



## ANIMAL QUARANTINE STATION OPERATION MANUAL

BHUTAN AGRICULTURE AND FOOD REGULATORY AUTHORITY (BAFRA)

MINISTRY OF AGRICULTURE AND FORESTS

## Foreword

The Bhutan Agriculture and Food Regulatory Authority (BAFRA) of the Ministry of Agriculture and Forests is mandated to implement animal biosecurity measures effectively to protect health and life of animals and humans from risk of entry, establishment and spread of notifiable and exotic animal diseases. Border control measure such as implementation of post-entry animal quarantine is an important component of biosecurity continuum which contributes towards achieving the aforementioned mandate.

Post-entry quarantine is carried out to complement pre-border control activities such as import risk analysis, and exporting country's sanitary declaration wherein animals/poultry/aquatic species are observed for a specified number of days for signs of diseases if any in a confined environment at the entry point. While undergoing quarantine, various laboratory tests against notifiable and exotic animal diseases of interest are being carried out to determine the exposure status of the animals to such diseases. To facilitate carrying out such activities, BAFRA has established five quarantine stations at five official entry points i.e Samtse, Phuentsholing, Gelephu, Sandrupjongkhar and Paro International Airport as authorized under sections 8.3 and 36.5 of the Livestock Act of Bhutan 2001. All the animals that are imported into the country with the exception of pet dogs and cats, and day old chicks undergo quarantine in these quarantine stations.

To standardize the operation procedures in all the animal quarantine stations, this Animal Quarantine Station Operation Manual has been developed. This manual will serve as a guideline as well as standard operating procedures for effective implementation of animal quarantine measures such as to observe, isolate and treat, and screen imported animals for notifiable and or exotic animal diseases.



Karma Dorji  
Executive Director



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## **A. BACKGROUND**

Despite current level of advancement in diagnostic tests to detect animal diseases, import and export programme of animals still calls for implementation of formal quarantine procedures in order to effectively prevent introduction of animal diseases into Bhutan as well as spread of diseases from Bhutan to other countries.

As authorized under the Sections 8.3 and 36.5 of the Livestock Act of Bhutan 2001, and Sections 57 - 60 of the Livestock Rules and Regulations of Bhutan 2008, the Royal Government of Bhutan has constructed five quarantine stations in five major entry points (Paro International Airport, Samtse, Phuentsholing, Gelephu and Samdrupjongkhar). These facilities were established to provide optimum, competent and professional services for the implementation of effective animal quarantine measures to safeguard health and life of animals including wild life from entry of notifiable and exotic pests and diseases. There are many other minor entry points and illegal routes to the country. Bhutan Agriculture and Food Regulatory Authority (BAFRA) would construct additional quarantine stations as deemed necessary in such entry points.

In order to streamline the operation procedures in these quarantine stations, BAFRA Officers will routinely use this manual to observe, isolate, treat and test imported animals coming from other countries.

## **B. OBJECTIVES**

This manual has been prepared with the objective to:

- assist BAFRA officials engaged in animal quarantine stations to effectively perform their duties and responsibilities.
- promote uniform application of animal quarantine measures in the country.
- provide the BAFRA officials with consolidated reference on animal quarantine procedures based on the country's quarantine regulations.

## **C. LOCATION AND PREMISES**

The site chosen for location of quarantine station must be such that it does not interfere with quarantine activities thereby limiting realization of purposes of executing quarantine

activities. Geographical conditions, proximity to entry points, prevention of contact between stray/wild animals and animals in quarantine station must be given due consideration in selecting the site. The premises must allow adequate visual access and clinical examination and for sampling. Isolation from all possible sources of infection must be absolute. In general, the location and quarantine premises should fulfil the following requirements.

1. The premises shall be designed and constructed in a manner appropriate to the species of livestock for which the premises are intended.
2. The premises shall be established close to an entry point, with easy access and in a location where adequate resources are available for supervision of the premises and the quarantined animals.
3. The premises shall have a double perimeter fence to keep away other domesticated, stray or wild animals with only one entry and exit.
4. The premises should be constructed in such a manner so that they can be easily cleansed and disinfected.
5. The pens or cages shall be of a suitable size as per the animal welfare standards to accommodate each consignment of imported animals separately.

#### **D. PURPOSE OF QUARANTINE**

1. The primary purpose of quarantine of imported animals is to prevent the introduction, establishment and spread of exotic animal diseases by these animals into the country. This is necessary to safeguard the animal population in the country. Although all animals imported into the country have to be certified as healthy and free from infectious and contagious diseases by the Veterinary Authority in the exporting country at the time of export, quarantine measures are still necessary. This is to ensure that any animal incubating a disease, and therefore not showing any signs of the disease, is examined further during the quarantine period.
2. The second purpose of quarantine is to treat imported animals that are infected with diseases or potential disease vectors such as ticks and mites.
3. The third purpose of the quarantine is to provide a period of acclimatization to the animals in the new environment. During this period the animals will be allowed to adapt to the routines of feeding, watering and cleaning.

## **E. PRE-ARRIVAL PREPARATION**

In preparation of receiving animals in quarantine station, the BAFRA officer should know the following points and make necessary arrangements to receive the animals.

1. Any individual wishing to import animals into the country must inform the BAFRA officer of the identified quarantine station either in writing or by telephone at least 2 weeks in advance from the expected date of arrival of animals to the quarantine station.
2. The BAFRA officer should develop a practical animal receiving plan to avoid repeated and unnecessary handling of already stressed animals and associated losses in the facility.
3. Adequate shade, clean water and feedstuffs shall be provided at all times for the animals in quarantine
4. All necessary measures shall be taken to prevent the introduction of disease by persons, feedstuff, vehicles, equipment or any other thing by the provision of protective clothing and facilities for cleansing and disinfection.
5. Facilities shall be provided to ensure that no waste water, carcasses, fodder, litter, milk, dung, manure or other things used in connection with or coming from the animals in quarantine shall be disposed of in such a way as to contaminate the environment or spread disease to other animals.
6. The BAFRA officer should make sure that facilities are in good repair, cleaned and disinfected, and rested (downtime) at least 7 days without any animals before admission of new batch of animals. This break reduces the risk of diseases being spread between different batches of animals.
7. The animal owner in consultation with the BAFRA officer should keep adequate stock of feeds and fodders and other supplies before the arrival of animals.

## **F. RECEIVING AND ADMISSION OF ANIMALS INTO QUARANTINE STATION**

When the BAFRA officer receives animals in quarantine station, he/she should know the following points and make necessary arrangements.

1. On arrival of imported animals at the official entry points, the owner should declare the imported animal to the BAFRA officer on duty along with the zoo-sanitary certificate and all other supporting documents.

2. The BAFRA officer should check all the documents that accompany each batch of animals. If required documents are provided, he/she should conduct on-board inspection of animals at the entry point using a check list for observation about the animals including transport vehicle for transport condition, and animal welfare aspects.
3. The animals should be transported in the same vehicle to the identified quarantine station and unloaded under the supervision of the BAFRA officer who should also carry out onsite inspection of animal prior to unloading for overt signs of disease or injury.
4. Animals entering quarantine facilities must be properly identified in case animals are not given identification number. Identification of animals helps in the traceability as well as proper maintenance of clinical record and to observe proper precautions during treatment and medication withdrawals.
5. The animals should be moved to their allotted pens. The details of each animal must be recorded against the animal number in the standard *Animal Admission Form* (Annexure I) along with any abnormality observed at the time of admission.
6. After the admission of the animals into the quarantine station, BAFRA officer shall flash report to the BAFRA Head Office about the arrival of the animals along with the details of animals. Quarantining of animals will always be conducted on an "*all in, all out*" basis.
7. All materials (hay, feed, bedding materials, planks, wooden poles, boxes etc.) accompanying animal shall be disinfected and disposed in an appropriate manner preferably by burning. Vehicles used to transport animals must be thoroughly disinfected before leaving the quarantine station.
8. Avoid co-mingling of different batches of animals and also sick and healthy ones.
9. Entry gate of the quarantine station must remain closed at all times and be controlled by the security guards of the quarantine station.

## **G. MANAGEMENT OF ANIMALS IN QUARANTINE STATION**

### **I. Animal Handling**

1. Animals must be handled quietly but firmly using appropriate restraint tools and handling must preferably be in the morning hours when the environment is cool and calm to avoid stress.

2. Never lose temper and subject animals to harsh treatment. Animals placed in strange environment or surroundings will behave strangely and be unpredictable. Hence, extreme care must be taken when handling.
3. Animals requiring attention must be well secured using appropriate restraint tools such as well-designed trevice before being attended to.
4. Staff attending the animals must wear safety footwear with specially reinforced steel-toe shoes to prevent feet being crushed by animals.
5. However submissive the animal may appear, precaution should be exercised in handling, so that control is maintained at all times.
6. Aggressive animals must be separated from the rest and dealt with separately.

## **II. Animal Health Monitoring**

While in quarantine station, the BAFRA officer must carry out the following activities.

1. Carry out clinical examination (body temperature, pulse rate, respiratory rate, heart rate, colour of eye mucosae, posture, behaviour etc) of all the animals and record them in the *Animal Health Record Sheet* attached as Annexure II of the animal. This must be repeated preferably on a daily basis. Any sign of abnormality and sickness must be given due attention and necessary isolation and treatment given.
2. Conduct zoo-sanitary investigation of the area of origin of animals in the source country using WAHID database of the OIE, IHR of the WHO and other relevant websites for possible disease outbreak immediately after arrival of the animal to reinforce declarations made in the zoo-sanitary certificates. Should there be an outbreak of any disease in the area of origin, the batch of animals in quarantine should be subjected to screening against that disease.
3. On the 3<sup>rd</sup> day after admission into the quarantine station, necessary samples must be drawn from animals preferably in the morning hours and send for laboratory for screening against exotic and / notifiable animal diseases in accordance with the guideline attached as Annexure III. Animals must be handled very carefully and slowly to avoid stress.
4. Use vacutainer tubes or disposable syringes and needles of appropriate gauge for sample collection to maximize efficiency as well as to minimize stress to animals.



5. Haematological parameters of animals must be studied for clues of sick animals including the observation for blood protozoon diseases and parasites using standard laboratory procedures.
6. Skin conditions and faeces of animals must be examined for external and internal parasites. Necessary treatment must be given if required.
7. The BAFRA officer should ensure that there is no direct contact between sick and healthy animals at any time throughout the quarantine period. Where any direct contact occurs, this must be recorded in a specific register for reference in case of disease outbreak.

### **III. Management of Sick Animals**

Early detection and treatment of sickness animals is paramount to a successful quarantine programme. The most important factor that influences the ability of BAFRA officers to find sick animals are the amount of time they devote to finding sick animals before mid-morning.

1. Depression, abnormal gut fill and changes in respiratory rates are the three important keys to identify sick animals. However, these keys become difficult to access in the late afternoon.
2. If there is an outbreak of exotic or notifiable disease, or if any of the animal is established to carry any of the exotic or notifiable disease through laboratory analysis of samples while in quarantine station, all the susceptible animals shall be either treated or destroyed humanely as deemed necessary without the payment of compensation. If agreeable, the importer may choose to re-export the animals to the country of origin at the cost of the importer.
3. If there is an outbreak of disease which is already endemic in the country, or if any of the animals is established to carry diseases already endemic in the country, the animals shall be subjected to necessary vaccination or therapeutic treatment. The quarantine period for such batch of animals shall be extended by an Inspector as deemed necessary.
4. In the event of an outbreak of notifiable disease or any other diseases already prevalent in the country, animals shall be subjected to quarantine for another 21 days from the date of first case on the basis of maximum 14 days of incubation period and the highly infectious/contagious nature of the disease. However, on the

- 21<sup>st</sup> day of quarantine, all the animals must undergo a thorough physical /clinical examination for any fresh cases/recovery status before the animals are released. Final laboratory confirmation needs to be done to support the clinical diagnosis.
5. Sick animals in the herd must be separated and protected from adverse environmental conditions such as mud, dust and extreme weather conditions. Avoid use of fermented feeds viz. silage for sick cattle.
  6. To prevent spreading of diseases in the flock of animals, sick animals must be handled at the end.
  7. It is recommended to administer anthelmintics to all the animals if the laboratory analysis revealed presence of parasite in any of the animals in quarantine.
  8. The question of the requirement to vaccinate should be carefully considered and the decision whether or not to immunise the animals to be released should be made by the BAFRA officer, after evaluating the immunological status of the animals held in quarantine and the likely challenge by endemic disease agents upon release.
  9. Vaccination of animals against diseases endemic to place of destination viz. foot and mouth disease in case of cloven footed animals (if the animals have not been vaccinated or vaccinated more than a year before at the country of origin), may be indicated.
  10. The record of treatment given to each animal must be maintained in the Treatment Details of the Animal Quarantine Report attached as Annexure IV. These records will help BAFRA officers to accurately evaluate treatment programmes, establish appropriate withdrawal times and help make decisions in the future treatments should an infection relapses.
  11. Animals that die during the quarantine period should have a necropsy performed by a veterinarian/under the supervision of a veterinarian and representative tissues submitted for histopathological examination, with other laboratory analyses (i.e. cultures) applied as indicated. Simultaneously, epidemiological investigation could be carried out to profile risk to the country and guide management of future importations. The results of all tests, both positive and negative along with investigation findings should be recorded. Thus a bank of baseline data will be developed.
  12. Carcasses of animals that died or destroyed during the quarantine period shall be properly disposed by deep burial or incineration (following standard operating

procedure) to prevent spread of the disease to other animals or to prevent environmental contamination.

#### **IV. Feeding Animals**

Adapting newly arriving animals from the range to a dry lot ration without inducing gut irritation and acidosis is a major factor in preventing diseases in quarantine facilities. Any major changes in the diet should be a gradual process.

1. Cattle coming from feedlots should be placed on a high energy feed.
2. Cattle should start with a moderate energy, total mixed, dry ration which must be offered in two to three split feedings during the first week in the quarantine station.
3. The BAFRA officer must know the dry matter intake on a daily basis. Fluctuations in the dry matter intake can lead to subclinical acidosis which is misdiagnosed as respiratory disease.
4. Keeping a daily log of feed consumption will help monitor feed intake.
5. Feed intake will typically drop approximately 25 percent 24 hours before there is significant rise in the body temperature of group animals.

#### **H. QUARANTINE PERIOD**

Quarantine requirements and period of confinement in the quarantine stations differ according to the species of animals, purpose of import and from one country to another.

1. Generally, all animals imported into the kingdom of Bhutan must undergo 15 days of quarantine period which may be extended based on the health status of the animals and the disease status of the exporting country.
2. Pet dogs and cats are exempted from quarantining at the entry points provided they come with all the required zoo-sanitary certificates. However, if any of the import requirements are not fulfilled, they shall be quarantined at the entry points for 20 days which may be extended if required.
3. Day old chicks (DOC – layer or broiler) shall be quarantined at the farm of destination for duration of 20 days provided all the zoo-sanitary requirements are fulfilled. If not, the DOCs shall be quarantined at the quarantine station for 20 days which may be extended if required.

## **I. RELEASE/REMOVAL OF ANIMALS AND THEIR PRODUCTS**

All animals quarantined shall be released only after completion of the specified quarantine period and fulfilling all other quarantine requirements prescribed in the Livestock Rules and Regulations of Bhutan 2008 and any other tertiary legislation prescribed.

1. If animals qualify entry into the country, Quarantine Clearance attached as Annexure V must be issued by the BAFRA officer authorizing the importer to transport the animals to the place of destination. The animal owner is advised to report to the nearest office of the BAFRA of the Department of Livestock should the released animals show signs of illness after their release for further investigation.
2. After the release of the animals, the BAFRA officer shall compile a report in the Animal Quarantine Report form which is attached as Annexure IV and must be submitted to the BAFRA Head Office.
3. No person shall be allowed to remove any animals from the quarantine station before completion of the stipulated quarantine period.
4. No person is allowed to remove any carcass, fodder, litter, manure, milk and any other risk goods used in connection or coming from animals under quarantine.
5. All dung-soiled bedding and discarded feed must be disposed of safely in the biological pit or by burning.
6. Sale of milk originating from animals under quarantine is prohibited. The calf must be allowed to suckle the milk and the excess milk must be disposed in biological pit.

## **J. CLEANING AND DISINFECTION**

Most disease causing organisms can survive for a set period of time outside a host. The presence of organic matter increases this time period. This fact makes cleaning and disinfection vital to a biosecurity program and it plays an important role in reducing stress on the animals. In general, the following procedures must be observed to keep quarantine station clean.

1. Equipment used to feed and water the quarantined animals and to clean their enclosures must be used for these animals alone and should not be taken out of the quarantine premises for use in house or any other animal farms.

2. Stations must be equipped with foot and tyre bathes at the entry gate and jet sprayers connected to an assembly of water pumps and tanks to dispense disinfectant to disinfect traffic leaving the station.
3. Animal shed, holding area, feeding and watering troughs, drains, or every apparatus, equipment that has come in contact with animals must be thoroughly cleaned and disinfected using appropriate disinfection agent immediately after the release of a batch of animals and rested at least 7 days before the admission of another batch of animals. A high pressure hose must be used to clean the surfaces.
4. Organic matter cannot be disinfected. So, clean the surfaces of all dirt, feed, manure, etc. by scrubbing or brushing with soap and water before disinfection.
5. Cleaning and disinfection of shoes/boots must be done. Apron should be worn to help keep clothing clean. Clean and disinfect shoes/boots before entering a farm and should be cleaned and disinfected again before leaving.
6. It is important to determine the proper concentration and quantity of disinfectants for them to be effective.
7. Remove all the litters, dung, left over feed and fodder from the floor surface and thoroughly soak all the floor surfaces and dried fecal material attached to the floor surfaces with water or soapy water.
8. Allow the water to soak into surface debris for about 1-2 hours, scrape the floor surfaces and remove the organic matter followed by spraying of disinfectant solution and letting it act for another 2-3 hours followed by rinsing the floor using high pressure water sprayer.

## **K. PEST CONTROL**

1. Effective pest control measures must be provided in quarantine stations to minimize the chance of transferring infections between animals in the station and the environment.
2. A regular rodent baiting programme must to be maintained around the perimeter of the core quarantine area, in all buildings/ areas of potential harbour for rodents and in all used/ occupied facilities. However, such baits should not be accessible to quarantine animals.
3. Such baits should not be accessible to quarantine animals.
4. Spillage of feed must to be minimized to discourage ready access of pest to feed source, and any spilt feed must be cleaned promptly.

5. Drainage system should be such that pooling of water does not occur so that breeding areas for mosquitoes are minimized.
6. Wild birds should be prevented from accessing animal feed in the quarantine station.

#### **L. MANAGEMENT OF VISITORS/ QUARANTINE PERSONNELS**

1. A log book must be maintained to keep record of visitors visiting the facility. Visiting personnel pose a risk of introducing diseases as well as carrying disease agents out of quarantine station. Strict control over such visitors is essential and is of paramount importance.
2. The attendant of the animals under quarantine must care for quarantined animals alone and should not visit other animal farms/ herds operating elsewhere outside the quarantine premises.
3. Precautions must be taken to minimise the risk of exposure of the quarantine staff to zoonotic diseases that may be present in the imported animals. These precautions should include the use of disinfectant foot baths, wearing of appropriate protective clothing, masks and gloves.
4. The owner of animals or the representative must be accessible to the BAFRA officer in the quarantine station should any problem arises.
5. Owner of such animal may visit their animal during quarantine, but they must abide by the rules and regulations of the quarantine station. This is important to prevent spread of infectious organisms to or from the animal in quarantine.
6. Visitors including the animal owner entering the internal quarantine area should always be accompanied or supervised by a BAFRA officer.

#### **M. ANNEXURES**

ANNEXURE I

ANIMAL ADMISSION FORM

<b>I. Animal Importer's Information</b>				
Name:		Village:	Gewog:	Dzongkhag:
CID No.:		Phone No.:	E. mail:	
<b>II. Animal Exporter's Information</b>				
Name:		Complete address:		
Phone No.:		E. mail:		
<b>III. Animal Information</b>				
ID No./Name	Breed	Sex/Age in months	Farm of origin (exporting country)	Remarks

## 1V. Information of young animals (below 6 months of age if accompanying their mother)

[illegible]



**ANNEXURE II**

**ANIMAL HEALTH RECORD SHEET**

ID No./Name	Respiratory rate/min	Pulse rate/min	Heart rate /min	Rectal temp ° C	Eye mucosae colour	Any other abnormality detected

Health Record Sheet for Young Animals (below 6 months of age if accompanying their mother)						
ID No.	Respiratory rate/min	Pulse rate/min	Heart rate /min	Rectal temp ° C	Eye mucosae colour	Any other abnormality detected

### **ANNEXURE III**

#### **GUIDELINE FOR SAMPLE SUBMISSION FOR SCREENING DISEASES**

The importation of animals and animal products involves a degree of risk to the animal health status of the importing country. The estimation of that risk and the choice of the appropriate risk management options are made more difficult by differences among the animal health and production systems in different countries.

The agreement on the application of sanitary and phytosanitary measures (SPS measures) encourages the World Trade Organization (WTO) member countries to base their sanitary measures on scientific evidences. The same agreement recognises the World Organization for Animal Health (OIE) as the international organisation responsible for the development and promotion of international animal health standards, guidelines, and recommendations affecting trade in live animals and animal products. So, this guideline for laboratory screening of quarantine samples has been developed following recommendations of the OIE for live animal trade.

To decide the diseases against which the quarantine animals must be screened, the BAFRA officer would need to know the notifiable and exotic diseases (species specific) prevalent in the exporting country which can be accessed from the World Animal Health Information Database (WAHID) of the OIE on their website ([http://www.oie.int/wahis\\_2/public/wahid.php/Wahidhome/Home](http://www.oie.int/wahis_2/public/wahid.php/Wahidhome/Home)). The animals must be screened against those exotic diseases prevalent in the exporting country as well as those diseases identified as notifiable (Annexure VI of the Livestock Rules and Regulations of Bhutan 2008) in the country (Bhutan) using the prescribed or the alternative diagnostic tests recommended by the OIE in the Terrestrial Animal Health Code (<http://www.oie.int/en/international-standard-setting/terrestrial-code/access-online/>).

Necessary samples must be collected from animals, processed, and analysed in the laboratory of the quarantine station. Samples for those tests which cannot be carried out in the quarantine station must be referred to the reference laboratory (National Centre for Animal Health), Serbithang in Thimphu after proper labelling in the prescribed template provided below using the fastest means of transport.

The prescribed template must be completed with appropriate information and printed on the letter head of the respective BAFRA office before sending it with the samples.

The BAFRA officer must make regular follow-up for the results after submitting samples to the reference laboratory to ensure that delay in analyses of samples does not result in unnecessary delay in discharging animals from quarantine station.

## A Standard Template of Letter for Referring Quarantine Samples to Reference Laboratory

File No.

Date:

The Programme Director  
National Centre for Animal Health  
Serbithang  
Thimphu

### Sub: Quarantine Samples for Analyses

Sir,

Mr/Ms. .... from ..... village, ..... Gewog under ..... Dzongkhag has imported ..... numbers of ..... (species of animal) from ..... (country) vide import permit number ..... dated ..... . In accordance with the Section 8.3 of the Livestock Act of Bhutan 2001 and the Sections 63 – 67 of the Livestock Rules and Regulations of Bhutan 2008, the animals are currently undergoing quarantine in the ..... (quarantine station).

So, this office would like to submit the following samples for analysis as required. The details of the samples and the requested tests are furnished below.

Sample No. (Animal No.)	Sample type	Test requested for	Prescribed tests
<i>Eg. GQS/13</i>	<i>1. Serum</i>	<i>1. Bovine brucellosis 2. Rinderpest</i>	<i>1. ELISA/CF 2. ELISA/VN</i>
	<i>1. Whole blood</i>	<i>1. Bovine babesiosis</i>	<i>1. Agent identification</i>

The results of the test conducted may be faxed to this office at fax number .....

Yours sincerely,

Name  
Designation

Cc:

1. The Executive Director, BAFRA, MoAF, Thimphu for kind information

## ANNEXURE IV

# ANIMAL QUARANTINE REPORT

Quarantine Station:

Date:

[illegible]

**\*\* Use additional sheet if required**

<b><i>TREATMENT DETAILS (if any)</i></b>				
<b><i>Identity No.</i></b>	<b><i>Disease/Pathological condition</i></b>	<b><i>Drugs used, dose and route</i></b>	<b><i>Days of treatment</i></b>	<b><i>Remarks</i></b>

***\*\* Use additional sheet if required***

Remarks

*NB: Attach lab results if any*

**ANNEXURE V**

**Letter No.**

**Date:**

Mr./Ms. ....

.....

.....

**Sub: Quarantine Clearance**

Sir/Madam,

Your animal(s) imported into the country vide import permit number ..... dated ..... , details of which is attached (Animal Admission Form) have undergone quarantine and have been screened against diseases in accordance with the Section 8.3 of the Livestock Act of Bhutan 2001 and the Sections 63 – 67 of the Livestock Rules and Regulations of Bhutan 2008.

During the quarantine period, the animal(s) did not exhibit any signs of infection/ infestation by pathogenic agents of quarantine interest except for .....  
.....  
.....  
.....

Therefore, animal(s) are being released with effect from ..... . You are advised to take the animal(s) directly to the place of destination. Should any of the animal falls sick after arriving at the place of destination, you are advised to report to the nearest office of the Bhutan Agriculture and Food Regulatory Authority (BAFRA) or the Department of Livestock.

Yours sincerely,

Name of Authorized officer

Designation

Cc:

1. The Executive Director, BAFRA, MoAF, Thimphu



## ANNEXURE VI

### COMMONLY USED DISINFECTANT

Chemical Groups	Common Names for Chemicals
Oxidizing agents	Virkon® Hydrogen peroxide
Hypochlorites	Bleaching powder
Halogens	Chlorine - based chemicals like bleaching powder
Phenolics	Lysol
Quaternary ammonium compounds	BenzaRid®
Alcohols	Spirit/alcohol used at clinic

### Surface Disinfection

Disinfectant	Surface Disinfection	Dilution Rate	Application
Virkon	Routine disinfection for all surfaces, earth, wood and concrete	1:100 (10 grams of Virkon® S to every 1 litre of water)	Apply Virkon® S solution at an application rate of 300ml/m <sup>2</sup>
Hypochlorites	Routine disinfection for all surfaces, excreta, spills of blood, vehicles and tires, boots	0.5% Chlorine concentration	Apply the solution, let it act for 5 minutes before rinsing it.

## Equipment Disinfection

Disinfectant	Equipment Disinfection	Dilution Rate	Application
Virkon	Routine cleaning and disinfection of movable equipment	1:100 (10 grams of Virkon® S to every 1 litre of water)	Using a brush or pressure washer wash all equipment in Virkon® solution until visibly clean
Hypochlorites	Disinfection of equipment, re-usable protective clothings	0.05% Chlorine concentration	Using a brush or pressure washer wash all equipment in the solution until visibly clean

## Foot Dip

Disinfection Agent	Disinfection	Dilution Rate	Application
Virkon	Routine disinfection of footwear	1:100 (10 grams of Virkon® S to every 1 litre of water)	Replace solution once it has either become soiled or after a period of 4-5 days.
Hypochlorites	Routine disinfection of footwear	0.5% Chlorine concentration	Replace solution once it has either become soiled or every day.

## Preparing Chlorine Solutions Using Other Forms of Hypochlorites

Chlorine product	0.5 % Chlorine Solution	0.05% Chlorine Solution
Calcium hypochlorite powder or granules (70%) (High Test Hypochlorite - HTH)	7 g per 1 litre of water	7 g per 10 litres of water
Bleaching powder (Chlorine of Lime) with 30% active chlorine	16 g per 1 litre of water	16 g per 10 litres of water

## **N. REFERENCES**

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