Ethiopian TVET System

Animal Production Level-II

Training Module –Learning Guide 20-23

Based on Version 3 March 2018 Occupational Standard (OS)

Unit of Competence：Assist Basic Husbandry Practices of Draft Animals

Module Title: Assisting Basic Husbandry Practices of Draft Animals

TTLM Code: AGR APR2TTLM 0919 v1

October 2019

Module Title: Assisting Basic Husbandry Practices of Draft Animals

TTLM Code: AGR APR2TTLM 0919 v1

This module includes the following Learning Guides

LG20: Prepare and provide house and work for draft animal

(LG Code: AGR APR2 M07 LO1-LG-20

LG21: Perform daily work program

(LG Code: AGR APR2 M07 LON-LG-21)

LG22: Select, catch and tie up draft animals

(LG Code: AGR APR2 M 07 LO3-LG-22

LG23: Clean and maintain stable gear and surrounding areas

(LG Code: AGR APR2 M 07 LO3-LG-

Instruction Sheet	Learning Guide #-20

This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics –

- ❖ Introduction to draft animals
- ❖ Housing of draft animals
- ❖ Applying feeding and watering for draft animals
- ❖ Interpreting and confirming Works
- ❖ Selecting, checking, maintaining and using Suitable materials, tools and equipments
- ❖ Selecting, checking, maintaining and using Suitable PPE

This guide will also assist you to attain the learning outcome stated in the cover page.

Specifically, upon completion of this Learning Guide, **you will be able to –**

- ❖ Provide required buildings or housing for draft animal based on their space requirements
- ❖ Apply Feeding and watering to draft animals appropriately
- ❖ interpret and confirm Work to be undertaken
- ❖ Select, check, and maintain suitable Material, tools and equipment
- ❖ Select, use and maintain Suitable Personal Protective E equipment

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number 3 to 7.
3. Read the information written in the “Information Sheets 1,2,3,4 and 5 in page 1,6, 10,12 and 18 respectively”. Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.
4. Accomplish the “Self-check 1,2, 3, 4 and 5 ” **in page 5,9,11, 17, 19 respectively**
5. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answers only after you finished answering all Self-checks).
6. If you earned a satisfactory evaluation proceed to “next Information Sheets”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #20.
7. Submit your accomplished Self-check. This will form part of your training portfolio.

Information Sheet-1	Housing of draft animals

1.1. Definition of draft animal

Generally, draught animal power (DAP) describes the use of animals to provide the vital power for crop cultivation and transport. There are a number of words used to describe the same, and include: animal traction (AT) and draught animal technology (DAT). Note that draft and draught have been used interchangeably to describe the 'pull' force.

Animal traction, animal-powered mechanization, and animal draft are terms which describe the use of animals to pull farm equipment, vehicles, and other loads.

In many rural communities, cattle, donkey's mules, horses, camels and other working animals are used by farmers in tillage operations and provision of transport services. Ethiopia is the richest country of Africa in draft animals, including cattle, camel, donkey, mule & horse. Draft animals assist the societies in different tasks. The most common use of draft animals (**except** oxen) is as pack animals for transport of **goods** and **people.** They are important in reducing drudgery and intensifying agricultural production.

Structurally, DAP describes a system of interaction between the operator, the implement and the animal. Each of the sub-systems is fundamental and entails a number of factors that are important in ensuring proper functionality

1.2. Housing of draft animals

The provision of shelter for draft animals is an essential management practice that not only ensures protection from adverse weather condition but also provides a rest area especially after work. A shed must facilitate feeding, watering and ease of cleaning. Poorly constructed houses are danger to stockowner, often they lack hygienic consideration and are difficult to maintain.

Draft animal house should be prepared using local simple material (i.e. wood, mud bricks) to keep the cost to minimum. In warm dry climate roof supported by poles, however in cool areas half or three quarters of walls is solid. The space requirement of

the individual animal is 1.5 -2 ms wide .a yoking bar is fixed at height of 90cm -150cm from the ground used during feeding and watering, harnessing and health care routine.

Generally draft animal housing should accomplish the following

- It must protect the animal from sun, rain and chilling wind
- It must be strong and well-constructed in a way that will prevent from attack of predator
- In a case of theft problems, a shed that completely enclose animals, and has a door that can be locked may be required
- The shed must be adequately hygienic with good drainage, ease of cleaning, a good ventilation and adequate light.
- It should also permit complete removal and utilization of manure

Self-Check -1	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. The terms which describe the use of animals to pull farm equipment, vehicles, and other loads is------(1pt)
   A. Animal traction
   B. Draft animal power
   C. Animal power mechanization
   D. All
2. One is not the main use of draft animal power (1pt)
   A. Transporting of goods
   B. Transporting of people
   C. For milk production
   D. For tillage

3. List at least four (4) the purpose of draft animal power housing (2pts).

Note: **Satisfactory rating - 3 points** **Unsatisfactory - below 3 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

1. ----------
2. _____
3. _____
   _____
   _____

Information Sheet-2	Applying appropriate feeding and watering to draft animal

2.1. Feeding to draft animal animals

A good feeding program is essential in maintaining the strength and health of draft animals. Food is the fuel which an animal converts to energy and pulling power. Animals that are not fed enough of the right feeds can show chronic fatigue, will lose the ability to work, and are more susceptible to disease. Excess calories are stored as fat, causing animals to become inefficient workers, lazy, stubborn and ill-tempered.
A basic knowledge of the dietary, needs of draft animals and of the nutritional content of available feeds will enable owners to plan a feeding program that will help their animals to work to their full potential.

Grazing draft animals need supplemental feeding for the following reasons:

- to increase energy intake and prevent protein, vitamin-and mineral deficiencies
- Because of limited grazing time or limited forages availability.

Animals burn many more calories when working than when idle or grazing. This means that the energy requirements of an animal will increase with the work load. Experience and research have shown that animals need about twice their normal energy maintenance requirement when they are used for.

2.1.1. General Rules for Feeding:-

1. Feed the animal so that it gains weight and maintains strength but does not become fat or lazy .Never let it lose weight.
2. Feed large quantities of grass, straw, and other bulky, fibrous foods. These foods are called roughages. If they are of good quality, they supply all the nutrients that a grazing (non-working) animal needs for body maintenance. Protein, phosphorous and Vitamin A maybe deficient in forage growing on arid land.
3. If only poor quality roughage diet is available, supplement the roughage diet with grain and other concentrate feeds such as beans, seeds, mill by products and oil cakes. These feeds give the animal' additional energy for work.

4. Give the animals salt and mineral supplements.
5. Deworm the animals regularly if parasites are present. This ensures that parasites do not interfere with digestion and that animals get the full value of food.
6. Use quality feeds:
    - ❖ Do not let animals graze in pastures where herds of other animals graze, or eat grain or hay from the ground or stable floor. These may be contaminated with parasites.
    - ❖ Never feed mouldy or dusty feeds. These cause serious digestive problems.
    - ❖ Improve the nutritional value of insect-infested grain by mixing good grains, mill by-products, or peanut or cotton-seed cake into the daily ration.
    - ❖ Never give animals' free access to lush; young grass or leaves of young corn or peanut plants. These can cause serious conditions like bloat, colic, or dehydration due to diarrhoea.

2.1.2. How much to feed

The amount of extra feed that draft animal need depends on their size, the amount of work load, the quantity and quality of pasture available and the type and quality of feed used for supplementation.

E.g. Draft animal have stomachs designed for frequent small meals (such as when grazing naturally) so the more often they are fed the better. It is not a good idea to feed a lot of forage in the morning before work.

Give small amounts then and during rest periods in the day. Supply supplementary forages in the afternoon and evening, allowing donkeys to feed during the night. A nursing jenny needs the equivalent of about 2 - 3% of her body weight a day if she is only fed forage. A working donkey needs about 3 - 4% of its body weight a day. Thus an average donkey will need about 4 to 6 kg of fodder a day if nursing or working. A jenny that is both nursing and working will need more. If a donkey cannot obtain this amount from available grazing, it will need supplements. In any case, if donkeys are fed concentrate each working day, they will require less grazing, and learn that work brings rewards.

2.2. Watering to draft animals

During the rainy season, grazing animals get considerable amounts of water from the grasses and other succulent forages they consume. Under these circumstances, drinking water consumption is not an accurate indication of water requirements. Actual water needs are determined by size, species, environment, and intensity of work. Larger animals drink more because they have a greater body mass to cool. Muscular activity (work) generates additional heat. Working animals lose water from sweating and therefore need to increase their water intake.

Table 1: Water Requirement's of Draft Animals

Animal	Litters per day
Oxen	10-30 rainy season
	15-40 dry season
Horse	30-50
Donkey	10-20
Mule	15-30

Working animals should have access to water at least three times per day--morning, noon, and night. Horses and some cattle engaged in heavy work may need a short drink every two or three hours. Zebu cattle, donkeys and mules can work for longer periods without drinks but still should be offered water during the mid-day resting/grazing period. A heated animal should never be allowed free access to water

Some animals will drink too much water in the evening. This may prevent them from eating their concentrate feeds. They should not be allowed to drink freely until after feeding. A small drink maybe given before food is offered

Self-Check -2	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Which one is the character of draft animal not fed enough feed?(2pt)
   A. chronic fatigue,
   B. Store excess fat
   C. Lose the ability to work
   D. Susceptible to disease

2. The reason for grazing draft animals need supplemental feeding (1pt)
   A. Because of limited grazing time
   B. Limited forages availability
   C. To increase energy intake
   D. Prevent protein, vitamin-and mineral deficiencies
   E. All

3. One is not concentrate feed (2pts)
   A. Grain seeds
   B. Mill by products
   C. Straw
   D. Oil cakes

Note: **Satisfactory rating - 5 points** **Unsatisfactory - below 5 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer

1. ----------
2. ----------
3. ----------

Information Sheet 3	Interpreting and confirming with management the Works to be undertaken

Before attempting to determine the kind and number of animals required for any particular farm, animal owners should be familiar with the concepts of pulling (draft) capacity and power. They should also consider the working characteristics of draft animals

Animals vary not only in their ability to pull loads, but also in the number of hours they will work. Oxen will pull between one-seventh and one-tenth of their weight for 4-5 hours per day. Donkeys will pull about one-fifth lid their weight for 3-4 hours. Bulls worked longer when the load was decreased slightly and the work done in two sessions, 2 to 3 hours in the morning and 2-3 hours in late afternoon. Donkeys refused to work beyond 3-4 hours regardless of how the work was distributed and in spite of a reduction in the size of the load.

By having this information, it is possible Codetermine the kind and number of draft animals needed to power various field operations

Self-Check -3	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. How many percent of their body weight the oxen can pull the load?(3pts)

Note: **Satisfactory rating - 5 points** **Unsatisfactory - below 5 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

1._____

Information Sheet 4	Selecting, checking, maintaining and using Suitable materials, tools and equipments

3.1. Selecting Tools and equipments

There are different kinds of tools and equipments according to their uses and their selection as the requirements

Essential components of animal draught and the equipment

Anything drawn by animals has 5 essential components:

- ❖ The animal/s (power source)
- ❖ The harness (what is on the animals to enable them to pull)
- ❖ The hitch (connection between harness and implement)
- ❖ The implement (includes carts)
- ❖ The work (in the case of carts, this is the load they take).

Each one of these has an effect on the functioning of the others. Bad design in one can have an adverse effect on the efficiency of every other component.

3.1.1. Selecting tools and Equipments for transport

1. Sledges

Sledge is the most simple load vehicle made out of a Y-shaped tree branch which attached to the animal by a trek chain.

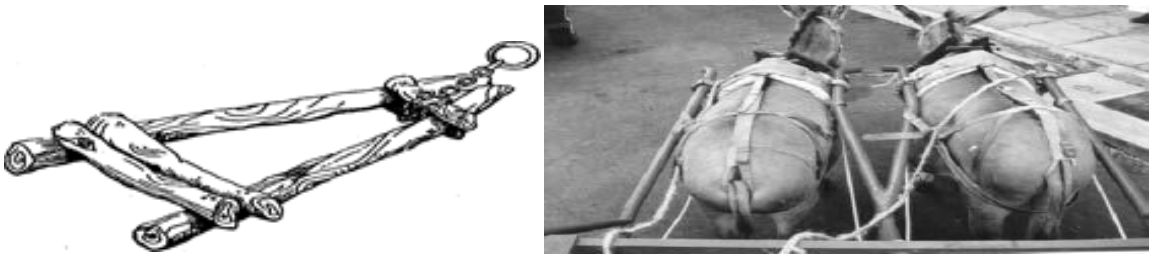


Fig1: Simple wooden sledge

3. Cart

Carts are two-wheeled vehicles, which can be small and light, pulled by one equine, or may carry over one ton and be hitched to a team of donkeys.

Fig 2: carts

4. Wagons

Wagons are four-wheeled vehicles with a higher weight capacity than carts (*figure 3**)**. They are best suited to tarred and level roads and to areas where the increased load capacity is cost-effective

Fig 3: Wagons

3.1.2. Yokes and harnesses

Harness: - the equipment links the draft animal to the carts, wagons or implements to transmit power of its work load. These are breast band, collar, bit, bridle, rein (line), girth, trace, saddle beech.

Breast straps (bands): **-** are the materials which made from leather, synthetic webbing, or industrial webbing, belting and tyre webbing that Horses, mules and donkeys pull best from their chest and shoulder. It is a strap positioned across the breast and supported by one or two straps; the first one passes over the withers and the second one over the back. Its width is about 6cm

Breech: - the strap that passes around the hindquarters of the harnessed animal and transmits a reverse draught to the cart. Used for braking and reversing.

Collar harness: - a padded collar positioned around the neck; traction is transferred from the shoulders through rigid hames and traces.

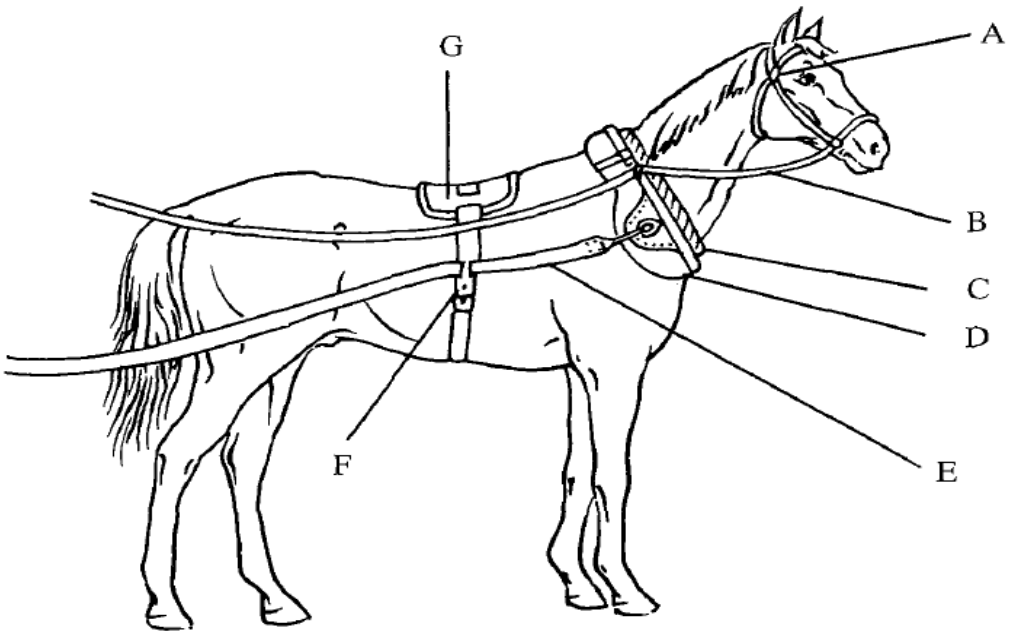
Trace: - the chains or ropes used to transmit the draft force from the collar or breast-band harness to the work load.

Bridles: - straps around head of an animal to which reins are attached for controlling head.

Saddle: - wide strap across equine back for taking load.

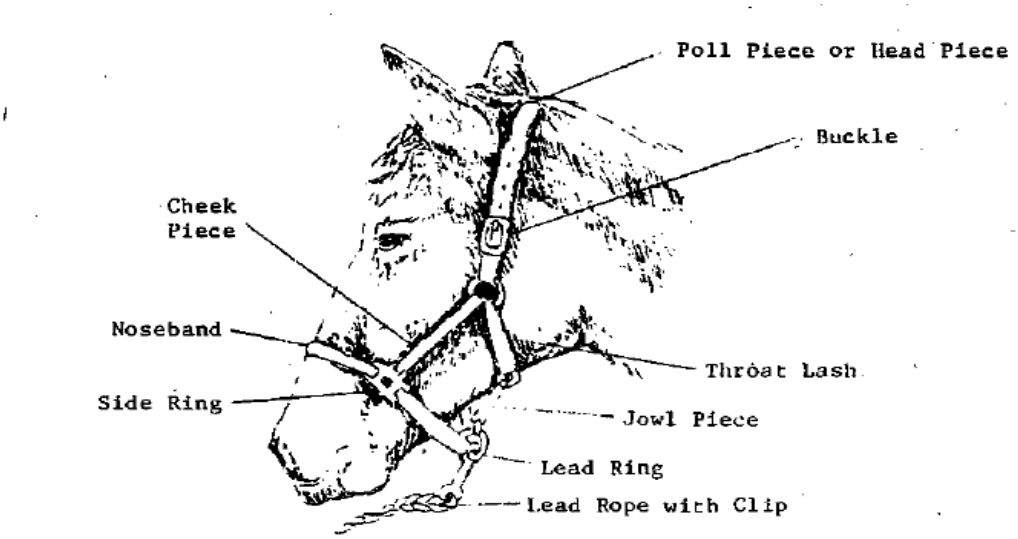
Swingle: - a wooden pole to which the traces attach at each end and the work load attaches at the centre. This allows the harness to move with the shoulders, so reducing rubbing

Yokes: - strong bar, usually made of wood, which an animal can push against in order to pull an implement. Trek chains are attached between the yokes and the implement to be pulled.

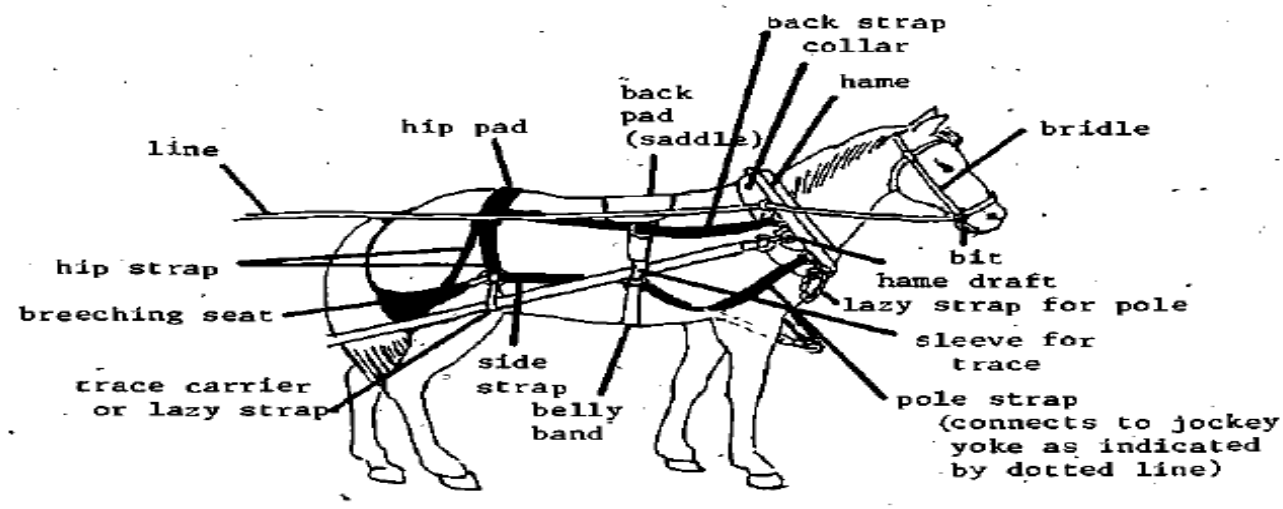


A: bridle
B: line (rein)
C: hames
E: trace
F: sleeve for trace
G: frame for taking vertical load and guide

Fig 3.collar harness



Leather Halter for Horses, Donkeys, Mules, or Cattle



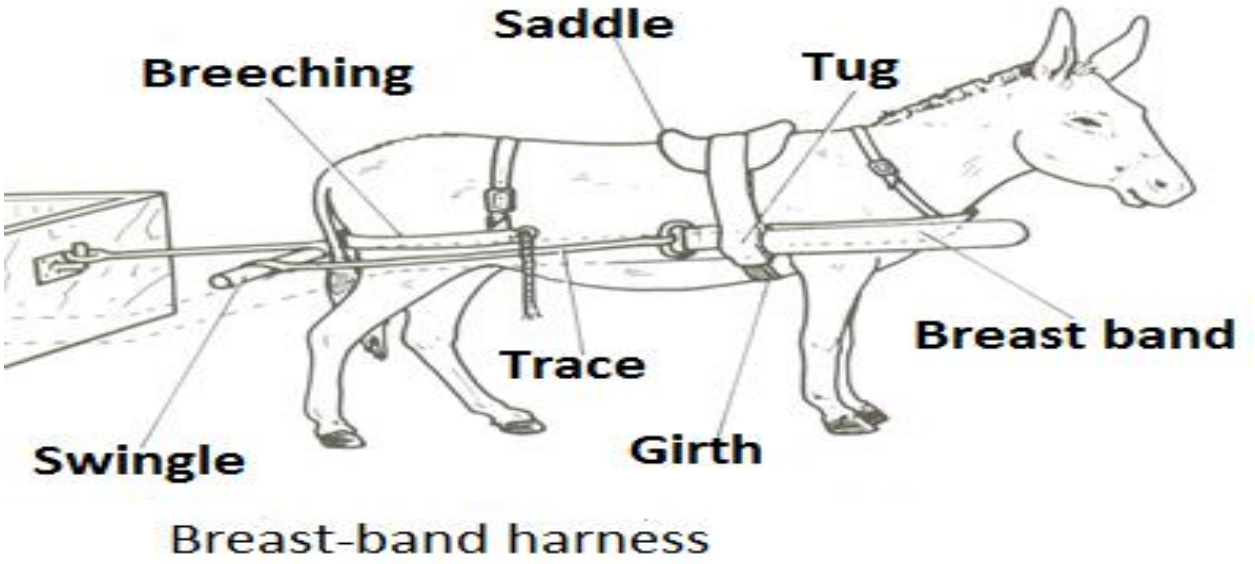


Fig4: -Different harnessing equipments.

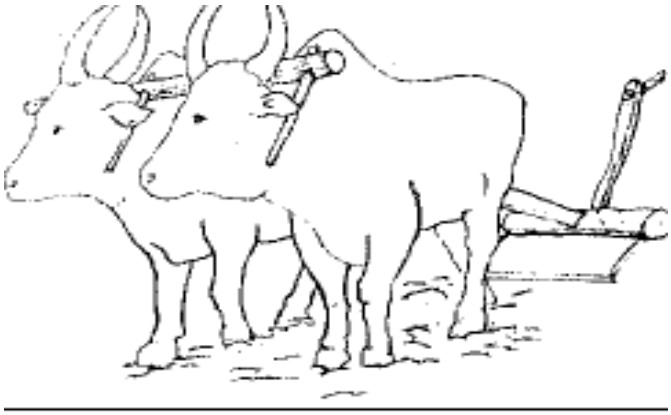


Fig 4: Yoke

Self-Check -4	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. List at least three transporting equipments.
2. Name the harnessing materials for horse riding by cart.

Note: **Satisfactory rating - 5 points** **Unsatisfactory - below 5 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

Information sheet 5	Select, use and maintain Suitable personal protective equipment (PPE)

This may include boots, helmet, overalls, gloves, protective eyewear, hearing protection, and respirator or face mask, and sun protection. The selection of PPE and devices to protect workers in any given hazard situation should be based on consideration of at least three factors:

- Information (yielded by the hazard assessment) on the nature and magnitude of the hazard.
- Performance data on the PPE and/or device under consideration.
- The estimated level of residual risk to which the worker will be exposed.

Use of PPE is trained to the worker in form of training program

Training programs should seek to orient learners to correct use of PPE via an optimal mix of cognitive (information-based), affective (attitudinal), and applied (laboratory practice) approaches

Self-Check -5	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. List the protective equipment equipments used in draft power
2. What are the consideration to choose the PPE

Note: **Satisfactory rating - 5 points** **Unsatisfactory - below 5 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

List of Reference Materials

International Livestock Centre for Africa (ILCA). (2003). Federal strategies for draught animal. *ILAC* annual report. Addis Ababa, Ethiopia: 67-71.

Musa, L. (2008). The relevance of animal power in agriculture in the tropics. *Agrosatellite Journal.* Vol.1. No.2. Pp.22-28

FAO. 1994. Draught animal power manual: A training manual for use by extension agents.

STARKEY P. (1988). - Animal drawn wheeled tool carriers - perfect yet rejected. Vieweg.

STARKEY P. (1989). - Harnessing and implements for animal traction. Vieweg.

Bukanawo, D. (2001). Yokes or Collars: Harnessing techniques for draught Cattle. *Agro-Satellite*. Vol. No.1 Pp.1-4.

Instruction Sheet	Learning Guide #-21

This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics –

- Carrying out Work programs for stable animal
- Selecting and preparing Draft animals for professional services
- Following organizational procedures and instructions
- Preparing Draft animals for specified daily work program
- Washing down Draft animals after finishing work

Recording Work routines and performances

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, **you will be able to –**

- Carry out Work program for each stable animal as instructed by the stable manager.
- select and prepare Draft animals for professional services
- Contact Supervisor as required by organizational procedures or supervisors instructions according selection criteria.
- Prepare Draft animals for specified daily work program
- Wash Draft animals after working, dried, rugged, returned to their stable and fed
- keep and maintain Work routines and performance records as an integral part of the stable business

Learning Instructions:

8. Read the specific objectives of this Learning Guide.
9. Follow the instructions described in number 3 to 7.
10. Read the information written in the “Information Sheets 1, 2,3,4,5 and 6 in page 1,3,9,10,12, and 14 respectively”. Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.
11. Accomplish the “Self-check 1” in page 2,7,9,11,13, and 17 respectively.

12. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering all Self-check).
13. If you earned a satisfactory evaluation proceed to “Information Sheet 2”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #21.
14. Submit your accomplished Self-check. This will form part of your training portfolio.

Information Sheet-1	Carrying out Work programs for stable animal

Work program is the organizational standard operation and supervisor instruction for working with draft animals. It is setting the programs in the care, and cleaning equipment, maintaining all equipments and keeping hygiene of animal- farming premises according to the instruction of stable manager.

Regularly the following work program shall be carried out for stable animals:

- The shed should be open into paddock to allow the animal to exercise.
- The shed and the paddock should be free from sharp objectives like nails or broken rails.
- Mud and manure should not allow accumulating in the in building.
- Manure should be removed from the shed daily, unless it has a deep litter system where system whereby fresh bedding material is added daily. If this manure is pilled in the draft animals outside it loses its quality rapidly; because sunlight accelerates loss of minerals, hence nitrogen is lost rapidly. In addition rain water leashes the nutrient in the manure.
- The healthy of animal program checks and work for stable animals
- Keep his welfare during and after work

To check the health and condition of draft animal the following signs are observed.

- The animal should have smooth shiny coat
- The muzzle should be cool and moist but not watery.
- The dung and urine should be normal, urine; a beer color, dung; not watery; but piles up.
- The animal should have alert ears, moving to fro.
- The eyes should be clear and bright.
- The appetite must be good.
- Breathe normally and chew the cud.

Draft animals are secured by using rearing bit, war bridle, blindfold, twitch, neck skin hold, leg strap, hobbles, and sidelines

.

Self-Check -1	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What are work program carried out for stable animals

Note: **Satisfactory rating - 3 points** **Unsatisfactory - below 3 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

Information Sheet-2	Selecting and preparing Draft animals for professional services

2.1. Selecting draft animals for professional services

Animals should be selected according to the type of work to be performed, the local environment, socio-economic conditions and the availability of local animals. Indigenous breeds tend to be well adapted to the local climate, feed availability, and diseases and to traditional management systems. Those animals are:

2.1.1. Donkey

- Donkeys provide power for agriculture and transport at a low cost.
- Donkeys adapt well in dry areas.
- They eat less than cattle and for this reason do better than cattle under drought conditions and in heavily stocked areas.
- They are also lighter and smaller than cattle.
- Donkeys can live a long life and can be worked up to 25 years of age.
- They can carry goods and people on their backs in hilly as well as flat areas, pull carts, turn mills and waterwheels, cultivate fields and can even be used to guard sheep against predators such as jackal and lynx.
- Carts can be pulled faster than in the case of oxen, but donkeys are better suited to lighter field work and cannot work for long periods.
- Women and children can also handle donkeys.
- The animals are very patient, hard working and dependable.
- The common idea among the general public, commercial farmers and extension officers that donkeys are lazy or eat too much is quite unfounded.

2.1.2. **Cattle**

- Oxen are some of the most powerful draught animals but they are slow and labour intensive.
- They are generally used for heavy work where speed is not essential (ploughing and pulling heavy carts and wagons).
- Cows can be used where the work is light and infrequent (planting and cultivating).

- Bulls can also be used as part of a span

2.1.3. **Horses**

- Horses and ponies are mostly used for riding in highland areas.
- They provide strong, fast transport but do not generally have the hardiness of other draught animals.
- They may be used for ploughing, harrowing, planting, weeding and transport.
- These animals have not been used as widely as oxen as a result of horse sickness which occurs in low-altitude areas.
- Horses are used to pull carts in the rural areas.
- Sometimes “thoroughbreds” are bought cheaply from the racing industry.
- As they have not been bred as draught animals, they do not do well and generally do not live long.
- Heavy breeds such as Percherons, Clydesdales and Shires may be used as traction animals on farms. The Percheron appears to adapt best to South African conditions

2.1.4. Mules

- Mules are strong, intelligent, hardy and hard-working animals.
- Because they are large animals, they are more easily used by men than by women or children.
- They cost the same as oxen, but are considerably more expensive than donkeys.
- Mules can be used for ploughing, harrowing, planting and logging.
- They can also be used for packing and to pull carts and wagons.
- The animals can work on poor quality feed, under hard conditions up to an age of 35 years.

Farmers must be able to select the animal or animals most appropriate for their needs. The animals they choose must be culturally acceptable, trainable, maintainable, and profitable within the overall farm plan. It is also important that the animal be available locally, since these animals are already adapted to local feeds and climate and are likely to be resistant to diseases in the region. Of course, farmers should choose healthy

animals from strong stock. In some areas, farmers must consider social or religious traditions which restrict the ownership or use of animals.

The primary criteria for the selection of draft animals employed are:

- Availability,
- Price,
- Adaptiveness to the region and conditions existing on the farm (climate, fodder Availability, husbandry),
- Suitability of the work to be carried out,
- Possibilities of multiple utilization

Once farmers decide what kind of draft animal will be used, they must be able to choose individual animals which are sound and trainable and have a considerable work expectancy and resale value. Selecting a good draft animal is a matter of evaluating both physical and behavioral attributes.

2.2. Preparing draft animals for professional services

Before introducing harnesses and starting draft animals to this professional work/ services, both the animal and the farmer must be trained. Training animals for traction involves an understanding between the trainer & the animal. The animals need to trust you. For that we need to be patient and reward them for good behavior. Training may be carried out at training centers, but when undertaken on the farm or within the village community, this provides a more practical and “homely” environment. If possible, the farmer should train his or her own animal, because the sooner a good relationship is established between farmer and animal, the better. Training requirement scan vary greatly and depend upon both the ability of the trainer and the temperament of the animal. An experienced trainer may be able to go through the exercises much faster. The program of training consists of four phases. During the first two phases, the animals are taught to obey voice commands individually. In the last two, the individuals are yoked as a team, re drilled on all voice commands, and then made to pull log (packing).

The program is built up in four steps:

1. Roping and walking (2 to 3 days),
2. Harnessing and walking (7 to 14 days),
3. Pulling loads (7 to 10 days),

4. Working as a team (21 to30 days),

***Reasons for training animals*:**

- Trained animals can do more work in a shorter time.
- Trained animals hear & accept commands (voice commands).
- Trained animals pull better, like a team with well- coordinated movements.
- They are easier to control.
- They are able to pull heavy loads for longer periods.

Principles to be practiced during the training time

1. The approach must be simple, calm, patient, persistent, and the trainer needs to be firm (not to show fear to the animal).
2. There should always be a routine and repletion of the training steps, so that the animal adopts the new behavior.
3. Spoken commands and names should be few and simple such as: “Go”, “Turn left”, “Reverse”, or “Stop”. Remember to always use the same language during and after the training.
4. Train either early in the morning or late in the evening so as to avoid the heat of the day.
5. Reward the animal for any positive behavior, then correct bad behavior immediately and don’t reward. Rewarding the animal includes: patting on back, calling the animal’s name, grooming him or giving some food.
6. Complete every step in the training program before moving to the next one. Do not move to the next step, unless the animals have understood the one before.
7. To carry out the training you need the following items: a trained animal, a proper harness, a good pegged training field and tools (ropes, different types of yokes, ploughs, loads and sledges, saddles, breast straps).

Self-Check -2	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. One is **not** describes the character of draft animals selected professional purposes(2pts)
   A. Culturally acceptable
   B. Trainable
   C. Maintainable
   D. Profitable within the overall farm plan
   E. None
2. Which one true about training animal for preparing to professional work(1pt)
   A. Both the animal and the farmer must be trained
   B. you need to be patient
   C. Training requirements vary upon ability of the trainer and the temperament of the animal
   D. All
3. Write the program of training steps(3pts)

Note: **Satisfactory rating - 4 points** **Unsatisfactory - below 4 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

Information Sheet-3	Following organizational procedures and instructions

All employees should be given adequate information, training, instruction and supervision in respect of all matters affecting their health and safety at work. The worker will able to follow Supervisors oral or written instructions, livestock production program, organization standard operating procedures, specifications, routine maintenance schedules, work notes; product labels and Material Safety Data Sheets; manufacturers service specifications and operators manuals, waste disposal, recycling and re-use guidelines, and OHS procedures in all draft animal activities.

Self-Check -3	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. write the organizational procedures and instructions (3)

Note: **Satisfactory rating - 3 points** **Unsatisfactory - below 3 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

1._____

information sheet - 4	Preparing Draft animals for specified daily work program

It is utilization of draft animal types for specific work operations. The draught animals are mainly kept for: ploughing the agriculture land hauling carts, pulling agricultural implements, running certain other devices such as Persian wheels [mechanical pumps], running sugar cane and seed crusher etc., use as pack animal (to carry load on their backs), handling, dragging and stacking timber logs in the forests, moving mobile grocery shops (selling goods on animal driven carts. Our draft animal specifically kept for one the above programs. According their program animal are trained and prepared. The program for the work is scheduled, and then the animal assigned for this specific work will be selected and prepared.

The most important factors for the potential draft pulling capacity of an animal are animal weight and passage power capability, the endurance and working speed, body structure, pulling angle (animal height) as well as the hitching point (type of harness). The pulling power capacity of an animal is directly proportional to its body weight; fodder supply plays a decisive role at this point

The animals work at a speed of 0.38 to 0.55 m/s and are used about 5.5 hours per day. An animal having a greater weight has more pulling power reserves to overcome short-time strain

Self-Check -3	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What is the purpose of draft animal?

Note: **Satisfactory rating - 5 points** **Unsatisfactory - below 5 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

Information Sheet 5	Cleaning/ washing of Draft animals after work

After use, the regardless of the species, the animal should be cleaned to remove sweat, dust and dirt. This should be done with a stiff brush followed by a cloth and water. To keep their hygiene and shininess of the hair of the animal shall be groomed.

Grooming is the means of taking care of the hair and skin of the draft animals. Daily grooming is important for the health of working draft animal. The animal enjoy being groomed and will become tamer by this daily routine. Grooming keeps the skin healthy and prevents dirt from causing harness sores. Give special attention to those parts of the skin that are in contact with the harness and/or back pad. Grooming is usually done first with:

- Stiff round comb,
- Made of plastic,
- Hard rubber or metal.

This is used to loosen the dirt. A body brush is then used to remove the dirt. Brush in the direction of the hair (i.e. head to tail) using firm pressure. If such items cannot be purchased locally, a scrubbing brush with stiff plastic or fiber bristles can be used. A piece of cloth or wad of clean straw rubbed in a circular motion also helps to clean the animal. Keep grooming equipment clean and periodically soak it in a disinfectant. This will help prevent the spread of disease, especially if the equipment is used on more than one animal. If animals get very dirty or sweaty, it may be helpful to wash it all over with clean or soapy water. Take a damp cloth and wipe out the nostrils and around the eyes. Any secretions that may have occurred during the night should not be left on the face

during the day, as these will attract flies. Check the coat for external parasites such as ticks. Ticks do not only create wounds, but also spread many infectious diseases. Check especially under the tail and inside the legs where the donkey cannot easily reach when grooming itself. Remove by hand any ticks that are found. Pick up and handle the feet of the donkey early and often in its training, calling a clear command like leg, so that it will not object to this care later on during its working life.

Self-Check -5	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What grooming
2. What advantage of grooming?

Note: **Satisfactory rating - 5 points** **Unsatisfactory - below 5 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

Information sheet -6	Keeping work routines and performance records

Keeping work routines and performance records

Keeping record is simply to collect relevant information that can help you to take good decisions and to keep track of activities, production and important events on a farm. Records can be about any performance of the animals, economic development, or any activity of the farmer or veterinarian.

The real value is to support the farmer and the advisors to keep track and take decisions.

The records should be simple, easy and quick to interpret, and then they can be supplemented with remarks which can explain some unusual events or findings**.**

Records are important in draft animal farming because:

- To keep track of all animals (Identification records)
- Evaluation of livestock for selection (species records; financial records; production records)
- Aid in selecting animals with the right characteristics for draft
- To rationalize labor
- Aids in feed planning and management
- Aids in disease management; keeping track about treatment (disease records)
- Aids in finding the effective treatments
- To assess profitability/losses (financial records)
- Improves bargaining power on products, because you can see the investment and the price of the production (financial records)
- Credit/loan access (financial records)Aids in selection of animals
- Enables monitoring of farm implements and other accessories
- Enables the stockowner to monitor profit or loss and take remedial
- Provide use full information for planning, budgeting and securing of loans

Types of Records

The major types of records which are all described below:

1. Identification
2. Feeding
3. Disease and treatment records
4. Financial records

1. Identification Records

- An identification method should be cheap, not harming the animal, reliable to read at a distance of at least 2-3 meters and by preference be permanent.
- Identification of animals is usually through use of numbering, by marking of the animal.
- Intrusive methods of identification can be subdivided into 2 categories: permanent at the animal itself (which affect the animals most when doing it) and non-permanent.

2. Feeding Records

Feeding records give information about the amount, type and quality of the feed.

Feeding records can be used both for day to day management and adjustment of the feed ration.

The important feeding records are: Produced and available fodder on farm; quantity and if possible quality of the different feeds. Including content of energy, protein and minerals

3. Disease and treatment records

Disease and treatment records are necessary to keep track of the disease events in which each animal is involved during its lifetime. It provides information about the health status of each individual animal and the whole heard, and it can help ensuring important vaccinations given at the right time.

Disease and treatment records can for example involve:

- Disease occurrence and date
- All handlings to cure diseases (also non chemical treatment)
- Vaccination

- Dipping/spraying
- Treatment
- De-worming
- Post-mortems

6. **Financial Records**

The records of the costs and earnings related to the animal farming are kept for cash analysis and enterprise appraisal.

In most households, the most necessary records are simple overview over the family cash flow, that is, the total economy in the household: what comes in? And what do we buy?

In addition to this, keeping records of the animal enterprises is an important part, because it can show whether it gives an income to the family or not. If records are kept particularly for the animal herd as an income generating commodities, it will help the family to see what they invest in it, and what it costs to produce it. Also in relation to the animal farm, an investment is more than expenditure; an investment hopefully enables and improves the production in the future. It is also important to count approximately how many hours of work it has taken in the animal herd, because it can help price setting.

Economic records are of paramount interest in providing the farmer with information concerning the profitability of his farm. Moreover they are of great help in decision making at the right time. For example, is it profitable to feed concentrates, is it advisable to apply for a loan or credit to invest in a machinery or technology?

Answering these questions is only possible if adequate records are available. Moreover, for tax purposes and for the purpose of getting loans or credit, economic records are required.

Self-Check -6	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Write types of recording? (4pts)

Note: **Satisfactory rating - 4 points** **Unsatisfactory - below 4 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date _____

1._____

List of Reference

Directorate Animal and Aquaculture Production (nd). Guideline on animal traction. Republic of south Africa

R. Anne Pearson1, Timothy E. Simalenga2 and Rosina Krecek3; 2003. Harnessing and hitching donkeys, horses and mules for work. 1Centre for Tropical Veterinary Medicine. University of Edinburgh, UK; 2Department of Agriculture and Rural Engineering, University of Venda for Science and Technology, South Africa. 3P.O. Box 12832, Onderstepoort, 0110, South Africa, 2003

SIMALENGA, T.E. & JOUBERT, A.B.D. (Eds) 1997. Animal traction in South Africa: Today and tomorrow. Proceedings of SANAT workshop, March 1996:82.

Aeschlimann M. & D. Austbo. **Donkey harness with straight hames**. 2000. Draught Animal News, No.32, CTVM, University of Edinburgh, UK. ISNN 1354-6953.

Dibbits H.J. **Harnessing guidelines for donkeys pulling a single donkey cart.** 1995. IMAG-DLO, Wageningen, The Netherlands.

INSTRUCTION SHEET	*Learning Guide 22*

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics –

- Identifying Individual characteristics of draft animals
- Inspecting Legs and hooves of selected draft animals
- Catching of Selected draft animal and fitting working gear
- Riding and training Draft animal
- Identifying OHS hazards and Implementing risk assessment and control
- Keeping health and welfare of draft animals

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, you will be able to –

- Identify Individual characteristics of draft animals according to specified criteria and nominated animals are selected.
- inspect Legs and hooves of selected draft animals for
- Catch Select draft animal quickly and gently and fit working gear
- Lead Draft animal to work area or rail quietly and calmly and safely secured.
- Identify OHS hazards continually, assess risks and implement suitable controls.
- Handle Draft animals safely

Learning Instructions:

15. Read the specific objectives of this Learning Guide.
16. Follow the instructions described in number 3 to 7.
17. Read the information written in the “Information Sheets 1,2,3,4,5 and 6 in page 7,10,14,18 and 21 respectively”. Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.
18. Accomplish the “Self-check 1” in page 6,9,13,17,20 and 23 respectively.

19. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering all Self-check).
20. If you earned a satisfactory evaluation proceed to “next Information Sheet ”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #22
21. Submit your accomplished Self-check. This will form part of your training portfolio.

Information Sheet-1	Identifying Individual characteristics of draft animals

1.1. Identify individual characteristics of draft animals

Once farmers decide what kind of draft animal will be used, they must be choosing individual animals which are sound an able and have a considerable work expectancy and resale value. Selecting a good draft animal is a matter of evaluating both physical and behavioural attributes. Age, sex, conformation (shape), and temperament are helpful criteria for judging a draft animal's value. The farmer's total animal needs mast be noted when judging an individual animal. If it is to be, used as a pair, it should be roughly the same age and size as its work mate, and should be the same sex.

Age of cattle/oxen

Ideally, farmers should raise their own draft cattle or purchase them when they are very young. Oxen are, normally, put to work between the ages of three and four years. They may be trained at two to three years of age and given light work for a season. However, before the age of three, oxen have little power, and hard work can stunt their growth or cause abnormal development of bone and muscle. After the age of four, animals may be difficult to handle and train; they must be broken of old habits before their power can be used.

Although Oxen can work until they are 12 or older, many farmers prefer to sell them as soon as their work capacity tapers off. A common practice is to work oxen hard until age seven or eight, use them as reserve or alternate animal (or pair) for a season or two and then sell them for butchering.

Age of Equines

Recommended' ages for training and working equine animals are very similar to those outlined for cattle. However, in practice, these animals are worked until they are older because their meat is non valuable in our case. The age of a horse, donkey or mule can be determined by comparing the animal's mouth. As the animal grows older, the enamel wears off the tooth, giving

it a smooth, white grinding surface b(the dark centre disappears).The teeth grow longer and begin to slant the entire mouth elongates.

Sex of cattle

Sex has a bearing on the power and temperament of draft animals. As a rule males tend to be bigger, more powerful, and more difficult to train, than females. Females have less endurance and, of course, cannot be used when they are carrying or nursing young.

Sex of Equines

Castrated horses or donkeys (geldings) are preferred over stallions because they are even tempered and manageable in the presence of females. Female horses, mules and donkeys are nearly as powerful as males and geldings, but are known for their stubbornness and unpredictable moods.

Conformation

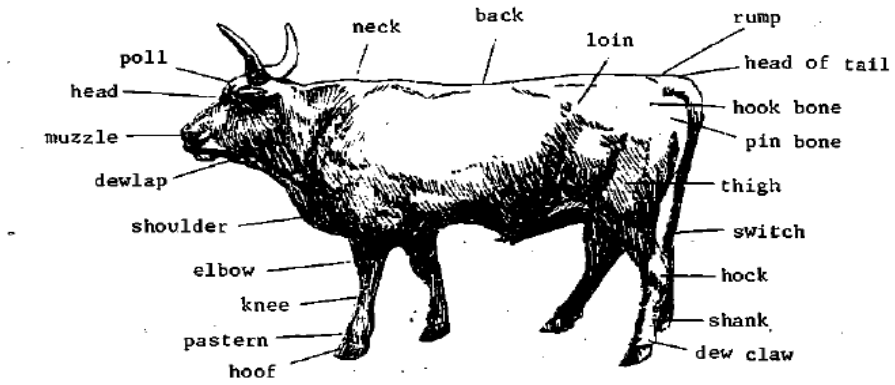
Conformation refers to the form or shape of an animal. An animal with good conformation has a shape which shows the normal characteristics of its species and breed.
An animal used for draft must have a build well suited for pulling. It should be low to the ground, have powerful shoulders and legs, and have a broad frontal dimension that will accommodate the placement of a harness. It must be big enough to deliver, a lone, or in a pair, the power needed to pull equipment for an extended period of time. It must also be able to exert to concentrated or "instantaneous" effort needed to overcome temporary increases in the draft requirement caused by roots, rocks, hard soil, or inclines.

While some animals are bred to produce good draft abilities, within any breed individual animals vary greatly in these qualities, and care must be taken to choose those with the most potential. A thin but well-balanced animal can be strengthened with a good diet, health care, and work. However, an animal with a swayback, bad legs or impaired vision will be a constant source of trouble.

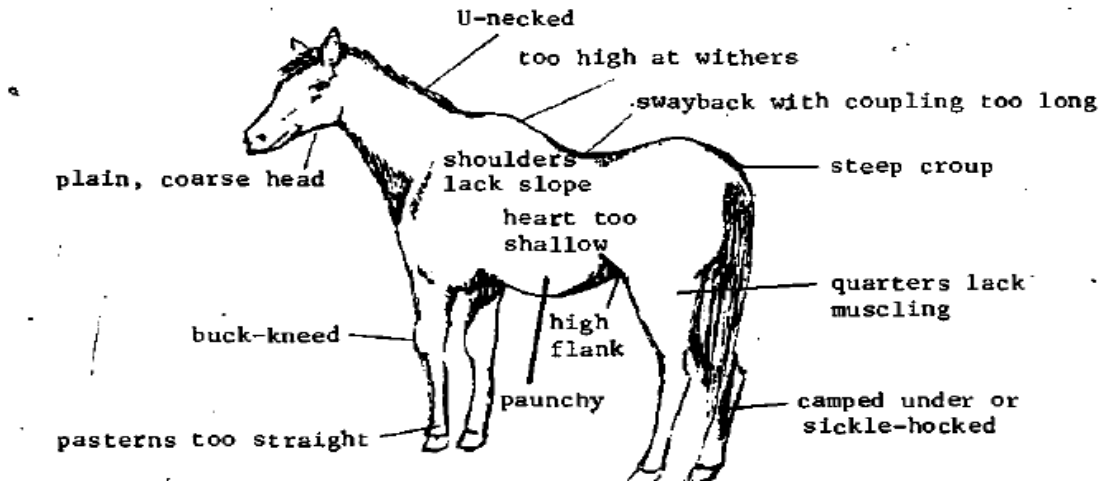
Selection is a process of matching ideal qualities against those seen or latent in a given animal. Good draft animals, regardless of species or breed, will have the following qualities:

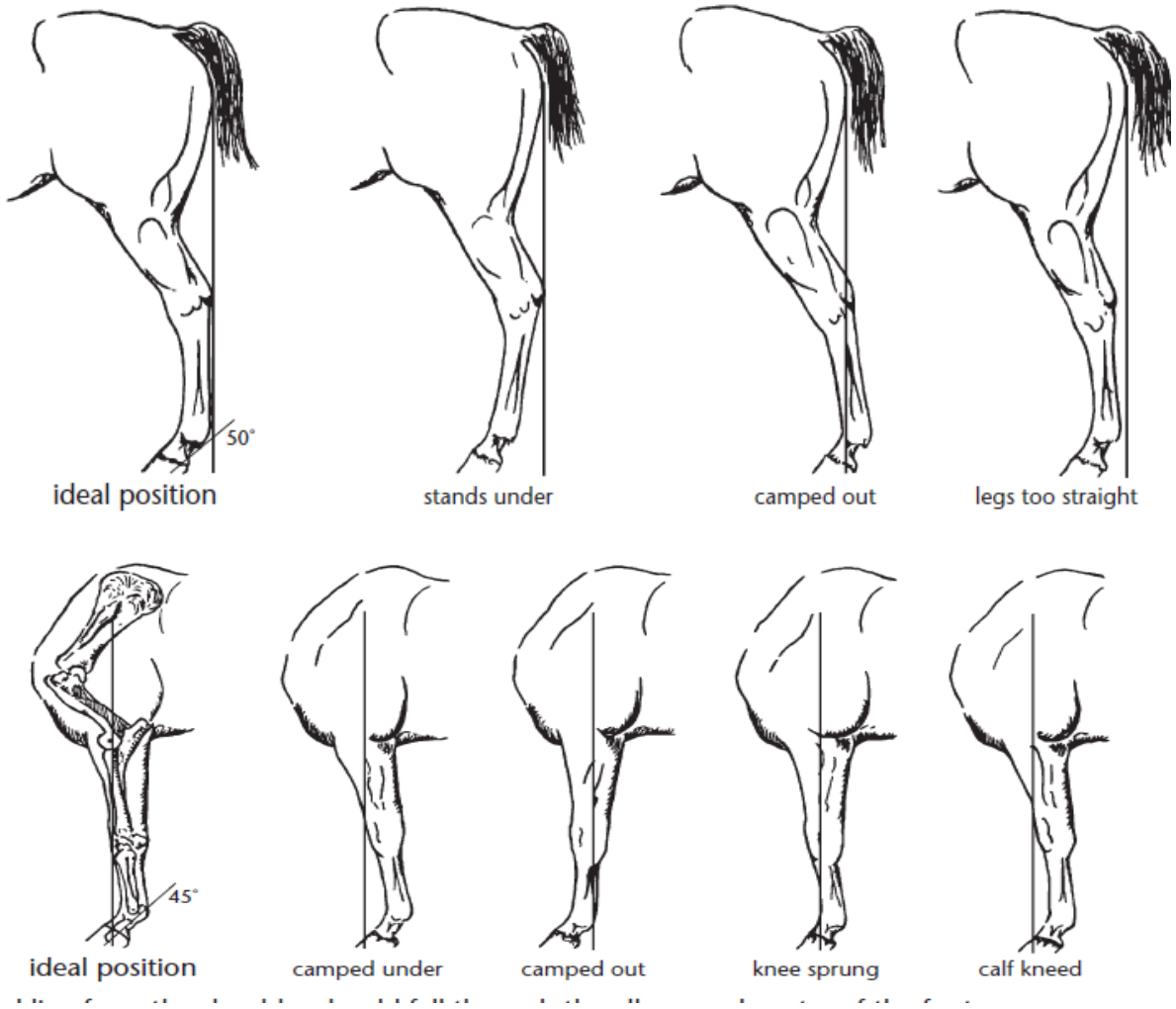
- Head well proportioned; squared, sculptured look balanced vision and hearing; head carriage high and straight.
- -normal mouth; good teeth and jaw structure body should have depth and width; short, full neck, full shoulders, broad chest, and straight, broad back wide, thick hindquarters, low-set and evenly-fleshed
- short legs, straight and square to the body; ample bone
- Clean, well-developed joints no swelling or unusual boniness; no turning in or out of knees or hoofs; free movement of limbs feet straight, hard normal angulations of hoof.

Ideal Conformation in Bulls



Conformation Faults of the Horse





Temperament

Temperament refers to the nature or disposition of animal. Part of its temperament is determined genetically, both by breed and parentage; some of it is learned a response to the treatment it receives from other animals or the people who raise and handle it.

Temperament is reflected in an animal's behaviour, the way it moves and acts, and the way it reacts to the things around it.

A donkey that is mishandled and mismanaged might kick or butt at its owner, or at any adult, but be led away quite easily by a child. The buyer must be aware of such possibilities and at the same time draw some basic conclusions about the animal's/ temperament.

The following are signs of good temperament:

- Good overall conformation and health. e.g. An animal with bad vision or hearing, an un sound leg or joint, or with a chronic respiratory or muscular weakness, protects itself by balking, spooking, shying, refusing to be harnessed or lying down during work. Its temperament is affected or shaped by its physical condition.
- The animal accepts the hand ling of the owner. The owner can pick up the animal's foot, open its mouth, lead it with a rope without having to use force or harsh measures.

Self-check-1	Written test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What are the useful criteria for judging a draft animal's value? (3Pts)
2. Write the quality of good draft animals(4pts)

Note: **Satisfactory rating - 7 points** **Unsatisfactory - below 7 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

Information Sheet-2	Inspecting Legs and hooves of selected draft animals

2.1. Inspect hooves & legs for abnormalities

Inspect an animals (specially, equines) hooves daily and take care of them. Their hoofs should be short and upright with an oval bottom. If the toes become long and slanted, it should be trimmed. Excess hoof wall, as well as ragged loose pieces of frog, can be removed with a sharp, strong knife. Cracks and chips in the wall can spread, and eventually destroy the entire hoof. Metal horseshoes are used in some countries to protect the hooves of donkeys. If shoes are not available, the rough edges of the hooves can be smoothed with a wood file. Coating them daily with oil or grease may help hooves that are very dry or brittle, badly cracked or broken. This prevents them from further dehydration and assists healing. Animals will pick up their foot if the tendon is pinched at the back of the leg, just above the pastern. Pick up and handle the feet, clean out the bottom of the hooves with a hoof pick before each use of the donkey, to prevent lameness from stones or other materials penetrating the sole of the foot. Clean from the heel towards the toe, especially in the grooves between the frog and the bars of the hoof.

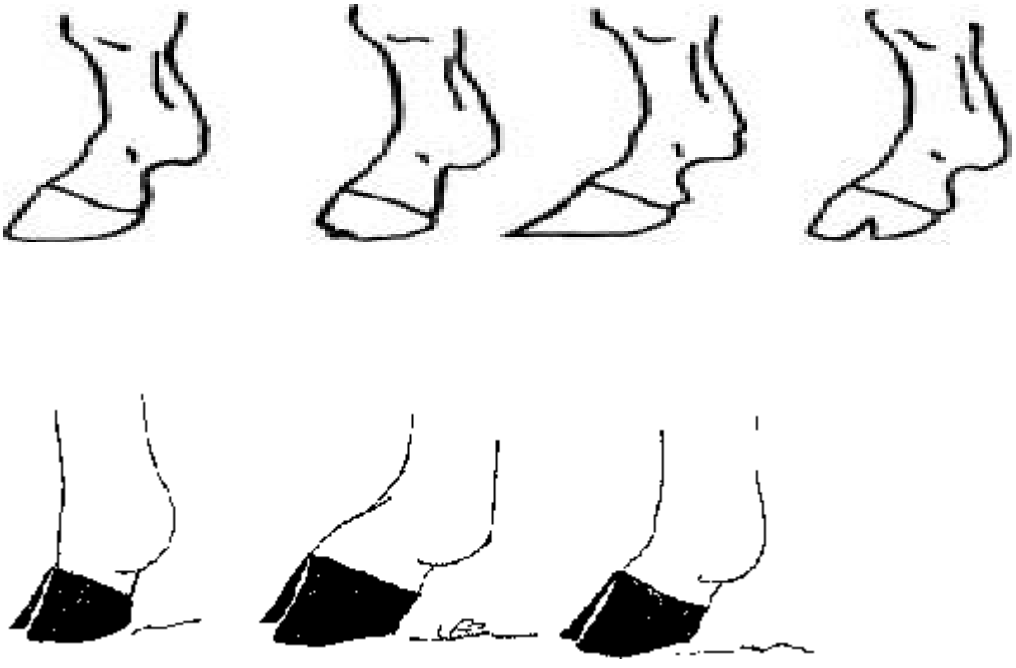


Fig. A. No! The foot must not be too straight! Fig. B. No! It must not be bent too much! Fig .C. Yes! It must be slightly bent!

A horse's hooves should be round and smooth with minimal chips and no cracks or sections missing. The hoof wall should grow approximately ¼ to ½ an inch per month, and it should form a straight line with the front of the pastern when viewed from the side. The heels should be wide, and the frog should be supple and flexible. Horses that are shod must be re-shod and trimmed regularly to maintain this shape. Excessively long toes and toes curving upward in front are evidence of need for attention by a competent furrier.

Self-check-2	Written test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Which of the following is correct foot of draft animals? (2pts)

   A. The foot must be too straight.
   C. It must be slightly bent!
   B. It must be bent too much
   D. It must be bent too much

2. How you prevents the hooves of your draft animal from further dehydration?(3)

Note: **Satisfactory rating - 3 points** **Unsatisfactory - below 3 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

Information Sheet-3	Catching of Selected draft animal and fitting working gear

They may be caught in stables, yards or paddocks

Guideline of Safe Animal Handling:

- Be aware of the special stressors for animals in the working setting
- Avoid direct eye contact
- Avoid high-pitched, excited talk
- Always protect yourself
- Safe and effective animal handling (understand normal behavior & responses of each species)

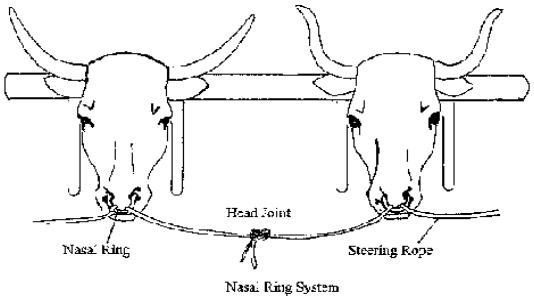
Working gears might include:

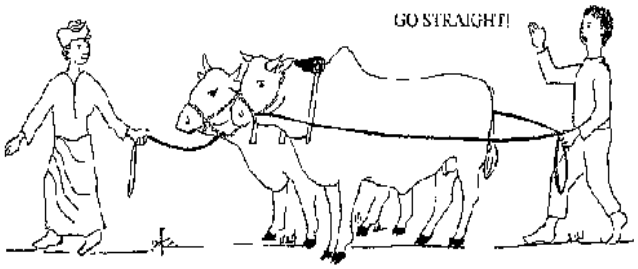
Saddles, ropes, reins, breastplates, martingales, bridles, cruppers, saddlebags, headstalls, saddlecloths, feeders, leads and rugs

Installation and safety of yoke:

Animals are tied by the horns to the horizontal rod to familiarize them with human activities. The yoke connects the two draft animals. All traction implements are attached to the yoke by the pulling chain (prow, harrow) or the beam (cart, roller cutter). The yoke consists of the yoke beam, the yoke pegs and the peg beam.

For weeding or Ridging use the maximum distance between the animals. Leave central holes of the yoke free (80 cm ridges). For plowing, reduce the distance between the animals by changing the pegs Weeding: of 60 cm ridges.





Often requires the presence of three persons (one in front of animal, two on the sides). It allows to the herdsman to give the voice command. Initially, the animals are kept closely (if necessary, by means of ropes), in the end, the animals walk alone without the presence of aid and obey the voice and guides. Allow short rests from time to time. Avoid shouting, give clear commands, go slowly and steadily, never beat the animals, be patient, show no anger.

How to Put on a Halter

- Make friends with the animal
  - ✓ Talk to it, touch it, feed and-water it, clean its Stall, occasionally give it a tidbit or hand-feed it salt.
- Stand next to the animal's left side, facing the side of its head. Hold the free end, or poll piece, in your right hand, and the noose-like nose-band in your left.
- Make a large loop 1m in diameter at the end of a rope 3 deters long. Use a fixed knot for Knot, do not use a slip knot
- Make a small fixed loop about one-third of the way down one side of the large loop.
- Pass the free end of the rope through the small loop made in the second step.
- Place the halter over the animal's head so that the non-slipping portion (the headband) fits behind its ears. The slipping section (noseband) fits over the muzzle.
- Pass the free end under the animal's jaw and up toward the right ear. At the same time, begin to slip the nose-band over the muzzle. If it tosses its head, try to move with it; speak to it in a low, soft tone.
- Flip the end of the poll piece so it passes behind the ears and drops down toward you. This is done with the right hand. The right hand remains against the right cheek, still holding the middle of the poll piece.

- If your right hand is high enough on the cheek, there will be enough tension On the nose band to keep it in place while you use your left hand- to grab the tip of the poll piece.
- Feed the end of the poll piece through the ring or buckle of the cheek piece. The more you lighten it, the higher the nose band rides on the muzzle. You want the noseband to circle the muzzle--not squeeze it. You should be able to slide your hand (flat) between the band and the muzzle.

Self-check-3	Written test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1.Write the Guideline of Safe Animal Handling (3pts)

2. Write the list of working gear?(3pts)

Note: **Satisfactory rating - 5 points** **Unsatisfactory - below 5 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

Information Sheet-4	Riding and training Draft animal

The dressage of draft animals is a set of successive learning, based on repeat orders and constraints imposed on animals to obtain a docile and voluntary behavior both for the execution of the work.

Qualities of a trainer

A good trainer must be patient, attentive to the signs of fatigue, calm and firm.

Duration of training

The duration of training is about a month. It also depends on the qualities of the trainer and character of animals. The training can start three or four years, even without rushing animals two years. The best time is the end of the dry season, which allows the perfect dressage at the first plowing. The animals trained for the traction become fully operational after two to three crop years.

Methods of dressings

Three training methods are used for cattle.

- The first is to develop two new young bulls under the same yoke. This is the most common, but the most difficult.
- The second method called "Parrain" is to educate a young animal with an experienced one. Those two young animals then are gathered under the same yoke.
- The third so-called "Sandwich" is done with a yoke of three places; the candidate dressage is in the middle of an experienced pair.

How to Train:

The user must perform hitch himself straightening his team or at least participate actively. So we have to:

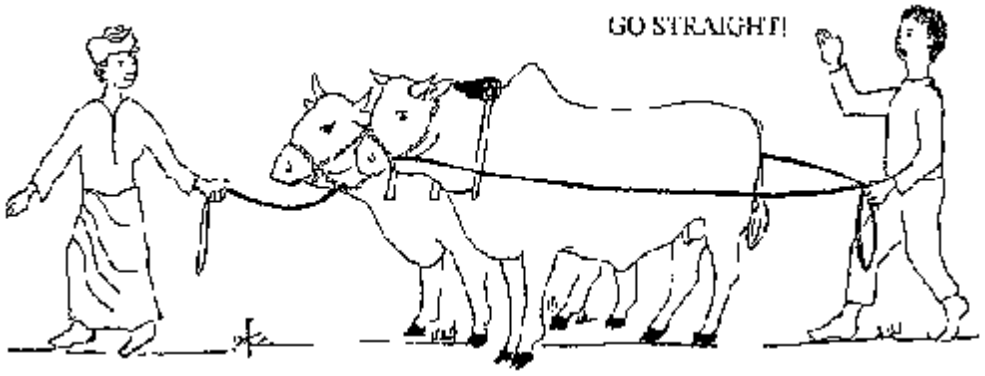
- Talk to the animals;
- Give to the animal a very short name (two syllables, for example);

- Accustom the animal to respond to the following orders: advancer, stop, turn left, and right, back. Each order must be accompanied by an effective stress;
- Use immediately after stress means an unexecuted order, but gently (stop the stress means just after an executed order). A wooden stick thin, flexible and brutal voice can be used.

Animals kept for draught purposes can be easily trained if the correct procedures are followed. Animals to be trained should be properly selected and should not be younger than two years.

- If animals are treated with kindness and patience and are firmly disciplined they are easy to train and use. People training animals should really like animals. They should never be afraid of them, as their fear will be sensed immediately by the animal and satisfactory training might then be impossible.
- Young animals are more easily trained with older ones that have already been trained.
- Each animal should be given a simple, clear-sounding name and should be fed by hand so that it gets used to people, in particular its handler.
- Animals should be taught one thing at a time so that they do not get confused. They should be trained for short periods at a time but on a regular daily basis.
- In the first week of training the animal should get used to the harness by walking around with it for about one hour in the morning and one hour in the afternoon.
- When used to the harness it can be given commands. Soft but firm words and gentle whistles are the best commands. Beating animals should be avoided at all costs and one should never lose one's temper with an animal.
- Ploughing is the most difficult task, so once the animals can plough it is easy to train them for other tasks. Start with shallow ploughing and gradually go deeper. Teach the animals to walk in furrows so that the whole land is ploughed evenly.

- Always try to end each session on a good note and reward good performance with a small quantity of food.



Self-check-4	Written test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What are the quality of trainer? (3pts)
2. What is the duration of training (2pts)

Note: **Satisfactory rating - 5 points** **Unsatisfactory - below 5 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

Information Sheet-5	Identifying OHS hazards and Implementing risk assessment and control

5.1. OHS hazard identification

By the very nature of their work, animal care takers are frequently exposed to potential safety hazards, including bite wounds and other animal-related injuries. Anyone who has worked with animals under stress or in pain will relate personal accounts of injuries from animals.

Common OHS hazard

I. Exposure to hazardous chemicals

You may not think about it, but many products that you use every day can be hazardous. Every chemical, even common ones like cleaning supplies have the potential to cause you harm. Some chemicals contribute to health problems while others may be flammable and pose a fire threat.

Common chemicals used in veterinary practice during animal care work are cleaning and disinfecting agents and insecticides and pesticides

II. **Physical hazards** (**Animal related injuries/accidents)**

The most important animal-related hazards in veterinary environment are as follows:

- Animal kicks, bite wounds, scratches, squeeze injuries, and other physical trauma
- Parasites and zoonotic diseases
- Allergy to animal dander or fleas
- Exposure to feces, urine, blood and tissues that contain pathogenic microorganisms.

III. Exposure to diseases/ biological hazards

Infectious diseases that can be passed from animals to humans are known as zoonotic disease. These diseases may or may not easily transmit from animals to human.

Route of disease transmission

- Inhalation
- Contact with broken skin
- Ingestion
- Inoculation by needle.

5.2. Factors (hazards) that affect the use of animal traction

The use of the draught animal power is conditioned by several factors. Among them, the main to be considered there are:

· Agronomic factors: soil texture and position of the land

· Zoo technical factors as race, size and aptitudes of the animals

· Veterinary factors: parasites and pathogens such as trypanosome

· Climate: dry, wet, monsoon, etc. and altitude

· The position of the land, its slope, and the situation of the road networks

· The type of vegetation: arid, savannah, etc

· Anthropological factors such as the presence of the culture of the use of livestock and the familiarity with the animals

· The fragmentation of the properties and the geometry of the fields

· Financial and economic factors related to the cost of buying and maintaining the working animals.

Besides lice and mites, ticks are very important external parasites in the tropics, attacking nearly all types of animals including poultry. They suck blood from animals causing discomfort and in extreme cases causing anemia thus affecting growth. They also can transmit diseases and damage animal skin.

Self-check-5	Written test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Identify the common OHS hazards in working draft animal

Note: **Satisfactory rating - 7 points** **Unsatisfactory - below 7 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

Information Sheet-6	Keeping health and welfare of draft animals

6.1. Health Management of Draught Animals

6.1.1. Health Problems Associated with Work:

Like all other animals, draught animals suffer from common health problems of livestock. However, in addition to these problems, they also suffer from specific health constraints associated with work.

These include; yoke galls, back sores, horn injuries, loosening of patella, hoof injuries and cancer.

Factors that predispose draught animals to these specific health problems include first made to work for long periods in their life, the frictional force between the harness and animal will be exaggerated if inexperienced animal is used for work due to unsteady traction, excessive pressure exerted by the weight of the load for long periods on the hump or on the back, inadequate padding under the harness, excess and unbalanced load on the back of animals, working on hard and stony ground surfaces and beating by inexperienced operator and working with a single harness for different animals.

6.1.2. Management practices to prevent or reduce health

Problems associated with work include: short initial working periods until the animal develops resistance and avoid use of too young animals for work particularly bulls, keep the skin clean that makes contact with the harnesses, the harness should have broad and smooth bearing surfaces, the skin should be greased when animals are made to working during rain, draught animals should be shod if they are made to work on hard surfaces, proper wound management (Rest and prevent complication) and avoid use of same harness for different draught animals.

6.2. Caring or keeping welfare for draught animals

- ✓ Do not overwork your animals. Rest them frequently during work.
- ✓ The load on the carts should never be too heavy for the animal.
- ✓ Make sure that the brakes on carts and wagons work properly.

- ✓ Grass only may not be enough feed for the animals. Supplement the feed with other food that can be bought from a local feed store, if necessary.
- ✓ Do not feed the animals from the ground as they might get worms. Rather use a feed trough, bucket or empty drum.
- ✓ Always provide enough fresh drinking water.
- ✓ Get advice from a veterinary officer if your draught animal has worms or any other sickness.
- ✓ Never mend a harness with wire because it might hurt the animal.
- ✓ Remember to check the animals' feet for stones regularly.
- ✓ Check the teeth for food particles. If the teeth are too sharp, the mouth and tongue can be hurt. A horse's teeth can be filed. Ask a veterinary officer to check on this if in doubt

Self-check-6	Written test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What are the factors that put animals in health problems?(3 pts)
2. Write at least 4 techniques of keeping welfare of draft animals (4pts)

Note: **Satisfactory rating – 5 points** **Unsatisfactory - below 5 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

Reference

Starkey P. et al. **Improving Animal Traction Technology.** 1994. CTA/GTZ, Wageningen, The Netherlands. ISBN 92-9081-127-7

Aeschlimann M. & D. Austbo. **Donkey harness with straight hames**. 2000. Draught Animal News, No.32, CTVM, University of Edinburgh, UK. ISNN 1354-6953.

Instruction Sheet	Learning Guide # 23

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics –

- Maintaining or repairing Working gear
- Cleaning, storing and polishing working Gear and Applying oils or preservatives
- checking for condition, health and soundness of draft animals
- Inspecting and removing Manure, stale feed and soiled bedding
- Cleaning stables and surrounding areas
- Reporting Buildings or fixtures that are in need of maintenance

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, you will be able to –

- Maintain or repair Working gear
- Clean, store and polish Working gear and apply oils or preservatives
- check for condition, health and soundness of draft animals
- Inspect and remove Manure, stale feed and soiled bedding
- Clean stables and surrounding areas
- Report Buildings or fixtures that are in need of maintenance

Learning Instructions:

22. Read the specific objectives of this Learning Guide.
23. Follow the instructions described in number 3 to 7.
24. Read the information written in the “Information Sheets 1,2,3,4,5 and 6 in page 1,5,7,13,15 and 19 respectively”. Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.
25. Accomplish the “Self-checks ” in page 4, 6,12, 14, 18 and 20 respectively.
26. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering all Self-check).

27. If you earned a satisfactory evaluation proceed to “next Information Sheet”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #23
28. Submit your accomplished Self-check. This will form part of your training portfolio.

Information sheet – 1	Maintaining or repairing Working gear

1.1. Maintenance of farming equipment

Equipment for arable farming needs regular maintenance to ensure long-lasting and reliable functioning.

For power sources, the following routines are recommended for proper maintenance.

Daily maintenance and inspections

- Scrape off the soil while still in the field.
- When returned to the farm, thoroughly clean the implement, so that a detailed inspection can be made of all parts.
- Check the tightness of all nuts and bolts with the correct spanner; never use a wrench or pair of pliers.
- Make sure that bolts and nuts used for field adjustments can be turned freely; oil them if necessary.
- Check the condition of the wearing parts and plan to replace them whenever necessary or advised.
- Check the implement for distortion. Redress any bent parts or send them for repair.
- Maintain working parts in a polished condition to stop the onset of

Rust and to reduce unnecessarily high draft forces when the implement is returned to work. Wipe all working surfaces with a rag Soaked in oil.

Rains or the delayed onset of rains may halt tillage or cultivation for several days. Such a period of rest allows for completing repairs.

Maintenance of equipment's at the end of the work

Follow the normal daily maintenance schedule. This will allow identification of all worn parts and damaged nuts and bolts. Take advantage of the end of the season to carry out a general over haul:

- Completely dismantle the main components of the implement.
- Repair or replace the parts as required.
- Clean the components thoroughly, remove any rust and if necessary, repaint them. Alternatively, protect them by wiping them with an oil-soaked rag.
- Do not paint, however, the working surfaces. These should just be wiped with oil.
- Replace all damaged nuts and bolts, again wiping them with oil on assembly.

- Reassemble the implement and make sure it has all been wiped with oil.
- Store it in a safe, dry place and away from animals, sacks of grain and any stored fertilizer.

Maintenance and Repair

PPE and devices wear out—sometimes quickly, because of irreparable accidental damage, or gradually, through normal use over time. Excessive use and wear of PPE in extreme conditions can result in premature failure. Sometimes PPE can fail catastrophically, resulting in the injury or death of the wearer. To avoid such risks to personnel, all PPE and devices must be kept in top condition.

Maintenance of the Harness

The Harness is made of wood. Wood is easily destroyed by water. A harness that is stored in a dry place like the cowshed can stay for 10 years. If you expose your harness to rain and sun, it will rot and break after 1 year. Proper storage of your harness will save you money.

1.2. ANIMAL-DRAWN CARTS

Animal-drawn carts can be made by local craftsmen from wood and material obtained from scrapped motor vehicles. Two-wheeled carts are pulled by two to four animals. Four-wheeled wagons are pulled by two to eight animals and they can be used to transport heavier loads.

- ✓ Sledges drawn by two to eight animals are cheap and brake more easily in hilly country, but they are hard to pull and carry only light loads. They cause damage to the veld if hauled off-road.
- ✓ When harnessing two donkeys to a two-wheeled cart, it is recommended that the draught-pole be made light and the load centre of gravity be positioned over the two wheels to ensure a minimum of upward or downward force on the necks of the donkeys.
- ✓ In cart design it is important to keep the weight of the cart low. This ensures a reasonable pay load and further that in the case of two-wheeled carts, the load centre of gravity is positioned over the wheels so as to reduce the downward or upward forces on the necks of the donkeys.

Self-Check-1	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Write the daily activities to maintain working gear.(3pts)

Note: Satisfactory rating – 3 points unsatisfactory rating –below 3 points

You can ask you teacher for the copy of the correct answers

Answer Sheet

Score: _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions:

1._____

2._____

Information sheet – 2	Cleaning, storing and polishing working Gear and applying oils or preservatives

Gear refers to any equipment, material or tools which we will use while manipulating different tasks concerning with farm. These equipment, material or tools might include harness, saddles, ropes, reins, breastplates, martingales, bridles, cruppers, saddlebags, headstalls, saddlecloths, feeders, leads and rugs.

Check gear regularly for wear and damage

Before starting work with draught animal all gears must be checked for their normal functioning and if there is any problem on the working gear it have to be renovated or avoided from the farm because damaged gear will cause illness or injury to our draught animal.

Clean and polish Gear thoroughly and applying oils after use

After use, the regardless of the material, the harness should be cleaned to remove sweat, dust and dirt. This should be done with a stiff brush followed by a cloth and water. Soaking a harness in water can make it stiff and rough so it should be washed using a wet brush and/or a wet cloth, not soaked. Warm water gets rid of sweat and dirt more easily than cold water. The bit should be washed to keep it clean. If a leather harness is used, which is relatively expensive, care should take to ensure that it lasts longer. The harness should therefore be kept soft and oiled
regularly. The use of animal fat to soften the harness is one of the traditional methods used by horse, mule and donkey owners. Clean cooking oil can be used if animal fat is not available. Harnesses should be cleaned and checked for worn-out parts regularly, preferably each day following use. When not on the animals, the harness should be stored on a hook (away from rodents or dogs) in a dry, clean and safe place.

Self-Check-2	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What you use for softening harnessing equipments.

Note: Satisfactory rating – 4 points unsatisfactory rating –below 4 points

You can ask you teacher for the copy of the correct answers

Answer Sheet

Score:_____

Rating:_____

Name: _____ Date: _____

Short Answer Questions:

1._____

Information sheet – 3	checking for condition, health and soundness of draft animals

3.1. Identifying normal and abnormal animals

Draught animals may suffer due to a lack of adequate field-based veterinary services. Organized "barefoot" veterinary services should be introduced, as in the People's Republic of China. It may be possible to upgrade the field skills of Para-veterinary personnel through suitable incentives. Veterinary services in some countries tend to be oriented towards pets, dairy animals and race horses. Thus, the genuine requirements of draught animals in rural and urban areas are not met. Since farmers are widely dispersed, mobile veterinary services should be strengthened in rural areas.

Any increase in numbers of livestock in a locality inevitably increases possibility of significant disease and animal health problems. Preventive program is the least expensive and most effective type of program for animal health control, and this requires the intervention of government in providing veterinary health services. Preventive health care avoids diseases. Preventive health care is the key for successful draft animal keeping.

Preventive Health Care includes:

- Rational working technique
- Sufficient feed and water
- Good housing
- Spraying of the animal
- Deworm of the animal
- Vaccination of animal

To distinguish between normal and abnormal, the farmer must know the normal condition of his animal.

Health animal;

- eyes must be bright, clear and clean
- muzzle must always be cool and wet
- ears must be upright and clean
- skin must be supple and coat smooth and dense
- faeces must be of normal consistency
- urine must be a normal yellow color
- must react on your voice or other disturbances
- tail and ears must be active
- ribs cannot be seen
- when lying down to rest, legs are turned inward

Sick animal;

- dullness, watering eyes, discharge
- dry muzzle
- ears are stiff or hanging
- wounds from parasites, yoke or beating
- coat is poor and rough, hairs standing up
- faeces is of abnormal consistency, mixed with blood
- colour of the urine is red or dark brown
- the ribs can be seen

3.2. Causes of harness injuries

Injuries can affect the animal's performance and result in a decrease in productivity. Whenever an animal works there is a potential for injury. Equipment and harnessing are largely responsible for injuries to working animals. It is desirable to take precautions and prevent any injury that might be caused by improper fitting or use of harness and equipment.

3.3. Avoiding harness injuries

The following practices should be carried out:

- ✓ After work each day check the animals for signs of rubbing and hair loss. If these are found, identify what is causing the rubbing before it develops into a sore. Remove the source of the problem and pad the harness in the rubbed area next time the animal is worked to allow the area to recover. Do this before a sore develops.
- ✓ Check the harness for rough and sharp places, replace the piece or remove the cause of the problem before a sore develops on the animal.
- ✓ Replace a poorly designed or old harness, always use the best harness you can.
- ✓ Ensure the harness fits the animal properly and has no sharp corners.
- ✓ Use singletrees and eveners to hitch to the implements or cars.
- ✓ Use breeching straps on animals pulling a cart.
- ✓ Ensure the cart or implement in use fits the animal and is as light as possible.
- ✓ The equipment and especially cart wheels should be kept in a good state of repair.
- ✓ No animal should be worked in excess of its capabilities.
- ✓ The animals should be allowed to rest frequently in the shade and offered plenty of water before, during and after work to prevent heat stress and dehydration
- ✓ Animals in good condition are much less likely to get harness injuries than those in poor condition so feed working animals well.
- ✓ Feed should be given after water.

Table: Harness equipment: causes of injury and preventive measures

Problem area / equipment	Cause of injury	How to prevent
Harness	Incorrect size and not properly fitted animal Too narrow or thin sharp edges Stitched joints/bolts Unsuitable material	Make back-straps/saddle straps, traces and breeching straps adjustable Use wide bands or straps not sewn with strong thread, rather than bolts or wire Use natural materials, leather where harness is in contact with the animal, or webbing
Pack saddle	Poorly designed and fitted, made of unsuitable materials used	Ensure weight rests on ribs, not backbone Measure on animal when making use light materials Use good padding underneath
Halters Bridles and bits	Attached incorrectly Incorrect size used Unsuitable materials used	Avoid using bits and blinkers where possible Use wide soft straps, not narrow ropes or wire, no sharp edges Make sure the halter or bridle is not tight around nose or throat, make it adjustable
Hobbles	Unsuitable material used, not fitted properly	Use on front legs only Use wide straps, no sharp edges Should not constrict blood flow to the feet Attachments should have easy release Should be easy to adjust
Neck ropes or collars	Unsuitable material used not fitted properly	Use wide straps, no sharp edges Should be loose around neck and not be able to slide to tighten Attachments should have easy release
Tillage implements	Too heavy for the animal Incorrectly set for depth or width of operation	Must be suitable for job and soils Add more animals in pairs if necessary
Cart	Too heavy for the animal No brakes (for carts) Poorly designed and hitched No breeching straps on harness Shafts too short	Loads should be well balanced Wheels should be the same size Wheels bearings in good condition / wheel turn easily Breeching strap to prevent cart hitting animal Saddle to enable animal to take weight of shafts on the back not neck Hitching points in right position, allow space for singletrees and evener
All injuries on body	Poor body condition	Give water before feeding, feed wheel Avoid heat stress Do not overload

3.4. Prevention and Routine Medication of Animals

1. Vaccination: Infections and disease in livestock cause huge economic loss to the country.
Attention therefore should be given to prophylactic measures to work Animals. Available vaccines in Nigeria are majority bacterial mycoplasma and viral. The vaccines include – Black Quarter Vaccine (BQV), Contagious Bovine Pleuropneumonia Vaccines (CBPPV), Anthrax Spore Vaccine (ASV), Hemorrhagic Septicemia Vaccine (HSV), Hantavac Vomac-3 foot and mouth disease (FMD) and Tissue Culture Rinderpest Vaccine (TCRV) (NVRI, 1999). The vaccines are obtainable in various diagnostic laboratories across the country.
2. De-worming: periodic de-worming of work bulls is necessary and it can be given twice a year, end of rainy season and end of dry season. Various anthelmintis preparations are available in the country. These include Ivomece super, Alfamec, Benezal bolus, Nitroxynil, Piperazine, Tramisol plus, Tradox Wormazine, Vormofas. The drugs can either be administered orally or parentally.

2. **De-ticking:** prevention and treatment of ecto-parasite is necessary in order to get maximum output of the work bulls. Ticks and lice animals to many diseases, therefore prevention is the outmost importance.

Self-Check-3	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. List the activities in Preventive health care for successful draft animal keeping (3pts)
2. What the cause of harness injury?(2pts)

Note: Satisfactory rating –5 points unsatisfactory rating –below 5 points

You can ask you teacher for the copy of the correct answers

Answer Sheet

Score: _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions:

1. _____

2. _____

Information sheet – 4	Inspecting and removing Manure, stale feed and soiled bedding

Manure, Manure, soiled bedding and stale feed must be inspected, removed, and abnormal conditions have to be reported. bedding and feed waste that is collected from barns, draught animal yards and other areas should be properly stored in a suitable location until it can be safely recycled on gardens and cropland. If there is a lack of land and equipment available for spreading manure on-farm, then it should be taken to other places that can safely recycle it. Manure, bedding and feed waste can also be properly composted on-farm to produce a stable, soil-like product that is free of pathogens and weed seeds. This may also increase desirability for use by others (gardeners, etc.).

The main objective of manure handling is to prevent surface and ground water pollution. Generally, the wastes must be held in some way until they can be properly disposed of on the land.

Animal manure may be collected and handled as a solid, and/or as a liquid. If the manure is handled as a solid, then bedding may also be handled with the manure. Liquid systems generally cannot handle bedding.

Proper location of manure storage areas, composting areas, and draught animal yards

- Locate at least 100 feet away from a drinking water well or other water resource including ponds, streams, wetlands and storm drains and ditches.
- Locate downhill from a drinking water well and other water resources where possible.
- Consider neighbors, property boundaries and prevailing winds. Leave a buffer.

Self-Check-4	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Why you inspect manure, stale feed and bedding (2)

Note: Satisfactory rating – 2 points unsatisfactory rating –below 2 points

You can ask you teacher for the copy of the correct answers

Answer Sheet

Score: _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions:

1. _____

Information sheet – 5	Cleaning stables and surrounding areas

5.1. Raking or forking bedding and add fresh bedding materials

Bedding is raked or forked and fresh quantities have to be added unless it has a deep litter system where system whereby bedding material is added daily. The shed should be open into paddock to allow the animal to exercise. The shed and the paddock should be free from sharp objectives like nails or broken rails. Bedding such as rice hulls, saw dust, bagasse, or hay, used in animal stables will increase the value of the manure. The bedding absorbs and holds the nitrogen rich liquid portion of the manure.

5.2. Clean feed bins, hay nets/bins and water troughs

Feed bins, hay nets/bins and water troughs also must be cleaned thoroughly and troughs are filled with fresh water. Walkways have to be swept and/or raked and manure removed.

Method of Cleaning:

- Manual: **-** removal of soil by scrubbing in the presence of detergent solution.
- Applying Low pressure High volume Spry: **-** the application of water or detergent solution in large volume at low pressure.
- High Pressure Low volume Spry: - application of water and detergent solution low volume at high pressure.
- Foam Cleaning: - the application of detergent in the form of foam. The foam is allowed to react for 15- to-20 minutes and then rinsed off with water spray.

Properties of an Ideal Detergent are: -

- ✓ Good wetting capacity,
- ✓ Ability to remove soil,
- ✓ Ability to hold soil in suspension,
- ✓ Good rinsing property, and
- ✓ None corrosive.

Feed bin management

- Avoid unnecessary waste while cleaning feed bins.
- Leaving spilt feed under the bin only encourages rodents and vermin to the farm - which then consume their own share of feed.

- Routinely and regularly check the outside and inside of feed bins and their distribution systems.

Management may helps to:

1. Use the right feed at the right time
2. Use correct feed
3. Developing a good feed preparation

Feed bin filling

When the feed bin is being filled, avoid all wasted and spilt feed. Once the feed has been delivered, ensure that the feed bins are properly re-sealed.

Feed barrows

If feed is moved around the farm in barrows, ensure that the barrow is kept out of the rain and is covered at all times. Do not overfill feed barrows as this often leads to spillage of feed whilst moving the barrow around the farm. The major important feature of shed is water and water trough for concentrate feed. These can be made of concrete, metal, even wood or plastic. They are put in front of the animal behind yoking bar. Feeding rack can also be constructed for feeding hay and crop residues such as maize Stover.

Self-Check-4	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. List methods of cleaning.(2Pts)
2. What is the feed bin management helps you?(2pts)

Note: Satisfactory rating – 4 points unsatisfactory rating –below 4points

You can ask you teacher for the copy of the correct answers

Answer Sheet

Score: _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions:

1_____

2._____

Information sheet – 6	Reporting Buildings or fixtures that are in need of maintenance

Reporting is an integral part of monitoring and evaluation. Reporting is the systematic and timely provision of essential information at periodic intervals. The report is provided quarterly and annual basis.

The quality of organizational decision depends on the quality of information reported and organized. Report should be objectively and timely. Because, report enable managers to evaluate progress and plan the future. Detailed report is precious formal document prepared and presented by the workers to the higher management concerning the works on operation or completed

Report may be defined as a formal statement describing a state of affairs or what has happened. It has detailed description of a problem or a situation, findings of an investigation and recommendations or actions taken. Or we can say that it is submitted by a lower authority to a higher authority and it is a back bone of communication. The quality of organizational decision depends on the quality of information reported and organized. Report should be objectively and timely. Because, report enable managers to evaluate progress and plan the future. Detailed report is precious formal document prepared and presented by the workers to the higher management concerning about building in need of maintenance.

The report may contain the following:

- The report that represents the result of technical, economic and financial feasibility of the program or project
- Report serves as the basis on the basis of which the concerned government body gives clearance /sanction of the planned works.
- Report serves as guide for the starting and implementation of the planned activities.
- Report is helpful in achieving the time and cost limits in the completion of the planned activities.
- Report is helpful in obtaining technical and financial assistance from different cooperative organizations and bodies.

Self-Check-4	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What is reporting?(1pt)

2. When you provide your report to your supervisor?(2pts)

Note: Satisfactory rating – 3 points unsatisfactory rating –below 3 points

You can ask you teacher for the copy of the correct answers

Answer Sheet

Score: _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions:

1_____

2_____