Dairy production

Level –III

Learning Guide-37

Unit of Competence: Implement animal health control programs

Module Title: Implementing animal health control programs

LG Code: AGR DRP3 M10 LO1 LG37

TTLM Code: AGR DRP3 TTLM 1119v1

LO 1: Monitor and assess animal health

Instruction Sheet 1	Learning Guide 37

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

- Selecting, using and maintaining suitable *personal protective clothing and equipment* (PPE)
- preparing and implementing work plan of animal health program
- Taking regular observations to assess animals' health
- recognizing and reporting symptoms of ill health and common diseases or parasite infestations
- Recording animal health and welfare status

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

- Suitable personal protective clothing and equipment (PPE) is selected, used and maintained.
- Work plan of animal health program is prepared and implemented according to the enterprise guidelines.
- Regular observations are taken to assess animals' health according to the requirements of the organization.
- Symptoms of ill health and common diseases or parasite infestations are recognized and reported.
- Animal health status is recorded in accordance with enterprise requirements.
- OHS hazards are identified, risk assessed and suitable controls implemented.
- Animal welfare status is recorded in accordance with enterprise and legislative requirements

Learning Instructions:

1. Read the specific objectives of this Learning Guide 37.
2. Follow the instructions described in number 1 to 7.

3. Read the information written in the “Information Sheet (**1, 2, 3 ,4 and 5**) in page 4**, 7, 10, 13, and 16** respectively
4. Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.
5. Accomplish the **“Self-check** (**1, 2, 3, 4 and 5**) in page **6, 9, 12, 15 and 18** respectively.
6. If you earned a satisfactory evaluation from the “Self-check” proceed to “Operation Sheet 1” **in page --.**
7. Do the “LAP test” in page **-** (if you are ready). Request your teacher to evaluate your performance and outputs. Your teacher will give you feedback and the evaluation will be either satisfactory or unsatisfactory. If unsatisfactory, your teacher shall advice you on additional work.

Information sheet-1	Selecting, using and maintaining suitable personal protective clothing and equipment (PPE)

Personal protective equipment (PPE)

Personal protective equipment (PPE) is the term given to items worn to help safeguard the wearer from physical and health hazards. PPE provides the last barrier(s) between the person wearing it and the hazard necessitating it,

In addition to being used when working with patients, personal protective equipment is needed when working with certain medications, laboratory specimens, and other substances. Employers, including veterinarians, are responsible for assessing their workplace for hazards, providing employees with appropriate protective equipment and the training to use it, requiring proper use of that equipment, and conveying all workplace hazards and safety measures in written workplace hazard communications.

Personal protection also extends to:

- Wearing appropriate personal protective equipment (PPE) as well as appropriate clothing under the PPE – i.e. no open toed shoes and the legs and arms should be covered to prevent contamination potential.
- Using, when applicable, good engineering controls such as:
  - Restraint devices
  - Local exhaust ventilation systems
- Maintaining emergency response equipment and understanding how to use it

Personal Protective Equipment

Personnel can use the following equipment for protection from occupational safety and health risks:

- PPE
  - Disposable gowns
  - Coveralls
  - Gloves

- Shoe covers
- Head covers
- Face masks
- Eye protection

- Respiratory protection: used to protect personnel from airborne hazards
- Hearing protection: is potential for exposure to elevated noise levels in many animal facilities such as animal cage wash and animal rooms

Self-Check -1	Written Test

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

1. What is the use of Personal protective equipment? (3pts)
2. _____ used to protect personnel from airborne hazards? (3 pts)
3. What is the use of hear protection? (3 pts)

Note: **Satisfactory rating – 9 points** **Unsatisfactory - below 9 points**

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

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

1. _____
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2. _____
   _____
3. _____
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Information sheet-2	Preparing and implementing work plan of animal health program

Work plan of animal health program

This is a specific-year commitment that involves farmers taking a proactive approach to raising livestock health and welfare standards and contributing to farm business profitability and product quality on the basis of individual veterinary advice and forward planning.

Support for farmers is available towards the cost of implementing an individual program that reflects particular farm management supported activities, including:

- ☞ Animal Health and Welfare Management Plan
- ☞ Performance Monitoring / Benchmark
- ☞ Bio-security (including fencing, quarantine facilities etc.)
- ☞ Sampling (livestock blood/disease sampling)
- ☞ Forage Analysis (quality of feed)

The approach to proactive health planning is based on three key principles of: **Measurement**– identifying the impact of health on the performance of stock, good record keeping for benchmarking and identification of problem areas;

Management - prioritizing control measures for these problems using cost/benefit calculations and the most effective management methods. Development of action plans for specific issues;

Monitoring– using good recording, assessing effectiveness of measures and reviewing/revising health plan accordingly.

This requires a four-stage process:

- ➢ Health and disease parameters surveillance
- ➢ Risk analysis and cost benefit assessment
- ➢ Risk management decision making
- ➢ Monitoring and reviewing outcomes

When planning disease control policies the following must be considered:

• The distribution of the disease, i.e. how widespread it is in the farm and how far it is expected to spread;

• The economic impact of the disease on your farm and the benefits to be gained by its eradication. This should include any direct effects, such as loss of production, milk supply, draught power, etc., as well as the effect on trade in animal products;

• Methods of preventing a resurgence of the disease after it has been eradicated.

• Methods of controlling and eradicating the disease. These must be practical and sustainable;

• Availability of sufficient financial support;

• The presence of necessary legal powers.

Investigations of Health and Production Problems

Even on the best managed farms, unexpected health and production problems arise. Surveillance programs incorporated in health and production management programs should detect problems early, before considerable financial damage has occurred.

Systems to investigate herd outbreaks have been described. Epidemiologic concepts of disease investigation are useful to identify risk factors and to stimulate corrective action

Self-Check -2	Written Test

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

1. What are the three key principles approaches to proactive health planning is based on of? (5pts)
2. What will be considers up on planning disease control policies? (3 points)

Note: **Satisfactory rating – 10 points** **Unsatisfactory - below 10 points**

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

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

1 _____

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2 _____

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Information sheet -3	Taking regular observations to assess animals' health

Daily observation of animal's health

Daily observation of all animals is part of good husbandry practices. It is extremely important that dealers, exhibitors, and research facilities meet this requirement to detect possible problems, including disease and abnormal behavior.

Early detection and treatment improves animal outcomes and can save time and money. For example, an animal observed with a small laceration or wound on the day the injury occurred may only require cleaning and minimal medication and treatment, while the same laceration observed several days later may be infected and require more extensive and expensive treatment with a higher risk to the animal's health and well-being.

- ➔ **WHEN.** Generally, it is most effective to observe and assess an animal's health and well-being as a single and separate task, rather than combining it with other tasks or chores. If daily observations are combined with other tasks, the potential for missing something crucial increases, as the focus is on completing all of the tasks rather than observing the animal.
- ➔ **HOW**. Observe each animal daily to assess its health and well-being. Carefully observe each animal from head to tail, including each part of its body and behavior, for abnormalities that may indicate a potential problem. Also, look at the feces, and discharge from the animal if there is any, for signs of abnormalities. Establish a consistent method for conducting your daily observations. We encourage facilities to consult with their attending veterinarian on how to perform daily observations of animals. Many facilities have found checklists and similar tools helpful for ensuring daily observations are consistent and effective in assessing animal health and well-being.
- ➔ **WHAT**. Things to consider when conducting your observations (not limited to the following):
    - **Physical attributes**: How does the animal look? Are there any abnormalities? Consider handling the animal if safe and appropriate to do so. Not only will you

be able to use touch as an observational tool, you will also promote social interactions and neurological well-being.

Body

- ☞ Is hair coat normal? Glossy or dull, hair loss?
- ☞ Under or over weight? Can you see the ribs?
- ☞ Itching? Scabbing? Lumps? Bumps? Parasites?

Head

- ☞ Eyes – clear, discharge, winking or blinking excessively?
- ☞ Ears/Nose – clean, discharge or buildup?
- ☞ Mouth/Teeth/Gums - clean, buildup (tartar), bleeding or injuries?

Limbs/Extremities

- ➔ Feet – Nails/Claws/Hooves proper length, wounds or abnormalities?
- ➔ Joints – calluses, mobility, lameness?

- **Behavior:** Is the animal acting normal? Is the movement or gait normal? Is the animal lethargic or displaying behaviors consistent with sickness, stress, or boredom? Does the behavior change when you move closer or further from the animal? For example, does the animal act stoic and appear to be normal upon closer examination, but when walking away or from a distance the animal appears to have a limp or injury or displays different behavior.
- **Environment**: Is the animal's environment safe? Are environmental controls (temperature, humidity, shelter from elements) adequate for the species and the season?

Animal Keeper

Keepers are responsible for independently providing the day-to-day care and maintenance of animals and the exhibits in which they are housed. Primary Keeper Responsibilities; Position Description – Animal Keeper):

- Daily inspections of all animals in their care and reporting of any evidence of illness, injury, or abnormal behavior to the curator and veterinarian.
- Feeding and watering assigned animals, including preparation of food, and placement in animal enclosures. Maintaining current records on food and water consumption and report deviations from normal or expected patterns.

- Daily cleaning of exhibit interiors and exteriors, service areas, and public areas adjacent to the animal enclosure.
- Regularly inspecting and maintaining of exhibit area, including trimming and watering of plants, maintenance of furniture, mechanical and life-support systems, and either correcting or referring the problems to the supervisor.
- Applying the approved enrichment plan for each assigned animal.
- Completing daily reports on assigned animals.

Self-Check -3	Written Test

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

1. What are things to consider when conducting your observations? (3pts)

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

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

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

1

_____

_____-

Information sheet -4	Recognizing and reporting symptoms of ill health and common diseases or parasite infestations

4.1 Recognize Visual Signs of Cattle Illness

When using visual appraisal, one of the most important signals of illness is appetite suppression. Feed consumption of cattle exposed to respiratory disease begins to decrease about 48 hours before increased body temperature is observed.

The most effective time to observe the feeding behavior of cattle is when they are fed each day. Unfortunately, it is difficult to monitor daily feeding patterns of grazing cattle or calves on self-feeders. In this case, observe signs of gut fill. Cattle that have not been eating and drinking properly appear gaunt, and their abdomens often bounce when they walk. Rapid weight or body condition loss also indicates illness.

Other later occurring signs of illness include labored breathing, deep coughing, eye and nasal discharge, bloody diarrhea, or depression. Depression is noted as drooping head and ears, excessively slow movement, lagging behind the rest of the herd, and reluctance to get up when approached.

These symptoms occur after sick cattle have gone off feed and their rectal temperature has risen. Therefore, it is extremely important to thoroughly observe cattle daily to catch illness early and begin an effective treatment protocol.

Vaccination can produce signs of illness in some situations. Discuss expected effects of specific vaccines on cattle before administration to distinguish between an animal that is ill and one that is suffering a temporary side effect of vaccination.

Examining cattle manure can also help identify sick animals. Loose manure with large feed particles, mucus, or blood can indicate illness or injury. While it may be difficult to identify a specific animal in grazing situations, producers can at least be alerted to watch the herd closer. Cattle often defecate during handling, so plan to observe manure during this time.

4.2 Report for veterinary and office

Identify and manage sick or injured cattle promptly. When cattle go “down,” it is often because their initial problems were ignored. A treatment plan should be in place once sick or injured cattle are identified. Consult with a veterinarian to develop this plan.

Report over all sign to veterinary for situations that may require treatments not outlined in standard herd health plans. For more information on identifying sick or injured cattle, contact an office.

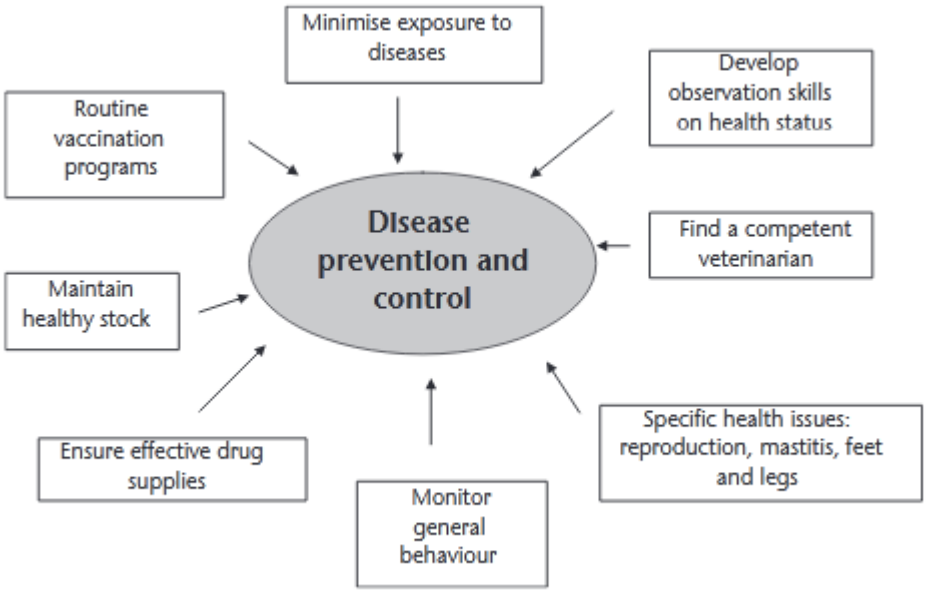

Fig. 1.1 The basic elements of the milking herd’s disease prevention and control program

Self-Check -4	Written Test

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

1. What are the most important signals of illness is appetite (4pts)

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

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

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

1 _____

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_____

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Information sheet -5	Recording animal health and welfare status

Record keeping and monitoring

In order to effectively reduce both disease and medicine use, it is necessary to understand what the current levels are, and therefore a disease recording and monitoring system needs to be in place. An animal health plan can only be fully operational once the disease recording and monitoring systems has been implemented.

The information from these systems allows an accurate analysis of medicine use and the herd or flock status and a plan can be designed taking into account the specific features of each farm. It is important that a local vet is involved in health planning to ensure good understanding of the local disease situation.

Health records

Health records are needed to do the required vaccinations at the right time and to prevent disasters like foot and mouth epidemic. They also provide information about the health status of each individual animal and the whole heard. Only with the breeding and health records can a good and wise decision be made.

- Vaccination
- Dipping/spraying
- Treatment
- De-worming
- Postmortem

Animal Health Form Specifics

- Identity of the animal
- Descriptions of any illness, injury, distress and/or behavioral abnormalities and the resolution of any noted problem.
- Dates, details and results of all medically related observations, examinations, tests and other such procedures.
- Dates, details of all treatments, including the name, dose, route, frequency, and duration of treatment with drugs or other medications (worming, vaccinations, etc).

- Treatment plans should include a diagnosis and prognosis, detailing the type, frequency, and duration of any treatment and the criteria and/or schedule for re-evaluation(s) by the attending veterinarian.
- Surgical records should include detailed pre- and post-, as well as intra-operation, notes.

The health and welfare of all animals in the dairy herd is paramount for profitable and efficient milk production.

Animal welfare: means the physical and mental state of an animal in relation to the conditions in which it lives and dies.

Ensuring that cows are happy and healthy will improve fertility, yield, longevity and disease resistance as well as reducing costs. There are also increasing pressures and regulations to ensure the already high standards that exist in the UK are maintained and increased

Table 1. Animal health sample record format

Animal health sample record

Animal Identification	Date / Time of Year	Medication type (e.g. vaccine, antibiotic, dewormer)	Product name and concentration	Dose used	Method of administration	Drug withdrawal (if required)	Comments

Table 2 Disease occurrence and treatment record sheet

Date	Animal no.	Kind of disease	treatment	Remarks
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.

Self-Check -5	Written Test

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

1. What the use of recording animal health(3pts)
2. _____ is physical and mental state of an animal in relation to the conditions in which it lives and dies? (3 points)

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

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

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

1 _____

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_____

2 _____

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Operation sheet -1	Perform monitoring

Monitoring– using good recording, assessing effectiveness of measures and reviewing /revising **health plan** accordingly.

- Health and disease parameters surveillance
- Risk analysis and cost benefit assessment
- Risk management decision making
- Monitoring and reviewing outcomes

LAP Test-1	Practical Demonstration

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within 10min.

Depending upon the disease status of your animals, you may have to practice the following

Task 1: Perform monitoring

Reference

https://ehs.umich.edu/research-clinical/animals/protective-equipment/

https://www.msdvetmanual.com/management-and-nutrition/health-management-interaction-dairy-cattle/the-health-management-program-in-dairy-cattle

https://orgprints.org/13409/1/13409.pdf

https://www.aphis.usda.gov/publications/animal_welfare/2017/ac-tech-note-daily-observation.pdf

http://www.thecattlesite.com/articles/2038/identifying-sick-or-injured-cattle/

Dairy production

Level –III

Learning Guide-38

Unit of Competence: Implement animal health control programs

Module Title: Implementing animal health control programs

LG Code: AGR DRP3 M10 LO2 LG38

TTLM Code: AGR DRP3 TTLM 1119v1

LO 2: Conduct dairy animal diseases prevention and control program

Instruction Sheet 1	Learning Guide 38

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

- Preparing and implementing Sanitation, de-worming, accaricide application and Vaccination programs of animals
- Identifying and recording vaccinated and non-vaccinated animals
- Reporting dairy animal disease outbreak to a veterinarian.
- Carrying out routine prevention procedures for disease or parasite infestation

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

- Sanitation, de-worming, accaricide application and vaccination programs of animals are prepared and implemented in accordance with enterprise requirements.
- Vaccinated and non-vaccinated animals are identified and recorded.
- Dairy animal disease outbreak is reported to a veterinarian.
- Routine prevention procedures for disease or parasite infestation are safely carried out in consultation with the veterinarian.

Learning Instructions:

1. Read the specific objectives of this Learning Guide 38.
2. Follow the instructions described in number 1 to 7.
3. Read the information written in the “Information Sheet (**1, 2, 3 and 4**) in page **27, 32, 34 and 37** respectively
4. Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.
5. Accomplish the **“Self-check (1, 2, 3 and 4)** in page**, 31, 33, 36 and 39** respectively.
6. If you earned a satisfactory evaluation from the “Self-check” proceed to “Operation Sheet 1” **in page --.**

7. Do the “LAP test” in page **-** (if you are ready). Request your teacher to evaluate your performance and outputs. Your teacher will give you feedback and the evaluation will be either satisfactory or unsatisfactory. If unsatisfactory, your teacher shall advice you on additional work.

Information sheet -1	Preparing and implementing *Sanitation*, de-worming, accaricide application and vaccination programs of animals

Sanitation and hygiene in dairy farm

The easy and quick method of cleaning animal house is with liberal use of tap water, proper lifting and disposal of all dung and used straw bedding, and providing drainage for complete removal of liquid waste and urine. The daily removal of feed and fodder left over in the manger reduces the fly nuisance. Following points should be kept in mind regarding sanitation and hygiene of animal house:

- There should be a wheel dip filled with some good disinfectant at the main gate of farm so that vehicle while entering the farm may pass through the dip and cause the tires to be disinfected. Another option is spraying the lower side of vehicle with disinfectant.
- Also arrange Feet Dip and Hand Wash with disinfectant at main gate
- Spread Calcium carbonate at the entrance of shed area to disinfect the shoes of staff.
- Entry of workers of other farms should be avoided.
- Dry dusting/sweeping is not recommended; dust will stay hanging in air and later on settle down. So moisten the area then sweep.
- Remove dung and used bedding completely. Construct manure pit for proper handling of manure.
- Avoid spilling of dung and used bedding while carrying it out.
- Avoid the use of dirty water in cleaning the sheds.
- Never put the fresh fodder over the previous day's left over fodder in the manger/feeding table.
- Prevent algae to grow in the water troughs.

- Use proper concentration of disinfectant/insecticide solutions to avoid any toxic poisoning.
- All mechanical instruments as feeding hoppers, drinkers, milking machines, ventilation, fans, heating and lighting equipment, and fire extinguishers should be in working conditions and inspected regularly.
- Electric appliances should not be approached by the animals.
- If any abnormality in udder or teat then must identify and treat the situation.
- Construct hoof dip filled with $CuSO_4$ on the way from dairy shed to milking shed for the hoof care.

Deworming

Regular deworming with chemical or herbal preparations can reduce the amount of parasites in your animals.

Deworming means removing worms from the digestive system, particularly from the stomach, intestine and liver. Deworming makes the animal more resistant to diseases. It helps the animal grow faster, perform better and produce better milk, meat and eggs.

Table 3 Deworming program in dairy cow

Level of Contamination	Time of Treatment	Recommended Product Type
High to moderate	Freshening	Avermectin or Benzimidazole
Low	Freshening	Avermectin or Benzimidazole
Extremely low	No treatment	

Accaricide application

Application to the host

The most popular method of controlling ticks on livestock is the application of acaricides directly to the animal host. It is important that application techniques be thorough and that the acaricides be highly effective against ticks without injuring the host.

Dipping vat

Dipping vats provide a highly effective method of treating animals with acaricides for tick control. However, their immobility, high initial cost of construction, and the cost of the acaricides may make vats impractical for many small ranching operations. Also, dipping vats must be managed carefully so that the dips are maintained at the proper concentration and the cattle are dipped properly.

Spray

Sprays are the most commonly used method of treating animals with acaricides for the control of ticks. Spraying equipment is highly portable, and only small amounts of acaricides need to be mixed for a single application. Spraying equipment may consist of a simple device such as the standard bucket pump; these handoperated pumps will apply acaricides under a pressure of 27 to 45 kg. In most areas, hand-operated pumps have been replaced by motor-driven pumps capable of generating pressures as high as 90 to 136 kg.

However, spraying is generally less efficient in controlling ticks than immersion in a dipping vat because of problems associated with applying the acaricide thoroughly to all parts of the animal's body. The key point with spraying equipment is that application is only as through as the operator. Special care is needed to treat the ears, axillae, and other relatively inaccessible areas on animals

Dairy herd vaccination programs

Neonatal calves

An oral vaccine containing bovine rotavirus and bovine coronavirus can be given orally to newborn calves. The oral MLV vaccine should be given 30 minutes prior to ingestion of colostrum or it will be inactivated. Some veterinarians prefer to use injectable rotavirus/ coronavirus/E. coli in the dam prior to calving and depend on colostral antibodies to protect calves.

• Vaccination of calves for infectious bovine rhinotracheitis (IBR), bovine virus diarrhea (BVD), parainfluenza-3 (PI-3), and bovine respiratory syncytial virus (BRSV) is usually

delayed until 3-6 months of age. Veterinarians occasionally advise use of this vaccine in selected herds with a history of these diseases in young calves, but this is not a standard recommendation. Vaccination of neonatal calves with intranasal IBR/PI-3/BRSV vaccine may be more beneficial than standard injectable vaccines in calves. In order to assure adequate immune response, intranasal respiratory vaccines should be administered at 3 days of age or older. Intranasal vaccines generally have a shorter duration of immunity than injectable vaccines.

4 to 6 MONTHS OF AGE

- IBR, BVD, PI-3, BRSV
- Leptospirosis (5 strain)
- Clostridial group – 7 or 8 way
- Histophilus somnus (Needs to be risk based-consult with your veterinarian)

PRE-BREEDING

- IBR, BVD, PI-3, BRSV
- Leptospirosis (5 strain)
- Clostridial group – 7 or 8 way

PRE-CALVING

- Clostridial group – 7 or 8 way
- E. coli mastitis vaccine at least twice, at six and three weeks prior to calving
- Rotavirus, coronavirus, and E. coli scours vaccine twice, at six and three weeks prior to calving

Self-Check -1	Written Test

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

1. What are points should be kept in mind regarding sanitation and hygiene of animal house: (3pts)
2. _____is the most commonly used method of treating animals with acaricides for the control of ticks. (3 points)

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

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

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

1. _____

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2. _____

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Information sheet -2	Identifying and recording vaccinated and non-vaccinated animals

Vaccination data

Vaccination is one of the main control measures for many animal diseases. Therefore, the collection of data on vaccination activity may be essential for defining the health status of an animal population.

The minimum data that should be recorded is the number of vaccinated animals within a given time period (year, month, week, etc.) and the epidemiological unit of concern (ideally each premises). Nonetheless, information on vaccination may not be sufficient to precisely quantify the proportion of the population immunized, particularly when booster doses are required.

Theoretically, only the registration and identification of each individual animal that has been vaccinated would enable accurate calculation of the number of animals that have been correctly immunized.

Mass vaccination activities enable veterinary services to enter a large number of premises and crosscheck the identification and movement records of each animal. There are also animal identification and recording schemes linked with specific vaccination programmes (e.g. FMD and brucellosis vaccinations).

Accurately record date of administration, the identity of treated animals, the batch number, amount and expiry date of the vaccine used. Appropriate information should be kept on file of vaccines used (e.g. Summary of Product Characteristics (SPC) –product data sheet, package inserts or safety data sheets). Records must be kept for a period of five years after the treatment has ended even if the animal has been slaughtered.

Self-Check -2	Written Test

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

1. _____is one of the main control measures for many animal diseases (3pts)

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

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

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

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Information sheet -3	Reporting dairy animal disease outbreak to a veterinarian

Livestock farmers report

Early warning of outbreaks of potentially serious livestock diseases is only likely to occur if farmers are prompt to seek help from their local government veterinary officer, private veterinary practitioner, livestock officer or animal health assistant when they experience an unusual disease in their animals. This is the vital first link in bringing an occurrence of such a disease to official attention. It is therefore worthwhile devoting considerable attention to farmer and other public awareness programs in emergency disease preparedness planning.

An essential prerequisite for encouraging farmers to make rapid contact with their district veterinary office or equivalent for help when faced with a disease outbreak is that a high level of trust and confidence has been established between the farming community and local animal health officials. This is not something that happens overnight. Farmers are more likely to report unusual disease occurrences at an early stage if they perceive that there will be tangible benefits in doing so.

The required level of trust and confidence needs to be built up over time by regular visits to farming communities, well-planned extension programmes and an established pattern of assistance and advice on more routine animal health matters. Local animal officials should be both accessible and easy to contact. Reports of unusual disease incidents should always be taken seriously and investigated promptly and thoroughly, even if on the surface they may appear to be false alarms.

Awareness campaigns on the more important emergency livestock diseases should become a routine element of extension programmes for farmers. They may be targeted particularly at diseases that have been identified as being of highest threat in risk analyses and at high-risk areas for entry and/or occurrence of these disease. Farmer awareness campaigns should encompass:

- simple descriptions of the nature of the diseases, how they are spread, their potential consequences for the individual farmer and local communities and the importance of their prevention and early detection;
- Basic zoo-sanitary procedures that farmers should routinely adopt. These may include purchase, as far as is practicable, of animals with a known animal health status from areas known to be free of diseases, segregation of newly purchased animals (particularly those acquired from livestock markets) from other animals on the farm or in the village for the first two weeks or so, segregation of any sick animals and elementary hygiene practices;
- Key clinical signs which may alert a farmer to the possible occurrence of particular diseases. These should be explained in straight forward, non-technical terms. The "3 Ds" used in rinderpest awareness campaigns are an excellent example. These are discharges, diarrhea and death; farmers in risk areas are advised that if they see any two of these in their cattle they should assume that there is rinderpest and act accordingly;
- Information on whom to contact and how to contact them if there is an unusual disease occurrence.

  The main steps of outbreak investigation include:

  - preparation for field work
  - coordination with public health competent authorities in case of zoonosis
  - confirmation of the report triggering the investigation
  - confirmation of diagnosis
  - epidemiological follow
  - up and tracing
  - collection and analysis of data including the animals involved and the spatial and temporal distribution
  - implementation of control and preventive measures
  - documentation and reporting

Self-Check -3	Written Test

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

1. What are the main steps of outbreak investigation? (6pts)

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

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

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

1. _____
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Information sheet -4	Carrying out routine prevention procedures for disease or parasite infestation

Appling routine prevention in the farm

Denial of access of the disease agent to susceptible host animals

This may be achieved by:

- Applying good hygiene and sanitary practices when handling livestock. This includes disinfection of all personnel and equipment.
- Removing potentially contaminated materials from the environment, by disinfection, destruction and/or safe disposal.
- Preventing the feeding of contaminated materials to livestock. Many diseases can be transmitted in this way.

Avoiding contact between infected and susceptible animals

This is one of the most important approaches and may be achieved by:

- Quarantining of infected or potentially infected farms or areas. A ban or appropriate animal health restrictions are placed on the movement of susceptible species animals into or out of the quarantined area until infection is considered to have been removed.
- Imposing livestock movement controls. These are usually imposed over a wider area around the immediate quarantined or infected area, as part of a zoning policy (for example, within surveillance or control zones).
- In some cases, through erecting large-scale fencing or other physical barriers. However, potential adverse effects, such as disruption of wildlife habitats and of traditional movements of people and their animals, should first be evaluated.

Removing infected and potentially infected animals

This is often referred to as an eradication policy. Susceptible species on infected farms or in designated infected areas are immediately slaughtered on site and their carcasses disposed of safely, usually by burial or burning. It is often combined with cleaning and disinfection procedures for the infected premises..

Reducing the number of susceptible animals

This is an important approach used in many countries. In emergency disease control it is usually achieved by vaccination of susceptible animals. Vaccination may be done

selectively (for example as “ring vaccination” around infected areas) or as “blanket” vaccination programmes in susceptible animal populations. Depending on the nature of the disease and of available vaccines, it may be possible to eliminate infection completely.

Reducing access of vectors to susceptible animals

This may be appropriate for insect-borne diseases and, in some cases, may be achieved by reducing vector numbers in an area by treatment and/or elimination of potential breeding sites. Large-scale insecticide spraying is generally too costly, ineffective in the long term, and/or environmentally unacceptable.

Biological control

To date, there has been only one emergency disease situation for which biological control has proved effective.

Self-Check -4	Written Test

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

1. What are the most important approaches to avoid contact between infected and susceptible animals

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

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

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

1. _____
_____
_____
_____
_____

Reference

https://www.farmhealthonline.com/veterinary-questions/animal-health-planning/

https://www.infonet-biovision.org/AnimalHealth/Record-keeping

https://www.research.vt.edu/orc/post-approval-monitoring/animal-research/health-records.html

https://www.uaex.edu/publications/PDF/FSA-3045.pdf

https://www.beefmagazine.com/americancowman/health/plan-parasite-control

http://www.fao.org/3/a-i5702e.pdf

Dairy production

Level –III

Learning Guide-39

Unit of Competence: Implement animal health control programs

Module Title: Implementing animal health control programs

LG Code: AGR DRP3 M10 LO3 LG39

TTLM Code: AGR DRP3 TTLM 1119v1

LO 3: Supervise animal quarantine activities

Instruction Sheet 1	Learning Guide 39

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

- Designing and implementing animal quarantine plans
- Identifying animals to be quarantined
- Carrying out the quarantine activity
- Recording observations
- Taking measures on sick or exposed animals

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

- Animal quarantine plans are designed and implemented following the enterprise guidelines.
- Animals to be quarantined are identified according to the enterprise requirements.
- The quarantine activity is carried out based on enterprise guidelines.
- Observations are recorded according to organizational procedures.
- Measures on sick or exposed animals are taken according to organizational and environmental policies

Learning Instructions:

1. Read the specific objectives of this Learning Guide 39.
2. Follow the instructions described in number 1 to 7.
3. Read the information written in the “Information Sheet (**1, 2, 3 and 4**) in page **44, 47, 49, 52 and 55** respectively
4. Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.
5. Accomplish the **“Self-check (1, 2, 3 and 4)** in page**, 46, 48, 51, 54 and 57** respectively.
6. If you earned a satisfactory evaluation from the “Self-check” proceed to “Operation Sheet 1” **in page 58.**
7. Do the “LAP test” in page **59** (if you are ready). Request your teacher to evaluate your performance and outputs. Your teacher will give you feedback and the

evaluation will be either satisfactory or unsatisfactory. If unsatisfactory, your teacher shall advice you on additional work.

Program planning

The veterinary authority in collaboration with stakeholders should develop a plan based on the goal of the program. Intervention options should be based on effectiveness, ease and cost of implementation, and expected benefits by reaching the objectives of the program. Tools such as value chain analysis may be used to help understand the role of different players within the production system, identify critical control points to target measures and provide an indication on the incentives for and feasibility of implementation of the program.

In case of zoonotic diseases, close collaboration and coordination with public health authorities is necessary during program planning and implementation. The decision on the most appropriate intervention options should take into account cost-benefit considerations as well as zoonotic potential, in conjunction with the likelihood of success of a particular set of disease control measures. Institutional analysis examines the organizations involved in delivering services and the processes that govern their interaction.

This type of analysis would be helpful to inform the strategic planning process and identify areas where a change would enable better program implementation and facilitate effective collaboration. Critical path methods can also be considered to improve project management through work breakdown structures and identifying dependencies between activities.

Implementation plan

A disease control programme should be based on efficient and effective Veterinary Services and the participation of producers and other stakeholders. A Performance of Veterinary Services(PVS) evaluation can also be valuable for identifying and addressing possible gaps within the Veterinary Services.

The implementation plan should address the following:

- Regulatory framework the disease control program should be supported by effective legislation. It is recommended that the disease be notifiable

throughout the country. The regulatory framework for the disease control program should be adapted to evolving program needs.

- ❖ Program management while disease control measures to be applied can be implemented by the veterinary authority, private or community entities or a combination of all, the overall responsibility for oversight of the program remains with the veterinary authority. The application of disease control measures should follow standard operating procedures including:
    - implementation, maintenance, monitoring of the measures
    - application of corrective actions
    - evaluation and verification of the process
    - record keeping including information systems and data management

- ❖ **Epidemiological situation**

The implementation of the program should take into consideration:

- distribution and density of susceptible species including wildlife if applicable
- knowledge of animal production and marketing systems
- spatial and temporal distribution of disease
- zoonotic potential
- factors and critical control points
- vectors
- carriers
- reservoirs
- impact of disease control measures
- specific disease situation in neighbouring countries, if applicable
- the appropriateness of establishing disease zones or compartments

- ❖ **Disease surveillance**

The underpinning of the disease control program is an effective surveillance system that provides guidance on priorities and targets for the application of interventions. The surveillance system should consist of general surveillance activities reinforced by pathogen specific activities. A clear case definition, outbreak investigation and response procedures are required.

Self-Check -1	Written Test

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

1. What should take into consideration of epidemiological situations during implementation of the program? (4pts)
2. What are the application of disease control measures should follow standard operating procedures? (4 pts)

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

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

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

1. _____
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Information sheet -2	Identifying animals to be quarantined

Quarantine and Isolation

The most likely way for disease to arrive on your farm is through the arrival of new animals, or the return of your own animals from elsewhere. You can help to protect animals already on your farm against disease by separating them from the arriving animals until your vet is sure they are free of disease.

This is referred to as quarantine and is a key part of reducing disease impact.

Disease may also develop within your stock at any time, so you will look to separate sick animals to protect your healthy animals. This is referred to as isolation and it allows sick animals to rest and recover and prevents disease spreading around the pen, group or wider farm.

The key adviser is your vet who will ensure the design of your own quarantine and isolation programs form part of your Health and Biosecurity Plan.

Isolation of sick animals is necessary to minimize disease exposure of others in your herd and quarantine is required to prevent exposure of your herd to new or returning animals.

- In addition to being removed from all other animal areas, isolation and quarantine facilities should be separate from one another.

- Equipment (feed, treatment, milking) should not be shared between isolation and quarantine animals.

If equipment must be shared, wash in warm water and soap to remove visible contamination, rinse, disinfect and rinse before removing from one location and moving it to another.

- Immediately isolate sick animals from the herd to minimize disease spread
  Prevent direct contact between isolated animals and others.
  - Prevent sharing ventilation, feed/water and equipment to minimize the risk of disease spread.
- Time spent in isolation and quarantine varies depending on the disease risk so this should be determined together with your herd veterinarian.

Self-Check -2	Written Test

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

1. What is the use of isolation of sick animals? (3pts)
2. Disease may also develop within your stock at any time, so, what will be your response? (3 pts)

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

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

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

1. _____
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Information sheet -3	Carrying out the quarantine activity

Prevent entry of disease onto the farm

- ☞ No new animals enter the herd and previously resident animals do not re-enter after they have left the herd. This is difficult to achieve in practice, so strict control of any animal introductions is essential. Increased risk of disease may also occur when animals share grazing or other facilities.
- ☞ Prior to being introduced to the farm, all dairy herds and animals should be screened for diseases that are significant to their area of origin and new location. All animals should have:
  - Identification system to enable trace back to their source (a birth to death identification system); and
- ☞ Some form of Vendor Declaration or certification that details the health/disease status of animals and any appropriate tests, treatments, vaccinations or other procedures that have been or are being carried out.
- ☞ Potential sellers of dairy livestock must keep appropriate permanent animal health records for their animals.
- ☞ The health status of the vendor herd should also be certified.
- ☞ Introduced animals should be inspected on arrival and should be free of external para-sites such as ticks. Sick animals should be rejected.
- ☞ It is good practice to consider treating all introduced animals for internal parasites on arrival.
- ☞ Where the animals' health status is unknown, they should be kept under quarantine or separate to the existing animals for an appropriate length of time.
- ☞ For the safety of your animals and the people who handle them, require that all individuals **wash hands with soap and warm water** before and after animal contact.
- ☞ Require that employees who have contact with livestock at other locations (including their own home) use the same biosecurity measures as visitors on your farm.
- ☞ Educate yourself and train your employees to recognize and report diseases.

- ☞ Take measures to prevent runoff from other operations from entering your operation
- ☞ Keep records of all animal movements to and from the farm.

We must have to observe quarantine to observe hygiene:

- Keep sick animals separate for at least three weeks and then mixed into shed
- Do not exchange breeding stocks with other farms
- Avoid stray dogs as they play important role in disease spreading
- Keep the environment healthy by using disinfectants and antiseptics

In case of death of quarantined animal, contact local animal control or health official. **DO NOT DISPOSE OF ANIMAL!**

Self-Check -3	Written Test

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

1. How will be increased risk of disease in farm (3pts)

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

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

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

1. _____
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Information sheet -4	Recording observations

Record keeping

- ❖ Traffic on or off your farm should be closely monitored and recorded.
  - Maintain a log sheet to record all visi-tors and vehicles that enter your farm.
- ❖ Maintain thorough and accurate re-cords of animal movement.
  - Document all animal movements, including the dates of introduction into the herd, where they came from and movements between separate units.
  - Each farm location must be treated as a separate unit or premises.

Recording your findings

A form for recording observations will help staff remember to consider each parameter as well as let other people know what was found. This could be as simple as a card with check boxes and a notes section for any anything abnormal. The record can be kept on paper or as an electronic form. Example of paper monitoring sheets can be found at the bottom of this page.

Some shelters have developed forms in mobile electronic spreadsheets or databases that can be taken through the shelter as observations are made. Others use simple sheets kept in a binder. Paper forms should be stored in a location that makes them easy to access by all staff as needed (e.g. by RVT or veterinarian responding to reported problems).

We have found these tips to be helpful:

- Keep monitoring sheets in a separate binder so animals cannot reach and demolish them.
  - If monitoring sheets are cage side, have them secured in a waterproof holder as far away from the animal as possible
- Keep a separate binder for each ward or room.
- Make sure cages and animals are both properly identified so that it is easy to connect the monitoring sheet to the correct animal.

- Move monitoring sheets to new location if animal is moved.

Provide staff with lists of red flags of emergency medical, of potentially infectious disease concerns and of behavioral concern. If any of these described issues are observed, have a protocol in place for how to respond since immediate action is required.

Close Observation the animal is kept on owner's premises and the owner shall be informed of potential rabies. The owner shall be required to notify enforcing agency of unusual behavior or change in health status of animals.

Self-Check -4	Written Test

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

1. What are records in the farm?

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

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

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

1. _____
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2. _____
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Information sheet -5	Taking measures on sick or exposed animals

The most likely way for disease to arrive on your farm is through the arrival of new animals, or the return of your own animals from elsewhere. You can help to protect animals already on your farm against disease by separating them from the arriving animals until your vet is sure they are free of disease.

This is referred to as quarantine and is a key part of reducing disease impact.

Disease may also develop within your stock at any time, so you will look to separate sick animals to protect your healthy animals. This is referred to as **isolation** and it allows sick animals to rest and recover and prevents disease spreading around the pen, group or wider farm.

Best practice is for separate staff to take responsibility for tending animals in quarantine or isolation, using separate Personal Protective Equipment

Isolation of sick animals

Prompt removal of sick animals from the general population is the single most important step in controlling a communicable disease outbreak. This significantly decreases opportunities for transmission to other animals and reduces the infectious dose in the environment.

Leaving sick animals in the general population guarantees the spread of infection to others and perpetuation of the outbreak. A common and dangerous belief is that mildly ill animals are not as contagious as those that are sicker, this is a myth because the severity of the illness is more dependent on the individual animal's response to the pathogen.

Sick animals should be isolated in a manner that contains spread of the pathogen, including those with airborne transmission (respiratory pathogens). Ideally, the animals should be housed in a physically separated and enclosed room for full containment of the pathogens.

If the shelter cannot provide adequate isolation or do not have enough staff and medical resources to provide proper care, then the sick animals should not be kept in the shelter

for treatment. In some cases, the sick animals can be transferred off-site to veterinary clinics, foster homes, or adoption groups with greater resources.

However, foster homes and adoption groups are not the best candidates for highly contagious diseases that pose a threat to other animals, diseases requiring extensive treatment modalities other than oral medications, diseases requiring continual or frequent veterinary assessment, and pathogens that are difficult to remove from the environment. Unfortunately, euthanasia may be the only humane option if on-site or off-site facilities providing adequate isolation and treatment are not available.

Self-Check -5	Written Test

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

1. _____ is the single most important step in controlling a communicable disease outbreak. (3pts)
2. What is the key part to reducing disease impact? (3 pts)

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

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

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

1. _____
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2. _____
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Operation sheet -1	Perform disease control measures

The application of disease control measures should follow standard operating procedures including:

- implementing, maintaining, monitoring of the measures
- application of corrective actions
- evaluating and verificating of the process
- record keeping including information systems and data management

LAP Test-1	Practical Demonstration

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within 30min.

Depending upon the disease status of your animals, you may have to practice the following

Task 1: Apply disease control measures

Reference

http://www.fao.org/3/X2096E/X2096E05.htm

http://www.fao.org/3/X2096E/X2096E06.htm

https://www.wvdl.wisc.edu/wpcontent/uploads/2013/01/WVDL.Info_.Biosecurity_for_Dairy_Farms1.pdf

http://publichealth.lacounty.gov/vet/rabiesmanualpdfs/QUARANTINES.pdf

http://www.cfsph.iastate.edu/Infection_Control/Overview/GenPrevPrac.pdf

https://www.scotlandshealthyanimals.scot/disease-avoidance/farmers-livestock-keepers/how-you-can-avoid-disease/quarantine-and-isolation/

https://sheltermedicine.vetmed.ufl.edu/files/2017/01/Management-of-disease-outbreaks-in-shelters.2018.pdf

Trainers prepared the TTLM with their full address

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