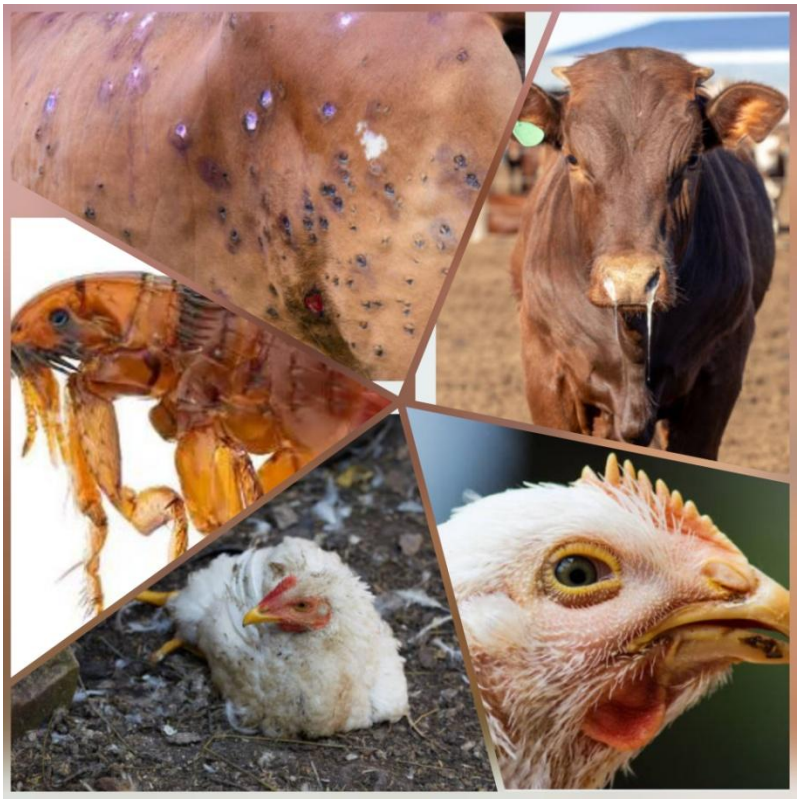
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Ministry of Labor and Skills

# ANIMAL PRODUCTION

# LEVEL-IV

## Based on March 2022, Version-4 Occupational Standard



## Module Title: Facilitating Animal Health Program

## LG Code: AGR ANP4 MO8 LO (1-4) LG (29-32)

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## Introduction to Module

This module covers the knowledge, skills and attitude required to identify and report sick animal, facilitate livestock diseases prevention and control program, assess common animal disease and carryout post treatment activities to assist veterinarian. Animal health refers to the overall well-being and soundness of animals. It encompasses various aspects such as physical health, mental well-being, and freedom from disease. Animal health is vital for their overall quality of life, productivity, and the sustainability of animal populations. Implementing measures to prevent the occurrence and spread of diseases among animals. This includes vaccination programs, regular health monitoring, and biosecurity practices. Regular veterinary check-ups, vaccinations, and prompt treatment of illnesses or injuries are essential for maintaining animal health. Veterinarians play a crucial role in diagnosing and treating diseases in animals.

Where we will explore the fundamental principles and practices of maintaining and promoting the well-being of animals. This course is designed to provide you with a comprehensive understanding of animal health, covering various aspects such as nutrition, disease prevention, and overall welfare. Throughout this course, we will delve into the importance of proactive care, effective management strategies, and the ethical considerations surrounding animal health. Whether you're an aspiring veterinarian, livestock farmer, or simply passionate about the well-being of animals, this course will equip you with valuable knowledge and skills to ensure the health and happiness of our animal companions.

| LG #29 | LO #1 Identify and report sick animals |
|---|---|

Instruction sheet

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

- Observation and assessment of animal health
- Work plan of animal health program
- Recording and reporting animal health status
- Identifying OHS hazards, assessing risk and implementing controls measures
- Handling and restraining animals
- Checking withdrawal periods and identifying treated animals

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:

- Observe and assessment of animal health
- Work plan of animal health program
- Record and report animal health status
- Identify OHS hazards, assessing risk and implementing controls measures
- Handle and restrain animals
- Check withdrawal periods and identifying treated animals

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. Perform Operation Sheets
6. Do the “LAP test”
7. Ask from your trainer the key to correction key answers

**Information sheet-1**

## 1.1.Observation and assessment of animal health

The distinguishing features of an animal should be carefully noted at the beginning of the examination when the general inspection is made, in order to establish its identity. Accurate identification of the patient is essential for group disease records and in situations where a different veterinarian may make a subsequent visit. The data required include: name and address of the owner, species, breed, sex, age, height or size, colour, horned or polled, brands, tattoo, ear marks, etc (https://youtu.be/CAj4wQCbEdQ)

**II. Physical Condition**

It is recognizing body build of an animal and judged by inspection and digital palpation by giving attention to all body prominences, ribs, shoulder, blade, spinous process of cervical, thoracic and lumbar vertebrae. Besides, dewlap, brisket, thigh muscles and perineal regions should be viewed and judged. From the patho-physiological and nutritional stand point the physical condition can be demarcated as follows:

**Normal**-in normal animals, all the body prominences of the skeleton are adequately covered with well-developed muscles and cushioned fat. The body has normal symmetry.

**Fatty (obese)**-it is a pathological deposition of a fat. There is abdominal protrusion and body assumes round shape.

**Lean (thin**)- in lean or thin animals, various parts of the skeleton are prominent (eg, ribs and pelvis) and the supra orbital fossa are deepened.

**Emaciation**- in emaciated animals, there is wasting or atrophy of the muscles and bones are very much prominent with depression of supra-orbital fossa. The difference between thinness and emaciation is only of degree.

**Hide bound**:-there is prolonged emaciation, lustreless with dry leathery skin and reduced elasticity of the skin.

**Cachectic (walking skeleton)**: - prolonged muscular atrophy with deeply sunken eyes is the feature of this state of health. The animal remains with skin and bones, due to this fact it is also termed as "the walking skeleton".

**III. General Demeanour**

General demeanour of animals is a useful indication of nature of disease and it is the response of the animal to external stimuli. In the case of animal in a herd or flock, separation of an individual may be an indication of disease.

Classification of Demeanour

- Normal (bright) demeanour
- Abnormal demeanours

**Normal (bright)**: when, on being approached, an animal make a normal response to external stimuli, such as movement and sound, the demeanour is said to be normal (bright). Normal reaction under these circumstances may consist of elevating the head and ears, turning towards and directing the attention at the source of stimuli, walking away and evincing signs of attack or flight.

**Abnormal demeanour**

**I. Decreased response (depression):** this has three stages.

**A. dull (apathetic):-** this state is appreciated by the reactions to normal stimuli being sluggish or retarded, or even somewhat suppressed.

**B. dummy state**- this state is an advanced degree of failure to respond to external stimuli although the animal remains standing, and is capable of movement. Encephalomyelitis in horse, and listeriosis and occasional cases of lead poisoning and ketosis in cattle have these signs.

**C. Comma**- the most advanced degree of apathy (depression) is comma, in which the animal is unconscious and fails to respond to painful stimuli, as in the cow in the advanced stages of parturient paresis (hypocalcaemia) and pregnancy toxemia.

**II. Excitation or increased response**

**a. Apprehension (mildly anxious**): - the animal appears alert, looks about constantly, but exhibits normal movements. It may arise due to slight constant pain, in serious defects of vision and the early stage of parturient paresis or hypocalcaemia.

**b. Restlessness:-** it is a more severe state in which movement is almost constant, consisting of lying down, rolling, getting up again, looking at the flanks, kicking at the belly and groaning or bellowing. This form of behaviour is usually caused by sharp intermittent or constant pain, as in colic syndrome in horse.

**c**. **Mania**: in mania the behaviour aberrations appear to compulsive and include vigorous licking of some specific parts of the body surface (ketosis, pseudorabies). Pressing forwards with the head (meningitis) or licking or chewing inanimate objects.

**d. Frenzy:-** when frenzied, the animals' actions are uncontrolled as in acute lead poisoning, hypomagnesaemia tetany and rabies.

**iv. Gait:** It indicates the locomotors process of an animal. Diseases that affect locomotion walking in circle – coenerusis (gid), otitis(dog and cat) enzootic ataxia- hypocuprosis painful limb- laminitis, foot rot.

**v. Posture**

It denotes the anatomical configuration when the animals remain in stationary situation. How does it stand? How does it sit? How does it lie?

Examples that indicate abnormalities of posture

Kyphosis – it is dorsal bending of the spinal column.

Lordosis – it is ventral bending of the spinal column.

Dog-sitting-position in acute gastro-distention in the horse, pain and pressure on the diaphragm cause the animal to adopt the "dog-sitting-position".

Observation and assessment of animal health are crucial for detecting signs of illness, disease, or injury in animals. Regular monitoring allows for early intervention and appropriate veterinary care. Here are some key aspects to consider when observing and assessing animal health:

I. General Appearance:

- Observe the animal's overall appearance for any abnormalities, such as changes in body condition, posture, or behavior.
- Note the animal's alertness, responsiveness, and level of activity.

II. Vital Signs:

- Measure and record vital signs, including body temperature, heart rate, and respiratory rate.
- Abnormalities in vital signs can indicate underlying health issues.

III. Body Condition:

- Assess the animal's body condition score, which evaluates the amount of body fat and muscle mass.
- Look for signs of undernourishment or obesity that may indicate health concerns.

IV. Coat and Skin:

- Inspect the animal's coat and skin for abnormalities, such as lesions, wounds, hair loss, or signs of parasites.
- Note any changes in coat texture, color, or presence of dandruff.

V. Eyes, Ears, and Nose:

- Check for discharge, redness, swelling, or any signs of infection or inflammation.
- Note any changes in tear production, ear discharge, or nasal discharge.

IV. Digestive System:

- Monitor appetite, eating habits, and digestion.
- Look for signs of diarrhea, constipation, abnormal feces, or vomiting.

VII. Respiratory System:

- Observe the animal's breathing pattern and any signs of coughing, sneezing, or difficulty breathing.
- Note the presence of nasal discharge or abnormal respiratory sounds.

VIII. Musculoskeletal System:

- Evaluate the animal's gait, posture, and mobility.
- Look for signs of lameness, stiffness, or abnormal movements.

VIIII. Behavior and Activity:

- Monitor changes in behavior, such as aggression, depression, excessive vocalization, or abnormal restlessness.
- Note any changes in social interactions within a group or herd.

X. Reproductive Health (if applicable):

- Assess the animal's reproductive behavior, including estrus cycles, mating behavior, or signs of pregnancy.
- Monitor for any reproductive disorders or complications.

XI. Vaccination and Deworming Status:

- Keep track of the animal's vaccination and deworming history.
- Ensure that vaccinations and deworming protocols are up to date.

XII. Record Keeping:

- Maintain accurate and up-to-date records of observations, assessments, and any treatments or interventions performed.
- Document any changes or abnormalities in the animal's health over time.

It's important to consult with a veterinarian or animal health professional for guidance on specific observation and assessment techniques, as well as to establish a comprehensive health monitoring plan tailored to the species, breed, and individual animal's needs. Regular veterinary check-ups and professional guidance are vital to maintaining optimal animal health. (https://youtu.be/CAj4wQCbEdQ)

**1.2.Work plan of animal health program**

A work plan for an animal health program outlines the specific activities, objectives, timelines, and responsibilities associated with maintaining and improving the health of animals in a

particular setting. The following elements can be included in an animal health program work plan:

A. Program Overview and Objectives:

- ✓ Provide a brief description of the animal health program and its overall goals and objectives.
- ✓ Clearly define the desired outcomes and impacts of the program.

B. Stakeholder Engagement:

- ✓ Identify the key stakeholders involved in the program, such as farmers, veterinarians, animal welfare organizations, and government agencies.
- ✓ Outline strategies for engaging and collaborating with stakeholders to ensure effective implementation of the program.

C. Assessment and Planning:

- ✓ Conduct a comprehensive assessment of the current animal health status, including disease prevalence, vaccination coverage, biosecurity measures, and management practices.
- ✓ Analyze the assessment findings to identify priority areas for intervention and improvement.
- ✓ Develop a detailed action plan based on the assessment results, setting specific and measurable targets.

D. Capacity Building:

- ✓ Identify the knowledge and skill gaps among stakeholders related to animal health.
- ✓ Develop and implement training programs, workshops, or educational campaigns to enhance the capacity of stakeholders in areas such as disease prevention, biosecurity, proper animal handling, and vaccination protocols.

E. Disease Prevention and Control:

- ✓ Outline specific measures for disease prevention, including vaccination programs, biosecurity protocols, and herd/flock health management practices.

- ✓ Establish guidelines and protocols for early detection, reporting, and response to disease outbreaks.
- ✓ Develop strategies for monitoring and surveillance of animal health, including regular veterinary checks, diagnostic testing, and disease reporting systems.

F. Treatment and Veterinary Care:

- ✓ Define protocols and procedures for the diagnosis, treatment, and management of common animal health issues.
- ✓ Ensure access to qualified veterinary services and establish mechanisms for regular health check-ups, vaccinations, deworming, and parasite control.

G. Monitoring and Evaluation:

- ✓ Develop systems and indicators for monitoring and evaluating the progress and impact of the animal health program.
- ✓ Regularly assess the program's effectiveness, identify areas for improvement, and make necessary adjustments to the work plan.

H. Communication and Outreach:

- ✓ Develop a communication strategy to raise awareness about animal health issues, promote best practices, and disseminate information to stakeholders.
- ✓ Utilize various communication channels, such as workshops, educational materials, social media, and community meetings, to engage stakeholders and promote behavior change.

I. Budget and Resources:

- ✓ Identify the financial and human resources required for the implementation of the animal health program.
- ✓ Develop a budget that covers the costs of activities, including training, veterinary services, equipment, and supplies.
- ✓ Explore potential funding sources, partnerships, or grants to support the program's implementation.

J. Timeline and Milestones:

- ✓ Establish a timeline for the implementation of each activity and set specific milestones to track progress.
- ✓ Define key deliverables and deadlines to ensure timely completion of tasks.

K. Coordination and Collaboration:

- ✓ Clearly define the roles and responsibilities of different stakeholders involved in the program implementation.
- ✓ Facilitate coordination and collaboration among stakeholders through regular meetings, communication channels, and shared decision-making processes.

L. Sustainability and Continuity:

- ✓ Develop strategies for the long-term sustainability of the animal health program, including capacity building, knowledge transfer, and institutionalization of practices.
- ✓ Identify mechanisms to ensure the program's continuity beyond its initial implementation phase.

Regular review and revision of the work plan are essential to adapt to changing circumstances, emerging challenges, and new opportunities. Flexibility and continuous improvement are key to the success of an animal health program.

A work plan for an animal health program can be structured in the following format:

A. Program Title:

- Provide a concise and descriptive title for the animal health program.

B. Program Overview:

- Provide a brief overview of the program, including its goals, objectives, and target animal population.

C. Stakeholder Engagement:

- Identify key stakeholders involved in the program and describe their roles and responsibilities.

- Outline strategies for engaging and collaborating with stakeholders throughout the program.

D. Assessment and Planning:

- Describe the process and methods used to assess the current animal health status.
- Summarize the findings of the assessment and identify priority areas for intervention.
- Outline the steps taken to develop the action plan based on the assessment results.

E. Objectives and Activities:

- Clearly state the program objectives, highlighting the desired outcomes and impacts.
- List the specific activities to be carried out to achieve each objective.
- Assign responsibilities for each activity to the relevant individuals or organizations.

F. Timeline and Milestones:

- Provide a timeline for the implementation of activities, specifying start and end dates.
- Identify key milestones or deadlines for important deliverables or achievements.

G. Budget and Resources:

- Estimate the financial resources required for the program, including funding sources.
- Identify the human resources, expertise, and equipment needed for each activity.
- Allocate the budget and resources accordingly.

H. Monitoring and Evaluation:

- Describe the methods and indicators used to monitor and evaluate the program's progress and impact.
- Identify the frequency of monitoring and evaluation activities.
- Specify how feedback and lessons learned will be incorporated into program adjustments.

I. Communication and Outreach:

- Outline the communication strategy to raise awareness about animal health issues and promote best practices.

- Identify the channels and methods for communicating with stakeholders and the wider community.
- Describe any planned outreach activities, such as workshops, training sessions, or educational campaigns.

J. Sustainability and Continuity:

- Explain strategies for ensuring the long-term sustainability of the program.
- Identify capacity-building initiatives and knowledge transfer mechanisms.
- Describe plans for institutionalizing practices and securing ongoing funding or support.

K. Risk Management:

- Identify potential risks or challenges that may affect the program's implementation.
- Describe mitigation strategies to minimize or address these risks.
- Outline contingency plans in case of unforeseen circumstances.

L. Collaboration and Partnerships:

- Describe existing collaborations and partnerships with relevant organizations or agencies.
- Identify opportunities for further collaboration and partnerships to enhance program effectiveness.

M. Appendices:

- Include any supporting documents, such as assessment reports, training materials, or relevant guidelines.

It's important to note that the specific headings and sections of the work plan may vary depending on the program's scope, context, and requirements. The above format provides a general framework that can be customized to suit the needs of the animal health program.

### 1.3.Recording and reporting animal health status

Recording the animal health status involves documenting relevant information about each animal's health, observations, treatments, and interventions. Here's a suggested format for recording animal health status:

Animal Identification:

- Record a unique identification number or name for each animal.
- Include additional details such as species, breed, age, sex, and any distinguishing characteristics.

Date and Time:

- Note the date and time of each health assessment or observation.

General Observations:

- Record general observations about the animal's behavior, demeanor, and appearance.
- Note any changes in activity level, responsiveness, or overall condition.

Physical Examination:

- Perform a systematic physical examination of the animal and record the findings.
- Include vital signs, such as body temperature, heart rate, and respiratory rate.
- Note any abnormalities in posture, gait, or body condition.
- Document any external abnormalities, such as wounds, lesions, swelling, or signs of parasites.

Body Systems Assessment:

- Assess each body system and record any abnormalities or concerns.
- Include the following systems: eyes, ears, nose, mouth, gastrointestinal, respiratory, cardiovascular, musculoskeletal, reproductive, and urinary.

Vaccination and Deworming:

- Document the vaccination and deworming history of each animal.
- Note the type of vaccine or dewormer administered, date of administration, and any adverse reactions.

Diagnostic Tests and Results:

- Record the results of any diagnostic tests performed, such as blood tests, fecal exams, or imaging.

- Include the date of the test, the specific test conducted, and the interpretation of the results.

Treatment and Medications:

- Document any treatments or medications administered to the animal.
- Specify the type of treatment, dosage, route of administration, and frequency.
- Note any changes in the animal's condition or response to treatment.

Follow-up and Recommendations:

- Document any follow-up actions required, such as rechecks, additional treatments, or referrals to a veterinarian.
- Include any recommendations or instructions for ongoing care and management.

Signature and Credentials:

- Include the name and signature or initials of the person responsible for recording the animal health status.
- Indicate their credentials or role within the organization, if applicable.

Additional Notes or Comments:

- Provide space for additional notes or comments related to the animal's health status or any other relevant information.

It's important to maintain accurate and up-to-date records for each animal. The recording format can be adapted based on the specific needs of the animal health program or organization, ensuring that all essential information is captured for effective monitoring, treatment, and decision-making. Reporting the animal health status involves summarizing and presenting the recorded information in a clear and concise manner. Here's a suggested format for reporting animal health status:

Provide a descriptive title that indicates the purpose and scope of the report. Include the date when the report is generated. Provide a brief overview of the purpose of the report and the context in which the animal health status is being reported. Provide relevant details about the species, breeds, age groups, or other relevant characteristics of the animals.

Summary of Findings: Present a concise summary of the key findings from the animal health assessments and observations. Provide an overview of the prevalence of specific diseases or health conditions observed in the animal population. Include relevant statistics, such as the number of affected animals or the percentage of animals affected. Report on the coverage and compliance of vaccination and deworming programs within the animal population. Include data on the number or percentage of animals vaccinated or dewormed.

Summarize the treatments and interventions administered to address specific health issues. Include information on the types of treatments, medications used, and the response of animals to the interventions. Highlight any disease outbreaks, emergencies, or significant health incidents that occurred during the reporting period. Provide details on the affected animals, the nature of the outbreak or emergency, and the response taken. Offer recommendations based on the findings and observations made during the reporting period. Suggest actions or strategies to address identified health issues, improve animal welfare, or prevent future problems.

Conclusion: Provide a concise conclusion summarizing the overall animal health status and the key takeaways from the report. Include any supporting documents, such as charts, graphs, tables, or additional data that provide further context or detail. It's important to tailor the reporting format to the specific needs and requirements of the organization or program. The above format serves as a general guideline, but can be adjusted and customized to effectively communicate the animal health status to relevant stakeholders, decision-makers, or reporting authorities.

### 1.4.Identifying OHS hazards, assessing risk and implementing controls measures

Identifying Occupational Health and Safety (OHS) hazards related to farm animals involves recognizing potential risks and dangers that can impact the health and safety of workers involved in animal care and management. Here are some common OHS hazards associated with farm animals:

I. Animal Handling and Restraint:

- Risk of bites, kicks, or other injuries from aggressive or frightened animals.
- Potential for strains or sprains from lifting or restraining large or heavy animals.
- Exposure to zoonotic diseases transmitted from animals to humans.

II. Slips, Trips, and Falls:

- Uneven or slippery surfaces in animal housing areas, yards, or walkways.
- Accumulation of manure, water, or other substances that can create slippery conditions.

III. Equipment and Machinery:

- Hazards associated with operating or maintaining equipment used in animal handling, such as livestock chutes, squeeze gates, or handling facilities.
- Risks related to the use of machinery, such as tractors, skid steers, or feed mixers.

IV. Falls from Heights:

- Working at heights while performing tasks such as working on elevated platforms, roofs, or ladders.
- Risks associated with working on raised surfaces, such as loading ramps or elevated feeding areas.

V. Exposure to Chemicals and Dust:

- Contact with hazardous chemicals, such as pesticides, disinfectants, or medications used in animal care.
- Inhalation of dust, allergens, or microorganisms present in animal housing or feed storage areas.

VI. Animal Waste Management:

- Risks associated with handling, storage, and disposal of animal waste, including exposure to harmful gases, pathogens, or toxins present in manure.

VII. Electrical Hazards:

- Risks associated with electrical systems, wiring, or equipment used in animal housing or farm operations.
- Potential for electric shocks or fires due to faulty wiring, inadequate grounding, or improper use of electrical devices.

VIII. Noise and Vibrations:

- Exposure to loud and prolonged noise levels generated by farm animals, machinery, or equipment.
- Risks associated with operating machinery or vehicles that produce vibrations.

VIIII. Working Alone or in Isolated Areas:

- Risks associated with working alone in remote areas of the farm, such as isolated barns or pastures, with limited communication or emergency assistance.

X.Environmental Conditions:

- Exposure to extreme weather conditions, such as heat stress or cold stress, while working with farm animals outdoors.
- Risks associated with working in confined or poorly ventilated areas, leading to poor air quality or heat buildup.

It is crucial to conduct regular hazard assessments to identify specific OHS hazards present on a farm and develop appropriate control measures to mitigate risks. This can include implementing safety protocols, providing training for workers, supplying personal protective equipment (PPE), and maintaining equipment and facilities to minimize hazards and promote a safe working environment. Assessing the risk of Occupational Health and Safety (OHS) hazards related to animal health involves evaluating the likelihood and potential severity of hazards that can affect the health and safety of workers involved in animal care. Here's a step-by-step process for assessing the risk of OHS hazards in animal health:

- ✓ Identify potential hazards related to animal health, such as zoonotic diseases, aggressive animal behavior, or exposure to harmful chemicals used in treatments.
- ✓ Assess the likelihood or probability of each identified hazard occurring.
- ✓ Consider factors such as frequency of animal health procedures, prevalence of specific diseases, or the frequency of handling potentially aggressive animals.
- ✓ Evaluate the potential severity of each hazard if it were to occur.
- ✓ Consider the potential impact on worker health, including the severity of injuries, illnesses, or long-term health effects.

- ✓ Combine the likelihood and severity assessments to determine the overall risk level for each hazard.
- ✓ Use a risk matrix or a similar tool to categorize risks as low, medium, or high based on the combination of likelihood and severity ratings.
- ✓ Prioritize the identified hazards based on their risk levels.
- ✓ Focus on addressing high-risk hazards first, followed by medium-risk hazards, while considering available resources and feasibility.:
- ✓ Identify and implement appropriate control measures to mitigate the identified risks.
- ✓ Consider engineering controls, administrative controls, and personal protective equipment (PPE) to minimize exposure to hazards.
- ✓ Examples of control measures may include proper animal handling techniques, vaccination protocols, use of PPE, and regular hygiene practices.
- ✓ Regularly review and reassess the effectiveness of implemented control measures.
- ✓ Monitor the workplace to ensure compliance with safety protocols and identify any new hazards or changes in existing hazards.
- ✓ Encourage reporting and feedback from workers regarding potential hazards or safety concerns.
- ✓ Provide comprehensive training and education to workers on animal health hazards, control measures, and safe work practices.
- ✓ Ensure workers understand the risks associated with animal health and are equipped with the knowledge and skills to mitigate those risks.

Regular risk assessments should be conducted to account for any changes in animal health conditions, procedures, or work environments. By identifying and managing OHS hazards related to animal health, organizations can create a safer and healthier working environment for their employees. Implementing control measures for Occupational Health and Safety (OHS) hazards related to animal health involves taking proactive steps to mitigate risks and create a safer working environment for those involved in animal care. Here are some control measures that can be implemented:

Personal Protective Equipment (PPE):

- Provide appropriate PPE to workers based on the identified hazards.
- Examples include gloves, goggles, face shields, coveralls, respirators, and boots.
- Ensure workers are trained on proper selection, use, and maintenance of PPE.

Animal Handling and Restraint:

- Develop and implement standard operating procedures (SOPs) for safe animal handling and restraint.
- Train workers on proper animal handling techniques to minimize the risk of bites, kicks, or injuries.
- Use appropriate tools, such as halters, leads, or restraints, to safely manage animals during procedures.

Zoonotic Disease Prevention:

- Establish protocols for disease prevention and control, including vaccination programs, quarantine procedures, and biosecurity measures.
- Educate workers about zoonotic diseases, their transmission routes, and preventive measures.
- Provide access to hand hygiene facilities, such as handwashing stations or hand sanitizers.

Chemical Handling and Storage:

- Ensure proper storage and labeling of chemicals used in animal health procedures.
- Provide training on safe handling, use, and disposal of chemicals.
- Use appropriate personal protective equipment when working with hazardous chemicals, following safety data sheets (SDS) guidelines.

Training and Education:

- Conduct regular training sessions on OHS hazards related to animal health.
- Include topics such as animal behavior, safe handling techniques, disease prevention, and emergency response.
- Encourage workers to report any potential hazards or safety concerns.

Facility Design and Maintenance:

- Design animal housing facilities with worker safety in mind, considering lighting, ventilation, and ergonomic considerations.
- Maintain clear pathways and working areas to prevent slips, trips, and falls.
- Regularly inspect and maintain equipment and infrastructure to minimize risks associated with faulty or damaged components.

Emergency Response Preparedness:

- Develop and communicate emergency response plans to address potential hazards or incidents.
- Train workers on emergency procedures, such as first aid, evacuation, or animal escape protocols.
- Ensure access to necessary emergency equipment, such as fire extinguishers or first aid kits.

Regular Health and Safety Audits:

- Conduct periodic audits or inspections to identify any new hazards or areas for improvement.
- Involve workers in the audit process to gather their input and insights.
- Address identified issues promptly and document actions taken.

Remember that control measures should be tailored to the specific hazards and risks present in each animal health setting. Regular monitoring, feedback from workers, and ongoing evaluation of control measures are crucial for maintaining a safe and healthy workplace.

### 1.5. Handling and restraining animals

Handling and restraining animals safely and effectively is essential to ensure the well-being of both the animals and the people involved. Here are some guidelines for handling and restraining animals:

A. Training and Experience:

- Ensure that individuals involved in animal handling and restraint receive proper training and have sufficient experience.
- Familiarize yourself with the specific behavior, body language, and handling techniques for different species of animals.

B. Approach and Communication:

- Approach animals calmly and confidently, using slow and deliberate movements.
- Use verbal cues or signals to communicate with the animals and establish trust.
- Avoid sudden movements, loud noises, or aggressive behavior that may startle or agitate the animals.

C. Understanding Animal Behavior:

- Learn about the natural behavior and instincts of the animals you are handling.
- Recognize signs of stress, fear, or aggression in animals and adjust your approach accordingly.
- Allow animals to become accustomed to your presence and build trust gradually.

D. Proper Restraint Techniques:

- Use appropriate and humane restraint techniques suitable for the species and size of the animal.
- Different animals may require different methods of restraint, such as haltering, leading, or gentle physical contact.
- If necessary, use specialized equipment designed for safe restraint, such as leashes, halters, or squeeze chutes.

E. Minimizing Stress and Discomfort:

- Handle animals gently and avoid causing unnecessary stress or discomfort.
- Take steps to minimize pain or discomfort during procedures, such as providing adequate padding or support during examinations or treatments.

F. Teamwork and Communication:

- If working with a team, establish clear roles and effective communication to ensure smooth and coordinated handling procedures.
- Maintain constant communication with other team members to ensure everyone's safety and well-being.

G. Personal Safety:

- Prioritize your own safety when handling animals.
- Use appropriate personal protective equipment (PPE) such as gloves, safety glasses, or protective clothing to protect against bites, scratches, or the transmission of zoonotic diseases.
- Be aware of your surroundings and potential hazards, such as uneven ground or obstacles.

H. Record Keeping:

- Maintain accurate records of animal handling and restraint procedures.
- Document any incidents, injuries, or behavioral observations that may be relevant for future reference or to identify areas for improvement.

Remember, each animal is unique, and handling techniques may need to be adjusted based on individual temperament and behavior. It's important to prioritize the safety and well-being of both the animals and the individuals involved in the handling and restraint process. If uncertain or dealing with unfamiliar animals, consult with experienced professionals or seek guidance from veterinarians or animal behaviorists. Handling and restraining animals often require the use of specialized tools and equipment designed to ensure the safety of both the animals and the handlers. Here are some common tools and equipment used in handling and restraining animals:

- Halters and Leads
- Collars and Harnesses
- Muzzles
- Restraint Bags and Nets
- Squeeze Chutes and Stocks
- Catch Poles and Snare Poles
- Livestock Handling Tools
- Animal Restraint Devices
- Veterinary Examination Tables and Stocks
- Personal Protective Equipment (PPE)

It's important to note that the selection and use of tools and equipment should be based on the specific species, size, and behavior of the animals being handled. Proper training and familiarity with the tools and equipment are crucial for safe and effective handling and restraint practices. Handling and restraining animals requires proper procedures to ensure the safety of both the animals and the handlers. The specific procedures may vary depending on the species, size, and temperament of the animal, as well as the purpose of handling. Here are some general guidelines for handling and restraining animals:

Approach with Caution:

- ✓ Approach the animal calmly and quietly, avoiding sudden movements or loud noises.
- ✓ Observe the animal's behavior and body language to gauge its level of comfort or potential aggression.

Gain Trust and Establish Control:

- ✓ If possible, use positive reinforcement and desensitization techniques to build trust and familiarity with the animal.
- ✓ Gradually introduce handling and touch to acclimate the animal to human interaction.
- ✓ Use verbal cues or signals to establish control and guide the animal's movements.

Use Appropriate Restraint Techniques:

- ✓ Depending on the species and size of the animal, employ suitable restraint techniques.
- ✓ Haltering: Use a properly fitted halter to control the head and guide the animal's movement.
- ✓ Leashing: Attach a leash or lead to a collar or harness to maintain control and prevent escape.
- ✓ Physical Restraint: Employ gentle physical contact or pressure on specific body parts to control movement or restrict mobility.
- ✓ Restraint Bags or Nets: Use specialized bags or nets to safely contain small or aggressive animals for handling or procedures.
- ✓ Squeeze Chutes or Stocks: Secure large livestock within a squeeze chute or stock for safe immobilization during procedures.

Minimize Stress and Discomfort:

- ✓ Handle animals gently and avoid causing unnecessary stress or discomfort.
- ✓ Use methods that minimize pain or fear, such as providing support during examinations or treatments.
- ✓ Monitor the animal's vital signs and behavior throughout the process to ensure their well-being.

Work as a Team:

- ✓ If working with a team, establish clear roles and effective communication to ensure coordinated handling procedures.
- ✓ Ensure everyone involved understands the plan and follows the designated procedures.

Maintain Personal Safety:

- ✓ Wear appropriate personal protective equipment (PPE) to protect against bites, scratches, or exposure to zoonotic diseases.
- ✓ Be aware of your surroundings and potential hazards, such as uneven ground or obstacles.
- ✓ If dealing with potentially dangerous animals, consider consulting or involving experienced professionals.

Record Keeping:

- ✓ Maintain accurate records of animal handling and restraint procedures.
- ✓ Document any incidents, injuries, or behavioral observations that may be relevant for future reference or to identify areas for improvement.

Remember, it is important to always prioritize the safety and well-being of both the animals and the handlers during any handling or restraint procedures. For specific species or situation-specific procedures, it is advisable to consult with experienced professionals or seek guidance from veterinarians or animal behaviorists.

### 1.6. Checking withdrawal periods and identifying treated animals

Checking withdrawal periods for treated animals is an important step in ensuring that animal products, such as meat, milk, or eggs, are safe for human consumption. Withdrawal periods refer

to the minimum amount of time that must elapse between the administration of a medication or treatment to an animal and the collection of its products for human consumption. During this period, the animal's body eliminates or metabolizes the medication, reducing the risk of residues in the food products. Here are the general steps for checking withdrawal periods for treated animals:

I. Review Product Labeling or Veterinary Guidance:

- Consult the product labeling of the medication or treatment used for the animal.
- Pay attention to any specific instructions regarding withdrawal periods or meat/milk withholding times.
- Additionally, consult with a veterinarian or animal health professional for guidance on withdrawal periods for specific medications or treatments.

II. Understand Withdrawal Period Guidelines:

- Different medications and treatments have varying withdrawal period requirements.
- Withdrawal periods can depend on factors such as the type of animal, the specific medication used, the dose administered, and the route of administration.
- Familiarize yourself with the guidelines and regulations provided by regulatory bodies, such as the Food and Drug Administration (FDA) or relevant agricultural authorities in your region.

III. Keep Treatment Records:

- Maintain accurate and detailed records of all medications or treatments administered to individual animals or groups.
- Include information such as the date of treatment, medication used, dosage administered, and withdrawal period recommended.
- Ensure that these records are easily accessible and up-to-date.

IV. Calculate Withdrawal Periods:

- Determine the withdrawal period required for each medication or treatment.

- Calculate the minimum number of days that must elapse from the last treatment to when animal products can be safely collected for human consumption.
- Consider any additional safety margins or extended withdrawal periods recommended by regulatory guidelines or veterinary professionals.

V. Establish Proper Separation:

- During the withdrawal period, separate treated animals from the production or milking herd to prevent accidental consumption of their products.
- Ensure that animals are clearly identified or marked to prevent accidental mixing or confusion.

VI. Regularly Monitor and Verify:

- Monitor the animals closely during the withdrawal period to ensure compliance and detect any signs of adverse effects or reactions.
- Perform periodic testing of animal products, such as milk or meat, to verify the absence of residues and confirm their safety for consumption.
- Follow any additional testing or verification requirements mandated by regulatory bodies or industry standards.

It is crucial to adhere to withdrawal periods to protect consumer health and comply with food safety regulations. Always consult product labels, veterinary professionals, and relevant regulatory guidelines specific to your region for accurate and up-to-date withdrawal period information. Identifying treated animals is an important aspect of managing their health and ensuring that withdrawal periods are followed correctly. Here are some methods for identifying treated animals:

Treatment Records:

- ✓ Maintain detailed records of all medications or treatments administered to individual animals or groups.
- ✓ Clearly document the date of treatment, medication used, dosage administered, and any relevant withdrawal period information.

Individual Animal Identification:

- ✓ Assign unique identification numbers, tags, or ear tags to each animal in your herd or flock.
- ✓ Use permanent or tamper-proof identification methods to ensure accurate tracking of individual animals over time.

Temporary Markings:

- ✓ Use temporary marking methods to indicate recently treated animals.
- ✓ Temporary livestock markers, such as spray paints or non-toxic livestock crayons, can be applied to the animal's coat or hide to visually indicate treatment.

Electronic Identification (EID):

- ✓ Utilize electronic identification systems, such as RFID (Radio Frequency Identification) tags or microchips, for accurate and automated tracking of individual animals.
- ✓ EID systems allow for seamless recording and retrieval of animal health and treatment information.

Color-coded Collars or Leg Bands:

- ✓ Assign color-coded collars or leg bands to treated animals as a visual indicator.
- ✓ Each color can represent a specific treatment or withdrawal period, making it easier to identify treated animals within a group.

Group Separation:

- ✓ Temporarily separate treated animals from the main herd or flock during the withdrawal period.
- ✓ This segregation reduces the risk of accidental consumption of products from treated animals and helps ensure withdrawal periods are followed correctly.

Digital Management Systems:

- ✓ Employ digital herd or flock management systems to record and track treatment information.

- ✓ These systems allow for efficient and accurate identification of treated animals, withdrawal period management, and monitoring of individual animal health.

Communication and Training:

- ✓ Clearly communicate treatment information and identification methods to all personnel involved in animal care.
- ✓ Train employees on how to identify and handle treated animals appropriately.

Remember, accurate and detailed record-keeping is essential for identifying treated animals and managing withdrawal periods effectively. Work closely with veterinarians or animal health professionals to develop and implement identification systems that align with best practices and regulatory requirements in your region. Withdrawal periods for treated animals refer to the minimum amount of time that must elapse between the administration of a medication or treatment to an animal and the collection of its products for human consumption. These withdrawal periods ensure that any residues of the medication have sufficiently cleared the animal's body, reducing the risk of those residues being present in the food products. It is important to follow withdrawal periods to ensure the safety of the animal products for human consumption.

Withdrawal periods can vary depending on several factors, including the specific medication or treatment used, the dosage administered, the route of administration, the species of the animal, and regulatory guidelines specific to your region. It is crucial to consult the medication label, veterinarian guidance, and relevant regulatory authorities for accurate and up-to-date withdrawal period information. Here are some examples of withdrawal periods for commonly treated animals and medications:

A. Cattle:

- Antibiotics: Withdrawal periods for antibiotics commonly used in cattle can range from a few days to several weeks, depending on the specific medication. For example, withdrawal periods for tetracyclines can be around 7 to 14 days.
- Anthelmintics (dewormers): Withdrawal periods for dewormers in cattle can vary. For example, withdrawal periods for ivermectin can range from 28 to 35 days.

B. Poultry:

- Antibiotics: Withdrawal periods for antibiotics used in poultry can vary depending on the specific medication. For example, withdrawal periods for certain antibiotics like oxytetracycline can be around 5 to 7 days.
- Coccidiostats: Withdrawal periods for coccidiostats, which are used to control coccidiosis in poultry, can range from a few days to a few weeks, depending on the specific medication.

C. Swine:

- Antibiotics: Withdrawal periods for antibiotics used in swine can vary depending on the specific medication. For example, withdrawal periods for certain antibiotics like penicillin can be around 3 to 5 days.
- Anthelmintics (dewormers): Withdrawal periods for dewormers in swine can vary. For example, withdrawal periods for fenbendazole can range from 3 to 5 days.

D. Dairy Cows:

- Antibiotics: Withdrawal periods for antibiotics used in dairy cows can vary depending on the specific medication. For example, withdrawal periods for certain antibiotics like ceftiofur can be around 2 to 4 days.
- Mastitis Treatments: Withdrawal periods for mastitis treatments in dairy cows can vary depending on the specific medication used. It is important to follow the specific instructions provided by the veterinarian or on the medication label.

It is important to note that the withdrawal periods mentioned above are general examples and can vary depending on the specific product, formulation, and regional regulations. Always consult the product label, veterinarian guidance, and relevant regulatory authorities for accurate withdrawal period information for the specific medication and animal species you are treating.

| Self check-1 | Written test |
|---|---|

Name _____ ID. _____ Date _____

**Test-1 choose the best answer**

1. Which one is NOT correct idea of observation and assessment of animal health?

A. to take measure timely B. to minimize risk

C. used to increase safety D. none of the above

2. Which one is NOT animal body physical condition indicator while external observation?

A .obesity B. lean/thin

C. Emaciation D. anemia

3. Which one of the following is/are NOT hazards?

A. fall from height B. noise and vibration

C. fecal contamination D. none of the above

4. Which one of the following is NOT the advantage of properly handling and restraining animals?

A. increase injury B. hart animals

C. decrease safety D. all of the above

**Test-2 writes short and brief answers**

1. List the advantage of work plan (2pts)

2. List the advantage of recording animal health status (2pts)

3. What is the difference between records and reports (2pts)

Satisfactory rating - 8 points Unsatisfactory - below 8 points

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

| Operation Sheet-1 | |
|---|---|

### 1.1. Technique of handling and restraining animals

**A. Tools and equipment's**

- halters
- collars and Harnesses
- Muzzles
- Restraint bags and Nets

**B. Procedures**

- Approach with caution
- Gain trust and Establish control
- Use appropriate restraint tools
- minimize stress and discomfort
- work as a team
- maintain personal safety
- Restrain humanily

| LAP TEST-1 | Performance Test |
|---|---|

Name……. ID…… Date ……

Time started: …… Time finished: …….

**Instructions:** Given necessary templates, tools and materials you are required to perform the following tasks within **10 minutes**. The project is expected from each student to do it.

**Task: 1.** Perform restraining of cow by figure-8 method.

| LG #30 | LO #2 Assess common animal disease |
|---|---|

**Instruction sheet**

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

- Identifying animals affected by infection and parasites
- Determining severity of infection
- Identifying animals affected by metabolic disease
- Identifying equipment and materials for treatment
- Preparing treatment site

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:

- Identify animals affected by infection and parasites
- Determine severity of infection
- Identify animals affected by metabolic disease
- Identify equipment and materials for treatment
- Prepare treatment site

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. Perform Operation Sheets
6. Do the “LAP test”
7. Ask from your trainer the key to correction key answers

**Information sheet-2**

## 2.1.Identifying animals affected by infection and parasites

Identifying animals affected by infection is crucial for early detection, appropriate treatment, and preventing the spread of the infection within a herd or flock. Here are some steps and indicators that can help in identifying animals affected by infection:

I. General Observations:

- ✓ Monitor the overall behavior and appearance of the animals regularly.
- ✓ Look for any signs of abnormal behavior, such as lethargy, decreased appetite, or isolation from the rest of the group.
- ✓ Notice any changes in the animal's appearance, including disheveled coat, roughened feathers, or abnormal posture.

II. Physical Symptoms:

- ✓ Observe for specific physical symptoms that may indicate infection, such as:
- ✓ Fever: Animals with elevated body temperature may show signs of panting, increased respiration rate, or seeking cool areas.
- ✓ Respiratory Distress: Coughing, sneezing, nasal discharge, or labored breathing can indicate respiratory infections.
- ✓ Diarrhea: Loose stools or increased frequency of bowel movements may indicate gastrointestinal infections.
- ✓ Skin Lesions: Look for sores, rashes, scabs, or inflammation on the skin, which can be signs of various infections.
- ✓ Lameness: Animals showing signs of limping, reluctance to move, or favoring certain limbs may have infections affecting the musculoskeletal system.

III. Changes in Production or Performance:

- ✓ Monitor any decline in production or performance, such as reduced milk yield in dairy cows, decreased egg production in poultry, or weight loss in livestock.
- ✓ Note any sudden drops in productivity that cannot be attributed to other factors, as it may indicate an underlying infection.

IV. Abnormalities in Vital Signs:

- ✓ Regularly measure vital signs, including body temperature, heart rate, and respiratory rate.
- ✓ Elevated or abnormal readings can be indicative of an infection or underlying health issue.

V. Behavioral Changes:

- ✓ Watch for changes in behavior, such as aggression, restlessness, or abnormal vocalizations, which may indicate discomfort due to an infection.

VI. Veterinary Consultation:

- ✓ Seek the advice of a veterinarian if you suspect an infection or notice any concerning signs or symptoms.
- ✓ Veterinarians can perform thorough examinations, diagnostic tests, and provide guidance on appropriate treatment and management.

It is important to remember that the signs and symptoms of infection can vary depending on the specific pathogen and the affected species. Additionally, some animals may exhibit subtle or nonspecific signs of infection, making it challenging to identify them without professional expertise. Regular monitoring, prompt veterinary attention, and adherence to biosecurity practices can help in identifying and managing infections effectively. (https://youtu.be/f8f6SDvdU9Y)

**Bacterial Diseases:**

**I. Anthrax**

Anthrax is a per-acute disease of ruminants manifested with septicemia, sudden death and tarry blood from the body openings of the cadaver.

Causative agent: *Bacillus anthracis*.

**Clinical sign**

**Ante mortem**

The peracute and acute forms in cattle and sheep are without clinical signs. Death may follow in the acute form after 1 – 2 hours of illness. The acute form lasts about 48 hours. Diagnosis of anthrax is carried out by direct microscopic examination of tissues and fluids

**Postmortem findings**:

- Dark-tarry blood discharge from body orifices Absence of rigor mortis
- Hemorrhage of the mucous and serous membranes, lymph nodes and subcutaneous tissue
- Enlarged spleen
- Severe hemorrhagic enteritis
- Degeneration of the liver and kidneys
- Bloating and rapid decomposition of carcass Localized lesions in the intestine of pigs (dysentery)



Anthrax in a bovine blood smear

| | |
|---|---|
| **Ante mortem and postmortem findings**:<br>• Abortion in non-vaccinated pregnant cows in the last 3 - 4 months of pregnancy<br>• Occasional inflammation of testes and epididymis<br>• Swelling of scrotum (one or both sacs)<br>• Edematous placenta and fetus<br>• Hygroma on the knees<br>• Fever, increased respiration and depression<br>• Inferior quality of semen in rams<br>• Edema and swelling of scrotum<br>• In chronic stage enlarged and hard epididymis, thickened scrotal tunics and frequently atrophic testicles | **II. Brucellosis (contagious abortion, Bang's disease):**<br>**Causative agent**<br>• *Brucella abortus*-cattle<br>• *Brucella melitensis*-sheep, goat<br>• Brucella suis- pig<br>**Treatment**:<br>**Antibiotics** |

**III. Black quarter (black leg):**

Black quarter is an acute infectious disease of cattle and sheep manifested by severe inflammation of the muscle with high mortality.

Causative agent: *Clostridium chauvoei*.

**Clinical finding:**

- High fever (41°C)
- Lameness
- Loss of appetite
- Discolored, dry or cracked skin
- Stiff gait and reluctance to move mainly on one leg
- Crepitating swellings often on the hips and shoulder
- In sheep gaseous crepitating sound cannot be felt before death

**Postmortem findings**:

- Lying on one side with affected hind leg stuck out. Commonly seen in cattle
- Bloating of carcass and blood stained frothy exudates from the nostrils and anus
- Dark red to black muscle of the loin, back or leg
- Sponge like bubbly appearance of the muscles with a peculiar rancid odor
- Yellowish, gelatinous subcutaneous tissue and associated gas bubbles
- Blood stained fluid in body cavities

**Treatment:** Penicillin

**IV. Tetanus (lock jaw):**

Is usually fatal disease of all mammals in which tetany (tonic spasm of muscle), hyperesthesia and convulsions are present. Horses are the most susceptible animals. Causative agent: *Clostridium tetani*.

**Clinical findings**:

- ✓ Muscular spasms begin in the region of the head (masseter muscle) and spread backwards to other groups of muscle.
- ✓ Stiff stilted gait, difficulties in mastication and to open the mouth (lock jaw).
- ✓ Erected ears and prolapsed of the third eyelid
- ✓ Animal observed in 'saw back stance', tetany and convulsion
- ✓ Locked jaw

**Treatment**

- Neutralization of the toxin(anti- toxin)
- Killing bacteria with antibiotics
- Muscle relaxant(acepromazin)

**John's disease (Bovine Para tuberculosis):**

John's disease is a chronic, infectious bacterial disease of adult wild and domestic ruminants such as cattle, sheep, and goats.

Causative agent: myco- bacterium Para tuberculosis

**Clinical findings**:

- Incubation period 2 - 3 years with range from 6 months to 15 years.
- Indifferent animal which stops eating at the end of the disease
- Gradual and chronic weight loss and emaciation
- Rough hair coat and dry skin
- Non responsive diarrhea with watery fluid feces
- Sub mandibular edema ("bottle jaw")
- Reduced milk production
- Mastitis and infertility
- Debility and death

**Treatment**

At present there are no economically useful antimicrobial agents. But isonizide and etambutol can be given.

**V. Tuberculosis (TB):**

Tuberculosis is a chronic disease of many animal species and poultry caused by bacteria of the genus *Mycobacterium*.

**Clinical findings**:

- Low grade fever
- Chronic intermittent hacking cough and associated pneumonia
- Difficult breathing
- Weakness and loss of appetite
- Emaciation
- Swelling superficial body lymph nodes

**Treatment:** it is economical to treat the animal for long time, but the animal can be treated using isonizide and etanbutol.

**VI. Contagious bovine pleura-pneumonia (CBPP):**

This is an acute, sub acute or chronic highly infectious disease of cattle.

Causative agent: *Mycoplasma mycoides var, mycoides*.

**Clinical findings**:

- Fever
- Depression
- Lack of appetite and loss of weight
- Coughing on exercise
- Shallow rapid respiration, grunting and gurgling
- Extended neck, lowered head and open mouth
- Arched back and outward rotated elbow
- Arthritis in young animals

**Treatment**

Treat the animal with alamycin or tylosin

Extended neck and head due to respiratory distress and coughing



**VII. Actinobacillosis (wooden tongue):**

Actinobacillosis is a chronic disease of cattle and is manifested by inflammation of the tongue and less frequently lymph nodes of the head and of even the viscera and carcass.

Causative agent: *Actinobacillus lignieresi*

**Clinical findings**:

- Loss of appetite
- Salivation and chewing
- Swollen tongue
- Mouth erosions
- Enlarged parotid and retropharyngeal lymph nodes

Treatment: Antibiotic treatment

**VIII. Actinomycosis ('lumpy jaw'):**

Actinomycosis is a chronic granulomatous disease of cattle and pigs and rarely in sheep and horses.

Causative agent: *Actinomyces bovis*

**Clinical findings**:

- Painful swelling of the maxilla and mandible (lumpy jaw)
- Ulceration of cheeks and gums and wart like granulations outward on head
- Difficult breathing
- Profuse salivation
- Loss of weight

**Treatment:** antibiotics

**VIIII. Hemorrhagic septicemia and pneumonic pasteurelosis**

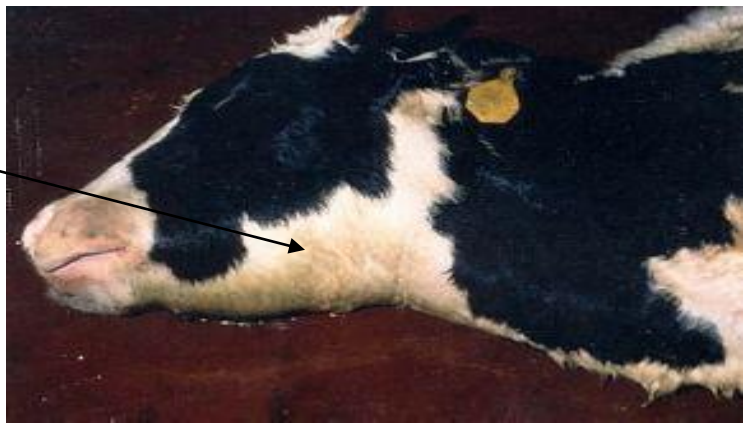
Haemorrhagic septicemia is a systemic disease of cattle, buffalo, pigs, yaks and camels.

Causative agent: *Pasteurella multocida* and *pasterulla hemolytica*

**Clinical findings**:

- Disease more severe in buffalo than in cattle
- High fever up to 42°C
- Salivation and difficulties in swallowing
- Cough, and difficult breathing and associated pneumonia in later stages
- Edematous swelling of throat, dewlap, brisket and peritoneum
- Diarrhea

Extensive edematous swelling of the head and neck



**Treatment**

Antibiotics (oxy tetracycline)

## X. MASTITIS

The term mastitis refers to inflammation of the mammary gland regardless of the cause. It is characterized by physical, chemical and usually bacteriological changes in the milk and by pathological changes in the glandular tissue. The most important changes in the milk include discoloration, the presence of clots and the presence of large numbers of leukocytes.

**Etiology:** Mastitis can be categorized in to three based on etiology.

Specific mastitis**:** caused by true pathogens that do not require predisposing factors. Such mastitis usually takes place through haematogenous route. Ex-Tuberculosis, Brucellosis, leptospirosis.

Non -specific Mastitis**:** This is caused by agents that are normally found on the surface of the skin and teat. Most commonly staphylococcus and streptococcus are responsible for this type of mastitis. These are not true pathogens and they require predisposing factors to produce mastitis.

Environmental Mastitis**:** This is usually associated with the number of micro organisms in the environment. Ex-E. coli ( Coliform mastitis ). All breeds of dairy cows, goats, sheep, pig, horse are susceptible. High yielding dairy cows are more commonly affected than low yielder. Infection rate is more in successive lactation than the first lactation. Exotic and cross breed cows are more prone to mastitis than our local cattle.

There are two sources of infection. These are the udder (organisms that are normal inhabitant in the udder) and contaminated environment. The cutaneous surface of the cow may have many

organisms as resident population and form where the organism may have the chance to invade through contamination by handlers. The contamination of milkers' hands, clothes, and milking machine cup by milk from the affected quarter may lead to the spread of the disease to other non-infected teats of cow.

**Clinical Findings:** Mastitis may clinically be classified as:

**Per acute mastitis:** This is the most serious form of mastitis, which most often endangers the life of the animal. The affected animal show a very high temperature, remain off feed and show respiratory distress. The udder is swollen and extremely painful. There is cassation of milk secretion and exudates are often blood stained.

**Acute Mastitis:** In this case systemic reactions are slight to moderate. The udder becomes swelled and there is change in the milk.

**Sub-acute Mastitis:** There are variable changes in the milk but practically no changes in the udder tissues. Culture of milk will show presence of pathogenic bacteria.

**Chronic Mastitis:** This is the terminal stage of the disease. Udder becomes hard due to fibrosis.

**Diagnosis:** This is based on the following consideration. Physical examination of the udder; Shape, size and consistency of the udder should be viewed properly. Detailed examination of the teat and teat orifices should be made. Signs of inflammation (hot, swelling, pain, redness, and loss of function) should be clinically assessed. There are different testes used to indicate the presence of abnormalities in the milk. Ex- California mastitis test (CMT), White side test etc Identification and isolation of the organisms from suspected milk.

Isolation of the affected animal should be made from rest of the herd. Healthy quarter should be milked first before milking of affected quarter. Removal of secretions as much as possible should be attempted before administration of treatment. Intra-mammary antibiotic preparations should be used for local treatment. Systemic antibiotic therapy may be necessary where systemic reactions are evident. Supportive treatment may be required. It includes parentral injection of large quantities of isotonic fluid containing glucose and corticosteroids. When the quarter does not respond to treatment the animal is required to be made dried off by using chemical agents. This is done by infusion of 30-60 ml of 3% silver nitrate solution or 20ml of 5% copper sulphate.

**Control:** A) Reduction of duration of infection. This may be achieved by:

- ✓ Treatment of all quarters of all cows at drying off
- ✓ Treatment of clinical cases as soon as possible
- ✓ Culling of chronic or clinically non-responsive cases

B) Reduction of new infection rate. This may be achieved by:

- ✓ Dipping of all teats following milking
- ✓ Washing of udder and hand of the milker before and after milking
- ✓ Milking order I.e. the healthy, non-infected cows should be milked first and known infected cows should be milked at least.

## I. VIRAL ZOONOTIC DISEASE

### A. Foot and Mouth Disease (FMD, Aphthous fever):

FMD is an acute viral and extremely contagious disease of cloven footed animals such as cattle, sheep, goats, pigs and antelope.

**Clinical findings**:

Before vesicle formation:

- Dullness
- Lack of appetite
- Drastic drop in milk production.
- Uneasiness and muscle tremors

After vesicle formation

- Smacking and quivering of lips
- Extensive salivation (Fig. 45) and drooling
- Shaking of feet and lameness
- Lip erosion

**Treatment**

- No medicine for viral infection, but antibiotics given for 2ndary bacterial complication.
- Wash and disinfect the wound
- Excessive salivation in a cow affected with FMD

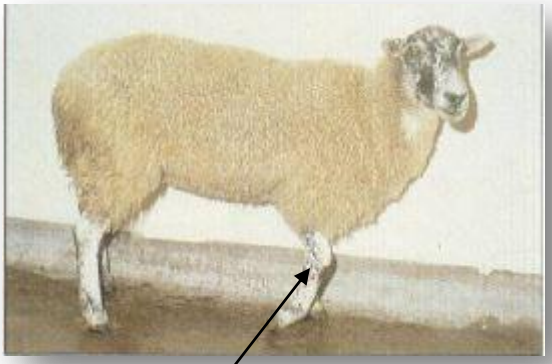


Figure 2.2. Acute lameness

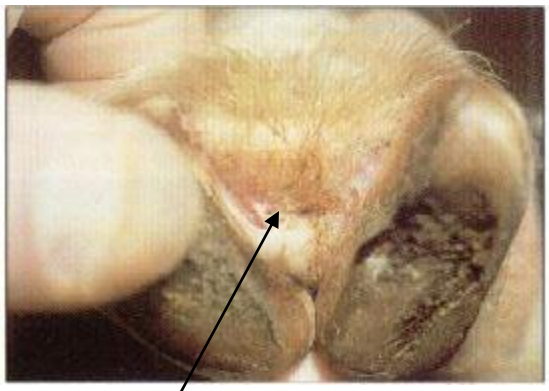


Figure 2.3.Rupture vesicle in the digit

**B. Rabies:**

This is an acute infectious viral disease of the central nervous system in mammals.

**Clinical finding (two forms)**

Furious form

- Incubation from 2 weeks to 6 months or longer
- Restlessness
- Aggressive, may attack other animals
- Sexual excitement
- Bellowing
- Paralysis and death

Paralytic form

- Sagging and swaying of the hind quarters
- Drooling and salivation
- The tail is held to one side

- Tenesmus or paralysis of the anus
- Paralysis
- The animal falls to the ground

**Treatment:** No treatment

### II. Rift Valley Fever (RVF, infectious enzootic hepatitis of cattle and sheep):

A highly contagious acute infectious viral disease of ruminants (mostly sheep), cattle and goats and man transmitted by mosquitoes in which focal hepatic necrosis is a prominent feature.

**Clinical findings**: special symptoms are absent. In sheep it is characterized by

- ✓ Fever, diarrhea, nasal discharge.
- ✓ Abortion in pregnant ewes
- ✓ Lambs usually die within 24 hours of the onset of symptoms

**Treatment:** No treatment but antibiotics for bacterial complication

### A. Sheep pox:

It is a viral infectious disease of sheep caused by the Capri pox virus of the family poxviridae.

**Clinical finding**

- ✓ Skin lesions (papules, pustules, vesicles and scabs) particularly on the part of the body not covered with wool, loss of wool.
- ✓ Fever, inappetance

**Treatment:** No treatment but antibiotics for bacterial complication




Sheep pox lesion on the tail of a sheep. The macular stage (M) progresses to the papular stage (P) which is oedematous, and has central necrosis



Necrotic lesions in the skin of goat

Sheep and goat pox

Sheep and goat pox are serious often fatal diseases characterized by wide spread skin eruption.

**Clinical finding**

- Fever, swollen eyelid
- Crust on the nostril
- Wide spread dermal eruption on the muzzle, ears and areas free of wool or long hair

**Treatment:** There is no effective treatment

**Control and prophlaxis**

- Prevent secondary bacterial infection by application of antibiotics
- vaccination

**B. Lumpy skin disease**

Lumpy skin disease is a highly infectious viral disease of cattle characterize by pox like intracutanous firm nodules, edema of the limbs, superficial lymph node swelling.

**Clinical finding**

- Painful swelling and nodule all over the body
- Fever, lacrimation
- Nasal discharge, followed by eruptions on the skin




Figure 2.3. Nodules all over the body

**Treatment and prevention**

There is no effective treatment but secondary bacterial infections are prevented by administration of broad spectrum antibiotics. Prevention of the disease can be done through vaccination.

**F. African horse sickness**

African horse sickness is an acute or sub-acute, arthropod born, viral disease of equine. Outbreaks occur after Heavy rain.

**Causative agent**

Orbi virus

**Clinical finding**

Two forms exist:

**Respiratory form:**

- Interlobular edema,
- Fever(40-42$^{o}$c), dyspnea
- Spasmodic coughing and dilated nostril
- Death occurs due anoxia



Figure 2.4. spasmodic coughing and dilated

**Cardiac form**

- Fever (39-41$^{o}$c)
- Swelling of supra orbital fossa (pathognomenic sign)
- Swelling usually extends to the eyelids, neck, thorax

**Treatment and prevention**

- There is not specific treatment
- Vaccination with poly-valent serotype vaccine



**Parasitic diseases**

Identifying animals affected by parasites is crucial for implementing appropriate control and treatment measures. Here are some steps and indicators that can help in identifying animals affected by parasites:

Behavioral and Physical Observations: Monitor the behavior of animals for signs of discomfort, restlessness, or excessive itching. Observe for physical symptoms such as hair or feather loss, skin irritations, lesions, or wounds. Note any excessive grooming, scratching, rubbing against objects, or biting at the skin.

Changes in Coat or Feathers: Look for abnormalities in the appearance and condition of the animal's coat or feathers. Check for areas of thinning, patchiness, or roughened texture. Notice any presence of lice, fleas, ticks, mites, or other external parasites on the animal's body.

Presence of External Parasites: Inspect the animal's skin, fur, or feathers for visible signs of external parasites.Look for adult parasites, eggs, or their waste products. Common external parasites include ticks, fleas, lice, mites, and flies.

Changes in Weight or Body Condition: Monitor changes in body weight or condition that are not attributed to other factors, such as changes in diet or age. Parasite infestations can lead to weight loss, poor body condition, and reduced overall health.

Abnormalities in Fecal Matter: Examine the animal's feces for signs of parasites. Look for adult worms, larvae, or eggs in the stool. Note any changes in consistency, color, or presence of blood in the feces.

Anemia or Pale Mucous Membranes: Check the mucous membranes, such as gums or eyelids, for signs of anemia. Pale or white membranes can indicate blood loss due to internal parasites, such as worms.

Decreased Productivity or Performance: Observe for declines in production or performance, such as reduced milk yield, decreased egg production, or poor growth rates. Certain internal parasites can affect the animal's overall health and productivity.

Veterinary Consultation and Diagnostic Testing: If you suspect a parasite infestation, consult with a veterinarian.Veterinarians can perform specific diagnostic tests, such as fecal examinations or blood tests, to identify the presence of parasites and determine the appropriate treatment.

It is important to note that the signs and symptoms of parasite infestations can vary depending on the type of parasite and the affected species. Some infestations may be subtle or asymptomatic, while others can cause severe health issues. Regular monitoring, maintaining good hygiene practices, and implementing parasite control strategies recommended by veterinarians are essential for identifying and managing parasite infections effectively.

**A. Fascioliasis or liver fluke disease:**

The disease is caused by a flattened, leaf-like, un-segmented, brownish-grey parasites affecting the bile duct and liver of cattle, sheep and goats.

Causative agent

- Fasciola hepatica
- Fasciola gigantica

Symptoms

- Jaundice (mucosa membrane)
- Sub- mandibular edema and ascites
- Inappetance, non febrile




Figure 2.7. Fasciola hepatica

Treatment: Ant-helminthes (albendazole, facinix)

**B. haemonchosis**

It is an acute infection with abomasal worm.

Causative agent: *haemonchus contortus(sheep)*

Clinical findings

- Sub mandibular edema
- Paller mucosa membrane
- Ascites
- The sheep becomes week



Figure 2.8. Anemia

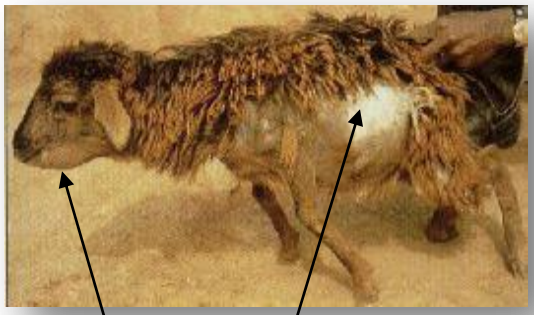


Figure 2.9. sub mundibular edema

Treatment: Anti-helmiths

**C. Parafilariasis in cattle**

Parafilariasis is a vector-borne parasitic infection of cattle caused by the filaroid nematode. The disease is characterized by hemorrhagic nodules on the skin of cattle and subsequent bruise-like lesions in subcutaneous and intramuscular tissues of affected carcasses.

**Etiology**

Parafilaria bovicola

**Transmission:** Tranismisson through flies

**Clinical sign**

- Appearance of swollen, painful hemorrhagic nodules on the skin (40 mm in diameter and 10 mm in depth)

**Treatment:** Ivermectin

**Camel Infectious Diseases**

**I. Dermatophilosis**

Causative agent: *Dermtophilus congolensis*

Dermatophilosis is a typical epidemic in the humid tropics. The hair underneath the infected skin appears as paintbrush and when the hair is pulled off the skin is wet, red brown.

**Clinical finding**

- Papules, serious exudates causing mating of hair to form a tufted appearance
- Scab formation

**Treatment**

- ✓ Systemic treatment; procaine penicillin, oxy- tetracycline
- ✓ Topical treatment: 0.5% zinc sulfate



Figure 2.10 crusts & bleeding removal of the crust

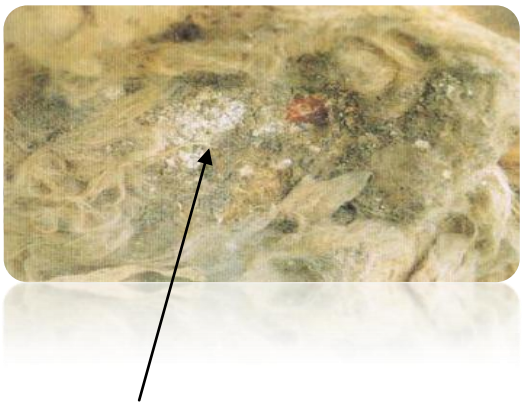


Figure 2.11. mated hair appearance

### II. Staphylococcus aureus dermatitis

Staphylococcus aureus is a commensal bacteria of animals and humans that mainly occurs on the skin.

**Clinical finding**

- Cold, closed ad painless abscess up to the size of lemon or orange
- If opened the abscess exudates thick, yellow cream like pus.



Figure 2.13. Yellow cream like pus

**III. Tetanus:** it is a toxemia caused by infection with clostridium tetani.

**Clinical finding**

- ✓ Muscle spasm
- ✓ Neck stiffness, locked jaw
- ✓ Increased reflex activities

**Treatment**

- ✓ Drug treatment

  Tetanus antitoxin
- ✓ Debridement of the wound
- ✓ Antibiotic treatment

**IV. Rabies**

Rabies is an acute viral encephalomyelitis that affects mammals. It is Almost invariably fatal once clinical sign appear.

**Etiology:** lyssa virus

**Clinical findings**

There are two forms of rabies in the camel

- Silent fury: is not common in camel
- Ranging fury:

Excitement stage

- ✓ Restlessness
- ✓ Aggression
- ✓ Biting and snapping
- ✓ Self mutilation
- ✓ Hyper-salvation and muscle tremor

Paralytic stage

- ✓ Rabid camel lay on its side
- ✓ Continuous yawning

**V. Camel pox**

Camel pox is a highly contagious viral disease caused by an orthopox virus. It mainly occurs at the beginning and early rainy season and characterized clinically by pox lesions.

**Clinical finding**

- ✓ Initially moderate depression
- ✓ Mild fever and anorexia
- ✓ Vesicle eruption then ruptured
- ✓ Scabs and scars

**Treatment and prevention**

Drug treatment

- ✓ There is not specific treatment
- ✓ Antibiotic treatment is useful to control secondary bacterial infection

Prevention and control

- ✓ Vaccination and improved management



Figure 2.14. Pox lesions on the mouth part of camel and generalized pox

**Contagious ecthyma (orf)**

Contagiuos ecthyma is a highly contagious viral disease characterized clinically by pruritis, itching against objects followed by hemorrhages.

**Clinnical finding**

- ✓ Single or multiple primary pox lesions develop on the skin of the eye lid and muzzle
- ✓ The lesion developes as reddish papules that change to yellowish pastule before the nodule ulcerate and hemorrhagic.

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Figure 2.15. Camel contagious ecthyma

**VII. Hemorrhagic septicemia**

Hemorrhagic septicemia is an acute bacterial disease caused by pasteurella multocida.the disease is common in adult animals and precipitate by environmental stress factors such as high humidity and wind.

**Clinical finding**

- ✓ Acute onset
- ✓ High fever (>40$^{o}$c)
- ✓ Increased respiratory and pulse rate
- ✓ Hot and painful swelling around the neck
- ✓ Nasal discharge and diarrhea

**Treatment**

**Drug treatment**

- ✓ High dose of antibiotics given

  E.g. sulphadiazine- trimetaprim
- ✓ Prophylaxis and control

  Supplemental feeding, frequent watering and vaccination with specific bacterin.

**VIII. Pneumonia**

Pneumonia is the most common syndrome in the camel. It is caused by viruses, bacteria, fungus or aspiration.

**Clinical findings**

- ✓ Change in respiratory rate and depth

- ✓ Respiratory noise such as wheezing, coughing and nasal discharge
- ✓ Raised temperature
- ✓ Hyper lacrimation
- ✓ Extended elbow

**Treatment: Drug treatment:** Penicillin, oxytetracycline

To avoid external parasites in animals, implementing preventive measures and good management practices is essential. Here are some steps you can take to help prevent external parasites in animals:

Regular Inspection and Grooming:

- Conduct regular inspections of animals to check for signs of external parasites.
- Look for ticks, fleas, lice, mites, or other parasites on the skin, fur, or feathers.
- Groom animals regularly, brushing or combing their coats to remove any loose hair, debris, or potential parasites.

Clean and Sanitary Environment:

- Maintain a clean and hygienic environment for animals.
- Regularly clean and remove waste from animal housing, bedding, and surrounding areas to minimize the presence of parasites.
- Ensure proper drainage and ventilation to discourage parasite breeding and infestation.

Proper Animal Housing and Resting Areas:

- Provide animals with appropriate housing that is designed to minimize parasite infestations. Ensure that housing structures are secure and free from cracks, crevices, or openings that may allow parasites to enter.
- Use bedding materials that are clean, dry, and regularly replaced to prevent the buildup of parasites.

.Pasture and Grazing Management:

- Practice rotational grazing to prevent overgrazing and reduce parasite burden on pastures.
- Avoid overcrowding animals in grazing areas, as it can increase the risk of parasite transmission.
- Regularly monitor the condition of pastures and remove manure to break the parasite life cycle.

. Quarantine and Biosecurity:

- Implement quarantine procedures for new animals entering the farm or premises to prevent the introduction of parasites.
- Separate and quarantine new animals for a designated period before introducing them to the rest of the herd or flock.
- Practice good biosecurity measures, including limiting visitors, disinfecting equipment, and preventing contact with potentially contaminated animals or areas.

. External Parasite Control Products:

- Consult with a veterinarian to determine appropriate external parasite control products for your specific animal species, age, and health status.
- Use approved and effective products such as topical treatments, sprays, dips, or collars to prevent and control external parasites.
- Follow the manufacturer's instructions and recommended application intervals for optimal effectiveness.

Integrated Pest Management:

- Implement an integrated pest management (IPM) approach, which combines various strategies to control pests, including external parasites.
- This may include cultural practices, biological control methods, and judicious use of chemical treatments based on specific needs and recommendations.

Regular Veterinary Care:

- Establish a relationship with a veterinarian who can provide guidance on parasite prevention and control tailored to your specific animal husbandry practices.
- Schedule regular veterinary check-ups to ensure the overall health and well-being of the animals.

Remember that different species and regions may require specific parasite control measures. It is important to consult with a veterinarian or animal health professional who can provide personalized advice based on your specific circumstances and local conditions. When it comes to killing external parasites on animals, there are various medications and methods of application available. It's important to consult with a veterinarian to determine the most suitable treatment for your specific animal species, the type of external parasites involved, and any individual

considerations. However, here are some common medications and methods used for killing external parasites:

Topical Treatments:

- ✓ Topical treatments are applied directly to the skin or fur of the animal.
- ✓ They often come in the form of spot-on solutions, sprays, or powders.
- ✓ These treatments contain active ingredients that kill or repel external parasites.
- ✓ Follow the instructions provided by the manufacturer or veterinarian for proper application and dosage.

Dips or Baths:

- ✓ Dips or baths involve immersing the animal in a solution that contains a parasiticidal agent.
- ✓ These solutions are diluted according to the instructions provided by the manufacturer or veterinarian.
- ✓ The animal is thoroughly soaked in the solution, ensuring it reaches all affected areas.
- ✓ Baths or dips may be suitable for certain species, such as dogs, but may not be appropriate for all animals.

Collars:

- ✓ Collars are designed to be worn around the necks of animals and provide continuous protection against external parasites.
- ✓ They release active ingredients that repel or kill parasites.
- ✓ Collars are commonly used for dogs and cats but may be available for other species as well.
- ✓ Follow the manufacturer's instructions regarding fitting, duration of effectiveness, and replacement intervals.

Injectable Medications:

- ✓ Injectable medications are administered via injection, typically given by a veterinarian.
- ✓ These medications are absorbed into the bloodstream and can provide systemic treatment against external parasites.
- ✓ Injectable medications may be suitable for controlling certain types of external parasites, such as certain ticks or mites.

Oral Medications:

- ✓ Some oral medications can be used to control or kill external parasites.
- ✓ These medications are administered orally and are absorbed into the bloodstream.
- ✓ Oral medications may be available in the form of tablets, chewables, or liquids.
- ✓ Follow the veterinarian's instructions regarding dosage, frequency, and administration.

It's important to note that the specific medications and methods of application can vary depending on the target parasites, animal species, and regional regulations. Always consult with a veterinarian for proper diagnosis, appropriate medication selection, accurate dosage, and application instructions. Veterinarians can provide guidance based on the specific needs of your animals and ensure the safety and effectiveness of the treatment. When using topical treatments to repel external parasites, it's important to follow the instructions provided by the manufacturer or your veterinarian for proper application and dosage. Here are some general guidelines:

Read the Instructions: Carefully read and understand the instructions provided with the topical treatment product. Follow the manufacturer's guidelines and recommendations. Before applying the topical treatment, it is advisable to wear protective gloves to protect your skin and minimize any potential exposure to the product.

Choose the Right Product: Ensure that you are using a topical treatment specifically formulated for the species and size of the animal you are treating. Different products are available for various animals, such as dogs, cats, or livestock. Identify the appropriate application sites for the topical treatment. This can vary depending on the product and the target parasites. Common application areas include the back of the neck, between the shoulder blades, along the spine, or at the base of the tail.

Clean and Dry: Before applying the treatment, ensure that the animal's skin is clean and dry. If the coat is dirty or oily, consider bathing and drying the animal before applying the topical treatment. However, some products may require application on dry fur, so always follow the specific instructions. Part the Fur: Part the fur or feathers of the animal to expose the skin at the application site. This will help ensure that the product comes into direct contact with the skin.

Apply the Recommended Dosage: Apply the recommended dosage of the topical treatment as instructed. This may involve squeezing the appropriate amount of product onto the skin or using

an applicator provided with the product. Avoid applying excessive amounts or under-dosing, as it may affect the product's effectiveness.

Avoid Contact with Eyes, Mouth, or Wounds: Take care to avoid getting the topical treatment in the animal's eyes, mouth, or any open wounds. If accidental contact occurs, rinse the area with clean water immediately.

Allow Drying Time: After application, allow the product to dry completely before allowing the animal to groom itself or interact with other animals. This helps ensure that the treatment remains effective. Pay attention to the recommended application intervals provided by the manufacturer or your veterinarian. Some products may need to be reapplied monthly, while others may have a longer duration of effectiveness.

If you have any specific concerns or questions about the application or dosage of a particular topical treatment, it is best to consult with your veterinarian. They can provide specific guidance based on your animal's needs and the product being used. Here are a few examples of parasiticidal agents commonly used in topical treatments for external parasites in animals, along with their dosages. Please note that these dosages are general examples, and actual dosages may vary depending on the specific product, animal species, and weight. It's crucial to consult with a veterinarian for accurate dosage instructions tailored to your animal's needs.

A. Fipronil:

- Fipronil is an active ingredient commonly used to repel and kill fleas, ticks, and chewing lice.
- Dosage: Typically, fipronil is applied topically at a concentration of 9.7% for dogs and 9.7% or 10% for cats. The dosage is based on the weight of the animal and varies among different products available on the market.

B. Permethrin:

- Permethrin is an active ingredient effective against ticks, fleas, and other external parasites.
- Dosage: The concentration of permethrin in topical treatments can vary. For dogs, it is typically used at a concentration of 45-65%. The dosage is based on the weight of the dog and the specific product being used. Permethrin is generally not safe for use in cats.

C. Imidacloprid:

- Imidacloprid is an active ingredient used to control fleas and certain types of lice.
- Dosage: Imidacloprid is typically available in topical formulations with concentrations ranging from 8% to 10%. The dosage depends on the weight of the animal and the specific product being used.

D. Selamectin:

- Selamectin is an active ingredient used to control fleas, ticks, ear mites, and certain types of worms.
- Dosage: Selamectin is usually available in topical formulations with concentrations of 6% to 12%. The dosage depends on the weight of the animal and the specific product being used.

E. Pyrethrins/Pyrethroids:

- Pyrethrins and pyrethroids are natural or synthetic insecticides used to control fleas, ticks, and other external parasites.
- Dosage: The concentration and dosage of pyrethrins or pyrethroids can vary depending on the product and animal species. It is important to follow the instructions provided by the manufacturer or veterinarian for accurate dosage information.

It's important to note that these examples are for informational purposes only. Dosages can vary depending on the specific product formulation, animal species, weight, and other factors. Always consult with a veterinarian before administering any parasiticidal agent to ensure the correct dosage and treatment for your animal's specific needs. When applying parasitical agents, such as topical treatments, there are several materials, tools, and equipment that can be used to ensure proper and effective application. Here are some common items:

Applicators: Many topical treatments come with applicators designed to facilitate precise and controlled application. These applicators can vary depending on the product and may include squeeze bottles, syringes, droppers, or pipettes. They help measure and dispense the correct dosage onto the animal's skin.

Gloves: Wearing disposable gloves is recommended when applying parasitical agents to protect your skin from potential exposure to the treatment. Gloves also help prevent cross-contamination between animals and ensure hygienic application. Depending on the specific product and its

safety recommendations, you may need to wear protective clothing, such as long sleeves, long pants, or a lab coat, to minimize any direct contact with the parasitical agent.

Towels or Wipes: Having towels or wipes on hand can be useful for cleaning the animal's skin or removing any excess product after application. They can also be used to wipe away any accidental contact with the treatment on surfaces or your hands.

Comb or Brush: A comb or brush can be handy for parting the animal's fur or feathers, especially in areas where the topical treatment needs to be applied. This helps ensure direct contact with the skin and distribution of the product.

Pet Restraint Tools: Depending on the temperament and behavior of the animal, you may need tools to help restrain or control them during the application process. These tools can include leashes, collars, muzzles, or grooming tables, depending on the species and size of the animal.

Containers or Mixing Bowls: If the parasitical agent needs to be mixed or diluted before application, having clean containers or mixing bowls available can be helpful.

Storage Containers: After application, it's important to properly store any remaining parasitical agent. Use sealed containers or original packaging to keep the product secure, away from children or other animals, and according to the manufacturer's instructions.

Remember, the specific materials, tools, and equipment required may vary depending on the product and the instructions provided by the manufacturer or your veterinarian. Always read and follow the product label or package insert for application instructions and safety precautions. If you have any questions or concerns, consult with your veterinarian for guidance on the appropriate tools and equipment to use during the application process.

**2.2.Determining severity of infection**

Determining the severity of an infection on an animal's health typically involves a combination of observation, physical examination, and potentially diagnostic testing. Here are some common factors that can help assess the severity of an infection. Observe the animal for any visible signs of illness or abnormal behavior. These can include lethargy, decreased appetite, weight loss, fever, coughing, sneezing, diarrhea, skin lesions, or changes in behavior.

A thorough physical examination by a veterinarian can provide valuable information. The vet will assess the animal's overall body condition, temperature, heart rate, respiratory rate,

hydration status, and specific signs related to the infection. Diagnostic tests may be necessary to evaluate the severity of the infection and determine the underlying cause. These tests can include blood tests, urine analysis, fecal examination, bacterial or fungal cultures, serology, PCR testing, or imaging studies (such as X-rays or ultrasounds).

Assessing the rate of disease progression is important in determining severity. If the infection is rapidly worsening or causing significant systemic effects, it may indicate a more severe condition. Consider how the infection is affecting specific organ systems. For example, an infection that is causing respiratory distress, organ failure, or neurological symptoms may be considered more severe. The response to initial treatment can provide insights into the severity of the infection. If the animal shows poor response or worsening symptoms despite appropriate treatment, it may indicate a more severe infection.

It's important to note that assessing the severity of an infection requires professional veterinary expertise. If you suspect that an animal is infected or unwell, it is crucial to consult a veterinarian. They will have the knowledge and experience to evaluate the animal's condition, provide a proper diagnosis, and recommend appropriate treatment options.

### 2.3.Identifying animals affected by metabolic disease

Identifying animals affected by metabolic diseases typically involves a combination of observing clinical signs, conducting diagnostic tests, and consulting with a veterinarian. Here are some steps and common signs to look for when suspecting a metabolic disease in an animal:

A. Observe Clinical Signs: Pay attention to any abnormal behaviors or physical changes in the animal. Some common clinical signs of metabolic diseases include:

- ✓ Weight loss or weight gain
- ✓ Changes in appetite or thirst
- ✓ Excessive urination or increased frequency of urination
- ✓ Lethargy or decreased activity levels
- ✓ Changes in coat or skin condition
- ✓ Lameness or difficulty in movement
- ✓ Changes in behavior or temperament

- ✓ Poor growth in young animals
- ✓ Abnormalities in reproductive function

B. Consult with a Veterinarian: If you notice any concerning signs, it's important to consult with a veterinarian. They will perform a thorough examination of the animal, taking into account their medical history, breed, age, and other relevant factors.

C. Diagnostic Testing: To confirm or rule out a metabolic disease, the veterinarian may recommend specific diagnostic tests. These can include:

- ✓ Blood tests: Blood chemistry panels, complete blood counts (CBC), and hormone level assessments can provide valuable information about the animal's metabolic status.
- ✓ Urine analysis: Examination of urine can help identify abnormalities related to metabolic disorders.
- ✓ Imaging: Radiographs (X-rays), ultrasounds, or other imaging techniques may be used to evaluate organ health and identify any abnormalities.
- ✓ Genetic testing: In some cases, genetic testing can help diagnose certain inherited metabolic diseases.

D. Reviewing Results and Diagnosis: Based on the clinical signs and the results of diagnostic tests, the veterinarian will determine whether the animal has a metabolic disease. They will provide a diagnosis and discuss appropriate treatment options and management strategies.

It's important to remember that diagnosing and managing metabolic diseases in animals require professional veterinary guidance. If you suspect that an animal is affected by a metabolic disease, it's best to seek veterinary care promptly. The veterinarian will have the knowledge and expertise to conduct a comprehensive evaluation and provide the necessary treatment and support for the animal's well-being.

### 2.4.Identifying equipment and materials for treatment

When it comes to treating animals, there are various equipment and materials that veterinarians and animal care professionals may use. The specific equipment and materials required depend on the type of treatment being administered and the needs of the animal. Here are some common examples:

A. Syringes and Needles: These are used for administering medications, vaccines, or fluids to animals. Different sizes of syringes and needles are available based on the specific requirements of the treatment.

II. IV Catheters and Infusion Sets: Intravenous (IV) catheters and infusion sets are used for delivering fluids, medications, or blood products directly into a vein. They are commonly used in hospital settings or for more intensive treatments.

III. Surgical Instruments: Surgical instruments may be needed for procedures such as wound repair, tumor removal, or orthopedic surgeries. Examples include scalpels, forceps, scissors, retractors, and needle holders.

IV. Anesthetic Equipment: Anesthetic machines, along with associated supplies such as endotracheal tubes, masks, and breathing circuits, are used for administering and monitoring anesthesia during surgical procedures or diagnostic tests.

V. Diagnostic Tools: Diagnostic equipment can include items such as stethoscopes, otoscopes, ophthalmoscopes, thermometers, blood pressure monitors, and diagnostic imaging devices like X-ray machines or ultrasound scanners. These tools help assess an animal's health condition and aid in making accurate diagnoses.

VI. Bandages and Dressings: Bandages, gauze pads, adhesive tape, and wound dressings are used for wound care, protecting incisions, or immobilizing limbs. They can help prevent infection, promote healing, and provide support.

VII. Protective Gear: When handling animals or performing certain procedures, protective gear such as gloves, masks, goggles, and gowns may be necessary to ensure the safety of both the animal and the caregiver.

VIII. Medications and Treatments: This includes pharmaceuticals, ointments, creams, vaccines, antiparasitic agents, and other therapeutic products specifically designed for animals.

VIIII. Rehabilitation Equipment: In veterinary rehabilitation, equipment like treadmills, balance boards, therapeutic ultrasound machines, laser therapy devices, and underwater treadmills may be used to aid in the recovery and rehabilitation of animals.

X. Cleaning and Sterilization Supplies: To maintain a clean and sterile environment, supplies such as disinfectants, autoclaves, sterile drapes, and cleaning agents are essential.

It's important to note that the specific equipment and materials required for animal treatment can vary based on the type of practice, the species being treated, and the specific procedures being performed. Veterinary professionals are trained to select and use the appropriate equipment and materials for each situation to ensure the well-being and safety of the animals under their care.

**2.5.Preparing treatment site**

Preparing the treatment site before administering treatment to an animal is essential to ensure cleanliness, minimize the risk of infection, and create a safe environment for both the animal and the caregiver. Here are some general steps to follow when preparing a treatment site for animal treatment:

**Clean the Area**: Start by cleaning the treatment area thoroughly. Remove any debris, dirt, or foreign objects that may interfere with the treatment process. Use mild soap or a veterinary-approved disinfectant to clean the surfaces, ensuring that they are free from contaminants.

**Gather Equipment and Supplies**: Collect all the necessary equipment and supplies needed for the treatment. This may include syringes, needles, medications, bandages, gloves, and any other specific items required for the treatment procedure.

**Set Up a Sterile Field**: If the treatment requires a sterile environment, set up a sterile field by using sterile drapes or clean disposable towels. This helps maintain a controlled and clean area for the treatment.

**Wear Protective Gear**: Put on appropriate personal protective equipment (PPE) such as gloves, masks, goggles, or gowns, depending on the nature of the treatment and the potential for exposure to bodily fluids or contaminants.

**Restrain the Animal**: Ensure that the animal is properly restrained to prevent any sudden movements that could interfere with the treatment or compromise the safety of both the animal and the caregiver. Use appropriate and humane restraint techniques based on the species and temperament of the animal.

**Isolate the Treatment Site**: If necessary, isolate the treatment site to prevent the animal from moving or escaping during the procedure. This can be done by using a leash, halter, or other appropriate restraints.

**Administer Local Anesthesia** (if applicable): If the treatment involves a procedure that may cause discomfort or pain, administer local anesthesia as directed by a veterinarian. This helps ensure the animal's comfort during the treatment.

**Follow Aseptic Techniques**: If the treatment involves invasive procedures or injections, follow aseptic techniques to minimize the risk of infection. This includes disinfecting the injection site with an appropriate antiseptic solution and using sterile equipment.

**Dispose of Waste Properly**: Dispose of any used needles, syringes, or other medical waste in designated sharps containers. Dispose of other waste materials according to local regulations and guidelines.

**Clean and Disinfect After Treatment**: Once the treatment is complete, clean and disinfect the treatment area again to remove any potential contaminants and maintain a clean environment for future treatments. It's important to note that specific treatment procedures may require additional or specific steps for preparation. Always follow the instructions provided by a veterinarian or healthcare professional to ensure proper preparation and administration of treatment to the animal.

| Self check-2 | Written test |
|---|---|

Name _____ ID. _____ Date _____

**Test-1 choose the best answer**

1. Which of the following is a common clinical sign of dehydration in animals?

A. Increased urination B. Excessive thirst

C. Weight gain D. Hyperactivity

2. Which of the following is a zoonotic disease?

A. Rabies B. Feline Leukemia Virus (FeLV)

C. Canine Parvovirus D. Feline Upper Respiratory Infection (URI)

3. Which of the following parasites commonly infests dogs and causes itching and hair loss?

A. Fleas B. Ticks

C. Heartworms D. Roundworms

4. Which of the following is a common symptom of respiratory disease in cats?

A. Excessive thirst B. Lethargy

C. Increased appetite D. Tail wagging

5. Which of the following is a common symptom of urinary tract infection (UTI) in dogs?

A. Increased appetite B. Excessive thirst

C. Coughing D. Difficulty urinating

Satisfactory rating – 4 points Unsatisfactory - below 4 points

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

| Operation Sheet-2 | |
|---|---|

**2.1. Technique of performing parasitical applying**

**A. Tools and equipment's**

- Applicators
- Gloves
- protective clothing
- Towels or wipes
- Comb or Brush
- Pet Restraint tools
- containers or mixing Bowls
- storage containers

**B. Procedures**

- Read the instructions
- Wear protective gloves
- Choose the right product
- identify appropriate site
- Clean the animal's skin
- part the fur
- apply the recommended dosage
- Avoid contact with eyes
- Allow drying time
- Follow application intervals

| LAP TEST-2 | Performance Test |
|---|---|

Name……. ID…… Date ……

Time started: …… Time finished: …….

**Instructions:** Given necessary templates, tools and materials you are required to perform the following tasks within **10 minutes**. The project is expected from each student to do it.

**Task: 1.** Perform spraying of parasitical agent

| LG #31 | LO #3 Facilitate livestock disease prevention and control program |
|---|---|

**Instruction sheet**

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

- Preparing and implementing vaccination programs
- Reporting animal disease outbreak
- Carrying out disease prevention procedures
- Identifying and recording vaccinated and non-vaccinated animals

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 and implement vaccination programs
- Report animal disease outbreak
- Carry out disease prevention procedures
- Identify and record vaccinated and non-vaccinated animals

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. Perform Operation Sheets
6. Do the “LAP test”
7. Ask from your trainer the key to correction key answers

**Information sheet-3**

## 3.1.Preparing and implementing vaccination programs

### A. General description of vaccine

**Veterinary vaccines**: they are preparations containing antigenic substances which are administered for the purpose of inducing a specific and active immunity against disease provoked by bacteria, viruses, by parasite or antigenic fraction.

**Vaccination:** is the introduction of a vaccine into the body to produce immunity to a specific disease. The vaccine may be administered by subcutaneous, intramuscular, by mouth etc.

Types of vaccines

I. Killed vaccine

Killed vaccine is produced by inactivating the infectious agent (so that it can't replicate in the host) without altering the immunogenicity of the protective protein.

- These vaccines contain **adjuvant that enhances** the immune reaction.
- Booster doses of the inactivated vaccines are often administered annually.
- E.g. black leg vaccine, pasteurellosis

II. Live vaccines

- These type of vaccines are prepared
  1. Using less virulent strain
  2. Attenuating highly virulent strain. Attenuation is usually made by growing of an infectious organism under abnormal culture condition.
- E.g. Rinder pest, Lumpy skin disease, PPR

III. Toxoid vaccines

- They are vaccines prepared from toxins obtained from micro-organisms and has been treated by heat or chemical agents to destroy the dangerous property of the toxin.
- E.g. tetanus vaccine

IV. Autogenous vaccine

It is a vaccine prepared from cultures of material derived from a disease lesion of the animal to be vaccinated.

**Route of vaccination**

- Subcutaneous injection: is particularly convenient in small companion animals where the loose skin at the back of the neck is a commonly used route.
- Intramuscular injection: this route deposits vaccine into location of high vascularity and provides efficient exposure of antigen to the immune system.
- Oral route: this route offers a convenient, powerful route for stimulating local immunity. Mass oral vaccination through drinking water has been used primarily in birds (poultry).
- Intra-dermal injection:
- Intranasal vaccination

B. **Primary and secondary immune response**

Initial immunization with specific antigen induces 'primary immune response' with low levels of Ig M and Ig G production evident by 7 days. When antigen is given again after 2 or more weeks, a more rapid and higher 'secondary immune response' is generated, with a rising Ig G antibody beginning 2-3 days.

**C. Booster vaccination**

Booster vaccination needs to be given at interval to ensure immunological memory for a rapid immune response to pathogens. For most killed vaccines yearly revaccination is recommended.

**D. Vaccination in infected population**

The use of vaccine in endemically infected population is aimed at containment or eradication or eradication.

**E. Group vaccination**: vaccinating a high percentage of population is desirable whether dealing with the control of disease in individual animal or herd.

**F. Curative and/or preventive vaccination**: is primary given per-exposure: however, post exposure vaccine is also administered for diseases with very long incubation period e.g. rabies.

**G. Precaution and contraindication of vaccines**

- Sick animals shouldn't be vaccinated
- Animal under immunosuppressive drug treatment should not be vaccinated within three to four weeks.

- Care should be taken in the use of antibiotics when a vaccine containing live bacteria is administered.
- Stressing of animal to be vaccinated should be avoided
- Don't vaccinate through dirty, wet skin
- Repeated uses of needles and syringes with herd is undesirable
- Liquid preparations should always be adequately shaken before use to ensure uniformity of the material to be injected.

**H. Storage and handling of vaccine**

- ✓ Store under the condition recommended by the manufacturer.
- ✓ Refrigerated store at $2^{o}$c to $8^{o}$c is usually necessary

**Common veterinary vaccines**

| Species | Disease | Description | Dosage | Route | Booster |
|---|---|---|---|---|---|
| Ruminants | anthrax | Live vaccine (Sterne vaccine) | 1ml cattle 0.5 shoats | sc | annually |
| | pasteurellosis | Killed vaccine | 2ml cattle 1ml shoat | sc | Annually |
| | Black leg | Killed vaccine | 2ml cattle | sc | annually |
| | brucellosis | Live vaccine (Rev. strain19) | 5ml cattle | Sc | After 7 year |
| | CBPP | Live attenuated vaccine | 1ml cattle | sc | annually |
| | CCPP | Killed vaccine | 1ml shoat | sc | annually |
| | Lumpy skin | Live vaccine | 1ml | sc | After 2 year |
| | PPR | Live vaccine | 1ml shoat | sc | Life long |
| | Sheep pox | Live vaccine | 1ml | sc | After 2 year |
| | Foot and mouth disease | Bivalent killed vaccine (A&O) | 4ml | sc | annually |
| Equine | anthrax | Live vaccine (sterne vaccine) | 1ml | sc | Annually |
| | African horse sickness | Live vaccine (contain 9 strain) | 1ml | sc | annually |
| | Tetanus | Toxoid vaccine | Follow manufacturer' guide line | | |

Preparing and implementing vaccination programs is an essential aspect of promoting animal health and preventing the spread of infectious diseases. Here are some steps to consider when developing and carrying out a vaccination program. Assess the target population: Determine the specific animals or group of animals you intend to vaccinate. Consider factors such as species, age, geographic location, and risk factors for certain diseases. Identify the prevalent diseases in the target population and prioritize them based on their severity, prevalence, and potential impact on animal health and public health.

Seek guidance from a veterinarian who can provide expertise on the appropriate vaccines, vaccination schedules, and administration methods for the target species. Choose vaccines that are effective against the targeted diseases and approved for use in the specific species. Consider factors such as vaccine efficacy, safety, duration of immunity, and any specific requirements for storage and handling.

Establish a schedule that outlines the recommended timing and frequency of vaccinations. Consider factors such as the age of animals, maternal immunity, disease prevalence, and any legal or regulatory requirements. Maintain accurate and up-to-date records of the vaccination program, including the date of vaccination, the type of vaccine administered, lot numbers, and the identification of vaccinated animals. This documentation is critical for tracking individual animal health, compliance, and disease surveillance.

Determine the appropriate method of vaccine administration for the target species, whether it is through injection, oral delivery, or intranasal application. Train personnel or engage veterinary professionals to administer vaccines safely and effectively. Develop communication strategies to inform animal owners, caretakers, and relevant stakeholders about the importance of vaccination, the benefits, and the vaccination schedule. Provide educational materials and resources to enhance understanding and compliance.

Implement a system to monitor the vaccination program's effectiveness, track disease incidence rates, and assess any adverse reactions or vaccine failures. Regularly evaluate the program's outcomes and make adjustments as needed. Continuously stay informed about emerging diseases, new vaccines, and updated guidelines or recommendations from veterinary authorities. Adapt the vaccination program accordingly to address any changes in disease patterns or vaccine

technology. Remember, it is crucial to consult with a veterinarian or animal health professional for specific guidance tailored to your target population and local requirements. They can provide valuable insights and help ensure the vaccination program aligns with the best practices and standards of care.

### 3.2.Reporting animal disease outbreak

An outbreak or an epidemic is the occurrence of more cases of disease that expected in a given area or among a specific group of animal/ people over a particular period of time should report to veterinarian around the farm. Disease outbreak is an outbreak which abruptly affects a large number of animals of all ages in a specified region, in a short time span. An outbreak can be generated by: The introduction of the causative organism into a susceptible population. This introduction can be a primary introduction or a re-introduction after a delay such that the population has lost its immunity. The introduction of susceptible hosts into a population where one or more diseases have attained an endemic status. Normally this form of outbreak will be limited to the introduced host population.

Most outbreaks come to the attention of health departments in one of two ways. One way is by regular analysis of surveillance data. Unusual rises or patterns of disease occurrence can be detected promptly if surveillance data collection and analysis are timely. The second, and probably more common, way is through calls from a health care provider or citizen who knows of "several cases.

Why Investigate Possible Outbreaks?

Health departments investigate suspected outbreaks for a variety of reasons. These include

- Control and prevention measures
- The opportunity for research and training

Another important objective of outbreak investigations is, simply, to gain additional knowledge. Each outbreak may be viewed as an experiment of nature waiting to be analyzed and exploited. Each presents a unique opportunity to study the natural history of the disease in question. For a newly recognized disease, field investigation provides an opportunity to define the natural history--including agent, mode of transmission, and incubation period--and the clinical spectrum of disease.

- ✓ Public relations: the public has taken an interest in disease cluster and potential environmental exposure.
- ✓ Political concerns
- ✓ Legal obligations: many health departments have learned that it is essential to be "responsibly responsive" to public concerns.

### 3.3.Carrying out disease prevention procedures

Carrying out disease prevention procedures is crucial for maintaining the health and well-being of animals. Here are some general steps to consider when implementing disease prevention procedures. Implement strict biosecurity protocols to minimize the introduction and spread of diseases. This includes controlling access to animal facilities, practicing good hygiene, and preventing contact between healthy and sick animals. Establish a quarantine period for newly acquired animals or those returning from events or locations where they may have been exposed to infectious diseases. During quarantine, monitor animals for signs of illness and conduct appropriate testing before introducing them to the general population.

Develop and implement vaccination programs tailored to the specific needs of the animal population. Consult with a veterinarian to determine the appropriate vaccines, schedules, and administration methods for the target species. Conduct routine health examinations to detect early signs of illness or disease. This may include physical examinations, laboratory testing, and monitoring of vital parameters.

Maintain clean and sanitary conditions within animal facilities. Regularly clean and disinfect equipment, housing, and common areas to reduce the risk of disease transmission. Implement measures to control pests such as rodents, insects, and parasites. These pests can carry and spread diseases to animals.

Ensure animals receive appropriate nutrition and are managed in a way that promotes their overall health and immune system function. A balanced diet, access to clean water, and appropriate housing conditions are essential. Provide training and education to animal caretakers and staff members on disease prevention practices, including proper hygiene, biosecurity measures, and recognizing signs of illness. Promote a culture of proactive disease prevention throughout the organization.

Maintain accurate and up-to-date records of animal health, vaccinations, treatments, and disease incidences. Regularly monitor and analyze the data to identify trends, assess the effectiveness of disease prevention strategies, and make informed decisions. Establish a working relationship with veterinarians who can provide guidance, conduct health assessments, and assist with disease prevention and management strategies. Remember, specific disease prevention procedures may vary depending on the species, location, and individual circumstances. It is important to consult with a veterinarian or animal health professional to develop a comprehensive disease prevention plan tailored to your specific situation.

### 3.4.Identifying and recording vaccinated and non-vaccinated animals

Identifying and recording vaccinated and non-vaccinated animals is an important part of managing and monitoring vaccination programs. Here are some steps to consider for this process. Assign a unique identifier to each animal in your population. This can be achieved through ear tags, tattoos, microchips, or other identification methods. Ensure that the identification method used is reliable, durable, and easily visible.

Vaccination record keeping: Establish a system for recording and maintaining vaccination records for each animal. This can be done manually using paper-based records or digitally using electronic databases or software. The record should include the animal's identification, date of vaccination, type of vaccine administered, lot number, and any other relevant details.

Visual indicators: Consider using visual indicators to distinguish vaccinated and non-vaccinated animals. For example, you can attach colored leg bands, ear tags, or other visible markers to indicate vaccination status. This can help in quick visual identification and management of animals.

Documentation and certification: If required, provide vaccination certificates or documentation to owners, caretakers, or relevant authorities as proof of vaccination. These documents should include all pertinent information about the animal, the administered vaccine, and the veterinarian or person responsible for administering the vaccine.

Regular updates: Ensure that vaccination records are regularly updated as new vaccinations are administered or booster shots are given. It is essential to maintain accurate and current

information to effectively manage the vaccination program and monitor the health status of individual animals.

Data management: If using electronic databases or software for record-keeping, ensure that the system is secure, backed up regularly, and easily accessible. Consider using features that allow data analysis and reporting to track vaccination coverage rates, identify trends, and generate vaccination status reports.

Cross-checking and verification: Regularly cross-check vaccination records with the actual animals to ensure accuracy. This can be done during routine health checks or when handling animals for other purposes. Verify that the identification matches the recorded vaccination status.

Confidentiality and privacy: Ensure that vaccination records are handled confidentially and comply with applicable privacy regulations. Protect sensitive information related to owners, caretakers, and animal health.

| Self check-3 | Written test |
|---|---|

Name _____ ID. _____ Date _____

**Test-1 choose the best answer**

1. Which of the following is a common method for recording animal health information?

A. Paper-based records B. Smoke signals

C. Morse code D. Telepathy

2. Which of the following is a primary purpose of animal vaccination?

A. Enhancing intelligence B. Improving coat color

C. Preventing infectious diseases D. Increasing appetite

3. Which of the following materials is commonly used to work around animal health?

A. Stethoscope B. Hammer

C. Screwdriver D. Paintbrush

4. Why is it important to carefully select materials when working around a sick animal?

A. To match the animal's favorite color B. To ensure safety and prevent injury

C. To test the animal's artistic preferences D. To make the animal feel more comfortable

5. Which of the following factors can contribute to the overall health of animals?

A. Proper nutrition B. Watching television

C. Wearing fashionable accessories D Listening to music

Satisfactory rating – 4 points Unsatisfactory - below 4 points

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

| LG #32 | LO #4 Carryout post treatment activities |
|---|---|

**Instruction sheet**

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

- Monitoring post- treatment animal's and reporting abnormalities
- Identifying, assessing and controlling environmental implications
- Cleaning equipment and worksite
- Disposing wastes
- Documenting relevant information

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:

- Monitoring post- treatment animal's and reporting abnormalities
- Identifying, assessing and controlling environmental implications
- Cleaning equipment and worksite
- Disposing wastes
- Documenting relevant information

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
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7. Ask from your trainer the key to correction key answers

**Information sheet-4**

### 4.1.Monitoring post- treatment animal's and reporting abnormalities

Monitoring animals after treatment is an essential part of ensuring their recovery and well-being. Here are some general guidelines for monitoring post-treatment animals. Carefully follow the instructions provided by the veterinarian regarding post-treatment care. This may include medication administration, wound care, dietary restrictions, activity limitations, and any other specific instructions.

Regularly observe the animal for any changes in behavior, appetite, or physical condition. Monitor for signs of improvement or any adverse reactions to the treatment. Pay attention to factors such as energy levels, eating and drinking habits, mobility, and overall demeanor. Monitor vital signs such as body temperature, heart rate, and respiratory rate, if applicable and as instructed by the veterinarian. Abnormalities in these vital signs may indicate potential complications or the need for further medical attention.

If the animal has undergone surgery or has wounds, follow the prescribed wound care regimen. This may involve cleaning the wound, changing dressings, administering topical medications, or preventing the animal from disturbing the wound. Administer any prescribed medications as instructed by the veterinarian. Ensure that the correct dosage and frequency are followed. Monitor for any adverse reactions or side effects from the medication.

Provide the animal with appropriate and balanced nutrition as recommended by the veterinarian. Some animals may require a special diet during the recovery period. Ensure that the animal is eating and drinking adequately. Create a suitable environment for the animal's recovery. Provide a clean, comfortable, and stress-free space with appropriate temperature and ventilation. Minimize exposure to potential hazards or sources of infection.

Maintain regular communication with the veterinarian and provide updates on the animal's progress. Report any concerns, changes in condition, or unexpected symptoms promptly. If the animal's treatment involved restricted activity, gradually reintroduce normal activities as advised by the veterinarian. Follow any recommendations for exercise, physical therapy, or

rehabilitation. Maintain accurate records of the animal's post-treatment progress. Keep track of any changes in behavior, symptoms, or observations. This documentation can be valuable for future reference or if further veterinary consultations are necessary.

Remember, specific monitoring requirements may vary depending on the type of treatment, condition, and individual animal. It is crucial to consult with a veterinarian for personalized guidance and to address any specific concerns related to monitoring post-treatment animals.

Reporting abnormalities of animals is important for timely intervention and appropriate medical care.

Take note of any abnormal behaviors, physical changes, or symptoms exhibited by the animal. This may include changes in appetite, energy levels, mobility, appearance, or any signs of distress or discomfort. Document these observations in detail, including the date, time, and specific abnormalities noticed.

Reach out to a veterinarian or animal healthcare professional as soon as possible. Inform them about the abnormal findings and provide a clear description of the animal's condition. Be prepared to share the animal's medical history, recent treatments or medications, and any relevant information that may assist in the assessment. Explain the circumstances surrounding the abnormality. If there was an event, injury, or exposure that may have contributed to the abnormality, share that information with the veterinarian. This additional context can help in diagnosing and treating the animal appropriately.

Follow the instructions provided by the veterinarian regarding the next steps. This may involve scheduling an appointment for a physical examination, providing additional information, or following specific protocols or treatments. Adhere to these instructions and communicate any changes or developments to the veterinarian. Clearly and accurately communicate all the relevant details to the veterinarian. Use specific and descriptive language to convey the animal's condition, symptoms, and any changes observed. Avoid making assumptions or speculating about the cause of the abnormality.

Maintain a record of all communications, including dates, times, and details of discussions with the veterinarian. This documentation can help ensure continuity of care and serve as a reference

for future consultations or follow-ups. If necessary, follow up with the veterinarian to provide updates on the animal's condition or response to treatment. Be proactive in seeking additional guidance or clarification if needed. Remember, early reporting of abnormalities is crucial for timely intervention and successful treatment.

### 4.2.Identifying, assessing and controlling environmental implications

Identifying, assessing, and controlling environmental implications around animal farms is essential to minimize the potential negative impact on the environment and ensure sustainable practices. Identification of environmental aspects: Identify the key environmental aspects associated with animal farming. These may include air and water pollution, soil degradation, greenhouse gas emissions, waste management, and the use of resources such as water and energy. Assess the potential environmental impacts resulting from these aspects.

Conduct a thorough environmental assessment of the farm. This may involve evaluating the farm's location, proximity to sensitive areas (such as water bodies or residential areas), and the potential impact of activities on local ecosystems. Consider the specific animal species being raised, the size of the farm, and the management practices employed.

Implement systems to monitor and collect data on environmental parameters. This can include monitoring water quality, air emissions, and soil health. Regularly assess and analyze the collected data to identify trends, areas of concern, and potential improvements. Understand and comply with relevant environmental regulations, permits, and standards. Familiarize yourself with local, regional, and national regulations that may apply to animal farming operations. This includes regulations regarding waste management, water usage, emissions, and land use.

Implement best management practices (BMPs) specific to animal farming to minimize environmental impacts. These may include proper manure management, nutrient management plans, erosion control measures, and responsible use of water and energy resources. Adopting BMPs can help mitigate pollution, conserve resources, and protect ecosystems.

Develop and implement effective waste management strategies. This may involve proper storage, treatment, and disposal of animal waste, including manure. Consider using methods such

as composting, anaerobic digestion, or nutrient management plans to reduce the environmental impact of waste.

Manage nutrient inputs, such as fertilizers and feed, to minimize nutrient runoff and water pollution. Optimize feed formulations to reduce excess nutrients, apply fertilizers judiciously, and implement practices to prevent nutrient runoff from reaching water bodies. Implement water conservation measures, such as using efficient irrigation systems, reducing water usage in animal housing facilities, and properly managing wastewater or runoff. Consider technologies like rainwater harvesting or water recycling systems to minimize water consumption.

Identify opportunities to improve energy efficiency on the farm. This may include using energy-efficient equipment and lighting, optimizing ventilation systems, and exploring renewable energy sources such as solar or wind power. Regularly review and update environmental management practices based on new technologies, research, and industry best practices. Seek opportunities to collaborate with agricultural extension services, universities, or industry organizations to stay informed about emerging practices and technologies.

Remember, environmental implications can vary based on the specific farm, animal species, and geographical location. It is crucial to tailor environmental management practices to the specific needs and conditions of the farm while striving for sustainable and responsible farming practices. Consulting with environmental specialists, agricultural advisors, or relevant regulatory agencies can provide valuable guidance in implementing effective environmental management strategies.

### 4.3.Cleaning equipment and worksite

Cleaning equipment and the worksite on an animal farm is essential for maintaining a clean and safe environment for both the animals and the people working on the farm. Here are some steps to follow:

A. Personal Protective Equipment (PPE): Before starting any cleaning activities, ensure you are wearing appropriate PPE, such as gloves, boots, coveralls, and face masks, to protect yourself from potential hazards, chemicals, or infectious agents.

B. Remove animals: If the equipment or worksite is located in an area with animals, ensure they are safely and temporarily relocated to another area to prevent interference and potential harm during the cleaning process.

C. Remove loose debris: Remove any loose debris, manure, or bedding using shovels, brooms, or other suitable tools. Dispose of the waste according to farm protocols, local regulations, or recycling practices.

D. Pre-rinse: Use a high-pressure hose or water source to pre-rinse the equipment and worksite, removing as much dirt and organic matter as possible.

E. Cleaning solutions: Select appropriate cleaning solutions or detergents specifically designed for farm use. Follow the manufacturer's instructions for proper dilution ratios and application methods. Use brushes, scrubbers, or other cleaning tools to clean all surfaces thoroughly.

F. Scrub and sanitize: Scrub all equipment, such as feeding troughs, waterers, and milking equipment, using the chosen cleaning solution. Pay close attention to areas that are hard to reach or prone to build up. Rinse off the cleaning solution after scrubbing.

G. Disinfection: After cleaning, apply a suitable disinfectant to kill any remaining pathogens or microorganisms. Ensure the disinfectant is appropriate for use on the specific equipment and surfaces. Follow the manufacturer's instructions for proper contact time and concentration.

H. Drying: Allow the equipment and worksite to air dry completely. Proper drying helps prevent the growth of bacteria or fungi. Ensure adequate ventilation to facilitate the drying process.

I. Inspect and maintain: Regularly inspect the equipment for any signs of damage or wear. Repair or replace any faulty or worn-out parts to maintain the equipment's functionality and safety.

J. Clean the worksite: Clean the surrounding areas, including floors, walls, and walkways. Remove any waste, manure, or debris to maintain cleanliness and minimize the risk of disease transmission.

K. Regular maintenance: Establish a schedule for regular cleaning and maintenance of equipment and the worksite. This includes routine cleaning tasks as well as periodic deep cleaning to ensure cleanliness and prevent the buildup of dirt, pathogens, or pests.

L. Record-keeping: Maintain records of cleaning activities, including dates, cleaning solutions used, and any issues or observations. This helps track cleaning schedules, identify trends, and demonstrate compliance with regulations or quality assurance programs.

Always follow any specific cleaning protocols or guidelines provided by regulatory agencies, industry standards, or veterinarians, as they may have additional requirements or recommendations tailored to your specific animal farm. Regular cleaning and maintenance are crucial for promoting animal health, biosecurity, and overall farm productivity. When it comes to cleaning equipment and sites on an animal farm, there are several specific tools and equipment that are commonly used. Here are some examples:

- Manure Forks
- Wheelbarrows or Carts
- Power Washers
- Barn Scrubbers
- Vacuum Systems
- Water Hoses and Nozzles
- Scrub Brushes and Brooms
- Muck Spreaders
- Personal Protective Equipment (PPE)
- Disinfectant Sprayers/Foggers

It's essential to select the appropriate cleaning equipment based on the specific cleaning task, the size of the area, and the type of surface or material being cleaned. Follow safety guidelines and manufacturer's instructions for proper use and maintenance of the equipment. Cleaning an animal farm involves several steps to ensure a clean and hygienic environment for the animals and farm personnel. Here is a general procedure for cleaning an animal farm:

Assess the areas that need cleaning and create a cleaning schedule. Ensure you have all the necessary cleaning equipment, tools, and cleaning agents before starting the process. Safely and temporarily relocate the animals to a designated area or separate pens to prevent interference during the cleaning process. Use shovels, rakes, or brooms to remove any loose debris, such as manure, bedding, or feed, from animal pens, stalls, or barns. Dispose of the waste following farm protocols or local regulations.

Use a hose, power washer, or water source to pre-rinse the surfaces, including floors, walls, and equipment. This helps remove loose dirt and organic matter. Prepare appropriate cleaning solutions or detergents recommended for use in animal farming. Follow the manufacturer's

instructions for dilution ratios and safety precautions. Use scrub brushes, brooms, or power washers to clean all surfaces thoroughly. Pay close attention to areas with stubborn stains, accumulated dirt, or hard-to-reach corners. Scrub equipment, feeding troughs, waterers, and any other items that require cleaning.

After cleaning, apply a suitable disinfectant to kill any remaining pathogens or harmful microorganisms. Ensure the disinfectant is appropriate for the specific surfaces and equipment being treated. Follow the manufacturer's instructions for proper contact time and concentration. After the appropriate contact time, rinse all surfaces, equipment, and pens with clean water to remove any residue from the cleaning agents or disinfectants. Ensure thorough rinsing to prevent any chemical residues that could be harmful to animals.

Allow the surfaces, equipment, and pens to air dry completely. Proper drying helps prevent the growth of bacteria and fungi. Ensure adequate ventilation to facilitate the drying process. Inspect all equipment and facilities for any signs of damage, wear, or malfunction. Repair or replace any faulty or worn-out parts to maintain the functionality and safety of the equipment.

After cleaning, replace bedding materials, such as straw, shavings, or sawdust, as needed. Ensure clean and fresh bedding is provided for the animals' comfort and hygiene. Maintain records of the cleaning activities, including dates, cleaning solutions used, and any observations or issues encountered during the process. This helps track cleaning schedules, monitor trends, and demonstrate compliance with regulations or quality assurance programs.

It's important to follow any specific cleaning protocols or guidelines provided by regulatory agencies, industry standards, or veterinarians that may be specific to your animal farm. Regular cleaning and maintenance are crucial for promoting animal health, biosecurity, and overall farm productivity.

### 4.4.Disposing wastes

The disposal of waste materials from an animal farm is an important aspect of farm management to maintain cleanliness, prevent environmental pollution, and minimize the risk of disease transmission. Here are some common methods for disposing of waste materials from an animal farm:

I. Manure Management:

Land Application: Manure can be spread or injected into fields as a natural fertilizer. This method allows for nutrient recycling and can benefit crop growth when applied at appropriate rates and timing. It's important to follow local regulations regarding setbacks from water bodies and application rates.

Composting: Composting involves creating controlled piles or bins of manure mixed with organic materials such as straw or wood chips. The composting process helps break down the manure, reducing odor and pathogens. The resulting compost can be used as a soil amendment or sold as a product.

Anaerobic Digestion: Large-scale farms may utilize anaerobic digesters, which break down manure in an oxygen-free environment. This process produces biogas (methane) that can be used for energy generation, and the digested material can be used as a nutrient-rich fertilizer.

II. Solid Waste Disposal:

Waste Separation and Recycling: Segregate recyclable materials, such as plastics or metal, from general waste. These materials can be sent for recycling, reducing the environmental impact. Follow local recycling guidelines and facilities for proper disposal.

Waste Disposal Services: Consult with local waste management services to arrange for proper collection and disposal of non-recyclable waste. They may provide specific guidelines for disposal, such as using designated waste bins or arranging scheduled pickups.

III. Chemical and Hazardous Waste:

Proper Storage and Disposal: Store chemicals, medications, and other hazardous waste in designated containers according to their specific requirements. Follow local regulations and guidelines for the safe disposal of these materials. Contact local authorities or waste management services for specific instructions.

IV. Effluent Management:

Wastewater Treatment: Implement proper containment, treatment, or disposal methods for farm effluents, such as wastewater from cleaning or milking processes. This may involve the use of

settling ponds, filtration systems, or treatment plants to remove contaminants before discharge or reuse. It's important to stay informed about local regulations, guidelines, and best practices for waste management and disposal specific to your region and type of animal farm. Developing a comprehensive waste management plan, training farm personnel on proper waste handling, and maintaining accurate records can help ensure compliance and environmentally responsible practices.

**4.5.Documenting relevant information**

Documenting relevant information about an animal farm is crucial for record-keeping, farm management, regulatory compliance, and effective decision-making. Here are some key pieces of information that should be documented:

A. Farm Identification:

- ✓ Farm name, address, and contact information
- ✓ Owner(s) or manager(s) contact details

B. Animal Inventory:

- ✓ Species of animals present on the farm (cattle, poultry, pigs, etc.)
- ✓ Number of animals by species and age groups (adults, juveniles, etc.)
- ✓ Breeds or genetic lines of animals
- ✓ Identification methods used (ear tags, leg bands, microchips, etc.)

C. Health and Veterinary Records:

- ✓ Vaccination history for each animal
- ✓ Medications administered and treatment records
- ✓ Disease outbreaks and treatment procedures
- ✓ Veterinary visits and consultations

D. Feeding and Nutrition:

- ✓ Feed types and formulations used
- ✓ Feeding schedule and quantities
- ✓ Supplements or additives given to animals

- ✓ Feed quality and source information

E. Reproduction and Breeding:

- ✓ Breeding records including mating dates and pairings
- ✓ Pregnancy diagnoses and outcomes
- ✓ Birth records and offspring details
- ✓ Genetic information (parentage, pedigrees, genetic testing results)

F. Production and Performance:

- ✓ Milk production (for dairy farms) or egg production (for poultry farms) records
- ✓ Growth rates and weight measurements
- ✓ Production targets and actual performance data
- ✓ Feed conversion ratios and efficiency measures

G. Waste Management:

- ✓ Manure management practices and documentation
- ✓ Wastewater treatment records
- ✓ Waste disposal methods and frequency
- ✓ Compliance with environmental regulations

H. Financial Records:

- ✓ Income and expenses related to the farm operations
- ✓ Purchase and sale records for animals, feed, and equipment
- ✓ Loan agreements and financial statements
- ✓ Tax-related documents

I. Equipment and Maintenance:

- ✓ Inventory of farm equipment and machinery
- ✓ Maintenance and repair records
- ✓ Equipment purchase or replacement history
- ✓ Safety inspections and compliance records

J. Farm Activities and Events:

- ✓ Important dates and activities (harvesting, breeding season, vaccination campaigns, etc.)
- ✓ Farm events, workshops, or training sessions
- ✓ Visitor log and records of farm tours or educational programs

It is advisable to maintain both physical and digital copies of these records, ensuring their accuracy, organization, and accessibility. Regularly updating and reviewing the documentation will help in effective farm management and facilitate communication with regulatory bodies, veterinarians, and other stakeholders.

| Self check-4 | Written test |
|---|---|

Name _____ ID. _____ Date _____

**Test-1 choose the best answer**

1. Which of the following methods is commonly used for monitoring the health and behavior of farm animals?

A. Visual observation B. remote sensing

C. Genetic testing D. Thermal imaging

2. Which of the following is an appropriate cleaning method for maintaining cleanliness and hygiene at a work site and animal farm?

A. Sweeping and manual removal of debris B. Using high-pressure water jets

C. Applying chemical disinfectants without rinsing D. Leaving the area untreated

3. Why is documenting important in an animal farm?

A. To track animal health and medical treatments

B. To comply with legal and regulatory requirements

C. To monitor production and performance metrics

D. All of the above

4. Which of the following is an example of an external parasite that commonly affects animals?

A. Tapeworm B. Heartworm

C. Flea D. Hookworm

5. Which of the following factors is important for ensuring biosecurity on an animal farm?

A. Allowing free access for visitors B. Mixing different species of animals together

C. Implementing quarantine procedures D. Ignoring proper waste management practices

Satisfactory rating - 8 points Unsatisfactory - below 8 points

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

| Operation Sheet-4 | |
|---|---|

### 4.1. Technique of cleaning animal farm waste

**A. Tools and equipment's**

- Manure Forks
- Wheelbarrows Carts
- Power washers
- Barn Scrubbers
- Vacuum systems
- Disinfectant Sprayers/Foggers
- Water Hoses and Nozzle
- Scrub Brushes and Brooms
- Muck Spreaders
- Personal Protective Equipment (PPE)

**B. Procedures**

- Remove animal
- Remove loose debris
- Pre-rinse
- Cleaning solution preparation
- Scrub and clean
- Disinfection
- Rinse
- Dry
- Inspect and maintain
- Bedding and replenishment

| LAP TEST-4 | Performance Test |
|---|---|

Name……. ID…… Date ……

Time started: …… Time finished: …….

**Instructions:** Given necessary templates, tools and materials you are required to perform the following tasks within **30 minutes**. The project is expected from each student to do it.

**Task: 1.** Perform cleaning of Barns (milking house)

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**A. Books**

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https://youtu.be/CAj4wQCbEdQ

The bold address indicate that the Trainer who develop the Module

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