the refractive index and the sugar content of fruits Multiple functions Measurement range <ul style="list-style-type: none"> Refractive index: 1,300 ... 1,700 nD Sugar content: 0 ... 95 % Resolution <ul style="list-style-type: none"> Refractive index: 0.0002 nD Sugar content: 0,25 % Accuracy <ul style="list-style-type: none"> Refractive index: 0.0002 nD Sugar content: 0,25 % Indicator: Divided scale (upper part % Brix / lower part: refractive index nD) 	Nr	5	2			7
E2.51	Refrigerator	<ul style="list-style-type: none"> Minimum Capacity: 340L (refrigerator), 82L (freezer). Temperature range: +4 to +14 (refrigerator), -200 C to -40° C (freezer). 	Nr	5	2			7
E2.52	Rotary evaporator	<ul style="list-style-type: none"> Temperature range (°C)-ambient to 180, rotation speed (min-1)-20-270, digital rotation speed setting, cooling surface (cm-2)-1200, heating capacity (W)-1300, bath minimum capacity L-4, W x D x H mm- 500x410x430, protection glass supplied with all the accessories 	Nr	3	1			4
E2.53	Seed counter	<ul style="list-style-type: none"> Count seed from 1mm-15mm; Counts maximum up to 9999 Grains in a batch; Power consumption 220-240V, operation speed 50 cycles 	Nr	3	1			4
E2.54	Spectrophotometer (colour analyzer)	<ul style="list-style-type: none"> Flame spectrophotometer, Operating conditions: Temperature +10°C to +35°C; 	Nr	3	1			4

Item Nr	Item	Description	Unit	Qty per Institution				
		<ul style="list-style-type: none"> Humidity 85% Max. @+35°C; Operating range: Displayed for all elements: 0-1999; Specificity: Na, K & Li Interference is <0.5% value of element under analysis. Reproducibility: <1.5%* CV for 10ppm K set to 1000. (20 aliquots sampled for 20 seconds each from a single sample) Reading taken 20 seconds after introduction and with a Blank aspirated for 10 seconds between each standard reading. <1.0%* CV for 20 consecutive readings taken at 20 second intervals without removing the uptake tube from a 10ppm Potassium solution set to 1000. Aspiration rate: 3-6 ml/min; Speed of Analysis: Time to stability 20 seconds; Data output: Analogue: Voltage 0.20 Volts Accessories: PSU Multi Plug Adapter 12Vdc; Nylon reinforced hose; Hose - gas 6.3 mm i/d; Tubing clip; Tube, Drain; Atomiser St. complete; Nebulizer inlet tubing 150mm (1 pack of 3); 1 Nebulizer cleaning wire, 170mm; 2m Solution, 1000ppm Sodium Std (1 x 100ml); 2m Solution, 1000ppm Potassium Std (1 x 100ml); 4 Solution, 1000ppm Calcium Std (1 x 100ml); 1m Solution, 1000ppm Lithium Std (1 x 100ml); 1 Solution, 1000ppm Barium Std (1 x 100ml); 1 Manual, operator. 						
E2.55	Ultrasonic fruit cleaner	<ul style="list-style-type: none"> Voltage: 220~240V, 50Hz Ultrasonic consume power: ≤50W Capacity: 12.8L Tank size(mm): 340×310×150 (L×W×H) Overall size(mm): 415×375×230 (L×W×H) Setting: Digital display 	Nr	5	1			6
	General Laboratory							
E2.56	Ashing furnace	<ul style="list-style-type: none"> Ashing furnace is designed specifically to provide optimum ashing conditions to ensure complete combustion samples. 	Nr	2	1			3

Item Nr	Item	Description	Unit	Qty per Institution				
		<ul style="list-style-type: none"> • Ideal for ashing foods, plastics, coal & other hydrocarbon materials • Max temp (°C): 1100 • Max continuous operating temp (°C): 1000 • Dimensions: External H x W x D (mm): 820 x 690 x 730 • Volume (litres): 32 • Max power (W): 9000 • Carbolite single ramp to set point & process timer • Two tier rack system doubling the sample capacity • With sample trays and loading handle allows for large number of samples • Preheating of air before it enters the chamber • Protection of the elements from carbon build-up or corrosive atmosphere, using silicon carbide tiles • 2-sided heating 						
E2.57	Atomic absorption spectrophotometer	<p>Fully automatic Atomic absorption spectrometer using WinLab 32 software.</p> <p>Specifications:</p> <p>Hardware</p> <p>System Double beam optical system</p> <p>Wavelength 189-900nm</p> <p>Detector High efficiency segmented solid state detector</p> <p>Light source Electrode discharge lamps (EDL)</p> <p>Flame gas Fully automated gas box</p> <p>Control Software – actuated ignition with air/acetylene.</p> <p>Sample area 25cmwidex25cm cm deep sample compartment</p> <p>Power 220-240V/50Hz</p> <p>Dimensions 70x65x65cm (Wxdxh)</p> <p>Accessories Auto sampler for instrument calibration</p> <p>Mercury /hydride system</p>	Nr	1	1			2

Item Nr	Item	Description	Unit	Qty per Institution				
		Auto Prep 50 sample- dilution system						
E2.58	Bench top centrifuge with various heads	<ul style="list-style-type: none"> High-quality materials cooking food thermometer with four probes Temperature range: -20°C to +250°C Description: industrial oven thermometer Size: 102.5 * 66 * 25MM Power supply: 2*AAA 	Nr	2	1			3
E2.59	Deionized water unit	<ul style="list-style-type: none"> Output (250C) 12Lts/Hour minimum, Flow rate (with pressure tank) greater than 1.5Lts/minute, Resistivity of ultra-pure water (250C) 18.2MΩ.cm, TOC 3ppb, Endotoxin Less than 0.001 Eu/ml, Bacteria less than 1cFU.ml, Particle (less than 0.1µm) Less than 1/ml, Conductivity of 2 stage RO water 1 - 5µS/cm, Feed water requirement tap water 	Nr	1	1			2
E2.60	Digital microbiological incubator	<ul style="list-style-type: none"> Digital Microbiological with 4 shelves, three shelves are removable, 240/50hzV, capacity 73 liters, internal dimensions = 400x480x380mm, temp range 5 to 100oC, fluctuation ±0.25oC at 38oC 	Nr	2	1			3
E2.61	Homogenizer with blade	<ul style="list-style-type: none"> General purpose 1000-watt unit with electronically stabilized speed control, 4,000 to 33,000rpm for volumes of 0.2ml to 3 litres, with LCD speed display, 250v, 50-60Hz 	Nr	1	1			2
E2.62	Hot air oven	<ul style="list-style-type: none"> Temperature range: +30°C to +220°C, Volume 256litres. Dust-free high temperature oven dustless thermal vacuum oven Efficiency & energy-saver. LCD touch screen, easy operation. 	Nr	2	1			3

Item Nr	Item	Description	Unit	Qty per Institution				
		<ul style="list-style-type: none"> • CE approved & quality assured. • Inner chamber size W*H*D (mm), 450*400*400. Exterior chamber size W*H*D (mm), 870*1200*550. • Power supply;3 phase 380V 60/50Hz • Room temperature +10°C to +200°C(300°C) 						
E2.63	Kjeldahl digestion system	<ul style="list-style-type: none"> • Distilling Unit, 200-240 V 50-60 Hz, • Built-in steam generator, • Complete with alkali/water/receiver/waste tanks with level sensors, receiver flask, drip tray for receiver flask, • adapters for 100- & 250-ml tubes and test tubes for 100 & 250 ml 	Nr	2	1			3
E2.64	Laminar flow chamber	<ul style="list-style-type: none"> • HEPA (Or the equivalent) filtered air to remove 99.99% of particles larger than 0.3µm; • should meet or exceed the Class 100 Clean Standard 209D; • maintain a flow of 90 fpm +/- 20% at static pressures of 0.6-1.2" 	Nr	1	1			2
E2.65	Microscope – Video/Camera	<ul style="list-style-type: none"> • Video System 1Z – Zoom, Camera, Flat Screen, • Zoom Magnification from 6.5x to 45 	Nr	2	1			3
E2.66	Microscopes	<ul style="list-style-type: none"> • Eyepiece: WF10X Objective: 45mm achromatic • objective:4X,10X,40X(S),100X (S, Oil) • Viewing head: Compensation free binocular head at 30°,360° rotatable Stage: • Double layers mechanical stage 140X140mm/75X50mm • Diaphragm: 2-30mm Iris diaphragm and filter Focusing: Coaxial coarse and fine adjustment, • focusing range 30mm, focusing interval 0.002mm • Condenser:1.25 with Iris diaphragm &filter illumination: • Built-in illumination, halogen lamp110V or 220-240V/6V20W • Supplied with Plan achromatic objectives, Quintuple Nosepiece, Plane-concave mirror, Turret Annular Phase Contrast Kit 	Nr	44	2			46
	Crop Machinery							
E2.67	Mould board plough	<ul style="list-style-type: none"> • Mould board plough, 2 Furrow 	Nr	2	1			3

Item Nr	Item	Description	Unit	Qty per Institution				
		<ul style="list-style-type: none"> Power required; 40-60hp 						
E2.68	Water tank reservoir (50,000 litres) with pumping system	<ul style="list-style-type: none"> Water tank reservoir 50,000ltrs Capacity With 10HP pumping system 	Nr	3	1			4
E2.69	Adjustable pole-mounted cut and hold picking shears:	<ul style="list-style-type: none"> Adjustable pole mounted cut and hold picking shears: 	Nr	10	10			20
E2.70	Automated portable refrigerant machine	Compact, portable device for recovery of halogenated refrigerants of every kind Key Features <ul style="list-style-type: none"> Maintenance free operation with the oil-free 2-piston compressor 4-pole motor guarantees the durability of the machine Automatic shut-off after the evacuation process is finished Low-noise and vibration emission thanks to the compact design Intuitive handling makes it simple and safe to use Emptying of the device in order to work with different refrigerants with the PURGE function Simple transport and use with the light and compact plastic casing 	Nr	2	4			6
E2.71	Clipper for citrus fruits:	<ul style="list-style-type: none"> Citrus Fruit Clippers with Strap, Forged Stainless Steel, 5-Inch Long 	Nr	10	10			20
E2.72	Coffee pulpers	<ul style="list-style-type: none"> Type: Peeling machine Voltage: 24/415V 50Hz Press materials: to peel coffee beans 	Nr	5	1			6
E2.73	Cut and hold hand shears:	<ul style="list-style-type: none"> Heavy duty Pruning cut and hold 	Nr	2	2			4
E2.74	Defoliator	<ul style="list-style-type: none"> Tool for removing leaves from a root crop Manual operation 	Nr	5	5			10
E2.75	Dehuller for beans, soya and cowpeas	<ul style="list-style-type: none"> Production Capacity: 400-600kg/h Power (W): 4.5kw Weight: 250Kg 	Nr	10	1			11
E2.76	Dynamometer (Hard)	<ul style="list-style-type: none"> Digital Hand Dynamometer Grip Strength Measurement Meter 	Nr	2	2			4

Item Nr	Item	Description	Unit	Qty per Institution				
		<ul style="list-style-type: none"> Auto Capturing Hand Grip Power 200 Lbs / 90 Kgs Supplied in case 						
E2.77	F- clamps	<ul style="list-style-type: none"> Laminated Steel, Ribbed for extra strength and durability, Powder Coated, Screw and Lever Zinc Plated to prevent rust. 50X200mm 	Nr	5	2			7
E2.78	Foldable collapsible plastic crates for vegetables.	<ul style="list-style-type: none"> Foldable collapsible plastic crates for transportation of vegetables. 	Nr	10	10			20
E2.79	Fruit harvesting ladders	<ul style="list-style-type: none"> Silver Color Cold Rolled Aluminium 5 Step Ladder 	Nr	5	4			9
E2.80	Fruit squeezer	<ul style="list-style-type: none"> Output: 20 fruits per minute Capable of squeezing 20 to 30 oranges ranging from dia. 40-90Mm) lemons or limes per minute. Wide commercial applications used in groggery, restaurant, hotels, supermarkets, shopping mall, fruit shops, schools and canteens 	pkt	1	1			2
E2.81	Fruit protective bags	<ul style="list-style-type: none"> Fruit Protection Cover Bag Easy to carry Recyclable Usage: For protecting fruits Widely used in farm houses, agriculture land, etc. Each pack contains 1000pcs 	pkt	1	1			2
E2.82	Fruit protective nets	<ul style="list-style-type: none"> 18 Inch 200mm Fruit Net / Foam Net Used for packing fruits and other purposes. Each pack contains 1000pcs 	Nr	1	1			2
E2.83	Fungicide applicator	<ul style="list-style-type: none"> Manual Capacity 5ltrs 	Nr	2	2			4
E2.84	Furrow openers	<ul style="list-style-type: none"> Furrow Opener for Agricultural work Width 15 to 18 inches Depth 10 to 12 inches Finishing: Polished 	Nr	5	3			8

Item Nr	Item	Description	Unit	Qty per Institution				
E2.85	G /nut butter maker using grinding stone made of stainless materials	<ul style="list-style-type: none"> Cap 100kg/hr using engine of 7.5hp 	Nr	1	1			2
E2.86	G-clamp	<ul style="list-style-type: none"> 2 Inch Drop Forged Steel G Clamp 	Nr	2	2			4
E2.87	Ground nuts stripper	<ul style="list-style-type: none"> Capacity 80kg-100kg/hr 	Nr	1	1			2
E2.88	Groundnut Sheller Manual	<ul style="list-style-type: none"> Cap 300-500kg/hr driven by Engine 7.5 HP Diesel type or motor. 	Nr	1	1			2
E2.89	Groundnut Sheller Powered	<ul style="list-style-type: none"> 6Bh-600, 800kg/hr, petrol engine 5.5hp 	Nr	1	1			2
E2.90	Hand woven collection bag (Fruits)	<ul style="list-style-type: none"> Hand woven collection bag (Fruits) 	Nr	5	5			10
E2.91	Hand-Pulled movable carts with a rack for boxes for field packing of fruits.	<ul style="list-style-type: none"> Hand-Pulled movable carts with a rack for boxes for field packing of fruits. 	pkt	2	2			4
E2.92	Irrigation set equipment (water pump, rain guns, sprinklers, drip lines,	Complete set consisting of: <ul style="list-style-type: none"> Water pump Rain gun Sprinkler Drip line 80BP-65-260, 150m diesel pump 	Nr	3	2			5
E2.93	Maize cob grinder	<ul style="list-style-type: none"> grinding maize cobs for animal feeds Cap 500kg/hr. with diesel Eng. 	Nr	1	1			2
E2.94	Maize dehusker -cum Sheller	<ul style="list-style-type: none"> Maize debunker -cum Sheller 	Nr	2	1			3
E2.95	Maize Sheller with engine	<ul style="list-style-type: none"> No. 80, Engine 7hp 	Nr	2	1			3
E2.96	Manual lettuce drier with lid	<ul style="list-style-type: none"> Manual Lettuce Dryer <i>with Crank Handle & Locking Lid</i> Capacity; 5 gallons minimum 	Nr	5	4			9
E2.97	Mist blower	<ul style="list-style-type: none"> Powerful mist blower with comfortable shoulder straps. Standard with cone, deflection and double deflection mesh. Container capacity: 13Liters min. Max. horizontal range: 12meters 	Nr	2	1			3
E2.98	Motorized weeder	<ul style="list-style-type: none"> Motorized Weeder / Brush Cutter 	Nr	3	2			5

Item Nr	Item	Description	Unit	Qty per Institution				
		<ul style="list-style-type: none"> For weeding of crops in rows 139F or GX35 4-strokes Gasoline Engine 37CM Wide Metal Weeder Brass turbine worm 						
E2.99	Motorized saw pruners	<ul style="list-style-type: none"> Long-Reach Pole Pruner for pruning, trimming and cutting high branches in commercial applications. Branches up to a height of approximately 5 m can be cut. 	Nr	1	1			2
E2.100	Multi crop thresher IRRI type	<ul style="list-style-type: none"> Threshing Capacity: 1000-1500 Kg/hr 	Nr	1	2			3
E2.101	Ox -drawn planter	<ul style="list-style-type: none"> Single row planter drawn by oxen. The planter is supplied with a seed hopper and a fertilizer attachment. With 2 seed plates supplied as standard, with options for additional plates 		2	1			3
E2.102	Ox-cart	<ul style="list-style-type: none"> Used specifically for transportation of farm products Cabin made of steel, with 2 wheels and 2pulling handles (to be drawn by one ox) Dimension of cabin approx. 4 ft. x5 ft. x 3 ft. high. 		1	1			2
E2.103	Ox-drawn weeders	<ul style="list-style-type: none"> Consisting of 2 pairs of rotary hoes clamped on a tool bar drawn by an ox. 		2	1			3
E2.104	Paddy winnower	<ul style="list-style-type: none"> Paddy Winnower, Capacity: 2 Semiautomatic Material: Mild steel 		1	1			2
E2.105	Pineapples cover peeler	<ul style="list-style-type: none"> Pineapple Peeler Corer - Manual, 3.5" Blade, Pusher, Stainless Steel 	Nr	3	2			5
E2.106	Potato peeler/ Carrot peeler	<ul style="list-style-type: none"> Capacity: 240kg/h Material type: Stainless steel Power rating: 1.1kW 	Nr	3	2			5
E2.107	Secateurs	<ul style="list-style-type: none"> Used for pruning crops 	Nr	10	5			15
E2.108	Seed cleaner/grader	<ul style="list-style-type: none"> Cap 1.5tonne/hr 800kg/hr of maize, beans etc. 	pkt	1	1			2
E2.109	Solar panel micro-cool chambers	<ul style="list-style-type: none"> 21 metric cube storage capacity, Portable Solar Powered 	Nr	3	2			5

Item Nr	Item	Description	Unit	Qty per Institution				
		<ul style="list-style-type: none"> Grid & DG hybridization 4 to 10 degree Celsius, 80% -95% RH Battery Less –Thermal Storage Technology Remote monitoring & Predictive Diagnostic 						
E2.110	Storage cartons or bins	<ul style="list-style-type: none"> Cap 1.5tonne/hr 800kg/hr of maize, beans etc. 	Nr	5	5			10
LOT 3: LIVESTOCK PRODUCTION AND MANAGEMENT EQUIPMENT			Unit	BAC	RFI	KTI	SFI	TOT.
	Poultry equipment							
E3.01	3 tier battery cages	<ul style="list-style-type: none"> Poultry farm hens breeding laying equipment system Use: Chicken Type: Layer Cage 3 tier Material: Galvanized Wire Surface treatment: Electric galvanized Hot dipped galvanized Accessories: Nipple, feeder, pipe, medication tanks Capacity: 200 Chicken One Set Application: Commercial Chicken Farm	Nr	2			2	4
E3.02	Bird feeding syringe with spoon	<ul style="list-style-type: none"> 10 ml plastic perplex 	Nr	5			1	6
E3.03	Card board egg cartons	For storage of eggs that are for sale	Nr	2000			1	2001
E3.04	Cross manure conveyor	<ul style="list-style-type: none"> For collecting manure from cage and transporting it out of barn Sealed at exterior wall where it exits unit Slope: 2% Main material: Steel slats Width: 0.8m Motor: 3kW/380V/50Hz	Nr	1				1
E3.05	Desk	<ul style="list-style-type: none"> Office desk Material: wood Dimensions: 1400W*600D*750H MM	Nr	1			1	2

Item Nr	Item	Description	Unit	Qty per Institution				
E3.06	Digital RH temp meter	For recording readings in each barn	Nr	3			3	6
E3.07	Dissection scissors	<i>Dissecting Scissors</i> , 10 cm (4 in.) Long. Straight. Stainless steel.	Nr	10			10	20
E3.08	Electric debeaker	<ul style="list-style-type: none"> To remove beak for chick protection / safety 200 chicks per hour	Nr	6			2	8
E3.09	Electric pressure washer	<ul style="list-style-type: none"> To wash and sanitize barns 1800 to 2400 psi with soap pick up	Nr	2			1	3
E3.10	Feed bin	<ul style="list-style-type: none"> Store bird feed 1 ton galvanized, upright, hopper bottom with shut off	Nr	1			1	2
E3.11	Feed cart	<ul style="list-style-type: none"> To move feed in the barn if needed 100 to 200 kg - 1 for each barn	Nr	2			1	3
E3.12	Feed line with feeder pans	<ul style="list-style-type: none"> Supplies feed in barn to birds 1 line that runs the full length of barn	Nr	1			1	2
E3.13	Feed mixer	<ul style="list-style-type: none"> Processing chicken feeds 1 tonne per hour	Nr	2			1	3
E3.14	File cabinet	<ul style="list-style-type: none"> 3-Drawer Vertical File Accommodates letter-size hanging files Lock secures top two drawers Three-quarter drawer extension	Nr	1			1	2
E3.15	Flex auger	<ul style="list-style-type: none"> Deliver feed to feed hoppers Hooked in tandem to 2 feed tanks Heat resistant Power/Voltage: 1.1kW220V-415V Conveyor distance: At least 30m Max. Length: 200ft Feed delivery rate: 20kg/min Outside diameter of tube: 75mm Corner radius: 5ft	Nr	1				1
E3.16	Fridge	<ul style="list-style-type: none"> To store dead birds and samples Minimum Capacity 145 litres, defrost – automatic, temperature range +2 to +8 0C, shelves 3/1, external minimum dimensions (wxdxh) 558 x 600 x 863 mm, power supply 220- 240v/50 Hz	Nr	2			2	4
E3.17	Gas Brooders	<ul style="list-style-type: none"> To provide heat to young birds 	Nr	2			1	3

Item Nr	Item	Description	Unit	Qty per Institution				
		<ul style="list-style-type: none"> Infrared heat emitting bulb Dimensions: 320*270*130mm Ceramic Plate of 188*135mm Gas type: NG/Biogas/LPG Gas output (kcal/h): 2116 Gas consumption- NG(m3/h): 0.24; Biogas: 0.5; LPG (Kg/h): 0.18 						
E3.18	Incubator	<ul style="list-style-type: none"> To warm eggs For 2000 eggs	Nr	1			1	2
E3.19	Individual tube feeders	<ul style="list-style-type: none"> Manual way to have feed present for birds Manual back up feeding system	Nr	25				25
E3.20	Lab bench with sink	<ul style="list-style-type: none"> Stainless steel laboratory bench with sink 600x750x900mm	Nr	3				3
E3.21	Manual debeaker	<ul style="list-style-type: none"> To remove beak for chicken's protection / safety Pocket-sized instrument incorporated with a stainless-steel blade which is heated at low voltage to ensure perfect cauterization	Nr	20			8	28
E3.22	Moisture meter	<ul style="list-style-type: none"> To measure moisture level Grain moisture tester, maximum weight: 1000g; moisture range: 5 to 45% water content; temperature range 32 to 122 ° F 	Nr	3	4		1	8
E3.23	Nipple drinkers	<ul style="list-style-type: none"> To provide access of water to birds 2 lines that run the full length of the barn	Nr	2			2	4
E3.24	Overalls	Navy blue overalls with elasticated waist, pockets and press-stud front fastening. 65% polyester, 35% cotton	Nr	25			20	45
E3.25	Phillips automatic vaccinator	5 ml Luer fitting complete with leather waist-band and harness for bottle, tubing, holster for vaccinator, and 'Philcox' syphon outfit to fit any size vaccine bottle	Nr	15			15	30
E3.26	Plastic egg flats	<ul style="list-style-type: none"> For collecting eggs from barn Capacity; 30 eggs Plastic Dimensions: 29*29*5 Packing size: 29*29*33	Nr	100			100	200
E3.27	Refrigeration unit	<ul style="list-style-type: none"> Cool egg storage Cool room: 12 degrees Celsius	Nr	1			1	2

Item Nr	Item	Description	Unit	Qty per Institution				
E3.28	Scales	<ul style="list-style-type: none"> For labs and weighing birds 1-gram increments, with 30 kg capacity 	Nr	1			1	2
E3.29	Hand model debeaked	Pocket-sized instrument incorporated with a stainless-steel blade which is heated at low voltage to ensure perfect cauterization.		6			2	8
E3.30	Incubator	<ul style="list-style-type: none"> Fully Digital Temperature Control Load and Hatch up to 500 chicks per week Separate Incubation & Hatching compartments Largest Combination Incubator and Hatcher in our range Plastic Chicken Egg Trays & Hatching Crates Included Auto Humidity System Included 		1			1	2
	Piggery equipment							
E3.31	Ad-Lib feeder	<ul style="list-style-type: none"> To be used in fattening pens Capacity-1.5 Tonne approx. Double-Sided Dim 10ft Long X 3.5ft <p>With storage hopper and several feeding places</p>	Nr	3			1	4
E3.32	Automatic drencher – plastic	<ul style="list-style-type: none"> Administration of oral anti helminthics; 30mls 	Nr	5			2	7
E3.33	Digital thermometer	For measuring body temperature for pigs	Nr	10			10	20
E3.34	Drinking bowls and nipples	Drinking bowls and nipples	set	12			6	18
E3.35	Drum – plastic	<ul style="list-style-type: none"> Mixing indigenous microorganisms (IMO) solutions 200 Ltrs capacity with cover 	Nr	2			1	3
E3.36	Dry and pregnant sow pens	<ul style="list-style-type: none"> For keeping dry and pregnant sows 3 x 3 m 	Nr	5			5	10
E3.37	Ear notcher	For applying notches on ears	Nr	3			3	6
E3.38	Farrowing crate	<ul style="list-style-type: none"> Designed specifically for sows to feed and nurture piglets. It can effectively prevent sows from accidentally stepping on piglets. Provides a cooler area for the sow and warmer areas for the young pigs. The flooring is designed to keep the pigs dry which reduces the spread of enteric diseases. 	Nr	3			1	4

Item Nr	Item	Description	Unit	Qty per Institution				
		<ul style="list-style-type: none"> Farrowing crate mainly includes the galvanized metal fence, stainless steel trough, sow and pig drinker, metal and plastic flooring, insulation lamp, insulation cover and other components. Farrowing Crate Technical Data <ul style="list-style-type: none"> Dimensions: approx. 2.4x3.6mm Sow crate: Galvanized steel pipe, stainless steel accessories Sow area floor: Galvanized steel bar weld floor/Casting iron floor Piglet area: Anti-skid plastic slat floor Warming method: Open warming cover with light/Close warming box with light Feeding trough: Sow stainless feeder and small feed pan for piglet`						
E3.39	Feed bin	<ul style="list-style-type: none"> For Feed storage 2 ton galvanized, upright, hopper bottom with shut off	Nr	1			1	2
E3.40	Pig artificial insemination (AI) equipment	<ul style="list-style-type: none"> Insemination of pigs to improve the breeds Includes catheters, and other accessories	Nr	3			3	6
E3.41	Tattoo pliers	For applying tattoos on animals for identification	Nr	2			2	4
E3.42	Tooth cutting forceps	<ul style="list-style-type: none"> Trimming canine teeth Plated	Nr	5			5	10
E3.43	Warming blankets	For warming piglets	Nr	5			5	10
	Animal Production Equipment							
E3.44	Branding iron	<ul style="list-style-type: none"> For branding/identification of animals Any letter(s) or number(s) can be attached to the handle <ul style="list-style-type: none"> 4 sets of Numbers (0-9) and 4 sets of letters (A-Z) 	Nr	15			5	20
E3.45	Briquette machine	High quality pinikay briquette charcoal machine	Nr	2				2
E3.46	Burdizzo castrator	<ul style="list-style-type: none"> For castrating animals 305 mm, medium with cord stops. It has short handles	Nr	10			1	11
E3.47	Burdizzo castrator	<ul style="list-style-type: none"> For castrating animals 405 mm, large size with cord stops	Nr	10			1	11
E3.48	Carboniser	<ul style="list-style-type: none"> Charcoal furnace machine Capacity (kg/h): 500Kg	Nr	1				1

Item Nr	Item	Description	Unit	Qty per Institution				
		<ul style="list-style-type: none"> Time of carbonisation: 7 hours 						
E3.49	Crushing machine	Small corn and straw crusher/stalk crushing machine	Nr	1				1
E3.50	Dissecting set	<ul style="list-style-type: none"> Containing: 3 metal scalpels, 2 needles, 1 seeker, 1 section lifter, 1 blowpipe, nickel plated, 1 pair of blunt forceps 125 mm, 1 pair of sharp forceps 125 mm, 1 pair of sharp scissors, 1 pair of blunt scissors, 1 surgical blade, all in khaki canvas roll. 	Nr	1				1
E3.51	Forage chopper	Cap 350kg/hr motorized, Powered by engine of 5 Hp 800-1000kg/hr	Nr	2			1	3
E3.52	Heavy duty glass and metal syringe	<ul style="list-style-type: none"> Heavy duty syringe 20 ml. Luer lock fitting, spare barrel. 	Nr	30			30	60
E3.53	Hog snare (Pig catcher)	Wire noose with short canula	Nr	5			2	7
E3.54	Hoof cutter (trimmer)	Compound joint, very powerful	Nr	6			5	11
E3.55	Hoof knife	For trimming animal hoofs	Nr	10			2	12
E3.56	Meat inspection kit	It comprises of the following: 1 knife sheath, metal container for 6 knives, 1 chain (belt-plastic) for the sheath, butcher's steel, pair of black rubber gloves, 1 overall, white cotton drill, white peaked cap, 1 pair waterproof plastic Wellingtons green	Nr	10			2	12
E3.57	Muto multidose syringe (Automatic syringe)	30 cc with screw-on nozzle, with rubber plunger, with record adapter, 2 screw –on needles, rubber tubing fitted with 2 adapters and spare barrel. Dosages 1,2,3,4 and 5 cc. complete in wooden box.	Nr	10			5	15
E3.58	Teat dips	To disinfect cow teats	Nr	10			5	15
E3.59	Weighing scale	<ul style="list-style-type: none"> Hanging type Manual 100Kg Capacity 	Nr	2			1	3
E3.60	Weighing scale	<ul style="list-style-type: none"> Trolley Weighing Scale. 20,00,000 Internal Resolution Full Digital Calibration 20 mm Super Bright LED Display Built-in Battery Backup Modular Design Compact and easy to install Trolley Scale: 300Kg x 20/50gm 	Nr	2			1	3

Item Nr	Item	Description	Unit	Qty per Institution				
		Platform size: 450x750mm						
E3.61	Surgical equipment	<ul style="list-style-type: none"> Containing: 3 metal scalpels, 2 needles, 1 seeker, 1 section lifter, 1 blowpipe, nickel plated, 1 pair of blunt forceps 125 mm, 1 pair of sharp forceps 125 mm, 1 pair of sharp scissors, 1 pair of blunt scissors, 1 surgical blade, All in khaki canvas roll. 	Nr				1	1
	Diary Production equipment							
E3.62	A.I equipment	<ul style="list-style-type: none"> For inseminating cows / heifers in heat Includes: the jacket, collecting tube, AI gun, sheath, cervical dilator, semen straws	set	5			2	7
E3.63	A.I containers	<ul style="list-style-type: none"> To preserve semen 1-liter capacity	Nr	1			1	2
E3.64	A.I containers	<ul style="list-style-type: none"> To preserve semen 6-liter capacity	Nr	1			1	2
E3.65	A.I containers	<ul style="list-style-type: none"> To preserve semen 20-liter capacity	Nr	1			1	2
E3.66	A.I Guns	<ul style="list-style-type: none"> For artificial insemination of cows 0.25 ml	Nr	10			5	15
E3.67	A.I Vagina	<ul style="list-style-type: none"> For semen collection 25 cm	Nr	5			5	10
E3.68	Air compressor	<ul style="list-style-type: none"> Provide vacuum to operate milkers 3HP Air Compressor. Input Voltage: 220-240V/50Hz. Tank Capacity: 150Liters Pressure: 8Bar Capacity: 336Liters/min Speed 110 rpm	Nr	1			1	2
E3.69	Air lines	To get vacuum to milkers	Nr	4			4	8
E3.70	Automatic syringes (30ml)	<ul style="list-style-type: none"> To administer liquid syringes 30 ml To Revolve Roux syringe (France) or equivalent	Nr	15			15	30
E3.71	Automatic syringes (50ml)	<ul style="list-style-type: none"> To administer liquid syringes 		15			15	30

Item Nr	Item	Description	Unit	Qty per Institution				
		<ul style="list-style-type: none"> • 50 ml • To Revolve Roux syringe (France) or equivalent 						
E3.72	Baler	<ul style="list-style-type: none"> • To make hay bales for pasture preservation Mini straw hay grass - Star mini round baler	Nr	5			1	6
E3.73	Balling gun	<ul style="list-style-type: none"> • Administering oral boluses and ruminal magnets Metal head; contains space for holding the magnet	Nr	10			4	14
E3.74	Bull holder	<ul style="list-style-type: none"> • To restrain bulls Tong pattern, 203 mm	Nr	10			2	12
E3.75	Bull nose ring	<ul style="list-style-type: none"> • To restrain bulls Brass 1/2" and 3"	Nr	10			3	13
E3.76	Bull rings	<ul style="list-style-type: none"> • To restrain bulls • 55 mm stainless steel 	Nr	15			4	19
E3.77	Bull rings	<ul style="list-style-type: none"> • To restrain bulls • 65 mm copper 	Nr	15			4	19
E3.78	Burdizzo castrator	<ul style="list-style-type: none"> • For castration • Small 9" 	Nr	5			2	7
E3.79	Burdizzo castrator	<ul style="list-style-type: none"> • For castration • Medium 12" 	Nr	5			2	7
E3.80	Burdizzo castrator	<ul style="list-style-type: none"> • For castration • Medium 14" 	Nr	5			1	6
E3.81	Burdizzo castrator	<ul style="list-style-type: none"> • For castration • Medium 16" 	Nr	5			1	6
E3.82	Burdizzo castrator	<ul style="list-style-type: none"> • For castration • Large 18" 	Nr	10			1	11
E3.83	Butter churn – electric	<ul style="list-style-type: none"> • For primary processing of milk into butter (Mini processing) • 3.44 litres 	Nr	5			1	6
E3.84	Butter churn – hand operated	<ul style="list-style-type: none"> • For primary processing of milk into butter (mini processing) • 3 litres 	Nr	5			2	7
E3.85	Butyrometers	<ul style="list-style-type: none"> • Measuring device for the fat determining content in milk. 	Nr	10			4	14

Item Nr	Item	Description	Unit	Qty per Institution				
		Made of borosilicate glass, plain neck or ring neck, closed bulb with a frosted label, without stopper						
E3.86	California Mastitis Test (CMT)	<ul style="list-style-type: none"> To test for mastitis CMT reagent and paddle 	Nr	10			1	11
E3.87	Cream separator	<ul style="list-style-type: none"> For primary processing of milk into butter (mini processing) electrically driven, capacity of 225 litres per hour 	Nr	5			1	6
E3.88	Dehorning iron	<ul style="list-style-type: none"> Trim cattle horns Copper	Nr	5			2	7
E3.89	Dehorning wire	<ul style="list-style-type: none"> For dehorning cattle Pack of 10 m 	Nr	5			3	8
E3.90	Dehorning wire	<ul style="list-style-type: none"> Trim cattle horns Dehorning wire saw 12 m 	Nr	5			3	8
E3.91	Drenching gun	<ul style="list-style-type: none"> Administer fluid oral medication to animals Non-automatic, 60 ml 	Nr	10			4	14
E3.92	Drenching gun	<ul style="list-style-type: none"> Administer fluid oral medication to animals Automatic, metal, 30 ml 	Nr	10			2	12
E3.93	Drum	<ul style="list-style-type: none"> For water collection and storage Plastic drum, 50 Ltrs capacity with cover 	Nr	5			2	7
E3.94	Ear marking pliers	<ul style="list-style-type: none"> To identify animals 16 cm 	Nr	30			3	33
E3.95	Ear muffs	<ul style="list-style-type: none"> To protect personnel from noise Loggers caps; 25dB NRR CU30R, medium muffs, ratchet suspension 	Nr	5			2	7
E3.96	Ear tag applicator	<ul style="list-style-type: none"> Applying ear tags for identification It has 2 sides where the female and male tags are fixed	Nr	10			4	14
E3.97	Elastrator	Cattle Castration applicator	Nr	5			3	8
E3.98	Elastrator rings	<ul style="list-style-type: none"> Elastrator rings Boxes of 100 	Nr	2			2	4
E3.99	Electric dehorner	<ul style="list-style-type: none"> For dehorning cattle 200W x 220V gun type 	Nr	5			2	7
E3.100	Electric ejaculator	<ul style="list-style-type: none"> For semen collection Volume - 5 ml (range 1-15 ml) 	Nr	1			1	2

Item Nr	Item	Description	Unit	Qty per Institution				
E3.101	Eye wash system	<ul style="list-style-type: none"> For eye first aid Faucet - mounted; attaches to any standard faucet yet still allows normal sink use, including touch-free faucets; simply pull the easily accessible knob to activate; water pressure keeps eye wash on until knob is pushed back in; comes with threaded adapters 	set	1			1	2
E3.102	First aid kit – basic	<ul style="list-style-type: none"> For personnel first aid Basic kit Includes: disposable CPR MICROSHIELD®, a pair of vinyl gloves, spool tape (1/2" x 5 yards), a pair of scissors, forceps, a cold pack, four Tylenol® tablets, triangular bandage, six antiseptic wipes, five insect sting wipes, Foille® ointment (.5-oz. tube), ammonia inhalant, 16 adhesive bandages (1" x 3"), combine dressing (5" x 9"), three sterile dressing pads (3" x 3"), two extra-large adhesive bandages and a first aid manual. Durable nylon fanny pack (fits up to 52" waist) has a quick-release latch for easy removal. Pouch is 5"H x 4-1/2"W x 9"L 	set	1			1	2
E3.103	First aid kits - high risk	<ul style="list-style-type: none"> For personnel first aid Statutory high risk large industrial ABS kit for 21 to 50 persons <p>Must contain at least the following:</p> <ul style="list-style-type: none"> First aid guidance leaflet 1 No Sterile wash proof plasters (L) 60No Sterile wash proof plasters (M) 6No Sterile wash proof plasters (S)10No Safety pins 12no Sterile dressings with pad (Med) 12No Sterile dressings with pad (Large) 6No Moist wipes 20no Moist wipes <p>Wall Mounted First Aid Kit for 50 people, at least 295 mm x 350mm x 117 mm</p>	set	2			2	4
E3.104	Heat detectors	<ul style="list-style-type: none"> For estrus detection Kamar chin ball markers 	Nr	2			2	4
E3.105	Hoof cutter	<ul style="list-style-type: none"> To control hoof overgrowth 	Nr	5			2	7

Item Nr	Item	Description	Unit	Qty per Institution				
		<ul style="list-style-type: none"> Left hand hoof knife 						
E3.106	Hoof cutter	<ul style="list-style-type: none"> To control hoof overgrowth Right hand hoof knife 	Nr	5			2	7
E3.107	Hoof cutter (trimmer)	<ul style="list-style-type: none"> To trim overgrown hooves Compound joint, very powerful 	Nr	5			2	7
E3.108	Milk bulk tank with cooling unit	<ul style="list-style-type: none"> To hold and store milk Chilling time; at least 4 hrs. Material: Stainless steel Power: 220-240V/50Hz Refrigerant: R22 Capacity: at least 400 ltrs 	Nr	1			1	2
E3.109	Milk cans	<ul style="list-style-type: none"> For handling milk during transportation 10 and 20 Ltrs 	Nr	5			3	8
E3.110	Milk sucking preventer	<ul style="list-style-type: none"> To prevent cow and calf from suckling/ for weaning Set consisting Large one for the cow, small one for calves 	Nr	10			5	15
E3.111	Milk testing cup	<ul style="list-style-type: none"> To test for mastitis Strip cup – metal 	Nr	5			3	8
E3.112	Milk testing cup	<ul style="list-style-type: none"> To test for mastitis Strip cup – plastic 	Nr	5			2	7
E3.113	Milking machine	<ul style="list-style-type: none"> For milking cows Single cluster; automatic; up to 10 cows Milking Machine (Single Cluster), Productivity: 10 cows per hour, type automatic	Nr	2			2	4
E3.114	Milking pails	<ul style="list-style-type: none"> For temporary holding of milk during milking 10 Ltrs 	Nr	10			5	15
E3.115	Portable milker	<ul style="list-style-type: none"> For milking cows complete with 2 clusters 	Nr	1			1	2
E3.116	Semen processing equipment	<ul style="list-style-type: none"> For processing semen for storage or immediate use Thawing flask, liquid nitrogen flask Semen Storage Dewar Flask 35L 80 mm Diameter Liquid Nitrogen Tank 35 Liter with Cover	Nr	1			1	2
E3.117	Teat tumor extractor	<ul style="list-style-type: none"> To remove teat tumors 	Nr	5			2	7

Item Nr	Item	Description	Unit	Qty per Institution				
E3.118	Trocar and cannulas	<ul style="list-style-type: none"> To treat bloat 19 cm 	Nr	3			2	5
E3.119	Vaccinator - Phillips automatic	<ul style="list-style-type: none"> 5 ml Luer fitting complete with leather waist band and harness for bottle, tubing, holter for vaccinator, and 'Philcox' syphon outfit to fit any size vaccine bottle 	Nr	5			2	7
E3.120	Stethoscopes	<ul style="list-style-type: none"> For clinical examination; auscultation MDF Instruments, USA or equivalent 	Nr	30			5	35
E3.121	Vaccine carriers	<ul style="list-style-type: none"> For transporting vaccines Vaccine Storage Capacity as per Std. PQS load: 0.80 Litres. Gross Storage Capacity: 0.80 Litres. Weight Fully Loaded: 2.18 Kgs.	Nr	5			2	7