

STRICT ADVISORY TO PREVENT ENTRY OF ASF IN MEGHALAYA
(IN ABSENCE OF OUTBREAK & IMMEDIATE ACTION THEREOF)

1. Zoning
2. Identification
3. Containment and control
4. Disinfection

1. **ZONING:**

- a. Routine surveillance for ASF would imply passive surveillance collection of information regarding all morbidity and mortality of pigs since January 2020. It will be implemented by the respective RRT team.
- b. **Action:** RRT

2. **IDENTIFICATION**

- a. Immediately identify based on the information obtained from the above Zoning activity. Identify cluster in which infection occurred (mortality/morbidity) of pig population in villages/backyard unit/ areas.
- b. **Action:** RRT and DVO/SDVO

3. **CONTAINMENT AND CONTROL**

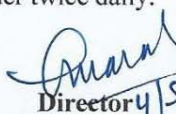
- a. Collection of samples from the pig population of the identified cluster areas in 10% ratio of the susceptible pig population to be submitted in prescribed format in **Annexure II.**

Sl. No.	Type of Samples to be collected	Storage procedure
1.	Live Animals: Whole (unclotted) blood.	- Collected aseptically into EDTA/Heparin from febrile pigs upto 5 days after onset of fever.
2.	Live Animals: Nasal swabs	- Collected aseptically and kept chilled but not frozen.
3.	Post mortem tissue samples (lymph nodes, spleen, tonsils, lungs, heart and kidney).	- Collected aseptically and kept chilled but not frozen.
4.	Serum, spleen, lymph nodes, lungs and kidney (to detect antibodies).	- Collected in 10% Buffered formalin for histopathological examination and detection of virus by Immune-peroxidase test.

- b. Enforcement of strict Bio security measures as per Bio security measures Advisory for Farms. (**Annexure-I**)
- c. **Action:** All Farm Manager and RRT

4. **DISINFECTION**

- a. Use 2.5 % sodium hypochloride solution /bleaching powder twice daily.
- b. **Action:** All Farm Manager and RRT


Director 4/5/2020
A.H & Veterinary Department
Meghalaya, Shillong

STRICT ADVISORY FOR FARMS FOR IMMEDIATE ACTION
HEIGHTENED BIOSECURITY MEASURES FOR FARMS

- Immediate quarantine of infected and suspected farms until diagnosis is confirmed.
- Purchase of pigs from known sources only. Newly purchased pigs/ piglets should be housed separately in quarantine shed for about 4 weeks.
- No diseased pig should be traded to traders/butchers. Stringent environment friendly measures should be adopted for proper disposal of farm waste.
- Pigs should not be allowed to come in contact with other pigs, wild boar and other animals.
- Movement of animals from one shed to another /animal fairs should be strictly prohibited.
- If any farm is suspected of ASF, then the farm should be sealed, access restricted and depopulated.
- Biosecurity protocol should be strictly followed.
- In case of farms and residential areas located nearby, there should be a barricade separating the farm from the residential area.
- In the event of any death due to ASF, Post Mortem Examination should be carried out under strict containment. After the Post Mortem is done, the handlers should immediately remove their gloves, aprons and masks which should be autoclaved before disposing.
- Proper disposal of dead carcass with deep burial of 6 feet deep using lime/bleaching powder.

BIOSECURITY MEASURE FOR PERSONNEL IN THE FARM.

- Farm workers having private pig farm unit will have to stay in the farm.
- Intermingling of farm workers of different farms should not be allowed. This restriction also applies to different sheds of the same farm.
- Establish disinfection points at entrances and exits of the pig farm/pig sty. Foot dip with disinfectant should be made mandatory at the entry point of each pig shed. Pig sheds should be disinfected twice daily with 1% formaldehyde or 2% NaOH or paraphenylphenolic disinfectant or 2.5 % Sodium Hypochlorite.
- Proper dress code to be maintained for the farm workers. Gum boots, face masks and gloves should always be worn during handling of pigs. Personnel and visitors leaving the farm should ensure that shoes, clothing and equipment are disinfected.
- Movement of personnel (veterinarians and farm workers) from one farm to another is prohibited. No visitor should be allowed to go inside the farms.


- High risk visitor – Vets, livestock handlers, owners, labour or other personnel should remain away from biosecure area for a minimum of 3 days after they have visited adised site/ farm/ village
 - Restrict/ limit visitors into the farm –
- Warning signs to be created.
- Establish biosecurity protocols for essential visitors
- Monitor and record all traffic on or off your farm including visitors and transport vehicles (vehicles to be parked outside biosecure area)
- Care in using sterilized syringe, needles, A.I equipments, etc.
 - Personnel/ farm workers – The hands, coveralls, boots can serve as a mechanical vehicle. (frequent hand washing, use of sanitizers, change of clothing & boots, use of gloves, masks etc, cleaning of footbath
- Fomites - farm supplies and containers can be disinfected and left 2 hours soaking, rinsed before use.
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Including and apart from the above advisory mentioned, field veterinary officers may note the following for necessary actions:

- Undertake clinical inspection of each farm subunit, clinical examination of selected animals and necropsy of dead (or euthanized) animals. When conducting a clinical examination of suspect animals, it is important to be systematic.
- Appropriate samples should be collected and sent as soon as possible to the laboratory for diagnosis
- Organization of awareness programme among the pig farmers and producers at regular intervals to make them aware about the alarming situation of the ASF, common signs and preventive measures of the disease.
- Documentation and Proper record keeping and monitoring of Biosecurity measure of animal health and entry and exit of visitors should be maintained.

Documentation and Record keeping (indicative list)

1. Outlay / map of the entire farm with clear demarcation of clean and dirty areas with unidirectional approach (one-way route) roads/ access points-roads and gates/ clean-dirty water demarcation etc. – all colour codes should be displayed in office with Critical Control Points clearly marked and should be kept up-to-date.
2. Personnel roster- shed-wise/ entry/exit time; duty /job chart-cleaning of shed, feeding pans/ watering channels, cage cleaning, litter turning etc.
3. Visitor's entry log
4. Vehicle entry log
5. Disinfectant spray schedule for houses; wheel/ foot-dip change roster
6. Trace-in and Trace-out for both consignments (chicks/ Hatching Eggs etc.)arrivals and transfers respectively
7. Log for feed / equipment arrival and allocation shed-wise, in hatchery/ disinfection of equipment
8. Health check-up and cleanliness check-up schedules for personnel
9. Vaccination and health register/ record
10. Schedule for vector/ rodent control program & monitoring
11. Record of dead bird disposal, hatchery waste disposal/ manure disposal
12. Water sanitization schedule / water testing frequency
13. Shed cleaning/ disinfection/ fumigation schedule
14. Record of separate sheds having single age group stocks etc.
15. Feed Testing schedule.
16. **Biosecurity Monitoring Report is to be submitted as per Annexure 3**


Director 4/5/2020
A.H. & Vety. Department
Meghalaya, Shillong

Annexure-II

The Proforma for referring Clinical Materials to NERDDL, Khanapara & NIHSAD,

Bhopal

For diagnosis of African Swine Fever (ASF)

Routine Surveillance for the month of _____

1	Name of sender:
2	Address:
3	Location from where material was collected: a. District: b. B. Block: c. Villages: d. Backyard/Organised farm:
4	Species from which material was collected:
5	Susceptible population of Pigs (in farm/villages/area)
6	Nature of Material Serum, Whole Blood (unclotted) to be collected aseptically into EDTA/Heparin from febrile pigs upto 5 days after onset of fever: PM samples: 1. Lymph nodes, spleen, tonsils, lungs, heart and kidneys (to be collected aseptically and kept chilled but not frozen) 2. Lymph nodes, spleen, lungs and kidneys (to be collected in 10 % Buffered formalin for histopathological examination and detection of virus by immune-peroxidase test.
7	Transport medium used:
8	Manner of dispatch:
9	When disease was first notice/reported along with symptoms:
10	Morbidity:
11	Mortality:
12	Vaccination history (in last one month):
13	Preliminary diagnosis if any & basis for the same:

Signature:

Name:

Designation:

SURVEILLANCE PLAN FOR ASF

A. TARGET:

1. Commercial pigs
2. Backyard pigs
3. Wild boars
4. Live pigs markets particularly in infected areas

B. RISK FACTORS:

- Areas with shared borders, adjoining states and International Borders which have been infected with ASFV.
- Domestic pig population
- Backyard pig population
- Number and activity of live pigs markets

C. Active Surveillance:

I. WHOLE BLOOD SAMPLES (UNCLOTTED)

To be collected aseptically into EDTA/heparin from febrile pigs upto 5 days after onset of fever

II. SERUM SAMPLES:

To be collected from healthy pig population from high risk areas

III. NASAL SWAB SAMPLES:

To be collected from sick/healthy pig population from high risk areas

IV. PM SAMPLES:

1. Lymph nodes, spleen, tonsils, lungs, heart and kidneys (to be collected aseptically and kept chilled but not frozen)
2. Lymph nodes, spleen, lungs and kidneys (to be collected in 10 % Buffered formalin for histopathological examination and detection of virus by immune-peroxidase test.

Executive Summary.

Definition: Biosecurity is broadly defined as any practice or system that prevents the spread of Infectious agents from infected to susceptible animals or the introduction of infected animals into a herd, region, or country in which it has not yet occurred.

Objective:

- (1) To reduce the risk of acquiring infection in animal and human population.
- (2) Recognize the bio-security and bio-containment challenges and overcome them.
- (3) Prevent disease ingress across the borders through important livestock or livestock products or spread of the disease within the borders.
- (4) Keeping the natural resources (water, soil, food, feed and fodder) clean and safe for consumption.
- (5) Prevent misuse of infectious disease agents.

Measures for Biosecurity:

Our Country's food production animal system warrants "Biosecurity at all levels" comprising of

- (1) On – Farm Biosecurity.
- (2) Biosecurity at Inter-state borders and Tourism related biosecurity.
- (3) Biosecurity at International Borders against Transboundary Disease.

Biosecurity measures at National Level.

Options for trade from disease-free countries/ zones/ compartments for trading in safe commodities are now possible to facilitate export of pigs, pork other pig products from India. Compartmental biosecurity is the new concept for the management of biosecurity in a compartment or zone of a country through a single set of biosecurity measures. Creation of disease free zones/ compartments will definitely ensure boost in international trade of livestock and poultry as well as processed products of livestock, poultry and fish.

Definitions:

Zoning: for disease allows for identification of a sub-population of specific geographical areas within a country or neighbouring countries as having a defined status with respect to a particular disease.

Compartmentalization: is defined as "one of more establishments under a common biosecurity management system containing animals with a distinct health status" and is therefore based on a functional separation.

Bio-exclusion – to limit the risk of introduction.

Bio-containment – to limit the spread of the pathogen within the same facility e.g by isolating excreting animals.

- to prevent any environmental contamination and persistence of the pathogen.

On – Farm Biosecurity:

This includes ‘Bio-exclusion’ – arising at preventing the introduction of a pathogen to a herd or flock and ‘Biocontainment’ – for addressing the event, after introduction of the pathogen, for its ability to spread among groups of animals at the farm or to other farms(s) or premises.

Disease transmission between farms and within farms depends on the contamination of individual bio-exclusion practices and biocontainment measures.

The importance of bio-containment is largely determined by the magnitude of the movement and direction of the resource materials, such as animals, animal attendants and fittings, fodder, feed, water, air and waste flows within and between farm populations.

Every farm should have a biosecurity plan in place. The plan should include general biosecurity practices including biosecurity intervention that can be applicable across the animal species and farms and address all relevant components such as guidelines for location and layout of the farms, purchase and introduction of new animals, management practices at the farm, movement of man, animals, and materials within and outside the farm premises, adoption of proper hygienic practices and disinfection wholesome, clean and healthy animal feed and fodder, water and bedding; proper disposal of bedding, manure and carcass, freedom from pests, rodents, wild animals and birds, proper routine cleaning and disinfection of stables, sheds, etc, timely detection isolation and treatment of sick animals.

Risk assessment (import risk) of livestock diseases can be done which will help in developing effective surveillance and control measures.

Three measures to improve Biosecurity

1. Isolation / Segregation.
2. Cleaning / Sanitization / Disinfection.
3. Traffic Control.

PROTOCOLS:

- (1) Isolation – An isolation (quarantine) facility is a critical component of a biosecurity program. Isolation facilities should be located 500 metres from the breeding herd and ideally offsite.
 - a. Incoming stock should be kept separate from the resident stock for a minimum of 30 days.
 - b. From sources with unknown disease status-40 days or sufficient time for 2 tests for Brucella, TB and JD.
 - c. Poultry shed to be kept empty for 10 days prior to arrival.
 - d. Animals should be monitored daily and the workers of the isolation stock should be separate.
- (2) Testing during quarantine – All replacement stock should be blood tested 24-48 hours after arrival as well as 5-7 days prior to their entry to the breeding herd.
- (3) Sanitization of shed – Farms should be managed using All-in All out (AIAO) flow.

- (i) Removal of gross contamination within the building, that is, the dried faeces, slurry and dust etc. by pressure washing preferably with hot water.
- (ii) Use of detergents to assist in the final removal of the organic materials. Only after the completion of the two, should disinfectant should be applied.
- (iii) Use of Disinfectant

The phenomena of all – inall – out production associated with cleaning simply with water and detergents is effective enough to clean the environment of any endemic disease.

The cleaned building is emptied for four days during and after the cleaning process.

- a. Other areas that require constant cleaning are foot dips and equipments.
- b. Separate facilities for washing, disinfecting hands, feed storage and handling including man power should become an important part of environmental control.
- c. It is required to soak all movable equipments and the complete building, roof to floor from top to bottom and towards drainage is scrubbed and soaked with detergents or water for 24 hours and cleaned down.
- d. Drain and flush out the water system and fill with a sterilizer. Leave for 2 hours, drain, flush and refill.
- e. Periodic cleaning and Disinfection of Equipments and Farm Premises.
- f. Prevent sharing of Equipments and Disinfection at entry and exit points.

A recommended routine for cleaning houses

1. Remove all muck and empty all slurry channels, tanks and gulleys.
2. Isolate the electricity supply.
3. Disconnect all moveable equipment, feeders, lamps etc. and open all inaccessible areas e.g. channels, fan boxes etc.
4. Brush down and sweep out the house.
5. Soak the complete building, roof to floor with a farm detergent or water, for 24 hours if possible.
6. Soak all moveable equipment and clean down.
7. Drain and flush out the water system, bowl, nipples, water tanks etc. and fill with a detergent sterilizer. Leave for two hours drain and then refill with water.
8. Pressure wash the complete building using hot water or a steam cleaner.
9. Visually check the building.
10. Disinfect the complete house including all equipment and surrounds using a pressure washer or spray.

Follow this with fumigation using formalin gas where this is permitted with suitable precautions. Alternatively use a disinfectant such as Virkon S.

- (4) Establish farm boundary premises – on and off- limit to visitors & other domestic and pet animals free ranging
- (i) Low risk visitors – provide boots and coveralls , no entry in sheds..
 - (ii) Moderate risk visitor – delivery men, etc..
 - (iii) High risk visitor – Vets, livestock haulers, owners, labour or other personnel should remain away from biosecure area for a minimum of 3 days after they have visited an Diseased site/ farm/ village (eg FMD).

Restrict/ limit visitors into the farm –

- Warning signs to be created.
- Establish biosecurity protocols for essential visitors

- (5) Monitor and record all traffic on or off your farm including visitors and transport vehicles (vehicles to be parked outside biosecure area)
- (6) Care in using sterilized syringe, needles, A.I equipments, etc.
- (7) Personnel/ farm workers – The hands, coveralls, boots can serve as a mechanical vehicle. (frequent hand washing, use of sanitizers, change of clothing & boots, use of gloves, masks etc, cleaning of footbath)
- (8) Fomites - farm supplies and containers can be disinfected and left 2 hours soaking, rinsed before use.
- (9) Insects and birds – houseflies, mosquitoes. Cutting the grass and removing weeds surrounding the farm facilities providing nettings in the farm.
- (10) Providing bird protection nets.
- (11) Preventing water body accumulation.
- (12) Water testing to be done at regular interval.
- (13) Educate your employees.
- (14) Establish/ Monitor method to determine workers are abiding by the biosecurity protocols.
- (15) Biosecurity rules are non-negotiable, neglect and ignoring biosecurity rules should not be tolerated.
- (16) Education of farmers of biosecurity measures.

Precautions to be taken when using disinfectants

Always:

- Follow the manufacturer’s instructions carefully.
- Wear gloves and eye protectors when handling the concentrate.
- Wash concentrate off the skin immediately.
- Ensure the dilution is correct for the purpose being used.
- If there is contact with eyes wash immediately with copious amounts of water and seek medical help.
- Where foot baths are used ensure that these are cleaned and replenished regularly.
- Store in original container, tightly enclosed.
- Keep away from children.

Common Disinfectants:

Contact time

- | | |
|---|----------------|
| 1. Phenols – Carbolic acid, TRICLOSAN (Biphenol). | 10-30 minutes. |
|---|----------------|

2. Chlorine based compounds – Sodium Hypochlorite (NaOCl) 10-30 minutes.
3. Iodine based compounds – Iodine tincture
4. Quarternary based compounds- (alkyl dimethyl benzylammonium chloride found in household cleaners, spray & wipes) 10-30 minutes
5. Aldehydes – Alcohol, formaldehyde, benzaldehyde, formalin, citral, acetaldehyde. 15 minutes.
6. Peroxygen – Hydrogen peroxide. 10-60 minutes or as specified.

Characteristics of different Disinfectant Chemicals.

Each group of disinfectants have their own special properties and an understanding of these will help you in your selection

THE CHARACTERISTICS OF THE DIFFERENT DISINFECTANT CHEMICALS						
	Chlorine Based	Peroxygen Compounds	Phenols Unchlorinated	Phenols Chlorinated	Iodophors	QAC Compounds
Can be used in aerosols	A Few	Yes	No	A Few	Yes	Yes
Corrosive to metal/rubber	No	No	Yes	Yes	No	No
Detergent action	No	Yes	No	Some	Yes	Yes
Effectiveness in presence of organic matter	Moderate	Yes	Yes	Yes	Moderate	No
Good action against bacteria	Moderate	Yes	Yes	Yes	Yes	Moderate
Good action against viruses	Yes	Yes	Poor	Poor	Yes	No
Persistent residues	No	No	Yes	No	Poor	Yes
Speed of action	Quick	Quick	Moderate	Moderate	Quick	Moderate
Staining	Some	No	Yes	Yes	Some	No
Suitable for foot baths	No	Yes	Yes	No	Yes	No
Toxic or irritant	Yes	No	Yes	Yes	Some	No

Documentation and Record keeping (indicative list)

1. Outlay / map of the entire farm with clear demarcation of clean and dirty areas with unidirectional approach (one-way route) roads/ access points-roads and gates/ clean-dirty water demarcation etc. – all colour codes should be displayed in office with Critical Control Points clearly marked and should be kept up-to-date.
2. Personnel roster- shed-wise/ entry/exit time; duty /job chart-cleaning of shed, feeding pans/ watering channels, cage cleaning, litter turning etc.
3. Visitor's entry log
4. Vehicle entry log
5. Disinfectant spray schedule for houses; wheel/ foot-dip change roster
6. Trace-in and Trace-out for both consignments (chicks/ Hatching Eggs etc.)arrivals and transfers respectively
7. Log for feed / equipment arrival and allocation shed-wise, in hatchery/ disinfection of equipment
8. Health check-up and cleanliness check-up schedules for personnel
9. Vaccination and health register/ record

10. Schedule for vector/ rodent control program & monitoring
11. Record of dead bird disposal, hatchery waste disposal/ manure disposal
12. Water sanitization schedule / water testing frequency
13. Microbial load testing frequency in different areas- schedule of testing for ensuring freedom status from Salmonella, Coli and Clostridium species
14. Salmonella testing schedule
15. Shed cleaning/ disinfection/ fumigation schedule
16. Record of separate sheds having single age group stocks etc.
17. Feed Testing schedule.

Disease Specific Biosecurity:

It is important to have an understanding of the common pathogens and their routes of entry. The table below will help concerned authority to assess the risk of disease and carry out necessary measures to reduce the threat of the potential infection source.

Pathogens and route of entry		
Transmission method	Potential exposure sites	Diseases
Air	Newly purchased animals. Pastures which adjoin those of other herds.	IBR , <i>Mannheimia</i> (<i>Pasteurella</i>) <i>haemolytica</i> ,FMD
Blood	Needles Surgical equipment	Bovine Leukosis Virus Anaplasmosis
Ingestion	New born calves that remain with mature cows. Equipment of personnel tracking manure into feed bunks, feed storage, or silage storage. Exposure to contaminated soil	Johne's Disease Anthrax BQ Brucellosis
Animal to animal	New animals Infected animals Needles Surgical equipment Hoof trimming equipment Calf trailers Fomites	Mycoplasma,BVD,IBR, FMD, HS,Leptospirosis, Trichomonosis, Campylobacteriosis Brucellosis,Tuberculosis Salmonellosis, <i>E.coli</i> Rotavirus,Coronavirus Neospora sp.
Contact with other animals and ectoparasite	Domestic animals in farms Wildlife/ birds entering farm or feed storage Biting ectoparasite	Neospora (dogs,fox), Brucellosis (deer), Salmonellosis (birds,rodents), <i>E.Coli</i> (many),Cryptosporidium, Anaplasmosis (flies), Bluetongue(flies), Theileria, Babesia (ticks),Trypanosome (flies)

Illustrative formats for concurrent biosecurity monitoring/ in-house auditing

A.	Documentation and training	Yes	No	N/A	Corrective action
A1.	Is a copy of the current Biosecurity Manual held on the production area and readily available?				
A2.	Has staff been given instruction / suitable training in the relevant biosecurity procedures?				
A3.	Is a record kept of all relevant training received by employees?				
A4.	Is an animal/bird mortality register being maintained?				
A5.	Is an appropriate animal/bird movement register being maintained?				

B.	Facility standards	Yes	No	N/A	Corrective action
B1.	Does the production area have a perimeter fence and can access routes be closed off to prevent vehicle entry?				
B2.	Is there a sketch or map clearly defining the production area and the property, including all access roads and gates?				
B3.	Is there adequate signage to inform visitors of the Biosecure Area and what action they should take?				
B4.	Is there an off-site parking area for visitors?				
B5.	Are footbaths available and used at all entrances allowing personnel access to sheds?				
B6.	Are the footbaths inspected daily and replenished as required?				
B7.	Alternative to B5 and B6: is a separate pair of boots available and used for each enclosure?				
B8.	Is the area around the sheds neat and tidy? E.g. grass, vegetation				
B9.	Are the sheds rodent proof? Is there a bait plan in position?				
B10.	Is hand sanitizer or washing facilities available and used at all entrances allowing personnel access to sheds?				
B11.	Are other livestock excluded from the production area or effectively restricted so that their faeces do not come in contact with poultry/ farm animals either directly or indirectly, e.g. water draining into farm areas/ shed?				
B12.	Are the sheds wild bird proof?				
B13.	Are no other pet caged or aviary birds, pigs or any other animals held on the property?				

Biosecurity in Practice

- (1) Legislation regarding movement of animals across the zones and compartments are required.
- (2) Regulation for animal movement through interstate borders need to be implemented.

- (3) Surveillance system.
- (4) Establish disease free zone with neighbouring backyard pig farms.
- (5) The use of antibiotics belonging to classes, considered critically important to human in food-production animals must be carefully monitored and limited to combat AMR (Antimicrobial Resistance).
- (6) Establish Regulation to prevent scavenging.
- (7) Perimeter fencing from low risk area to high risk , biosecure area within farm.
- (8) Provision for removal of effluent.
- (9) Disinfection at entry and exit points.
- (10) Ensure Routine Deworming, Vaccination.
- (11) Proper Ventilation.

References:-

1. Yadav. M.P (Prof) Dr. *Biosecurity for Effective Management of Emerging Infectious Diseases of Pigs in North-East Region of India.*
2. Sarma D. Kumar Dr. *Viral Disease of Pigs and Biosecurity Protocols with special reference to PRRS.*
3. Dutta T. K and Vangchhia Belinda L. *Multi-drug Release (MDR) Bacteria in Pig Population: Indian Perspective.*
4. R. Laha, S. Ghatak, M. Das, A. Sen, R. Sanguleta, S. Das, A.A. P, Milton and N. Prakash. *Biosecurity Measures for Parasitic Diseases of Pigs.*
5. *Managing Pig Health – Pig Site 5M Publication.*
6. The University of Vermont – *General Farm Biosecurity Practices.*
7. Government of India – *Biosecurity and Biosafety Manual for Bovines.*
8. Government of India – *General Guidelines for Biosecurity at Central Poultry Development Organisation DAHD.*
9. Fotheringham V.J.C *Disinfection of Livestock Production Premises (O.I.E).*