



(ANIMAL PRODUCTION)

NTQF Level - II

Learning Guide#-11

Unit of Competence: - Assisting Basic Husbandry
Practice of Ruminants

Module Title: - Assisting Basic Husbandry
Practice of Ruminants

LG Code: AGR APR2 M04 LO1-LG-11

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LO 1: Prepare for ruminant raising activities



Instruction Sheet	Learning Guide #-11
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This learning guide is developed to provide you the necessary information regarding the following content coverage and topics –

- 1.1. Identifying, checking and using Materials, tools and equipment
- 1.2. Preparing House and housing facilities
- 1.3. Using correct manual handling techniques when loading and unloading
- 1.4. Selecting, checking and using Suitable Personal Protective Equipment (PPE)
- 1.5. Providing work task according to OHS requirements and supervisor instructions

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, check and use Materials, tools and equipment
- Prepare house and housing facilities
- Use correct manual handling techniques when loading and unloading
- Select, check and use Suitable Personal Protective Equipment (PPE)
- Provide work task according to OHS requirements and supervisor instructions

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below 3 to 6.
3. Read the information written in the information “Sheet 1, Sheet 2, Sheet 3, Sheet 4, Sheet 5 and Sheet 6”.
4. Accomplish the “Self-check 1, Self-check t 2, Self-check 3, Self-check 4, Self-check 5 and Self-check 6” in **page -6, 14, 21, 23, 29 and 32** respectively.
5. If you earned a satisfactory evaluation from the “Self-check” proceed to next learning guide.



Information Sheet # 1

Introduction to ruminant animals

1.1. Introduction to animal production

Animal: is any living thing, other than a human being, that can feel and move.

Production: - the action of manufacturing, growing, extracting etc of things especially in large quantities. (Oil, egg, energy)

Animal Production: - literally means the action of growing or producing animals and it's by -products in large quantities, ex.: Animals, eggs, Milk, Beef, and soon. In the comprehensive explanations, the study of livestock farms and farming systems is known as **animal production**.

Animal husbandry may be defined as a science as well as an art of management including scientific feeding, breeding, housing, and health care, of common domestic animals aiming for maximizing returns.

Animal rearing is an age long activity that man carries out basically for food and the production of raw materials for agro-industries. Meat or flesh, milk and eggs are primarily obtained directly from farm animals for consumption by man. Wool, fur, hides and skin are other products from farm animals for industrial use as raw materials.

Animals are categorized into **ruminants and non-ruminants** based on some anatomical and physiological differences. Apart from being a source of meat as other animals, ruminant animals are the main sources of raw materials such as wool, fur, hides and skin, milk and many others for the production of clothing materials, leather materials (such as foot wears like shoes, belt, shawl), milk products like yoghurt, butter, cheese, and many other products. Ruminant animals, especially bull or camel are also used as draught animals for transportation and traction.



1.2. The Differences between Ruminant and Non-ruminant Animals

Ruminant animals are animals that chew and regurgitate their food more than once, and digest it multiple times in different stomachs. These animals are quadruped mammals with even toes, hooves and chew the cud. They are herbivores with a complex stomach called a rumen. Some examples of ruminant animals are cattle, sheep, goats, buffalo, deer, elk, giraffes and camels. One of the most significant features of the ruminant digestive system is the presence of a complex stomach with four compartments. They are rumen, reticulum, omasum, and abomasum. The first three compartments, the rumen, reticulum, and omasum break down plant fibers by fermentation with the help of micro-flora. This fermentation results in volatile fatty acids such as acetate, butyrate, and propionate. Hence, this process is called the foregut fermentation. The fourth compartment (abomasum) secretes digestive enzymes.

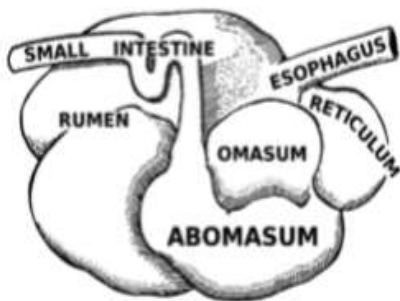


Fig:-1.The Four Compartments of Ruminant

Stomach

Also, these animals ruminate or completely digest the food by chewing the cud. The four processes of rumination are;

1. Regurgitation: Vomiting the cud from the stomach to the mouth
2. Re-mastication : Biting and grinding food inside the mouth
3. Re-salivation : Secretion and mixing of saliva with the food
4. Re-swallow : Taking back the food to the stomach

Non-ruminant animals are omnivores or carnivores with a single stomach compartment within the digestive system. Hence, the digestive system of the non-



ruminant animals is called mono-gastric. Some examples of non-ruminant animals are human, horse, swine, fowl, dog, and rabbit. The components of the non-ruminant digestive system are mouth, esophagus, stomach, small intestine, large intestine, and rectum.

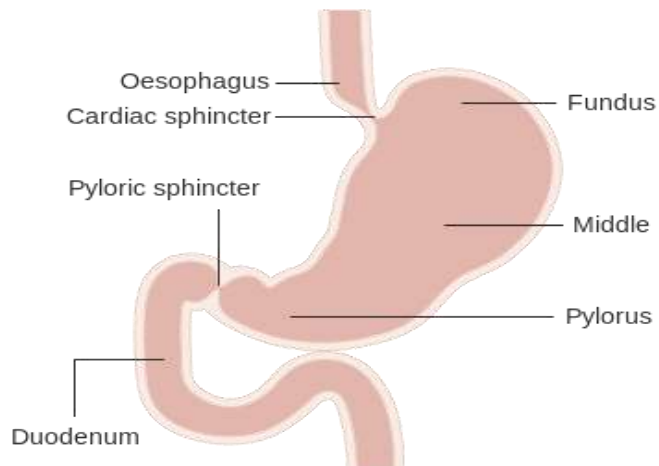


Figure 2: Non Ruminant Stomach

Non-ruminant animals do not chew the cud. Also, they do not digest the plant materials such as cellulose through fermentation.

Similarity of ruminant and non ruminant animals

- Ruminant and non-ruminant animals have a complete digestive system
- The digestive system of both consists of a mouth, esophagus, stomach, small intestine, large intestine and a rectum.
- Both eat throughout the day and constantly lose energy

Classes of Ruminant Animals

Ruminant animals are categorized into two main classes based on their body size namely,

- Large ruminant animals: - E.g. Cattle, Buffalo, Camel etc
- Small ruminant animals: - E.g. Sheep and Goat (Shoat)



1.3. Economic Importance of Keeping Ruminant Animals

Ruminant animals and their products as mentioned in the introduction have tremendous nutritional and economic values to man as stated below:

- Meat and milk of cattle, sheep, goats and other ruminants are good sources of animal protein to man which are of better quality than plant protein.
- They serve as sources of raw materials used in industries e.g. leather goods respectively. Goat hair is also used for making carpets, bag and ropes. Wool is a raw material for the production of clothing for human wear.
- They serve as means of foreign exchange earnings e.g. Hide and skin
- They serve as source of income to subsistence farmers
- These animals are able to survive on fallow lands and others that are not good for arable crop farming thereby maximizing the use of the available land resource
- They are also used as gifts or bride price which serves as family wealth
- They are sources of gainful employment.
- The manure/dung from these animals can be used as a source of organic fertilizer.
- Ruminant animals are slaughtered during festive seasons all over the world. Blood and bones obtained from slaughtering of these animals are often recycled and processed into blood meal, bone meal which are used as components of animal feed
- Cattle, and some other ruminants can also be used as “beast of burden”
- Ruminants have an advantage of the ability to eat and utilize low quality fibrous food that cannot be eaten by human or non-ruminants.



Self-Check # 1	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Define ruminant animals? (2pts)
2. Define non ruminant animals? (2pts)
3. Differentiate ruminant and non ruminant animals? (3pts)

Note: Satisfactory rating - 5 points

Unsatisfactory - below 5 points

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

Short Answer Questions

1. _____

2. _____

3. _____



Information Sheet # 2

Identifying, checking and using Materials, tools and equipment

For easy production of ruminant or any farm animal certain equipments have been designed and are used to facilitate management operation. In ruminant animals, these equipments appear to be common and work with the same principle. Virtually all of these equipments are imported but could also be fabricated locally.

During working any ruminant husbandry management activities the suitable materials, tools and equipment should be identify. These identified materials, tools and equipment should also be checked the functionality and then use properly. After identifying all the required materials know the operation and maintenance system or check the present condition of tools improve / maintain if necessary.

Like:-

Clippers (Shearer):-is essential for removing wool from sheep quickly, completely, easily and with minimum discomfort to sheep and operator. They can be hand and machine shears. Hand shears are recommended for flocks of 10 or less, hand machine (clippers) for flock of less than 150 and power machine for flocks above that number.

Weighing scale: - Special platform scales are required for weighing large animals, sheep and goat, these gives an idea about their condition and wellbeing.

Castrator: - Used for removing or destroying testicles, the glands that produce male germ cell. The process is known as castration. There is several method of castration.

A. **Using knife:** - It is the process of castrating animal by cutting one third of the lower end of the scrotum.

B. Electrically



C. Using Burdizzo: - Burdizzo is an instrument used to destroy the cord leading to the testicles. Here the cord is destroyed, leaving the testicle gradually dry up.

Dockers

Used for removing tail from the body of the animal. The process is known as Docking. It is mainly applied in the case of sheep with long tail such as *Awassi* breed for the ease of mating and fattening purpose.

There is several equipments used for docking






- A. Using knife:-Should be confined to lambs that are not more than a week or 10 days
Old as older lambs can easily bleed to death.
- B. Using hot iron:-Is much lower than knife method, but it is much safer as it sterilizes
The wound, sear and prevent bleeding.
- C. Rubber band method:-Is known as blood less method of docking. Here there is rubber
Band which will be fitted around the tail with the elastrator, then it will prevent circulation and finally the tail will dry off.







Dip Vat (Tank):-is essential to eradicate ecto-parasites (ticks and lice etc) and to remove waste materials and dung from the fleece prior to shearing. Mainly sheep, to some extent cattle, other livestock are rarely dipped. They are usually made of concrete, at the ground level or slightly raised. Can be hand bath method or swim bath.

Vaccinating gun/Syringe/:-Important for injecting the animal with vaccine. The process is known as Vaccination. Vaccination stimulates the production of antibodies. Vaccine produces immunity or protection against a given disease. In order to avoid contamination use separate needles /Syringe/for injecting the animal and for dissolving the vaccine. Follow instructions on the package.







The following equipment are used in ruminant animal production








equipment	Advantage	Sample Picture
Weighing scale	This is used to know or measure the weight of the animals, feed and materials	
Tractor	Compact tractors are ideal for heavy duty landscaping and tasks such as digging, hauling or plowing in large gardens, fields and pastures. Subcompact tractors have the power and versatility to perform a wide range of horticultural tasks, including mowing, quilting and moving machining gardens.	
Strip Cup	A strip cup is a very useful tool and a must for all dairy farmers. Milking the first few strips into a strip cup will show if there are any lumps present indicating beginning or advanced mastitis, which should be controlled urgently.	
Thermometer	A thermometer is very useful to check body temperature. It is an essential tool for the serious livestock farmer to help her or him in judging animal health.	
Boling gun	It is used for oral administration of solid drugs.	

<p>Burdizzo Castrator</p>	<p>This is used to castrate unwanted males on the farm. Castration is the act of making a male animal impotent by open or a surgical removal of its scrotum.</p>	
<p>Elastrator</p>	<p>It is a bloodless castrator that use the ring method</p>	
<p>Drenching Gun</p>	<p>This is made of a long tube or rubber hose long enough to enter the mouth of ruminants. It is used for oral administration of liquid drug especially during de-worming exercise</p>	
<p>Tattoo pliers</p>	<p>The needles pierce the skin to make clear and readable marks. Black tattoo ink is used for normal use and green tattoo ink for animals with a black or darkly pigmented skin.</p>	
<p>Hooves Trimmer</p>	<p>Used to trim or remove animal hooves.</p>	
<p>Dehorning saw</p>	<p>Used to cut the horn of animal</p>	









Dehorning wire	Used to cut the horn of animal	
Crush	Used to restrain animal	
Hammer	A hammer is a simple tool designed to manually drive nails, brads, and other fasteners into softer materials, such as wood or drywall. A hammer has a head and a handle, or shaft.	
Ear tags	Ear tag is a plastic or metal object used for identification of domestic livestock and other animals. Flexible plastic tags are probably the most widely used for animal identification, as they are readable from a distance.	
Ear tag applicator	Used for fixing ear tag to the ear of the animal for identification.	
Bull holder/ nose lead	The cattle nose lead cow ring holder is a bull head fixation device. It can be used to spread the attention of cattle by simply clamping it on both sides of the nasal septum.	



<p>Branding iron</p>	<p>A branding iron is used for branding, pressing a heated metal shape against an object or livestock with the intention of leaving an identifying mark.</p>	
<p>Shovel</p>	<p>A shovel is a tool for digging, lifting, and moving bulk materials, such as soil, coal, gravel, snow, sand, or ore. Most shovels are hand tools consisting of a broad blade fixed to a medium-length handle. Shovel blades are usually made of sheet steel or hard plastics and are very strong.</p>	
<p>Wheel barrow</p>	<p>A wheelbarrow is a small hand-propelled vehicle, usually with just one wheel, designed to distribute the weight of its load between the wheel and the operator, so enabling the convenient carriage of heavier and bulkier loads than would be possible were the weight carried entirely by the operator.</p>	
<p>Mineral boxes</p>	<p>Used to store minerals</p>	
<p>Waterier</p>	<p>Is a man-made or natural receptacle intended to provide drinking water to animals, livestock on farms or ranches or wild animals</p>	



Feeding trough	Is a man-made intended to provide feed for animals	
Milking pails/can	Used as storage or continuer of milk.	
Fork	Used to collect waste	
Nipple Feeders	For feeding young cattle with milk replacers	
Spade	Used to digging and loosing soil	
Automatic Syringes	Used to provide vaccine drugs for large numbers of animas.	

Other materials used in ruminant animal husbandry include:

Hoe Lubricant Litmus paper Towel Fertilizer



Self-Check # 2	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Why you use different materials, tools and equipment in animal production? (2pts)
2. If you are ordered to perform animal identification write the materials that you use? (3pts)
3. What do you do before using materials, tools and equipments? (2pts)

Note: Satisfactory rating - 5 points

Unsatisfactory - below 5 points

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

Short Answer Questions

1. _____

2. _____

3. _____



Information Sheet # 3

Preparing House and housing facilities

Housing is an integral part of management; hence it is of great importance in ruminant animal production. Housing must be well planned with adequate ventilation and sanitation facilities to enhance production of animals. However the housing type depends on the system of production.

The basic requirement of good animal housing is that it should alter or modify the environment for the benefit of animals and also protect them from predation and theft. Animal housing should buffer the animal from climate extremes to reduce stress allowing optimal animal performance in terms of growth, health and reproduction. The main climatic factors from which protection is needed are high and low ambient temperatures, environmental humidity, solar radiation, wind and rain. Additionally, houses are important in protecting feed and equipment from damage, in saving labor, and in aiding effective management, including breeding. Sheep and goat housing should meet animal requirements and serve a producer's needs at the lowest possible cost.

3.1 Housing Requirement for Cattle Production

To start a cattle production venture, adequate consideration must be given to how the animals will be housed for better management in a better environment and to prevent theft.

The following points must be considered while designing a house for cattle:

1. The building must be sited on a well drained and not undulating floor,
2. There must be proper and adequate ventilation and illumination in the building,
3. There must be no draught or condensation in the building,
4. The building must have well positioned feeders and drinkers
5. The building must be easily accessible,
6. The surrounding must not be bushy to prevent predators and disease vectors.



3.1.1. Housing for Intensive System of Cattle Production

Generally, cattle are housed in a well shaded open-sided structure called barns or cattle shed (Fig.3). This type of housing is common in the intensive type of production. The size of the barn depends on the number of cattle expected to be housed. An average of 2 to 3 m² is allowed per adult cattle. The house must be well equipped with feeders and water troughs with adequate space for farm operations to take place. The floor of the barn is always concrete with rough surface to prevent skidding or falling of the cattle. The construction of the house is such that it has feeding passage with well fitted mangers around the standing area. Drains must be constructed for easy washing, cleaning and evacuation of dung and other waste materials. Individual pens are also used in this system of production especially for calves, breeding bulls and nursing cows.



Fig. 3: Cattle Barn

3.1.2. Housing for Extensive System of Cattle Production

There is no standard for the housing type for this system of production. One of them is cattle kraal (Fig. 4) which is an enclosure in an open field or land where the animals are tethered (or tied to pegs already installed). The walls of the kraal could be made of planks or wood, bamboo, mud blocks or stones. The animals are always housed here after the day's grazing.



Fig. 4: Cattle Kraal

3.2. Shelters and Housing for Sheep and Goats

3.1 Housing Requirements for Sheep and Goat Production

In your previous study, the housing need for ruminant or any farm animal was established as one, for better management in a good environment and two, for safe keeping of the animals and other assets. The same principle of housing applies to sheep and goat production. However in the tropics, especially in Nigeria and other Sub-Saharan region, housing for sheep and goats is not given prominence as in the temperate region or as even done for cattle. The main consideration for housing for sheep and goat in this part of the world is to provide sufficient protection from unfavorable weather. The essential consideration is that the environment must be cool, dry and free from draught with access to pasture or outside all the time.

Small ruminant housing need to:

- Be strong enough to last a long time;
- Be large enough for the number of animals to be accommodated comfortably.
- Allow freedom of movement for all animals;
- Be well-drained or have well-maintained dry bedding and easy to clean. Sheep and goats do not tolerate mud well; therefore, yards and shelters should be built only on well-drained ground;
- Receive morning sunshine evenly;
- Be well lighted and ventilated. Air circulation, dust levels, temperature, relative air humidity and gas concentrations should be at levels that will not harm animals;



- Have suitable isolation pens for sick or injured animals as far away from the main house as possible.

In sheep and goat production, housing type depends on the system of production as we have mentioned for cattle.

2. Traditional methods of housing

2.1. Types of traditional housing

Traditional sheep and goat housing is made of varying designs and construction materials depending upon local custom and availability. Some main types of housing include:

- Housing at one corner of the main family house;
- An overhang attached to the roof of a house;
- Open yards with no roof (Figure 1);
- In a basement under the family home such as seen in north Shoa
- Separate houses of thatched roofs (Figure 5).
- Lambs and kids are, in some areas, kept in a dome made of bamboo or other locally available material (Figure 5). This prevents the young from straying or mixing with the flock, except during suckling. The dome is usually kept outdoors during the day if there is no rain.

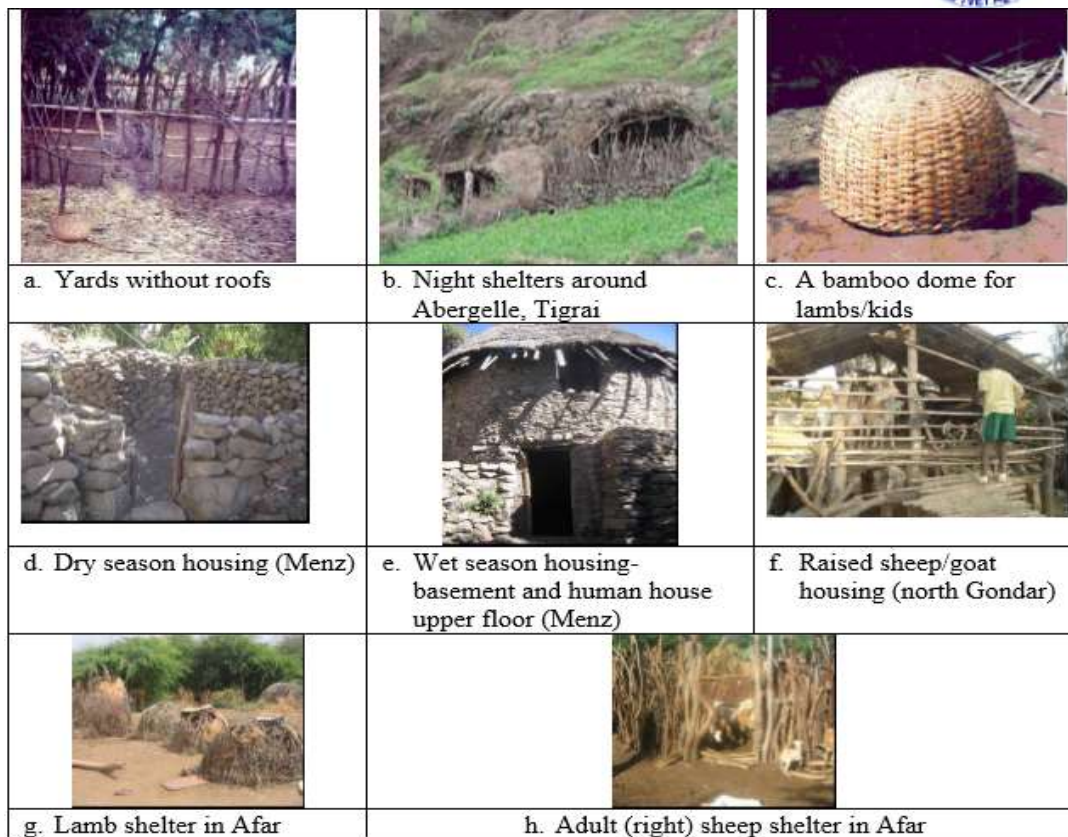


Fig5. Night shelters under the traditional system

Housing Type for Sheep and Goat under Intensive/Semi-intensive System

In this type of housing, the entire house is well roofed with windows to protect the animals during the winter season in the temperate region. In summer they have access to pasture. This type of production require a lot of sophistications in the housing construction and very expensive. It is often associated with high level of production in terms of meat, wool or fleece. Such housing is not profitable in this part of the world.

Some government farms or rich individuals do construct a good but simple housing for sheep and goat in Nigeria for semi-intensive production. In this type of housing, a simple building is constructed in which exist slatted floor for the animals to sleep (Fig.6). Hay racks are provided in some for feeding the animals when they are turned in from the pasture at the end of the day. The roof of the house should not



be too high to prevent been blown off by wind nor too short to prevent proper illumination and draught. It is often made of asbestos material or corrugated iron sheet. If the latter is used, the wall must not be too high to allow illumination and ventilation. It could also be made of wood, mud or blocks depending on availability of fund. The floor must be sloppy for proper drainage and could be made of concrete or rammed. The slats could be of bamboo or wood. What is used is a function of the availability of fund. The house could be divided into pens with drinkers and feeders for concentrate feeding.



Fig. 6: Goat Shed with Slatted Floor

Space requirement: In any type of housing for sheep and goats, adequate floor space must be provided. Recommended space requirements vary depending on animal size and the type of floor used (Table 1). Adjustments may also be made depending on local climate and flock size. Additionally for animals managed totally indoors, an open yard for exercising is required. Sheep and goats should not be crowded and must have room to lie down. Overcrowding promotes ill health.

Table1. Recommended floor space for sheep and goats

Type of animal	Weight (Kg)	Floor Space (m ² /animal)		
		Solid Floor	Slatted Floor	Open yard
Ewe/ doe	35	0.8	0.7	2
Ewe/ doe	50	1.1	0.9	2.5
Ewe/ doe	70	1.4	1.1	3
Lamb/ kid		0.4 – 0.5	0.3 – 0.4	
Ram/ buck		3.0	2.5	
Pregnant ewes/does		2.0	1.5	



Self-Check # 3	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What is the advantage of house for the animal?
2. Discuss the ideal site for housing?

Note: Satisfactory rating - 3 points

Unsatisfactory - below 3 points

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

Short Answer Questions

1. _____

2. _____



Information Sheet # 4

Using correct manual handling techniques when loading and unloading materials

Manual handling is any task that requires you to push, pull, lift, carry, move, hold or lower any object, person or animal. Manual tasks include tasks that have repetitive actions, sustained postures and may involve exposure to vibration.

Manual handling results in 20% of all workers compensation claims at UNSW. The types of injuries related to manual handling include:-

- Muscle injuries
- Nerve injuries
- Bone injuries
- Injuries to the ligaments or tendons
- Injuries from falling objects

Manual handling aids

Manual handling aids reduce the physical effort needed to lift and move objects, making it safer.

When providing manual handling aids for the workplace it is important to ensure that:-

1. The right equipment is selected for the task
2. That all staff are trained in the correct use of the equipment
3. The equipment is visually inspected for defects before use
4. The wheels are suitable for the floor surface
5. The wheels move freely
6. The handle grips are comfortable and are in good order
7. The handle height is between the waist and shoulder
8. If they have brakes do they work?
9. The aids are regularly inspected and maintained to ensure it is good working order
10. The load secured before moving



Using correct manual handling techniques during loading and unloading materials helps to minimize damage of:-

- ❖ Workers
- ❖ Other persons
- ❖ Materials and
- ❖ Vehicles

Self-Check # 4	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What is manual handling? (2pts)
2. Write the types of injuries related to manual handling (3pts)

Note: Satisfactory rating - 3 points

Unsatisfactory - below 3 points

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

Short Answer Questions

1. _____

2. _____

**Information Sheet # 5****Selecting, checking and using Suitable Personal Protective Equipment (PPE)**

The Occupational Safety and Health Administration (OSHA) estimates that, every day, 243 agricultural workers suffer a serious lost-work time injury. Five percent of these injuries result in permanent impairment. In 2010, the injury rate for agricultural workers was 20 percent higher than the rate for all workers. This is a conservative estimate as countless other accidents are never reported and many accidents occur to family members that are also underreported. Many farm and ranch injuries could be prevented or their impacts reduced if farmers and ranchers wore proper personal protective equipment (PPE).

Personal protective equipment (PPE) refers to any specialized equipment or clothing worn by farmers and ranchers for protection against health and safety hazards. PPE does not prevent accidents, but it does prevent or reduce injury and even fatalities when used.

PPE is designed to protect many parts of the body; eyes, head, face, hands, feet, ears, or torso. Some examples of PPE used in husbandry of ruminant animal are Overalls, Gown, Gloves, Safety goggles, Plastic boots/shoes, Sunhats/helmets, Nose protector/respirator etc.

To provide adequate protection, the protective clothing and equipment must always be:

- appropriate for the particular hazards
- maintained in good condition
- properly stored when not in use, to prevent damage or loss
- Kept clean, fully functional, and sanitary.



Basic Types of PPE

The strict controls will not necessarily eliminate all the risks associated with most job tasks and this is where the need for PPE must be evaluated. A hazard assessment can help identify which specialized PPE will be required. However, the following basic types of PPE should be made available in worksite.

Eye and face protection

To provide protection during exposure to hazards like flying particles, metal or sparks, liquid chemicals, caustic liquids, light radiation, i.e., welding, lasers. Eye protection should always be worn where there is potential for injury to the eyes or face from small particles, toxic chemicals, flying particles, large objects, thermal or radiation hazards, an lasers.

According to the types and extent of hazards, different PPE should be worn. These must always remain clean and free of contaminates.



Goggles

Goggles offer good protection against front and side impact. Unvented or indirect vented chemical splash goggles provide protection from chemical vapors and liquids.

Hearing protection: - To provide protection during exposure to high pitch and loud noise levels. Exposure to high levels of noise may result in hearing loss. PPE should be worn when the noise level is 85 decibels or greater averaged over an eight-hour period. Most hearing protection devices have a noise reduction rating (NRR) that indicates the amount of protection provided. In general, look for NRR of 25 or greater.

Hand protection: - To provide protection during exposure to potential hazards such as sharp objects, abrasive surfaces, temperature extremes, and chemical contact.



Selecting proper gloves is very important since the hands are used to handle hazardous materials. In addition, traumatic injuries such as cuts, sprains, and punctures may occur. With the wide range of hazards, there are also a wide range of gloves that may be used as PPE. Chemical-resistant gloves are always recommended when working with pesticides and chemicals. Chemical-resistant aprons add protection from body absorption of hazardous chemicals.



Padded cloth gloves

Protects hands from sharp edges, slivers, dirt, and vibration. Not acceptable for handling hazardous materials.



Metal mesh gloves

Better protection than cloth gloves against sharp edges and cuts. Not acceptable for handling hazardous materials.



Rubber gloves

Offer protection when working around electricity.



Heat-resistant gloves

Offers protection from heat and flames.



Vinyl/neoprene gloves

Protects hands against toxic chemicals. Selecting the right glove is critical in handling the varying level of chemical toxicity. See link below for description of protective material used in gloves.



Nitrile protective gloves

Provides good protection when using many different pesticides.



Barrier laminate gloves

Offer the best chemical resistance in gloves designed to handle hazardous chemicals. Avoid cotton-lined or rubber gloves that absorb chemicals that result in continued absorption.

Head protection: - To provide protection to potential hazards such as falling objects, striking against low-hanging objects, electrical hazards, or chemical application.



Chemical-resistant hats with added wide brim

Offers protection when applying pesticides but may not be compatible with certain types of respiratory PPE.

Respiratory Protection: - Respirators are used to prevent the exposure to air contaminated with harmful dusts, fumes, mists, gases, smokes, sprays, or vapors. All respirator usage, including disposable respirators, air purifying respirators, and air-supplied respirators, require annual fit testing and testing and training prior to use.



Foot protection - To provide protection for situations with the potential of injuries such as falling or rolling objects, chemical or liquid exposures, piercing objects, and where feet are exposed to electrical hazards.



Latex/rubber footwear
Resists chemicals and provides extra traction on slippery surfaces.



Electrical hazard footwear
Insulated with tough rubber to prevent shocks and burns from electricity.



Nitrile footwear
Resists animal fats, oils, water, chemicals, and pesticides.

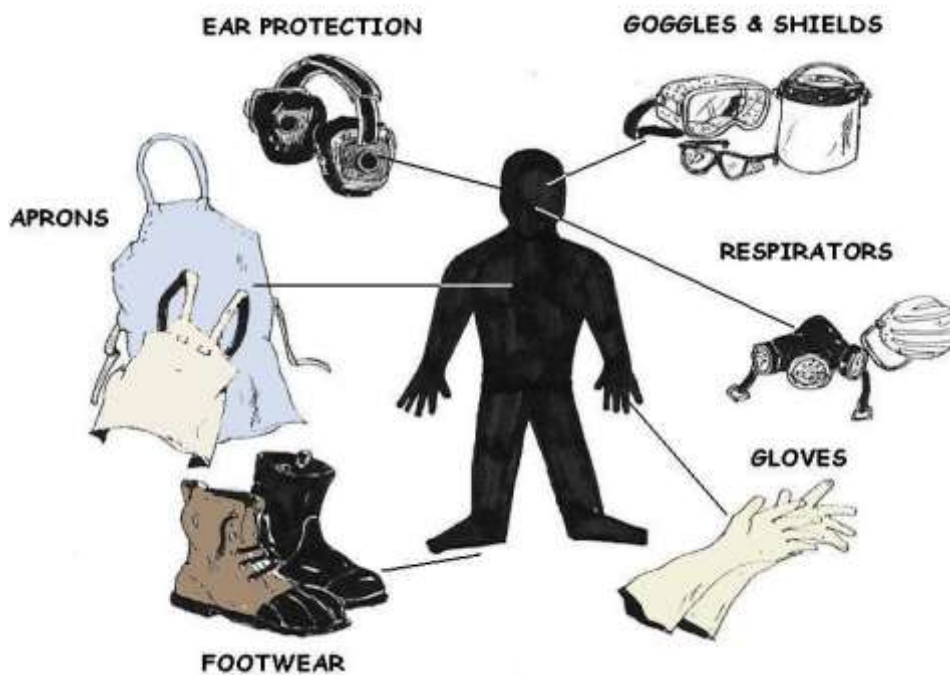


Body Protection- PPE includes safety vests and suits and should be used for tasks that can cause body injuries from extreme temperatures, flames and sparks, toxic chemicals, insect bites and radiation. Ensure that they are clean and free from cuts and burns. Always get a good fit to ensure full body protection.



Chemical-resistant coveralls and aprons

Coveralls and aprons (single-use or reusable) worn over regular work clothing offer additional protection when diluting, mixing, or applying pesticides. Pesticide labels may require them for certain pesticides.





Information Sheet # 6	Providing work task according to OHS requirements and supervisor instructions
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Occupational health and safety (OHS), also commonly referred to as **occupational health**, or **workplace health and safety (WHS)**, is a multidisciplinary field concerned with the safety, health, and welfare of people at work.

The goals of occupational health and safety programs include to foster a safe and healthy work environment. It may also protect co-workers, family members, employers, customers, and many others who might be affected by the workplace environment. In the United States, the term occupational health and safety is referred to as occupational health and occupational and non-occupational safety and includes safety for activities outside of work.

Agriculture workers are often at risk of work-related injuries, lung disease, noise-induced hearing loss, skin disease, as well as certain cancers related to chemical use or prolonged sun exposure. On industrialized farms, injuries frequently involve the use of agricultural machinery. The most common cause of fatal agricultural injuries in the United States and other developed countries is tractor rollovers, which can be prevented by the use of roll over protection structures which limit the risk of injury in case a tractor rolls over. Pesticides and other chemicals used in farming can also be hazardous to worker health, and workers exposed to pesticides may experience illnesses or birth defects. As an industry in which families, including children, commonly work alongside their families, agriculture is a common source of occupational injuries and illnesses among younger workers. Common causes of fatal injuries among young farm worker include drowning, machinery and motor vehicle-related accidents.



OHS requirements

During performing any agricultural or animal husbandry related works, workers should be fulfilling the following OHS requirements:

- Using of relevant protective clothing and equipment,
- Use of tooling and equipment,
- Workplace environment and safety handling of material,
- First aid kit
- Hazard control and hazardous materials and substances.
- Using gowns, rubber boots of appropriate size, goggles, gloves etc,
- Following OHS procedure designated for the task
- Checking and fulfilling required safety devices before starting operation

Apply safe operating procedures regarding to:

- Electrical safety,
- Machinery movement and operation,
- Working in proximity to others and site visitors.

Apply emergency procedures on:

- ✓ Emergency shutdown and stopping of equipment,
- ✓ First aid application and site evacuation. Electrical safety,
- ✓ Machinery movement and operation,
- ✓ Working in proximity to others and site visitors.



List of Reference Materials

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2. Sheep and Goat Production Handbook for Ethiopia. Edited by Alemu Yami and Merkel R. C . Ethiopia Sheep and Goat Productivity Improvement Program, 2008.
3. University of Wyoming Extension. Personal Protective Equipment for Agriculture
<http://www.wyomingextension.org/agpubs/pubs/B1233.pdf>