ANIMAL HEALTH CARE SERVICES LEVEL- III

BASED ON MARCH 2018, VERSION 3 OCCUPATIONAL STANDARDS

MODULE TITLE: PERFORMING ANIMAL QUARANTINE OPERATIONS

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LG 105	Lo 1. Follow Effective OHS Procedures

Instruction sheet

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

- Recognizing and reporting Hazards
- Following workplace procedures and work instructions
- Maintaining personal hygiene and cleanliness
- Recognizing risks to eliminate
- Undertaking or providing safety training

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
3. Read the information written in the "Information Sheets". Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
4. Accomplish the "Self-checks" which are placed following all information sheets.
5. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-checks).
6. If your performance is satisfactory proceed to the next learning guide,
7. If your performance is unsatisfactory, see your trainer for further instructions.

Information Sheet 1- Recognizing and reporting Hazards

1.1. Definition and Context of Occupational Health and Safety

Occupational health and safety is a discipline with a broad scope involving many specialized fields. It encompasses the social, mental, physical well-being of workers that is the whole person. It would to develop an understanding of the ergonomic, physical, chemical, biological, psychological and social determinants of OHS. Hazards are any things that can harm workers. There are health hazards and safety hazards. A health hazard may produce serious and immediate (acute) affects, or cause long-term (chronic) problems. All or part of the body may be affected. Occupational illnesses occur when someone is exposed to a chemical or a biological substance, a physical agent, or other stressors that can harm them. Someone with an occupational illness may not recognize the symptoms immediately. For example, noise-induced hearing loss is often difficult for victims to detect until it is advanced and irreversible. Occupational health deals with all aspects of health and safety in the workplace and has a strong focus on primary prevention of hazards. The health of the workers have several determinants, including risk factors at the workplace leading to cancers, accidents, diseases, respiratory loss, circulatory diseases, stress related disorders and communicable diseases and others.

1.2. Terms related to OHS

Occupational health and safety: is the discipline concerned with preserving and protecting human resources in the workplace. As per the definition adopted by the Joint ILO/WHO Committee on Occupational Health (1950), occupational health is the adaptation of work to man and of each man to his job. It has the following components.

- Promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations;
- Prevention among workers of departures from health caused by their working conditions

- Protection of workers in their employment from risks resulting from factors adverse to health and
- Placing and maintenance of a worker in an occupational environment adapted to his physiological and psychological equipment.

Occupational disease: Disease or disability resulting from conditions of employment (usually from long exposure to a noxious substance or from the continuous repetition of certain acts or from contagious zoonotic diseases.

Occupational Hazards: An occupational exposure the worker has that is greater than a normal physical danger by the very nature of the work in which the worker is engaged.

Occupational Health: Occupational health is the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations by preventing departures from health, controlling risks and the adaptation of work to people, and people to their jobs. (ILO/WHO 1950).

Safety: It is the condition of being protected against failure, damage, error, accidents, or harm, diseases. Here protection involves both causing and exposure. It can include physical protection or that of possessions. Safety is often in relation to some guarantee of a standard of insurance to the quality and safe function of a thing or organization. It is used to ensure that the thing or organization will do only what it is wanted to do. Safety is the state of being safe.

Occupational Hygiene: The profession that aims specifically at the prevention and control of hazards arising from work processes is occupational hygiene. The goals include the protection and promotion of workers" health, the protection of the environment and contribution to a safe and sustainable development. Also defined as 'the discipline of anticipating, recognizing, evaluating and controlling health hazards in the working environment with the objective of protecting worker's health and well-being and safeguarding the community at large.' So, it involves the practice of identifying the hazardous agents (chemical, physical and biological) in the workplace that could cause disease or discomfort, evaluating the extent of the risk due to exposure to these

hazardous agents, and the control of those risks to prevent ill-health in the long or short term.

Practice of Occupational Hygiene

The classical steps in occupational hygiene practice are:

- The recognition of the possible health hazards in the work environment.
- The evaluation of hazards, which is the process of assessing exposure and reaching conclusions as to the level of risk to human health
- Prevention and control of hazards, which is the process of developing and implementing strategies to eliminate, or reduce to acceptable levels, the occurrence of harmful agents and factors in the workplace, while also accounting for environmental protection.
- Participate in overall risk analysis and management of an agent, process or workplace and contribute to the establishing of priorities for risk management.
- Understand the legal framework for occupational hygiene practice.
- Educate, train, inform and advise persons at all levels, in all aspects of hazard communication.

1.3. Hazard identification and risk control

Definition of a hazard

A hazard is simply a condition or set of circumstances that presents a potential for harm. Hazards are divided into two

- Health hazards (cause occupational illnesses)
- Safety hazards (cause physical harm - injuries)

A Risk is the possibility that personal injury, property loss or environmental harm will occur when working with or near a hazard.

Hazard Identification

Hazard identification is the process of identifying all hazards in the workplace. There is no set method for grouping agricultural injury and illness hazards. Most production agriculture hazards overlap into different hazard categories. For microbial agents, the

purpose of hazard identification is to identify the microorganisms or the microbial toxins of concern with food. Hazard identification will predominately be a qualitative process. Hazards can be identified from relevant data sources. Information on hazards can be obtained from scientific literature, from databases such as those in the food industry, government agencies, and relevant international organizations and through solicitation of opinions of experts. Relevant information includes data in areas such as: clinical studies, epidemiological studies and surveillance, laboratory animal studies, investigations of the characteristics of microorganisms, the interaction between microorganisms and their environment through the food chain from primary production up to and including consumption, and studies on analogous microorganisms and situations.

Health hazards

Health hazard as any agent, situation, or condition that can cause an occupational illness. There are **five** types (look for each type during inspections):

- **Chemical hazards**, such as battery acid, solvents, pesticides and second hand smoke.
- **Biological hazards**, such as bacteria, viruses, dusts, and moulds. Biological hazards are often called biohazards (e.g., animal borne disease, moldy hay, tetanus).
- **Physical agents** (energy) strong enough to cause harm, such as heat, cold, light, vibration, noise, and radiation.
- **Work design (ergonomic) hazards,** such as lifting, moving or repositioning of heavy loads.
- **Workplace stress**, such as stress associated with work shifts, workload, and harassment.

Safety hazards

A safety hazard is anything that could cause a physical injury, such as a cut or fracture. They are caused by transfers of physical energy such as by:

- Falls to a lower level
- Falls on the same level (slip and trip)

- Getting caught in pinch point or moving point (auger, power take-off)
- Contact with harmful energy (power line contacts)
- Struck by moving objects (vehicles, item falling from above)
- Release of pressure (pipes and hoses, tires, boilers)
- Getting caught under material (grain, water, trench cave-ins)
- Fire

Safety hazards cause harm when workplace hazard controls are not adequate. Remember to check the adequacy of controls during your inspections.

1.4. Recognizing hazards in the workplace

Hazards to self and / or others may include the proximity of other people and / or animals, lack of oxygen, vehicles and machinery, fire, gas, fumes and electrical situations. The injuries, size, number, temperament and behavior of the animals may also represent threats to the health and safety of self and /or others. The aim of hazard identification would be to minimize the chance of the station becoming and to maximize the opportunity for animals to be moved off the station at the earliest opportunity after import quarantine has been completed.

There are four types of potential hazards in quarantine station which need to be aware of:

1. Zoonotic diseases
2. Animal bites and other traumatic injuries induced by animals
3. Allergic responses
4. Sharps

1. **Zoonoses:** are infectious diseases transmitted from animals to humans. Animals may pose a risk to people handling them.

There are several ways that zoonotic diseases can be spread:

Faecal-oral route

Animal faeces may pass directly from soiled hands to mouth, or indirectly by way of objects, surfaces, water or food contaminated with faeces. This spread may occur after touching animals or their enclosures and neglecting to properly wash hands with soap and running water. An example of a disease spread this way is Salmonella infection.

Inhalation

Humans may breathe in droplets containing harmful organisms (aerosols) originating from an infected animal. Dust or dried matter (for example, on the ground of animal enclosures) may also contain harmful organisms, become airborne and be inhaled. This can be a particular problem associated with birthing, or newly-born animals. An example of a disease spread this way is Q fever infection caused by the bacterium *Coxiella burnetii*.

Ingestion

Consuming contaminated food or water may lead to illness – for example, consumption of unpasteurized milk from an infected animal or eating animal feed. An example of disease spread this way is Salmonella infection.

Skin or mucous membrane contact

Infections may be spread directly through animal bites and scratches, or indirectly when broken skin or mucous membranes come in contact with contaminated animals or surfaces. An example of a disease spread this way is ringworm caused by fungi.

Urine

Some infections may be spread when urine is transferred from soiled hands or objects to the mouth, mucous membranes or cuts and scratches. An example of a disease spread this way is leptospirosis caused by the bacterium Leptospira, which can be carried by rats, pigs and cattle.

2. Injury from animal bites or scratches presents two risks to animal handlers: tissue damage and secondary infections from some disease-causing agents (pathogens) that are found on the oral mucous membranes or in the saliva of animals. Although the bites and scratches inflicted by small animals usually result in only minor wounds, those

inflicted by larger animals can result in substantial tissue damage. Proper handling techniques are essential in preventing animal induced injuries.

3. Animal allergies are among the most common conditions that adversely affect the health of personnel involved in the care and use of animals. Allergies can be manifested as allergic rhinitis (characterized by runny nose and sneezing), asthma, or contact urticarial (hives).

4. Sharps are commonly encountered in quarantine involving animals. Needles, broken glass, syringes, pipettes, and scalpels are all used in animal facilities and laboratories. Puncture-resistant and leak proof containers for sharps are available in the animal housing rooms and in laboratories. Basic rules to remember when working with sharps:

- Never recap needles after use (have a sharps container nearby)
- Dispose of syringes, needles, glass, vials, and scalpels in a sharps container only
- If you cut yourself, perform first aid immediately and report the incident to your supervisor promptly.

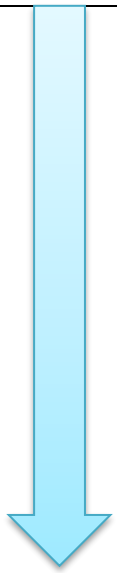
1.5. Assessing risk associated with identified hazards

A risk assessment is simply a careful examination of what, in your work, could cause harm to people, so that you can weigh up whether you have taken enough precautions or should do more to prevent harm. Workers and others have a right to be protected from harm caused by a failure to take reasonable control measures. The local risk assessment should consider the degree of containment that is required. For example, cages with bars may allow animals to reach out and an operator may be scratched unexpectedly. If cages are positioned carefully, however, unexpected contact between animal and operator can be avoided and the animal's environment and welfare will be enriched by the ability to reach between the bars. If the animal is able to reach through the grid floor, litter containing food may be placed in the tray below the floor and the animal can forage for seeds and nuts, further enriching its environment. However, this arrangement allows access to faeces that may be scattered outside the cages. Monitoring for the presence of zoonotic agents will assist the risk assessment.

1.6. Hazard minimization or Control System

Emphasis should always be placed on the most effective methods for reducing risk. The least effective controls are often considered as only supplemental or back-up measures for reducing risk. For example, you should never rely on a wearing a respirator (PPE) for protection from chemical fumes when you can virtually eliminate the risk by using a chemical fume hood (engineering control).

Table 1. Methods of risk/hadard minimization or control

Hierarchy of Hazard minimization and Controls options	
Most Effective	**Eliminate the Hazard:** Design the hazard out of your project plans; use alternative work procedures; etc.
	**Substitution:** Use a less hazardous material or find a less hazardous way to do the work.
	Engineering Controls: Any device that is used to prevent contact with or exposure to the hazard (e.g. chemical fume hoods, guards on saws, fans, belts, pulleys, other moving parts barriers, splash shields, safety interlocks and, other lockout devices).
	Administrative Controls: rules, regulations, warning signs, training, safe working procedures, and emergency response procedures are all used to define hazards and describe methods for minimizing the risk for injuries and accidentsR
Least Effective	**Personal Protective Equipment (PPE):** Appropriate clothing and footwear, gloves, safety glasses, face shield, welding mask, lab coat, protective apron, and anything else you wear or put on your body to provide additional protection. Best if used in combination with engineering controls.

Self-Check 1 – Written Test

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I. Write true if the statement is correct/False if it is incorrect for the following questions (2 point each).

1. Zoonoses are infectious diseases transmitted from animals to humans.
2. Animal faeces may pass microorganisms directly from soiled hands to mouth, or indirectly by way of objects, surfaces, water or food contaminated with faeces.
3. Safety is the condition of being protected against failure, damage, error, accidents, or harm, diseases.

Test II. Choose the best answer for the following questions (1 point).

1. Any device that is used to prevent contact with or exposure to the hazard for the purpose of controlling risk/hazard is:
   A. Engineering Controls
   B. Administrative controls
   C. Elimintion of hazards
   D. Substitution

Test III. Short Answer Questions (3 point each)

1. Define the following briefly.
   A. Occupational haelth
   B. Occupational disease
   C. Occupational hygiene

Note: Satisfactory rating - 8 points **Unsatisfactory - below 8 points**

You can ask your teacher for the copy of correct answers

Information Sheet 2 - Following workplace procedures and work instructions

2.1. Introduction

Safe Work Procedures are documented procedures for performing tasks. The purpose of a safe work procedure is to reduce the risk to health and safety in the workplace and reduce the likelihood of an injury by ensuring that employees know how to work safely when carrying out the tasks involved in their jobs. Safe work procedures may also be called safe work method statements (SWMS). The purpose of a safe work procedure is to reduce the risk to health and safety in the workplace and reduce the likelihood of an injury through improving employees know how to work safely when carrying out the tasks involved in their jobs.

Components or elements of Workplace safety procedures and instructions

The following steps should be followed to ensure a sound safe work procedure is developed:

1. **Observe the task/activities: i**t is important to observe the task/activity being performed the preferred way to ensure safest method is documented.
2. **Review associated legislative requirements:** Some task/activities are governed by legislative requirements. These must be considered when developing a safe work procedure to ensure any legal requirements are included.
3. **Record the sequence of basic job steps:** write down the steps that make up the task/activity.
4. **Record potential hazards of each step:** Next to each step identify what may have potential to cause injury or disease
5. **Identify ways of eliminating and controlling the hazards:** list the measures that need to be put in place to eliminate or control any likely risk.
6. **Test the procedure:** Observe staff/student following the safe work procedure
7. **Obtain approval:** Before the safe work procedure can be used it must be approved by each approver nominated.

8. **Monitor and review:** Make sure the activity is supervised to ensure the documented process is being followed.

Terms are used when developing Workplace safety procedures and instructions

Consultation and participation management or the owners of a business/organisation must consult with employees about OHS matters that can directly affect them in the carrying out of their duties.

- **Emergency situations/incidents:** Any situation that may arise unexpectedly that could cause injury or harm to any person in a workplace.
- **Employee and employer responsibilities:** Employees must take reasonable care to ensure the safety of themselves and others, and comply with all OHS requirements.
- **Hazard identification and risk control:** Identifying any hazard as a source of potential harm to people, or damage to property, and reducing risk.
- **Occupational Health and Safety (OHS):** OHS concerns the health and safety of all people in a workplace, including employers, employees and visitors
- **Safe work practices and procedures:** These provide practical guidance to business on how to fulfil their duty to provide a safe and healthy workplace.
- **Workplace accidents, injury or impairment:** Unexpected events that cause physical harm or damage to people or property.

The following objects shall be subject to quarantine in accordance with the provisions of the law on the entry and exit of animal of quarantine and those of these Regulations:

1. Entry, exit or transit animals, their products and other quarantine objects
2. Containers, packaging materials and bedding materials used for carrying animals , their products or other quarantine objects
3. Means of transport from an animal epidemic area
4. Waste vessels for dismantling after entry and
5. Other goods and items subject to entry and exit animal quarantine according to provisions of relevant laws, administrative regulations and international treaties or as agreed upon in trade contracts.

2.2. Standard work

Standard work is the combination of processes, procedures, and visual work instructions. It explains the best practices for performing a task according to standard in a consistent way.

Work instructions

Work instructions are step-by-step instructions delivered to teams on the shop floor to instruct the best way to complete a specific procedure. They translate procedure into a human-centered way of working that allows any employee on the shop floor to complete the task at hand. Good work instructions are critical because they ensure the successful performance of a procedure, and thus your processes. They also include all of the explicit information needed to carry out a task in a safe, efficient way that conforms to all relevant manufacturing standards. If processes and procedures define the way of working, then work instructions are the critical link between standard work and the human element of manufacturing.

1. A **process hierarchy:** shows your overall process architecture and how it supports your business.
2. A **process:** is a chain of activities that transform inputs to outputs.
3. A **procedure:** outlines *how* to perform a process – sequence and who does what.
4. A **work instruction:** or work guide, job aid or standard operating procedure – describes in detail how an activity within a process (or procedure) is performed.

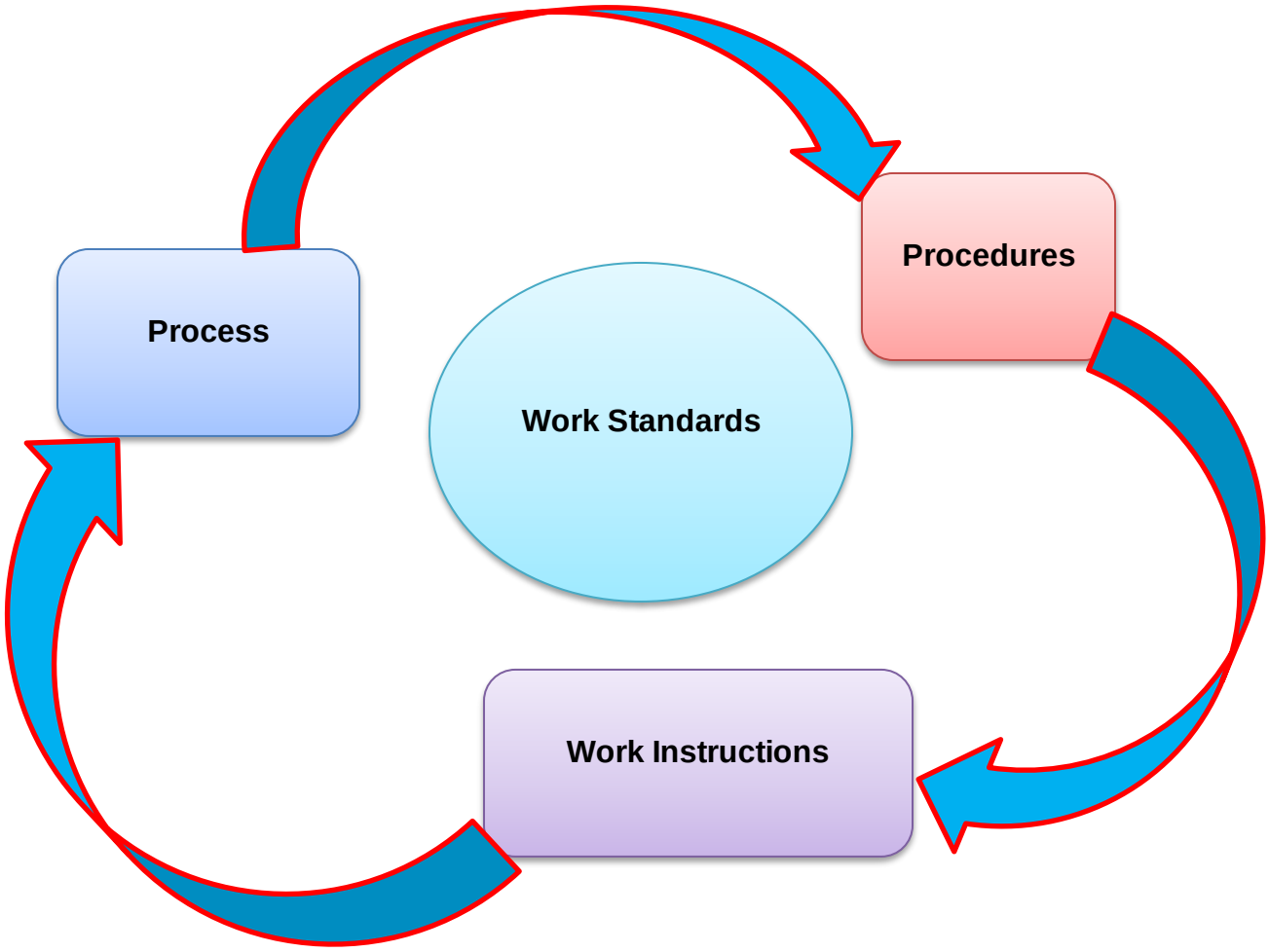


Figure 1. Standard work is the combination of processes, procedures, and work instructions.

Self-Check 2 – Written Test

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I. Write true if the statement is correct/False if it is incorrect for the following questions (2 point each).

1. Safe Work Procedures are documented procedures for performing tasks.

2. Standard work is the combination of processes, procedures, and visual work instructions.

Test II. Choose the best answer for the following questions (3 point).

1. Which one of the following should be considered during developing workplace safety procedures and instructions?
   A. Hazard identification and risk control
   B. Workplace accidents
   C. Safe work practices and procedures
   D. All of the above
2. _____ is step-by-step instructions delivered to teams on the shop floor to instruct the best way to complete a specific procedure.
   A. Work C. Work standards
   B. Work Instruction D. All of the above

Test III. Short Answer Questions (5 point)

1. Describe and discuss elements of Workplace safety procedures and instructions

Note: Satisfactory rating – 8.5 points Unsatisfactory - below 8.5 points

You can ask your teacher for the copy of correct answers

Information Sheet 3 - Maintaining personal hygiene and cleanliness

3.1. Personal hygiene

Personal hygiene is very important for reducing the pathogenic risks associated with the handling of wastes in quarantine stations. Conscientious personal hygiene practices establish an important barrier to infection by providing a first line of defense against pathogens. After handling animals or their secretions and excretions should wash the hands with a disinfectant soap and water. Use protective clothing (laboratory coat, uniform, or surgical gown) and safety devices such as gloves, facemasks and safety glasses when working with animals. Never eat, drink, or apply cosmetics in animal rooms. Remember to keep your hands away from your mouth, eyes, nose and hair after handling animals; such inadvertent self-contamination with pathogens causes many of the reported illnesses among laboratory workers. Avoid working with animals if you are ill, especially with respiratory problems. Take additional precautions if you have open wounds by wearing gloves. It is essential that the animal care staff maintain a high standard of personal cleanliness. Facilities and supplies for meeting this obligation should be provided e.g. showers, change of uniforms, footwear etc. Clothing suitable for use in the animal facility should be supplied and laundered by the institution. A commercial laundering service is acceptable in many situations; however, institutional facilities should be used to decontaminate clothing exposed to potentially hazardous microbial agents or toxic substances.

3.2. Sanitation and cleanliness

Sanitation is essential in an animal facility. Animal rooms, corridors, storage spaces, and other areas should be cleaned with appropriate detergents and disinfectants as often as necessary to keep them free of dirt, debris, and harmful contamination. Cleaning utensils, such as mops, pails, and brooms, should not be transported between animal rooms. Where animal waste is removed by hosting or flushing, this should be done at least twice a day. Animals should be kept dry during such procedures. For larger animals, such as

dogs, cats, and non-human primates, soiled litter material should be removed twice daily. Cages should be sanitized before animals are placed in them. Animal cages, racks, and accessory equipments, such as feeders and watering devices, should be washed and sanitized frequently to keep them clean and contamination free. Ordinarily this can be achieved by washing solid bottom rodent cages and accessories once or twice a week and cages, racks at least monthly. Wire – bottom rodent cages for all other animals should be washed at least every 2 weeks. It is good practice to have extra cages available at all times so that a systematic cage-washing schedule can be maintained. Cages can be disinfected by rinsing at a temperature of 82.2ºC (180ºF) or higher for a period long enough to ensure the destruction of vegetative pathogenic organisms. Disinfection can also be accomplished with appropriate chemicals; equipments should be rinsed free of chemicals prior to use. Periodic microbiologic monitoring is useful to determine the efficacy of disinfection or sterilization procedures. Water bottles, sipper tubes, stoppers, and other watering equipment should be washed and then sanitized by rinsing with water of at least 82.2ºC (180ºF) or appropriate chemicals agents (e.g. hyperchlorite) to destroy pathogenic organisms, if bottles are washed by hand, powered rotating brushes at the washing sink are useful, and provision should be made for dipping or soaking the water bottles in detergents and disinfectant solutions. A two compartment sink or tub is adequate for this purpose.

Some means for sterilizing equipments and supplies, such as an autoclave or gas sterilizer, is essential when pathogenic organisms are present. Routine sterilization of cages, food and bedding is not considered essential if care is taken to use clean materials from reliable sources. Where hazardous biological, chemical, or physical agents are used, a system of equipment monitoring might be appropriate.

Decontamination

The use of physical or chemical means to remove, inactivate, or destroy pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, for use, or for disposal. Decontamination could comprise cleaning, disinfection or sterilization as appropriate.

Cleaning

Cleaning is a process, usually involving detergent or enzymatic presoak that removes foreign material (e.g. dirt or microorganisms) from an object. Cleaning is the most essential step in reprocessing instruments and equipment. There are four steps in the cleaning process:

- Washing
- Rinsing
- Sanitizing and
- Air drying

Barns and stalls made of concrete, cement and metal stanchions are easier to clean than buildings with wooden structures. A thorough cleaning should be done with a brash and hot lye solution of washing soda with a wetting agent. The cleaning must be followed by the application of disinfectant over all surfaces either with sprayer or sprinkler. Cleaning the premises refers to the physical removal of organic matter, thus exposing the pathogens to the killing power of the disinfectant. Organic materials such as soil, plant debris (like straw or hay), milk, blood, pus, and manure inactivate some disinfectants or protect microorganisms from the disinfectant's active ingredients. Chlorine-based disinfectants are especially problematic in this regard. The active ingredient in bleach, chlorine, is relatively quickly inactivated by organic debris such as manure, and even milk, at the concentrations used for disinfecting cleaned surfaces. This is why cleaning to first remove organic debris and dirt is so important.

The cleaning procedure may involve two steps, a dry cleaning followed by a wet cleaning. The process of dry cleaning removes the organic material before the wet cleaning occurs. With the dry cleaning residual dirt, debris, stains, and organic matter, which might neutralize the disinfectant, must be removed first. Bedding, feed, and manure and any carcasses must be removed. Vermin such as rodents, insects, or any other animal need to be trapped and removed from the facility.

The facility should be swept out. Loose dirt, litter, broken eggs, cobwebs, dropped feathers, dried milk, trash, debris and any other material must be swept out or removed from the facility's interior. The sills and floor should be hand scraped if necessary to remove any caked-on manure, food, or debris. Scrape, scrub, and clean all permanently attached equipment such as waterers, feeders, etc. Removable equipment such as brooder guards, jugs, hand feeders, mangers, grooming equipment, or anything not attached should be taken outside to allow thorough cleaning and subsequent disinfection. All floors, light fixtures, fan blades, and louvers must be cleaned. Burned out light bulbs should be replaced and other bulbs should be cleaned. Lots of elbow grease may be required.

Wet cleaning involves the use of water and usually a soap or detergent. Soaps and detergents are good cleaning agents. They help penetrate and break up stubborn materials and are mildly germicidal, but they are not suitable for use as disinfectants. The soap or detergent used must be compatible with the disinfectant that will be used in the subsequent disinfection process.

- There are four basic steps to the wet cleaning process: soaking, washing, rinsing, and drying. With a wet cleaning allow a soaking time to loosen debris so it can easily be removed with a brush or sprayer. Steam and high-pressure washers are very useful for cleaning porous surfaces during wet cleaning. Hot water of at least 200ºF should be used for wet cleaning. Hot water is far more effective than cold water at killing bacteria. Hot water can also be used in pressure sprayers. A detergent may be added to the sprayer to increase its effectiveness. All spray should be applied at a minimum of 200 psi (pounds per square inch) for good penetration. However, this amount of pressure could blow holes in aging materials or a thin cover. Care should be taken not to get the spray into electrical motors. Duct tape can be used to cover the slots in the motor housing. A systematic approach to spraying should be used, such as starting at the back of the facility and working toward the front, spraying the ceiling first, then the walls, and finally the floor.

- A thorough rinsing with clean water afterwards removes the detergent and any lingering organic debris and pathogenic organisms that could interfere with the effectiveness of the disinfectant to be used. Rinsing will also decrease the possibility of harm to the animals by accidental absorption of any residual detergent or soap.
- The final step of cleaning is letting the wet areas dry quickly and thoroughly. If the facility is not dried properly the excess moisture will result in the multiplication of bacteria to even higher levels than before the cleaning! Thus, improper cleaning can do more harm than good. A proper cleaning should remove more than 90% of the pathogens.
- Once the facility has been properly cleaned and dried thoroughly, then the disinfection procedure can begin.

Disinfection

- Disinfectants are chemical agents that kill pathogens on contact. Disinfection is the destruction of all vegetative forms of microorganisms, but the spores may not be destroyed. There are some basic principles to consider for disinfection. An important point to remember is “hard” water can neutralize the activity of some disinfectants. Also, some disinfectant solutions may only be active for a few days after mixing or preparing.
- Failure to make a fresh solution of disinfectant after it has been prepared longer than a few days, or after it has become visibly contaminated by organic material like manure, may result in using a product that will no longer be effective. Even worse, it may generate a false sense of security to the disinfection process. Sufficient concentration and contact time may overcome some of these problems with certain classes of disinfectants, but often increasing the concentration or contact time makes use of the product impractical, expensive, caustic, or dangerous to the users or to the animals.
- Disinfectants also vary considerably in their activity against the assorted bacteria, viruses, fungi, and protozoa about which livestock and poultry producers may be concerned. As an example, plain vinegar (4% acetic acid) will readily kill the Foot-and-

mouth Disease virus, but it will not kill the bacterium Mycobacterium paratuberculosis, the causative agent of Johne's disease. The product label should be checked for the expiration date.

- Use of an expired disinfectant may not insure effectiveness of the disinfection procedure.
- Many widely used disinfectants are not active against bacterial spores, the environmentally resilient life form of the bacteria that cause tetanus, blackleg, botulism, and anthrax. Formaldehyde is effective against most spores, but it is not really a practical disinfectant and is now considered a potential carcinogen or cancer-causing compound.
- It is important to select a disinfectant that will be active against a wide spectrum of pathogenic organisms under the conditions in which it will generally be used. These conditions include hard water, contamination with organic debris, and the potential for toxicity or damage to environmental surfaces, skin, and clothing. It is also important to keep solutions clean and freshly made as per the manufacturer's directions. OSHA regulations concerning the disinfectant must also be considered.
- All disinfectants, whether they are sprays, foams, aerosols or fumigants, work best at temperatures above 65ºF. Temperatures for chlorine- and iodine-based disinfectants should not exceed 110ºF.
- Disinfectants must have sufficient contact time with the surfaces to which they are applied in order to allow them to kill the pathogens concerned. Few disinfectants kill instantaneously. The amount of contact time needed will vary with the product used and the pathogen. A quick splash of a dirty boot into a footbath will not accomplish anything except to give a false sense of security. Usually 20-30 minutes is a sufficient contact time for most disinfectants.
- Another important point to remember is that disinfectants are not to be applied to animals directly, unless labeled for such use, and the label of the product must be followed closely to make sure there are no warnings against using them around feeders and in animal quarters.

- A general recommendation is to thoroughly rinse both the cleaning agents and the disinfectants off and dry the surfaces after the appropriate amount of contact time with the disinfectant if animals will have contact with the disinfected surfaces. It is best to have a down time of 2-4 weeks after drying of the disinfectant if possible before reintroduction of any animals. This will aid in the prevention of accidental absorption of residues, to limit contact irritants, and insure that odors have dissipated that could harm the respiratory system of a cage or stall's occupant.

Self-Check 3 – Written Test

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I. Write true if the statement is correct/False if it is incorrect for the following questions (2 point each).

1. Decontamination could comprise cleaning, disinfection or sterilization as appropriate.
2. Use of an expired disinfectant may not insure effectiveness of the disinfection procedure.
3. Cleaning is a process, usually involving detergent or enzymatic presoak that removes foreign material

Test II. Choose the best answer for the following questions (3 point).

1. Which one is not the step of claening process?
   A. Washing
   B. Rinsing
   C. Sanitizing and
   D. Airdrying
   E. None of the above

Test III. Short Answer Questions (5 point)

1. Write the bqasic steps of wet cleaning process.

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

You can ask your teacher for the copy of correct answers

Information Sheet 4 - Recognizing risks to eliminate self, bystanders, the public and animals

4.1. Recognizing risks to self, bystanders, the public and animals

Hand-washing

Hand-washing is considered the most important practice in preventing the spread of disease for visitors to animal contact areas. Infectious diseases may be spread from either animals or their environment to people via contaminated hands. Good hygiene practices, such as the correct hand-washing technique and washing hands at appropriate times in the animal contact area, will decrease the risk of disease. Always wash hands with soap and running water:

- After touching animals, their enclosures or food containers.
- Any part of the animal or its surrounds can be contaminated
- After being licked or bitten by animals
- After having contact with soil, urine or faeces in an animal contact area.
- Always wash hands before eating, drinking or smoking.
- Always alert about the behavoir of animal

4.2. Avoiding activities with a higher risk

While visiting animals do not:

- Touch mouth with hands, or lick fingers
- Eat food intended for animals eat inside the animal contact area (although there can be exceptions to this where the operator implements control measures to mitigate zoonotic disease risk in a visitor eating area)
- Leave open wounds uncovered
- Wipe hands on clothing, if avoidable
- Use dummies, spill-proof cups or baby bottles in the animal contact areas
- Return dummies or toys that have fallen on the ground or been in contact with animals to children until they have been washed with soap and water.

Self-Check 4 – Written Test

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below 3 point each. Examples may be necessary to aid some explanations/answers.

Test I. Short Answer Questions (10 point).

1. Describe and discuss activities with a higher risk that shoul be avoided while working with animals.

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

You can ask your teacher for the copy of correct answers

Information Sheet 5 - Undertaking or providing safety training

5.1. Introduction

Training means helping people to learn how to do something, telling people what they should or should not do, or simply giving them information. Training is not just about formal 'classroom' courses. Over 200 people are killed each year in accidents at work and over one million people are injured. Over two million suffer illnesses caused by, or made worse by, their work. Preventing accidents and ill health caused by work is a key priority for everyone at work. As the owner or manager of a business you know that competent employees are valuable.

5.2. Health and safety training

All at-risk persons working in a facility or in quarantine should receive appropriate training on that facility's particular biohazards, precautions, and biohazard evaluation procedures. Personnel should receive annual updates and additional training when procedures or policies change. Laboratory workers and animal care personnel should know how to recognize hazard warning signs, to protect themselves and their coworkers against each hazard, and to react properly in the event of emergencies, such as an unintentional biohazard material release.

All employees working on a deployment should receive the following training:

- Hazard communication
- How to report an injury
- Emergency communication
- Evacuation procedure
- Shelter in place
- Quarantine operation
- Quarantine biosecurity

Other required training may include:

- Proper and safe use of tools and equipment
- Recognizing permit-required confined spaces
- Using PPE (inspection, donning, doffing, and disposal)
- Using fire extinguishers
- Defensive driving
- Material handling
- Job task training

Providing health and safety information and training helps you to:

- Ensure that people who work know how to work safely and without risks to health;
- Develop a positive health and safety culture, where safe and healthy working becomes second nature to everyone;
- Meet legal duty to protect the health and safety of your employees.
- Ensure employees are not injured or made ill by the work they do;
- Develop a positive health and safety culture, where safe and healthy working becomes second nature to everyone;
- Find out how could manage health and safety better;
- Meet legal duty to protect the health and safety of your employees.

Effective training:

- Will contribute towards making your employees competent in health and safety; can help your business avoid the distress that accidents and ill health cause;
- Can help to avoid the financial costs of accidents and occupational ill health.
- The law requires that provide whatever information, instruction and training is needed to ensure, so far as is reasonably practicable, the health and safety of employees.
- Each employee must receive training before beginning work at the site
- Personnel must be trained on site-specific procedures and the job hazards/risks specific to their tasks

- The safety officer decides the type of training needed for the various personnel involved in the deployment or response

Monitoring the Training Program

Monitoring the employee's progress through the developmental period is critical to ensure success of the training program. Monitoring provides information to the supervisor regarding the benefits and effectiveness of the training received. In addition, it provides information on the ability of the employee to achieve training goals and objectives. Both the employee's supervisor and training staff play major roles in the monitoring process. To ensure adequate monitoring of the safety training program the actions below must occur.

- The supervisor will ensure that each employee has completed the necessary prerequisites before the start of work.
- The supervisor will review the employee's performance of task assignments.
- The supervisor will conduct a review with the new-hire employee following each required training activity. This review provides the supervisor with information on the progress of the employee and can assist in identifying areas requiring further training.
- When the supervisor determines that the new-hire employee has sufficient experience to successfully complete a task, the OJT review may be discontinued.
- The supervisor and employee will complete training documentation.

Self-Check 5 – Written Test

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I. Write true if the statement is correct/False if it is incorrect for the following questions (2 point each).

1. Training means helping people to learn how to do something, telling people what they should or should not do, or simply giving them information.
2. Personnel must be trained on site-specific procedures and the job hazards/risks specific to their tasks

Test III. Choose the best answer for the following questions (2 point).

1. Providing health and safety information and training helps to:
   A. Meet legal duty to protect the health and safety of your employees.
   B. Ensure employees are not injured or made ill by the work they do
   C. Develop a positive health and safety culture
   D. Find out how could manage health and safety better
   E. All of the above

Test II. Short Answer Questions (5 point)

1. Discuss how to minitor training program on occupational health and safety.

Note: Satisfactory rating - 6 points **Unsatisfactory - below 6 points**

You can ask your teacher for the copy of correct answers

LG 106	LO 2 - Receive and Processes Animals in Quarantine

Instruction sheet

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

- Preparing necessary arrangements for receiving quarantine animals
- Checking all documents and information accompanying each load
- Verifying animals and animal products
- Passing approval for receiving animals
- Organizing Health record sheets

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Prepare necessary arrangements for receiving quarantine animals
- Check all documents and information accompanying each load
- Verify animals and animal products
- Pass approval for receiving animals
- Organize Health record sheets

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
3. Read the information written in the "Information Sheets". Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
4. Accomplish the "Self-checks" which are placed following all information sheets.
5. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-checks).
6. If your performance is satisfactory proceed to the next learning guide

Information Sheet 1 - Preparing necessary arrangements for receiving quarantine animals

1.1. Introduction to animal Quarantine

Quarantine should be seen as one of a wide range of risk management options that can be applied, either alone or in combination, to reduce the risk posed by animal pathogens. The decision of whether or not to require quarantine or other biosecurity measures should be done on a case-by-case basis and determined by a risk analysis. The term quarantine means keeping in isolation animals which are to be introduced in a herd or territory for a definite period of time as a preventive measure against the spread of infectious diseases in a healthy population. The term quarantine comes from a latin word, "**quarantum"** that means forty that is to say a forty days period of detention. There is a hair line of difference between the quarantine and isolation is that in quarantine we separate and restrict the movement of healthy animals which may have been exposed to communicable diseases to see if they become ill but in isolation we separate ill having communicable diseases from those who are healthy. The quarantine period is usually equals to the longest incubation period of a disease. But in practice, a quarantine period of 30 days covers almost all diseases.

Terms related to Quarantine and disease prevention

Animal: Means cattle, sheep, goat, camel, poultry, pig, and bee and includes other animals.

Animal Product means meat, milk, butter, cheese, egg, honey wax, sheep hair, as well as wool and includes other products

Animal by-product means everything of value produced from the slaughter of animal such as hide, skin, horn, hoof, blood, bone and meat meal and includes other by-products

Quarantine means a mode of prevention and control of the spread of various contagious and infectious animal disease with in the country, from the country or to the country. Other definition of quarantine the period, orig. 40 days, during which an arriving vessel

suspected of carrying contagious disease is detained in port in strict isolation, the place where such a vessel is stationed

Quarantine station means a specified and demarcated area where animals, animal products and by-products are kept under strict follow up and control;

Staging point means a demarcated area established within a limited interval along the routes of trade of animals to provide feed, water, veterinary and resting services for trade stock.

Service charge means an amount of money payable, for any service rendered by the authority, in pursuant to regulations to be issued

Region means any of those Regions specified under Article 47(1) of the constitution of the Federal Democratic Republic of Ethiopia and, includes the Addis Ababa and Dire Dawa Administrations.

Biosecurity – in general terms, is a strategic and integrated approach to analyzing and managing relevant risks to human, animal (including aquatic), plant life and health and associated risks to the environment.

Quarantine is the separation of newly received animals from those already in the facility or on the premises until the health of the new animals has been evaluated and found to be acceptable. The attending veterinarian should ensure that quarantine facilities or locations are appropriate and that quarantine procedures are consistent with current veterinary practices and applicable regulations. The quarantine period should be long enough to observe signs of infectious disease or obtain diagnostic evidence of infection status. Quarantine and testing of animals before introduction is especially important for herds or flocks that have attained specific-pathogen-free status, but these additions should be discouraged. If the health history of newly received animals is unknown, the quarantine program should be more comprehensive and sufficiently long to allow expression or detection of diseases present in the early incubation stage.

Exceptions to quarantine practices should be approved by the attending veterinarian in advance of shipment of the animals. The attending veterinarian, or skilled personnel under the direction of the attending veterinarian, should perform an initial examination and subsequent daily observations for newly arrived animals. Animals should be

observed in quarantine until they are cleared for introduction into a herd or facility. During the quarantine period, animals should be vaccinated and treated for diseases and parasites as appropriate to protect their health and maintain the health of animals in the home facility. In addition to having adequate quarantine procedures, research facilities and animal use protocols should be designed to minimize the risk of introducing or transmitting disease agents. Based on the requirements of importing countries in Middle East and North Africa (MENA), the Ethiopian Government has started constructing quarantine facilities at Mille (Afar) and Haroressa (Somali) National Regional States (NRS). These facilities will serve, in many cases, as the first point of exit for animals exported to the above mentioned countries. The difference between quarantine and isolation can be summed up like this:

- **Isolation** applies to animal which are known to be ill with a contagious disease.
- **Quarantine** applies to those who have been exposed to a contagious disease but who may or may not become ill.

Objectives:

- To put measures into effect through the issuance to prescribe definite and detailed specifications for the work.
- Important for control or eradication of animal disease.
- To confine the infection into the smallest possible area, and hold it there until it can be stamped out through the use of appropriate eradication measures.

Note: In the eradication of most infectious diseases of livestock the control on the movement of diseased and exposed animals is essential. This can seldom be accomplished without quarantine. Therefore, to prevent highly infectious diseases from gaining a foot hold by the strict enforcement of a local quarantine is necessary.

Animal Quarantine strategies:

Animal Quarantine is based on three aspects:

1. International
2. National
3. Local

The International Quarantine measures are very important and relevant in relation to keep the countries free from emerging exotic diseases. Various agencies like food and agriculture organization (FAO), Office International Des Epizootics (OIE), general agreement on tariff and trade (GATT) and European Union (EU) keep strict vigilance on the movement of animal and animal products from one country to other. OIE keeps close view on important diseases through International Zoo Sanitary Code (OIE, 1971).

1.2. Duration of Quarantine (Quarantine Period)

The quarantine period depends on the incubation period of disease. Quarantine for all species should be conducted under the supervision of a veterinarian and should consist of a **minimum** of thirty days and maximum 6 weeks except rabies for which the quarantine period should be about six months. If, during the 30-day quarantine period, additional mammals of the same order are introduced into a designated quarantine area, the 30-day period must begin again. The only species for which the 10-day quarantine is formally recognized are dogs and cats. Regardless of the duration of quarantine, newly received animals should be given a period for physiologic, psychologic and nutritional stabilization before their use. The length of time stabilization will depend on the type and duration of animal transportation, the species involved and the intended use of the animals.

Physical separation of animals by species is recommended to prevent interspecies disease transmission and to eliminate anxiety and possible physiological and behavioral changes due to interspecies conflict. Such separation is usually accomplished by housing different species in separate rooms; however, cubicles, laminar-flow units, cages that have filtered air or separate ventilation, and isolators shall be suitable alternatives. In

some instances, it shall be acceptable to house different species in the same room, for example, if two species have a similar pathogen status and are behaviorally compatible.

1.3. Preparing to receive animals

Before the quarantine inspector receives animals, s/he should know the following points and make the required arrangements.

- S/he should develop a receiving plan. A coordinated plan will prevent one of the most important factors associated with too many cattle to care for at once and related losses in the facilities. The inspector should also involve an animal nutritionist in formulating the plan.
- Quarantine inspector should make sure that facilities are properly designed and in good repair. S/he should make sure that supplies and needs are ready before the animals arrive. Properly designed and maintained facilities are the second most important factors that influence proper care of newly arriving animals. If animals cannot flow through the facilities with ease, the quarantine inspector should analyze the situation and make changes. Avoid shadows, contrasting colors of paint, etc.
- The inspector may need to make adjustments if more than one person is involved in moving the cattle from the holding area to the working chute.
- Chutes should also be adjusted for each animal species. Chutes should apply no more pressure than is required to hold the average-sized animal.
- S/he should make sure that everyone who will be working with the new animals is trained in proper handling, feeding and care of newly arriving animals and is motivated to carry out her/his responsibilities.
- The inspector together with the nutritionist should aid in designing a training program to meet the needs of the people that are employed by the quarantine facility.
- A receiving program must also involve feed supplement and medication supplies. The inspector should work with the nutritionist to ensure that an adequate amount of high quality supplies are available.

Inputs and out puts of Quarantine

In a quarantine station inputs include:

- Imported animals and associated equipment, containers, horse and other animal tack etc
- Sentinel animals
- Feed (varies from commercial pet foods to fodder for horses and large ruminants)
- Vehicles/equipment; and
- People, animal owners/importers, grooms, visiting government and private veterinarians and quarantine staff.

Outputs

Animals and other items leaving a quarantine station include:

- Imported animals on completion of quarantine; and
- Wastes (litter, manure, bedding etc.);
- Carcasses;
- Diagnostic specimens;
- Vehicles/equipment; and
- People (as for inputs).

Care during Quarantine Period

Feeding

- All animals should receive food that is:
  - ✓ Palatable,
  - ✓ Free from contamination, and
  - ✓ Of sufficient quantity and nutritive value to maintain their good health

Watering

- Potable drinking water should be available continuously or provided as often as necessary for the health and well-being of the animal, considering the animal's species, age, condition, and any requirements.
- Whatever method is used, care should be taken to ensure that water does not become contaminated and is actually available.

- Water may be treated or purified to eliminate contaminants; however, some water treatments may cause physiologic changes, alter microflora, or affect ex perimental results.
- During the quarantine period animal should be thoroughly screened for parasitic infestation by faecal examination and deworming carried out on the 24th day.
- The animals should also be subjected to dipping or spraying on the 26th day.

1.4. Quarantine and restriction of livestock movement

- Until the disease at the affected farm or locality is accurately diagnosed, the infected locality should be placed under quarantine and the local authority or farm should impose rigid restrictions on the movement of livestock in the area within radius of 10 to 15 miles infected vicinity to prevent the spread of infection.
- The disposal of farm products from the infected place should also be so regulated which can ensure that the infection does not through their products.

Self-Check 1 – Written Test

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I. Write true if the statement is correct/False if it is incorrect for the following questions (2 point each).

1. Quarantine is the separation of newly received animals from those already in the facility or on the premises.
2. The quarantine period is usually equals to the longest incubation period of a disease.
3. Isolation applies to animal which are known to be ill with a contagious disease.

Test II. Choose the best answer for the following questions (3 point).

1. During quarantine period animals should get:
   A. Potable water
   B. Adequate feed
   C. Clean environment
   D. Medication E. All of the above

Test III. Short Answer Questions (5 point)

1. Write the criteria should be fulfilled during receiving animal to quarantine.

Note: Satisfactory rating – 8 points Unsatisfactory - below 8 points

You can ask your teacher for the copy of correct answers

Information Sheet 2 - Checking all documents and information accompanying each load

2.1. Introduction

Quarantined animals should fulfill all necessary information before exporting/importing of the respective country or location. This is essential to easly identifiy the haelth condition of exportimport animals/animal products.

2.2. Information accompanying each load to quarantine

When the quarantine inspector receives animals, s/he should know the following points and make the required arrangements.

- It is important to check all the papers that accompany each load, but it is equally important to establish a checklist of observations about the animals that should be noted.
- Inspect the following information:
  - ✓ Date and time of shipment,
  - ✓ Animal health certificates (if available),
  - ✓ Look for comments regarding vaccines or medications, etc.
  - ✓ It is also reasonable to inspect the trucker's log etc.
- Weigh all animals on arrival.
- Look at shrink and condition, handling and transportation of animals on arrival (look out cattle.
- Establish a check list for inspection that includes a rating scale for each item. The check list should include a rating for temperament (tired, alert, active), outer condition (wet, dirty, clean), breed, frame and finish description, lameness, swelling, and number and location of previous or existing tags (if available).
- Set a minimum standard for acceptance and be willing to refuse delivery.
- Feed and water should be available to animals when they are unloaded.
- Cattle coming from feedlots should be placed on a high energy feed.

- For cattle coming from the range, the first feed offered should be excellent quality dry hay. Six to eight hours after arrival, change the feed to a low medium energy totally mixed feed such as one-third corn and two-thirds ground alfalfa hay. Within 24 hours, animals can be placed on a medium energy feed such as a 50/50 mix of corn and alfalfa.
- Bunk management is an important key to minimizing problems with new cattle. The inspector should get assistance from the nutritionist to develop a cost effective ration and a proper monitoring system for feed delivery.
- The best location for water troughs for all animals is directly behind the bunk pad apron. Flow-through water troughs are the best type to use for new animals.
- For animal coming directly from range lands, consider timely mass medication of animals to eliminate or minimize an expected outbreak of Transboundary Animal Diseases (TADs).
- It is best to use disposable syringes and needles. Care must be taken to ensure that detergents and disinfectants are thoroughly rinsed from syringes after cleaning, especially syringes used for modified live vaccines. Detergents and disinfectants will kill modified live vaccines and may cause tissue irritation. Always use the smallest needle possible. Most vaccines can be given with an 18 gauge, 1 to 1 1/2 inch needle.
- Never use the same needle on more than 10 animals. Be alert for damage to or contamination of the needle and change the needle immediately.
- Most animals need 12 to 72 hours rest after receiving. It is best to schedule all processing early in the morning and plan to finish before 11 a.m. It is a serious mistake to process highly stressed cattle after mid-morning.
- Handle all animals carefully and slowly.

Major emergency diseases of relevant species

The diseases of most importance to quarantine stations that are currently included in disease strategies are shown below.

- African horse sickness
- African swine fever
- Bluetongue
- Bovine spongiform encephalopathy (BSE)
- Classical swine fever (hog cholera)
- Equine influenza
- Foot-and-mouth disease
- Lumpy skin disease
- Newcastle disease
- Peste des petits ruminants (PPR)
- Rabies
- Rift Valley fever
- Scrapie
- Screw-worm fly
- Sheep pox and goat pox
- Vesicular stomatitis
- Contagious bovine pleuropneumonia
- Tuberculosis

Self-Check 2 – Written Test

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I. Write true if the statement is correct/False if it is incorrect for the following questions (5 point).

1. Quarantined animals should fulfill all necessary information before exporting/importing o the respective country or location.

Test II. Choose the best answer for the following questions (5 point).

1. Which of the following information should be checked dring receiving animals in quarantine?
   A. Date and time of shipment,
   B. Animal health certificates (if available),
   C. Look for comments regarding vaccines or medications
   D. Inspect the trucker's log E. All of the above

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

You can ask your teacher for the copy of correct answers

Information Sheet 3 - Verifying Animals and Animal Products

3.1. Introduction

Verification that animal and animal products are derived from animals raised by producers who uphold animal welfare and environmentally-friendly practices is becoming an increasingly important issue for consumers. Labelling which can verify the source of animal and animal products provides consumers with the information they need to make purchasing choices. Equally, assurances that claims made for genetic provenance can only be provided if a secure traceback system is in place.

- In order to meet the required needs of an animal identification and source verification system, technology must be:
  - ✓ Permanent;
  - ✓ Tamper-proof
  - ✓ Cause no harm to the animal
  - ✓ Easy to apply and read
  - ✓ Capable of providing immediate access to data
  - ✓ Capable of including other relevant data such as health records and movement details.

3.2. Animal and animal products

Animals

The station veterinarian should prepare a list of all the potentially susceptible animals within the station divided into high-and low-risk groups. A schedule of regular surveillance of these animals for the presence of the disease should be developed. The methods and frequency should be as considered appropriate for the species involved and disease. Instructions should then be given to appropriate staff to carry out these surveillance procedures and report the results to the station veterinarian.

Recent food introductions should be traced immediately. If any uncertainty exists regarding the source of food it should not be fed to susceptible species. If the risk of contamination is considered significant then it should be destroyed following the procedures in the Disposal Procedures Manual. Further food brought in to the station should only be sourced from outside the declared area. By-products (including carcasses) Normal operating procedures would apply to the disposal of by-products. Faecal waste from large animals is usually held on the premises until quarantine is completed.This would apply equally if quarantine was extended or release delayed.

3.3. Veryfying Animal and Animal Products

When the quarantine inspector processes animals, s/he should know the following points and make the required arrangements.

- Animals entering quarantine facilities should be given an ear tag that identifies the animal as a member of a group of animals received and processed at the same time. Without identification, analysis of performance and proper precautions for medication withdrawals cannot be accomplished. For animals coming from range lands or those who have lost their ID, apply ear tag containing lot and individual information.
- If animals do not move through the facilities easily, have a qualified professional analyze the problem. Frequently minor changes in the facilities can improve animal movement and decrease stress to both animals and workers.
- Each set of animal gets a lot number and pen assignment based on its species and source as feedlot (cattle) or range lands (cattle, sheep, goat and camels).
- Consignments of animals (except dogs and cats) are managed on an all-in-all-out basis, and all animals are subject to veterinary inspection to confirm clinical disease freedom before release. Accurate records of the following must be obtained at animal release time to allow follow-up in case of disease outbreak:
  - ✓ Owners name,
  - ✓ Address and contact phone number; and

- ✓ Address of premises where animals are to be kept for next few weeks.

- This is particularly important for dogs and cats, which are released progressively on completion of the prescribed quarantine period. A disease outbreak in animals at the station may require tracing and re-call of animals released in previous weeks, Some animals are released from primary quarantine into approved premises for secondary post-arrival quarantine for periods up to 12 months

3.4. Secure Animal Identification and Source Verification

Major disease outbreaks such as BSE, FMD and swine fever, increasing consumer demands for safe food and the importance of export markets for national producers have prompted the implementation of animal identification and verification programs in a number of countries. The EU, Canada, Uruguay, Australia and New Zealand are among countries which are adopting systems intended to help meet the many demands for source verification of livestock.

Critical considerations for a secure animal identification and source verification system include: rapid, inexpensive and accurate acquisition of information; security against fraud; humane administration; and easy and rapid transmission, storage and retrieval of data. The benefits of animal identification systems affect all participants in the food chain, from the consumer to the food industry. Secure systems contribute to food safety and quality assurance; help to limit the spread of animal disease; limit livestock producer losses due to disease presence; reduce the costs of government control, intervention and eradication; and minimise potential trade loss.

The growth in global trade and consumer concerns for food safety require more effective animal identification and verification systems than the simple manual recording and reading of ear tags which have been used to good effect in national disease eradication programs in the past. Biometric solutions such the retinal imaging system offer a rapid and secure method of meeting the demands required of a failsafe animal identification system to ensure traceability of animals back to the farm of origin.

The Need for Animal Identification and Verification

a) Public health

The emergence of bovine spongiform encephalopathy (BSE), incidents of Salmonella and E coli O157 in humans caused through contaminated food products, and cases of harmful chemical residues in food highlight the need for systems which enable secure traceability of animals and animal products. In order to manage and control risks to human safety in the animal food production chain, public health authorities need information that will enable them to pinpoint rapidly the source of infection or contaminants of meat products. Public expectations of health authorities to safeguard consumers from food-borne illnesses have been elevated by cases of the human form of BSE. Animal identification is also an important part of the measures against BSE and in lifting the export ban."

The risk of transmission of the disease to humans places a high priority on authorities to protect public health Effective surveillance and monitoring of illegal or inappropriate use of veterinary drugs requires rapid access to information on animal ownership, their location and drug records. Such information enables regulatory agencies to take measures quickly to protect public health from the risk of exposure to hazardous residues.

Food producers are increasingly adopting HACCP (hazard analysis and critical control point) systems. These entail identifying potential hazards associated with food and measures to controls those hazards, and identifying critical control points in food production, from its raw state through processing and shipping to consumption by the consumer. The widespread acceptance of HACCP for safety management has increased the need for information throughout the livestock production system – not only from the farm to the slaughterhouse. To improve public health and increase consumer confidence in food safety, the development of farm to retail information systems enabling traceability of animals and meat products throughout the food chain has become more pressing.

b) Animal health

A prerequisite for control programs for infectious diseases within an animal population is the ability to trace the origin of an infected animal. The existence of an identification and registration system for animal and animal holdings is crucial for proper planning for disease prevention and control. Many livestock identification systems have traditionally been provided through eradication programs, such as those in the US for brucellosis, tuberculosis and pseudorabies (Aujesky's disease). But as diseases are eradicated the level of identification correspondingly declines, requiring a new approach through national livestock identification programs. Secure identification systems are needed in order to maintain surveillance for eradicated diseases to ensure complete eradication, and to establish health status certification programs.

International trade has increased concerns about the movement of animal diseases across borders. One of the main missions of the OIE (Office International des Epizooties) is to guarantee the sanitary safety of world trade by developing rules for international trade in animals and animal products. OIE standards for animal health and animal diseases that are transmissible to humans (zoonoses) are recognized by the World Trade Organization (WTO) as reference international sanitary rules.

The concept of regionalization promulgated by the WTO has taken animal identification to a new level in international trade. By recognizing a zone or region as disease-free or low risk even though another part of the same country may have a serious animal disease problem, trading partners will expect to have measures in place which guard against the potential risk of disease transmission.

c) Consumer rights

The integrity of the food chain has become a dominant issue for consumers. The BSE crisis, recent outbreaks of FMD, contaminated animal feed and other food scandals have heightened consumer concerns about food safety. Consumers expect the food they eat to be safe and they expect regulators, producers, processors and retailers to ensure that

food safety is guaranteed. While food safety remains a paramount concern, consumers are turning their attention to the wider issues of quality and food production methods.

d) The regulatory imperative

In recognition of the need to improve control of major animal diseases, to satisfy criteria for export trade and to provide reassurance to consumers on food quality and safety a number of countries have implemented legislation to make livestock identification compulsory. Governments are increasingly committed to mandatory trace back and source verification systems as identification levels have declined in line with the success of disease eradication programs.

Service Animal Verification Form

Instructions

1. The applicant (owner) for a animal license must fill out the form if the applicant wants the license fee waived for a service animal
2. The applicant fills out Part I (Applicant and animal Information) and, if the animal is prescribed for the owner, the health care practitioner prescribing the animal fills out Part II.
3. The applicant submits the completed form to the Municipal Clerk when licensing the animal
4. A properly filled-out and signed form is verifiable written evidence required by Municipal clerks licensing an animal.
5. The form is required for initial verification for waiver of the animal license fee, but not for renewal.
6. The clerk should keep a copy on file.

Self-Check 3 – Written test

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I. Write true if the statement is correct/False if it is incorrect for the following questions (2 point each).

1. Animals entering quarantine facilities should be given an ear tag.
2. Each set of animal gets a lot number and pen assignment based on its species and source as feedlot.
3. Secure animal identification systems are needed in order to maintain surveillance for eradicated diseases

Test II. Choose the best answer for the following questions (3 point).

1. Secure animal identification and verification systems contribute to food safety and quality assurance;
   A. To limit the spread of animal disease;
   B. Limit livestock producer losses due to disease presence;
   C. Reduce the costs of government control,
   D. Eradication and minimise potential trade loss. E. All of the above

Test III. Short Answer Questions (5 point)

1. What is the importance of animal identification and verification system for animal health?

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

You can ask your teacher for the copy of correct answers

Information Sheet 4 - Passing Approval for Receiving Animals

4.1. Introduction

The purpose and scope of setting up of Quarantine Stations is to prevent the ingress of dangerous exotic diseases into the country through imported livestock and livestock products. The increased and faster international trade and travel exposed every country to the danger of infiltration of known and unknown transmissible diseases which have the potential of very serious and rapid spread, adverse socio-economic and human/animal health consequences. The Quarantine Services are necessary to keep the country free from many exotic diseases and AQCS plays an important part to maintain the country disease freedom.

There are many infectious diseases of livestock which are prevalent in other countries but luckily not present in Ethiopia. It is therefore necessary that such exotic diseases do not gain entry into our country through movement of livestock and livestock product from across the borders. The entire procedure of keeping a watch on livestock disease is the responsibility of the Office of International Epizooties (O.I.E.) through its International Zoo Sanitary Code. For this purpose this organization has classified the prevalent disease into three broad spectra according to the severity and ease of transmission. These broad spectrum diseases are classified as List A, List B and List C diseases. Zoonosis is also the important component of AQCS wherein the human health is ensured by strict implementation of AQCS regulations.

4.2. Passing Approval for Receiving Animlas

- Animal records may consist of a cage card or may involve detailed individual animal information, depending principally on the species.
- Cage cards should include:
  - ✓ Source of the animal,
  - ✓ Strain or stock,
  - ✓ Names and locations of responsible investigators,
  - ✓ Pertinent dates, and

✓ protocol number.

- Individual animal identification is an essential component of animal health surveillance to implement control measures to prevent entry of a foreign animal disease. It can also reduce the economic consequences of endemic animal diseases undergoing eradication phase.
- Livestock producers have long recognized the economic benefits of animal identification systems for eradicating major diseases, protecting international trade and gaining consumer confidence in food safety.
- In a consumer-driven marketplace, secure systems which verify the source of meat products will contribute to providing producers who observe certain management practices with a competitive advantage.
- Improved identification systems may contribute to substantial producer gains from improved genetics and carcass quality, herd certification and premium prices if systems enable food products to be traced back to superior animal management practices.
- A prerequisite of verification of claims in marketing programs is a secure animal identification system.
- All incidents to do with export animals should be reported to the station manager/quarantine inspector and other station staff at weekly/fortnightly staff meetings, and recorded on the animal's history sheet.
- The animal quarantine stations must keep copies of all relevant information pertaining to imported animals.
- Copies should be made of all vaccination records and kept with the history sheets and other relevant export information.
- The original animal health certificate should be given to the owner or exporter.
- After animals have been received to quarantine, their history sheets and associated documentation should be archived and be easily accessible for auditing and information purposes.

Standard Operating Procedure for Import of Pet Dog(s) in to India:

Pre Arrival Requirements:

1. Minimum 07 days before embarkation, the application form will be submitted through email / physically by the applicant.
2. After examining the uploaded forms, advance No Objection Certificate will be issued by the concerned Animal Quarantine & Certification Station (AQCS) within 1 working day along with parameters to be examined on arrival

On Arrival at the Port of Entry

1. The AQCS's Officer will carry out physical examination of the dog(s) as per the prescribed format at the port of entry.
2. In case the dog(s) is/are found sound and healthy final NOC will be issued at the port of entry itself.
3. In case the dog(s) fails to clear physical examination or exhibits clinical signs of diseases mentioned it will be taken to the Quarantine Station and will remain under quarantine for 15 days.

During Quarantine Period at AQCS

1. Everyday examination record will be maintained and testing will be done. If any signs/symptoms will be found, the same will be recorded or updated online. The applicant will bear the charges for testing.
2. Final o Objection Certificate (NOC) will be issued in case negative test reports are obtained for the dog(s) under quarantine.
3. In case of the positive testing reports or if the pet dies of disease, deportation/Post –Mortem and incineration will be done at the cost of owner.

Self-Check 4 – Written Test

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I. Write true if the statement is correct/False if it is incorrect for the following questions (2 point each).

1. Animal records may consist of a cage card or may involve detailed individual animal information, depending principally on the species.
2. The animal quarantine stations must avoid copies of all relevant information pertaining to imported animals.
3. Individual animal identification is an essential component of animal health surveillance

Test II. Choose the best answer for the following questions (3 point).

1. During receiving the new animal to quarantine station the passing Cage cards should include the follwing information.
    A. Source of the animal,
    B. Strain or stock,
    C. Names and locations of responsible investigators,
    D. Pertinent dates
    E. All of the above

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

You can ask your teacher for the copy of correct answers

Information Sheet 5 – Organizing Health Record Sheet

5.1. Health Record

The station manager must ensure that the procedures outlined in this "Quarantine Station Operational Guideline" are adhered to by all quarantine station staff. All incidents to do with export animals should be reported to the station manager/quarantine inspector and other station staff at weekly/fortnightly staff meetings, and recorded on the animal's history sheet. Daily observations are to be recorded on animal history sheets/cards. The quarantine management should give high priority to auditing and reviewing its activities. Audit and review are essential elements of effective quarantine management. The animal quarantine stations must keep copies of all relevant information pertaining to exported animals. Copies should be made of all vaccination records and kept with the history sheets and other relevant export information. The original animal health certificate should be given to the owner or exporter. After animals have been released from quarantine, their history sheets and associated documentation should be archived and be easily accessible for auditing and information purposes.

Full records must be kept for each animal detailing the following:

- Country of origin;
- Name and address of owner/importer;
- Date of entry and release;
- Clinical history during quarantine;
- Tests and treatments performed;
- Pens occupied during quarantine;
- Direct contacts between like species (especially important for dogs and cats);
- Visitors including private veterinarians.

5..2. Record Requirements

Records may be maintained in either electronic or manual form. Records must be retained for a minimum period of 18 months after release of the rabbits from quarantine, during which time they must be made readily available to a quarantine officer when requested. Records of all rabbits that have been subject to quarantine while at the QAP must be maintained. Records detailing daily footbath maintenance must include at least the following:

- Date
- Name of chemical used
- Ratio of chemical to water used
- Name of person who performed maintenance.

Records detailing quarantine waste water treatment must include at least the following:

- Date of treatment
- Name of chemical used
- Ratio of chemical to water used
- Time treatment started
- Time treatment completed
- Name of person who performed treatment.
- Records must be maintained of the method and date of waste disposal/destruction.
- Vermin control records, must include records detailing replacement dates and details of insecticide strips/pads on quarantine waste bins.
- Records detailing staff training must be maintained.
- Internal audit records must be maintained.
- Full records must be kept for each animal detailing the following:
- Country of origin;
- Name and address of owner/importer;
- Date of entry and release;
- Clinical history during quarantine;
- Tests and treatments performed;

Self-Check 5 – Written Test

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I. Write true if the statement is correct/False if it is incorrect for the following questions (2 point each).

1. Audit and review are essential elements of effective quarantine management.
2. Copies should be made of all vaccination records and kept with the history sheets and other relevant export information

Test III. Short Answer Questions (6 point)

1. Describbe all the full records must be kept for each animal detailing.

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

You can ask your teacher for the copy of correct answers

LG 107	LO 3. Carry out daily quarantine activities

Instruction sheet

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

- Checking and maintaining availability and functionality of tools and equipment
- Maintaining the security of the quarantine
- Implementing Indicators in daily quarantine activities
- Practicing regular follow up and observation of animals
- Isolating, maintaining and managing suspected animals and products.
- Selecting drugs for the treatment of sick animals
- Providing appropriate nutrition of quarantined animals
- Conducting, cleaning and disinfection of the quarantine environment
- Recording and passing animals in and out

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Check and maintain availability and functionality of tools and equipment
- Maintain the security of the quarantine
- Use and implement Indicators in daily quarantine activities.
- Practice regular follow up and observation of animals
- Isolate, maintain and manage suspected animals and products.
- Select drugs for the treatment of sick animals
- provide appropriate nutrition of quarantined animals
- Conduct, clean and disinfection of the quarantine environment
- Record and pass animals in and out

Learning Instructions:

1. Read the specific objectives of this Learning Guide.

2. Follow the instructions described below.

3. Read the information written in the "Information Sheets". Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.

4. Accomplish the "Self-checks" which are placed following all information sheets.

5. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-checks).

6. If your performance is satisfactory proceed to the next learning guide,

7. If your performance is unsatisfactory, see your trainer for further instructions.

Information Sheet 1 - Checking and maintaining availability and functionality of tools and equipment

1.1. Introduction

As soon as practical after an animal is released from quarantine previously occupied, stalls are to be mucked out and the stall and any associated furniture cleaned. Drinkers and feeders are to be cleaned. At completion of quarantine, the facilities that have been used, including feed stores, store rooms and wash bays, are to be left tidy and clean with all equipment stowed in an orderly manner. Where possible a system of stall/row rotation should be used to spell individual stalls/rows between imports and to ensure all stalls on the station are maintained in working condition. All soil based pens/yards where animals have been held, should be returned to a reasonably clean and useable state. All water troughs and feeder are to be cleaned. All equipment should be checked and maintained as soon as possible.

The crush and associated concrete pens are to be kept clean at all times. Equipment used for quarantine operations must be washed and disinfected with an AQIS approved disinfectant in accordance with approved work procedures prior to removal from the quarantine area. Wash areas must be washed down and disinfected with an AQIS approved disinfectant straight after wash down in accordance with approved work procedures.

1.2. Tools and Equipment

- Equipment needed for blood sample collection
- Proper equipment is needed to obtain a blood sample from sheep. A few of the basic items needed when collecting blood from sheep are listed below:

- Method of animal restraint
- 6 cc syringe
- 20-gauge by one inch or less needle
- Vacutainer needle holder((#1 & 2) 20-gauge by one inch or less vacutainer needle

- Vacutainer (#3, 4, & 5)
- Alcohol
- Surgical scrub
- Electric shears
- Arm length gloves, surgical gloves, vacutainers, needle with holders, gauze, cotton, plasters, aluminum foils,
- Rope, different sedatives and tranquilizers, gowns, apron,
- Rubber boots of appropriate size
- Thermometers, esophageal tube, nose ring, chains,
- Canine and feline holder,
- Stethoscope, mouth gag,
- Drenching gun, balling gun, sprayer, crush, trocar and
- Ink pen or marker
- Gauze
- Canulla, racks, mouth gag, shackles, neck collar,
- Kennels, veterinary first aid kit, goggles, forceps, scissors,
- Scalpel, dehorning saw, hemostats, stomach tube,
- Icebox, refrigerator, water bath, stove, sterilizers
- Disinfectants, antiseptics, formalin, scalpel blade,
- Dehorning wire, dehorning saw blade, surgical needles,
- Cat gut and silk, local anesthesia, broad spectrum
- antibiotics, vaccines, saline water, distilled water,
- Acaricide, anthelmintic,

The syringe, needle, vacutainer, and surgical scrub can be acquired from a veterinarian or an animal health supply company. Some of the equipment that can be used in blood sampling sheep is shown in this picture. (#1 and 2 are vacutainer needle holders and #3, 4, and 5 are vacutainers.)

1.3. Personal Protective Devices

Staff members can protect against splashes and splatters by adhering to careful work practices and rigorous use of personal protective devices. Face shields provide protection for eye and mucus membranes. Biological safety cabinets provide near sterile work

environments that offer protection to the worker, the materials they are manipulating, and the work area itself. Lab coats or work uniforms will help prevent contamination of street clothes and should be changed whenever visibly soiled. Staff members should autoclave lab coats before disposal or laundering; soiled lab coats should go to on site or professional cleaners only. Latex or vinyl gloves provide barrier protection for hands. Staff must change gloves that are torn or visibly contaminated, and should autoclave them before disposal. Gloves and other protective devices cannot prevent needle sticks or other unintentional injuries caused by sharp instruments, broken glass, etc. Self-sheathing needles are available, as are other engineered safety devices. Needles must not be bent, cut, or recapped: they must be discarded directly into puncture resistant and leak-proof containers.

1.4. Vehicles

- Transporters delivering animals to quarantine stations must provide clean transport that have been washed prior to use and are free of gross contamination.
- Design of vehicles must be such that major spillage of faeces during transport is minimized.
- At the quarantine station after unloading arriving animals, all gross material is to be removed from the transport chamber, the chamber washed out and then disinfected using an APHRD approved disinfectant.
- Any hay accompanying the animals is to be incinerated.
- Any equipment accompanying the animals must remain on the quarantine station until the animals are released from quarantine and should be inspected by a quarantine officer before the animals are released. However some equipment (e.g. bedding) can be cleaned, disinfected and removed before the animal's release if required.

Common Facilities Available in Animal Quarantine Stations:

- Administrative Building with Office, Library,
- Computer Room, Conference Hall and stores
- Duty Rooms for visiting Veterinary Officer and Animal care takers.

- Animal sheds for keeping the animals during quarantine i.e. Cattle, Horses, Pigs, Sheep, Goats, Dogs, Cats, Laboratory Animals, Poultry/Other Birds, Misc. /Zoo Animals etc.
- Isolation shed
- Dispensary/dressing room
- Change over room
- Post mortem room
- Incinerator
- Disposal area
- Horse paddocks
- Loading and unloading platform
- Vehicle dip/wash
- Disinfection and fumigation facilities
- Backup power supply

Self-Check 1- Written Test

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I. Short Answer Questions (5 point each)

1. Describe tools and equipments used in quarantine station.
2. What are the facilities should be available in the qquarantine station?

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

You can ask your teacher for the copy of correct answers

2.1. Security of facility and animals

Security fences are to be located on all station external boundaries, and additionally around the internal core quarantine area. These fences are to be human/animal deterrent fences, with the internal fence offering even greater protection from access by outside animals. As a further preventive to unauthorized personnel entry "No Entry Quarantine Area" signs are to be located at regular intervals on external station fences. Stations must be equipped with a foot and tyre bathes at the gate through which all traffic entering the station are disinfected. Opening of the gate must be controlled by the guards of the quarantine station. Staff and other authorized personnel may be provided with gate passes. Vehicle entry to the internal quarantine area should be minimized; vehicles should stay on the roadways.

Security lights are to be maintained for night use in the internal quarantine area. Persons living on site are expected to passively monitor security of premises after hours. All buildings and compounds on the station must be capable of being locked. All internal security fence gates must be locked outside normal business hours. All occupied animal houses must be locked when not attended by a quarantine officer. All kennels/pens should be locked when not attended. Door/gate fastening used to lock animals are to be such that it is not possible for animals to be able to open the doors/gates. In the event that an animal escapes from its holding area there must be other further internal security systems in place to prevent the animal from being able to get out of the station's internal quarantine area. A regular maintenance program must be in place to ensure the continued integrity of these systems. All visitors entering the internal quarantine area must sign a visitors book giving date, name, address and purpose of the visit. Visitors entering the internal quarantine area should normally be accompanied or supervised by a quarantine officer. As a general rule visitors should not remain on the station when there

is no quarantine officer on the station. A record of any internal and external security breaches is to be kept.

Quarantine officers must be able to gain access to the quarantine area in accordance with the approved work procedures. Secured on a building/s, fences, gates and/or doors and be visible at all times when there are rabbits undergoing post-entry quarantine; professionally made; made to state 'Quarantine Area – Authorised Persons Only, No Entry or Removal of Animals or Goods, Penalties Apply or as directed by a quarantine officer for specific quarantine operations); and on a yellow background with black lettering. Signs must not be displayed when animals are not undergoing post-entry quarantine, if the facility is used for other purposes.

Note: Cardboard and paper signs are not acceptable.

Signs on external structures must be: a minimum 600 mm x 400 mm with lettering a minimum 50 mm height, and be weatherproof and resistant to the elements. Signs within structures must be a minimum 295 mm x 210 mm with lettering a minimum 25 mm height. All quarantine areas in which rabbits subject to quarantine are held must be clearly identified, and display quarantine signage to assist in effectively managing the security of goods that are subject to quarantine. These signs must be**:**

- The QAP must at all times operate in a manner that prevents rabbits that are subject to quarantine from being moved and or interfered with by unauthorized persons.
- AQIS must be notified immediately of any incidents that could compromise the quarantine security of the QAP. This includes structural damage, unauthorized entry to the premises, removal from the QAP of animals subject to quarantine, quarantine waste or equipment or any breach, or suspected breach, of premises operations manual/standard operating procedure.
- Before entering the quarantine area for the first time, all personnel must sign a declaration to the effect that they will observe the operating instructions for the

premises and they will not contact lagomorphs outside the premises for the duration of the post-entry quarantine period (i.e. while the rabbits are subject to quarantine).

- A register of people authorized to access the QAP must be maintained. At each attendance, all persons must record their names, addresses, occupation and telephone numbers in the register. Procedures for entry and exit must be displayed at the entrance to the QAP.
- The QAP must have in place security arrangements in accordance with the approved work procedures. The following are the checklists that are used to secure the quarantine environment.

2.2. Checklist for preventing Trans-boundary Animal Diseases (TADs) from entering the facility

- Know the health history of the herds from which animals are sourced.
- Know health status of animals brought into the facility (demand a valid health certificate from feelots).
- Know the vaccination history of animals that enter the facility.
- Avoid commingling of different batches of animals and also sick and healthy ones.
- Transport animals in clean vehicles.
- Have a control program for surrounding animals which could spread disease (domestic and wild animals, etc.).
- Unloading/loading area should be located at the perimeter of the facility.
- Dead animal pickup area should be located appropriately for rendering area not to contaminate the facility.
- Limit people's access to pens, feeding, mixing, storage, treatment areas,
- Keep a record of visitors to the facility. Visiting personnel pose a risk of introducing disease as well as carrying disease agents out of a quarantine station. Strict controls over such personnel are essential and procedures such as routine changes of protective clothing and use of dedicated equipment are of paramount importance. Owners of livestock in quarantine are not normally permitted to visit the station.

2.3. Checklist for disease containment

- Facilities provide a clean area for restraint, treatment and isolation of sick cattle.
- Facilities prevent cross contamination of water, manure, feed, or equipment between groups.
- Have plan to manage group size, age distribution, and animal flow reducing risk of disease.
- Handle highest health status animals first (healthy first and sick animals last).
- Use strict sanitation practices.
- Animals that die are examined by a veterinarian (necropsy).
- Aware visitors of the strictness of the facilty's sanitation practices.
- Clean contaminated vehicles and equipment before use around healthy cattle.
- Train employees to be able to identify potential Foot and Mouth Disease (FMD) lesions.
    - Disinfect all working facilities between incoming groups of cattle.
    - Limit entry & travel of vehicles to planned areas of the facility.

2.4. Checklist for sanitation

- Attempt to prevent manure contamination of feed and equipment used orally.
- Always clean equipment used orally between animals.
- Attempt to prevent cross contamination between healthy and sick/dead cattle.
- Regularly evaluate activities on operation to assess the potential for contaminating cattle.
- Use different equipment to feed and to clean pens,
- Leave manure–hauling equipment in pens with different groups of animals.
- Clean contaminated vehicles and equipment before use
- Routinely clean and disinfect feeding equipment and cattle handling equipment.

Self-Check 2 – Written Test

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I. Write true if the statement is correct/False if it is incorrect for the following questions (2 point each).

1. Security fences are to be located on all station external boundaries, and additionally around the internal core quarantine area.
2. Handle highest health status animals first (healthy first and sick animals last).
3. All visitors entering the internal quarantine area must sign a visitors book giving date, name, address and purpose of the visit.
4. Regularly evaluate activities on operation to assess the potential for contaminating cattle

Test II. Short Answer Questions (6 point).

1. Ho to preventTrans-boundary Animal Diseases (TADs) from entering the facility/the country?

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

You can ask your teacher for the copy of correct answers

3.1. Introduction

Planned outcomes, outputs and performance measures for quarantine are set out in its Portfolio Budget Statements (PBS). This outcome and output framework is supplemented by lower-level outcomes, outputs and performance measures identified in the business plans of relevant programs.

The outcome and outputs for quarantine

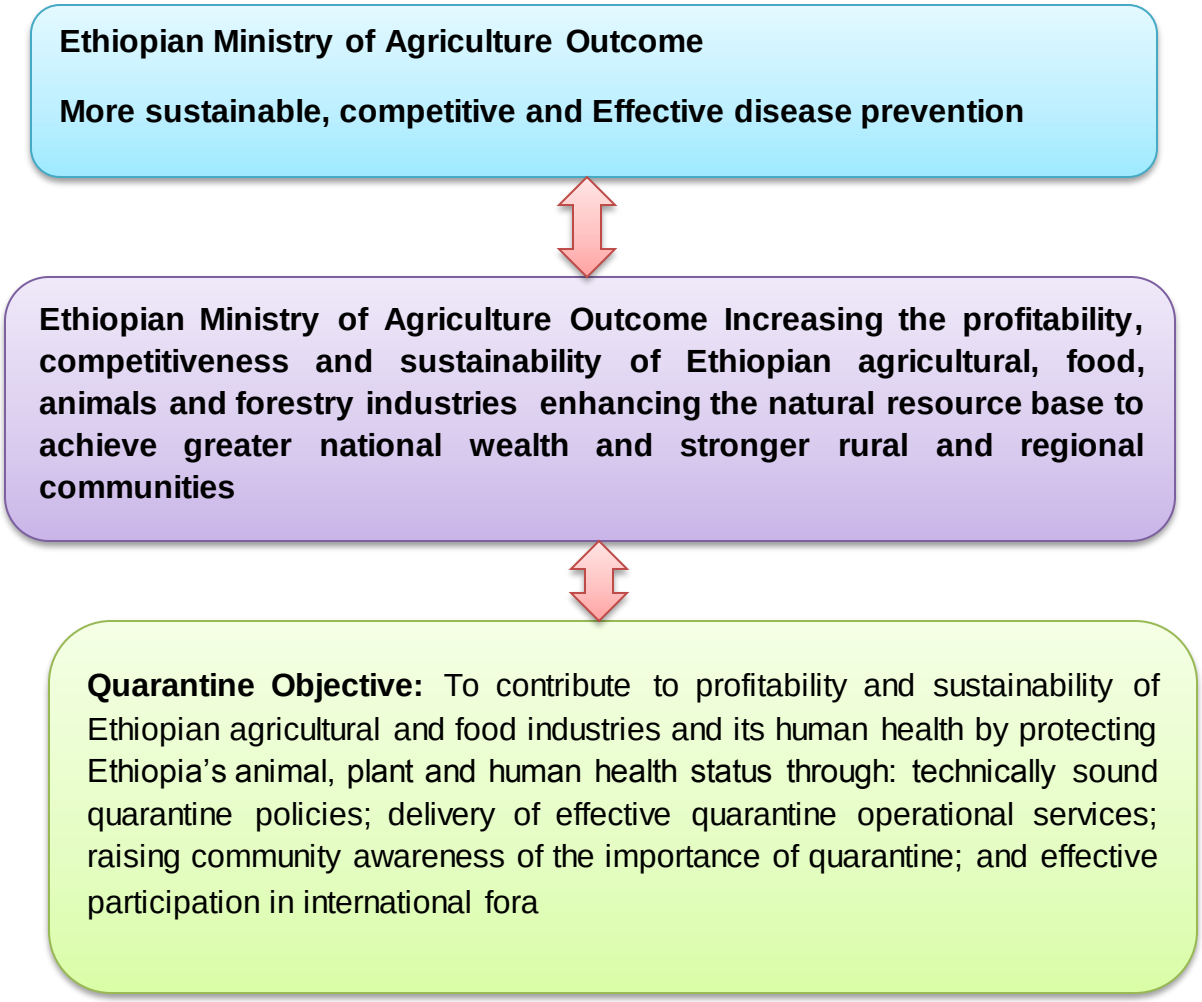


Figure 2. The outcome and outputs for quarantine

The QRC Report recommended the development of 'objectives' prior to the implementation of the new 'Outcomes and Outputs Framework' and the resulting changes in accepted terminology. Inconsistent understanding, and application, of the key performance measure for quarantine undermines the effectiveness of management of performance, as well as its accountability to Parliament for that performance.

Table 2. Australian Agriculture, Fisheries and Forestry performance indicators for the quarantine output

Overall effectiveness indicator	
Measure	**Indicator**
Australia's agricultural and food industries and human health status is protected	Zero increase in the rate of exotic pest/ disease establishments attributable to breaches of quarantine
Other indicators	
Technically sound quarantine and policy advice	**Effectiveness:** No new exotic pests and disease detections attributable to quarantine policy decisions
Effective quarantine operational services	**Effectiveness:** Number of prohibited goods intercepted at the border Number of pest and disease detections at the border
Raising community awareness	**Effectiveness:** Increase in public awareness of quarantine
Effective participation in international fora	**Effectiveness:** Influence in international arena to advance Australian interests as measured through progress in relation to identified key issues

3.2. Implementation

- Development and distribution of job cards to all staff, relevant to their respective roles in a disease emergency on the station.
- Instruction of animal handlers in the recognition and understanding of diseases relevant to them.
- Training of animal handlers to restrain and examine their animals and birds for disease diagnostic purposes, and in the collection and dispatch of laboratory specimens.
- Mandatory routine screening of diseased and dead zoo animals, with emergency diseases in mind.
- Instruction in disease disinfection procedures and the importance of preventing crossinfection.
- Regular internal simulation exercises for quarantine staff to test and reinforce their roles relevant to possible emergency mammalian and avian diseases.
- Monitoring haelth, feeding, watering of quarantined animals
- Imlement quarantine sanitation and hygiene protocol
- Implement waste disposal
- Implement daily quarantine record keepings

Location of Quarantine Stations and Boarder Inspection Posts in Ethiopia

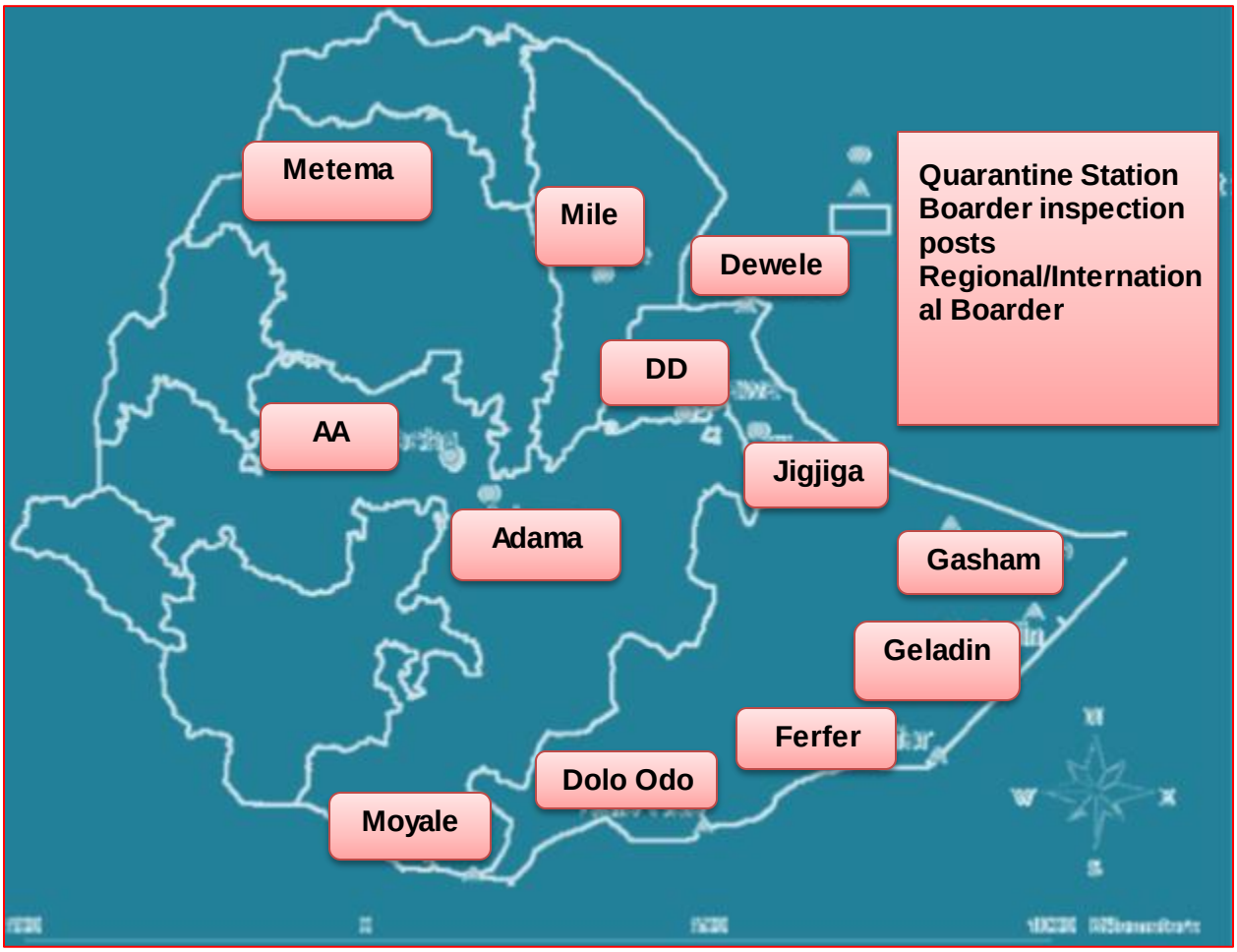


Figure 3. Location of quarantine station and boarder inspection points

Keys to the Map:

- **Circle sign-** Indicate Quarantine Station
- **Triangle sign -** Boarder inspection posts
- **Rectangular sign -** International boarder

Self-Check 3 – Written Test

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test III. Short Answer Questions (10point).

1. What are quarantine performance indicators? Describe and discuss briefly.

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

You can ask your teacher for the copy of correct answers

4.1. Introduction

Close public health surveillance of morbidity and mortality of animals on the premises is required during the whole quarantine period. For example Evidence of disaesa based on clinical or laboratory findings results in automatic extension of quarantine. Following the end of the quarantine or depopulation, cleaning, and disinfection of the premises, trade in animals covered by the Restrictions on final rule may resume at commercial facilities; the owners should to keep records on all sales and transactions. Close state and federal surveillance of morbidity and mortality of animals on the premise is encouraged for at least 6-weeks after the quarantine is lifted and trade has resumed.

4.2. Regular follow up and Observation of Animals

- Housing, feeding, ventilation, lighting, sanitation and routine management practices
- However, special care has to be taken with transgenic/gene knockout animals where the animals can become susceptible to diseases where special conditions of maintenance are required due to the altered metabolic activities.
- Regularly monitor the health condition of animal, feeding, watering
- The transgenic and knockout animals should be maintained in clean room environment or in animal isolators.
- Observing and treating burns, lacerations, scratches and
- broken bones or limbs.
- Recording vital signs, body temperature, breathing, heart beat and pulse rates.
- Observing physical conditions of animal products include (change in flavor and color, physical damage to the container)
- Follow up of animals and their products used for human food in quarantine
- Recording the incoming and certification of outgoing animals and their products used for food for human being in quarantine.

Self-Check 4 – Written Test

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I. Short Answer Questions (10 point).

1. Describbe the routine activities that needs regular follow up by the respective veterinarians.

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

You can ask your teacher for the copy of correct answers

Information Sheet 5 - Isolating, Maintaining and Managing Suspected Animals and Products

5.1. Introduction

Early detection of sickness and early treatment are paramount to a successful quarantine program. The most important factor that will influence the ability of quarantine inspectors to find sick animals is the amount of time they devote to finding sick animal before mid-morning. The three keys to identifying typical sick animal are depression, abnormal gut fill and changes in respiratory rate. However, these keys become difficult to assess in the afternoon. Quarantine inspectors should set up a system for scoring the severity of the illness. The system should include a rating scale for depression and gut fill. Scoring should be done before the animal's temperature is taken.

5.2. Sick or injured animals

Early detection of sickness and early treatment are paramount to a successful quarantine program.Treatments must follow the manufacturer's recommendations; approved and monitored by the quarantine inspector. The quarantine inspector should set up a treatment program and establish cutoff temperatures for individual animal treatment. It is very important to identify and establish an individual record for each animal treated. These records will allow to accurately evaluate treatment programs, establish appropriate withdrawal times and help make decisions in the future treatments, should an infection relapses. Avoid giving medications in the hind leg muscles. Use subcutaneous or intravenous injections if approved by the manufacturer, or use the muscles of the neck for intramuscular injections. Do not inject more than 10 cc per site and watch for injection site problems. It is important to protect sick animals from adverse environmental conditions such as mud, dust and extreme heat or cold. Give sick cattle 18 to 24 inches of bunk space and avoid feeding hay in a feeder other than the bunk. Avoid the use of fermented feeds for sick cattle. The quarantine inspector together with the animal

nutritionist should design an appropriate feeding program for sick animals and for returning recovered ones to their home pen.

5.3. Isolating and maintaining suspected animals and animals found sick

- Sick or injured animals should be segregated.
- Sick or injured animals should be appropriately treated or humanely killed. Veterinary advice should be sought if necessary. All drugs and products should be used according to recommendations from a veterinarian and in accordance with the manufacturer's instructions.
- A record of treatments carried out and their outcomes should be kept.
- When humane killing is necessary, the animal handler must ensure that it is carried out humanely. Veterinary advice regarding the appropriateness of a particular method of euthanasia should be sought as necessary.

Points to be required during detention of animals:

- The enforcement for detention to be made based on International laws for the animals transported by sea, land or air from countries where Infectious disease is prevalent or suspected.
- The period of such isolation should be based on the Incubation period of the disease thus suspected.
- There should be proper arrangement for veterinary inspector to inspect the isolated animals.
- If possible, the animal should be kept in isolation box.
- There should be prohibition for entry and departure of the animal from the isolation room.
- During isolation, animals should be thoroughly screened for parasitic infestation by faecal examination and deworming carried out on the 23rd or 24th day, if need be. The animals should also be subjected to dipping or spraying on the 25th or 26th day for removing ectoparasites if any.

Self-Check 5 – Written Test

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I. Write true if the statement is correct/False if it is incorrect for the following questions (2 point each).

1. Early detection of sickness and early treatment are paramount to a successful quarantine program.

Test II. Short Answer Questions (6 point)

1. What are the three keys to identifying typical sick animal?
2. What are the points to be considered during detention of animals?

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

You can ask your teacher for the copy of correct answers

Information Sheet 6 - Selecting Drugs for the Treatment of Sick Animals

6.1. Introduction

Many diseases, especially the common diseases caused by external parasites, can be treated with readily available treatments (e.g., salt baths, fresh water, formalin). Other registered treatments may be available, but may require veterinary prescription or administration. Many organisms, especially internal agents, cannot readily be treated. It should be noted that the misuse of chemical treatments can cause additional health complications, such as the development of antibiotic-resistant strains of bacteria. Chemical therapy should, therefore, be used with due caution and expert advice. Wild stocks are particularly susceptible to outbreaks of external parasites. This can be prevented by an initial treatment of animals entering a quarantine facility or by careful monitoring and husbandry modification (e.g., temperature reduction, decreased feeding regime or holding density).

6.2. Quarantine protocol:

During this period, certain prophylactic measures should be instituted. Individual fecal samples or representative samples from large numbers of individuals housed in a limited area (e.g., birds of the same species in an aviary or frogs in a terrarium) should be collected at least twice and examined for gastrointestinal parasites. Treatment should be prescribed by the attending veterinarian. Ideally, release from quarantine should be dependent on obtaining two negative fecal results spaced a minimum of two weeks apart either initially or after parasiticides treatment. In addition, all animals should be evaluated for ectoparasites and treated accordingly.

Self-Check 6 – Written Test

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I. Short Answer Questions (5 point).

1. What are the treatment options used in quarantine station to treat sick/injured animals?

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

You can ask your teacher for the copy of correct answers

7.1. Introduction

Developing an appropriate feeding plan that is practical to implement and still meets nutritional needs of the variety of animals entering a shelter is challenging, but key to proper health. actions you can take to ensure good nutrition is provided for the animals in your care.

When the quarantine inspector starts feeding animals, s/he should know the following points and make the required arrangements.

- Cattle coming from feedlots should be placed on a high energy feed.
- Adapting newly arriving animals from the range to a dry lot ration without inducing gut irritation and acidosis is a major factor in preventing disease in quarantine facilities.
- The quarantine facility nutritionist should typically start cattle on a moderate energy, total mixed, dry ration offered in two to three split feedings during the first five to seven days after processing.
- It is very important to know the dry matter intake on a daily basis. Fluctuations in intake can lead to subclinical acidosis. Subclinical acidosis is commonly misdiagnosed as respiratory disease.
- Keeping a daily log of feed consumption will not only help monitor feed intakes, but will also allow to spot outbreaks of respiratory disease early.
- Feed consumption will typically drop approximately 25 percent 24 hours before there is a significant rise in the body temperature of group animals.
- The quarantine inspector together with the intuitionist should establish a working set of records and review these records and the performances of animal health and feeding programs on a regular basis.

7.2. Intake of water

Intake water should be obtained from a clean, unpolluted source to prevent physiological stress or masking of infectious agents by opportunistic infections. Incoming water should be filtered, wherever possible, for pre-transfer quarantine, to prevent exposure to infectious agents during the pre-transfer. This is not required for the post-transfer facility, however, filtered influent water is recommended for containment of high or unknown health risk animals. This helps in identifying the source of any disease outbreak that may occur during the quarantine containment period.

Self-Check 7– Written Test

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below 3 point each. Examples may be necessary to aid some explanations/answers.

Test I. Write true if the statement is correct and false if it is incorrect 4 point each.

1. Keeping a daily log of feed consumption will not only help monitor feed intakes, but will also allow to spot outbreaks of respiratory disease early.
2. Adapting newly arriving animals from the range to a dry lot ration without inducing gut irritation.

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

You can ask your teacher for the copy of correct answers

Information Sheet 8 - Conducting, Cleaning and Disinfection of the Quarantine Environment

8.1. Isolation and Hygiene

All buildings and/or structures must be maintained in a sound state of repair. The quarantine area must remain clean at all times. No animal may be removed from the quarantine area without prior AQIS approval.

8.2. Footwear

Staff and visitors entering the quarantine area must comply with the approved work procedure for hygiene and footwear standards. If dedicated footwear is used, prior to dedicated footwear being removed from the quarantine area, it must be disinfected in accordance with approved work procedures. If disposable overshoes are used in the quarantine area the overshoes are to be disposed of as quarantine waste after use in accordance with the approved work procedures. If a footbath(s) is used, a sign 'Footwear must be immersed in footbath on entry to and exit from premises' must be displayed near footbath(s). If a footbath(s) is used, the contents of each one must be replaced daily and records kept that provide evidence this has occurred.

8.3. Disinfection

The choice of disinfectants and of procedures for disinfection should be made taking into account the causal agents of infection and the nature of the premises, vehicles and objects which are to be treated. Disinfectants and insecticides should be authorised only after thorough tests have been carried out under field condition.Containers in which animals have been transported must be thoroughly cleaned and disinfected with an AQIS approved disinfectant before they can leave the QAP.

Hypochlorite, which is very often used, may be regarded as a universal disinfectant, its effectiveness is diminished by prolonged storage and it is therefore necessary to check its activity before use; a concentration of 0.5% active chlorine appears necessary for satisfactory disinfection; c) no matter what substances are used, disinfection techniques should comprise the following: i) thorough soaking of bedding and litter as well as faecal matter with the disinfectant; ii) washing and cleaning by careful brushing and scrubbing of the ground, floors and walls; iii) then further washing with the disinfectant; iv) washing and disinfecting the outside of vehicles; these procedures will be carried out, if possible, with liquids applied under pressure and the washing, disinfecting or destroying of articles used for tying up the animals (ropes, reins, etc.) should not be omitted. Foot and mouth disease virus is easily destroyed by a high or low pH but the disinfectants used may be caustic or corrosive in concentrated form. Mycobacteria are very resistant to disinfectants and a high concentration is required to destroy the organisms, as well as prolonged action.

In situations in which liquid manure (slurry) may be contaminated with B. anthracis spores, disinfection with formalin (35% aqueous solution of formaldehyde) with stirring for one hour daily is recommended. Contaminated rooms which cannot be cleared before cleaning and disinfection can be fumigated to eliminate B. anthracis spores. The following procedure is recommended: i) all windows, doors and vents to the outside should be sealed with heavy adhesive tape; and ii) for rooms up to 30 m^3, 4 litres of water containing 400 ml of concentrated formalin (37% w/v formaldehyde) in an electric kettle (with a timing switch to turn it off) should be boiled away and the room left overnight. Room temperature should be >15°C.

Self-Check 7– Written Test

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below 3 point each. Examples may be necessary to aid some explanations/answers.

Test I. Write true if the statement is correct and false if it is incorrect 4 point each.

1. Staff and visitors entering the quarantine area must comply with the approved work procedure for hygiene and footwear standards.
2. Disinfectants and insecticides should be authorised only after thorough tests have been carried out under field condition
3. If a footbath(s) is used, the contents of each one must be replaced daily and records kept that provide evidence this has occurred.

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

You can ask your teacher for the copy of correct answers

Information Sheet 9 - Recording and Passing Animals in and out

9.1. Introduction

Animals that have completed their import quarantine requirements would be released from all import quarantine restrictions but movement off the station would be subject to the DA requirements, depending on whether they are:

- Susceptible species ('non-susceptible' species, eg dogs and would have to fit in with the DA requirements, but release should be possible); and
- Considered to play a role in the transmission of the disease. There may be a special case for animals in quarantine stations being released as they have been held under conditions of strict isolation and control. The controller in consultation with State disease control headquarters (SDCHQ) and AQIS would determine this. To assist such a determination, existing management schemes would have to be documented in detail, hence the importance of operational manuals for each species/station Feed/equipment/vehicles entering the station would be subject to DA requirements. Depending on the disease, vehicles may need to be disinfected on entry.

9.2. Examination and Approval of Quarantine Inspection

The State Bureau of Animal and Plant Quarantine or its authorized port animal and plant quarantine organs shall be responsible for the examination and approval of quarantine inspection with respect to the import of animals, animal products and objects prohibited from entering the country. Procedures of examination and approval of quarantine inspection for **import** may be processed when the following conditions are satisfied:

- The exporting country or region has no serious animal epidemic;
- The import of which is in compliance with the provisions of the relevant Chinese laws, regulations and rules on animal quarantine; and

- The import of which is in compliance with relevant bilateral quarantine agreements (including quarantine agreements and aidememoires, same below) signed between and by China and the exporting countries or regions.

Procedures of examination and approval of quarantine inspection shall be completed before the signing of the trade contracts or agreements.

9.3. Entry Quarantine

The State shall practice the registration system for production, processing and stockpiling units of animal products abroad for export to Ethiopia. The specific measures shall be formulated by the department of agriculture administration under the State Council.

For the import of animals, their products or other quarantine objects, the owner or his or her agent shall apply to the animal quarantine office at the place of entry before entry or upon entry for quarantine. For the import of stud stock, their sperms or fetuses, application for quarantine shall be submitted 30 days before entry of the same; for the import of other animals, application for quarantine shall be submitted 15 days before entry of the same. For the entry of packaging materials or bedding materials of the nature of animal, the owner or his or her agent shall submit the declaration to the port animal quarantine office in time; the animal quarantine office may perform quarantine of the declared objects in the light of specific conditions.

9.4. Exit Quarantine

The owner or his or her agent shall provide the trade contract or agreement when going through the formalities of application for exit quarantine inspection of animals, their products or other quarantine objects according to law. If the importing country requires Ethiopia to register the production, processing and stockpiling units engaging in export to their country of animals , their products or other quarantine objects, the port animal and plant quarantine office may practice registration and report to the State Bureau of Animal and Plant Quarantine for the record. Export animals that need to be placed in isolation for quarantine inspection before exit shall be quarantined in an isolation court designated by the port animal and plant quarantine office.

Self-Check 9 – Written Test

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I. Write true if the statement is correct/False if it is incorrect for the following questions (2 point each).

1. Procedures of examination and approval of quarantine inspection shall be completed before the signing of the trade contracts or agreements.

Test II. Choose the best answer for the following questions (4 point).

1. What procedures shuold be ensential for importation of animal and animal products?
   A. The exporting country or region has no serious animal epidemic;
   B. The import of which is in compliance with the provisions of the relevant Ethiopian laws, regulations and rules on animal quarantine
   C. The import of which is in compliance with relevant bilateral quarantine agreements
   D. All of the above

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

You can ask your teacher for the copy of correct answers

LG 108	LO4. Collect Samples from Quarantined Animals

Instruction sheet

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

- Securing sampling and sample transporting materials, medias ,PPE and equipment
- Identifying samples for quarantined animals
- Collecting, labeling and storing samples

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Secure sample and sample transport materials, medias ,PPE and equipment
- Identify samples for quarantined animals
- Collect, labele and store samples

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
3. Read the information written in the "Information Sheets". Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
4. Accomplish the "Self-checks" which are placed following all information sheets.
5. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-checks).
6. If your performance is satisfactory proceed to the next learning guide,
7. If your performance is unsatisfactory, see your trainer for further instructions

Information Sheet 1 - Securing Sampling and Sample Transporting Materials, Medias an Personal Protective equipment

1.1. Equipment Required for Collection of Samples

Then following material and equipments are used for collecting and transporting samples in quarantine.

1) Sterile forceps, scissors, and scalpels.
2) Sterile swabs
3) Vials for containing transport medium for collection of samples for isolation or identification
4) Bottles for collection of faeces, blood, and other samples that do not require transport medium
5) Bottles containing formalin saline for tissues to be examined histologically.
6) Blood collection equipment- without additive for serum, and with anticoagulant for isolation
7) Notebook and equipment for labelling specimens
8) Swabs and transport medium for bacteriological investigation
9) Cool box (Thermos flask)
10) Heavy duty plastic bags for post-mortem material.
11) Transporting materials and Medias

1.2. Personal Protective Devices

Staff members can protect against splashes and splatters by adhering to careful work practices and rigorous use of personal protective devices. Face shields provide protection for eye and mucus membranes. Biological safety cabinets provide near sterile work environments that offer protection to the worker, the materials they are manipulating, and the work area itself. Lab coats or work uniforms will help prevent contamination of street clothes and should be changed whenever visibly soiled. Staff members should autoclave lab coats before disposal or laundering; soiled lab coats should go to on site or

professional cleaners only. Latex or vinyl gloves provide barrier protection for hands. Staff must change gloves that are torn or visibly contaminated, and should autoclave them before disposal. Gloves and other protective devices cannot prevent needle sticks or other unintentional injuries caused by sharp instruments, broken glass, etc. Self sheathing needles are available, as are other engineered safety devices. Needles must not be bent, cut, or recapped: they must be discarded directly into puncture resistant and leakproof containers.

Self-Check 1 – Written Test

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below 3 point each. Examples may be necessary to aid some explanations/answers.

Test I. Write true if the statement is correct/False if it is incorrect for the following questions (2 point each).

Test II. Choose the best answer for the following questions (3 point).

Test III. Short Answer Questions (5 point)

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

You can ask your teacher for the copy of correct answers

Information Sheet 2 - Identifying Samples for Quarantined Animals

2.1. Introduction

Samples may be taken from animals, or their environment, for the purpose of establishing a disease diagnosis, for health surveillance, or for the monitoring of response to vaccines. In order to get timely and correct diagnosis of a suspected infectious disease, it is imperative on the part of a clinician to collect the most suitable material from live or dead animals. A great variety of different combinations of samples and species of animal may occur. The knowledge of pathogenesis of infectious disease is single most important factor in order to collect the most suitable specimen. In the face of an outbreak where animals in various stages of the clinical disease may be seen, it is better to collect specimen from fresh cases of the disease. In all cases, the samples need to be appropriate for the purpose required, and adequate in number and amount to provide a statistically valid result. Samples must be taken with care, to avoid undue stress or damage to the animal or danger to the operator. For example, a carcass suspected of being infected with Bacillus anthracis should not be opened, but a drop of blood should be obtained from a superficial vein. It is usually important to adopt aseptic techniques, and care must be taken to avoid cross-contamination between samples. Just prior to death and shortly thereafter, a number of intestinal bacteria may invade the host tissues. The significance of these organisms, some of which are potential pathogens is difficult to assess when tissues have been invaded. For best results, fresh tissues must be collected as soon as it is feasible.

2.2. Samples from Quarantined Animals

Live sick animals presented for necropsy, invariably provide the best source of samples/specimens. For microbiological investigations, strict sterile precautions must be observed meticulously while collecting and handling materials for isolation studies. It requires at least as much effort, and often more, to process a negative specimen as it does one from which microorganism is isolated. The chance of isolating a microbe

depends critically on the knowledge, care, and attention of the veterinarian who collects the specimen. Specimens taken as a last resort when days or weeks or empirically chosen antibiotic therapy have failed are almost invariably a waste of effort. Having obtained suitable material, it must be carefully packaged, labeled, and transmitted to the laboratory by the fastest practicable method. Relevant shipping regulations must be obeyed. If material is sent to a laboratory in another country, this laboratory must be consulted in advance to ensure that it is willing to receive the material. An import license may be required. All samples must be accompanied by a written note indicating the origin of the material, the relevant history, and the tests required.

2.3. Identify representative samples

Hoofed livestock

Hoofed livestock species should undergo the following tests, whenever possible:

- Tuberculosis testing
- Serum chemistry profile
- Appropriate serology (e.g. leptospirosis, brucellosis, MCF, infectious bovine rhinotracheitis, bovine virus diarrhoea), using paired titres, if possible
- Urinalysis
- Appropriate diagnostics for *Mycobacterium paratuberculosis* (if history of disease in herd of origin)
- Equine infectious anaemia testing (for equids).

Small mammals and carnivores

Whenever possible, blood should be collected from small mammals and carnivores for CBC, serum chemistry profile and appropriate serology (feline infectious peritonitis, FIV, feline leukaemia virus). Urinalysis and testing for heartworm should also be conducted in appropriate species.

Self-Check 2 - WrittenTest

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below 3 point each. Examples may be necessary to aid some explanations/answers.

Test I. Write true if the statement is correct/False if it is incorrect for the following questions (2 point each).

Test II. Choose the best answer for the following questions (3 point).

Test III. Short Answer Questions (5 point)

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

You can ask your teacher for the copy of correct answers

Information Sheet 3 - Collecting, Labeling and storing samples

3.1. Introduction

The collection of appropriate and optimum samples is the responsibility of the laboratory, even though the actual collection process is often carried out by persons who are not part of the laboratory staff. The sample may be collected at the bedside by a nurse if the patient is being managed in hospital. The health care provider may collect a sample in a clinic setting. The laboratory can help to assure good samples by providing collection information to health care personnel at the collection site, making sure that appropriate containers and collection supplies are available, defining a good labeling system, and checking all samples carefully when they arrive in the laboratory.

3.2. Type of samples collected in quarantine station

1. Tissues

- Animal health personnel should be trained in the correct procedures for post-mortem examination of the species of animals with which they work. The equipment required will depend on the size and species of animal, but a knife, saw and cleaver will be required, and also scalpel, forceps and scissors, including scissors with a rounded tip on one blade, for opening intestines. A plentiful supply of containers appropriate to the nature of the sample required must be available, and also labels, and report forms.
- Special media may be required for transport of samples from the field. The operator should wear protective clothing: overalls, rubber gloves and rubber boots. If rabies is suspected, it is usual to detach the animal's head, and the operator should wear a face mask and goggles, gloves and a plastic apron.
- Tissues may be collected for culture or for histopathology and occasionally for use as antigen in serological tests. The person removing the tissues should be experienced in post-mortem technique and have knowledge of pathology sufficient to select the right organs and the most promising lesions for sampling.

- Tissue collected for representative of the sample the lesion. It should include some of the apparently normal surrounding tissue.
- The skin of the dead animal may be removed with ordinary instruments, but the body cavities should be opened with sterile instruments, and a fresh set of sterile instruments should be used to collect the pieces of the various organs required. Each piece of tissue should be placed in a separate sterile screw-capped jar or plastic bag, fully labeled with the date, tissue and animal identification. Care must be taken not to contaminate one tissue with another.
- Instruments can be heated on a burner with portable packs of liquid gas or by using local fuel to light a fire.
- Disinfectants must not be used on or near tissues to be sampled for bacterial culture or virus isolation.
- The fresh samples should be forwarded to the laboratory by the fastest direct route. If they can reach the laboratory within 24 hours they should be forwarded in a wide-mouthed vacuum flask with wet ice.
- An alternative is to use polystyrene containers and chemical refrigeration bricks. Only if the samples are likely to take more than 24 hours to reach the laboratory, it is necessary to freeze the samples and send them in this state.
- The tissues may be sent to the laboratory dry or in bacterial or virus transport medium depending on the examinations required. For histopathology, blocks of tissues not more than 0.5 cm thick and 1-2 cm2 are cut and placed in neutral buffered 10% formalin, which should be at least 4 times the volume of the tissue sample. Samples for histology should not be frozen.
- For some procedures, e.g. rabies, larger portions of brain are required, some fresh and some in fixative, and for Scrapie and BSE whole brains may be required.

2. Blood

Blood samples may be taken for haematology or for culture and/or direct examination for bacteria, viruses, or protozoa, in which case the blood is added to anti-coagulants such as heparin. They may also be taken for serology, in which case a clotted sample is required. A blood sample is taken, as cleanly as possible, by venepuncture.

- In most large mammals, the jugular vein or a caudal vein is selected, but brachial veins and mammary veins are also used. In birds, a wing vein (brachial vein) is usually selected.
- Blood may be taken by syringe and needle or by needle and vacuum tube (not easy in delicate veins but convenient in strong veins). Ideally the skin at the site of venepuncture should first be shaved (plucked) and swabbed with 70% ethyl alcohol and allowed to dry.
- Whole blood samples can have antibiotics added to reduce bacterial growth, taking care that the antibiotics are chosen so as to avoid interference with the growth of the pathogens concerned. For samples with anti-coagulant and/or antibiotics, thorough mixing is necessary as soon as the sample has been taken. It may be also necessary to make a smear of fresh blood on a microscope slide.
- For serum samples, the blood should be left to stand at ambient temperature (but protected from excessive heat) until the clot begins to contract. The clot can then be ringed round with a rod and the bottles then placed in a refrigerator at 4º C. Later, the serum can be decanted or removed after centrifugation. Chemical preservatives, such as boric acid or merthiolate, should be avoided in sera to be used in virus neutralization tests. An alternative method is to transport a drop of dried blood on a filter paper disk that contains enough material for sensitive antibody assay systems.

Blood Sampl collection in Sheep

Blood sampling in sheep is fairly straightforward, and most producers, with experience, can become proficient at drawing blood. Sheep are one of the easier animal species from which to draw blood. It is easier if animals are properly restrained, the sampling site is correctly prepared, adequate assistance is available, and all necessary equipment is

gathered. Once the sample has been drawn, proper care and handling is important so that a high-quality representativesample is sent to the laboratory for evaluation.

Equipment

- Vacutainer (#3, 4, & 5 in Figure 1)
- Alcohol
- Surgical scrub
- Electric shears
- Ink pen or marker
- Gauze
- 6 cc syringe
- 20-gauge by one inch or less needle
- Vacutainer needle holder(#1 & 2 in Figure 1)
- 20-gauge by one inch or less
- vacutainer needle

Steps to Drawing Blood

1. Shearing

- Correctly position the animal for shearing. Use electric shears to shave a patch approximately 4 inches wide by 8 inches long. Figure 3 shows an example of a sheep with a larger patch size for descriptive purposes.
- Shaving an area allows for easier viewing of the vein and provides a clean area in order to minimize the chance of introducing dirt or bacteria into the vein with the needle.

2. Restraint

- Blood sampling can be done with assistance or alone; however, producers who are new at blood sampling will benefit from having assistance.
- The assistant should turn the head of the animal at a 30-degree angle to the side by holding the animal under its jaw to allow for easy access to the vein. The animal's body may also need to be restrained.
- Another assistant or a blocking stand (Figure 4) can help keep the animal from moving.
- Restraining an animal without assistance is better for those who have become proficient at drawing blood. The handler should straddle the animal, place his or her knees behind the shoulders of the animal, and back the animal in a corner or against a wall to help control its hindquarters.

- The animal's head should be turned opposite to the side of collection, once again at a 30-degree angle. Restraint of the head is accomplished by using the elbow and the upper arm to keep it held off to the side. This leaves both hands available for the blood collection.
- An unruly animal can be dangerous to the assistants, the person drawing the blood, and to itself. It is important to be gentle and patient when restraining the animal.

Figure 4. Shaving the blood collection area

3. Locating the Vein

- The easiest way to locate the vein is to draw an imaginary line from the middle of the animal's eye down the side of its neck (Figure 4).
- The vein can be located by applying pressure with the thumb or fingers below the half-way point of the shaved area. The pressure will cause the vein to pop up and be easy to see. The photographs in Figures 4 illustrate what the vein looks like before and after pressure.

- Animals that are overweight may have veins that are harder to locate because of excess fat. If it is difficult to locate the vein, a small amount of alcohol poured over the area where the vein is supposed to be will help locate it.

Figure 5. Locating the site/vessel of blood collection

4. Preparing the Site

- Once the vein has been located, the area needs to be properly cleaned to keep bacteria out of the needle insertion site.
- This is accomplished by using the surgical scrub on the area. Apply a small amount of the surgical scrub to a few pieces of gauze. Squeeze some of the excess scrub out of the gauze before applying it to the patient to make the process easier. The area should be cleaned by starting in the center and working out toward the edge.
- Never go back over a place that has already been wiped, because bacteria could be carried back into the clean area.

5. Blood Collection

- Once the area has been cleaned and the vein has been located, the blood can be drawn. This can be done by using a needle and syringe method or by using a

vacutainer needle and a vacutainer. The first method uses a 6 cc syringe, 20-gauge by one-inch or less needle, and vacutainer.

- The other method requires a 20-gauge by one-inch or less vacutainer needle, vacutainer holder, and vacutainer.

Post Collection Handling

- The needle and syringe method requires extra work when it comes to processing the sample. The sample should be placed directly from the syringe into the proper vacutainer. Be sure to use an ink pen or a marker to properly label the container with the animal's identification to ensure the test results are accurate.
- If you used the vacutainer needle method, the blood is already in the proper container for shipment.
- In either case, the blood should be rocked back and forth a few times to help prevent clotting once it is in the vacutainer.
- Proper storage of the sample in a refrigerator is important to preserve the sample in purple top tubes.
- Prompt centrifugation (spinning down) of the blood is important with blood from red or marble top vacutainers. Most blood samples will be sent to outside labs.

Care of the Patient

- Once the blood has been removed from the animal, the insertion site should be swabbed with alcohol to remove any bacteria that might have entered the area during the drawing of the blood. If the vein is still bleeding, apply pressure to the area for ten to fifteen seconds.
- The pressure causes the blood to clot and the bleeding to cease. If complications while collecting the blood occur, it is possible that a hematoma will appear. If a hematoma does occur, it may remain in place for a day or two before it goes away.
- The animal should be watched closely for an hour or two to ensure that no bleeding occurs and that the animal exhibits normal behavior.

Clean-up

- Throw away the gauze sponges used to clean the injection site in the regular trash.
- However, the needle (vacutainer or regular) and syringe should be properly disposed of in a Sharps container or set aside for return to the veterinarian for disposal.
- The needle (vacutainer or regular) and syringe are considered medical waste and need to be disposed of appropriately.

3. Faeces

- Freshly voided faeces should be selected, and sent with or without a transport medium. An alternative and sometimes preferable method is to take swabs from the rectum (or cloaca), taking care to swab the mucosal surface. Swabs may also be transported either dry or in transport medium.
- Faeces for Parasitology should fill the container to reduce air and prevent hatching of parasite eggs.

4. Skin

- In diseases producing vesicular rashes or where lesions are exclusively in the skin, samples are taken from the lesions themselves.
- Scrapings of the lesion may be taken, and additionally the vesicular fluid should be sampled where unruptured vesicles are present.

5. Genital tract

- Samples may be taken by vaginal or prepucial washing, or by the use of suitable swabs.
- Sometimes the cervix or urethra is also sampled by swabbing.

6. Eye

- A gentle swab of the surface of the conjunctiva is taken and is broken off into transport medium. Scrapings may also be taken onto a microscope slide.
- Metal-handled swabs are useful to ensure sufficient cells are removed for microscopic examination.

7. Nasal discharge (saliva, tears)

- Samples may be taken by soaking cotton swabs that are wetted with transport medium and sent to the laboratory at 4º C.

9. Environment

- Samples may be taken to monitor hygiene or as part of a disease inquiry, for example, from litter, ventilation ducts, feed troughs, drains, soil, hatcheries and slaughter houses.

10. Serum

- Serum samples are the most commonly collected specimens from live animals for conducting various serological tests.
- Generally serum samples early in the course of disease (acute, within 1-4 days) and during convalescence (convalescent, around 21 days) is collected. Such samples are called paired serum samples and are used to demonstrate the rising antibody titre.

3.3. Sample collection requirements

Sample collection and preservation will vary, depending on the test and the type of sample to be collected. The laboratory must carefully define a sample collection process for all tests it performs. The following should be considered when preparing instructions:

- **Patient preparation:** Some tests require that the patient be fasting. There may also be special timing issues for tests such as blood glucose, drug levels, and hormone tests.
- **Patient identification:** The person collecting the sample must accurately identify the patient. This might be done by questioning the patient, by questioning an accompanying family member, or by the use of an identifying wrist band or other device.
- **Type of sample required:** Blood tests might require serum, plasma, or whole blood. Other tests might require urine or saliva. Microbiology testing deals with a variety of sample types, so specific information as to what is required for the test is needed.
- **Type of container:** The container for the sample is often very important, as it will affect volume and any needed additives such as anti-coagulants and preservatives. If the container does not control volume, for example as with

Vacutainer tubes, this will need to be clearly specified. Some microbiology samples will require specific transport media to preserve microorganisms.

- **Sample labeling:** All requirements for labeling of the sample at the time of collection will need to be explained in detail in the instructions for collection.
- **Special handling:** Some samples may require special handling, such as immediate refrigeration, protection from light or prompt delivery to the laboratory. Any important **safety precautions** should be explained.

3.4. Sample labeling

Information and case history should always accompany the samples to the laboratory, and ideally should be placed in a plastic envelope. The information should include the following points:

1. Name and address of owner/occupier where disease occurred, with telephone
2. Disease suspected,
3. Samples submitted and tests required (transport medium used),
4. Different species on the farm and number, age and sex of each affected animal,
5. Length of time on the farm; if recent arrival, where from,
6. Date of first cases and of subsequent cases or losses,
7. Description of the spread of infection in the herd or flock,
8. Number of animals dead, the number showing clinical signs, and their age, sex
9. The clinical signs and their duration
10. Type and standard of husbandry
11. A list of description of the samples submitted for examination, and post-mortem
12. Any medication already applied to the animals, and when given,
13. Any vaccination already given, and when given,
14. Name and address of sender, with telephone and fax number, and date of submission.

Sample Processing Verification of quality

Once a sample enters the laboratory, there are a number of steps needed prior to testing. These pre-examination steps include:

- Verifying the sample is properly labeled, adequate in quantity, in good condition, and appropriate for the test requested. The test request must be complete and include all necessary information;
- Recording sample information into a register or log;
- Enforcing procedures for handling sub-optimum samples

Rejection of samples

The laboratory should establish rejection criteria and follow them closely. It is sometimes difficult to reject a sample, but remember that a poor sample will not allow for accurate results. It is the responsibility of the laboratory to enforce its policies on sample rejection so that patient care is not compromised. Management should regularly review the number of rejected samples and reasons for rejections, conduct training on sample collection, and revise written procedures for sample management as needed. The following are examples of samples that should be rejected:

- Unlabeled sample
- Broken or leaking tube/container
- Insufficient patient information
- Sample label and patient name on the test request form do not match;
- Hemolyzed sample (depending on test requested)
- Non-fasting samples, for tests that require fasting
- Sample collected in wrong tube/container; for example, using the wrong preservative or non-sterile container;
- Inadequate volume for the quantity of preservative;
- Insufficient quantity for the test requested;
- Prolonged transport time, or other poor handling during transport.

3.5. Sample Storage, Retention, and Disposal Sample storage

Written policies should be developed that include:

- Description of what samples should be stored;
- Retention time;
- Location consider ease of access;
- Conditions for storage, such as atmospheric and temperature requirements;
- System for storage organization, one method being to store samples by day of receipt or accession number.

3.6. Sample Transport

Frequently, samples are collected outside the laboratory, and must be transported for subsequent processing and testing. Transport may be for a short distance, but sometimes a distant clinic or collection site requires the use of vehicles or airplanes. In addition, it may be necessary for the laboratory to ship samples to referral laboratories. In all cases, transport must be managed carefully in order to maintain integrity of the sample, giving attention to temperature, preservation needs, special transport containers, and time limitations. It is also important to ensure the safety of those handling the material before, during, and after transport. Samples must be carefully packed, to avoid any possibility of leakage or cross-contamination. They should be delivered within 48 hours and must be kept cool during transit. Some samples should not be frozen.

- Screw-capped bottles should be used and should be additionally sealed with adhesive tape or paraffin wax.
- Samples in individually identified containers should be placed in larger strong, outer containers and packed with enough absorbent material to protect from damage.
- Official shipping regulations must be consulted. It is advisable to contact the laboratory in advance in the case of unusual requests. It is essential to do so, where material is sent to a laboratory in another country.

- Many countries require a special import license to be obtained in advance for any biological material, especially for tissues which could contain animal pathogens.
- This should accompany the package and be attached in an envelope to the outside of the parcel.

3.7. Preservation of specimens

- Various preservatives are used for different specimens, e.g. phosphate buffered glycerin for tissues; EDTA, sodium citrate, heparin or **Oxalate-Carbolic acid-Glycerine** (OCG) mixture for whole blood and transport media (TPB) for swabs.
- The preserved specimens are most frequently transported on ice in a thermos flask or other suitable containers.
- Formalin for fecal sample preservation

Safety requirements

Laboratories that mail or transport samples by air, sea, rail, and road between local, regional, and reference laboratories or between laboratories in other countries must adhere to a number of regulations. These regulations are designed to deal with transportation accidents and spills, reduce biohazards, and keep samples intact for testing.

Regulations

Regulations for transporting samples come from several sources, including:

- National transport regulations;
- International Civil Aviation Organization (ICAO), as conveyed by the International Air Transport Association (IATA);
- Rail and road traffic agencies;
- Postal services.
- Private courier companies may have their own requirements.

Self-Check 3 – Written Test

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below 3 point each. Examples may be necessary to aid some explanations/answers.

Test I. Write true if the statement is correct/False if it is incorrect for the following questions (2 point each).

1. The fresh samples should be forwarded to the laboratory by the fastest direct route.
2. The preserved specimens are most frequently transported on ice in a thermos flask or other suitable containers.

Test II. Choose the best answer for the following questions (4 point).

1. What are the information should be considered during laboratory sample collection?
   A. Disease suspected
   B. Samples submitted and tests required
   C. Different species on the farm and number
   D. Date of first cases and of subsequent
   E. All

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

You can ask your teacher for the copy of correct answers

Operation Sheet: 1. Tissue sample collection

Objective: To collect Tissue Sample from quarantined animal

Equipment, Tools and Materials:

- A knife, saw and cleaver, scalpel, blade
- Forceps and scissors PPE(wear protective clothing: overalls, rubber gloves and rubber boots
- Sterile screw-capped jar or plastic bag
- A wide-mouthed vacuum flask with wet ice(polystyrene containers and chemical refrigeration bricks)
- Neutral buffered 10% formali

Procedure:

Step 1. Heat instruments on a burner with portable packs of liquid gas or by using local fuel to light a fire.

Step 2. Remove the skin of the animal with ordinary instruments

Step 3. Select the right organs

Step 4. Collect for representative of the sample of the lesion. It should include some of the apparently normal surrounding tissue.

Step 5. Blocks of tissues not more than 0.5 cm thick and 1-2 cm2 are cut and placed in neutral buffered 10% formalin

Step 6. Each piece of tissue should be placed in a separate sterile screw-capped jar or plastic bag, fully labeled with the date, tissue and animal identification.

Step 7. Forward samples to the laboratory

Precaution

- Disinfectants must not be used on or near tissues to be sampled for bacterial culture or virus isolation
- Samples for histology should not be frozen
- Care must be taken not to contaminate one tissue with another.

Operation Sheet: 2. Blood sample collection

Objective: To collect Blood Sample from quarantined animal

Equipment, Tools and Materials:

- PPE
- Syringe
- Needle
- Vacutainer needle holder
- Vacutainer needle
- Vacutainer tube
- Alcohol
- Surgical scrub
- Ink pen or marker
- Gauze
- Scissor
- Scalpel blade
- Scalpel blade handle

Procedure:

Step 1. Restraining the animal to shear and draw blood

Step 2. Shearing (shaving) an area allows for easier viewing of the vein and provides a clean area.

Step 3. Locating the Vein by applying pressure with the thumb or fingers below the half-way point of the shaved area

Step 4. Preparing the Site, by cleaning the area properly starting in the center and working out toward the edge

Step 5. Blood Collection can be done once the area has been cleaned and the vein has been located

Step 6. Clean and sterile used materials after collection of blood sample.

LAP TEST

Name_____ **ID**_____ **Date** _____

Time started: _____ **Time finished:** _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within 1 hour. The project is expected from each student to do it.

During your work: You can ask all the necessary tools and equipment

Lap Test Title: Tissue sample collection

Blood sample collection

Task1. Perform tissue sample collection from quarantined animal

Task 2. Perform blood sample collection from quarantined animal

LG 109	LO 5. Dispose wastes of quarantined items

Instruction sheet

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

- Preparing adequate disposal of quarantine waste.
- Isolating quarantine wastes properly

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Prepare adequate disposal of quarantine waste.
- Isolate quarantine wastes properly

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
3. Read the information written in the "Information Sheets". Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
4. Accomplish the "Self-checks" which are placed following all information sheets.
5. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-checks).
6. If your performance is satisfactory proceed to the next learning guide,
7. If your performance is unsatisfactory, see your trainer for further instructions

Information Sheet 1 - Preparing Adequate Disposal of Quarantine Waste

1.1. Introduction

Quarantine waste poses a significant risk to Country's biosecurity. Current practices see this risk managed through strict control measures imposed on the collection, transport, storage and treatment of quarantine waste. Wastes should be removed regularly and frequently. All waste should be collected and disposed of in a safe and sanitary manner.

1.2. Preparing adequate disposal of quarantine waste

The most preferred method of waste disposal is incineration. Incinerators should be in compliance with all central, state, and local regulations. Waste cans containing animal tissues, carcasses, and hazardous wastes should be lined with leak-proof, disposable liners. If wastes must be stored before removal, the waste storage area should be separated from other storage facilities and free of flies, cockroaches, rodents, and other vermin. Cold storage might be necessary to prevent decomposition of biological wastes. Hazardous wastes should be rendered safe by sterilization, contamination, or other appropriate means before they are removed from an animal facility for disposal If wastes must be stored before removal, the waste storage area should be separated from other storage facilities and free of flies, cockroaches, rodents, and other vermin. Cold storage might be necessary to prevent decomposition of biological wastes. Hazardous wastes should be rendered safe by sterilization, contamination, or other appropriate means before they are removed from ananimal facility for disposal.

Faecal material produced by animals in the initial stages of their quarantine detention must be destroyed as quarantine waste, primarily to address imported weed seed concerns. The duration of this requirement is determined by the relevant import program. Waste collected during this period must not be held for longer than 30 days.

Self-Check 1 – Written Test

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I. Write true if the statement is correct/False if it is incorrect for the following questions (5 point each).

1. Quarantine waste does not poses a significant risk to Country's biosecurity.
2. Waste collected during in quarantine period must not be held for longer than 30 days.

Test II. Short Answer Questions (5 point).

1. What are the methods used to render waste materials in quarantine?

Note: Satisfactory rating – 7.5 points Unsatisfactory - below 7.5 points

You can ask your teacher for the copy of correct answers

Information Sheet 2 - Isolating and Disposing off Quarantine wastes

2.1. Isolating Quarantine Wastes

Animal faeces and hay from the larger animals is stored in the refuse pit or other suitable areas until the completion of the quarantine period for that consignment of animals. Once completed, the manure may be disposed of in appropriate way. The water treatment plants at the animal quarantine stations treat all water waste as per the Ethiopian environment protection law prior to disposal. Needles and syringes and other disposable items are to be temporarily stored in designated bins. When the bins are full they are to be destroyed at an approved facility. Quarantine waste includes manure, urine, soiled bedding, food scraps, water, water splash and disposable equipment that has been used in quarantine operations. Quarantine waste must be collected from the enclosures housing rabbits subject to quarantine on a regular basis, and must be protected from unauthorised removal or access by other animals during storage. Quarantine waste must be effectively contained and disposed of in accordance with approved work procedures.

2.2. Disposing Quarantine Wastes

A document must be provided to outlining how carcasses from animals under quarantine will be effectively contained and rendered safe prior to disposal .This should cover specific procedures for the disposal of any carcasses. This may include:

a) Transportation (where the carcass has not been rendered safe at .Procedures where carcasses cannot be disposed of immediately should also be covered.

This may include the provision for:

- A separate storage device/area. Such areas and/or devices must be insect, rodent and bird proof. The separate storage device/area must be approved .methods of quarantine carcass disposal include incineration at a high temperature in a high efficiency Environmental Protection Agency (EPA) approved incineration facility, deep burial, or sterilisation by autoclaving. Minimum autoclaving times after attainment of temperature for all goods, residues or quarantine waste shall be:

- ✓ 121°C (core temperature) for 15 minutes, or
- ✓ 121°C for 30 minutes where core temperature is not measured.

Where the 15 minute autoclaving time is used, the premises holder must specify how the core temperature has been reached and detail how this temperature was recorded.

b) Animal bedding must be disposed of in a high efficiency EPA approved incineration facility, sterilisation or deep burial.

c) Provision must be made for the decontamination of pens and cages. Decontamination can be achieved by:

- Using broad-spectrum disinfectant, or
- By an approved method.

2.3. Effective containment of solid quarantine waste includes:

- Placing the waste in bags that are sufficiently strong and impervious to prevent any waste escaping from the bag double bagging the waste within a bin having effective storage devices, such as sufficient bins/containers (with lids or otherwise able to be closed) of an appropriate size ensuring bins/containers remain closed when not in use ensuring that the bins/containers are maintained in a reasonable state of repair
- Securely storing the bins/containers within the QAP to prevent loss, spillage or unauthorised access; and bins/containers must be labelled 'Quarantine Waste'. Such signs must comply with the requirements for signs detailed under 'Security' criteria.
- Transport by an AQIS approved waste transporter or alternatively under full AQIS supervision; and
- Treatment/disposal by an AQIS approved waste disposal facility by a manner approved by AQIS.

2.4. Effective disposal of quarantine waste includes:

All quarantine waste must be identified as such to the waste disposal company and/or waste transporter. Fresh water arriving with animals and any water not going to municipal sewerage, requires treatment in accordance with the approved work procedures. Water that is likely to contain any visible particulates must be filtered through a minimum of a

100 micron filter prior to the addition of chlorine based chemicals. Sufficient chemical must be added to achieve a final concentration of at least 200 ppm chlorine at a neutral pH. Once chlorine has been added, the water is to be mixed for 10 minutes and held for a minimum of one hour. If required, the water can be treated with a neutralising agent sodium thiosulphate prior to discharge. .

The following are examples of chemicals that may be used for chlorine treatment of quarantine waste wat,

- Sodium hypochlorite
- Calcium hypochlorite.

Effective fresh waste water treatment – Chlorination.

The following requirements apply to the chlorination treatment of quarantine waste water:

- Restrict access to water prior to and during treatment
  - ✓ Ensure untreated water is not released
  - ✓ Enable consistent agitation
  - ✓ Enable holding for at least one hour during treatment.

Waste water treatment facilities/tanks must be constructed in a way to: To comply with local, state and federal regulations, medical waste must not be disposed of via sewerage or deep burial. Alternative AQIS approved methods of disposal must be used.

Self-Check 2 – Written Test

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I. Write true if the statement is correct/False if it is incorrect for the following questions (2 point each).

1. Needles and syringes and other disposable items are to be temporarily stored in designated bins.
2. Animal bedding must be disposed of in a high efficiency EPA approved incineration facility, sterilization or deep burial

Test II. Choose the best answer for the following questions (6 point).

1. Which one of the following chemicals are used for used for treatment of quarantine wastes?
   A. Sodium hypochlorite
   B. Calcium hypochlorite.
   C. Chlorination.
   D. All of the above

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

You can ask your teacher for the copy of correct answers

LG 110	LO 6. Record and Report Quarantine data

Instruction sheet

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

- Recording daily observations
- Giving original animal health certificate
- Recoding history of animals released from quarantine

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Record daily observations
- Give original animal health certificate
- Recod history of animals released from quarantine.

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
3. Read the information written in the "Information Sheets". Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
4. Accomplish the "Self-checks" which are placed following all information sheets.
5. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-checks).
6. If your performance is satisfactory proceed to the next learning guide,
7. If your performance is unsatisfactory, see your trainer for further instructions

Information Sheet 1 - Recording Daily Observations

1.1. Introduction

Records of the health of newly imported animals should be kept and the NVS should be consulted if clinical signs of disease are seen, or if any animal is found dead. Complete medical records should be maintained and available for all animals during the quarantine period. Animals that die during quarantine should have a necropsy performed under the supervision of a veterinarian and representative tissues submitted for histopathologic examination. Individual animal health records will be maintained to document test results and all other relevant health information (i.e. vaccines, flock health maintenance, experimental interventions).

1.2. Recording Daily Observation

The station manager must ensure that the procedures outlined in this “Quarantine Station Operational Guideline” are adhered to by all quarantine station staff.

- All incidents to do with export animals should be reported to the station manager/quarantine inspector and other station staff at weekly/fortnightly staff meetings, and recorded on the animal's history sheet.
- Daily observations are to be recorded on animal history sheets/cards.
- The quarantine management should give high priority to auditing and reviewing its activities. Audit and review are essential elements of effective quarantine management.
- The animal quarantine stations must keep copies of all relevant information pertaining to exported animals. Copies should be made of all vaccination records and kept with the history sheets and other relevant export information.
- The original animal health certificate should be given to the owner or exporter.

- After animals have been released from quarantine, their history sheets and associated documentation should be archived and be easily accessible for auditing and information purposes.

1.3. Record Requirements

- Records may be maintained in either electronic or manual form.
- Records must be retained for a minimum period of 18 months after release of the rabbits from quarantine, during which time they must be made readily available to a quarantine officer when requested.
- Records of all rabbits that have been subject to quarantine while at the QAP must be maintained.
- Records detailing daily footbath maintenance must include at least the following:
    - ✓ Date
    - ✓ Name of chemical used
    - ✓ Ratio of chemical to water used
    - ✓ Name of person who performed maintenance.
- Records detailing quarantine waste water treatment must include at least the following:
    - ✓ Date of treatment
    - ✓ Name of chemical used
- Records must be maintained of the method and date of waste disposal/destruction.
- Vermin control records, must include records detailing replacement dates and details of insecticide strips/pads on quarantine waste bins.
- Records detailing staff training must be maintained.
- Internal audit records must be maintained.

Full records must be kept for each animal detailing the following:

- Country of origin
- Name and address of owner/importer
- Date of entry and release
- Clinical history during quarantine
- Tests and treatments performed
- Pens occupied during quarantine
- Direct contacts between like species (especially important for dogs and cats); and
- Visitors including private veterinarians.

Self-Check 1 – Written Test

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I. Write true if the statement is correct/False if it is incorrect for the following questions (2 point each).

1. The quarantine management should give high priority to auditing and reviewing its activities.
2. Records may be maintained in either electronic or manual form.

Test II. Choose the best answer for the following questions (3 point).

1. Records detailing quarantine waste water treatment must include at least the following:
   A. Date of treatment of waste and Name of chemical used
   B. Name and address of owner/importer
   C. Clinical history during quarantine
   D. All of the above

Test III. Short Answer Questions (5 point)

1. Write the full records must be kept for each animal detailing.

Note: Satisfactory rating – 6 points Unsatisfactory - below 6 points

You can ask your teacher for the copy of correct answers

Information Sheet 2 - Giving Original Animal Health Certificate

2.1. Introduction

Certification should be based on the highest possible ethical standards, the most important of which is that the professional integrity of the certifying veterinarian should be respected and safeguarded. A minimum standard of health certification and quarantine should be applied to all movements, with increasing levels of stringency/conditions, as the risk of introducing disease increases. Classification into lower risk and higher risk categories is, therefore, essential. Health certification and quarantine measures should be implemented on a case by case basis, taking into account all circumstances and factors relating to the proposed movement.

2.2. Health Certification Process

Health certification provides documented assurance that a stock of live animals to be moved from one area to another (usually trans-boundary) is free of disease agents of concern to the importing country. Such certification also provides documentation for the shipper, in the case of a subsequent disease outbreak. Both aspects of certification assist effective tracing of the source of infection and the control or prevention of repeat infections. Quarantine and health certification protocols should be developed in collaboration with scientists, veterinarians, quarantine authorities and industry stakeholders. An advisory authority on quarantine and health certification, including such expertise, should be formed to report to government and act as a forum for all issues relating to trans-boundary movement of live animals.

Certification, by definition, means that the signing authority takes responsibility for the accuracy of the statements made on the certificate. This is especially important when the certificate is a condition for issue of a transfer license under an established legal framework. This means that the signing authority has a legal, as well as moral,

obligation to ensure that the statements included in the certificate are accurate to the best of his/her knowledge. Thus, the signing authority must have direct experience, or authority over employees who provide the scientific advice upon which the authority decides whether or not to sign a health certificate. This requires:

- Training in animal diseases of concern to importers,
- Accurate knowledge of the health status of the source of the exports being certified, and
- Accurate knowledge of the health status of the same/related species in the receiving (import) waters.

Certificates signed by personnel with inadequate training and experience provide little assurance against disease transfer. Such certificates are a liability to both the importer and exporter. It should also be noted that border checks for gross signs of disease, which currently form the basis for issue of health certificates in many countries, are of little value in detecting most aquatic animal pathogens.

In many countries, current infrastructure may not permit immediate improvement of health certification and quarantine procedures. In addition, many living animals pose logistical complications for effective post-border quarantine processing. For such cases, an accurate pre-border risk assessment is the pivotal factor for deciding what level of quarantine is necessary. Alternative procedures, such as accreditation of hatcheries, grow-out facilities, holding establishments etc., should also be considered as mechanisms to reduce the risk of trans-boundary introduction of aquatic animal pathogens.

2.3. Minimum quarantine requirements

Minimum quarantine requirements are those applied to all transfers or introductions assessed as having a minimal risk of disease transportation. Additional measures will be required for cases with a higher risk of disease transfer. Minimum quarantine requirements include, but are not necessarily limited to:

- Some mechanism of assurance (for example
- Pre-border health certifi cation) that the source is free of diseases of concern;

- Border level examination for gross signs of disease and ill-health; and
- Shipment rejection, or border containment, of any shipments showing signs of disease and disease testing.

Pre-transfer quarantine

Animals destined for transfer should be placed in a quarantine facility for health examination, certifi cation, and disease testing, as required. Any therapeutant used must be reported to the Competent Authority (CA) of the importing country. Health examinations should include sub-sampling for pathogens at least once prior to transfer. The cause of any disease detected should be determined or the transfer aborted.

Post-transfer quarantine

Animals should enter quarantine in the importing country for health examination and such that, in the event of an accidental spill or discharge, no water, animals or equipment will gain access to surrounding waters.

Importation Of Specified Animals Into _____Veterinary Certificate Of Quarantine

INSTRUCTIONS: An attending veterinarian authorized to practice veterinary medicine under provisions of the _____ and Professions Code, must submit this completed form to the Veterinary Public Health Section (VPHS), and have received written authorization from VPHS prior to releasing animals from quarantine.

	Name	**Address**	**Email Address**	**Phone**
eterinarian				
Owner/Agent				

Common Name	Scientific Name	Entered Quarantine Date	Quantity	Proposed Release* Date	Quantity

* Attending veterinarian must possess written authorization from VPHS prior to the physical release of animals.

Summary of other findings, including additional tests, physical examinations, illnesses/deaths, etc.

Veterinary Public Health Section: _____PO Box: _____

Phone: _____Email:_____Fax:_____

VETERINARY CERTIFICATE OF QUARANTINE Format

Tuberculin Testing Summary Report Non-human Primates

Common Name:				
Test date	**INITIAL TEST**		**RETEST**	
Type of Antigen				
Used				
Final Concentration				
In mg/0.1ml				
Manufacturer				
Lot Number				
Tuberculin Reaction	Positive	Negative	Positive	Negative
24-hour				
48-hour				
72-hour				

CERTIFICATION

I hereby certify that the animals imported under Permit issued by the _____Department of Veterinary Public Health have completed the quarantine set forth under applicable provisions of the _____ Code of Regulations, **Title** _____**,** under my supervision. I have examined said animals and find that those to be released from quarantine are free from signs of contagious or infectious disease of public health concerns.

_____ _____

Veterinarian's Signature Today's Date

Veterinary Public Health Section,_____ PO Box_____,

Phone: _____Email:_____Fax: _____

Self-Check 2 – Written Test

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I. Write true if the statement is correct/False if it is incorrect for the following questions (2 point each).

1. Quarantine and health certification protocols should be developed in collaboration with scientists and veterinarians
2. Animals should enter quarantine in the importing country for health examination.
3. Minimum quarantine requirements are those applied to all transfers or introductions assessed as having a minimal risk of disease transportation.

Test III. Short Answer Questions (6 point)

1. What is animal health certification?

Note: Satisfactory rating – 6 points **Unsatisfactory - below 6 points**

You can ask your teacher for the copy of correct answers

Information Sheet 3 - Recoding History of Animals Released from Quarantine

3.1. Introduction

A full disease history of the candidate species, including a detailed review of specific pathogens and their status in the country or region of origin, should be compiled.

3.2. Terms related to Ainmal Identification

Animal identification means the marking of an animal, individually or collectively, by itsgroup, with a unique individual or group identifier.

Animal registration is the process by which information on animals is captured manually or electronically, and then entered and securely stored to be made accessible to users as appropriate.

Animal identification and registration is a core functionality of an animal identification and recording system and covers both animal identification and animal registration.

Animal traceability means the ability to follow an animal, or group of animals, during all stages of its life.

Animal performance recording refers to the process by which indicators of animal performance are objectively and systematically measured, and related data including parentage, breed characteristics and related test events are collected, recorded, calculated and securely stored and made accessible to users as appropriate.

Animal health information recording refers to the process by which indicators of the health status of animal populations and related data on prevention, surveillance and outbreak management are systematically collected, recorded, calculated and securely stored and made accessible to users as appropriate.

Animal recording is a generic term that integrates animal identification and registration, animal traceability, animal health information and animal performance recording.

Premises, holdings and establishments are synonymous terms for a geographical location, and refer to any construction or, in the case of an open-air farm and/or marketplace, an area where animals are held, kept or handled.

Animal identification and recording systems consist of all or part of the integrated components of animal identification and registration, animal traceability, animal health information recording and animal performance recording, taking into account existing legislation, organization/administration, technical devices and databases.

Animal traceability

Animal traceability forms the basis of sanitary control systems in the production of food of animal origin. It constitutes the link between animal health, public health, and food safety and quality. Traceability serves many purposes, including the following:

- Export and certification
- Food safety and quality control
- Value addition to products

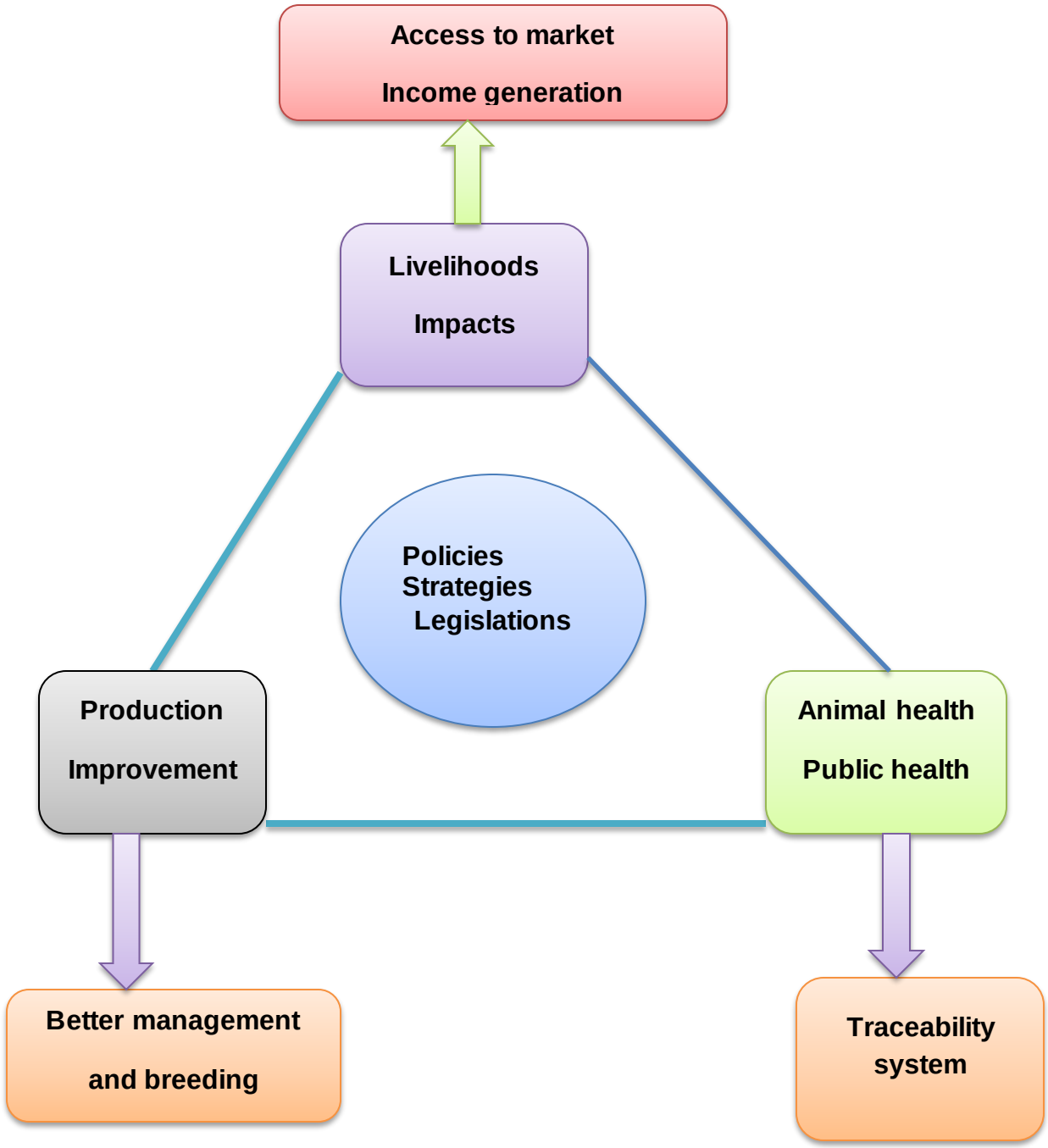


Figure 6. Global approach to animal recording

3.3. Identification and registration of premises

The term “premises” refers to a geographical location and/or area where animals are permanently kept, such as a home, farm or feedlot, or a place where animals are temporarily handled, such as a market, abattoir, test centre, dip tank, common shearing shed or grazing pasture. Premises can also be mobile; for example, a truck, train or ship. In these guidelines, the terms “premises”, “establishment” and “holding” are treated as synonymous. In order to establish geographical traceability, each premises should be identified by a unique premises code. The premises code remains assigned to a specific geographical location even when the herd, herd keeper or herd owner move to another

Objectives of an animal traceability system

System can serve several objectives, including, but not limited to, the following:

- Enhancing risk management procedures:
  - ✓ Enabling risk managers to trace identified hazards (e.g. transmissible animal diseases and zoonoses, antimicrobial residuals) back to their source;
  - ✓ Assessing the potential spread of these hazards, thereby enabling effective control.
- Protecting public health:
  - ✓ Identifying, tracing and controlling animal movements, particularly concerning the possible spread of zoonoses;
  - ✓ Identifying, tracing and recalling unsafe foods (and feeds) at any stage of the food

  production and distribution chain.
- Improving animal health services:
  - ✓ Improving disease surveillance and control (epidemiologic investigation);
  - ✓ Ensuring the inspection and certification of animal health.
- Capturing trade opportunities (World Trade Organization Agreement on Sanitary and Phytosanitary Measures [WTO SPS Agreement]):

- ✓ Facilitating trade certification and access to markets with higher safety and quality standards.

- Ensuring fair practices in food trade (World Trade Organization Agreement on Technical Barriers to Trade [WTO TBT Agreement]):
  - ✓ Minimizing the exercise of deceptive practices and fraud in the marketplace, and reducing the ins

Self-Check 3 – Written Test

Name_____ **ID**_____ **Date**_____

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I. Write true if the statement is correct/False if it is incorrect for the following questions (2 point each).

1. Animal traceability forms the basis of sanitary control systems in the production of food of animal origin.
2. Animal recording is a generic term that integrates animal identification and registration, animal traceability, animal health information and animal performance recording.

Test II. Choose the best answer for the following questions (3 point).

1. _____refers to the process by which indicators of the health status of animal populations and related data on prevention, surveillance and outbreak management
   A. Animal information record
   B. Premises record
   C. Animal traceability
   D. All of the above

Test III. Short Answer Questions (6 point)

1. Descuss the following terms briefly.

a) Animal registration
b) Animal traceablity
c) Animal identification

Note: Satisfactory rating – 6.5 points Unsatisfactory - below 6.5 points

You can ask your teacher for the copy of correct answers

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