

**THE NATIONAL COUNCIL FOR TECHNICAL AND VOCATIONAL
EDUCATION AND TRAINING**



***MANUALS FOR ESTABLISHING A VET CENTRE
FOR
AGRICULTURE AND FOOD PROCESSING SECTOR***

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LIST OF ABBREVIATIONS

CBET	-	Competence Based Education and Training
FTC	-	Full Technician Certificate
TT	-	Trade Test
VET	-	Vocational Education and Training
NACTVET	-	National Council for Technical and Vocational Education and Training
VTC	-	Vocational Training Centre
VTTC	-	Vocational Teachers Training College

PREAMBLE

Vocational Education and Training in Tanzania is governed by the National Council for Technical and Vocational Education and Training, established under the National Council for Technical and Vocational Education and Training Act, Cap. 129. This act empowers NACTVET to oversee and coordinate the provision of technical and vocational education in non-university institutions across the country. This manual therefore, gives guiding parameters so as to meet the minimum required standards set by the NACTVET Governing Council having in mind that one of its major roles is to ensure that vocational education and training provision satisfies the demands of the labour market with employees who have the required knowledge, skills and attitudes in order to improve production and productivity of our economy. When preparing the manual the following key areas were considered as essential for establishing Vocational Training Centres.

- A clearly defined organisation structure showing all the key positions for the efficient and effective operation of the Centre.
- NACTVET has set the standard required qualifications and competences which must be met by Vocational Teachers. The vocational teachers will be licensed and categorised by NACTVET according to their qualifications and experiences.
- This manual also provides criteria for a standard Vocational Training Centre (VTC) which will allow them to be registered and categorised accordingly. If the standards are not met, then the VTC will not be registered and Training Programmes will not be allowed.
- For the purpose of proper financial control of Centre funds, each VTC must keep proper records of all financial transactions showing the incomes and expenditures of the centre.
- Standard floor area requirements for workshops, classrooms, hostels, dining hall, offices, stores, library, toilets, playing fields etc, must be maintained. External and internal environment must also be conducive for training.
- Basic machines, equipment, tools and furniture must be provided to workshops and classrooms. Inventories must be well kept and updated. The items mentioned above must appear by proper name and specification in the inventory. Architectural drawings for all buildings, drawings for electrical wiring and drainage systems must be well kept by the Principal of the Centre.

NACTVET being vested with the role of overseeing and regulating the provision of Vocational Education and Training of other Providers will strictly observe these guidelines during the process of registration and categorisation of Vocational Training Centres.

Finally, it is believed that a VTC operating under these guidelines will produce the right outputs for the labour market, thereby increasing the productivity of our economy. It is also hoped that this manual will not remain static but is subject to updating when the conditions require so.

PART ONE

1. INTRODUCTION

The kind of VET system that is needed to spearhead socio-economic development in Tanzania will demonstrate itself in the kind of VTCs it will establish. There will be a close relationship between quality VTCs and products (trainees and services) it will produce. Countries with properly established VET centres are invariably placed to produce quality products.

This manual is intended to provide necessary information regarding requirements for the establishment of VTCs. In this manual quality parameters are defined. This will help to maintain consistency in training delivery.

Quality parameters are defined basing on three major areas which seek to address implementation of the Competence Based Education and Training (CBET) concept. These key areas are quality and sufficiency of tools and equipment, governance of the centre and infrastructure.

Vocational education and training is offered in 12 sectors which cover National vocational Award 1-3. The sectors include Civil and Building Engineering, Commercial and Business Support, Hospitality and Tourism, Automotive, Agriculture and Food Processing, Mining, Clothing and Textile Technology, Cosmetology, Transport, Mechanical and Printing. However, this manual focuses on the Agriculture and Food Processing occupations.

To ensure that each registered centre offers training according to its capacity. Registration of VET centres will be done according to the following categories:

1.1. Categorization of VTCs.

A Centre will be registered under any of the categories listed in Table R1.

Table R1: Criteria for Categorization of VTCs

CATEGORIZATION	CRITERIA	CATEGORY A	CATEGORY B	CATEGORY C	CATEGORY D
1. Occupation.	1.1. Number of occupations.	Minimum eight (8) occupations for multi-sectoral Centres or four (4) for sector specific Centres.	Minimum five (5) occupations for multi-sectoral Centres or two (2) for sector specific Centres.	Minimum one (1) occupation.	Minimum one (1) occupation.
	1.2. Qualifications levels.	Minimum of four (4) occupations offered above level II.	Minimum of two (2) occupations offered above level II.	Minimum of one (1) occupation offered up to level II.	Minimum of one (1) occupation up to level I.
2. Staff Qualifications 1.1 Principal	1.1.1 Academic qualifications	Minimum Form VI or equivalent.	Minimum Form VI or equivalent.	Minimum Form VI or equivalent.	Minimum Form IV or equivalent.
	1.1.2 Professional qualifications.	1 st Degree in technical/vocational education or equivalent for VTCs with training up to level IV and Master above level IV.	1 st Degree in technical/vocational education or equivalent for VTCs with training up to level IV and Master above level IV.	1 st Degree in technical/vocational education or equivalent for VTCs with training up to level IV and Master above level IV.	Certificate in technical education or equivalent
	1.1.3 Work Experience in relevant field.	Minimum three (3) years.	Minimum three (3) years.	Minimum three (3) years.	Minimum five (5) years.
1.2 Vocational teacher	1.2.1 Academic qualifications.	Minimum Form IV.	Minimum Form IV.	Minimum Form IV.	NA
	1.2.2 Professional qualifications.	Minimum one level above the level taught in a relevant occupation or field. TEACHER MINIMUM LEVEL III.	Minimum one level above the level taught in a relevant occupation or field. TEACHER MINIMUM LEVEL III.	Minimum one level above the level taught in a relevant occupation or field. TEACHER MINIMUM LEVEL III.	National vocational certificate of competence or equivalent
	1.2.3 Teaching qualifications.	Minimum Teacher Certificate in education.	Minimum Teacher Certificate in education.	Minimum Teacher Certificate in education.	Minimum Instructional Methods Certificate (IMC).
	1.2.4 Work Experience in relevant field.	Minimum three (3) years.	Minimum three (3) years.	Minimum three (3) years.	Minimum five (5) years in relevant field.
1.3 Training Coordinator / Registrar	1.3.1 Academic qualifications.	Minimum Form IV.	Minimum Form IV.	Minimum Form IV.	NA
	1.3.2 Professional qualifications.	Minimum Ordinary Diploma in technical field or equivalent for VTCs with training up to level IV and 1 st Degree above level IV.	Minimum Ordinary Diploma in technical field or equivalent for VTCs with training up to level IV and 1 st Degree above level IV.	Minimum Ordinary Diploma in technical field or equivalent for VTCs with training up to level IV and 1 st Degree above level IV.	NA
	1.3.3 Work Experience in training	Minimum three (3) years.	Minimum three (3) years.	Minimum three (3) years.	NA
1.4 Accountant	2.4.1. Academic qualifications.	Minimum Form VI.	Minimum Form IV.	Minimum Form IV.	NA
	2.4.2. Professional qualifications	Minimum Diploma or equivalent in relevant field	Minimum Diploma or equivalent in relevant field	Certificate equivalent in relevant field	NA
	2.4.3. Work Experience in relevant field	Minimum three (3) years.	Minimum three (3) years.	Minimum three (3) years.	NA
2. Centre Capacity.	2.1 Teacher trainee's ratio per class.	1:20	1:20	1:20	1:5
	2.2 Infrastructure.	As per Manual for	As per Manual for	As per Manual for	Enough for

CATEGORIZATIO N	CRITERIA	CATEGORY A	CATEGORY B	CATEGORY C	CATEGORY D
		establishing VET Centres.	establishing VET Centres.	establishing VET Centres.	five (5) trainees as per programme requirements
	2.3 Tools and equipment.	As per Manual for establishing VET Centres.	As per Manual for establishing VET Centres.	As per Manual for establishing VET Centres.	Enough for five (5) trainees as per programme requirements

We hope that the guidelines will be useful not only to those who would like to establish a VTC for specific occupations but also to providers who wish to improve their existing VTCs for the purpose of registration.

The manual is divided into five main parts, namely: centre governance, staffing, centre financial management, infrastructure, tools and equipment.

PART TWO

2. VOCATIONAL TRAINING CENTRE GOVERNANCE

Good governance is an important aspect in establishing a VET centre. It ensures accountability, participation, transparency, equity and rule of law in operation of the VET centre. This will also play part in making the centre sustainable. Involvement of stakeholders in governing the centre is imperative. It is therefore mandatory for a VET centre with categories A - C to have an Advisory Board/Board of Trustees.

The composition of the Board will have the following representation:

- i. Centre owner;
- ii. Parents;
- iii. Employers;
- iv. Government at District /division level;
- v. Centre employees; and
- vi. Principal-Secretary to the Board.

PART THREE

3. STAFFING

Staffing of a Centre will consist of the following personnel:

(a) Principal

The Principal is the Chief Executive of the centre. He/she will develop strategies and policy matters that included soliciting donor fund, centre and VET promotion, sensitize stakeholders with view to meet the centre goals and plan. For the centre with categories A-C, he/she will be the secretary to the Centre Advisory Board/Centre Board of Trustees.

Under these categories the Principal will be assisted by the following titles- Training Coordinator, Centre Administrator, Accountant, Entrepreneurship and Short course coordinator.

Minimum Qualifications of a Centre Principal:

For category A, B and C VET centres

- i. Degree in Technical / Vocational Education or equivalent.
- ii. Three (3) years work experience in the relevant field.

For category D VET centres

- i. Certificate in Technical / Vocational Education or equivalent.
- ii. Five (5) years work experience in the relevant field.

(b) Training Coordinator

The functions of a training coordinator in a VTC will be those activities related to training which include trainees' enrolment, coordination of trainees' assessment, monitoring training, discipline, guidance and counselling, Trainees' welfare in general and preserving centre environment. The coordinator will be supported by Head of departments, warden/matron and head cook.

Minimum Qualifications of a Training Coordinator

- i. Ordinary Diploma or equivalent in any technical education field;
- ii. Certificate in teaching;
- iii. Three (3) years experience in training.

(c) Human Resource Officer

The Human Resource Officer will provide support for day to day administrative activities which include; staff welfare, staff development, security matters and stores.

Minimum Qualifications of a Human Resource Officer

- i. Certificate in Human Resources Management;
- ii. Three (3) years experience in relevant field.

(d) Accountant

The Accountant will keep all financial and accounts records of the centre.

Minimum Qualifications of the Accountant

- i. Diploma in accountancy;
- ii. Three (3) years experience in relevant field.

(e) Secretary

The secretary will be a personal assistant to the Principal and will perform all duties related to secretarial responsibilities.

Minimum Qualifications of the Secretary

- i. Form IV education;
- ii. Stage III certificate.

(f) Teaching staff

Vocational teachers have the central role of making the training relevant. Vocational teachers are the first-line practitioners of vocational training.

A befitting vocational teacher to carryout vocational training within the Tanzanian VET system will have the following attributes:

- i. Critically alert;
- ii. Imaginative, innovative, proactive, creative;
- iii. A cultivated person with the courage and ability to face and solve problems;
- iv. Active in the pursuit of truth and goodness within the overall accepted aspirations of a nation at large; and
- v. Willingness to learn.

To ensure efficiency and effectiveness in training delivery, the maximum vocational teacher – trainee’s ratio will be 1:20.

Minimum Qualifications of a Vocational Teacher

Vocational teachers shall be licensed and categorised according to their qualifications and the level (s) in which they are allowed to teach. The required qualifications for vocational teachers are as described hereunder:

Vocational teachers for level I-III shall have the following qualifications:

- i. Holders of FTC, Diploma or other equivalent qualifications in the relevant field;
- ii. Teaching certificate obtained from VTTC or any other recognised institution; and
- iii. At least three (3) years of post training relevant practical work experience in his/her field of specialisation.

Vocational teachers for level I-II shall have the following qualifications:-

- i. Form IV secondary certificate;
- ii. Vocational Certificate of Competence or equivalent;

- iii. Teaching certificate obtained from VTTC or any other recognised institution; and
- iv. At least five (5) years of post training relevant work experience in his/her field of specialization.

Competences of a vocational teacher

A Vocational Teacher must possess the following competences:

- i. Able to interpret occupational training standards into learning process;
- ii. Evaluate training process and outcomes;
- iii. Compare training offered and the demand from the labour market;
- iv. Prepare report on training implementation in his/ her own workshop;
- v. Prepare maintenance schedule for training tools and equipment;
- vi. Counsel and guide trainees in the workshop; and
- vii. Ability to maintain a conducive environment for learning.

NB : Permanent teachers should be two thirds ($\frac{2}{3}$) of all teachers in the centre.

PART FOUR

4. CENTRE FINANCIAL MANAGEMENT

Proper management of centre finances is very important. It is therefore advised for anyone who aspires to establish a VET centre at categories A-C has to ensure that proper systems for managing finances are in place. These will ensure stability and sustainability of a VTC in a long run.

The following are important pre requisites:

- a) Bank account;
- b) Qualified staff;
- c) Reliable sources of funds; and
- d) Management of Cash Flow

PART FIVE

5. INFRASTRUCTURE

Infrastructure of a VTC with categories A-C include, among other things, workshops, classrooms, trainees hostel, conference hall, storage facilities, staff houses, and external environment. All building infrastructure should be able to accommodate people with special needs.

For the VTC with category D should have proper premises to facilitate practical and theoretical training. It should have some storage facilities and provision facilities for hygiene.

In deriving the size of the area suitable for training, the following factors have been taken into account:

- i. The number of trainees in one workshop;
- ii. Type of equipment;
- iii. Air circulation in a room; and
- iv. Movement of users within a room and around the building for various activities.

The provided schematic drawings demonstrate how a workshop or a training space should look like. It is not obligatory to use the same design but one should adhere to specifications provided in the Table 1. Users are strongly advised to seek for technical expertise from professionals who will help them translate information contained in this work into proper architectural and engineering drawings required for erection of buildings.

In this respect, construction of centres should consider standards as elaborated in the Table 1.

TABLE 1: INFRASTRUCTURE SPECIFICATIONS

S/N	ITEM/DESCRIPTION	NORM/SPECIFICATIONS
1.	Vocational teacher– Trainee Ratio.	1:16 -20 (Capacity for a single class/workshop is between 16 to 20 trainees).
2.	Area per trainee. <ul style="list-style-type: none"> Workshops (without offices). Classrooms (without offices). Conference Hall (without offices). Dining Hall (without kitchen). Library. Kitchen facility. 	<ul style="list-style-type: none"> 5 -14sqm per Trainee (workshop with light equipment like tailoring, computer applications – 5sqm/trainee; those with large equipment e.g. machinery fitter, etc. 12 – 14sqm/trainee can be used). 2.5 – 3 sq m per trainee. 1.5 – 2.5 sq m per trainee. 1.5 – 2.5 sq m per trainee. 2.5 – 3.5 sq m per trainee. 0.2 – 0.3 sq m per trainee.
3.	Areas for other general facilities. <ul style="list-style-type: none"> Administration Block. Office (for a teacher, officer etc). Office for Head of section/department 	<ul style="list-style-type: none"> 200 – 250 sq m. 10 – 16 sq m. 16 – 25 sq m.
4.	Toilets and change rooms. <ul style="list-style-type: none"> Number of persons per toilet Unit. Minimum unit area. Change rooms. 	<ul style="list-style-type: none"> 4 - 5 persons per toilet unit (staff). 8 -10 trainees per toilet unit (trainees). 1.5 – 2 sq m. 1 – 1.5 sq m per trainee (it is advised that each workshop should have a change room, which must be gender sensitive. Provision of washing basin and showers in a change room will depend on the type of occupation).
5.	Storage facilities. <ul style="list-style-type: none"> General store. Office store. Workshop store. 	<ul style="list-style-type: none"> 12 - 30 sq m. 2 – 6 sq m. 10 – 30 sq m (the shape of which has to depend on the type and nature of materials to be stored).
6.	Trainees Hostel. <ul style="list-style-type: none"> 4 trainees per room. 	<ul style="list-style-type: none"> 16-24 sq m per room with height 3.0m Provide study room for at least 20 trainees.
7.	Staff house.	100 – 200 sq m per single family house.
8.	Location.	Suitable location of the training facilities required; workshop with

S/N	ITEM/DESCRIPTION	NORM/SPECIFICATIONS
		heavy duty equipment preferably to be located on the ground floor. Location should consider other surrounding activities.
9.	Floors.	Strong floors capable of withstanding operations of a particular occupation
10.	Structure condition.	The structure and materials to be used should be durable, sound, safe, strong, Impurities free, attractive and available at local market.
11.	Internal environment.	<ul style="list-style-type: none"> • Should be smoke/dust free; well ventilated/air conditioned; enough natural and artificial lighting; appropriate colours in walls and ceiling necessary furniture and fixtures should be available. • Height of head room to be not less than 3m and above • Room relationship to be considered to minimize unnecessary movement. • Type of floor finish to match with the nature of activity performed.
12.	External environment	Provide access roads landscaping, walkways to allow movement people with disability.
13.	Utilities.	Proper electrical installation and power supply ² ; enough water supply; adequate sewerage disposal system; adequate solid waste disposal system; well functioning telecommunication facilities; fire fighting/prevention facilities as per regulations; dust/smoke removing mechanism for dust/smoke generating workshops.
14.	First – Aid facilities and safety gears.	Standard first-aid box with basic medication installed in a conspicuous position; safety gears must be available for both vocational teacher and trainees.
15.	Legality of VET Centre in guidelines and Council Regulations. <ul style="list-style-type: none"> • Birds class layer type • Broiler birds 	NACTVET plays a role of establishing and monitoring guideline to VET provider and not authorizing permission to commence construction activities. The respective regulatory Body is obliged to administer their regulations. <ul style="list-style-type: none"> • Brooding space 20-30 birds/m² • Growing space 10-20 birds/ m² • Layer's birds 5-6 birds/ m² • Brooding space 20-30/ m² • Growing space 10-12 birds/ m²
16.	Space for seedling production (horticulture)	<ul style="list-style-type: none"> • Extra 1-5 Acres required for horticulture practical • Provide reliable source of water for irrigation purposes. • Head room height not less than 3.6 m high.
17.	Chick space:	38cm ² per layer chick, 52cm ² per broiler chick
18.	Size of foundation	The depth of the foundation to be determined at/in site, also nature of soil water table and the load to be imposed. But also the materials to be used
19.	Safety awareness	Adherence to occupational health and safety should be taken on board to enhance high productivity and keep good working environment
20.	Others.	Master timetable placed at conspicuous area; at least one wall clock in each workshop; at least one suggestion box for each VTC. Each

S/N	ITEM/DESCRIPTION	NORM/SPECIFICATIONS
		VTC has to have indoor or outdoor sports areas.

PART SIX

6. BASIC TOOLS AND EQUIPMENT

The minimum requirements of tools and equipment for a VTC with categories A-C for each occupation are provided. The same specifications of tools and equipment can be used for category D, but quantity and type will depend on curriculum contents to be covered.

The purpose of this list is to provide guidance and help management and authorities of vocational institutions to plan their equipment requirements with accuracy and produce precisely defined technical specifications.

It is advisable when purchasing tools and equipment to consider their durability, serviceability, accuracy, versatility and low operating costs.

APPENDIX 1
LIST OF TOOLS AND EQUIPMENT

BASIC TOOLS AND EQUIPMENT FOR ANIMAL HUSBANDRY (20 TRAINEES)

A: EQUIPMENT

S/N	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
	Incubating						
1.	Egg Grader	30 Dozen cases per hour	Each	1:10	√		√
2.	Egg Candling Machine	100 eggs capacity automatic wooden	Set	1:20		√	√
3.	Setter and hatcher (Incubator)	1000-5000 Eggs capacity combine incubator and Hatcher	Set	1:20	√		√
4.	Chick grader	Mark able belt 46-61cm wide moves over length	Set	1:20	√		√
5.	Chick sexing machine	Automatic chick sexing machine	Each	1:20		√	
6.	Fumigating kit	Kit with all required accessories	Each	1:20	√		√
7.	Day old chick Boxes	56x46x15cm capacity	Each	1:5	√		√
8.	Weighing scales	<ul style="list-style-type: none"> • 5 – 100kg capacity • 20 – 500gm capacity 	Each	1:10	√	√	
9.	Automatic chick vaccinator	Standard for day old chicks vaccination calibrated to deliver 0.5ml vaccine	Each	1:10	√		√
	Brooding						
10.	Brooders tools	Electricity with dimmer switch and infrared bulbs 250w	Set	1:10	√		
		Hurricane lamp (Kerosene)	Each	1:20	√		
		Charcoal/Coal stove or	Each	1:20	√		
		Letter materials (Wood shavings, husks, hay, etc)	Each	1:20	√		
		Solar heater/energy or	Each	1:20	√		
		Brooder guard/enclosure	Each	1:20	√		
		Hoover	Each	1:20	√		
		Thermometer	Each	1:10	√		
11.	Chick feeders	<ul style="list-style-type: none"> • Automatic feeder (optional) • Manual feeders - Round, trough 	Each	1:10	√		
12.	Watering equipment	<ul style="list-style-type: none"> • Automatic drinkers - Bell, nipple, • Manual drinkers – Bucket, trough, etc 	Each	1:10	√		
13.	Bird handling tools	<ul style="list-style-type: none"> • Chicken catching hook/wire • Chicken box 	Each	1:10	√		
14.	Egg Tray	Plastic or paper, 30 eggs	Each	1:10	√		√

S/N	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
		capacity					
15.	Egg Collecting Basket	Multiple holes 10kg Capacity.	Each	1:4	√		√
16.	Debeaker	<ul style="list-style-type: none"> • Gilbow shear 250mm blade • Pair of caesars/knife • Cauterises 	Each	1:5	√	√	
17.	Water reservoir/tank	Plastic 1000 litres	Each	1:20	√	√	√
18.	Feed Mixer and crusher	0.5 tons per hour capacity	Set	1:20	√	√	√
19.	Sewing machine	Polythene bag sewing Electric hand operated	Each	1:20	√	√	
20.	Weighing tools	<ul style="list-style-type: none"> • Weighing bridge 10 – 500 kg • Weighing scale 0.1 – 10kg 	Each	1:20	√	√	
21.	Feed sampling jars	Standard	Each	1:20	√	√	
22.	Refrigerators	Capacity 99 litres.	Each	1:20	√		√
23.	Post-mortem kit	Complete with scalpel blade forceps Bone cutter and scissors.	Set	1:5	√	√	√
24.	Refuse Disposal (incinerator)	Small size (constructed with bunt bricks)	Each	1:20	√	√	√
25.	Microscope	Electrical stage size 150x135mm with movement of 76mmx50mm. Double plate with mechanical stage cross travel 76x50mm on ball bearing with co-axial control.	Set	1:10	√	√	√
26.	Microscope slides	Standard	Set	1:20	√	√	√
27.	Petri dishes	Standard	Set	1:10	√	√	√
28.	Sample loop	Standard	Each	1:10	√	√	√
29.	Slides dishes	Standard	Each	1:20	√	√	√
30.	Computer set	Latest model with necessary software	Set	1:10	√	√	√
31.	Printer	Latest model	Each	1:20	√	√	√
32.	Scanner	Latest model	Each	1:20	√	√	√
33.	UPS	Latest model	Each	1:10	√	√	√
34.	Electric Standby Generator	25 – 125Kw Diesel type	Set	1:20	√	√	√
35.	Calculator	10 digitals ordinary	Each	1:1	√	√	√
36.	Wheel barrow	Pneumatic 150 Kg Capacity	Each	1:5	√	√	√
37.	First Aid Kit	With all requirements	Each	1:20	√	√	√

S/N	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
38.	Restraining tools	<ul style="list-style-type: none"> • Cow hobble • Nose ring • Rope • Crash • Coaxer 	Each	1:10	√	√	√
39.	Identification tools	<ul style="list-style-type: none"> • Branding (Hot and dry freeze) iron, • Ear notches, • Tattooing machine, • Ear tag applicator, • Stomach bolus (optional), • Camera 	Each	1:20	√	√	√
40.	Calves feeding tools	<ul style="list-style-type: none"> • Bucket, • Nipples, 	Each	1:20	√	√	√
41.	Milk cooler Tank	Stainless steel 200-500lts capacity.	Each	1:20	√	√	√
42.	Milking machine	Mobile Bucket type	Set	1:10	√		√
43.	Milk can	50 litters	Set	1:20	√		√
44.	Cream Separator	5 litters	Set	1:20	√		√
45.	Meat displaying Cabinet	2x2x0.5m	Set	1:20	√		√
46.	Milk homogenizer machine	Homogenizer machine, Stainless pipeline	Each	1:20	√	√	√
	Milk Pasteurizer	Batch Pasteurizer & Continuous Pasteurizer	Each	1:20	√	√	√
47.	Milk multipurpose Vat cooling and clotting	Multipurpose Vat cooling and clotting	Set	1:20	√		√
48.	Yoghurt filter	Metallic filter	Set	1:20	√		√
49.	Milk dispenser	Archives-Hurst green plastic	Set	1:20	√		√
50.	Milk packing machine	Automatic pouch packing machine	Set	1:20	√		√
51.	Liquid nitrogen containers	Stainless steel with lid 25lts capacity	Each	1:20	√		√
52.	Castration tools	<ul style="list-style-type: none"> • Burdizzo clump Stainless steel • Rubber ring elastrator • Rubber ring 	Each	1:20	√	√	√
53.	Hoist	Overhead, with block chain capacity 500kg	Each	1:20		√	√
54.	Mincer	<ul style="list-style-type: none"> • Electronic machine, 	Each	1:20		√	

S/N	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
		stainless steel 4000kg/hr • Hand operated with under locking with, several plates and knives fitted with nozzle capacity 1kg /min					
55.	Dicing machine	Make inches from $\frac{3}{16}$ to 1 Inch	Each	1:20		√	
56.	Meat Tumbler	Drum capacity 28cm Meat capacity 200kg	Each	1:20		√	
57.	Bowl Cutter /Chipper	Chop both chilled and frozen meat, size 1x0.5m	Each	1:20		√	
58.	Mixing machine	Bowl type with beaters capacity 10-25kg Volume 25-50Litres	Each	1:20		√	
59.	Meat slicer	To accept frozen meat of approx 20" x 12", 26" x 16" and 28" x 16" adjustable slice thickness $\frac{3}{4}$ " x 2 $\frac{1}{2}$ "	Each	1:20		√	
60.	Sausage filling machine	Standard size	Each	1:20		√	
61.	Sausage cool and drier	Capacity 227kg/hr and 454kg/hr	Each	1:20		√	
		Capacity 227kg/hr and 454kg/hr	Each	1:20		√	
62.	Labelling machine	Dynamo type writer, Volume 30 Litres	Each	1:20		√	
63.	Vacuum sealing machine	Stainless Dimension 305x315x315mm	Each	1:20		√	
64.	Autoclave	Vertical Electrical /steam volume 50-100 Litres	Each	1:20		√	
65.	Boiler	Electrical Blast furnace producing 250 Litres of steam per hour	Each	1:20		√	
66.	Tripe Hash Washer	Stainless, capacity of washing 50 tripes / hour	Each	1:20		√	
67.	Knocking pen	Stainless 150x220cm with sliding door	Each	1:20		√	
68.	Polyester vacuum in pouches closing machine	Sealing 20 bags per minute	Each	1:20		√	
69.	Hamburger former machine	Barrel capacity 14kg Meal barrel a capacity 12kg	Each	1:20		√	
70.	Portioning Equipment	Hand operated, fitted with				√	

S/N	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
		hydraulic press filling					
71.	Brine pumping Machine	A set contained stainless steel needle, pumping rate 100Litres/hr or discharge time of 46 second	Each	1:20		√	
72.	Steam Box	Capacity 50 -100 Litres Internal dimension 400x350x420mm	Each	1:20		√	
73.	Weighing scale	Mobile cage type 500kg scale	Set	1:20	√	√	√
74.	Spray pump	Solo sprayer 16 Litres capacity	Each	1:10	√	√	√
75.	Veterinary surgical kit	Heavy duty plastic or stainless steel container 45 x30x30cm with the following basic tools <ul style="list-style-type: none"> ▪ Hoof treemers ▪ stethoscope ▪ Disbudding iron ▪ Pair of scissors ▪ Thermometer ▪ Elastrator ▪ Burdizo ▪ Surgical forceps ▪ Scalpel blade ▪ Embryology wire ▪ Automatic syringes ▪ Troca and cannula ▪ Weigh band ▪ Teeth clip ▪ Obstetric rope ▪ Milking hobbles ▪ Bull ring applicator ▪ Ear notcher ▪ Hog catcher 	Each	1:20	√	√	√
76.	Round spade	Metallic with wooden handle	Each	1:5	√	√	√
77.	Fire Extinguisher	Powder, Foam, CO ₂ & water	Each	1:10	√	√	√
78.	Working animal implements	Mould board plough with metallic sheer blade	Each	1:20	√	√	
		Harrow notched disc	Each	1:20	√	√	
		Planter with rotating drum	Each	1:20	√	√	
		Cultivator with sheer blade	Each	1:20	√	√	
		Manure spreader	Each	1:20	√	√	
		Ox wooden cart with pneumatic	Each	1:20	√	√	

S/N	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
		tires					
79.	Fish harvesting Equipment	<ul style="list-style-type: none"> ▪ Fish nets 2inchs eye ▪ Fishing hooks metallic hooks 	Each	1:20	√	√	
80.	Bee protective cloth	Heavy cotton clothes non bee sting penetrable	Set	1:20	√	√	
81.	Bee hive	<ul style="list-style-type: none"> ▪ Flame of queen box 60x45x25cm height with queen extruder ▪ Honey box 60x45x 17.5cm height 	Each	1:10	√	√	
82.	Bee smoker	Metallic container smoke Brower	Each	1:10	√	√	
83.	Honey extractor	Electric centrifugal bucket or manual honey extractor	Each	1:20	√	√	
84.	Honey packing machine	Automatic honey packing machine	Each	1:20	√	√	
85.	Honey filling machine	Size 600x450cm	Each	1:20	√	√	
86.	Soil auger	Metallic twisted with sharp pointed end With wooden T handle	Each	1:20	√	√	
87.	Tractor	75 HP With implements such as: <ul style="list-style-type: none"> • Mould board plough • Harrow • Planter • Cultivator • Trailer • Disc plough • Ridger • Mower/reciprocating/rotary 	Each	1:20	√	√	√
88.	Hay compactor	1x0.75x 0.5m compacting wooden box	Each	1:20	√	√	
89.	Theodolite	Survey instrument With triple adjustable stand	Each	1:20	√	√	
90.	Manure/fertilizer spreader	Should be Tractor Power Take Off driven (PTO) shaft	Each	1:20	√	√	
91.	Soil analysis kit	Water and soil analysis kit (Secchi disc, refractometer, hydrometer)	Set	1:20	√	√	
92.	Solo sprayers	With Spray guns Air consumption Nozzle 1.8mm diameter	Each	1:4	√	√	

S/N	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
93.	Service Tables	180x90cm top	Each	1:4	√	√	√
94.	Wardrobes	45x30x30cm	Each	1:20	√	√	√
95.	Water Heaters	Capacity 20-50 Litres	Each	1:20	√	√	√
96.	Water treatment	Able to filter and soften water	Set	1:20	√	√	√
97.	Overhead Projector	Potable	Each	1:20	√	√	√

B. TOOLS

S/N	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
1.	Ranging poles	7-8 feet wooden white and black painted	Each	1:2	√	√	
2.	Hoof trimmers	stainless steel blade	Each	1:10	√		√
3.	Disbudding iron	Copper alloy	Each	1:5	√		√
4.	Milking hobbles (Ant kick)	Adjustable nylon leather	Each	1:10	√	√	
5.	Drenching gun	Plastic 25-50ml capacity	Each	1:10	√	√	
6.	Milk Lactometer	Steel Ball lactometer mercury cated	Each	1:5	√	√	
7.	California mastitis test kit	With 4 tit cups	Set	1:5	√		√
8.	Buckets	Plastic 20 litres capacity	Each	1:1	√	√	√
9.	Hard/Soft brooms	Plain wood stock soft broom 305mm Wood stock stiff broom 330mm	Each	1:1	√	√	√
10.	Scrubbing Brush	Beech wood scrubbing brush 230mm	Each	1:1	√	√	√
11.	Stove	Kerosene or gas stove	Each	1:10	√	√	√
12.	Test Thermometers	5 – 45°C or 40 – 110°F and 100 – 20% RH	Each	1:2	√	√	√
13.	Tape Measure	Ribbon fibre glass tape 60m	Each	1:20	√	√	√
14.	Spade/Shovel	Blade 255 x 320mm Metallic blade Wooden handle length 710mm	Each	1:4	√	√	√
15.	Bush knife	Iron straight pointed with wooden, rubber or plastic handle.	Each	1:5	√	√	√
16.	Hand saw	Hard print saw blade length 24 inches / 610mm	Each	1:10	√	√	√
17.	Carpenters Square	Metallic carpentry type square /blade length 230mm	Each	1:20	√	√	√
18.	Hammer	Claw hammer 2.5kg Made from high quality steel head with mild steel handle	Each	1:10	√	√	√
19.	Scalpel, Blades	Complete stainless steel Medium size	Set	1:5	√	√	√
20.	Hose pipe	1 inch diameter 30-50 meter 640x530	Roll	1:4	√	√	√
21.	Ball pein hammer	Pein hammer 2.5kg Made from high quality steel head with mild steel handle	Each	1:10	√	√	√
22.	Slash	Manual – Metal curved bottom with wooden or plastic handle 15cm	Set	1:1	√	√	√
23.	Hoe	3kg ordinary with wooden prong	Set	1:4	√	√	√

S/N	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
24.	Rake	<ul style="list-style-type: none"> • Small prongs • forked • Steel type 	Each	1:5	√	√	√
25.	Forked hoe	1.5m long prong	Each	1:5	√	√	√
26.	Surveyors 'chain	50 m metric chain	Each	1:20	√	√	√
27.	sieve	Plastic type	Each	14	√	√	√
28.	Petri dishes	Glass type	Each	1:2	√	√	√
29.	Knives	Domestic Stainless Steel	Each	1:4	√	√	√
30.	Feeders long wooden	7"x2.5x47" and 4x1.4x35"	Each	1:4	√	√	
31.	Harnessing tools	Yolk	Each	1:20	√	√	
		Keys	Pair	1:20	√	√	
		Chain	Each	1:20	√	√	
		struts	Pair	1:20	√	√	
32.	Dubbing shears	A pair of manicuring scissors	Pair	1:20	√		√
33.	Automatic syringes	Adjustable – 20-50ml with accessories	Each	1:10	√		√
34.	Clinical thermometer	Granulated from 0- 50 degree centigrade with mercury measure	Each	1:2	√		√
35.	Protective Gears	Examination gloves Free size	Each	1:20	√	√	√
		Masks Cotton cloth/polyether muzzle type	Each	1:20	√	√	√
		Hard gloves Leather covered	Each	1:20	√	√	√
		Helmet Hard polythene	Each	1:20	√	√	

**BASIC TOOLS AND EQUIPMENT FOR CROP PRODUCTION AND HORTICULTURE
(FOR 20 TRAINEES)**

A: EQUIPMENT

S/N	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
1.	Walking Tractor (power tiller)	Diesel with 14-16 Horse Power with complete set	Each	1:20	√	√	√
2.	Knapsack sprayer	20lts capacity	Each	1:10	√	√	√
3.	Boom sprayer	200lts capacity	Each	1:10	√	√	√
4.	Weighing Balance	25kg -100kg	Each	1:20	√	√	√
5.	Seed Extracting machine	Medium size 3 -5 Horse Power	Each	1:20	√	√	√
6.	Mould board plough	Metallic with ridged blade	Each	1:20	√	√	√
7.	Harrows	Metallic with spiked tooth	Each	1:20	√	√	√
8.	Ridgers	Ridged and reversible metal blades, tractors drawn	Each	1:20	√	√	√
9.	Puddlers	Metallic with ridged shores	Each	1:20	√	√	√
10.	Soil compactor	Standards	Each	1:20	√	√	√
11.	Anima draught cultivators	Animal operated metallic with ridged spikes	Each	1:20	√	√	√
		Tractor operated metallic with sharp pointed blade	Each	1:20	√	√	√
12.	Ox – carts	Wooden materials with metallic axle and pneumatic tires	Each	1:20	√	√	√
13.	Slashers	Metallic steel with plastic handle	Each	1:1	√	√	√
14.	Tractors	50 -100HP Four wheeled drive Pneumatic tyre Diesel	Each	1:20	√	√	√
15.	Disc ploughs	Round metallic blade with 77mm Ø, 3 – 4 furrows	Each	1:20	√	√	√
16.	Disc harrows	Nothed and round blade 66mm with 4 gangs	Each	1:20	√	√	√
17.	Mowers (Rotary)	Rotary tractor drown through power take off (P.T.O) shaft	Each	1:20	√	√	√
18.	Combine Harvesters	Small size chain wheeled 1-5 acres capacity with 15HP	Each	1:20	√	√	√
19.	Planters (corn drill)	Tractor drawn with fertilizer and seed hoppers 1-10 ha/day capacity	Each	1:20	√	√	√
20.	Maize Sheller	P.T .O operated 1-5 bags per hour Hand operated	Each	1:20	√	√	√
21.	Groundnut Sheller	Hand operated	Each	1:20	√	√	√

S/N	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
22.	Soil pH tester	Glass material with litmus and testing solution	Each	1:20	√	√	√
23.	Soil testing kit	Plastic material with sieves funnel, litmus papers and solutions	Each	1:20	√	√	√
24.	Manure Speeders	Operated Tractor P.T.O driven	Each	1:20	√	√	√
25.	Pulling chain	Notched metallic 10–20m	Each	1:20	√	√	√
26.	Composer	32 inches	Each	1;20	√	√	√
27.	Crawler tractor	Bull dossers (660), 15–50HP	Each	1:20	√	√	
28.	Forage harvester	<ul style="list-style-type: none"> • (mower) rotary tractors operated 1–5 ha/hr capacity • Resprocketting mower 	Each	1:20	√	√	√
29.	Beet root harvester	Self operated, Diesel engine 3 -5HP	Each	1:20	√	√	√
30.	Potato harvesters	½ -2 ha/hr Diesel fuel self operated with 3 -5 HP	Each	1:20	√	√	√
31.	Pea harvesters(vine)	Self operated Diesel fuel with 3-5HP	Each	1:20	√	√	√
32.	Harrows	Spike harrow Drag harrow Disc harrow	Each	1:20	√	√	√
33.	Plastic much layer	Hand operated plastic made with 0.5–1 acres mulching capacity	Each	1:20	√	√	√
34.	Potato planter	Metallic, tractor power take off operated with 1–5 acres per day capacity	Each	1:20	√	√	√
35.	Manure spreaders	Metallic hopper tractor 0.5-1 P.T.O operated type tones spreading capacity Sprayers Vacuum tanker	Each	1:20	√	√	√
36.	Bean harvester	Self-propelled diesel 1-3 ha/hr capacity	Each	1:20	√	√	√
37.	Potato digger	Tractor operated with ½-3 tones capacity	Each	1:20	√	√	√
38.	Beet digger	Tractor operated with 0.5 -2 tones capacity	Each	1:20	√	√	√
39.	Vegetable picker	hand/ mechanical operated	Each	1:20	√	√	√
40.	Fertilizer sprayer	Tractor operated with 50-350 litres capacity	Each	1:20	√	√	√
41.	Knapsack sprayer	Plastic, hand operated 10-16 litres capacity	Each	1:20	√	√	√
42.	Pump unit/water pump	8 H.P, Petrol fuel self operated	Each	1:20	√	√	√

S/N	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
43.	Drum mower	Tractor operated with 0.5 -10 acres capacity	Each	1:20	√	√	√
44.	Trailer	Tractor drawn, single differential with 4-10 tones carrying capacity	Each	1:20	√	√	√
45.	Back hoe loader	Front end loader(fork lift)3 -15HP	Each	1:20	√	√	√
46.	Maize pulpier	Electric/Diesel 8-10HP	Each	1:20	√	√	√
47.	Hay bailer	Tractor operated with hay rake, hay tender and hay cart tools	Each	1:20	√	√	√
48.	Corn mills	Electric/diesel 12-15HP	Each	1:20	√	√	√
49.	Air Compressor	Maximum 200bars Pressure per Square Inch (PSI)	Each	1:20	√	√	√
50.	Welding machine	Arc welding machine, electric operated 50 -800 °C	Each	1:20	√	√	√
51.	Boom sprayers	Tractor operated of 100 -500lts capacity	Each	1:1	√	√	√
52.	Rice trans planter	Self operated diesel 2 – 5 ha/day capacity	Each	1:1	√	√	√
53.	Motorized sprayer	Diesel, Petrol fuel 15-20 litres capacity	Each	1:1	√	√	√
54.	Chain saw	Petrol fuel with 1-5HP 1000 rpm	Each	1:1	√	√	√
55.	Theodorate rate level	Level with adjustable stand	Each	1:20	√	√	√
56.	Weighing Bridge	Portable 500kg	Each	1:20	√	√	√
57.	Generator	25-125kW	Each	1:20	√	√	√
58.	Wheel Barrow	Pneumatic 150kg capacity	Each	1:5	√	√	√
59.	Sprinkler	Complete 5-10m Ø	Each	1:5	√	√	√
60.	Angle grinders	Electric operated portable 240v	Each	1:20	√	√	√
61.	Hand drills	Electric operated, portable 240v		1:20	√	√	√
62.	Anger bits	P.T.O operated 1000-1500rpm	Each	1:20	√	√	√
63.	Bench vice	Cast iron with 50- 300mm Ø	Each	1:4	√	√	√
64.	Overhead Projector	Electrical-mobile	Each	1:20	√	√	√

B: TOOLS

	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
1.	Tractor wheel	Cast iron with 125-500kg	Each	1:20		√	√
2.	Tractor front	30-200kg cast iron	Each	1:20		√	√
3.	Hand Hoe	Ordinary 2.5kg With wooded handle	Each	1:1	√	√	√
4.	Bush Knife	Metallic, Medium size	Each	1:1	√	√	√
5.	Axe	Iron weight 2½kg.	Each	1:4	√	√	√
6.	Mattock	Cutter mattock	Each	1:1	√	√	√
7.	Staff rods	Metallic graduated rods	Each	1:20	√	√	√
8.	Ranging poles	Metallic 1–2m height	Each	1:20	√	√	√
9.	Rake	Metallic with wooden handle 710cm tall		1:5	√	√	√
10.	Fork	Metallic with wooden handle 710cm tall		1:1	√	√	√
11.	Forked Hoe	Forked, with wooden handle 710mm	Each	1:4	√	√	√
12.	Hammers	Iron claw hammer 3kg weight	Each	1:10	√	√	√
13.	Ranging Poles	Metallic with black and white	Each	1:1	√	√	√
14.	Rope	Sisal twine	Each	1:10	√	√	√
15.	Safety gears	Helmet free size, Plastic materials	Each	1:1	√	√	√
		Heavy Duty Gloves, Leather gloves	Each	1:1	√	√	√
		Safety boots, Size 7-13	Each	1:1	√	√	√
		Safety clear glass	Each	1:1	√	√	√
16.	Tape Measure	30 metres long, Linen materials	Each	1:4	√	√	
17.	Black Plastic sheet	Plastic sheeting ¾" Ø	Each	1:20	√	√	√
18.	Petri Dishes	Stainless steel	Each	1:4	√	√	√
19.	Sieve	Wire mash 60mm	Rolls	1:5	√	√	√
20.	Working Table	Galvanized Aluminium 180x120x80cm	Each	1:5	√	√	√
21.	Hose pipe	30m roll plastic 2/3 inches	Each	1:5	√	√	√
22.	Water Tank	10,000 - 50,000lts	Each	1:20	√	√	√
23.	Watering cane (plastic)	Plastic 10 – 20lts capacity	Each	1:1	√	√	√
24.	Pruning knife	Medium size, sharp edge	Each	1:5	√	√	√
25.	Secatours	Medium plastic handle	Each	1:5	√	√	√
26.	Buckets	Plastic 10-20 litres	Each	1:1	√	√	√
27.	Fence wire mesh	Small size, metallic 60m	Roll	1:20	√	√	√
28.	Trays	Stainless steel medium/large	Each	1:1	√	√	√
29.	Basket	5kg to 10kg, Medium	Each	1:1	√	√	√
30.	Sacks	Polyether 1 x 0.5m length	Each	1:1	√	√	√
31.	Sickles	Small Medium, metallic curved	Each	1:4	√	√	√
32.	Shelves	0.7x11.2m	Each	1:5	√	√	√
33.	Computer set with printer	New Model with necessary software	Set	1:5	√	√	√
34.	First aid Kit	Standard, with all requirement	Set	1:5	√	√	√
35.	Drip irrigation set	For ¼ ha	Set	1:10	√	√	√
36.	Spade	Standard with wooden handle	Each	1:5	√	√	√

	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
37.	Garden trowel	Standard, metallic	Each	1:5	√	√	√
38.	Water pump	Petrol engine 8 HP capacity	Each	1:10	√	√	√
39.	Screw drivers	Plastic handle star	Set	1:10	√	√	√
		Flat screws with plastic handle	Set	1:10	√	√	√
40.	Files	Round files 50 -300mm	Each	1:1	√	√	√
41.	Hack saw frame	Metallic handle adjustable pistol	Each	1:1	√	√	√
42.	Hacksaw blades	Standard teeth with 24 pitch	Each	1:1	√	√	√
43.	Vernier callipers metric	Metric metallic 0 -50mm	Each	1:5	√	√	√
44.	Saws	Hardened teeth, plastic handle 550mm, 7 teeth/250mm	Each	1:4	√	√	√
45.	Mechanical jack	Maximum load 15 tonnes, with 600 mm lifting height capacity	Each	1:20	√	√	√
46.	Tyre lever	Length 610mm	Each	1:4	√	√	√
47.	Wheel spanner	Socket 24 -36mm	Set	1:10	√	√	√
48.	Pullers	3-legged gear type with maximum 250 mm reach and 200-250mm spread	Each	1:4	√	√	√
49.	Anvil	575mm length with 50 -75kg in weight	Each	1:10	√	√	√
50.	Try squares	Metallic 300mm	Each	1:4	√	√	√
51.	Desks	Wooden with 60x60x75cm	Each	1:1	√	√	√
52.	Chairs	Wooden with 45x50xcm	Each	1:1	√	√	√
53.	White board	Wooded coated with white colour 3x6 feet	Each	1:1	√	√	√

BASIC TOOLS AND EQUIPMENT FOR MEAT PROCESSING TECHNOLOGY (FOR 20 TRAINEES)

A - EQUIPMENT:

S/N	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
1.	Weighing scales	Live weight Weighing bridge 0-1000kg Range - 10kg	Each	1:20	√		
		Overhead hanging scale 0 – 500kg Range - 5 kg	Each	1:20		√	√
		Platform scale 0 – 500kg	Each	1:20		√	√
		Electronic top balance with pricing panel, Digital Range 10kg – 100kg	Each	1:20			√
		Electronic top balance Digital 1kg x 0.1kg.	Each	1:20			√
		Electronic Rail scale	Each	1:20	√		
2.	Hoist devices	Overhead, with block chain capacity 1000kg	Each	1:20	√	√	
3.	Mincing machine	• Electric machine, stainless steel 4000kg/hr	Each	1:20		√	
		• Hand operated with under locking with, several plates and knives fitted with nozzle capacity 1kg /min	Each	1:20			
4.	Flake ice machine	Stainless steel machine produce at approx – 25°C Capacity 400kg /day storage capacity 20 – 200kg Standard frame 1 ¾”cubes.	Each	1:20		√	
5.	Dicing machine	Make inches from 3/16” to 1”	Each	1:20		√	√
6.	Meat Tumbler	Process bowl width 460mm Meat capacity 480 Litres Size: 1430x1430x1100mm Motor: 5kW	Each	1:20		√	
7.	Bowl Cutter /Chopper	Chop both chilled and frozen meat, size 1 x 0.5m Bowl capacity 15 to 30 quartz.	Each	1:20		√	
8.	Mixing machine	Bowl type with beaters capacity 10 – 25kg Volume 25 -50 Litres	Each	1:20		√	
9.	Stuffing machine/piston filler	Cylindrical with filling nozzle, Semi-automatic capacity 10kg	Each	1:20		√	

S/N	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
10.	Vacuum package machine	Chamber size: 675x650x95mm No of hot sealer: 8 Size of sealing : 500x8mm Power : 380V 50Hz Power : 2.5KW Minimum absolute pressure: less or equal to 0.133kpa Outside dimension 125x760x915mm	Each	120		√	√
11.	Microscope	Optical performance illumination 12V/20W Lamp with universal power supply (110 – 240W) Electrical stage size 150x135mm with movement of 76mm x 50mm.	Each	1:20	√	√	√
12.	Labelling machine	Dynamo type writer 1540, Volume 30 Litres	Each	1:20		√	√
13.	Oven	Internal Dimension 305x315m x315m	Each	1:20	√	√	
14.	Cling foil machine	Stainless Dimension 305x315x315mm	Each	1:20		√	
15.	Refrigerator	Fridge/freezer Capacity 99 Litres Internal dimensions 490x443x469mm	Each	1:20		√	√
16.	Display cabinet	Fan assisted with visible thermometer set 0 to $\pm 1^{\circ}\text{C}$	Each	1:20			√
17.	Computer set	Modern with a printer	Each	1:10			√
18.	Autoclave	Vertical Electrical /steam, 50-100 Litres	Each	1:20	√	√	
19.	Boiler	Electrical Blast furnace producing 250 Litres of steam per hour	Each	1:20	√	√	√
20.	Tripe Hash Washer	Stainless capacity of washing 50 tripe's / hour	Each	1:20	√		
21.	Knocking pen	Galvanised stunning box 150 x 220cm with sliding door	Each	1:40	√		
22.	Standby Generator	Diesel 25 – 125kW	Each	1:20	√	√	√
23.	Water storage tank	Concrete /hard plastic 10,000 Litres	Each	1:20	√	√	√
24.	Mini Automatic Hamburger machine	Volume 30 Litres Power: 550W Belt width: 130mm Weight: 100kg	Each	1: 20		√	

S/N	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
		Capacity: 35pcs/ hour.					
25.	Portioning Equipment	Hand operated, fitted with hydraulic press filling portion of 46.6 to 18.6 in casings or cans	Each	1:20	√	√	
26.	Saws: Band saw	Heavy duty sawing capacity Tubular frame with quick tension lever:- Power: 2.2 Kw (3phase380) Dimension: 940 x836 x166mm Saw speed: 23.4m/s Weight : 197 kg	Each	1:20	√	√	
27.	Splitting saw	Electrical 30cm long	Each	1:20	√	√	
28.	Fire Extinguisher	Foam /water /powder	Each	1:20	√	√	√
29.	First Aid Kit	Standard large size with all accessories	Each	1:20	√	√	√
30.	Calculator	Digital Range 0.01, scientific	Each	1:5		√	
31.	Brine pumping Machine	A set contained stainless steel needle, pumping rate 100L/hr or discharge time of 46 second	Each	1:20		√	
32.	Smoke Box	Capacity 50-100 Litres Internal dimension 400 x 350 x 420mm	Each	1:20		√	
33.	Meat slicing machine	Dimension: 520 x465 x43mm Blade dimension: 250mm Cutting thickness: 0 -15 Cutting speed : 30mm Power : 200kW Rated voltage: 220 Volts Rated frequency: 50Hz Weight : 25kg	Each	1:20		√	√
34.	Vertical Feather Plucking machine	Galvanized, with plucking fins and electric operated	Each	1:20	√		
35.	Overhead projector	Portable	Each	1:20	√	√	√
36.	Cash register	Barcode scanning.	Each	1:20	√	√	√
37.	Separator of meat and bone	Power(kW) : 5.5 Output (r/min) : 102 Capacity: 8 – 800 (kg/h) Weight: 364 kg.	Each	1:20		√	
38.	Rapid action chain block	Manual operated pulley of not less than 750kg,	Each	1:20	√		
39.	Stunning tools	• Electric stunner device for cattle	Set	1:20	√		

S/N	ITEM	SPECIFICATIONS	UNIT	RATIO	LEVEL		
					I	II	III
		300V with restrainers conveyor <ul style="list-style-type: none"> • Electric stunner device for shoats (sheep & goat) voltage level between 70-125V • Captive bolt stunner with cartridge with range in strength 1 ¼ to 7 grains slaughter rate 240cm /hr. • Pneumatic stunner with pressure 					
40.	Electrical pilling machine	Round skinning device with plastic handle, 150mm diameter	Each	1:20	√		
41.	Skinning cradle for cattle	Movable stainless steel raised table, size 450x142cm.	Each	1:20	√		
42.	Tenderizer	Super tender metric, 48 blades	Each	1:20		√	
43.	Syngeing machine	Metal gas container with torch flaming.	Each	1:20	√		

B - TOOLS:

S/N	ITEM	SPECIFICATIONS	UNIT	LEVEL			
				RATIO	I	II	III
1.	Knives	Sticking knife, 23cm long, 4cm wide with a straight back unsharpened except for the tip with blade and handle	Each	1:10	√		
		Skinning knives, 15cm curved	Each	1:1	√		
		Boning knives, 30cm curved	Each	1:1	√	√	√
		Steak knives, 20cm straight	Each	1:10	√	√	√
2.	Steel sharpener	Rod with plastic or metal handle	Each		√	√	√
3.	Scabbard	Plastic or stainless with 3 partitions and chain as a belt	Each	1:1	√	√	
4.	Spades	Round spade	Each	1:5	√	√	√
		Forked spade	Each	1:5	√	√	√
5.	Scalding vat	Rectangular stainless, non-corrosive material Capacity 100 Litres 6cmx60cm x 100cm	Each	1:20	√		
6.	Chopping Board	Large, while polyester material 110 x 100 inches	Each	1:20		√	
7.	Meat Cleaver	Stainless hand axe 500gm	Each	1:20	√	√	
8.	Shackling chain	Block chain galvanized	Each	1:10	√		
9.	Rollers	Stainless steel 9kg	Each	1:20	√		
10.	Shackles (hooks)	Stainless steel, 25kg	Each	1:20	√		
11.	Spreader /gambrel	Stainless or metal pipe with 2 hooks	Each	1:20	√		
12.	Trolleys	Tubular frame 50kg, trays are welded at heights dimensions 890x465x840mm	Set	1:20	√	√	√
13.	Scraping table /de hairing table	Solid galvanized or aluminium tops or concrete	Set	1:20	√		
14.	De boning tables	Stainless steel with heavy plastic leg ends height 1m with width of 1m and length of 3m	set	1:20		√	√
15.	Stirrer	Stainless steel 4 bladed or have handle wooden spoon	Each	1:10		√	
16.	Cook basket	Stainless steel Nylon coated wire 200x200x150mm	Set	1:20		√	
17.	Hooks	Non corrosive material, 12cm width, 25cm or 75cm long	Set	1:20	√	√	√
18.	Hand washing basin	Heavy duty (non domestic) Stainless steel, Hot and cold taps operated by key or arm lever	Set	1:20	√	√	√

S/N	ITEM	SPECIFICATIONS	UNIT	LEVEL			
				RATIO	I	II	III
		750x450mm					
19.	Sterilizers	Stainless boxes to hold hot (82°C) water, shaped to suit knives, cleavers, saws etc.	Each	1:5	√	√	√
20.	Bins	Plastic or non-corrosive material	Set	1:5	√	√	√
21.	Casings	Cellulose, fibrous or plastic 17 to 32mm	Set	1:20		√	
22.	Cattle spreader (gambrel)	Stainless steel with 2 hooks 52cm	Each	1:5	√		
23.	Three wheel offal carrier vessels	Stainless steel, 40x60x50cm	Each	1:20	√		
24.	Three wheel carcass carrier vessels	Stainless steel 40x60x50cm	Each	1:20	√	√	
25.	Overhead racks	Galvanized tripod stand, with hang up hooks, 1.5m above the floor, with hooks of 2.5cm	Set	1:20	√	√	
26.	Head inspection cabinet	Three walls, with one hanging hook and flash spray 1.5m above the floor	Each	1:20	√		
27.	Butcher meat saw	High Tubular frame with quick tension lever 22inches. Blade length 610mm	Each	1:5	√	√	
28.	Plastic trays	20 Litres	Each	1:20	√		
29.	Hide and skin trolley	Non corrosive 35cm above the floor, 85cm high 160mm long	Each	1:20	√		
30.	Holding tank	Cylindrical volume 20-100 Litres	Each	1:20	√		
31.	Jacketed cooking pot	Kettle, with fitting Volume device 100 Litres Flat bottom Volume 100 Litres	Each	1:20	√	√	
32.	Buckets	Hard plastic 20 Litres	Each	1:1	√	√	√
33.	Holding drum	Stainless /Hard plastic with fitting cover	Each	1:5	√	√	√
34.	Stool	Stainless /galvanized top and stand 60cm, long	Each	1:2	√	√	√
35.	Hose Pipe	Rubber, 25mm in diameter with nozzles of 1mm holes, 60m long length.	Each	1:20	√	√	√
36.	Squeegee	Wooden handle with rubber blade	Each	1:10	√	√	√
37.	Scraper	Iron bar, 8-20cm with metal handle	Each	1:20	√	√	√
38.	Collecting Shovel	Iron , non-corrosive material 10x	Each	1:20	√		

S/N	ITEM	SPECIFICATIONS	UNIT	LEVEL			
				RATIO	I	II	III
		20cm, 2-6cm depth toward the handle					
39.	Petri dishes	Pyrex glass Gas 54.2D x 20 Litres	Each	1:20	√	√	√
40.	Burner	Bunsen Burner	Set	1:20	√	√	√
41.	Insect Electrocute (ultraviolet florescent tube)	Ultra violet light 250x250x 610mm, 610 watts	Set	1:20	√	√	√
42.	Steel paunch	Metal, non-corrosive ¼ x 12 inches long	Each	1:5	√		
43.	Hide draining rack	Galvanized tripod frame 3m above the floor	Each	1:20	√		
44.	Hide and skin puller	Standard	Each	1:20	√		
45.	Viscera overhead rack	Stainless bar with hook fixed on the wall 2m from the floor	Each	1:20	√		
46.	Hand rub	Soap dispensers	Each	1:5	√		
47.	Meat thermometer	Stainless steel needle, round glass panel,	Each	1:5	√	√	√
	Clinical thermometer	Digital, minus 10 to 50 Degrees Centigrade	Each	1:2	√		√
48.	Weigh band	Water resistance tape for determining weights of cattle and pigs.	Each	1:10	√		√
49.	Meat floss pressing machine	Stainless steel, 5 to 10 litres	Each	1:10	√		
50.	Hammers	Iron claw hammers	Each	1:5			√
51.	Rope	Sisal twine	Each	1:10			√
52.	Safety gears	Heavy duty gloves, leather gloves	Pair	1:1	√		√
		Masks, clear plastic glass, standard size	Each	1:1	√	√	√
		Helmets, white plastic type	Each	1:1	√		
		Wrist guards, Stainless steel iron gloves	Each	1:5		√	
		Scabbards, plastic with stainless chain belt	Each	1:5	√	√	√
		Slaughter gowns, plastic and water proof material	Each	1:1	√		
53.	Chairs	Wood or steel, size 45 x 45cm	Each	1:1	√	√	√
54.	Table	Wood or steel, Size 60 X 60cm	Each	1: 1	√	√	√