Government of Saint Lucia

National Influenza Plan
Volume 5: Ministry of Agriculture, Forestry and Fisheries (MAFF) Plan

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Based upon World Organization on Animal Health (OIE) Guidelines and
Virginia Low Pathogenic Avian Influenza Task Force - Guidelines, May 2, 2002

Cabinet Conclusion 498/2009 (18 May, 2009)
Authorised the National Influenza Plan for Saint Lucia


Cap Pt.
Pigeon I.
Rodney Bay
Gros Islet
CASTRIES
Grande Cul de Sac Bay
Babonneau
Anse la Raye
Roseau
La Caye
Canaries
Dennery
Mt. Gimie
Praslin
Soufrière
Micoud
Canelles
Desruisseaux
St. Lucia I.
Choiseul
Laborie
Hewanorra Int'l. Airport
Vieux Fort
Maria Is.

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LIST OF ACRONYMS

AHA	Animal Health Assistant
AI	Avian Influenza
AIO	Agricultural Information Officer
CEO	Chief Extension Officer
CFO	Chief Forestry Officer
COP	Commissioner of Police
CVO	Chief Veterinary Officer
DAS	Director of Agricultural Services
DC	Disinfection Crew
DCR.	Depopulation Crew
EO	Extension Officer
FO	Forestry Officer
HPAI	Highly Pathogenic Avian Influenza
LPAI	Low Pathogenic Avian Influenza
LV	Laboratory Veterinarian
MOFF	Ministry of Agriculture, Forestry and Fisheries
MOH	Ministry of Health
NEMO	National Emergency Management Organization
NEMO-Sec	National Emergency Management Organization Secretariat
OFV	Official Field Veterinarian
PS	Permanent Secretary
QEC	Quarantine enforcement crew
SLASPA	Saint Lucia Air and Sea Port Authority
SSU	Saint Lucia Special force Unit
TC	Transportation crew
VQO	Veterinary Quarantine Officer
VLSD	Veterinary and Livestock Services Division

PREFACE

The management of factors linked to the introduction or prevention and control of Avian Influenza and the pandemic itself, is a primary responsibility of the national authourities. The country must determine its needs for strengthening the epidemiological capacity, inclusive of animal disease surveillance and disease prevention and control, and develop a comprehensive national contingency plan. Such a plan should focus on clinical evaluations, surveillance, prevention and control strategies, public education, and strategies for vaccination, among other matters.

This AI Contingency Plan for Saint Lucia takes into account issues of importance, as recommended for Avian Influenza by the World Organization on Animal Health (OIE), the Pan American Health Organization (PAHO), the World Health Organization (WHO), and the Food and Agriculture Organization (FAO. The final instrument for designing this plan was the document ***Guidelines for the Preparation of Contingency Plans for Avian Influenza (AI)*** *as developed by the European Commission.*

0.0 BACKGROUND

There is at present two (2) functioning hatchery with a capacity to produce 7560 broiler birds each. There is no breeding farm on island hence we rely on the importation of hatching eggs and day old chicks. Saint Lucia has not reported many infectious disease problems but we are faced with health problems, which can be related to transportation stress and inadequate management practices among others.

Three (3) broilers processing plants operates in Saint Lucia at present. The capacity of these processing plants ranges from 500 – 8000 birds per day. At the time of preparation of this plan there was a total of 36 producing broiler farms with typical commercial capacity ranging from 1000 broilers to 12000 broilers, with an average capacity of 3000 birds per cycle.

The Table egg industry in Saint Lucia on the other hand is a very viable industry, and has for decades made a significant contribution to the development of the agricultural sector; Saint Lucia is self-sufficient in shell egg production. There are a total number of 40 commercial table egg farmers with a total capacity of 93280 birds and an average capacity of 2332 layer hens. The largest producer on the island has a capacity of 16000 birds and the smallest 200.

There is also a growing game fowl population with a total of 52 captured active game bird owners although it is estimated that there are almost 2000 fighting cock owners, they vary in size with the largest fighters (20) having approximately 150-200 birds each.

According to the 2005 economic review, the livestock sub-sector expanded by 2.2 percent. In keeping with the decline in banana output, the agriculture sector's contribution to real GDP fell to 3.4 percent with bananas contributing a mere 1.3 percent. During the first half of 2005 it was estimated that 407.2 tones of chicken valued at $3.4 million were produced, This represents a 23.5 percent increase, following a substantial fall in production during the first half of 2004, while egg production also expanded significantly rising from 372,772 dozen to 660,975 dozen generating $4.0 million to the GDP.

The 2006 review showed that the poultry industry (Broiler and Table eggs) contributed 0.44% to the GDP

Two poultry diseases (a) Highly Pathogenic Avian Influenza and (b) Exotic Newcastle Disease are on the list of Notifiable animal diseases identified by the World Organization for Animal Health (OIE) under its Terrestrial Code. They are considered to be sufficiently serious as *"transmissible diseases which have the potential for very rapid and serious spread, irrespective of national borders, which are of serious socio-economic or public health consequence and which are of major importance in the international trade of animals and animal products"*.

Recent outbreaks have shown that all poultry industries worldwide are at risk of infection with Avian Influenza

The Ministry of Agriculture Forestry and Fisheries has therefore designed this Avian Influenza Contingency Plan to highlight the importance of preparedness for responding to avian influenza by all players - government, industry and operational partners (inclusive of the police and special forces) – and to assist such stakeholders to understand their roles. The Plan sets out the actions which would take place if avian influenza were suspected or confirmed in Saint Lucia. It sets out the structures that the national government must put in place to manage the outbreak and the main disease control assumptions that would apply. The plan is aimed at managing the national situation and supporting all local existing plans already adopted by the national Veterinary Services.

Animal emergency disease preparedness planning should be recognized as an important core function of all National Veterinary Services. Experience has shown that it is often far too late to leave such planning to the time when a disease outbreak has actually occurred. The role of the poultry industry and other interested parties working in conjunction with the veterinary services is critical to emergency disease preparedness planning and management for avian influenza.

Emergency poultry disease control programme must be conducted in compliance with animal health laws and regulations within the country. This plan therefore, seeks to define the responsibility of both the official Government Veterinary Services and the Poultry Industry and also recommend general and specific procedures for handling outbreaks of Highly Pathogenic Avian Influenza.

Outbreaks of Avian Influenza are becoming progressively more expensive to control and the economic impact on producers and consumers is very significant and is a reflection of the growth of the poultry industry worldwide. Diagnosis of this disease requires immediate control measures to limit its spread and to avert international embargoes on export of poultry and poultry products from affected countries.

The introduction of Avian Influenza to Saint Lucia would greatly affect this country's dependence on the importation of poultry, poultry meats and its products. A functional hatchery does exist in Saint Lucia but hatching eggs are imported as well as day old chicks for production purposes. The consumption per capita of poultry meats is so high that the local production is unable to meet such demands.. All of these factors increase the risk of introducing the Avian Influenza and the catastrophic impact of the disease if it does enter Saint Lucia.

There are quite a few major wet lands (see Appendix 1) identified in Saint Lucia, and which serve as home to many migratory birds during the months of September to March. These too pose a threat to the Island.

There is a growing interest in the cock fighting sport in Saint Lucia and game fowls are imported, exported and re-imported frequently with the ongoing travel of game fowls in and out of the country. Owners are very concerned about the threat that avian influenza can pose to such a vibrant sport and expensive investment. They are therefore willing to take advice from the authorities.

1.0 EMERGENCY POULTRY DISEASE COMMITTEE

Throughout the planning and management of all activities related to Avian Influenza, the Chief Veterinary Officer remains the leader and the responsible individual to execute and in collaboration with the Avian Influenza Contingency Planning Committee, to revise the avian preparedness plan as required, with support from the Action Plan for Agricultural Pest and Disease Preparedness Committee. The Chief Veterinary Officer from the Ministry of Agriculture also has the responsibility to ensure that, in the event of an outbreak, immediate notification should be given to the Ministry of Health and other stakeholders so that timely action could be taken to monitor and address economic and public health concerns.

As an integral and important core function of the National Veterinary Services, adequate funding and other resources must be allocated to these activities and the Chief Veterinary Officer should seek the active support and commitment of all interested parties. These should include other senior officials of the Ministry of Agriculture, other government departments and agencies including the National Disaster Preparedness Organization, farming communities and organizations, poultry marketing authorities, poultry traders and exporters and the poultry industry in general. In addition the small informal back-yard poultry farmers should not be neglected.

The Avian Influenza Contingency Planning Committee will comprise individuals in the following positions and their alternates. The Committee shall be directly accountable to the Permanent Secretary of the Ministry of Agriculture, with ultimate responsibility to the Minister of Agriculture.

- Veterinary and Livestock Services Division
- Ministry of Health (Public Health)
- Saint Lucia Royal Police Force/SSU
- Saint Lucia Port Authority
- Saint Lucia Fire Service. Ministry of Local Government
- Saint Lucia Solid Waste Management/ Contracted Sanitation Companies
- Ministry of Communication Works and Transport
- Media
- Poultry producers and other Stake Holders
- Affected Communities

- (Vet Association)
- Saint Lucia Animal Protection Society
- Private Veterinarians
- Department of Forestry and Wild life
- Customs and Excise Department
- National Emergency Management Organization (NEMO)
- Immigration
- Extension Service
- Ministry of Tourism
- Pet shop and exotic bird owners
- Sir Arthur Lewis Community College
- Ministry of Finance
- Ministry of Trade

The role of the Committee is mainly to promulgate policies and coordinate inputs of the various government ministries and other agencies in the prevention, control and eradication of Avian Influenza and review and update the AI Contingency Plan.

The roles of all other members of the planning committee must be carefully studied and carried out in the event of an outbreak.

Funds must be designated in advance to compensate owners of infected flocks that will be subjected to mandatory depletion. Without a satisfactory compensation plan, owners of affected poultry will not readily make reports to the authorities, this reluctance will no doubt lead to rapid spread of the disease. In the event of an outbreak, the Committee would activate the appraisal team to appraise the value of all birds, products and materials destroyed because of infection or exposure to avian influenza.

Specifically, a Command and Control structure shall be in force in the event of an outbreak. The persons that make up this structure are listed in the table in Appendix ---.

In the absence of an outbreak, the Committee should meet at least quarterly to review and refine the implementation of procedures and to update the members of any new development. In the event of a potential outbreak, the Committee should meet at least weekly.

The effectiveness of a plan relies mainly upon the ability to put the plan into action at very short notice. Regular simulated field exercises should be conducted to enhance the reactive capacity of the plan and to correct any deficiency. It is only through these exercises that the plan can be kept in a state of constant readiness to cope with the constant threats of the entry of an emergency disease of poultry.

SECTION 1

1.1 GETTING STARTED

Saint Lucia shall have a defined, appropriate pool of human resources available to address all aspects of emergencies posed by an outbreak of Avian Influenza at the country level. Decision-makers are those with the authority and support to make difficult choices that may arise before, during, and after the outbreak. There must be strong political and administrative commitments, supported by industry, the farming community, and the wider public.

The following personnel from the Veterinary Livestock Services Division in Saint Lucia would be the principal Ministry of Agriculture Forestry and Fisheries personnel to initiate the action plan.

Leadership of the AI Programme

The Chief Veterinary Officer, as the leader of the Veterinary Services shall ensure that the Minister of Agriculture Forestry and Fisheries knows of the potential social and economic impact of Avian Influenza and provides the political support to Action Plan for Agriculture Pest and Disease.

1.3 Financial Provision

Prior to introduction of the disease, or during the pre-pandemic stage, the Chief Veterinary Officer shall liaise with the appropriate government body to advice on the need for commitment of funds to address all important elements of preparedness and response. The Chief Veterinary Officer, assisted by the Task Force, shall prepare a list of expenditure to include the following costs:

- Personnel over and above normal running costs. (This may include hiring of private veterinarians as official staff).
- Capital equipment and consume items.
- Slaughtering of animals and disposal of carcasses and contaminated material and sanitation of premises.
- Emergency vaccination if required.

Throughout the planning and management of all activities related to Avian Influenza, the Chief Veterinary Officer remains the leader and the responsible individual to execute and revise the preparedness plan as required, with support from the national Emergency Committee.

1.4 Legal Powers

1.4.1 The Chief Veterinary Officer must review the national legislation during the pre-disaster or in the pre-pandemic stage to ensure that the legislative framework is in place,

and that it is it well understood by all relevant stakeholders (enforcers, industry, farmers and the wider public.

The Chief Veterinary Officer shall liaise with the Ministry of Health to encourage emergency actions in circumstances where the presence or likelihood of a hazard related to avian influenza may pose a risk to animal and human health.

2. HIGHLY PATOGENIC AVIAN INFLUENZA (HPAI)

Avian Influenza (also known as Avian Flu, Bird Influenza, Bird Flu) is a highly contagious viral disease affecting the respiratory, digestive and or nervous system of many species of birds, and other mammals including man.

Etiology

It is caused by a Type A influenza virus belonging to the orthomyxoviridae family. In birds type A influenza has two forms:

- Low pathogenic (LPAI) which causes mild illness (only respiratory symptoms). However some LPAI viruses are capable of mutating into the more pathogenic form.
- High pathogenic (HPAI) is a generalized rather than a respiratory disease and causes a high proportion of deaths in affected flocks.

The most virulent form (HPAI) was once called fowl plague. At the 1981 International Symposium on Avian Influenza, the term fowl plague was replaced with the term "highly virulent" influenza virus infection.

The virus is divided into subtypes based on two antigens on the surface of the virus:

- Haemagglutnin (HA): 16 subtypes
- Neuraminidase (NA): 9 subgroups.

The two sub types which is known to be highly pathogenic in birds are H7 and H5
All influenza viruses hemagglutinate chicken red blood cells. Most grow readily in embryonating chicken eggs and tissue culture. They are susceptible to detergents, disinfectants and heat.

Natural Hosts

Chicken, turkey, ducks, geese, guinea fowl, quail, pheasant, partridge, emus and ostriches are susceptible. Disease outbreaks occur most frequently in domestic fowls and turkey.

Many species of wild birds, particularly waterfowl and seabirds, are also susceptible, but most infections of these birds are sub clinical. These wild aquatic birds are the major natural reservoir for influenza A viruses although they generally do not develop severe

disease. They are usually asymptomatic, may excrete virus in the feces for long periods, may be infected with more than one subtype, and often do not develop a detectable antibody response.

Transmission

Infected birds shed influenza virus in their saliva, nasal secretions, and faeces. Birds that survive infection excrete virus for at least 10 days, orally and in faeces. One gram of contaminated faeces contains enough viruses to infect 1 million birds. This virus can survive in contaminated manure for up to three months and contaminated water up to thirty days. Highly pathogenic viruses can survive for long periods in the environment, especially when temperatures are low.

Susceptible birds become infected when they are directly or indirectly in contact with contaminated secretions or excretions from infected birds.

Current evidence strongly supports the hypothesis that HPAI viruses are not normally present in wild bird populations and only arise as a result of mutation of the LPAI strain after it has been introduced to domestic birds.

The virus is readily transmitted from farm to farm by the movement of live birds, people (especially when shoes and other clothing are contaminated), and contaminated vehicles, equipment, feed, and cages.

Clinical Signs

The LPAI signs vary greatly and depend on many factors, including the age and species infected the virulence of the virus, concurrent infections, and husbandry.

In young growing turkeys the disease may be subclinical or severe, particularly where secondary infection with live pasteurella vaccine, E. coli, or bordetella occurs. Outbreaks in laying turkeys often reduce production markedly and frequently are associated with abnormal eggshell pigmentation and quality.

Morbidity and mortality are highly variable, depending upon the same factors that determine clinical signs noted above.

HPAI may cause fatal infections preceded by few signs. Onset is sudden, the course is short, affected birds are quite ill, and mortality may approach 100%. Signs may relate to the respiratory, enteric, or nervous systems.

Some of these clinical signs may include:

- ruffled feathers
- soft-shelled eggs

- depression and droopiness
- sudden drop in egg production
- loss of appetite
- cyanosis (purplish-blue coloring) of wattles and comb
- edema and swelling of head, eyelids, comb, wattles, and hocks
- diarrhea
- blood-tinged discharge from nostrils
- in coordination, including loss of ability to walk and stand
- pin-point hemorrhages (most easily seen on the feet and shanks)
- respiratory distress
- increased mortality in a flock

Differential Diagnosis

The clinical signs of avian influenza are similar to those of other avian diseases. Avian influenza may be confused with infectious bronchitis, infectious laryngotracheitis, fowl cholera, the various forms of Newcastle disease and other paramyxovirus infections, mycoplasmosis, and chlamydial infections.

Avian influenza should also be differentiated from diseases which cause swelling of the comb and wattle example, Acute Fowl Cholera and other septicemic diseases, bacterial cellulitis of comb and wattle.

Less severe forms of the disease may be confused with, or complicated by many diseases with respiratory and enteric signs.

Postmortem Lesions

Lesions vary greatly depending on pathogenicity of the virus, age of the bird, type of poultry, etc In LPAI outbreaks in poultry there is mild to moderate inflammation of the trachea, sinuses, air sacs and conjunctiva. In laying birds there often is ovarian atresia and involution of the oviduct. Various degrees of congestive, hemorrhagic, transudative, and necrotic lesions have been described.

Young broilers may show signs of severe dehydration with other lesions less pronounced or absent entirely.

In the highly pathogenic strain, gross lesions in poultry species are the most extensive and severe. Fibrinous exudates may be found on the air sacs, oviduct, pericardial sac, or on the peritoneum. Small foci of necrosis may be apparent in the skin, comb, and wattles or in the liver, kidney, spleen, or lungs. Indications of vascular damage often include congestion, edema, and hemorrhages at many sites.

Classical lesions of HPAI in chickens include cyanosis and edema of the head (removing skin from the carcass will show a clear straw-colored fluid in the subcutaneous tissues), vesicles and ulceration on the combs, edema of the feet, blotchy red discoloration of the shanks, petechiae in the abdominal fat and various mucosal and serosal surfaces, and necrosis or hemorrhage in the mucosa of the ventriculus and proventriculus.

Treatment

There is no effective treatment. However, good husbandry, proper nutrition, and broad-spectrum antibiotics may reduce losses from secondary infections.

Zoonotic Potential

In recent years many pathogenic strains have caused high mortality in birds in the USA, Europe, Canada and Asia, resulting in death and destruction of millions of birds and costing the poultry industry millions of dollars. However, the H5N1 Influenza virus causing the panzootic/ pandemic in Asia, Europe, Africa, and threatening the Americas and the rest of the world, is such that the world now nervously anticipates one of its worse pandemics.

The H5N1 virus remains for the moment an animal disease, but the World Health Organization (WHO) has warned that H5N1 is a virus that has the potential to ignite a human influenza pandemic.

3. PROCEDURES TO BE FOLLOWED FOR MANAGEMENT OF AN OUTBREAK OF AVIAN INFLUENZA.

The aggressive and rapid eradication of an HPAI should receive the highest priority. Based on past experience if these infections become endemic the cost to the consumer and the taxpayer would be exceedingly high. It is highly recommended that vaccines not be used in the eradication process. Instead the stamping-out principle should be adopted. However, if vaccines are to be used to slow the spread of infection, the Vaccination Decision Tree (as shown in Appendix) shall be used.

Additionally, if the viruses were to spread to a region of very high poultry density the costs of destruction, compensation and the magnitude of disposal could present a formidable challenge to the industry. In such instances the decision to vaccinate may be appropriate. There is now a growing body of thought that vaccines can be incorporated into a multifaceted control programme in conjunction with quarantine, upgraded insecurity and depletion of infected flocks.

3.1 Emergency Investigation

When Highly Pathogenic Avian Influenza is suspected on a farm or premises a government-employed veterinarian should be notified and a field investigation promptly initiated.

Suspicion

As soon as the suspicion of AI is reported, the Official Field Veterinarian (OFV) identifies the person who has reported the suspicion, and if the latter is the farmer who has observed increased mortality with or without the presence of clinical signs, the OFV collects information concerning:

a) Location, characteristics and number of birds and other animals on the farm,
b) Presence of staff, vehicles and other non-farm personnel.
c) Recent movement of people, equipment, vehicles and animals,
d) The onsite availability of disinfectants and equipment for disinfecting premises.
e

Reporting the suspicion is also compulsory for the private veterinarian, who must support the OFV in collecting information. If the suspicion is reported before the arrival of the OFV, the private veterinarian or private practitioner must do everything possible to prevent the infection from spreading. The vehicles of animal health personnel must be left outside the infected premises and at a sufficient distance from the entrance of the farm.

The OFV coordinates at the farm level, advises on careful movement of people, animals, equipment and vehicles from the suspected premises, and in the meantime:

- performs the rapid field tests
- informs the laboratory and the surveillance team of the suspicion of AI.
- informs the Chief Veterinary Officer whose responsibility it is to engage the Director of Agricultural Services, Permanent Secretary, Minister of Agriculture, Chief Medical Officer and Epidemiologist, once initial rapid test positives are revealed.

Presumptive Diagnosis

Once a presumptive diagnosis is made with the use of any of the approved screening tests, the owner should be advised to restrict visitors from the premises and to impede the movement of all avian species into or out of the premises. The veterinarian should, after obtaining a history and other pertinent information from the farmer, conduct the investigation.

The investigation should commence with an examination of unaffected birds followed by an examination of the affected birds. A sketch of the layout of the premises to include all buildings, roads, streams and pastures should be made as

well as the location of all captive birds on the premises and identification of suitable location for on farm disposal where applicable.

If the initial investigation reveal that the condition is clearly not HPAI, then no further action is necessary. However a full written report of the case must be submitted to the Chairman of the Avian Influenza Contingency Plan Committee within 5 days.

If the initial investigation discloses evidence of Avian Influenza the veterinarian should immediately inform the Chairman of the Avian Influenza Contingency Planning Committee. Until the possibility of HPAI has been eliminated, movement of avian species to or from the premises involved should be prohibited, movement of personnel should be restricted and materials that might spread the virus should not be permitted to be moved from the premises.

3.1.1 ***Priority 1***

This priority is used when known investigation information makes it highly likely the observed condition is HPAI.

3.1.2 ***Priority 2***

This priority is used when known investigation information makes it possible that the observed condition is HPAI but cannot be distinguished from an endemic disease or condition.

3.1.3 ***Priority 3***

This priority is used when known investigation information makes it unlikely that the observed condition is HPAI and cannot be distinguished from an endemic disease or condition. It is considered most likely an endemic disease/condition due to epidemiological factors and laboratory diagnostic information is used to verify if the condition is HPAI.

3.1.4 ***Minister's Declaration - (Minister of Agriculture)***

(a) Prime Minister's Alert on the advice of The Minister of Agriculture, lands, Forestry and Fisheries: when there is a presumptive diagnosis of HPAI.

(b) Minister's Emergency Proclamation of Border Restriction - when there is a confirmed diagnosis of HPAI. This would require the restriction of movement of livestock/poultry, animal transport vehicles and products as appropriate for the specific disease.

(c) Ministers Declaration of Emergency Proclamation for HPAI- when there is a confirmed outbreak of HPAI that would initiate the full involvement of the National Emergency Disease Preparedness Plan and the support of other agencies needed to fulfill the Response Plan.

3.1.5 ***Stages for Diagnosis of an outbreak***

(a) Suspicion - When symptoms are observed in a flock that causes suspicion that HPAI may be present.

(b) Presumptive Diagnosis: When a positive diagnosis of HPAI is made at a local diagnostic laboratory.

(c) Confirmed Diagnosis: When a diagnosis of HPAI is confirmed at the OIE Reference Laboratory (e.g. at the National Veterinary Services Laboratory *(NVSL)* in Ames, Iowa, USA or at another OIE Reference Laboratory for HPAI). This official diagnosis is necessary before all of the outbreak response plan can be initiated. Saint Lucia is required to notify the OIE within 24 hours of the official confirmed diagnosis of HPAI. This requirement for notification of OIE helps to protect all international trading partners from exposure to the disease.

The procedures to be followed during each of the three stages are detailed below.

3.1.5.1 Stage 1: - Suspicion of Highly Pathogenic Avian Influenza

- *Outline of sequence of events*

3.1.5.2 ***Action to be taken by the farmer***

When suspicion of HPAI arises the poultry farmer, grower or operator of the facility where the poultry are located must immediately telephone or contact The Veterinary and Livestock Services Division of The Ministry of Agriculture, Flock Supervisor or Agriculture Field Officer of the suspicion.

3.1.5.1Action to be taken by general public

On suspicion of HPAI the Veterinary Authority must be contacted immediately

3.1.5.3 ***Action to be taken by Veterinary Officer, Flock Supervisors or Agricultural Field Officer when notified by the farmer of the suspicion of HPAI.***

- Immediately gives the suspected flock top priority
- Immediately notifies the Ministry of Agriculture's Veterinary Department and the CVO activates the Task Force and notifies the Committee.

3.1.5.4 Procedures for Handling Suspected Farm Premises by Veterinary Officer, Flock Supervisor or Agricultural Field Officer.

1. Have Emergency Kit in car
2. Park vehicle away from poultry house
3. Immediately upon arrival put on protective gears
4. If HPAI is suspected, contact the Ministry of Agriculture Veterinary Department and use the following recommended procedures.

(a) For diagnostic specimens, select freshly dead birds, or live birds showing symptoms and that can be humanely sacrificed.
(b) Put dead birds in a plastic bag and seal it. Suspect birds (dead or alive) should be handled in such a manner as to minimize contamination of the handlers as well as objects on the premises from fecal matter or other body exudates and feathers. Put on ice if possible.
(c) Disinfect bag and place in second plastic bag.
(d) Tie and disinfect the second bag and place on ice.
(e) Be careful to avoid contamination of vehicle. Before leaving the premises spray the tires and floorboards with disinfectant, and spray insecticide inside vehicle to kill any flies or other insects that may be present.
(f) Put boots, gloves, coveralls, and head gears in a trash bag. Put disposable items in trash bag and leave on the farm for proper disposal.
(g) Put up "Restricted Entry Tape" at farm entry gate, and block entry, if possible.
(h) Alert the Ministry of Agriculture Veterinary Laboratory and submit the samples to the laboratory.
(i) Avoid contact with poultry or poultry industry personnel until there is complete decontamination of individual and vehicle.
(j) Wash vehicle before visiting other farms.
(k) Return home and launder all clothing worn on suspect premises immediately.
(l) Obtain approval of the Chief Veterinary Officer as chairman of the AI Contingency Planning Committee prior to resuming normal work contacts, and/or before visiting another premises.
(m) If for any reason other assistance is needed, radio or telephone your veterinary department.
(n) Quarantine should be implemented as indicated.

3.1.5.5 ***Requirements of Poultry Farm Owners.***

1. Eliminate all service to the farm, including visits by, repair and maintenance personnel.
2. Fully inform farm workers of the problem and dangers involved.
3. Specifically restrict movement of farm workers and family individuals and employees.
4. Birds will be moved according to procedures (including dead bird disposal) as outlined by the Veterinary authority.
5. The Veterinary Authority will also outline procedures for handling house(s) after removal of birds.
6. Withhold placements until suspected disease is diagnosed and houses are cleaned and disinfected.
7. In conjunction with the Veterinary Department post quarantine signs at entrance to farm and on poultry house doors or at the premises where the suspected birds are located.
8. Procedure for feed deliveries - assisted by farm worker:
    a. Make delivery to suspected farm a last stop for unloading feed.
    b. Truck driver must not enter poultry house.

c. Truck driver must wear plastic boots and disposable coveralls (these should be left on the farm when leaving).
d. Truck must be run hosed down and disinfected before returning to feed depot or delivering feed to another farm.
e. Spray disinfectant inside the truck cab.
f. Keep truck doors closed during unloading operation to keep flies and other insects out. Spray household aerosol insect killer in cab before leaving farm.

9. Farmer/Grower and family restriction:
   a. Limit flock management to specific individuals only.
   b. Fully inform these individuals on procedures for clothing disinfection, dead birds disposal and limitations on their off-farm visiting. No other farms can be visited and they should not come in contact with other growers.
   c. Other family members working away from the farm must not enter poultry house.
   d. Family members who work off the farm should not have contact with any other poultry or pet birds.

3.1.5.6 **Action of Local Laboratory making Presumptive Diagnosis**

(1) If the Laboratory Veterinarian (LV) should have to assist in visiting the farm to take samples, he must reach the premises equipped with Kit No 2, accompanied by a driver, who must remain outside the premises and is responsible for the dispatch of the pathological samples to the laboratory. The LV must wear protective gear, and must leave the following items from Kit No 2 in the changing room (if it exists), to facilitate preparation of the samples for dispatch to the lab:
   - The leak-proof water resistant container,
   - The thermic container for carrying samples,
   - Two pairs of latex gloves,
   - Five autoclavable plastic bags,

(2) Laboratory making presumptive diagnosis will contact the veterinary officer submitting the samples, and the veterinarian would contact the company involved and the Government Veterinary Services (if not a government veterinarian) and the owner of the flock regarding the results. The Government Veterinary Services will then take appropriate action..

3.1.5.7 Reporting by the Veterinarian

(a) Fill out HPAI Report Form and fax or deliver to the Government Veterinary Department and the Veterinary Officer of the HPAI Technical Committee.

3.1.5.8 Action to be taken by Government Veterinary Department after a positive laboratory presumptive diagnosis of HPAI.

(a) Contact the owner of the affected flock.

(b) Immediately schedule meeting with company or owner of the flock, the Avian Influenza Contingency Planning Committee and Veterinary Services Task Force.

(c) If indicated, immediately send appropriate samples to the Reference Laboratory in accordance with Appendix 2.

(d) The Chief Veterinary Officer reminds the field staff (whether public or private) to be alert for clinical signs, keeping in mind that some birds survive the disease and may excrete the virus orally and in the faeces for an additional ten (10) days after survival.

3.1.6 Stage II Positive Presumptive Diagnosis of HPAI

Actions to be taken by the Government Veterinary Task Force

- Chairman calls immediate meeting of AI Contingency Planning Committee after a positive presumptive diagnosis is made.

Activity.

(a) Designated Official Veterinary Officer does epidemiological survey of all activities on farm or at facility where the poultry are located, especially all activities for the 72 hours prior to the positive presumptive diagnosis.

(b) Determine emergency services necessary and establish time frame for expediting these services.

(c) Identify other potentially exposed farms or facility and outline procedures for handling it. Obtain map of area to facilitate this step.

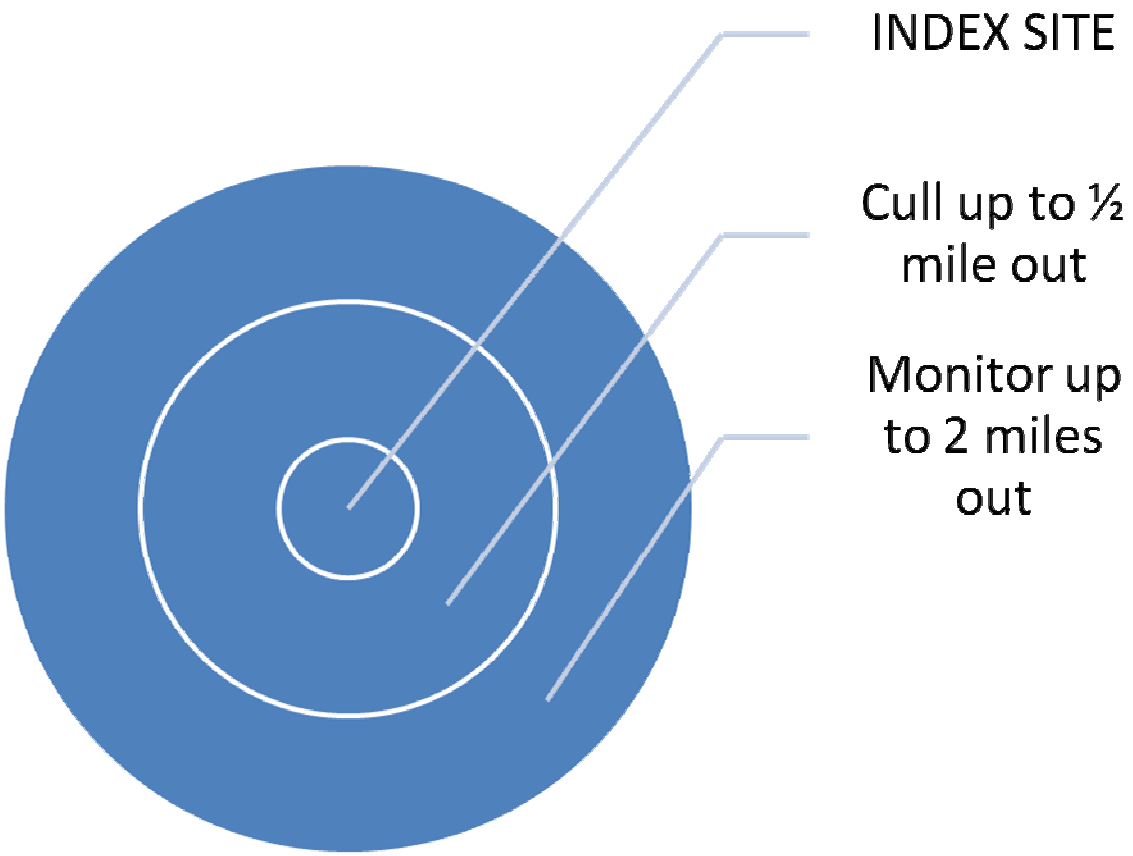
(d) Outline and implement appropriate dead bird disposal strategy for all affected farms.

(e) Reinforce quarantine procedures to assure restriction of movement at and around the affected premises.

3.1.7 *Stage III*

3.1.7.1 Confirmed Diagnosis of Highly Pathogenic Avian Influenza

Span of Attack



Activities of AI Contingency Planning Committee

- Initiate a request for a Minister's Declaration of Emergency and full implementation of the Emergency Action Plan for Agricultural Pest and Disease.

- Follow the Guiding Principles for Control and Eradication of Highly Pathogenic Avian Influenza (HPAI).

3.1.7.2 Laboratory Diagnosis Protocol

Specimen collection

The success of influenza virus diagnosis largely depends on the quality of the specimen and the conditions for transport and storage of the specimen before it is processed in the laboratory

Sampling of avian species for influenza infection should include sampling of both the respiratory and large intestinal tract. Samples **from live birds** should include:

- cloacal swabs
- feces
- tracheal swabs

If very small birds can be harmed the collection of 1 gm fresh feces is an adequate alternative.

Samples taken **from dead birds** should include:

- intestinal content
- cloacal swabs
- oropharyngeal swabs.

Samples from trachea, lungs, air sacs, intestine, spleen kidney, brain and hart may be collected either separately or as a pool.

Materials

1. Personal Protective Equipment Kits;
    a. Gloves
    b. Surgical masks
    c. Rubber boots
    d. Tyvex© waterproof aprons
    e. N95 mask
    f. Hand sanitizer

2. Viral transport media:

    a. Tissue culture medium 199 containing 0.5% BSA OR Isotonic phosphate buffered saline (PBS), pH 7.0 to 7.4 OR containing 0.5% BSA
    b. Penicillin G (2 X 10^6 U/liter), Streptomycin 200 mg/liter, gentamicin (250 mg/liter), nystatin (0.5 X 106 U/liter), Ofloxacin HCI (60 mg/liter), and sulfamethoxazole (0.2 g/ liter).
    c. Sterilize by filtration and distribute in 1.0ml - 2.0ml volumes in screw capped tubes.

3. Forms for entering data to accompany specimens to laboratory with the following information:

    a. Identification number.
    b. Avian species.
    c. Date of collection
    d. Type of specimen
    e. Geographical area.
4. Absorbent towels
5. IATA-approved shipping orange-top plastic containers (STP-100)
6. Coolers and flexible ice-packs
7. Fine-tip Sharpie© pens
8. Ziploc© bags for specimen containers
9. Large bottle of household bleach solution at 10% for disinfection and alcohol. 75% and for cleaning.
10. Biohazard bag for proper disposal of contaminated items
11. 1½" Nalgene© screw-top containers for specimens
12. Combination swabs and transport medium (2 packs)

Additional materials required for necropsy

1. A flat surface located in a well ventilated and lighted area
2. Access to water
3. Scalpels (disposable)
4. Forceps (disposable)
5. Scissors (disposable)
6. Sharps container (small, plastic, disposable)

Specimen collection procedures

The collection of specimens shall be in accordance with the following:

a. Tracheal swabs

- Insert dry polyester swab into the trachea of live bird and gently swabbing the tracheal wall
- Place the swab in the pre-labeled vial that contain viral transport medium.
- Break off the rest of the applicator, cap the vial tightly and wipe the outside with bleach.
- Place the specimen container in the cooler containing ice packs.

b. Cloacal swabs

- Insert dry polyester swab deeply into the vent and vigorously rubbing the cloacal wall, so that the swab is deeply stained with fecal material.
- Place the swab in the pre-labeled vial that contain viral transport medium.
- Break off the rest of the applicator, cap the vial tightly and wipe the outside with bleach.
- Place the specimen container in the cooler containing ice packs.

c. Faecal specimens

- Faecal swabs can be collected from the cages of poultry in live bird markets or from wild birds in the field.
- Use as far as possible, freshly deposited wet faeces when collecting specimens.
- Place the heavily coated swab with faeces in transport medium.
- Break off the rest of the applicator, cap the vial tightly and wipe the outside with bleach.
- Place the specimen container in the cooler containing ice packs.

Necropsy Procedure.

It is not recommended to do necropsies on birds that have been dead for many hours since the natural decomposition process can make diagnosis difficult. It is recommended to euthanize and necropsy sick bird (presenting abnormal breathing, ruffling of feathers, swollen and cyanotic combs and wattles diarrhea and/or nasal discharge). If necropsy cannot be conducted immediately, the bird should be refrigerated until a later time.

1. Label all containers with the animal identification, type of sample and date.
2. Complete the laboratory request form.
3. The operator should wear the personal protective gear.
4. Clean the feather with sufficient alcohol.
5. Place the bird on its back with its feet towards you.
6. Grasp both legs and push down and away from the pelvis to loosen the joints.
7. Tense the skin over the abdomen and cut with the scalpel or the scissor.
8. Remove the skin overlying the abdomen and breast (from neck to cloaca).
9. Incise the abdominal muscle and cut through the ribs on the sides of the keel bone
10. Grasp the keel near the abdomen and pull upwards to expose the internal organs in the chest cavity
11. Cut the gastrointestinal tract between esophagus and proventriculus.
12. Remove the proventriculus, ventriculus, small and large intestines, caeca and cut off at the level of the cloacae.
13. Cut all attachments close to the intestines cutting through the ventriculus, intestine. Note the appearance of the content, collect swabs or stools and place in the pre-labeled sample container.
14. Remove the liver, the spleen, lungs and kidney. Examine and collect a sample of 3x5mm of each organ and place in the respective labeled sample container(s).
15. Turn the bird around to face you and using the scissor, cut from the throat down the heart. Examine the larynx and throat and collect a swab and place in the labeled container with viral transport media.
16. Find the cloacae, cut in half and collect a swab.
17. Return to the gastrointestinal tract,

18. Dispose of the carcass and organs in a double safety bag, disinfect all surfaces and tools with 10% bleach solution
19. Secure caps of each sample container and disinfect the outside.

Laboratory tests

The following two approaches have been recommended for the laboratory diagnosis of avian influenza:

1. Virological diagnosis is commonly performed for identification of the influenza virus strain during the acute phase of the infection.
   Viral isolation in cell culture
   Nucleic acid detection by partial genome amplification using reverse transcriptase-polymerase chain reaction (RT-PCR)
   Direct influenza antigen detection in the clinical specimen.

Viral isolation (VI) in embryonating eggs and subsequent of haemagglutinin and neuraminidase sub-typing constitute the standard of avian influenza virus detection and identification. VI is a sensitive method, but it takes 1 to 2 weeks to obtain results, and requires biosafety level 3 (BSL3) laboratory facilities for safe handling of highly pathogenic avian strains.

In the case of Saint Lucia commercial rapid tests for screening of influenza A would be made available. These tests are largely immunoassay of different formats, which vary in complexity, the type of respiratory specimens acceptable for testing and the time needed to produce results. In general these rapid tests are expensive and have low sensitivity.

Conversely, partial nucleic acid amplification using reverse transcriptase polymerase chain reaction (RT-PCR) is extremely sensitive, rapid, safe, and inexpensive; results, including sub-typing, may be available in less than 1 day. However, this test would not be used at this time.

2. Serological diagnosis is performed to identify the antibody response to a recent infection to a type or subtype of influenza virus. Serological methods have limited value for the surveillance of highly pathogenic avian influenza H5N1 because most infected chickens die before they develop a detectable antibody response.

   The following methods are commonly used for serological diagnosis of influenza:

   a. The Agar gel immunodiffusion (AGID) tests and various enzyme-linked immunosorbent assays (ELISA)that have been widely and routinely used to detect specific antibodies in chicken and turkey flocks as an indication of past infection, will be used in Saint Lucia.
   b. Haemagglutination -inhibition (HI) tests and neuraminidase-inhibition test are used to identify the avian influenza subtype specific antibodies in infected birds.

These procedures require specialized expertise and reagents; consequently this testing is usually done in OIE Reference Laboratories.

3.1.7.3 Eradication Strategy

The procedures for the eradication of HPAI are as follows:

- Emergency Quarantine
- Strict movement control of birds, their products and other materials that pose a risk of dissemination of disease.
- Intensified surveillance of backyard poultry
- Rapid depopulation or stamping out within a one-kilometer radius of affected premises.
- Stringent cleaning and disinfection

3.1.7.4 Quarantine & Control Movement

(a) Authority to Quarantine

Avian Influenza can spread very rapidly and can be carried over long distances by transport of contaminated materials such as birdcages, pullets, egg flats, manure and feed. Since these diseases are readily transmitted via fomites, strict control of movement of anything that may have become contaminated with virus and immediate imposition of tightly imposed quarantine on all places suspected of being infected is successful to a successful eradication programme. Quarantine should be imposed on all farms on which infection is either known or suspected and should be strictly policed to ensure that no one leaves the premises without changing clothes and footwear.

Quarantine of an infected premises prevents spread of the disease from the property by prohibiting the movement of all birds, products and materials to or from the property. It is important to apply quarantine as early as possible to slow the rate of spread in an area. Detailed tracing of the movement of birds, feed, poultry products and wastes to and from infected premises and dangerous contact premises is of foremost priority at the very beginning of an outbreak. Trace back procedures should apply to all movement that took place during the previous 21 days.

Quarantine measures should also be applied immediately wherever there is any doubt of potential infection.

Effective quarantine of a premises will require strict security to be maintained around the clock to ensure that only authorized personnel in protective clothing are allowed entry. It will be necessary to limit and supervise the movement of residents onto and off the property and to ensure that all pets are confined. Police and Special Service Unit personnel should be mobilized to assist in controlling the movement of people in the quarantine area.

a.) *Primary Risk* The greatest risk for spread of these viruses in commercial poultry is movement of personnel and equipment within the affected area.
- Stop all unnecessary movement and control access to all farms and facilities where poultry are located.

b.) *Time factors* - The most dangerous time for spread of virus will be from the initial infection until the disease is confirmed.
Least time expense. If spread of the virus can be stopped quickly and the infection burn itself out quickly, that will be the shortest amount of time and ultimately least amount of expense to becoming free of the disease.

c.) *Control Area* – First aim is to stop all movement in largest controllable area, then reduce as rapidly as possible to the smallest area possible to maintain necessary control around infected flocks.

3.2 PRODUCT RESTRICTION

Importation of poultry and poultry products from infected countries or regions would be banned. Birds slaughtered for meat during an outbreak can be a significant source of virus, as the virus may remain infectious in bone marrow and muscle of slaughtered chickens for at least 6 months at -20º C and for up to 4 months at refrigerator temperature. The virus may also remain infectious for months at room temperature in eggs laid by infected hens and for a year at 4º C.
Frozen poultry products can be a significant means of spread especially if uncooked poultry scraps are fed to poultry.

3.3 *INTERNATIONAL TRADE ISSUES*

The goal is to quickly eradicate the disease and to satisfy the international markets and trading partners and re-establish trade, meeting OIE standards as well as the standards of the importing country.

Initially all export markets will be closed and will be reopened when confidence returns that the outbreak has ended.
Export markets are usually affected by:

(a) Length of time infection persists
(b) Control of infected area
(c) Desire of importing country to protect their domestic poultry industry
(d) Ability of country to do without products
(e) Economics

3.4 ***GUIDING PRINCIPLES FOR CONTROL AND ERADICATION OF HIGHLY PATHOGENIC AVIAN INFLUENZA (HPAI).***

3.4.1 **Biosecurity**

The management of all biological and environmental risks in the event of an outbreak of avian influenza is most essential to the reduction in disease transmission and the subsequent spread of the infectious agent to other animals and humans.

3.4.1a bio-containment

Bio-containment is the prevention of spread of the virus from an infected animal or premises. This action is most urgent where there exists a close association between infected animals and humans. It is most essential in primary production farming systems.

a. Instruct all workers (including veterinarians and animal health personnel) to avoid accidental spread of the infectious agent

b. Prevent the movement of poultry from one farm to another to avoid cross-infection of poultry

c. Clean and disinfect infected premises and equipment, and have a disinfectant bath at entrance to avoid vehicles and persons bringing in or taking out the virus

d. Use only vehicles that are cleaned (with special emphasis on wheels, chassis and underbody) and disinfected for transporting eggs and poultry

e. When moving birds, avoid exceeding the cage capacity (cages should not be less than 300 cm^2 per kg with a height of 30 cm.

f. As far as possible, use non-wooden cages

g. Use an all-in, all-out approach when selling poultry to allow for all birds to leave the pens at the same time and facilitate adequate cleaning and disinfection of pens and/or premises before restocking

h. Designate slaughtering zones (as far as possible) to permit the slaughtering of poultry in a location removed from the live birds selling location

i. Ensure that all birds are scalded before defeathering by using hot, potable water, changing the water frequently

j. Dispose of all infected (or exposed and slaughtered) carcasses and hazardous wastes properly

k. If slaughtered birds are to be buried, dig holes as far away from poultry houses using quicklime at the bottom and on the sides of the holes as well as on the birds or objects to be buried before covering over with dirt (soil)

l. Refrain from having people and animals travel together to reduce human contact and contamination (especially faecal contamination)

m. Where cages with birds are to be stacked, use waste (collection) trays (the same size as the cages) underneath the top cages to avoid faeces from falling on birds below

n. Avoid collecting and transporting birds from different farms or collection centres in the same vehicle and also avoid taking birds from one farm to another through transshipment to markets

o. Avoid transporting poultry with other animals

3.4.1b Bio-exclusion

Bio-exclusion is the use of measures to keep out infectious agent (Avian Influenza virus) from an un-infected animal or premises. Like bio-containment, it is most essential in primary production farming systems.

a. Keep wild birds and ducks away from poultry farms

b. Protect all poultry houses so that poultry are protected (the use of fishing nets may be helpful)

c. Determine a system for vaccination and if feasible, vaccinate poultry with an inactivated vaccine that matches the circulating viral strain

d. Limit access to visitors to the farm or poultry houses and provide clean protective clothing and clean boots where visitors must enter the farms

e. Obtain feed from a clean, dependable and reputable supplier

f. Store feed in bird-proof and rodent-proof areas or containers

g. Ensure that water is obtained from a clean, non-contaminated source (if doubtful, chlorinate the water)

h. As far as possible, prevent the rearing and slaughtering of poultry at home

3.4.1c Bio-security and Wet Markets

Some recommended changes for wet markets:

1. All birds shall be transported to the markets in a manner that would prevent pollution of the environment. For example, closed baskets or crates that are of metal material for easy cleaning shall be used.

2. Cages used for transporting live poultry shall be separated from each other by placing trays at the bottom of cages stacked above in order to separate top from bottom cages and avoid faeces from contaminating birds kept below.

3. Running water shall be provided at wet markets for regular hand washing after touching poultry.

4. Regulating officials shall monitor wet markets as regularly as possible and observe for sick or dead birds which when detected shall be sampled and sent to the laboratory for testing.

5. Properly working clean chillers shall be available at premises.

6. Regulatory authorities shall seek to ensure that poultry vendors maintain records of the source of origin of the birds offered for sale in order to facilitate trace back.

7. Vendors and other poultry handlers shall be encouraged to change their work clothes before leaving premises for home or before entering their homes.

8. All sick birds shall be tested, and destroyed when identified as infected.

9. Dressed poultry carcasses and products shall be handled safely.

10. Where wet market premises are in a deplorable state, the structure should be upgraded.

11. In collaboration with the Veterinary Public Health and Environmental Health personnel, a compulsory “rest days” system shall be considered. In this, a one to two-day rest period (maybe twice a month) may be introduced to allow for the poultry facilities to be emptied, cleaned and disinfected.

3.5 Communication and Education

An education plan should begin prior to an outbreak. The Communication and education plan should include the following people or groups:

(a) Target audience

(1) Growers or poultry farmers including backyard poultry farmers, game bird owners and owners of any facility where poultry are kept or marketed.
(2) Flock supervisors/Field Officers. All flock supervisors and agricultural field officers should be given information on how to conduct themselves in the event of an outbreak of avian influenza. They should also be given relevant information about these diseases.
(3) Poultry Company Officials
(4) Feed Mill Operators, Feed Truck Drivers etc.
(5) Hatchery Operators
(6) Processing Plants
(7) Live bird Markets
(8) Emergency Response Team (***Industry, Government***)
(9) The General Public
(10) The Press

(b) Educational materials

These should be done in simple language, be available at all times and be distributed to all potential stakeholders. Consideration must be given to those who may not be able to read. Poultry population includes commercial broiler or egg operations, back yard flocks, game bird owners, pet stores and markets where poultry are sold. Information on the required bio-security practices is essential for the acceptance, implementation and successful outcome of a control programme. Failure to communicate and provide critical information or the presentation of inaccurate information to the media will reduce public trust in the safety and wholesomeness of all poultry products for human consumption.

Both the poultry companies and the Ministry of Agriculture should collaborate in providing these. Brochures about the diseases and question and answer fact sheets are also appropriate. Governments should consider the use of the media and a Communication Specialist to inform the public about the potential dangers and threats posed by the entry of these diseases into the poultry population.

3.6 MOVEMENT CONTROL

3.6 Movement Controls

Control all movement of birds, equipment and people within the Quarantine Area.

3.6.1 Area Restriction: Law enforcement (Police, the Special Service Unit (SSU)) officials will have the responsibility for movement controls.

1. ***Premises Guards:*** Guards will be maintained 24 hours a day, 7 days per week on **infected and at risk premises**. After depopulation guards can be reduced to daylight hours only on either infected or at risk premises.

Guards can also be lifted after clearing and disinfection on an infected premise.

2. ***Perimeter Guards****:* Perimeter Guards will be maintained 24 hours a day, 7 days per week on the outer perimeter of the Quarantine Zone to restrict the movement of birds and bird related items.

Guard Reduction: Guards may be reduced to a daytime shift only on either infected or at risk premises after depopulation and burial of birds.

Guards can also be eliminated after cleaning and disinfection of facility on an infected premise, and can be removed from premises when classification is downgraded to restricted premises.

No poultry, animals or poultry product can leave the infected area unless a permit is issued. This permit would be given after strict biosecurity procedures are followed.

Vehicles, equipment and people may leave the infected area under permit. The following shall also apply:

1. No new birds are to be allowed into the Quarantine Area.

2. Feed trucks by necessity would be allowed into the Quarantine Area under controlled measures.

a. ***1.*** Feed Trucks: Feed trucks are allowed movement within the Quarantine Area. They should have a permit and be cleared and disinfected both ways. The driver must have no direct contact with poultry. Ideally the truck driver should not leave the truck.

3. Bird Transportation: Bird transportation trucks will be issued a permit to carry birds straight to the slaughter plant. These trucks should be disinfected both ways.

4. Slaughter: All birds going to slaughter must be inspected within 24 hours of movement and most have a permit to allow movement.

5. Catch Crew: Biosecurity procedures will be heightened for all catch crew and their activities. These measures include the leaving of all working clothing on the farm, or the wearing of disposable coveralls, which are incinerated after use. Footwear should be thoroughly disinfected at the end of the catching operation.

6. Processing: If a slaughter facility is located in the *QuarantineArea*, all birds going to the slaughter facility from outside the area will be permitted in and all transportation vehicle will have to undergo cleaning and disinfection prior to being permitted out of the Quarantine Area.

7. *Egg Transportation*

The movement of table and hatching eggs must be accompanied by a permit and eggs must be in clean new containers and/or flats all transportation vehicles has to be cleaned and disinfected both ways.

3.6.2 Farm Restrictions

Poultry farmers must restrict the movement of individuals from farm to farm.
Service personnel
Feed Delivery/removal personnel
Removers of dead birds
Sanitation crews
Live bird distributors

3.6.3 Non-Poultry Entity Restrictions

- *Utilities:* Utility companies such as water and power companies should be contacted to make alternative arrangements for consumers within the Quarantine Area to read their own meters or have companies estimate usage during the period.

- Delivery companies i.e. mail, should also be contacted to make alternate delivery arrangement.

3.6.4 Owner/Grower Restriction

All persons including other farmers, owners or growers should be discouraged from visiting infected premises.

3.6.5 Litter Restriction

All clean out and spreading of litter must be suspended and encourage composting of all litter in house if possible.

3.6.6 Vehicle Restrictions

1. A system of color-coded stickers should be used to identify vehicles and serve as an official permit for vehicle movement. These will be issued after an application has been filed and approved by the Veterinary Officer in charge or his nominee.
   - *Red:* for vehicle within the infected region

- *Yellow:* for vehicles moving between infected and quarantine area.
- *Green:* on vehicles in the area outside the quarantine area.
- Orange: for vehicle moving from infected area to land-fill area

3.7 .<u>ZONING</u>

<u>Premises and regions shall be quarantined as set out below</u>.

The Ministry of Agriculture has the legal authority by law to impose quarantine on premises or areas in the event of disease outbreak. Such quarantine is usually imposed on individual herds or flocks and premises when any foreign animal disease is suspected.

<u>Infected Premises</u> – A premises is defined as any premises where infected birds are located. Failure to stop the movement of infected or exposed birds from an infected premises may result in the spread of the disease agent in a very short time. A strict movement standstill on all infected premises is critical to halt the spread of the virus to other farms or areas. All efforts must be made to contain the virus on infected premises and to prevent the introduction of the virus to naïve premises. Movement of all birds, products and materials to or from an infected premises is strictly prohibited. Movements of authorized persons are only allowed following change of clothing and disinfection of footwear. If at all possible dead birds or birds that have been euthanized should be disposed of on the premises. Only essential vehicles are allowed unto an infected premises and they must be thoroughly disinfected before leaving. The police or SSU must provide round the clock security at an infected premises as long as live birds are there.

<u>At Risk Premises</u> – These are premises that are associated with an infected premise by being adjacent to infected premises.

<u>Restricted Premises:</u>- Infected premises, which have been depopulated and subsequently cleaned and disinfected.

- At risk premises after 30 days from the last arrival from or shipment to an infected premises, if there are no clinical signs or mortality indicative of infection.

- Infected and surveillance regions shall be established around the area of known infection.

- ***<u>Infected Regions:</u>*** the geographical area extending 10 kilometers beyond all known infected flocks. This area must be clearly defined taking into consideration the environment, ecological and geological

factors as well as the epidemiological factors and type of husbandry being practiced.

- ***Surveillance Zone***

The geographical area extending 20 kilometers out beyond the periphery of the High Risk Regions.

3.8 Surveillance

3.8.1 Grower Mortality

(1) Daily Checks - Backyard flocks and markets must be visited daily so that the necessary information can be ascertained.

(2) A veterinarian who will conduct a detailed epidemiological investigation will visit any farm with increased mortality/morbidity.

3.8.2 Farm Visits

Active surveillance should be promptly initiated as soon as Avian Influenza is suspected. Initially, at least, a sample of all domestic species of birds that die in the restricted area should be checked for lesions and specimens submitted to the laboratory. Field surveillance examinations to farms, backyard farms and markets where live poultry are sold should seek to detect changes in flock health.

3.8.3 Farm Inspection Visits:

The AI Contingency Planning Committee will arrange farm inspected visits to commercial farms taking all steps to minimize spread of the virus.

3.8.3a *If no clinical disease is present on farms visited the veterinary inspector shall:*

- Explain disease process to the grower or farmer or owner of the birds.
- Take diagnostic samples as needed and submit them to the laboratory.
- Review biosecurity procedures with grower or farmer or owner of the birds.

3.8.3b *If clinical disease is present, the inspector shall*

- Explain disease process to grower
- Establish full time guard service at farms
- Begin epidemiological investigation and trace back
- Determine best way for depopulation and euthanasia of birds
- Arrange for appraisal of flock
- Schedule depopulation
- Discuss cleaning and disinfection procedures
- Post visible quarantine sign at entrance to farm
- Clean and disinfect self, equipment, and vehicles when entering and leaving facility.

3.9 Epidemiological Investigation

Epidemiological field observations and the collection and analysis of accurate data are fundamental to the disease eradication process. The main objective of epidemiological investigation is to obtain facts that may serve as a basis for decisions regarding programme changes, evaluation and planning.

An epidemiological investigation should commence as soon as HPAI is suspected and ideally a questionnaire should be used to collect the information needed. A draft questionnaire/report is included in the appendix.

The epidemiological investigation should also provide information that would allow for the following:

- Tracing of birds and poultry products to identify the location and sources of all birds, products and other contaminated materials that have moved to or from an infected premises.
- Tracing the movement of poultry, vehicles and personnel from an infected or exposed premises.
- Tracing movement of service personnel such as feed delivery truck and vaccination crews.
- Tracing movement of poultry products from affected or exposed poultry processing plant. This involves tracing fresh, frozen or chilled poultry products from a poultry processing plant that might have received and processed infected or exposed birds.

3.9.1 Observation

Reliable observations and accurate data are fundamental to all scientific inquires. The objective of an epidemiological investigation is to obtain facts that may serve as a basis for decisions regarding programme changes, evaluation and planning.

3.9.2 Questionnaires - Interview

Epidemiological investigation begins as soon as HPAI is suspected. Initial data collection should include;

(a) Species and age of birds affected
(b) Mode of transmission, mode of spread
(c) Geographical area affected'
(d) Possible exposure.

3.9.3 Data Collection

An epidemiological report should be completed by the investigating officer from the *field investigation report and laboratory submission report*. The report should describe:

a. The situation at the infected farm
b. The number and age of clinically affected animals

c. The number and species of all animals (including poultry) on the farm
d. The size and location of the farm and its relationship to other buildings/farms of public places (including public roads)
e. Recent movements of birds and other animals into or out of the farm

3.10 Dead bird Pick-up

Establish a dead bird pick-up service for pet birds, game fowl, game birds and backyard fowls. Prior to any outbreak a community education campaign should be launched with support from the Veterinary Public Health Coordinator of the VLSD, the Ministry of Health and the Ministry of Education to inform small rural households about the handling and disposal of dead birds.

- Dead birds are to be double bagged and placed in metal or heavy plastic containers at entrance of property
- The Veterinary Division would arrange to pick up, bag, label, disinfect and transport the dead birds to the laboratory for diagnostic evaluation and disposal

3.11 Destruction of Birds

Efficient, humane procedures must be employed to kill birds, preferably without moving them from the site. Individual birds are relatively easily destroyed by neck dislocation. Options for euthanasia for large number of birds include the use of gases such as carbon dioxide, and nitrogen. Public health considerations must be taken on board during this procedure. Disposal options must be carefully considered and the method chosen will often depend on several factors such as the cost, the environment, availability of land space, and availability of the required equipment.

During destruction of birds, the dispersal of virus by airborne spread should be prevented by closing up sheds during the process.

Disposal options include:

- Burial on the farm. This is the best and probably the cheapest option if it can be achieved on the infected farm itself. It is best to minimize the distance that infected material needs to be transported. Public Works Departments, the SSU and other agencies will be able to offer support in this area.
- Incineration/Burning. This is a good method to dispose of infected material. However, incinerators are usually too small to burn large numbers of birds and they may not be available near the birds. Burning of small number of birds on the farm is an option that should be examined. Burning of large number of birds is an expensive method because of the high water content of carcasses and it may be environmentally unacceptable to the community.
- Rendering. Dead birds shall be rendered where rendering plants have the capacity to deal with the number of dead birds. Another disadvantage is that infected

materials may have to be transported over large distances thus increasing the risk of dissemination of virus.

- Composting. This is an effective way of dealing with manure and litter and can be undertaken within sheds or otherwise on site, thus overcoming the risk of dissemination of the virus during transport.
- Alkaline hydrolysis and bio-degeneration. This has been used effectively in some outbreaks but it is costly and requires the purchase of expensive equipment.
- Landfill. This requires available open land space preferably near or on the infected premises. The Local Government shall advise on the areas in which such landfills could be used.

3.12 <u>Recovery</u>

(a) Quarantine Releases: Thirty days after cleaning and disinfection of the last infected premises, the perimeter guards can be withdrawn and repopulating of non-restricted farms may commence. Quarantine may be removed.

(b) Surveillance and monitoring. Surveillance and monitoring of the area and especially within the original surveillance and infected zone and on all Restricted premises must continued for a period of 5 months and will consist of:

- Dead Bird Pick-up. Dead Bird pick-up will be done during the five months period with laboratory analysis done on any suspicious birds. Dead bird sampling of repopulated sheds is a more efficient method for monitoring for the virus than placing sentinel birds in the buildings from the time of depopulation to the time of repopulation.
- Any highly suspicious flock must be thoroughly investigated.

(c) Live Markets: In live markets risk reduction methods shall be introduced. "A live market" is any facility, covered or opened, in which live poultry is held, slaughtered and sold, whether the meat thereof is sold "warm", chilled or frozen. It is a place, whether fixed or temporary at which members of the public buy live birds that are taken home for slaughter or slaughtered and dressed as warm carcasses from freshly killed bird, or already slaughtered poultry carcasses that are chilled or frozen.

For live markets, the following stakeholders shall be included in the briefing and adoption of risk reduction measures:

- Vendors of live of slaughtered poultry
- Customers
- Suppliers
- Transporters
- Cleaners and Sewage and drainage personnel
- Market managers
- Poultry associations
- Regulatory officials
- Finance and regulatory authorities
- Politicians and planners

- Other community members

3.13 **Management of Biological/Environmental risks**

Bio-containment is essential to prevent the spread of the virus from an infected animal or premises. This action is most urgent where there exists a close association between infected animals and humans. It is most essential in primary production farming systems.

p. Ministry of Agriculture Forestry and Fisheries and Ministry of Health personnel must work closely to address all public health issues. Actions should be in keeping with strategies outlined in the National Pandemic Plan coordinated by the Ministry of Health
q. Instruct all workers (including veterinarians and animal health personnel) to avoid accidental spread of the infectious agent
r. Refrain from having people and animals travel together to reduce human contact and contamination (especially faecal contamination)

s. Where cages with birds are to be stacked, use waste (collection) trays (the same size as the cages) underneath the top cages to avoid faeces from falling on birds below

t. Avoid collecting and transporting birds from different farms or collection centres in the same vehicle and also avoid taking birds from one farm to another through transshipment to markets

3.14 Public Health Interventions

Persons who come into direct or indirect contact with the AI virus are at great risk of becoming infected with the Avian Influenza, once the disease becomes present in birds, whether in backyards, wet or live markets, or other sites where birds are found. On the other hand, persons who consume cooked eggs and poultry meat are at no known risk of infection of the virus as the high cooking temperatures readily destroy the virus.

The public shall be educated about the disease so that they could protect themselves from practices and conditions that may expose them to infection from the virus. Messages shall be simple and clear for ease of understanding, while addressing hygienic and sanitary measures as well as food safety factors.

Information on the virus shall be given taking into account that the virus can survive in faeces for as long as 35 days at temperatures as low as 4ºC or for 6 – 7 days at a temperature of 37ºC. The virus can also survive on surfaces such as poultry houses, slaughterhouse walls and other such surfaces for several days; and food preservation using freezing and refrigeration would not reduce the concentration or virulence of the virus when found in contaminated uncooked foods. However, the virus becomes inactivated at cooking temperature at or above 70ºC.

3.14.1 Common AI Symptoms in Humans

Persons shall be informed of the clinical symptoms observed in humans infected with the AI virus. Such persons often show mild respiratory symptoms or conjunctivitis. Additionally, viral infections with H5N1 may also cause high fatality with viral pneumonia and multi-organ failure. Early symptoms include:

- Fever (38ºC or higher)
- Respiratory symptoms (coughing, sore throat, shortness of breath)
- Watery diarrhea may accompany or precede (by as much as 1 week) respiratory symptoms
- Gastrointestinal symptoms (abdominal pain, vomiting) and headache

3.14.2 Means of Human Infections

The main route of human infection appears to be direct human contact with an infected bird, premises, or other objects and contaminated contact surfaces, as well as through infective faeces and litter. The greatest risk for exposure is during slaughtering, defeathering, degutting and the actual preparation of poultry meat for cooking.

3.14.3 Protecting Human Health

1. Persons at risk should report any symptoms outlined above to their local physician or the nearest Health Centre, providing proper background information on history of exposure

2. Persons showing symptoms of influenza (even if not certain that it is of the H5N1 strain) should not come into contact with infected poultry in order to reduce the chances of recombination of the human strain of influenza with the animal AI strain

3. Children should be advised not to play with poultry or other birds

4. Health Authorities must be notified by Agricultural Authorities once a suspicion of Avian Influenza is raised

5. After careful review, the Health Authorities shall introduce all precautionary measures as deemed necessary (including vaccination of high–risk persons)

6. Notwithstanding (4) above, all persons engaged in poultry rearing as well as public health officials directly involved in activities related to poultry, shall be considered as high priority for vaccination by the Health Authorities

7. It shall be the responsibility of Health Authorities to conduct serological surveillance of farmers and other animal workers involved in the poultry industry as a means for containment of the disease

8. All persons who are in close contact with live birds or other sites such as slaughterhouses should wash their hands frequently with soap and clean potable water

9. Persons working in slaughterhouses (abattoirs, pluck shops, poultry processing plants) should daily wear clean, preferable light-coloured clothes and aprons as well as clean rubber boots, and leave such clothes at the workplace, or avoid wearing them on return to their homes. If it is possible, take a bath at the workplace and change into clean clothes and footwear.

10. If bathing is not possible, wash hands, arms and feet properly with soap and clean potable water, drying them with clean towels

11. Other food handlers including further poultry processors, should wash hands and arms thoroughly with soap and clean potable water

12. It is advisable for customers to refrain from buying live birds to be slaughtered at their home. Instead buy chilled, hygienically processed poultry

13. All equipment and utensils, whether used in any food establishment or at home, should be cleaned and disinfected

14. When preparing food, good hygienic practices shall be followed

15. Raw and cooked food items shall be separated, and separate equipment and utensils (knives, chopping boards) shall be used for raw and cooked foods

16. Food shall be cooked to a temperature of at least 70º C. As far as possible, use boiled, roasted or friend foods

17. Avoid eating undercooked or raw eggs which can contain the virus inside or outside of the shells

18. Avoid eating any dish containing raw poultry meat or blood

19. Store foods at temperature not less than 60º C, and do not allow to stand at room temperature for greater than 2 hrs before serving

20. Contact surfaces where meat and meat products are processed or prepared should also be cleaned and disinfected

Collaboration shall take place with other partners such as managers of markets to have them do an assessment of the physical and operational environment (including a review of the design and hygienic and sanitary upkeep), and assist in resource mobilization and commitment for any necessary action plan and strategies.

4 RISK COMMUNICATION

The AI Contingency Plan shall take into account the need to heighten the awareness of all stakeholders in matters related to avian influenza, with care being taken to ensure that the public and stakeholders are not paralyzed by fear due to the prevailing climate of information while countries are being assisted to reach a desirable level of national preparedness and disease responsiveness.

The following guidelines as recommended by Peter M. Sandman and Jody Lanard should be followed in dealing with Crisis Communication regarding avian influenza and in accordance with this contingency plan. The guidelines cover four key areas for action, and include:

4.1 Action Area 1 – How bad is it? How sure are you?

Bearing in mind that in communicating risks, the audience may be at different stages of accepting information, it is important to produce brief messages aimed at reinforcing appeals that are likely to direct the audience attention to some specific goals. It is important not to over-reassure the audience, but to allow reassuring information to be contained in subordinate clauses in the message. It may be helpful to err on the alarming side, but be sure to acknowledge uncertainties and share in dilemmas. By all means acknowledge opinion diversity and be willing to speculate.

4.2 Action Area 2 – Coping with the Emotional Side of the Crisis

In preparing the risk communication, do not over-diagnose or over-plan for panic. Art the same time, recognize that there is no such thing as “zero fear”. But remember that there are other emotions beside fear. By all means, never ridicule the public’s emotions, but legitimize people’s fears. As far as possible, tolerate early over-reactions and establish your own humanity in the process.

4.3 Action Area 3 – Involving the Public

It is essential to tell people what to expect, and offer people things to do. However, let the people choose their own actions, and ask more of the people.

4.4 Action Area 4 – Errors, Misimpressions, and Half-Truths

During communication strategies, acknowledge errors, deficiencies, and misbehaviours. Apologize when necessary for errors, deficiencies, and misbehaviours. At all times, be explicit about changes in official opinion or policy. Never lie or tell half-truths. The aim should be for total candor and transparency, while being careful with risk comparisons.

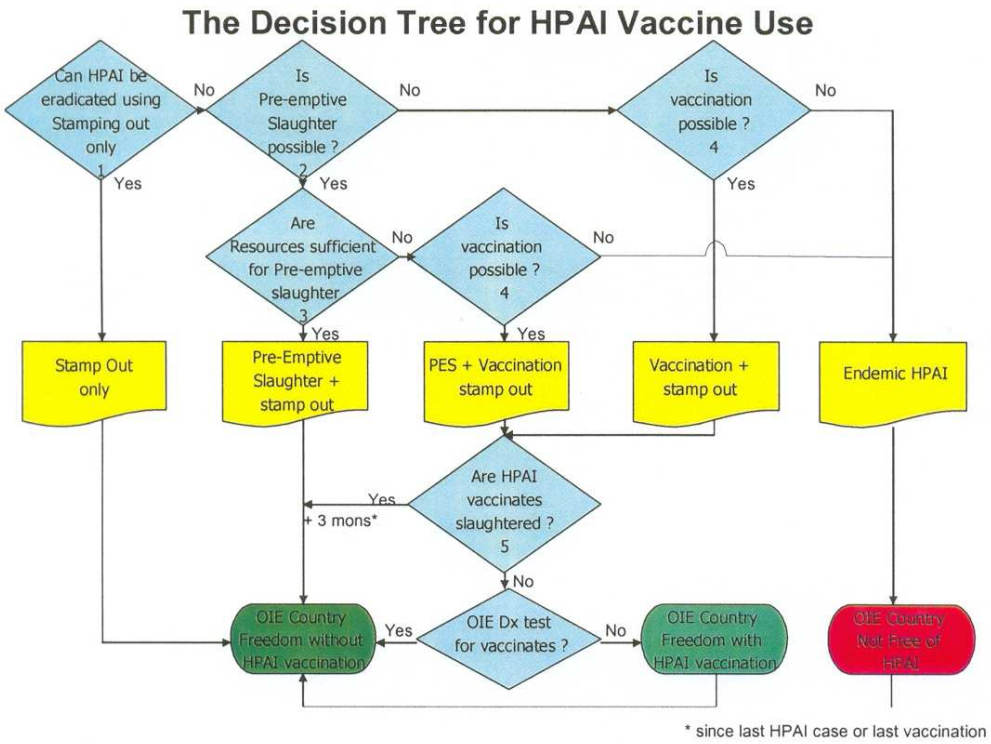
The Veterinary Services shall seek the support of farmers and others attending to poultry, as mentioned earlier in this document, so that notification shall be prompt and accurate and outbreaks identified as soon as possible without raising undue false alarms.

APPENDIX 1:
MAJOR WETLANDS IN SAINT LUCIA

- Bois D'Orange (Tu Gaston, Largest wild duckflock)
- Beausejour Sewage Treatment Plant*
- Saline Points *
- Auberge Seraphine *
- Roseau wet lands
- Cul De Sac River Mouth
- River mouths of Anse La Raye, Soufriere and Canaries
- Grand Anse Pond*
- Fond D'Or Pond*
- Bourielle Pond*
- Troumassee Estate pond
- Mancote Mangrove (Savannes Bay)
- Brewers Pond (Oxidation Pond Windward and Leeward Brewery)
- Maria Island (major and minor) (March to September)*
- Cocodan (end of Hewaranora Runway)

NB * major wetlands to be targeted

APPENDIX 2 – DECISION TREE



APPENDIX 3 - OIE DIAGNOSTIC REFERENCE LABORATORIES FOR AI

1. **National Veterinary Services Laboratory (NVSL)**

Address: Director's Office
1800 Dayton Avenue
P.O. Box 844, Ames, IA 50010
USA
Telephone number: (515) 239-8301
Fax number: (515) 239 8397
E-mail address: nvslclient.help@usda.gov
Website: www.aphis.usda.gov/vs/nvsl/index.html

Secretary to the Chief, Diagnostic Veterinary Laboratory
National Veterinary Services Laboratory
Telephone number:(515) 663 7848
Fax: (515) 663 7348
Email address:Janine.C.Greenwood@aphis.usda.gov

2. Dr D. J. Alexander
Central Veterinary Laboratory
Weybridge, New Haw, Addlestone, Surrey
KT15 3NB, UK
Telephone number: 441932341111
Fax number: 441932347046
Email address: d.j.alexander@vla.defra.gsi.gov.uk

3. Dr. Ilaria Capua
Instuto Zooprofilattico Sperimentale della Venezie
Laboratorio Virologia
Via Romea 14/A, 35020 Legnaro, Padova
Italy
Telephone number: 39049 8084369
Fax number: 300498084360
Email address: icapua@izsvenezie.it

4. Dr. E. F. Kaleta
Institut fur Geflugelkrankheiten der Justus Liebig
Universitat Giessen
Frankfurter Strasse 91,
35392 Giessen
Germany
Telephone number: 496419938430
Fax number: 49641205148
Email: erhard.f.kaleta@vetnmed.uni-griessen.de

3 **Dr John Pasick**
Canadian Food Inspection Agency, National Centre for Foreign Animal Disease
1015 Arlington Street, Winnipeg, Manitoba R3E 3M4
CANADA
Tel: (1.204) 789.20.13 Fax: (1.204) 789.20.38
Email: jpasick@inspection.gc.ca

APPENDIX 4 - EMERGENCY KITS CONTENTS

All field officers and poultry veterinarians should travel with the items in this list at all times and an emergency supply of these items should always be in storage at the Veterinary Department.

1. Copy of this procedure Manual
2. Boots - disposable and rubber
3. Plastic trash bags
4. Disinfectant
5. Boot brush
6. Bucket
7. Disposable coveralls
8. Disposable dust masks
9. Rubber gloves
10. Household aerosol insect killer
11. Disposable surgical caps
12. Hand sprayer / Gel
13. Specimen Collection bags (large and small)
14. Buffered formalin
15. Blood tubes (red top)
16. Needles, syringes
17. Rubbing Alcohol
18. Cotton
19. Permanent marker
20. Ice chest/Cooler
21. Poultry Post mortem kits
22. Pens and pencils
23. Notepad/Paper

APPENDIX 5 - EQUIPMENT

The following emergency supplies shall be kept in storage

KIT No.1 for the Official Field Veterinarian:

1) Epidemiological inquiry form
2) Equipment necessary for the clinical visit and sampling procedures:
a. 2 disposable suits
b. 5 pairs of disposable shoe-covers
c. 2 pairs of rubber gloves and 5 pairs of latex gloves
d. disposable caps and face masks
e. paper towels
f. 5 leak proof containers
g. 5 leak proof and water resistant plastic bags
h. electric torch
i. active disinfectant solution
j. 2 pens and a notepad
k. 100 syringes 2,5 mls with needle
l. 100 thin, small plastic bags
m. 2 pairs of surgical scissors
n. 2 pairs of forceps
o. tape
p. 2 felt tip pens
q. 1 thermic container
r. 5 frozen icepacks

At least two of these kits should be prepared and available at the North and South Veterinary Units of the Division at all times.

KIT No. 2 for the Laboratory Veterinarian

a. 1 thermic container
b. 4 pairs of forceps
c. 2 pairs of surgical scissors
d. 1 knife
e. tape
f. labels and pens
g. 100 2.5 mls syringes with needle
h. sterile swabs
i. 50 test tubes containing virus transport media
j. 10 leak proof containers
k. 2 disposable suits
l. 5 pairs of disposable shoe-covers
m. 5 pairs of latex gloves
n. disposable caps and face masks
o. 10 black waste-bags

p. 50 rubber bands
q. disinfectant solution in a nebuliser
r. cardboard container

APPENDIX 6 - AVIAN INFLUENZA (Local) SAMPLE SUBMISSION FORM

Region……. Location ……...……...

Veterinarian……

Phone……..Fax……
……

Date …./…./…. Accession number…….…….

Farm:
Region…….……...… Location……..
Code or identification number___ __ ___
Owner
…….……..……

Complete Address
……..…….……..…
……

SPECIES AND CATEGORY
__ Meat turkey breeder(*) ……. __ Meat turkeys (*) ……..
__Broiler breeders …….. __ Layer ……..
__Layers breeder ……... __ Broilers ……
__Other species (specify) ……. …….

(*) Vaccinated against AI NO__YES__ Number of Vaccinations..…….....

COLLECTION OF SAMPLE:
- Suspect outbreak …?……
- Date of notification …?…….
- Confirmed outbreak ……
- Farm epidemiologically connected with outbreak …….
- Name and farm code of outbreak
……..……..
- Farm located in protection zone ……
- Name and farm code of outbreak
……
- Farm located in surveillance zone …….. ..
- Name and farm code of outbreak ……
- Testing for the movement of animals……
- Monitoring programme…….
- Other ……..

ANAMNESTIC DATA(History)

Species & Category	Onset of Clinical signs	Symptoms	% Mortality	From/to
…….	……..	…….	…….	……..
……..	……..	……..	……..	……..
……..	……...	……..	……..	……..
…….	…….	…….	……...	……...

Species	Samples collected	NO samples	For detection of Antibodies Virus
----------	----------	----------	----------
----------	----------	----------	----------
----------	----------	----------	----------
----------	----------	----------	----------

SAMPLE IDENTIFICATION		
No. House or Shed	**Species**	**Samples Collected**

……
SIGNATURE

APPENDIX 7 - SPECIMEN SUBMISSION

Packing and in-land transportation of specimens

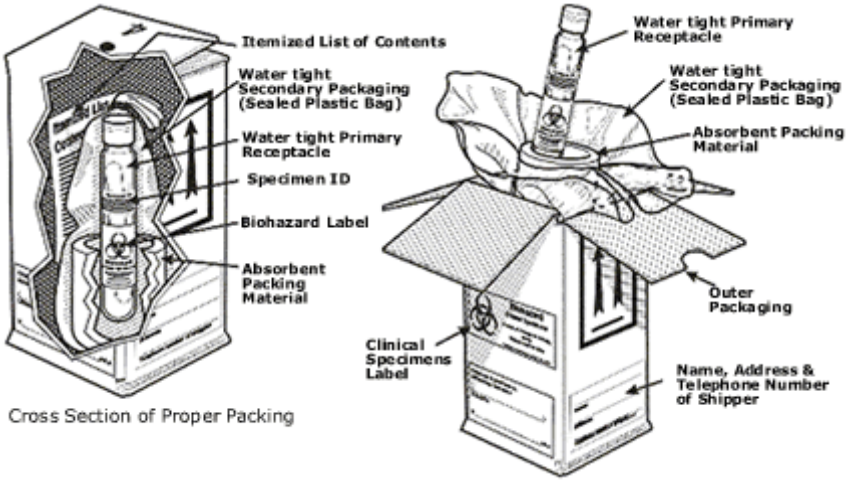
1. Place the plastic bag (the specimen + absorbent + plastic bag) into a secure secondary safety container STP-100.
2. Disinfect the safety container STP-100 and container in a cooler with ice packs to ensure specimen integrity in hot weather during transit from the field to the national laboratory.
3. Send the specimen and the Laboratory Request Form with a previously trained carrier or driver dedicated to the transportation of specimens.

Overseas Transportation of Diagnostic Specimens

Packaging of samples

1. Label all samples of tissues, swabs, serum or yolk with indelible ink pens or water-resistant ink pens.
2. Vials and containers should **not** be more than half full.
3. Lids and caps of vials or containers should be securely fastened and sealed with moisture repellant tape wrapped in the opposite direction to the cap threading.
4. Each of the vials or bags should be individually wrapped with a sufficient amount of cotton to assure the absorption of all fluids if breakage occurs.
5. The vials or bags should be placed in a rigid secondary container such as a clean empty can.
6. Samples must be left chilled or frozen during all the stages of the packaging process.
7. Place the sample container in a cardboard container with ice packs
8. Communicate with the national IATA officer to assess the packing, labeling and documentation before referring samples to the designated laboratories.
9. Notify the laboratory of the shipment of clinical specimens.
10. A separate submission form must be submitted for each owner or premises. Two copies of the legibly completed forms should accompany the shipment.
11. A valid import permit issued by the reference laboratory must accompany samples. (Veterinary departments should have valid copies of such permits in place at all times)
12. Submit specimens to the designated laboratory, through the National Laboratory according to the IATA regulations “Diagnostic specimens” UN 3373.

Packing and Labeling of Clinical Specimens



Transportation of specimens

Specimens should be sent as "diagnostic specimens" in accordance with the International Air Transport Association dangerous goods regulations http://www.iata.org/dangerousgoods/index and http://www.hazmat.dot.gov/rules.htm. Detailed instructions will be provided in the standard operational procedures

Transport of samples

1. Send packages via the quickest route. If samples are being sent to the NVSL in Ames, Iowa USA, notify the Chief of Diagnostic Veterinary Laboratory by phone (515- 239 8266) of the airway bill number or identifying information and the estimated time of arrival.
2. All containers should be sponged and cleaned with an approved disinfectant.
3. Check with the airline agent for any transport requirements ahead of time and be sure to comply with local and international policies and regulations.

APPENDIX 8 - EPIDEMIOLOGICAL INVESTIGATION REPORT/QUARANTINE

(This form should be used for basic data collection. Other questions can be added as deemed necessary by the investigator.)

1. Have any birds been sick within the last 30 days? (Yes or no) If yes, give:
    A. Dates
    B. Number and species of birds
    C. Name of owner and place of origin of the birds
    D. Any medication
    E. Any vaccination

2. Have any birds moved unto the premises within the past 30 days? (Yes or no) If yes, give:
    A. Reason for movement
    B. Dates
    C. Number and species of birds
    D. Method of transportation
    E. Birds health or condition

3. Have any birds been moved off the premises within the past 30 days? (Yes or no) If yes give details as in 2.

4. Do farm employers live on other farm? (Yes or no) If yes, give:
    A. Location of farm
    B. Number and kinds of birds maintained
    C. History of acquisition, movement etc.
    D. Places visited by employee and contacts.

5. Are the premises located near other poultry farms or premises where poultry are kept? (Yes or no) If yes, give:
    A. Relative location
    B. Distance
    C. Description

6. Have the birds been vaccinated or immunized in the past year? (Yes or no) If yes, give:
    A. Kind of vaccine used and manufacturer
    B. Number of birds vaccinated
    C. Serial and lot number of vaccine if known

7. Classify the premises as to:
   A. Standing water - ponds, lakes
   B. Flowing water – irrigation, canals, rivers
   C. Recent flooding
   D. Mountain streams and forests

8. Classify the terrain as to:
   D. Valley
   E. Plateau
   F. Hills
   G. Mountain
   H. Plains
   I. Other

1. Identify the vegetation and tress and their location with relation to topography of the premises about diseases and vector breeding sites.

2. Give drainage conditions
   A. To other farms
   B. From other farms

3. What is the direction of the prevailing winds?

4. Identify sources of water supply to the birds

5. List wild life evident or known to be present, such as:
   A. Wild birds
   B. Wild waterfowls
   C. Deer
   D. Wild hogs
   E. Mongoose
   F. Other

6. Are rats and mice…
   A. plentiful
   B. moderate
   C. few

7. How is feed stored and provided?

8. Describe handling of bags and sacks containing feed.

9. Have any member of the family, employees and their families or neighbors received food from a foreign within the past year? (Yes or no)
10. Have any foreign residents visited the family, employees and their families within the past year or have they received food from a foreign country? If yes:

A. Identify the person and date.
B. Identify the food and explained what happened to it.
C. Identify the country of origin.

19. Are any members of the family or any of the employees' family employed off the farm? (Yes or no) If yes indicate if it is:
A. A. On another farm
B. In a slaughter house
C. In a rendering plant
D. In a meat market
E. Other

20. List names, locations, and dates of visits within the past 3 to 4 months.

A. Poultry servicemen
B. Extension officers
C. Equipment repair persons
D. Feed delivery persons
E. Neighbors
F. Other

21. Have the services of a veterinarian been used within the past 6 months? (Yes or no) If yes,
A. Identify by name and address
B. Reasons for visit
C. Result of visit

22. Is vector control practiced on the farm? (Yes or no)

24. Is manure or other animal material from outside brought onto the premises? Yes or no) If yes indicate source and location, use and method of transport.

25. How is garbage disposed off?

26. Do farm employees own or have pet birds?

27. Do farm employees attend or participate in cock-fights? If so when and where.

28. Is labour and or equipment shared with neighbors? If so who when and where.

29. What is the schedule for feed delivery and who delivers it?

30. What is the schedule for egg pick up, by whom, type of flats, cases racks?

APPENDIX 9 - AVIAN INFLUENZA EPIDEMIOLOGICAL INQUIRY FORM

Date …../…../…..
Dr. ……………………………………………………………………
Phone Number……………………………………
Suspicion Date ……………………
Confirmation Date……………………
Establishment/ Owner's Namet
……
Address……………………………………………………………………………………………
………………………………………………………………………………………………………
Region ……………………………… Location of farm…………………………………
Phone……………………
District ……………………………………….
Farm code or identification number ___ __ ____

………
……………………………………………………………………………………………

………
………
……………………………
Information provided by:
………
………
Official Field Veterinarian Dr. ……………………………………………………

Present: NO __?_ YES _?_?_

INFORMATION CONCERNING THE FARM/ TYPE OF ESTABLISHMENT:

_____ Commercial _____ Backyard ______ Wholesaler ______Retailer

CATEGORY/PRODUCTION LINE:
Table-egg Layers ____ Meat Birds _____
Type and breed:
Grandparents ____
Parents ____
Pullets ____
Fighting Cocks
Meat-type (*broiler*) ____
Layers ____

NUMBER OF BIRDS AND SPECIES PRESENT:

Species of poultry	Total No.	No. Meat type	No. Breeders	No. Layers	No. Release
Chickens					
Turkey					
Guinea Fowl					
Duck					
Pigeons					
Pheasants					
Geese					
Quail					
Game Birds					
Wild Birds					

Other ……………………. ……………………... ……………………... ………………………
……………………. ……………………... ……………………... ………………………
Date of placing …..../…..../….. **Sex:** ……………..…. **Age**……..……..

HATCHERY OF ORIGIN:

Company ....…......... Address ………………………………..
..........................…....….. ..………………………………..
.......................…........……..... …………
Phone ………………………..……. Fax ………………….….………

Debeaking operations: Date ……/…../……
Performed by: __ Family members __ Employed staff __ External staff___ Other___
Remarks………………………..………………………………………………………………
…..…..…………………………………………………………………………..………

HOUSING SYSTEM

Coops..........................
Open side Houses
Deep Litter ....battery……………………..
Free Range…......................
Tunnels …………………..
Other.........................

Type of Ventilation System:
- Natural ………………………………………………………….……………
- Natural with fans ……………………..……………………..…………………..
- Artificial……………………………………………………..……………………

Free-ranging system YES_____ NO ____

Bird proof nets NO ____ YES ____
Possibility of contact with wild birds:
NO ____ YES ____ Species ….....…….....
…….....
Other Birds Present on Site (Captive or Free)
NO ___ YES ___ Species.. ..…….....….....

Presence of nearby ponds or lakes:
NO ___ YES ___

Other water reservoirs NO ___ YES ___(Specify)
……..…….....……..….....
Presence of pigs NO ___ YES ___ NO .....….....
Other animals NO ___ YES ___ (Specify) .....….....

Remarks
.....…….....
...…….

OTHER INFORMATION REQUIRED:

1. Topography of Establishment
A map of the infected premises must be drawn, clearly indicating the productive unit with the animals housed inside them, indicating the main routes of access to the premises.

Data on introduction/spread of infection: information necessary for the points a), b), c) etc., must be collected for all movements of animals/people and therefore may have to be repeated if necessary.

2. Movements of birds: Information Required
a) Introduction of birds from other establishments/hatcheries/farms NO __ YES __
(Twenty days before the onset of the first clinical signs)
Date ...../...../..... No ..... Species .....…….....…… Farm _ Hatchery
Name of Farm.....…….. Code ___ __ _
Address.....….....…Tel# .....…….
Region.....…..…..... ….....
Location...…...….....

b) Introduction of birds from exhibitions/markets/fairs NO _ YES _
(Twenty days before the onset of the first clinical signs)
Date ...../...../..... No. ..... Species.....……
Origin: Fair ____ Market ____ Exhibition ____
Region.....
Location ..…….....

c) Introduction of game birds from other holdings NO--- YES------
(Twenty days before the onset of the first of clinical signs)
Date…… No ……..

d)Exit of birds/eggs to other farms/establishments/hatcheries/abattoirs NO _ YES _
(In the time span between 21 days before the onset of the first clinical signs and the date the farm was put under restriction)
Date ...../...../..... No. .....Species
….....…….....
Destination: Other farm _ Hatchery _ Abattoir _ Other .....…….....

Name of Establishment.....……..... Code .....
Address.....…….....….....…….....
Tel # .....
Region .....Location …….. …….....

d) Exit of birds/eggs to other fairs/markets/exhibitions NO ____ YES ____
(In the time span between 21 days before the onset of the first clinical signs and the date the farm was put under restriction)
Date ...../...../..... No. ..... Species
.....
Destination: Fair ___ Market ___ Exhibition ___ Other .....…….....
Address.....…….....….....…….....
Tel #……. .....
Region ..... Location …….. …….....

---

3. MOVEMENT OF PEOPLE: ***(POSSIBLE MEANS OF INTRODUCTION OR OF SPREAD OF INFECTION)***

(In the time span between 21 days before the onset of the first clinical signs and the date the farm was put under restriction)

NO ____ YES ____
Date ...../…../….. Surname and first name .....…….....……...
__ Veterinarian __ Technician __ Vaccinating crew __ Debeaker __ Other farmer
__Dealer __ Other (specify) …….....
Address .....…….....
No. ……..……...
Region ..... Location…….. …….....
Phone number …….....
Previously visited farm: Name
……..…….……
Region ..... Location…….. …….....

MOVEMENT OF VEHICLES:
(A) Transport of animals, **(B)** Transport of feed, **(C)** Transport of eggs, **(D)** Collection of dead animals, **(E)** Fuel/Gas, **(Other**) Specify

(In the time span between 21 days before the onset of the first clinical signs and the date the farm was put under restriction)

Date of entry	Vehicle (A/B/C/D/E/ other)	Name of company/ farmer	Fax/Phone number	Vehicle plate (tractor)	Vehicle plate (trailer)	Transporter (Company)	Driver	Phone number

a) INDIRECT CONTACTS WITH OTHER POULTRY ESTABLISHMENTS:
NO ____YES ____
(Sharing of equipment, vehicles, feed, staff, etc. in the time span between 21 days before the onset of the first clinical signs and the date the farm was put under restriction)

Date of contact …../…../.....
Name of Farm or Establishment……..
Code ___ __ ____

Address
.....
Region ..... Location …….....
Species farmed …… Number ……..
___ shared vehicle ___ shared feed ___ shared equipment ___ shared staff
___collection/recycle of litter ___ other (specify) …….....

b) OTHER FARMS OWNED BY THE SAME OWNER NO ___ YES ___
Name of farm or establishment……..

Code ___ __ ____
Address .....
Region ..... Location …….....
Species farmed …….. Number ……..……...
Empty ____ Full ____

c) POULTRY FARMS LOCATED NEAR THE OUTBREAK
NO ____ YES ____
Name of farm or establishment……..
Code ___ __ ____
Address .....
Region ..... Location…….....
Distance in Metres…….
Species farmed ……... Number …….……
Empty ____ Full ____

ANAMNESTIC DATA (History)

WEEKLY MORTALITY:
NB: Data concerning mortality rates recorded in the 6 weeks prior to the onset of clinical signs

WEEK FROM	TO	NUMBER ANIMALS DEAD

Remarks:
.....
.....
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……

***DATE OF ONSET OF AI CLINICAL SIGNS*:...../...../.....**

Clinical signs observed by the farmer:
……
……
……
……
……
……

Data at the time farm was placed under restriction

Total number of birds (dead or alive)	**Number of ill birds**	**Number of dead birds**	**Number of birds depopulated**

NB: this information must refer to the data collected when the farm has been put under restriction with mortality and morbidity referring to the suspicion of AI

VACCINATION OF BIRDS:

Vaccination of birds is practised: NO ____ YES ____
Date of vaccination. Type of vaccine **(1)** Commercial name. Administration route
…../...../..... .... ….....
…../...../..... .... ….....
..…/...../..... .... ….....
…../...../..... .... ….....
...../...../….. .... ….....
…../...../….. ..... ….....

(1) Live or Inactivated
VACCINATING STAFF:
___ Family ___ Employees ___ VLSD staff ___ Other …..……..
Remarks…….……

ADMINISTRATION OF DRUGS/MEDICAMENTS:

In the last 15 days: NO ___ YES ___ (specify):
.....
.....
……
STAFF WHO ADMINISTERED THE MEDICAMENT:
___ Family ___ Employees ___ VLSD staff ___ Other …...……..
Remarks…….……

CLINICAL INVESTIGATION PER SPECIES:
Species …….
Depression ……..
Respiratory signs: (mild) ……..
(severe) …….
Drop or cessation of egg laying …….
Oedema, cyanosis or cutaneous haemorrhages …….
Diarrhoea ……...
Nervous signs …….
Other.....

GROSS LESIONS:
Rhinitis and sinusitis ……..
Tracheitis *catarrhal* ……
haemorrhagic …….
Aersacculitis ……
Haemorrhages:
epicardium ……...
endocardium ……
proventriculus …….
ovarian follicles ……..
Enteritis:
catarrhal ……..
haemorrhagic …….
Pancreatitis …….
Other:.....

Remarks
……
……
……

SIGNATURE

APPENDIX 10 - SAMPLE QUESTIONNAIRE TO ASSESS PRACTICES IN WET MARKETS

Questionnaire to Assess Practices in Wet Markets

Date: - _____ _		Period of Time: _____	
Country: _____		Location: _____	
Name of Market: _____		Address of Market: _____	
Category of market (tick one box):	☐ Urban Market	☐ Rural Market	☐ Other – Describe
Category of market (tick one box):	☐ Wholesale	☐ Retail	☐ Mixed wholesale & retail
Live animal section: (tick one box):	☐ Permanent/fixed location		☐ Not permanent/fixed
Location	☐ Mixed fixture/not		☐ Fixed

1. Origin of animals sold in the marketplace (you make tick more than one box)	Wildlife ☐	Animals from backyard/free-range farms ☐	Animals raised in pens or cages ☐	Origins of some animals not known ☐
2. Total number of animals for sale in the market on the day of inspection (tick one box)	Less than 10 ☐	10-100 ☐	101-200 ☐	More than 200 ☐
3. Kind of live animals for sale in the entire market (you make tick more than one box)	☐ Chicken ☐ Duck ☐ Goose ☐ Quail ☐ Pigeon	☐ Turkey ☐ Wild bird ☐ Pig ☐ Rabbit ☐ Rodent	☐ Dog ☐ Cat ☐ Monkey ☐ Turtle ☐ Reptile	☐ ……. ☐ ……. ☐ …….

	☐ ……. ☐ …….
4. Manner of caging of animals (you may tick more than one box)	Several animals share a cage/crate/pen ☐ Different kinds of animals are caged separately ☐ Different kinds of animals are caged together ☐ Cages are stacked one on top of another ☐ Animals are not caged ☐
5. Types of cage material (you make tick more than one box)	☐ Steel/Wire ☐ Bamboo ☐ Wooden crate ☐ Plastic ☐ Basket ☐ Sack ☐ Other – Please describe_____
6. Slaughtering of animals (you may tick more than one box)	☐ Not done in the market ☐ Done within animal stalls ☐ Done in a common area
7. No. of days may remain in the stalls (you may tick more than one box)	☐ 1 day or less ☐ 2 days ☐ 3-7 days ☐ More than 7 days ☐ Other – Please describe_____
8. Fate of animals not sold at the end of a day or longer (you may tick more than one box)	☐ Returned to farm after each day ☐ Returned to farm after 1 day ☐ Killed and consumed by vendor or family ☐ Other – Please state: _____
9. Are animals arriving on different days, mixed together?	☐ Yes ☐ No
10. In relation to sick or dead animals (you must answer all)	Animals are accepted in the market for sale even if sick ☐ Yes ☐ No Animals are accepted in the market for sale even if dead ☐ Yes ☐ No Animals that die while in the market are still sold ☐ No Animals that become sick while in the market are

	still sold ☐ No
11. Are animals sampled locally for testing? (you must answer all)	On all animals ☐ Yes ☐ No On sick animals ☐ Yes ☐ No On animals that die in the market ☐ Yes ☐ No Other ☐ Yes ☐ No If yes, please state …...
12. Do veterinarians inspect animals in the market? (tick one box)	☐ No ☐ Weekly ☐ On arrival of animals only ☐ Daily ☐ Monthly ☐ Other – please state
13. How frequently is the market-place cleaned? (tick one box)	☐ Not cleaned ☐ Daily ☐ Weekly ☐ Monthly ☐ Other – Please state …….
14. Are all animals removed during cleaning?	☐ Yes ☐ No
15. Are animal stall holders required to clean their stalls and cages or pens? (tick one box)	☐ Not required to clean ☐ Yes Daily ☐ Yes Weekly ☐ Yes Monthly ☐ Yes Other – Please state …….
16. Is a particular cleaning programme required and enforced for animal stalls?	☐ Yes ☐ No If yes, please describe what is required……. ……..
17. On the day of inspection does it appear that the cleaning programme is effective	☐ Yes ☐ No If no, please describe ……. ……
18. Location of live animal section	☐ Separated structure from other sections ☐ Mixed with other sections

Note: Animal refers to all mammals and birds

Name, function, and signature of the person who administered this questionnaire:	
Name	Function
Signature	Date

APPENDIX 11 - SAMPLE OF QUARANTINE SIGN

QUARANTINE AREA

Avian Influenza Outbreak

Infected area

Please keep out

By order:
Ministry of Agriculture, Forestry and Fisheries

APPENDIX 12 - LIST OF SOME APPROVED DISINFECTANTS FOR END AND HPAI

(The list is far from exhaustive and new effective compounds are being placed on the market at a rapid pace.)

1. Alkalis
   - Sodium Carbonate
   - Sodium hydroxide

2. Halogens
   - Chlorine

3. Phenolic Compounds

4. Glutaraldehydes

5. VikronS

6. Formaldehyde gas (to decontaminate electrical equipment)

7. Lime – CACO2

APPENDIX 13 - EMERGENCY DISPOSAL

1. **Emergency/Catastrophic Disposal**:

Each poultry farm should have a preplanned bio-security program which includes the pre-selection an emergency disposal site for all of the animals in the house. Emergency depopulation or catastrophic losses may be incurred with exotic disease, power outages, storm situations, feed contaminations or other unforeseen events. At that time planning should have selected an on-site location and have the approval of the appropriate government department or agency. Depending upon the location, capabilities and country this may be either on farm methods such as burial, composing or incineration or off farm methods such as land fill or rendering. These methods have been outlined below with additional information and locations from which further information may be accessed. This should give a starting point that specifies the country and location design by the regulatory authorities and capabilities of the local political jurisdiction and industries.

i. Burial: Historically, especially with infectious emergency diseases, this has been the preferred method since movement off the farm is not necessary. Depending upon the geography and soil, water table depth, proximity of water sources (wells, streams, ponds) underground utilities and piping sites, these sites should be pre-selected with these factors in mind. Each political jurisdiction will have different capabilities and requirements for each of these items and issues. Additionally it is important that the aesthetics of the site as to the sites proximity to people, housing and roadsides be factored into the decisions. Site selection would indicate that this is not an area of the farm with regular activity when the farm is back into full production.

The current incident command system plan being used, approximated 1 square foot of space is allocated per bird to be buried. The calculations of the amount of space needed should also allow the birds to be covered with at least 6 feet of fine, dry soil. Dimensions of the burial hole depend upon numbers of birds to be depopulated as well as equipment capabilities and availability.

ii. Composting: Composting is preferred method of disposal of the daily mortality. This method has been used for the emergency disposal of large amounts of poultry including windrowing within the house. These methods for emergency disposal are discussed in detail in **Proceedings of Third International Symposium on Avian Influenza** May 27-29, 1992 pgs 147-153

iii. Landfills: Depending upon local sites this may be a method if other options are not available or permitted for large scale depopulations or

emergency disposals. Predetermination of sites, equipment needed for transport and regulatory permits for sanitary landfill use in necessary. Primary drawback is the transport of infected dead carcasses in route to the disposal site. To address these issues, a protocol is attached that has been used in this country to specifically address these issues when diseased carcasses must be transported off location for disposal.

iv. Incineration: Burning on site or off site may be another alternative emergency method, depending upon the numbers to be disposed of and available fuel supplies. Again approval and participation by environmental air quality is necessary for this method of large scale disposal of dead carcasses.

v. Rendering: Depending upon the availability of local rendering facilities this is a method that should be reviewed as to specifics of this as an additional method that catastrophic losses or emergency disposal may be considered.

The movement and transport of large amounts for disposal, particularly related to infectious disease off the location requires special consideration to prevent dissemination of feathers, debris and other material from the transport. Attached is a protocol used in previous situation to address this situation.

2. **Daily Monthly Disposal**

In all commercial production areas the proper disposal of normal daily mortality is a basic and beginning point of recommendations or requirements to prevent dissemination of poultry diseased to local and larger areas.

It should be clearly recommended that a preferred method is on farm disposal of that farms mortality. This would support that use of burial pits, farm composting or incineration. Depending upon the farm capacity, local regulations or requirements, each of these are briefly discussed below with sites for more information.

i. Burial pits: In most developed areas and jurisdictions this method, thought widely used in past is no longer approved for new sites or is prohibited altogether. Depending upon local requirements this would be the least desirable for long term methods of daily mortality disposal.

ii. Composting: This is currently the preferred method in this country of disposal of daily mortality, is economical and keeps the mortality on the location. The following website gives some ideas and further information regarding use of this method. www.uaex.edu/other_areas/publications/pd/mp317.pdf

iii. Incineration: This method is a very good method depending upon size of farm and capabilities. It would require specific equipment and permits to use this method.

iv. Rendering: With the availability of a rendering facility some areas have the capability of either a pick up service or drop off locations for daily mortality. This method is acceptable, provided adequate education, cleaning and disinfection stations are maintained for proper sanitation of vehicles prior to returning to production farms or houses.

Regardless of which method is used, clear and instructional information needs to be directed to the individual producer as to the importance and methods used on that particular farm and how to properly dispose of the daily mortality, to prevent dissemination of disease off that location to neighboring locations.

APPENDIX 14 - REQUIREMENTS FOR TRANSPORT OF INFECTED MATERIALS TO LANDFILLS

The following procedures must be followed to be in compliance with requirements for the transport of infected materials (birds, litter and etc) to off-site locations. This process must be conducted under the supervision of a representative of the state veterinarian. Only sanitary landfills approved by the Ministry of Agriculture may be used for disposal.

- If possible the driver of the vehicle should remain in the vehicle with the window closed. If the driver exits the vehicle they must meet bio-security standards for clothing, shoes, etc and outlines below.

- Birds must be euthanized prior to transport and sprayed with disinfectant.

- A disposable plastic sheet must be placed at the door of the barn that will be the pathway for loading out birds/litter. At the end of the load out this sheet should be folded up and deposited in the last landfill container.

- The truck/container used for transport must be first lined with tough (minimum 6-mil thickness) disposable polyethylene plastic sheeting large enough to cover that carcasses and be sealed at the top. If leak-proof trucks with good seals are used, only one layer of plastic is required. If, in the judgment of the Ministry of Agriculture representative on site, there is any reason to doubt the quality of the seals or ability to prevent leaks, two layers of plastic will be required. The sheets may be secured to the sides of the container with double-sided tape to facilitate loading.

- The first layer inside the plastic sheet (s) should be at least one (1) foot of the absorbent material (sawdust, straw, hay or liter) to absorb fluids.

- Materials should be loaded into the container carefully to avoid tearing the plastic liner. The handling of carcasses should be kept to a minimum.

- At least one (1) foot of headspace should be left at the top of the container to allow for expansion of materials during transport.

- When the container is properly filled, the plastic liner should be closed over the top and sealed (taped), then sprayed with disinfectant.

- The top of the truck/container must be covered in such a way as to prevent material from blowing out at highway speeds. The material used to cover the top must be of capable of being cleaned /disinfected.

- All personnel involved in the load-out must observe strict bio-security including disinfection of all clothing, footwear, vehicles and equipment that leave the farm.

- ❖ Vehicles and equipment must be first cleaned to remove organic material then thoroughly sprayed with disinfectant, including tires, wheel wells and undercarriages of vehicles.

- ❖ Trucks transporting this material are required to travel via a route approved by the state Veterinarian and must drive from the farm to the landfill without making stops in between.

- ❖ Upon reaching the landfill to offload, drivers should remain in the vehicle with the windows closed.

- ❖ All vehicles and containers that transport infected materials to landfills must be thoroughly cleaned and disinfected at the landfill after dumping the materials.

- ❖ Any problems or breaks in these bio-security procedures are to be reported immediately to the office of the Chief Veterinarian or his representative. Any deviations from this protocol require the approval of the Chief Veterinarian or his representative.

Adapted from the guidelines used by the Virginia Low Pathogenic Avian Influenza Task Force, May 2, 2002

APPENDIX 16 - STANDARD OPERATION PROCEDURES (SOP)

Field officer/ official field vet

1. As soon as the suspicion of AI is reported, the Official Field Veterinarian (OFV) identifies the person who has reported the suspicion, and if the latter is the farmer, the OV collects information concerning:

a) Location, characteristics and number of birds and other animals on the farm,

b) Presence of staff and vehicles and other needed resources.

c) Recent movement of people, equipment, vehicles and animals,

d) The on site availability of disinfectants and equipment for disinfecting premises.

e) Examine birds unaffected birds should be examined first followed by the affected.

f) Draw a sketch of the layout of the farm which should include locations of all captive and backyard birds in the area.

2. The OFV coordinates at the farm level, in order to avoid movement of people, animals, equipment and vehicles from the suspected premises.
3. Informs the laboratory and the surveillance team of the suspicion of AI.
4. Informs the Chief Veterinary Officer whose responsibility it is to deploy the emergency Response team, engage the Director of Agricultural Services, Permanent Secretary, Minister of Agriculture, Chief Medical Officer and Epidemiologist, the once initial rapid test positives are revealed.

If AI is confirmed (All Vacation leave of members of the emergency team will be suspended)

1. Identify focal point or quarantine area ½ mile radius.
2. Establish a Buffer zone of approximately 2 miles
3. Mobilize all SLG vehicles for the stamping out process, these vehicles will be colour coded according to their place of work. **RED:** for vehicles within the infected zone, **YELLOW**: for vehicles moving between infected and quarantine zone, **ORANGE**: for vehicles moving from infected zone to landfill for disposal and **GREEN** for vehicles in the area outside the quarantine zone

4. Put the farm under restriction (written declaration of an infected place to be served to the owner or occupier) security lamps, tapes and locks will be used to further secure the area.
5. Deploy First responder teams (Animal Health Assistant, Official Field Veterinarian, depopulation team, disinfecting team, and transportation team.)
6. Obtain a written declaration from the personnel on the farm stating that they will not visit any establishment containing live birds for 3 days; the OFV and any other veterinarian must also comply with this general rule.
7. Identify locations on the farm where vehicles leaving the farm can be properly washed and disinfected, and organize washing and disinfection procedures.
8. Identify sites where staff may wash and disinfect themselves and equipment, and ensure that on leaving the premises, all staff leave their disposable gear inside the changing room, wash and disinfect exposed body parts and shoes and agree to wash their clothing as soon as they return home or at the Veterinary Division. Washing and disinfecting of vehicles must take place internally and externally, and vehicles may leave the infected premises only if this is absolutely necessary. Care must be taken to avoid that contamination of natural or artificial water sources.
9. Identify area for setting up toilet facilities, rest area with a cooler containing food and drink supply to last for approximately 8 hours, First aid kit. (these areas should also have disinfecting wipes, paper towels, clean coverall)
10. Trace any products sold by the positive farms up to 21 days prior to the outbreak, contact the Ministry of Health (Public Health) to recall all the products which will then be destroyed.
11. Contact the Saint Lucia Royal Police Force to maintain the quarantine area. At the entrance of the quarantine area there will be a guard which will be maintained for 24 hours. At this station there will be Police officers, record keeper, information booklets, disinfecting team there will also be colour coded bins with large Plastic garbage bags for the disposal of confiscated products
12. The OFV and Lab Veterinarian are requested to carefully fill in the epidemiological inquiry form (Annex 1). With reference to the epidemiological inquiry, it is important that:

- Animal movements should be recorded up to 20 days prior to the onset of the first clinical signs.
- People movements: all people (staff, relatives, servicing personnel, veterinarians) who had access to the farm must be recorded.
- Vehicle movements: all vehicles, regardless of their contact with animals, which have had access to the farm, must be reported.

13. DEPOPULATE

- PRODUCTIVE WEAR **MUST** BE WORN

- All back yard birds will be stamped out. Compensation will only be given to owners whose birds are caged, or can show proof of ownership for loose birds.
- (get information from Planning on soil profile on Island to determine areas suited for mass burial)
- Carbon Dioxide will be used for depopulation (with commercial flocks the pen will be sealed off using tarpaulin and the birds will be gassed, after approximately 30 minutes all birds will be dead, they will be packed in bags and transported to the dumps if burial on site can not be practiced. Back yard birds will be placed in a bag and then gassed.
- Field trial will be run, suggestion was to prepare a tent like structure to be used to corral the birds and then they will be euthanized (euthanizing chamber) this can also be used for transporting the birds to the disposal site and will be light weight with a capacity to hold not more than 200 birds.
- Contact solid waste management or NEMO for transportation vehicle which should be leak proof for transporting birds to the Landfill, these trucks will carry an Orange identification code. The drivers would have been already trained in proper procedures in the transportation of infectious materials. These vehicles will be escorted and would take the designated route from infected area to landfill.
- Coordinate the disinfection of vehicle before and after leaving the infected area using a mist blower.

- Coordinate the disinfection and disposal of farm waste such as feed, litter materials and equipment etc. (They can be placed in bags and left in the pen for composting.)
    - Following the clinical visit and the collection of samples the OFV and LV, collects all sterilizable equipment in an autoclavable bag, which is sealed and inserted into a second bag, which is disinfected externally.
    - A portable shower equipped with disinfectant will be placed in a suitable area where personnel decontaminate their PPE before removing and disposing of them.
    - All disposable materials, sheets of paper, disposable gear, shoe-covers are put inside a plastic bag which is left on site

    - After leaving the site officers will report to the Veterinary and Livestock Services station where they will proceed to decontaminate themselves by doing the following expectorate, blow their nose, clean under their finger nails, wash their hands then take a complete shower and washing of their hair.
    - All clothes should be washed in the washing machine provided at the station.
    - To facilitate this venture the following has to be acquired: shower, 2 washing machines, automatic sinks with soap dispensers, nail brushes and files as well as two water storage tanks.
    - To determine the time for repopulation sentinel birds will be placed in the pens and monitored. Global rest period for pen after AI

Laboratory Veterinarian

1. The Laboratory Veterinarian (LV) should reach the premises equipped with Kit No 2, accompanied by a driver, who must remain outside the premises and is responsible for the dispatch of the pathological samples to the laboratory.

2. The LV must wear his protective gear in the changing room, and must leave the following items from Kit No 2 in the changing room, to facilitate preparation of the samples for dispatch to the lab.

3. **Samples to be collected in a suspected case of Avian Influenza:**
    - In cases of suspected avian influenza the following pathological samples must be collected and sent to the laboratory:

- At least 5 moribund birds (for post mortem examination),
- Tracheal and lung samples from at least 5 moribund birds,
- Intestine samples from at least 5 moribund birds,
- Cloacal and tracheal swabs from healthy birds (also from waterfowl and other migratory birds),
- At least 10 blood serum samples
- Samples from different organs or systems must not be pooled.
- Samples must be packaged appropriately (in leak proof containers, wrapped in at least two plastic bags), to avoid dissemination of the infectious agent, and transported refrigerated to the laboratory.
- Sacrificed animals may be transported in a sealed autoclavable plastic bag, inserted inside a similar, sealed bag. All samples must be carried to the laboratory inside a polystyrene box containing icepacks. The polystyrene box must be appropriately disinfected before leaving the premises. The samples must be accompanied by the appropriate form (Annex 2).

In the case where the rapid test is positive the following should be done:

- Contact the Reference Laboratory Personnel
- Contact airline agents or courier companies for requirements for the transportation of infectious material.
- Label all samples with water resistant pens
- Vials and containers should not be more than half full
- Lids should be securely fastened and sealed with moisture resistant tape.
- Each bag should be individually wrapped surrounded by absorbent material, to ensure absorption of fluids if primary sample bay becomes damaged.
- This should then be placed in a firm polystyrene box.
- Samples must remain chilled or frozen throughout the packaging process. They must be placed in the approved shipping containers with pre-frozen ice packs; they must be packed by IATA certified personnel.
- Two submission forms must accompany the samples, one to be placed on the outer package and the other in the inner one.
- Before shipping all outer containers must be disinfected.
- Samples should be sent the fastest way possible and must be accompanied by a valid Import Permit from the Reference laboratories.

Ministry of Health

Ministry of Health must be advised that any form of communication in relations to an out break of AI should be the responsibility of the Ministry of Agriculture.

- Recall all Poultry products which entered the market from the contaminated area.
- Attend and participate in a joint community meeting hosted by the Ministry of Agriculture.
- Screen persons in the affected community
- Administer Tamiflu to all Health Officials, Veterinarians, other members on the Emergency Response team and all persons who are in direct contact to the affected birds in the area.
- Activate their emergency plan.

Special Service Unit

- Maintain 24 hour surveillance at the quarantine area and the buffer zone.
- Provide security
- Establish check points
- Ensure a record of all persons entering and leaving the area is taken
    - Name
    - Date
    - Time of arrival and departure
    - Reason for entrance
- Police reserves the right to deny persons entrance into the area if their reason is not valid.
- Ensure that a search is carried out on all vehicles leaving and entering area, confiscating any live animals and suspected animal products. These products should be disposed of in the designated bin at the check points.

- Ensure that vehicles are disinfected before entering and leaving the check points.
- If any persons escapes quarantine zone without the consent of the police, when caught if person has in his/her position any suspected material, the police should contact the Veterinary Authorities to handle to suspected material.
- Police must escort vehicle transporting contaminated material to the point of disposal and should be present during deep disposal and destruction.

Saint Lucia Fire Service

- Deploy small fire trucks to be used at check point and on farm for disinfection purposes.
- Deploy Ambulance and paramedics (Stand by) to respond in cases of emergency and injury on the job.
- Incinerate or burn culled or dead birds
- Control the incineration process.

Solid Waste

- Submit a list of contractors, vehicles available and types before hand for assessment and sensitization.
- Submit a list (in advance) of personnel and staff at disposal site for sensitization
- Submit to the VLSD a plan of action at the disposal site and methods available for disposal at the site.
- Erect mobile washroom facilities (toilets) at the check points and in the quarantine area.
- Ensure that vehicles engaged in disposal are leak proof.
- Ensure that no other activity is to take place at the dump on the day of disposal of this infected material.

Ministry of Communication and Works

- Submit list of equipment available
- Supply lighting facilities at the quarantine and buffer areas
- Deploy any necessary equipment when needed.

Private Veterinarian

- Sensitize clientele on AI
- Report to the Veterinary authorities any suspected case of Avian Influenza.

Pet shop and Exotic Bird owners

- Practise good bio-security to control and prevent the entry of disease to their birds.
- Ensure that the holding areas for birds are vector proof
- Monitor birds and report any illness or mortality to the Veterinary Services
- Comply with the importation regulations.

Customs and Excise (Border Control)

- In the absence of the Veteinary Authority detain animal and animal product accompanying passengers and notify the veterinary authority as soon as possible.

Saint Lucia Air and Sea Port Authority (Border control)

- Make space available for the exhibition of posters to guide travelers on what they should do if they are carrying any animal of animal products.
- Ensure that waste from the aircrafts and vessels are collected in plastic leak proof bags and placed in covered leak proof receptacles to be collected and disposed of by local solid waste management authorities.

Poultry Producers and Stake Holders

- Practice good bio-security to control and prevent the entry and exit of disease to and from the farm.
- Ensure that the holding areas for birds are vector and wild bird proof
- Practice good record keeping.
- Monitor birds for the following signs
    - Sudden death without clinical signs (deaths from AI usually occur between 24 to 48 hours after infection)

- High mortality (Commercial broilers: mortality exceeding 4 birds per 1,000 per day for 2 consecutive days. Commercial layers: four times the normal daily mortality for 2 consecutives days (0.5 per 1,000 per day for layers from 2 to 50 weeks and 0.75 per 1,000 per days for layers over 50 weeks) or 5 % drop in egg production over 3 days. Commercial turkeys: Mortality in excess of 2 birds per 1,000 per day .Backyard flocks: Any sudden and significant mortality event or sudden drop in egg production should be investigated. Depending on the pathogenicity of the virus, birds raised on litter may experience rapidly spreading mortality. Mortality in birds reared in cages (e.g. layers and quail) may progress more slowly over a 10-15-day period.
- Lack of Appetite
- Decreased egg production
- Deformed eggs
- Sick birds usually sit or stand in a semi-comatose state with their heads touching the ground.
- Respiratory signs can be a significant feature of the disease**.**
- Mature chickens showing swelling of combs and wattles with possible blue colouring at the tip.
- Diarrhoea beginning as watery bright green and progressing to almost totally white
- Legs between hock and feet showing areas of petechial or ecchymotic hemorrage.

- Report any of these signs immediately to the VLSD
- In the case an outbreak has been confirmed
  - Facilitate the restriction of movement and personnel in accordance with the veterinary instructions..
  - Provide information necessary for the completion of epidemiological data by the veterinary officer.

Affected Community

- Respect the quarantine and buffer zones(definition)
- Cooperate with the emergency teams (supply accurate information for processing)
- Report any illegal movement of birds.

Department of Forestry and Wild life

Responsible Person – Chief Forestry Officer (CFO)

- Assist in wild bird surveillance activities (both passive and active)
- In a case where a dead wild bird is found and reported to the department, the following should be adhered to:
    - Never handle carcass, blood or any body fluid with bear hands
    - Cover all wounds with water proof bandages before handling dead birds
    - Wear waterproof rubber gloves, surgical mask and protective disposable overalls when handling, transferring or moving dead birds.
    - Transport dead bird in a sealed autoclavable plastic bag, This bag should be disinfected before being inserted inside a similar, sealed bag. Then place bag in a leak proof container. All samples must be carried to the laboratory inside a polystyrene box containing icepacks. The polystyrene box must be appropriately disinfected before leaving the premises. The samples must be accompanied by the appropriate form (Annex 2).

General Public: (wild and domestic poultry)

- If five or more dead birds are found in one area, call the Veterinary and Livestock Services immediately.
- Initiate measures to prevent other persons and yourself from coming into contact with the carcass.

NEMO Secretariat

Component: **NEMO Secretariat**

Responsibility: Support

Responsible Person – Director or Deputy

Functions:

Support the Animal Emergency Disease Preparedness Plan.

Crop Extension Service

- Report all suspicious cases to the relevant authority without delay.
- Support the emergency response team in its activities as required.

Packaging and transportation of suspected or infectious material for destruction

- Products must be handled with caution using protective gear at all times.
- Absorbent material should be placed in the leak proof bag to ensure excess fluids are absorbed
- All products must then be placed in the leak proof bag and sealed. This should be done cautiously to avoid damage to the receptacle.
- This bag should be disinfected externally before being placed in a sealed leak proof container.
- When infected material is loaded in the truck, the top should be covered to ensure that products are not blown out on the route. The material used to cover the top must be one that can be easily cleaned and disinfected.
- All vehicles and containers which were involved in the transportation of infected materials to the landfill must be thoroughly cleaned and disinfected at the landfill after the material has been dumped.
- Any breaches in bio-security must be reported immediately to the CVO.

Vehicle Drivers

- Drivers of vehicles should remain in the vehicles, and must adhere to bio-security measures when exit is required.
- Must follow the prescribed route
- Must transport waste directly to the disposal area.

Communication Strategy

- Educate farmers, support groups, emergency response team and general public on Avian Influenza, and response plan.
- Prepare flyers, posters and other educational material.
- Gather facts on the situation and prepare bulletins or clips to disseminate to the media and the general public.
- Ensure that there are expert spoke-persons available as required, ensuring that they are able to:
    - Advise the Chief Veterinary Officer about media related activities
    - Identify most effective communication channels ensuring that information is filtered to all communities and persons

- Develop measures to authenticate the source of information before broadcast or publication
- Meet with the media houses to discuss protocol.
- Compiles list(s) of local news outlets (e.g. radio, newspaper, television) to notify them of the situation.
- Prepares pertinent information, publications, photographs and other relevant materials for distribution to media personnel.

Media

- Publicize only the information submitted by the Ministry's Communication and Information unit.
- The Information Management in Disasters will be the guide for crisis management