




# Technical Response Policies for Avian Influenza Viruses of Regulatory Concern

including

NOTIFIABLE AVIAN INFLUENZA  
HIGHLY PATHOGENIC NOTIFIABLE AVIAN INFLUENZA (HPNAI) and  
LOW PATHOGENICITY NOTIFIABLE AVIAN INFLUENZA (LPNAI)

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## Preface

This document, *Technical Response Policies for Avian Influenza Viruses of Regulatory Concern* is part of a quality system that describes how an exotic organism incursion response is managed by Biosecurity New Zealand (BNZ) of the Ministry of Agriculture and Forestry (MAF). Elements include:

- Biosecurity Council *Policy Statement on Responding to an Exotic Organism Incursion*<sup>1</sup> [Aug 2001] which covers Biosecurity Ministries' [MAF, Ministry of Fisheries, Department of Conservation (DOC) and Ministry of Health(MOH)] generic response principles for exotic diseases and pests affecting animals, plants and forestry.
- MAF Biosecurity Authority *Standard 153 Exotic Disease Programmes of Animals (including honey bees and fish)*<sup>2</sup> [Oct 2004] which specifies the outcomes required during an investigation and initial response phase for suspected cases of exotic diseases of animals.
- Technical Response Plans as outlined in the 153 Standard includes:
  - **A. Technical Analysis** – disease monograph; risk analysis for entry/spread/impact; analysis of response options with preferred option as the basis of these Technical Response Policies
  - **B. Technical Response Policies**\*\* - [this document] high level statements of intent as response objectives signed off by the CTO for Disease Management operational teams
  - **C. Operational Plan** – detailed procedures for operational role holders including Movement Control; Organism Management; Surveillance.
  - **E. Resource Requirements**- specific human and physical resources for likely scenario/s.
  - **F. Communication Plan**- strategic and tactical plan for external communications/ public relations and media including lists of spokespersons; stakeholders and key messages

*Technical Response Plans for Notifiable Avian Influenza* [April 2006] (Parts A,C,E) by Thomas Rawdon, Incursion Investigator, BNZ Investigation & Diagnostic Centre [Rawdont@maf.govt.nz](mailto:Rawdont@maf.govt.nz). *Communications Strategy for Any Future Occurrence of NAI in NZ* [Feb 2004] (Pt F) is under revision by Helen Keyes [Keyesh@maf.govt.nz](mailto:Keyesh@maf.govt.nz).

A draft *Active Surveillance Programme in Commercial Poultry for Avian Influenza virus Ver 2* [Dec 2006] by Toni Tana, Senior Adviser (Animals) Surveillance and Response, BNZ [Tanat@maf.govt.nz](mailto:Tanat@maf.govt.nz) has been used as the basis of surveillance information in this document.

A less technical summary of these response policies, *Avian Influenza Response Strategy* is under preparation by Michael Ryan, Policy Analyst, BNZ Policy [Michael.Ryan@maf.govt.nz](mailto:Michael.Ryan@maf.govt.nz) .

Description of the disease and epidemiology is provided in the *Technical Analysis* (Section A) of *Technical Response Plans for Notifiable Avian Influenza* and readers are referred to current reference texts for additional information.

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<sup>1</sup> <http://www.maf.govt.nz/biosecurity/pests-diseases/incursion-policy.htm>

<sup>2</sup>(being a disease or pest of animals, or a vertebrate, designated as an unwanted organism by the Chief Technical Officer, using powers the Biosecurity Act 1993) <http://www.maf.govt.nz/biosecurity/pests-diseases/animals/exotic-disease-response.htm>

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# 1 Introduction

Avian influenza (AI), an *Influenzavirus type A*, is an extremely contagious infection affecting all bird species. Influenza viruses include a large number of different virus subtypes<sup>3</sup> and strains<sup>4</sup>. There are important trade consequences with some strains in poultry. Current strains of the subtype H5N1<sup>5</sup> have serious human health implications with a high case fatality rate and in Europe has trade impact even when present only in wild birds.

Highly pathogenic subtypes arise by antigenic drift (mutation), re-assortment and recombination of the genetic material between different strains. Although not all H5 or H7 subtypes cause disease, all overseas outbreaks of highly pathogenic avian influenza to date, have been H5 and H7. This fact prompted the World Organization for Animal Health (Office International des Epizooties, OIE) to designate H5 and H7 as notifiable avian influenza (NAI<sup>6</sup>) and requires reporting of these subtypes when found in poultry regardless of their pathogenicity.

Avian influenza is an OIE listed disease with country status as either NAI free or highly pathogenic notifiable avian influenza (HPNAI) free. OIE surveillance guidelines for NAI and HPNAI country freedom were adopted in May 2005. No country has NAI freedom nor is this likely to occur in the future but HPNAI country freedom is achievable. Although New Zealand is free of highly pathogenic avian influenza based on absence of evidence in poultry, it currently does not meet the OIE surveillance guidelines for positive evidence to substantiate its claim for freedom from either HPNAI or NAI.

All *influenzavirus type A* (exotic avian strains) as well as H5 and H7 strains are classed as *unwanted organisms*<sup>7</sup> and are *notifiable*<sup>8</sup> under the Biosecurity Act, 1993 (The Act). This places a requirement on every person to report without unreasonable delay the presence or possible presence of H5/H7 subtypes or exotic strains of *Influenzavirus type A* to the Chief Technical Officer (CTO).

The occurrence of HPNAI disease would be defined according to OIE standards. Low Pathogenicity Notifiable Avian Influenza viruses (LPNAI) are defined as all influenza A viruses of H5 and H7 subtype that are not HPNAI viruses. Avian influenza viruses of regulatory concern include all NAI viruses and all *influenzavirus type A* (exotic avian strains) such as H9N2, an exotic zoonotic subtype of emerging concern.

Specific preparation for AI viruses of regulatory concern is required due to their contagious nature, and, for some strains, potential public health implications. To be prepared,

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<sup>3</sup> **Subtype** - Type A influenza viruses are divided into subtypes based on the antigenic relationships on the surface glycoproteins, haemagglutinin (HA) and neuraminidase (NA). Each virus has one HA of 16 recognised to date (H1-H16) and one NA antigen, of the nine recognised to date (N1-N9) in any combination. E.g. H5N1, H7N7 (Pers comm D. Alexander, 2005).

<sup>4</sup> **Strain** - Different strains of Type A influenza virus subtypes exist. These vary genetically and more importantly antigenically as determined by the amino acid sequence, especially of the surface glycoproteins haemagglutinin (HA) or neuraminidase (NA). The amino acid sequence at the cleavage site of the HA precursor protein is an important determinant of virulence. Strains and isolates of influenza viruses are identified by the type, the species from which the virus was isolated, their geographic location, the reference number if any and their year of isolation. E.g. A/chicken/Scotland/59(H5N1); A/turkey/England/50-92/91(H5N1); A/HongKong/Scotland/97(H5N1); (Pers comm. D. Alexander, 2005).

<sup>5</sup> A/chicken/East Asia/2/2003(H5N1).

<sup>6</sup> **Notifiable Avian Influenza (NAI)** - An infection of poultry caused by any influenza A virus of the H5 or H7 subtypes, or any avian influenza virus with an IVPI greater than 1.2 (or as an alternative at least 75% mortality in 4 to 8 week old chickens infected intravenously). NAI viruses can be divided into highly pathogenic notifiable avian influenza (HPNAI) and low pathogenicity notifiable avian influenza (LPNAI) (The Code 2005).

<sup>7</sup> **Unwanted organism** – means any organism that a Chief Technical Officer believes is capable or potentially capable of causing unwanted harm to any natural and physical resources or human health. <http://www.biosecurity.govt.nz/commercial-imports/unwanted-organisms-register->

<sup>8</sup> **Notifiable organism**- means an organism declared as such by the Governor-General by Order in Council (sec 45 of Biosecurity Act).

unequivocal policies are required so that all agencies can proactively develop plans and procedures, and identify facilities and personnel that may be required for response. The Ministry of Agriculture and Forestry (MAF) Biosecurity New Zealand will lead a response to HPNAI in animal populations under the Domestic and External Security Committee (DESC) whole-of-government framework for AI. The Ministry of Health (MOH) leads a whole-of-government response for human pandemic influenza as outlined in *New Zealand Influenza Pandemic Action Plan*<sup>9</sup>. H5N1 is also designated as an *Infectious and Notifiable Disease* under the Health Act (1956). Linkages to that plan are described below.

MAF requires the planned support of all associated industry stakeholders particularly the Poultry Industry Association of New Zealand<sup>10</sup> (PIANZ), the Egg Producers Federation of New Zealand<sup>11</sup> (EPFNZ), Ostrich & Emu Standards Council (OESC)<sup>12</sup>, game preserves as well as other stakeholders and the cooperation of central and regional government for support in responses to AI viruses of regulatory concern.

Biosecurity New Zealand (BNZ) is responsible for comprehensive biosecurity programmes not just primary production biosecurity. Thus, for New Zealand, categories of birds for which specific risk-based response actions will be elaborated based on principles in these *Technical Response Policies for Avian Influenza Viruses of Regulatory Concern* (Technical Response Policies) are:

1. Commercial<sup>13</sup> poultry<sup>14</sup>- galliforms (chickens, turkeys, game birds including quail<sup>15</sup> raised for meat/eggs) including grandparent stock, parent stock, broilers, layers.
2. Commercial poultry - anseriforms (ducks, geese).
3. Commercial poultry - other (ratites, game<sup>16</sup> birds held on preserve farms).
4. Non-commercial poultry (back yard<sup>17</sup>; fancy poultry) including galliforms and anseriforms.

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<sup>9</sup> **New Zealand Influenza Pandemic Action Plan** available at <http://www.moh.govt.nz/pandemic> [version 15 anticipated June 2006].

<sup>10</sup> **Poultry Industry Association of New Zealand Inc. (PIANZ)** - industry representative whose role is to promote and protect the interests of the integrated poultry meat companies and poultry livestock industries in New Zealand by liaison with Government and government departments, securing full and proper representation on or before Boards, Committees and Commissions constituted under Acts or Regulations of the Government of New Zealand; research and development relating to the industry, generic promotion of poultry meat; livestock breeding and development, technical training relating to the industry; collection and circulation of technical information and statistics; general public relations (2005). PIANZ currently represents chicken, turkey, quail, pheasant, and duck meat industry processors.

<sup>11</sup> **Egg Producers Federation of New Zealand Inc. (EPFNZ)** - industry representative whose role is to promote and protect the interests of all members of the egg industry in New Zealand by liaison with Government and government departments; securing full and proper representation on or before Boards, Committees and Commissions; research and development; generic promotion of eggs; collection of technical information and statistics, and general public relations. EPFNZ currently only represents chicken egg producers (2005).

<sup>12</sup> **Ostrich and Emu Standards Council (OESC)** - an industry representative whose role is to assist in the development and promotion of the ostrich farming industry in New Zealand; to provide technical support and training to members; to provide essential research and development for a growing industry; and to establish cooperative relationships with other growing international associations or organisations with compatible objectives (2005).

<sup>13</sup> **Commercial poultry farm** means any farm that: a) produces eggs for human or animal consumption from birds including chicken, turkey, duck, pheasant, quail, guinea fowl, ostrich or emu from: i.) Greater than 100 female birds, or ii.) Less than or equal to 100 female birds, and that sells eggs to any person for resale OR b) Keeps birds including chicken, turkey, duck, pheasant, quail, guinea fowl, emu and ostrich: i.) to sell as live birds for processing into products for human or animal consumption or use (including as a constituent part of another article), or ii.) for supplies of game OR c) breeds or rears birds including chicken, turkey, duck, pheasant, quail, guinea fowl, emu and ostrich to sell live birds to any class of farm under a) or b). (BNZ-SIR, 2005, adapted from Animal Products Act and the OIE Terrestrial Animal Health Code definition of poultry).

<sup>14</sup> **Poultry** is defined as all birds reared or kept in captivity for the production of meat or eggs for consumption, for the production of other commercial products, for restocking supplies of game, or for breeding these categories of birds

<sup>15</sup> **Game birds/quail** means such birds bred, raised and kept for commercial egg or meat production. Those bred and reared for release on, or kept for hunting on, preserve farms are considered as game birds. Farms that breed, raise, or keep birds for commercial egg or meat production that is not for game preserve farms will be considered commercial poultry.

<sup>16</sup> **Game preserve poultry farm** (game preserve farm) means sites where birds are artificially breed, raised or kept for the purpose of charging persons for hunting, killing, taking, trapping, or capture of these birds by any means for human or animal consumption. Currently, only pheasants, quail, and red legged partridge are known to be maintained in game preserve farms in New Zealand (Pers comm R. Sowman, 2005). Quail bred for release on preserves for hunting purposes are normally either California (*Calipepla californica*) or Virginia (bob white) quail (*Colinus virginianus*). The only other quail listed in the Wildlife Schedule as a game bird is the brown (Australian) quail (*Synoicus ypsilophorus*).

<sup>17</sup> **Backyard poultry flock** means a flock present on a farm or premise that breeds, keeps or rears poultry for reasons not included in the definition of commercial poultry farm.

5. Other captive birds<sup>18</sup> (including pets, pigeons, aviaries, zoos<sup>19</sup>) and recovery centres<sup>20</sup>.
6. Feral<sup>21</sup> and wild birds<sup>22</sup> including threatened<sup>23</sup> indigenous birds (protected under the Wildlife Act) in sanctuaries and key habitats<sup>24</sup>.

The overall aim of an incursion response is dependent on bird category but is generally to:

- rapidly eradicate HPNAI;
- phased eradication<sup>25</sup> of LPNAI to prevent evolution of HPNAI in commercial galliforms; and
- control/monitor/eradicate exotic zoonotic AI viruses of emerging concern depending on risk.

The principles contained in these policies are consistent with principles in AUSVETPLAN<sup>26</sup>, *The Council of the European Union Directive on Community Measures for the Control of Influenza*<sup>27</sup> and *The Avian Influenza and Influenza of Avian Origin in Mammals (England) Order 2006*<sup>28</sup>. They conform to the guidelines in the *OIE International Terrestrial Animal Health Code (The Code)*<sup>29</sup>.

## 2 Investigation & Initial Diagnosis of Avian Influenza viruses

### 2.1 HIGHLY PATHOGENIC NOTIFIABLE AVIAN INFLUENZA

- 2.1.1 MAF will immediately investigate, to set timelines specified in the 153 Standard, suspected clinical signs of HPNAI reported to the 24-hour exotic disease free-phone<sup>30</sup>.
- 2.1.2 MAF will send an initial investigating veterinarian (IIV) to a place where there are birds exhibiting clinical signs. On IIV suspicion of HPNAI, the diagnosis

<sup>18</sup> **Other captive bird** means any bird other than poultry that is kept in captivity for any reason other than those designated in other categories including those that are kept for shows, races, exhibitions, competitions, breeding or selling (EU Draft AI Directive 15146/05).

<sup>19</sup> **Zoo** means a containment facility approved to the Zoo Standard where live zoo animals are kept for the purposes of public exhibition, conservation or entertainment and includes, for example, a circus, butterfly house, aquarium and an oceanarium. A zoo may also hold indigenous animals that are not new organisms but these animals are not covered by this standard. It includes members of Australasian Regional Association of Zoological Parks and Aquaria (ARAZPA).

<sup>20</sup> **Recovery centre** means any person (including a body corporate) authorised under section 53 of the Wildlife Act 1953 to temporarily hold species that are protected under that Act for treatment and/or rehabilitation.

<sup>21</sup> **Feral** means having returned to an untamed state from domestication. [www.dictionary.com](http://www.dictionary.com) in New Zealand- turkeys, guinea fowl, chicken, peafowl, pheasant as well as quail feral populations exist.

<sup>22</sup> **Wild bird** means a free-living bird not kept in captivity (EU Draft AI Directive 15146/05).

<sup>23</sup> **threatened** means birds classified as acutely or chronically threatened according to Molloy et al 2002 (Molloy J. et al 2002: *Classifying Species According to Threat of Extinction*. (Threatened Species Occasional Publication 22, DOC Wellington) and those listed in NZ threat classification system as 'nationally critical', 'nationally endangered', 'nationally vulnerable', 'serious decline' and 'gradual decline' are 'acutely or chronically threatened' in "Hitchmough, R. (compiler). 2002. *New Zealand Threat Classification System Lists - 2002*. (Threatened Species Occasional Publication 23, DOC)

<sup>24</sup> **Key habitats** are sites of special importance where active management of threatened species is taking place such as Mt Bruce, takahe on Maud Island, saddlebacks on Moturara Island, kaka at Nelson Lakes, etc.

<sup>25</sup> **Phased eradication** means a structured programme of progressive elimination of LPNAI from specific compartments of categories of birds.

<sup>26</sup> **AUSVETPLAN** - Disease strategy: *Avian influenza (Version 3.1). Australian Veterinary Emergency Plan (AUSVETPLAN)*, Edition 3, Primary Industries Ministerial Council, Canberra, ACT Animal Health Australia (2005).

<http://www.animalhealthaustralia.com.au/aahc/index.cfm>

<sup>27</sup> **COUNCIL DIRECTIVE on Community Measures for the Control of Influenza** - repealing Directive 92/40/EEC [DRAFT Directive 15146/05]. Note - contrary to the OIE Code, the EU council directive is prescriptive and explicit. These policies are implicit particularly with respect to LPNAI. European Union policies will be considered by the Technical Advisory Group in recommending a measured response.

<sup>28</sup> **The Avian Influenza and Influenza of Avian Origin in Mammals (England) Order 2006** Statutory Instrument 2006 No. 1197 <http://www.opsi.gov.uk/si/si2006/20061197.htm>

<sup>29</sup> **The Code** -The OIE World Organisation for Animal Health, *Terrestrial Animal Health Code*, 14th Edition, 2005 guides member countries in developing animal health measures applicable to import and export of animals and animal products.

<sup>30</sup> MAF dispatches IIV ≤ 0.5 hour; report received ≤ 5 hour; EDI dispatched ≤ 5.5 hour; initial teleconference with CTO (restricted places) ≤ 15 hour.

will be deemed not negative<sup>31</sup> and further investigation by an Incursion Investigator (II) and appropriately qualified experts (e.g. virologist from MAF IDC, industry expert) will take place. This team will undertake a comprehensive epidemiological assessment and sample collection if HPNAI is suspected.

- 2.1.3 MAF will apply the following HPNAI case definition for the index case:
- Clinical signs and pathologic lesions consistent with HPNAI and
  - Virus is isolated and/or viral RNA specific for Influenza A is detected by PCR and
  - H5/H7 subtype confirmed by molecular methods or using isolated virus; and
  - Basic amino acid motif at the cleavage site consistent to that reported for other HPNAI viruses.
- 2.1.4 MAF will quarantine suspect places and initiate response action under direction of the CTO while awaiting cleavage site laboratory confirmation in accordance with robust case definitions in the Technical Response Plan.
- 2.1.5 MAF will confirm the clinical diagnosis by subsequent laboratory tests at the MAF Investigation and Diagnostic Centre (IDC) with initial cases typed at an OIE Reference Laboratory (Appendix A-Figure 1) according to international standards<sup>32</sup>.

## 2.2 LOW PATHOGENICITY NOTIFIABLE AVIAN INFLUENZA

- 2.2.1 MAF will identify non-specific reactors (operationally referred to as non negative<sup>28</sup>) through active surveillance<sup>33</sup> for *Influenzavirus type A* in poultry, other captive birds or wild birds in the absence of clinical signs. LPNAI may also result from a suspect HPNAI disease investigation.
- 2.2.2 MAF will send an Incursion Investigator (II) or initial investigating veterinarian (IIV) to undertake a comprehensive epidemiological assessment and further sample collection as detailed in Draft *Active Surveillance Programme in Commercial Poultry for Avian Influenza virus Ver 2* to rule out non specific reactors due to diagnostic test limitations.
- 2.2.3 MAF will apply the following LPNAI case definition to the index case:
- Virus is isolated; or
  - Viral RNA specific for Influenza A is detected by PCR, and there is epidemiologically significant serological evidence of actively circulating virus (in the absence of vaccination);<sup>34</sup>

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<sup>31</sup> **Not-negative** - a suspicious case where the possibility of an unwanted organism can not be ruled out (153 Standard) for HPNAI. For active surveillance for LPNAI, not negative means where a flock that has had one or more positive test results a screening tests. Historical infections and false positive results attributable to test specificity and sensitivity will be ruled out by follow-up testing and epidemiological assessment

<sup>32</sup> **Highly pathogenic notifiable avian influenza** (HPNAI) means Influenza A viruses that have an intravenous pathogenicity index (IVPI) in 6 week-old chickens greater than 1.2 or, as an alternative, cause at least 75% mortality in 4 to 8 week old chickens infected intravenously; or

Viral isolates of H5 and H7 subtype which do not have an IVPI of greater than 1.2 or cause less than 75% mortality in an intravenous lethality test, but on sequencing of the cleavage site of their hemagglutinin molecule (HA) have been determined to have an amino acid motif similar to that observed for other HPNAI isolates (Office international des Epizooties 2005).

<sup>33</sup> **Active surveillance** - When all or part of an animal population is selected sampled and tested for specific pests and/or diseases to assess their occurrence in the target population.

<sup>34</sup> **Note** response action will consider most influenza virus shed from infected flock during first 2 weeks of infection, virus not usually detected by 4 weeks after infection; RT-PCR on faecal samples lack sensitivity compared to high sensitivity and specificity relative to virus isolation for tracheal samples.

and

- c) H5/H7 subtype confirmed by molecular methods or using isolated virus, and the amino acid motif is not consistent with that reported for HPNAI viruses.

The intent of this definition is to have a high degree of scientific confidence of the presence of active infection.

- 2.2.4 MAF will have initial case(s) of LPNAI typed according to international standards which may include OIE Reference Laboratories (Appendix A-Figure 2).

## **2.3 INFLUENZAVIRUS TYPE A (EXOTIC AVIAN STRAINS) EMERGING VIRUSES**

- 2.3.1 MAF will identify cases of emerging exotic AI through not negative samples uncovered on active surveillance for *Influenza virus type A* in the absence of clinical signs or when such viruses are identified as a result of clinical suspect HPNAI disease investigation.
- 2.3.2 If the H type is H9, or other emerging exotic AI virus of concern, MAF will send an II or IIV to undertake a comprehensive epidemiological assessment and conduct further sample collection in an analogous manner as that outlined in the Draft *Active Surveillance Programme in Commercial Poultry for Avian Influenza virus Ver 2* for LPNAI above.
- 2.3.3 MAF will have initial cases of the emerging exotic virus typed according to international standards which may include OIE Reference Laboratories (Appendix A-Figure 2).

# **3 HPNAI Incursion Response [Disease Management Policies<sup>35</sup>]**

## **3.1. HPNAI RESPONSE MANAGEMENT**

- 3.1.1 MAF will establish emergency<sup>36</sup> response management as described in *MAF National Response Centre Procedures Draft 1* [3 March 2005] and *BNZ Disease Management Team Procedures* [4 April 2005]. At the National Response Centre:
- MAF BNZ Disease Management Team will approve operational strategy, objectives and policies relating to disease management of the exotic organism through the CTO;
  - MAF NZFSA Trade Team will manage food safety issues and domestic trade impacts (retail outlets, tracing product, recall);

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<sup>35</sup>MAF-led national incursion responses are guided by a National Response Centre Steering Committee with four separate Teams- Disease Management (BNZ); Trade(NZFSA); Communications (MAF Corporate Communications) and Recovery (MAF Policy). Only **Disease Management policies** are set out in this document as endorsed by the CTO.

<sup>36</sup>**Emergency response-** in which very urgent containment and control is necessary and expected due to the nature of the unwanted organism (e.g. fast spreading), circumstances of the outbreak, and/or associated public health, animal health, environmental and/or trade impacts ... may involve 24 hours a day functionality(153 Standard).

- MAF Communications Team will ensure emergency communication of disease status and response action; and
  - MAF Recovery Team will provide community support and assist in recovery measures at the national as well as local level, working with local authorities, industry and community organisations.
- 3.1.2 MAF will co-ordinate with other agencies as designated DESC lead , seeking to minimise the impact of response activities on:
- commerce including the primary production, industry and service sectors;
  - environment including indigenous and valued introduced species, biological systems and biodiversity;
  - society including personal property and lifestyle;
  - human health and well-being; and
  - Maori cultural and spiritual values.
- 3.1.3 MAF will convene a Technical Advisory Group (TAG) comprised of experts such as virologists, epidemiologists, ornithologists and veterinarians to review the risks and recommend appropriate technical response management option(s) to the CTO (Appendix A Figure 1). The need to increase the inter-disciplinary cooperation between these professional groups in the management of AI is recognized internationally. A TAG established in March 2006 made recommendations that have been incorporated into these Technical Response Policies. In the event of a response, the terms of reference and membership of the TAG may reviewed by the CTO in light of the circumstances.
- 3.1.4 MAF will convene a Stakeholders Advisory Group (SAG) to assess the impact of response management options on primary production/commerce, environment, social (including human health) and cultural values. It will be comprised of individuals with skills and experience in these matters, including policy advisers from the Ministry of Health and Department of Conservation and industry advisers from PIANZ, EPFNZ, OESC, ARAZPA and the MAF Maori Strategic Unit with knowledge of Tikanga Maori<sup>37</sup>. A SAG established in March 2006 made recommendations that have been incorporated into these technical policies. In the event of a response, the terms of reference and membership of the SAG may reviewed by the CTO in light of the circumstances
- 3.1.5 MAF, support agencies or contracted suppliers will meet OSH responsibilities and impose and enforce biosecurity risk management measures at response facilities and during all response activities, in order to minimise the risk of spreading or contracting infection as a result of response activities.
- 3.1.6 MAF will use a central geographic database [Incursion Response System- IRS] to support response processes that is distributed for data-entry-at-source, query and reporting, as appropriate, to all personnel, response facilities and to the public.
- 3.1.7 MAF Communications and Recovery Teams will provide community support and assist in recovery measures and ensure two way communication of disease status and response action. Such activities will occur at the national as well as regional level, working with local authorities, industry and community

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<sup>37</sup> **tikanga Maori** means knowledge of the Maori way of doing things (spiritual, cultural, physical etc) e.g. Maori protocol.

organisations. Consultation in particular with iwi must be included given that some native birds may be considered taonga<sup>38</sup>.

- 3.1.8 All policy statements described below will be reviewed by the TAG and SAG for any recommended amendments prior to endorsement by the CTO as MAF policy at the time of an incursion.

## 3.2 HPNAI RESPONSE POLICY OVERVIEW

- 3.2.1 MAF will respond to HPNAI by rapid containment and eradication by stamping out<sup>39</sup> the disease in poultry [categories 1 to 4] in the shortest feasible time frame. The rationale for stamping out in poultry is based on the following considerations:

- Eradication is technically feasible.
- Severe economic losses would be incurred in affected and associated industries.
- HPNAI, if uncontrolled, would spread through poultry production systems and could enter wild bird populations.
- Risks to New Zealand unique biodiversity may arise as a result of infection occurring in indigenous bird populations, particularly in threatened species.
- Some zoonotic strains (e.g. South East Asia H5N1) are associated with high human clinical case fatality.
- World Health Organization (WHO) has identified the potential for a global human pandemic as a result of re-assortment of avian Influenza A virus, such as H5N1 strain with human adapted influenza strains, in humans concurrently infected with both strains.
- International guidelines exist to re-establish HPNAI-free status following an incursion

- 3.2.2 MAF will respond to HPNAI in other captive birds [categories 5] by rapid containment, selectively stamping out of affected birds and stamping out and/or vaccination of at-risk captive birds on the basis of a risk assessment so as to minimize further spread to any other category particularly wild birds and at-risk threatened species held within the affected captive bird establishment or epidemiologically linked establishments.

- 3.2.3 MAF will respond to HPNAI in feral and wild birds [category 6] by enhancing biosecurity in other bird categories, reduction of feral bird reservoirs, particularly where such are designated unwanted organisms by the CTO Conservation and selective vaccination of threatened indigenous species in collaboration with DOC where suitable vaccine is available.

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<sup>38</sup> taonga means treasure.

<sup>39</sup> **Stamping-out policy** means carrying out under the authority of the Veterinary Administration, on confirmation of a disease, the killing of the animals which are affected and those suspected of being affected in the herd or flock and, where appropriate, those in other herds or flocks which have been exposed to infection by direct animal to animal contact, or by indirect contact of a kind likely to cause the transmission of the causal pathogen. All susceptible animals, vaccinated or unvaccinated, on an infected premises should be killed and their carcasses destroyed by burning or burial, or by any other method which will eliminate the spread of infection through the carcasses or products of the animals killed. This policy should be accompanied by the cleansing and disinfection procedures defined in the Code. The term modified stamping-out policy should be used in communications to the OIE whenever the above animal health measures are not implemented in full and details of the modifications should be given (OIE Code 2005).

3.2.4 MAF will select response options that minimise the time to regain HPNAI country freedom within the biosecurity framework that seeks to balance social, cultural, economic and environmental considerations. A summary of indicative response actions is given in Appendix B.

3.2.5 MAF will instigate an immediate eradication as part of the initial response while awaiting overseas laboratory confirmation if subtyping at MAF IDC detects subtypes H5 or H7 and where significant severe clinical disease is present in accordance with robust case definitions in the *Technical Response Plan*.

3.2.6 MAF will eradicate HPNAI by:

#### ***Movement control [contain]***

- Declaring a controlled area prohibiting the movements of poultry, other captive birds and wild birds at recovery sites [categories 1 to 6] as well as susceptible livestock/ domestic species and conveyors.<sup>40</sup>
- Imposing conditions on risk activities (possibly including housing of poultry) and on movements of risk goods by issuing movement permits dependent on place status and zoning.
- Placing restricted place<sup>41</sup> notices and conditions on movements of risk goods<sup>42</sup> and risk activities in relation to suspect places, infected places, at-risk places<sup>43</sup> and places surrounding infected places in the Infected Zone (protection and surveillance zones) within controlled areas.
- Establishing immunity by selective emergency vaccination where suitable vaccine is available.
- Co-ordinating communications to relevant stakeholders and affected industries to ensure biosecurity measures are in place for susceptible species at all levels (farm, aviaries, sanctuaries, conveyances, and processing<sup>44</sup>).

#### ***Surveillance and Tracing [locate]***

- Identifying and inspecting all places associated with infected places that are potential sources or destinations for the virus (at-risk places).
- Investigating reported cases of suspected HPNAI.
- Conducting comprehensive integrated surveillance to detect, contain and eradicate infection in all infected places.

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<sup>40</sup> **Conveyors** means things (products, waste, animals, people) that can convey infection from infected places to other places. They are defined for epidemiological purposes. Not all conveyors are risk goods (people for instance) and not all risk goods are conveyors (vaccine for instance).

<sup>41</sup> A **Restricted Place** under s130 of the Biosecurity Act is a regulatory status that primarily serves to allow movement controls and other restrictions or conditions to be applied to a place. It may be applied based on belief or suspicion. It does not explicitly provide a known health status.

<sup>42</sup> **Risk goods** means any organism, organic material, or other thing, or substance, that ..... constitutes, harbours, or contains an organism that may—(a) Cause unwanted harm to natural and physical resources or human health in New Zealand; or (b) Interfere with the diagnosis, management, or treatment, in New Zealand, of pests or unwanted organisms (Biosecurity Act PART I #2. Interpretation)

<sup>43</sup> A place will be considered **at-risk** if it has susceptible animals or risk goods, and there is a potentially infectious episode with a known infected place. The risk may be backward (the at-risk place may be a suspected source of infection for the infected place) or forward (the at risk place may have been infected from the infected place). The risk episode may be associated with the movement of conveyors of disease, the local spread of the disease across boundary fences. The level of risk will depend on the time of the episode, in relation to the disease timeline on the infected place (specifically the likely infection period or period of viral excretion), the amount of virus at the source at that time, and the type of conveyor. Surveillance activity on at-risk places varies according to the expected stage of infection. Antibodies may be detectable in potential sources of infection, where as antigen may be detected in recently infected places. Surveillance is tailored to the reason for the at-risk status.

<sup>44</sup> **Processor** means a primary processor or a secondary processor whereas **Process** includes kill, slaughter, dress, cut, extract, manufacture, pack, preserve, transport, and store an animal or animal product (Animal Products Act 1999).

### *Organism Management [eradicate]*

- Finding and destroying [stamping out] animals at all infected places
- Decontaminating conveyances, product or other risk goods
- Pre-emptively slaughtering suspect place flocks with known exposure episodes<sup>45</sup> sufficient to justify this action.

3.2.7 MAF will notify MoH and liaise in relation to any human cases or suspect cases as outlined in the Pandemic Plan<sup>46</sup>.

3.2.8 MAF will co-ordinate relevant stakeholders and affected industries to enhance biosecurity nationally in addition to that within the controlled area.

## 3.3 HPNAI MOVEMENT CONTROL POLICY

### *Area Controls (zoning)*

3.3.1 MAF will initially contain HPNAI in a defined Infected Zone<sup>47</sup> and will protect places outside that zone by the conditions on risk activities and movement restrictions on risk goods imposed in controlled area<sup>48</sup> notices.

3.3.2 MAF will consider relevant epidemiological and logistical factors when defining the boundaries of a controlled area. The extent of the controlled area will be predicated on the category of bird in which HPNAI is isolated, geographic extent of the suspected outbreak(s), animal welfare considerations and risk of further spread, as well as any use of emergency vaccination.

3.3.3 MAF will conduct a risk assessment if the outbreak of HPNAI is confirmed in other captive or wild birds [categories 5 and 6] as opposed to poultry [categories 1 to 4] and will use controlled area notices to prohibit or place conditions to restrict risk activities by specific category.

3.3.4 MAF will revoke controlled area notices on the declaration of freedom from HPNAI.

### *Compartment<sup>49</sup> Controls*

3.3.5 MAF will undertake detailed epidemiological analysis to determine whether HPNAI is contained within a category where compartment(s) can be identified under OIE provisions to facilitate disease control. Compartments reflect a partnership between the relevant enterprise/ industry and MAF to establish and maintain a subpopulation of animals with a distinct health status based on the

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<sup>45</sup> An **episode** is a potentially infectious event that links a place with an infected place.

<sup>46</sup> [refer Interpandemic Period Phase 2 – Scenario 2 – CODE WHITE] <http://www.moh.govt.nz/pandemic>

<sup>47</sup> **Infected Zone** means a specific area within a controlled area. The Infected Zone is the largest area in which current evidence and analysis of transmission risks suggests Infected Places may be present (153 Standard). Note this definition differs from the definition of Infected Zone the OIE Code 2005.

<sup>48</sup> **Controlled Area** means an area that a CTO has declared under and for the purposes of section 131 of the Biosecurity Act 1993. There may be more than one controlled area and there may be controlled areas within controlled areas, eg where some movements should be prevented or conditions imposed over a large area and more stringent movement restrictions or conditions imposed in a smaller area.

<sup>49</sup> **Compartment** means one or more establishments under a common biosecurity management system containing an animal sub-population with a distinct health status with respect to a specific disease or specific diseases for which required surveillance, control and biosecurity measures have been applied for the purpose of international trade (OIE Code 2005).

industry's biosecurity management manual. Compartments would ideally be established prior to an incursion response.

- 3.3.6 MAF will amend the controlled area notice to restrict movements only within the affected categories or compartment(s), rather than in all bird categories, where such amendments do not impede or delay HPNAI eradication.

#### ***Place Controls***<sup>50</sup>

- 3.3.7 MAF will issue restricted place notices on infected and suspect places within the Infected Zone and at-risk places outside the Infected Zone.
- 3.3.8 MAF will issue restricted place notices to contaminated animal product processing sites and work with industry and the New Zealand Food Safety Authority (NZFSA) to ensure site plans are effective in minimising opportunities for onward spread, decontaminating the sites, and tracing and recalling products considered to pose a risk of spreading infection as risk goods.
- 3.3.9 MAF will audit monitoring and enhanced biosecurity in other captive or wild birds and impose place controls or restrict public access subject to recommendations by the TAG and reviewed by the SAG.
- 3.3.10 MAF will revoke restricted place notices when decontamination procedures have been completed at poultry and other bird sites and/or the place is no longer deemed a biosecurity risk for wildlife sites.

#### ***Permitting activities***

- 3.3.11 MAF will manage the movements of risk goods that are HPNAI conveyors from and to places affected by movement controls by issuing movement permits.
- 3.3.12 MAF will work with support agencies to detect and minimise adverse animal welfare and economic effects of the movement control policy.

#### ***Compensation***

- 3.3.13 MAF will record all actions, directions, and restrictions that may be eligible for compensation under the Biosecurity Act<sup>51</sup>, and any actions by the occupier that may affect eligibility for compensation.
- 3.3.14 MAF will inform affected parties about compensation in order to reduce anxiety and streamline the management of claims.

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<sup>50</sup> **Place** means any building, conveyance, craft, land, or structure, and the bed and waters of the sea and any canal, lake, pond, river or stream: (Biosecurity Act 1993).

<sup>51</sup> Section 162A Part IX Biosecurity Act 1993.

### 3.4 HPNAI TRACING & SURVEILLANCE POLICY

#### *At-risk places*

- 3.4.1 MAF will conduct a complete epidemiological investigation of infected places to:
- Determine the original time, point of origin and conveyor of HPNAI infection and subsequent spread within and from the place;
  - Identify potentially infectious episodes involving the movement of conveyors with other places;
  - Prioritise tracing investigations on the basis of risk;
  - Trace and investigate to confirm movements and designate those places-at-risk; and
  - describe the distribution of at-risk places, network of infection, and dissemination of HPNAI.
- 3.4.2 MAF will trace animal products and other conveyors from animal processing sites as risk goods under the Biosecurity Act where they are considered to pose a risk of spreading infection that originated from infected places during the period between probable or known introduction of HPNAI to the place and the declaration of the restricted place notice and designate such places at-risk where there is a potential for exposure episodes.
- 3.4.3 MAF will prioritise inspections of at-risk places based on the time and nature of the risk episode and will schedule monitoring of at-risk places to coincide with expected clinical signs using appropriate methods which may include diagnostic testing of birds.

#### *Report places*

- 3.4.4 MAF will respond to report cases<sup>52</sup> (suspect clinical signs) as described in the Investigation & Initial Diagnosis section 2.1.
- 3.4.5 MAF will investigate referral cases from MOH investigations where humans show evidence of HPNAI exposure for linkages to bird premises.

#### *Zone (geographical) and Compartment (management system) Surveillance*

- 3.4.6 MAF will employ an effective surveillance programme based on increased reporting generated by public and stakeholder awareness, distance monitoring<sup>53</sup> and site visits in all zones or compartments within categories according to assessed risk.
- 3.4.7 MAF will define a Protection Zone according to risk (local spread mechanisms including aerosolisation of organic matter during eradication activities and

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<sup>52</sup> **Report Case** means a place where disease consistent with HPNAI is reported to the Exotic Disease Response Centre (EDRC) (Surveillance Group Manager) and field assessment by a patrol veterinarian is pending.

<sup>53</sup> **Distance Monitoring** refers to a formal reporting system by fax and or spreadsheet of key data from at-risk places to the Field Operations Response Team or EDRC. The data will assist in MAF gaining early evidence of possible disease, that may trigger place visits and sampling (see *Technical Response Plan*). This operational activity is designed to free up personnel by ensuring only necessary surveillance visits are conducted and reduces possible iatrogenic virus spread between farms by response staff.

potential source(s) of infection). The highest level of biosecurity control will be applied in this zone. The CTO will designate the radius of the Protection Zone considering recommendations from the TAG/SAG and international precedence. In the absence of specific epidemiological assessment, the EU standard of at least the area of 3 km radius from all known infected places may be applied as an interim measure until the epidemiology of the outbreak is evaluated. All places with poultry within the Protection Zone shall be considered at-risk and visited to establish their infection status.

- 3.4.8 MAF will define a Surveillance Zone as a buffer around the Protection Zone. The radius will be sufficient to enable a robust case to be presented to trading partners following post-eradication surveillance, considering international precedence for HPNAI. The CTO will designate the radius of the Surveillance Zone considering input from the TAG and SAG. In the absence of specific epidemiological assessment, the EU standard of 10 km radius from all known infected places may be applied as an interim measure until the epidemiology of the outbreak is evaluated. MAF will case<sup>54</sup> all places in the surveillance zone to ensure information on location, ownership and susceptible animals is accurate.
- 3.4.9 MAF will perform virological and serological tests and audit clinical surveillance to ensure the absence of virus circulation in any vaccinated populations either through sentinel birds [generally in bird categories 1 to 4] or specific serial serological/ virological testing [bird category 5 & 6] to meet OIE/FAO surveillance guidelines.
- 3.4.10 MAF will audit the implementation of the industry's biosecurity management manual within agreed compartments, to ensure that premises are epidemiologically closed and the surveillance and monitoring programme described is appropriate to verify the free status with respect to HPNAI.
- 3.4.11 MAF will pursue compartment or zone freedom followed by country freedom for HPNAI. Surveillance will initially take place in the free zone or disease-free compartment(s). Surveillance includes the inspection of any at-risk places, report cases, and randomised diagnostic testing.

#### ***Other surveillance activities***

- 3.4.12 MAF will investigate alleged illegal activity in relation to the measures in place under the Biosecurity Act.
- 3.4.13 MAF will work with other agencies such as DOC, local authorities, aviary associations, pet shops, zoos and wildlife parks during the response in poultry [categories 1 to 4] to enhance passive surveillance through public and stakeholder awareness programmes and assess the need for specifically designed surveys of other captive [category 5] and feral and wild birds [category 6] to confirm the status and/or assess the risk of infection.

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<sup>54</sup> **Casing** means the recording or updating of occupier or ownership details, susceptible animal details, and geographic details (coordinates and boundary) of places. Casing completes a geographic mosaic of agricultural and non agricultural land in the Infected Zone.

### 3.5 HPNAI ORGANISM MANAGEMENT POLICY

- 3.5.1 MAF will review the spread of HPNAI in international outbreaks to predict resource requirements and to select the most appropriate organism management methods in consultation with collaborating agencies.
- 3.5.2 MAF will evaluate the risk status of any susceptible aberrant species (e.g. pigs, cats, ferrets) present on infected places to confirm or exclude HPNAI infection.

#### *Stamping Out*

- 3.5.3 MAF will stamp out HPNAI by the rapid depopulation and disposal of poultry on infected places and destruction or decontamination of risk goods for poultry [categories 1 to 4].
- 3.5.4 MAF will follow OIE guidelines<sup>55</sup> and specifically meet New Zealand welfare and slaughter codes with respect to the welfare of animals involved when undertaking depopulation, disposal and decontamination on infected premises as documented in the *Technical Response Plan* and *FORT Procedures*.
- 3.5.5 MAF will establish site plans for restricted places including decontamination stations and security services at the entry/exit of infected places.
- 3.5.6 MAF will use specified disinfectants at label dilutions for the decontamination of risk goods.
- 3.5.7 MAF will consider alternate HPNAI control measures to stamping out for non-poultry [categories 5 & 6] providing such measures do not endanger HPNAI eradication.
- 3.5.8 MAF will collaborate with experienced operators (either in or through DOC and Regional Councils) to contain and manage the risks associated with feral susceptible species (e.g. birds [category 6], cats, pigs, mustelids<sup>56</sup> etc) in the vicinity of infected places.
- 3.5.9 MAF will seek permissions with DOC for any activity relating to wildlife that have been declared unwanted organisms under the Biosecurity Act by the CTO Conservation.
- 3.5.10 MAF will seek approvals from DOC for any activities on Conservation land or any actions related to wild birds, as all (including all Northern Hemisphere migrant waders and all native waterfowl) are protected under the Wildlife Act (1953) unless listed in schedule 4 of that Act.

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<sup>55</sup> OIE Terrestrial Code Section 3.7.6 Guidelines for the killing of animals for disease control purposes.

<sup>56</sup> **Mustelids** means any member of the family Mustelidae, fur-bearing carnivores including the weasels, skunks, badgers, and others (about 25 existing genera with about 70 species). In New Zealand these are stoats, weasels and ferrets.

## *Pre-emptive Slaughter*

3.5.11 MAF will not adopt a general pre-emptive slaughter policy but be guided by EU indicative criteria<sup>57</sup> as recommended by the TAG/SAG to the CTO particularly:

- On places with a high morbidity/mortality and suggestive epidemiology of HPNAI based on the outbreak clinical case definition;
- When known high risk episodes have occurred on suspect places;
- Where high disease incidence continues on movements of risk goods and in geographically dense poultry populations or in poultry industry networks despite depopulation and decontamination immediately on detection; or
- Where there is increasing risk of spread and establishment in wild bird populations.

However, while the concept of geographic/ local spread of avian influenza may be appropriate for categories 2 to 4, it must be weighed against the networks of disease distribution more typical of integrated commercial poultry in category 1.

## *Vaccination*<sup>58</sup>

3.5.12 MAF will not adopt a general vaccination policy but may introduce emergency<sup>59</sup> [categories 1 to 4] and preventive<sup>60</sup> vaccination [categories 5 & 6] in certain species or compartments as a short term measure as recommended by the TAG/SAG when a risk assessment indicates there is a significant and immediate threat of HPNAI spreading within New Zealand. Vaccination may be used to:

- Induce immunity and reduce virus shedding in an outbreak with high disease incidence in poultry [categories 1 to 4] overwhelming the ability to stamp out by depopulation and decontamination within a reasonable time frame with concurrent increasing spread particularly to wild bird populations; or
- Protect elite flocks [category 1 breeding flocks] or socially/culturally valuable poultry or private/zoological collections [categories 4 & 5] in the face of an uncontained outbreak; or
- Protect threatened indigenous birds [category 6] when HPNAI is confirmed in populations of species that regularly migrate to New Zealand or infection in New Zealand endangers them.

3.5.13 MAF will only permit vaccines meeting the requirements of Agricultural Compounds and Veterinary Medicines which are applied in accordance with FAO/OIE guidelines using techniques such as sentinel birds, Differentiating Infected from Vaccinated Animal (DIVA<sup>61</sup>) strategy and that are registered in New Zealand by MAF.

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<sup>57</sup> Note EU applies pre-emptive slaughter within designated parts of the Protection Zone which is 3 km radius using similar epidemiological principles as in the examples above.

<sup>58</sup> Use of vaccination has no impact on the OIE status of a country, zone or compartment. Epidemiological (risk of contact) and socio-political (biodiversity) considerations as well as consumers/societal values will drive decisions. There will be different drivers to rationalise vaccination in response to HPNAI versus LPNAI outbreaks.

<sup>59</sup> **Emergency vaccination** includes suppressive vaccination which involves vaccinating animals most likely to be infected in order to slow the spread of the disease. Protective vaccination involves vaccinating animals over a wider area to create a 'firewall'.

<sup>60</sup> **Preventive vaccination** is a long term measure where, based on a risk assessment, certain categories of birds are at risk for exposure to avian influenza.

<sup>61</sup> **Differentiating Infected from Vaccinated Animal (DIVA) strategy** means a vaccination strategy which enables a differentiation to be made between vaccinated/infected and vaccinated/non-infected animals through the application of a diagnostic test designed to detect antibodies against the field virus and the use of non-vaccinated sentinel birds EU.

3.5.14 MAF will require a vaccination plan to be approved by the CTO that contains at least the following information:

- Rationale for vaccination;
- Geographical area;
- Number, species and type of birds to be vaccinated;
- Duration of vaccination;
- Provisions for movement control of vaccinates;
- Criteria for selecting birds to be vaccinated;
- Record keeping/registration of vaccinated populations; and
- Disposition of vaccinates

3.5.15 MAF will require an active surveillance programme to OIE guidelines with both clinical and laboratory tests carried out in and adjacent to designated vaccination areas prior to and following vaccination to monitor the epidemiological situation, the effectiveness of vaccination and the control of movements of vaccinated poultry and/or other birds.

### **3.6 HPNAI PUBLIC HEALTH COLLABORATION POLICY**

3.6.1 MAF will meet obligations to notify MOH of the suspicion of highly pathogenic avian influenza such as H5N1 under the Health Act. Specifically MAF will share epidemiological data and intelligence gathered as part of the animal response with designated authorities.

3.6.2 MAF will work with MOH in agreeing response objectives and procedures related to protection of public health as documented in Pandemic Action Plan<sup>62</sup>. MOH will provide public education on the need to minimise the risk of exposure and for controlling infectious spread in humans in accordance with their pandemic plan. Public health authorities will develop surveillance of animal workers; investigate rapidly any reported possible human cases and target surveillance of humans in area(s) where animals are affected.

3.6.3 MAF will ensure that MOH laboratory services have access to New Zealand viral isolates for diagnostic procedures and for the sharing of these isolates with laboratories in the WHO Global Influenza Surveillance Network. MOH will enhance laboratory diagnostic capacity for novel strains.

3.6.4 MAF will, as an employer, meet OSH requirements as recommended by the WHO and a technical advisory group convened by the MOH.

3.6.5 MAF will continue as lead agency in the event of a confirmed case of HPNAI identified within the New Zealand human population in the absence of human to human transmission. MAF will work closely with MOH on the risks associated with human cases. Where human to human transmission occurs, the MOH will become the lead agency for managing the pandemic, but MAF will retain responsibility for animal response.

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<sup>62</sup> Interpandemic Period Phase 2 – Scenario 2.2 – CODE WHITE ; Pandemic Alert Period Phase 3 – Scenario 3.2 – CODE WHITE; available at <http://www.moh.govt.nz/pandemic>

3.6.6 MAF will collaborate with MOH in the event of a pandemic concerning the appropriateness of movement restrictions within New Zealand to control regional spread or inter-island spread of the human pandemic under the Health Act. Both the Biosecurity Act (1993) and the Health Act (1956)<sup>63</sup> have legislation governing control of agricultural goods such as birds or poultry (quarantine; destruction etc). The purpose of the Biosecurity Act relates to the exclusion, eradication and effective management of unwanted organisms and is the basis for these policies<sup>64</sup> whereas the purpose the Health Act is to consolidate and amend the law relating to public health.

### **3.7 HPNAI INTERNATIONAL NOTIFICATION POLICY**

- 3.7.1 MAF will meet New Zealand's international obligations to the OIE, in particular for timely and transparent reporting in collaboration with the Ministry of Foreign Affairs and Trade (MFAT).
- 3.7.2 MAF will provide to all New Zealand trade posts through MFAT, comprehensive and updated information on HPNAI occurrence, spread and response to it.
- 3.7.3 MAF will immediately withdraw official export certification which is no longer factually accurate for animals and animal products.

## **4 LPNAI Incursion Response [Disease Management Policies]**

### **4.1.1 LPNAI RESPONSE MANAGEMENT**

- 4.1.2 MAF will establish the BNZ Disease Management Team to approve operational strategy, objectives and policies as a measured response<sup>65</sup>.
- 4.1.3 MAF will seek to minimise the impact of response activities on:
- Commerce including the primary production, industry and service sectors;
  - Environment including indigenous and valued introduced species, biological systems and biodiversity;
  - Society including personal property and lifestyle;
  - Human health and well-being; and
  - Maori cultural and spiritual values.
- 4.1.4 MAF will convene a TAG and SAG where epidemiological investigation or confirmatory test results at IDC are indicative of active LPNAI infection<sup>66</sup>.

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<sup>63</sup> The Health Act (1956) infected place notification states "no people or goods should be allowed to move into or out of the infected place without the express permission of the Medical Officer of Health in charge". The Health Act 'infected place' is parallel to the Biosecurity Act (1993) 'controlled area notice'. The Health Act under Sec 70 of the Regs may make provision for: 1. destruction of animals (s. 70(1)(d)); 2. quarantine of animals (s.70(1)(f)) 3. Forbid import of animals (s.70(1)(g)) 4. Forbid removal of animals (s.70(1)(i)) 5. Prohibit the keeping of animals (s.70(1)(j)) Compensation is payable from use of powers under section 71.

<sup>64</sup> Under the law both Health Act powers and Biosecurity Act powers may be used. The most important thing is to co-ordinate the exercise of the powers so that all powers are exercised by the personnel upon whom they are conferred and for the purposes for which the Act provides they may be used Ref: Q05/441 legal opinion MAF Legal 27 September 2005.

<sup>65</sup> A **Measured response** in which the nature of the unwanted organism (slower spread) and/or associated lower impacts are such that commissioning and establishment of personnel resources and operations can observe a normal process of approvals, and response activities are expected to observe hours associated with a normal working day (153 Standard)

Decision process flow diagrams including additional detailing of laboratory analysis are presented in Appendix A Figure 2.

- 4.1.5 MAF, support agencies or contracted suppliers will impose and enforce biosecurity risk management measures at response facilities and during all response activities, in order to minimise the risk of spreading or contracting infection as a result of response activities.
- 4.1.6 MAF will use a central geographic database [Incursion Response System- IRS] to support response processes that is distributed for data-entry-at-source, query and reporting, as appropriate, to all personnel, response facilities and to the public.
- 4.1.7 MAF Communications and MAF Policy will provide industry support and assist in recovery measures and ensure two way communication of disease status and response action. Such activities will occur at the national as well as regional level, working with local authorities, industry and community organisations. Consultation in particular with iwi must be included given that some native birds may be considered taonga.
- 4.1.8 All policy statements described below will be reviewed by the TAG and SAG for any recommended amendments prior to endorsement by the CTO as MAF policy at the time of an incursion.

## **4.2 LPNAI RESPONSE POLICY OVERVIEW**

- 4.2.1 MAF will undertake a measured response for phased eradication of LPNAI within the commercial galliforms[category 1]. The rationale for a measured response is based on:
  - Expert opinion underscores the importance of monitoring and controlling circulating LPNAI in domestic poultry that could contribute to the emergence of HPNAI.
  - HPNAI outbreaks in USA(1983); Mexico (1995); Italy (1999)Netherlands (2003); Chile (2002); Canada ( 2004) all initially involved LPNAI.
  - LPNAI viruses appear to be more stable in their natural aquatic bird reservoir hosts than in domestic galliform poultry.
  - EU Council directive requires the eradication of LPNAI.
  - Transmission of the mutated HPNAI variant back to wild birds and anseriforms may be associated with mortality in those species.
  - Although to date, serious threat to human health from avian sources is associated with highly pathogenic forms of H5N1 and H7N7 avian influenza viruses, milder clinical signs in humans can occur with other H types (e.g. H7N3) less frequently.
- 4.2.2 MAF will undertake a measured response in poultry categories other than commercial galliforms [category 2 to 4] based on:

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<sup>66</sup> **Low pathogenic notifiable avian influenza (LPNAI)** means all influenza A viruses of H5 and H7 subtype that are not HPNAI viruses(Office international des Epizooties 2005)

- The natural reservoir of all subtypes of AI viruses is aquatic avian species where the virus is enteric rather than systemic, causing minimal or no clinical signs.
- Threat to animal and human health is historically associated with passage of the virus in chickens, turkeys or quail with mutation to virulence and high mortality.
- The ecology of LPNAI in poultry is complex, still imperfectly understood and under active research.

4.2.3 The nature of any measured response will be recommended to the CTO by a TAG composed of influenza experts and reviewed by the SAG. MAF will develop response options for consideration by the TAG/SAG based on:

- Previous pathogenicity of the LPNAI virus isolate;
- Nature of the compartment(s) within commercial galliforms and size of population at risk (density of birds at risk);
- Prevalence and likely duration of infection within the compartment or category ;
- Most probable source;
- Rapidly spreading or apparently stable within the compartment or category;
- Risk of spread outside that category;
- Presence of any clinical signs in animals or in humans;
- Effectiveness of response action on estimated prevalence of LPNAI in that compartment within the commercial galliform category;
- Risk of further mutation in the compartment where detected; and
- Costs to MAF's stated values and impacts of alternative response options.

4.2.4 MAF will control and eradicate confirmed LPNAI of H5 or H7 in commercial galliform compartments through phased eradication (Appendix A Figure 2 and Appendix B). Depending on compartment, MAF will permit process slaughter<sup>67</sup> prior to receipt of subtyping and confirmation at a OIE Reference laboratory where there is no evidence of morbidity or mortality above baseline level.

4.2.5 MAF will develop response options for LPNAI in commercial galliforms similar to those for HPNAI but their urgency and time frame of application is reduced. Stamping out will likely be modified to phased eradication through process slaughter for human consumption. Vaccination will be considered if a delimiting survey demonstrates LPNAI is widespread and supported by a risk assessment indicating elimination is desirable but not achievable within a reasonable time frame.

4.2.6 MAF will co-ordinate relevant stakeholders and affected industries to enhance biosecurity both in the vicinity of the isolation and nationally.

4.2.7 MAF will monitor LPNAI subtypes in other poultry categories [2 to 4] providing its presence does not endanger LPNAI eradication in commercial galliforms. Monitoring will include tracking morbidity and mortality and if deemed necessary, repeated diagnostic testing (e.g. commercial ducks and geese [category 2] game birds, ratites [category 3]; backyard poultry [category 4]; and

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<sup>67</sup> **Process slaughter** means slaughter of animals for human consumption, transported under movement controls, at a processing plant.

other captive birds [category 5]). The role of farmed quail in the evolution of HPNAI will be considered in developing response options for game birds.

### **4.3 LPNAI MOVEMENT CONTROL POLICY**

#### ***Area Controls (zoning)***

- 4.3.1 MAF will not generally impose a controlled area notice for LPNAI unless part of the measured response by the TAG/SAG and endorsed by the CTO.
- 4.3.2 MAF will advise all stakeholders to enhance biosecurity measures in areas in which LPNAI is diagnosed.

#### ***Compartment Controls***

- 4.3.3 MAF will collaborate with industry to undertake detailed epidemiological analysis to determine whether LPNAI is contained within a compartment as defined under OIE provisions within the commercial galliform category to facilitate disease control. Compartment measures are described under HPNAI section 3.5.

#### ***Place controls***

- 4.3.4 MAF will formally advise infected place owners that as all H5 and H7 subtypes of AI are unwanted organisms, sections 52 and 53 of the Biosecurity Act prohibits the movement of poultry and bird infected or suspected to be infected with LPNAI. MAF will issue a general permission exempting certain categories.
- 4.3.5 MAF may impose restricted place notices if part of the measured response measures recommended by the TAG/SAG endorsed by the CTO (Appendix B, Figure 2).

### **4.4 LPNAI TRACING & SURVEILLANCE POLICY**

#### ***At-risk places***

- 4.4.1 MAF will conduct a complete epidemiological investigation of infected places as described for HPNAI to describe the distribution of at-risk places, the network of infection, and the dissemination of LPNAI to include in their development of response options.
- 4.4.2 MAF will investigate episodes involving the movement of conveyors and trace and confirm these movements designating at-risk status and conduct diagnostic testing to determine LPNAI status on first tier tracings to include in the development of response options for TAG/SAG consideration.
- 4.4.3 MAF will pursue compartment freedom where this is feasible (see organism management section). As for HPNAI, MAF will audit the implementation of the industry's biosecurity management manual to ensure that premises are epidemiologically closed and the surveillance and monitoring programme

described is appropriate to verify the free status with respect to NAI (and thus LPNAI).

- 4.4.4 MAF will work through the TAG process to assess the need for surveillance of other categories [2 to 6] and specifically design surveys to meet these needs if considered necessary in an analogous manner as for HPNAI.

## **4.5 LPNAI ORGANISM MANAGEMENT POLICY**

- 4.5.1 MAF and collaborating agencies will review the control of LPNAI in international outbreaks to predict resource requirements and to select the most appropriate organism management methods.

- 4.5.2 MAF will evaluate the status of susceptible risk species on restricted places.

### ***Phased eradication/ Stamping Out***

- 4.5.3 MAF will implement phased eradication of LPNAI particularly H5N1 isolates in commercial galliforms [category 1] in such a way as to prevent the spread of LPNAI. The TAG will consider quarantine and seek MOH advice regarding human health protective measures pending overseas laboratory strain characterisation. In exceptional circumstances if the H5N1 subtype of LPNAI is detected in other categories [2 to 6] eradication will be considered.

- 4.5.4 MAF will use stamping out as a means eradication of LPNAI where such a measure is endorsed by the CTO as the most appropriate response option given the epidemiology/ circumstances of the LPNAI isolation in an analogous manner as for HPNAI. Specific stamping out policies are set out in HPNAI section 3.5.

### ***Pre-emptive Slaughter***

- 4.5.5 MAF will not adopt a global pre-emptive slaughter policy<sup>68</sup> but consider its implementation in an analogous manner to HPNAI when low LPNAI prevalence indicates that pre-emptive slaughter will readily and feasibly eradicate LPNAI in a specific compartment in New Zealand.

### ***Vaccination***

- 4.5.6 MAF will not adopt a global vaccination policy but may introduce preventive vaccination in specific categories or compartments as a long term measure to:
- Induce immunity and reduce virus shedding where widespread prevalence of LPNAI in commercial galliforms constitutes a significant and immediate threat of HPNAI evolving; or
  - Induce immunity and reduce virus shedding in commercial galliforms where LPNAI is spreading more rapidly than detection and the ability to undertake phased eradication by process slaughter or depopulation and decontamination within a reasonable time frame; or

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<sup>68</sup> EU uses the term depopulation for pre-emptive slaughter within a specific radius of 1 km radius of an infected place using the term "RESTRICTED" zone for LPNAI depopulation.

- To prevent virus introduction into commercial galliforms [category 1] through mixed game; backyard poultry or other captive bird [categories 2 to 5] flocks as a primary step in the biological pathway of in the face of an uncontained outbreak (as above).

4.5.7 MAF will require a vaccination plan to be approved by the CTO meeting the same criteria as for HPNAI section 3.5.

#### **4.6 LPNAI PUBLIC HEALTH COLLABORATION POLICY**

4.6.1 MAF will notify MOH of any LPNAI infected places. Specifically MAF will share epidemiological data and intelligence gathered as part of the animal response. To date, human health risks for LPNAI, where they have occurred, have been transitory and mild (conjunctivitis, upper respiratory symptoms) associated with H7, H5 and H9 and experimentally with H10.

4.6.2 MAF will consider a more precautionary approach for LPNAI H5 subtypes or H5N1 strains due to historical occurrence of high human case fatality with the HPNAI South East Asia H5N1 through the TAG/SAG process. Any actions such as enhanced surveillance and monitoring of potentially exposed humans will be determined by MOH.

#### **4.7 LPNAI INTERNATIONAL NOTIFICATION POLICY**

4.7.1 MAF will meet New Zealand's international obligations to the OIE, in particular for timely and transparent reporting of NAI.

4.7.2 MAF will immediately withdraw official export certification which is no longer factually accurate for animals and animal products with respect to NAI free compartment status.

### **5 Influenza virus type A (exotic avian strains) Incursion Response [Disease Management Policies]**

#### **5.1 INFLUENZAVIRUS TYPE A (EXOTIC AVIAN STRAINS) RESPONSE POLICY**

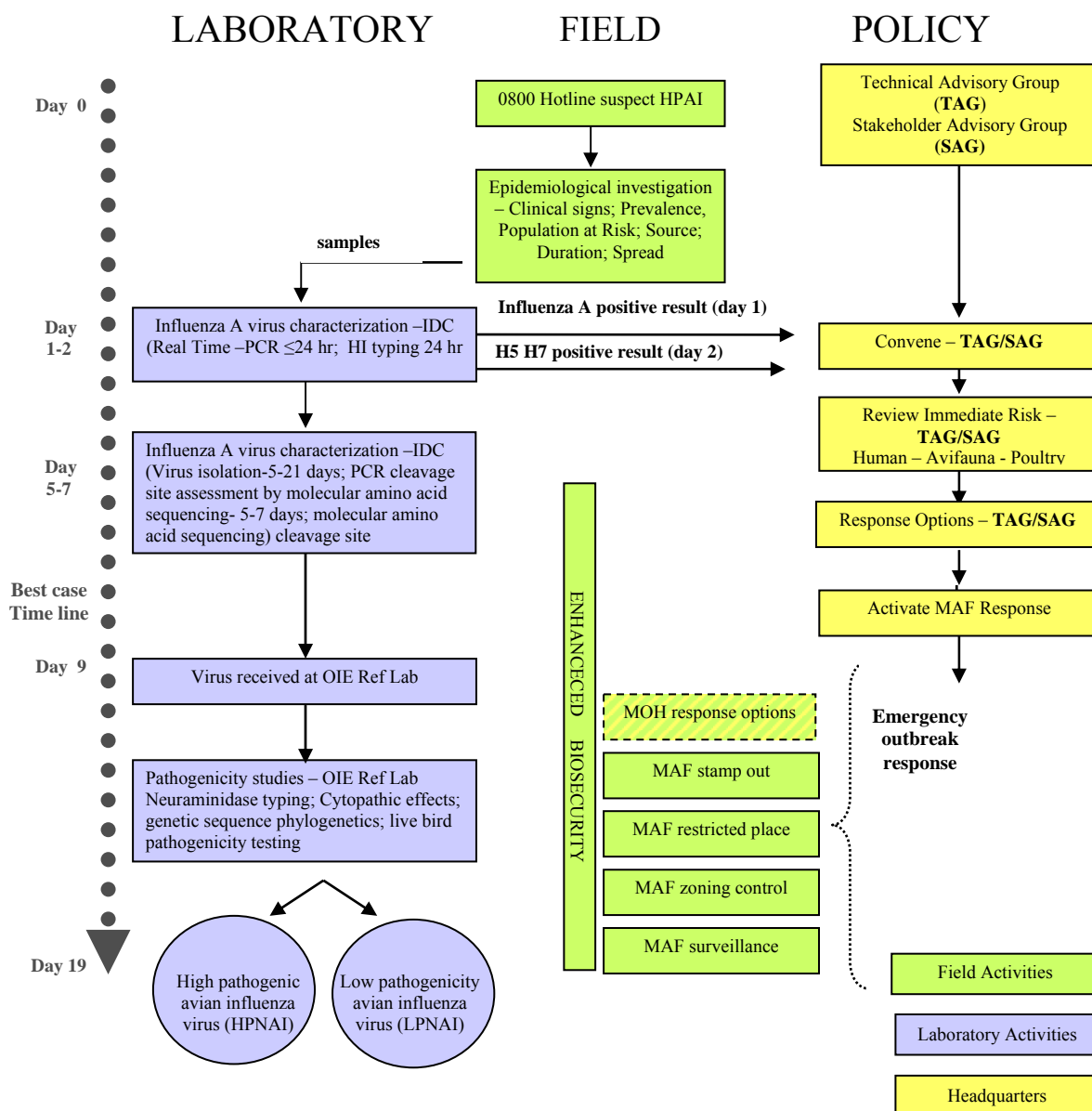
5.1.1 MAF will undertake a measured response to *Influenza virus Type A* (exotic avian strains) such as H9N2, reflecting the category in which the exotic strain is detected and a risk analysis for New Zealand as well as likelihood of zoonotic disease from exposure in that category (Appendix A). Currently H9N2 is the only other zoonotic avian influenza virus of international concern. In addition to H9, H6 and H3 subtypes have established or are in process of establishing permanent lineages in chickens with severity of disease dependent on co-infecting agents. However they are not zoonotic.

- 5.1.2 MAF will initially contain H9N2 detected in poultry flocks [categories 1 to 4] while assessing response options as recommended by a TAG and SAG. Decisions on containment for other *Influenza virus Type A* (exotic avian strains) will be determined on a case-by-case basis.
- 5.1.3 The rationale for a measured response in poultry is based on the following considerations:
- Avian-to-mammalian (including human) transmission of H9N2 influenza viruses has been reported in southern China.
  - H9N2 is common in quail<sup>69</sup> and other birds and is currently expanding in the Middle East and Asia and has been associated with high mortality but does not meet the OIE definition of HPNAI.
  - Economic losses would be incurred in affected and associated industries.
  - H9N2, if uncontrolled, would spread rapidly through poultry production systems and threaten wild bird populations.
  - Risks to New Zealand's unique biodiversity may arise as a result of infection occurring in indigenous bird populations, particularly in threatened populations.
- 5.1.4 Response options will seek to minimise the time to eradicate/control *Influenza virus Type A* (exotic avian strains) within the biosecurity framework that seeks to balance social, cultural, economic and environmental considerations.
- 5.1.5 MAF will collect data relating to human epidemiological links at the request of and for referral to MOH.
- 5.1.6 MAF will follow the same decision making process as described for LPNAI (section 4) for operational areas for management; movement control; surveillance; public health collaboration and international notification and trade.

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<sup>69</sup> Domesticated Japanese Quail *Coturnix (coturnix) japonica*

# Appendix A -DECISION PROCESS FLOW: AVIAN INFLUENZA



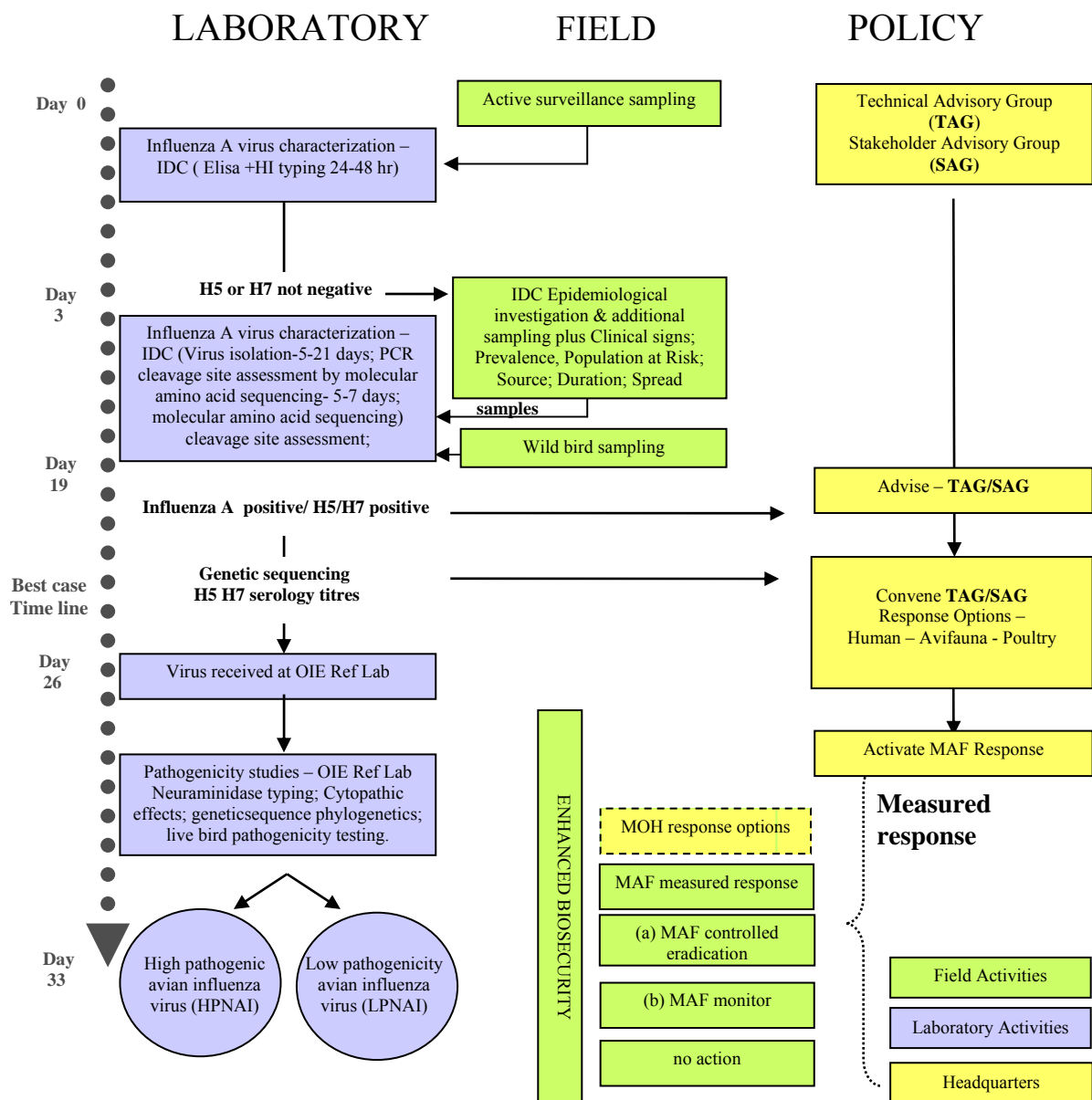
**Figure 1: Response to a positive avian influenza virus suspect HPNAI (clinical signs – hot line case)**

The outlined response reflects a call to MAF’s 0800 hot line for which an incursion investigator is dispatched with samples returned to IDC for **immediate** diagnostic testing. Both fresh tissues and serum are collected.

For **fresh tissue and cloacal swabs**; real time PCR will be performed on fresh tissue for a generic Influenza A virus positive or negative result in 4-6 hours after receipt. Coincidentally, traditional PCR will be performed for H5 and H7 with preliminary results in 36 hours (best time scenario). In 5-7 days, once virus grown in culture, molecular amino acid sequencing and cleavage site assessment (sequencing of PCR amplicons takes place at ESR Poirirua or Waikato University). **Virus isolation** will be performed by inoculation of tissue culture media.

For **serum samples**, ELISA (IDEX for chickens or C-ELISA for other species) will be run requiring a day as well as Haemagglutination inhibition serology for H5 or H7 type requiring 2 days. **Live bird pathogenicity** requires the isolated virus as well as 10 days at an overseas laboratory plus specimen travel time. **Neuraminidase characterisation** requires isolated virus as well as 2-3 days at an overseas laboratory plus specimen travel time.

The TAG will be convened as soon as initial positive samples for H5 or H7 are confirmed by day 2 prior to confirmation of all criteria for HPNAI case definitions.



**Figure 2: Response to active surveillance in wild birds and commercial poultry.**

The outlined response reflects active **serum** surveillance sampling currently using IDEXX Elisa (chickens) or C-ELISA (other birds and mammals) for any Influenza A virus at IDC (day 0 reflects time of test at IDC not necessarily sample collection). If positive for Influenza A virus, a subsequent confirmatory test, haemagglutination inhibition is performed serially for H5 and H7 (Day 3). If a reaction occurs here, the sample is termed “not negative” but it may mean that the reaction is due to the limitations of the diagnostic test and does not reflect current infection. Serum tests may also indicate past historic infection with no current active live virus present.

At this point, IDC investigators conduct follow up with **serum** and **tracheal/cloacal swab** testing if the flock is alive as well as detailed epidemiological assessment. If the flock is dead the presence of H5 or H7 in all flocks on the farm will be undertaken. These subsequent samples are essentially processed in an analogous manner as suspect HPNAI samples although laboratory priority scheduling will not be as urgent as HPNAI suspect samples.

Similar diagnostic testing is performed for wild bird samples which include cloacal +/- tracheal swabs. However the time line does not reflect wild bird samples as these samples are progressed as research samples as time permits as such samples do not have priority in laboratory schedules.

The TAG/SAG will be advised will be convened as soon as initial positive samples for H5 or H7 are confirmed which could be estimated as day 19 after commencement of sample testing at IDC.

## Appendix B –INDICATIVE RESPONSE ACTIONS

Category	Clinical HPNAI	Non-clinical LPNAI	<i>Influenzavirus Type A</i> (exotic avian strains) e.g. H9N2
1. Commercial poultry galliforms (chickens, turkeys)			
1.1 grandparent stock	SO	MR	MR
1.2 parent stock	SO	MR	MR
1.3 layers	SO	MR	MR
1.4 broilers	SO	MR	MR
2. Commercial anseriforms (ducks, geese)	SO	MR	MO
3. Commercial-other poultry (ratites, game birds quail, guineafowl, pheasants etc)	SO	MR	MO
4. Non-commercial (back yard) poultry including galliforms and anseriforms	SO	MR	MO
5. Other captive birds (including pigeons, aviaries, zoos, caged birds, public sanctuaries)	MR	MO	MO
6. Wild birds including threatened indigenous birds (protected under the Wildlife Act)	MR	NA	NA

Four mechanisms of measured response actions are considered: *depopulation*; *movement control*; *surveillance*; *vaccination*. Actual response measure actions can range from stamping out as the most aggressive form of depopulation to monitoring, the most lenient form of surveillance with various combination of measures in-between depending on risk. Monitor and no action are predictable without TAG/SAG consideration in specific categories.

**SO\***- Emergency eradication by **stamping out** (OIE definition) along with MAF controlled area notice, movement controls, restricted place notices, area surveillance.

**MR\*- Measured response:** The measured response will be risk-based and tailored by the TAG and agreed by SAG to achieve MAF's overall objective of phased eradication of LPNAI in commercial galliforms and more moderate measured response in other categories. Measured response control options range from *depopulation* through stamping out to process slaughter which may be accelerated or not, dependent on circumstances; all with enhanced cleaning and disinfection with or without a specific direction under Sec 122 of the Biosecurity Act(BA)for commercial galliforms and/or other categories dependent on circumstances; *movement control* through prohibitions under Section 52& 53 of the BA to formal restricted place notices; *surveillance* through BNZ audited monitoring with or without repeated diagnostic testing on the affected place only or also within the surrounding area; *vaccination* particularly in threatened wild birds for HPNAI or used synergistically with process slaughter in poultry.

**MO\***-Monitor for productivity characteristics (eggs, weight gain) as well as morbidity/ mortality records in all categories including domestic, captive other birds and wild bird populations. Repeat laboratory testing such as serology or swabbing may be required. Movement restrictions will be determined on a case-by-case basis. Cleaning and disinfection may be directed under Sec 122, BA.

**NA\*** – no action

\* All above actions will be accompanied by communication with stakeholders such as PIANZ, EPFNZ, OESC, Fish & Game preserve farms, area backyard poultry, aviary or zoo owners as well as DOC recovery sites to enhance premises biosecurity.

## **LPNAI Measured Response- “Selected range of “measures”**

### *Enhanced biosecurity without formal restrictions*

- a. Indoor housing recommended.
- b. Recommend known purchasers/isolate on arrival/visitors/no shared equipment etc.
- c. Letter to any LPNAI premises detailing restrictions under sections 52 and 53 of Biosecurity Act.

### *Enhanced Surveillance [without use of Biosecurity Act]*

- d. Monitor productivity characteristics.
- e. Syndrome surveillance as increased passive surveillance.
- f. Clinical assessment- active surveillance.
- g. Laboratory Assessment- serums/swabs – active surveillance.

### *Movement Restrictions/treatment [without use of Biosecurity Act]*

- h. Process slaughter [industry managed – see previous Tech Pol 2005].

### *Movement Restrictions/treatment [with use of Biosecurity Act]*

- i. Give directions under Section 122 supplementing sections 52 and 53.
- j. Restricted Place notice(s).
- k. Controlled area [geographical].
- l. Controlled area notice limitation to compartment [biosecurity management system].
- m. LPNAI has are movement restrictions within 1 km termed a “restricted zone” versus the usual “protection (3km) and surveillance(10km) zones for HPNAI.[EU policy].
- n. LPNAI has restrictions for movement of commodities [meat, eggs, day-olds] plus specified are C&D measures; duration of control measures for ALL livestock etc[ why LPNAI has same infectious characteristics as HPNAI- so technically measures should be same- politically....].
- o. Restrictions exist for domestic livestock (exemption is for mammals which have access only to the living areas for humans).
- p. There is a requirement for pigs (& other susceptible species) to be tested on suspect holdings EU.

### *Organism Control [with use of Biosecurity Act]*

- q. Process slaughter [under permit].
- r. Vaccination [if widespread H5 or H7 in industry- see AUSVETPLAN].

### *Organism Elimination [with use of Biosecurity Act]*

- s. Depopulation of affected flock under BA [single time or precedence- NOTE EU policy is “Immediate depopulation is mandated for infection with LPAI for BOTH poultry and other captive birds *except where risk assessment supports derogations.*”
- t. Pre-emptive eradication within the restricted zone and at risk premises is an option in EU (see Appendix 1 of EU policy).

## Definitions

**Active surveillance** - When all or part of an animal population is selected, sampled and tested for specific pests and/or diseases to assess their occurrence in the target population.

**AUSVETPLAN** - Disease strategy: Avian influenza (Version 3.1). Australian Veterinary Emergency Plan (AUSVETPLAN), Edition 3, Primary Industries Ministerial Council, Canberra, ACT Animal Health Australia (2005). <http://www.animalhealthaustralia.com.au/aahc/index.cfm>

**At-Risk Place** - A place will be considered at-risk if it has susceptible animals or risk goods, and there is a potentially infectious episode with a known infected place.

**Backyard poultry flock** - A flock present on a farm or premise that breeds keeps or rears poultry for reasons not included in the definition of commercial poultry farm.

**Controlled Area** means an area that a chief technical officer has declared under and for the purposes of section 131 of the Biosecurity Act 1993. There may be more than one controlled area and there may be controlled areas within controlled areas, e.g. where some movements should be prevented or conditions imposed over a large area and more stringent movement restrictions or conditions imposed in a smaller area.

**COUNCIL DIRECTIVE on Community measures for the control of influenza** and repealing Directive 92/40/EEC [DRAFT Directive 15146/05] Note contrary to the OIE Code, the EU council directive is prescriptive and explicit. These policies are implicit particularly with respect to LPNAI. EU policies will be considered by the TAG in recommending a measured response.

**Case definition [HPNAI]** – the index case in New Zealand will meet the following criteria:

- a) Clinical signs and pathologic lesions consistent with HPNAI; and
- b) Virus is isolated and/or viral RNA specific for Influenza A is detected by PCR; and
- c) H5/H7 subtype confirmed by molecular methods or using isolated virus; and
- d) Basic amino acid motif at the cleavage site consistent with that reported for other HPNAI viruses.

**Case definition [LPNAI]** – the index case in New Zealand will meet the following criteria:

- a) Virus is isolated; or
  - b) Viral RNA specific for Influenza A is detected by PCR and there is epidemiologically significant serological evidence of actively circulating virus (in the absence of vaccination);
- and
- c) H5/H7 subtype confirmed by molecular methods or using isolated virus, and the amino acid motif is not consistent with that reported for HPNAI viruses.

The intent of this definition is to have a high degree of scientific confidence on the presence of active infection.

[Note response action will consider most influenza virus shed from infected flock during first two weeks of infection, virus not usually detected by four weeks after infection; RT-PCR on faecal samples lack sensitivity compared to high sensitivity and specificity relative to Virus isolation for tracheal samples.]

**Casing** - means the recording or updating of occupier or ownership details, susceptible animal details, and geographic details (coordinates and boundary) of places. Casing completes a geographic mosaic of agricultural and non agricultural land in the Infected Zone.

**Commercial poultry farm** - is any farm that: a) produces eggs for human or animal consumption from birds including chicken, turkey, duck, pheasant, quail, guinea fowl, ostrich or emu from: i.) Greater than 100 female birds, or ii.) Less than or equal to 100 female birds, and that sells eggs to any person for resale OR b) Keeps birds including chicken, turkey, duck, pheasant, quail, guinea fowl, emu and ostrich: i.) to sell as live birds for processing into products for human or animal consumption or use (including as a constituent part of another article), or ii.) for supplies of game OR c) breeds or rears birds including chicken, turkey, duck, pheasant, quail, guinea fowl, emu and ostrich to sell live birds to any class of farm under a) or b). (adapted from Animal Products Act and the OIE Code)

**Compartment** - means one or more establishments under a common biosecurity management system containing an animal subpopulation with a distinct health status with respect to a specific disease or specific diseases for which required surveillance, control and biosecurity measures have been applied for the purpose of international trade (OIE Code 2005).

**Conveyors** - are things (products, waste, animals, people) that can convey infection from infected places to other places. They are defined for epidemiological purposes. Not all conveyors are risk goods (people for instance) and not all risk goods are conveyors (vaccine for instance).

**Distance Monitoring** - means a formal reporting system by fax and or spreadsheet of key data from at-risk places to the FORT or EDRC. The data will assist in MAF gaining early evidence of possible disease, that may trigger place visits and sampling .

**Egg Producers Federation of New Zealand Inc. (EPFNZ)** – means Industry representative whose role is to promote and protect the interests of all members of the Technical Response plan).

**DIVA (Differentiating Infected from Vaccinated Animal)** - means a vaccination strategy which enables a differentiation to be made between vaccinated/infected and vaccinated/non-infected animals through the application of a diagnostic test designed to detect antibodies against the field virus and the use of non-vaccinated sentinel birds (EU)egg industry in New Zealand by liaison with Government and Government departments. The Egg Producers Federation currently only represents chicken egg producers.

**Emergency response-** in which very urgent containment and control is necessary and expected due to the nature of the unwanted organism (e.g. fast spreading), circumstances of the outbreak, and/or associated public health, animal health, environmental and/or trade impact ... may involve 24 hours a day functionality(153 Standard)

**Emergency vaccination** - includes suppressive vaccination which involves vaccinating animals most likely to be infected in order to slow the spread of the disease. Protective vaccination involves vaccinating animals over a wider area to create a ‘firewall’.

**Episode** - means a potentially infectious event that links a place with an infected place.

**Game birds/quail** - means such birds bred, raised, and kept for commercial egg or meat production. Those bred and reared for release on, or kept for hunting on, preserve farms are considered as game birds. Farms that breed, raise, or kept birds for commercial egg or meat production that is not for game preserve farms will be considered commercial poultry.

**Game preserve poultry farm (game preserve farm)** - Sites where birds are artificially breed, raised or kept for the purpose of charging persons for hunting, killing, taking, trapping, or capture of these birds by any means for human or animal consumption. Currently, only pheasants, quail, and red banded partridge are know to be maintained in game preserve farms in New Zealand (Pers comm R. Sowman, 2005).

**Highly pathogenic notifiable avian influenza (HPNAI)** - Influenza A viruses that have an intravenous pathogenicity index (IVPI) in 6 week-old chickens greater than 1.2 or, as an alternative, cause at least 75% mortality in 4 to 8 week old chickens infected intravenously; or Viral isolates of H5 and H7 subtype which do not have an IVPI of greater than 1.2 or cause less than 75% mortality in an intravenous lethality test, but on sequencing of the cleavage site of their hemagglutinin molecule (HA) have been determined to have an amino acid motif similar to that observed for other HPNAI isolates(OIE Code, 2005).

**Infected Place** - A place will have the disease status of Infected Place (IP) once the appropriate case definition ( Sec 2.1.3 for HPNAI) or ‘Infected Place – LPNAI’ (Sec 2.2.3 for LPNAI) has been met.

**Infected Zone** means a specific area within a controlled area. The Infected Zone is the largest area in which current evidence and analysis of transmission risks suggests Infected Places may be present (153 Standard). Note this definition differs from the definition of Infected Zone the OIE Code 2005.

**Key habitats** are sites of special importance where active management of threatened is taking place such as Mt Bruce, takahe on Maud Island, saddlebacks on Moturara Island, kaka at Nelson Lakes, etc.

**Low pathogenic notifiable avian influenza (LPNAI)** – means all influenza A viruses of H5 and H7 subtype that are not HPNAI viruses (OIE Code 2005).

**Measured response** – means a response in which the nature of the unwanted organism (slower spread) and/or associated lower impacts are such that commissioning and establishment of personnel resources and operations can observe a normal process of approvals, and response activities are expected to observe hours associated with a normal working day (153 Standard). For LPNAI, the measured response will be risk-based and tailored by the TAG and agreed by SAG to achieve MAF’s overall objective of phased eradication in commercial galliforms in New Zealand which are potential pre-cursors for HPNAI .

**Monitor response-** means monitor for productivity characteristics (eggs, weight gain) as well as morbidity/ mortality records in all categories including domestic and wild bird populations. Repeat laboratory testing

such as serology or swabbing may be required. Movement restrictions will be determined on a case-by-case basis.

**New Zealand Influenza Pandemic Action Plan** – Ministry of Health led response plan for pandemic influenza available at <http://www.moh.govt.nz/pandemic> [version 15 anticipated May 2006]

**Not-negative** A suspicious case where the possibility of an unwanted organism can not be ruled out (153 Standard) for HPNAI. For active surveillance for LPNAI, not negative means where a flock that has had one or more positive test results a screening tests. Historical infections and false positive results attributable to test specificity and sensitivity will be ruled out by follow-up testing and epidemiological assessment.

**Notifiable Avian Influenza (NAI)** - An infection of poultry caused by any influenza A virus of the H5 or H7 subtypes, or any avian influenza virus with an IVPI greater than 1.2 (or as an alternative at least 75% mortality in 4 to 8 week old chickens infected intravenously). NAI viruses can be divided into highly pathogenic notifiable avian influenza (HPNAI) and low pathogenicity notifiable avian influenza (LPNAI)(OIE Code 2005).

**Notifiable organism-** means an organism declared as such by the Governor-General by Order in Council (sec 45 of Biosecurity Act)

**Ostrich and Emu Standards Council (OESC)** - An industry representative whose role is to assist in the development and promotion of the ostrich farming industry in New Zealand; to provide technical support and training to members; to provide essential research and development for a growing industry; and to establish cooperative relationships with other growing international associations or organisations with compatible objectives.

**Other captive bird** means any bird other than poultry that is kept in captivity for any reason other than those designated in other categories including those that are kept for shows, races, exhibitions, competitions, breeding or selling (EU Draft AI Directive 15146/05);

**Phased eradication** means a structured programme of progressive elimination of LPNAI from specific compartments of categories of birds.

**Place** - means any building, conveyance, craft, land, or structure, and the bed and waters of the sea and any canal, lake, pond, river or stream: (Biosecurity Act 1993).

**Poultry** - Poultry is defined as ‘all birds reared or kept in captivity for the production of meat or eggs for consumption, for the production of other commercial products, for restocking supplies of game, or for breeding these categories of birds’(OIE Code 2005). This definition includes commercial and backyard poultry flocks, but excludes wild birds, and birds kept as pets, in aviaries, and zoos.

**Poultry Industry Association of New Zealand Inc. (PIANZ)** - Industry representative whose role is to promote and protect the interests of the integrated poultry meat companies and poultry livestock industries in New Zealand by liaison with Government and Government departments, securing full and proper representation on or before Boards. PIANZ currently represents chicken, turkey, quail, pheasant, and duck meat industry processors.

**Preventive vaccination-** means a long term measure where based on a risk assessment; certain categories of birds are at risk for exposure to avian influenza.

**Process slaughter** - means slaughter of animals for human consumption, transported under movement controls, at a processing plant.

**Processor-** means a primary processor or a secondary processor where “Process” includes kill, slaughter, dress, cut, extract, manufacture, pack, preserve, transport, and store an animal or animal product (Animal Products Act 1999).

**Recovery centre** - is any person (including a body corporate) authorised under section 53 of the Wildlife Act 1953 to temporarily hold species that are protected under that Act for treatment and/or rehabilitation.

**Report Case** - means a place where disease consistent with HPNAI is reported to the EDRC (Surveillance Group Manager) and field assessment by a patrol veterinarian is pending.

**Restricted Place-** means a regulatory status under s130 of the Biosecurity Act that primarily serves to allow movement controls and other restrictions or conditions to be applied to a place. It may be applied based on belief or suspicion. It does not explicitly provide a known health status.

**Risk goods** - means any organism, organic material, or other thing, or substance, that ..... constitutes, harbours, or contains an organism that may—(a) Cause unwanted harm to natural and physical resources or human health in New Zealand; or (b) Interfere with the diagnosis, management, or treatment, in New Zealand, of pests or unwanted organisms (Biosecurity Act PART I #2. Interpretation)

**Stamping-out policy** -means carrying out under the authority of the Veterinary Administration, on confirmation of a disease, the killing of the animals which are affected and those suspected of being affected in the herd or flock and, where appropriate, those in other herds or flocks which have been exposed to infection by direct animal to animal contact, or by indirect contact of a kind likely to cause the transmission of the causal pathogen. (OIE Code, 2005)

**Strain of avian influenza** -Different strains of Type A influenza virus subtypes exist. These vary genetically and more importantly antigenically as determined by the amino acid sequence, especially of the surface glycoproteins haemagglutinin (HA) or neuraminidase (NA). The amino acid sequence at the cleavage site of the HA precursor protein is the main contributor to the pathogenicity of the strain. Strains and isolates of influenza viruses are identified by the type, the species from which the virus was isolated, their geographic location, the reference number if any and their year of isolation. E.g. A/chicken/Scotland/59(H5N1); A/turkey/England/50-92/91(H5N1);A/HongKong/Scotland/97(H5N1); A/chicken/East Asia/2/2003(H5N1) (Pers comm D. Alexander, 2005).

**Subtype of avian influenza** -Type A influenza viruses are divided into subtypes based on the antigenic relationships on the surface glycoproteins, HA and NA. Each virus has one HA of 16 recognised to date (H1-H16) and one NA antigen, of the nine recognised to date (N1-N9) in any combination. E.g. H5N1, H7N7 (Pers comm D. Alexander, 2005).

**Tikanga Maori** - means knowledge of the Maori way of doing things (spiritual, cultural, physical etc) e.g. Maori protocol / **Taonga** - means treasure

**The Code** – means the OIE World Organisation for Animal Health, Terrestrial Animal Health Code, 14<sup>th</sup> Edition, 2005.

**Threatened** means birds classified as Acutely or Chronically Threatened according to Molloy et al 2002 (Molloy J. et al 2002: *Classifying Species According to Threat of Extinction*. Threatened Species Occasional Publication 22, Department of Conservation Wellington).

**Unwanted organism** –designated as such under the Biosecurity Act and means any organism that a Chief Technical Officer believes is capable or potentially capable of causing unwanted harm to any natural and physical resources or human health. <http://www.biosecurity.govt.nz/commercial-imports/unwanted-organisms-register->

**Wild bird** means a free-living bird not kept in captivity (EU Draft AI Directive 15146/05).

**Zoo** -means a containment facility approved to the Zoo Standard where live zoo animals are kept for the purposes of public exhibition, conservation or entertainment and includes, for example, a circus, butterfly house, aquarium and an oceanarium. A zoo may also hold indigenous animals that are not new organisms but these animals are not covered by this standard. It includes members of Australasian Regional Association of Zoological Parks and Aquaria (ARAZPA).

## Acronyms

<b>APA</b>	Animal Products Act
<b>ARAZPA</b>	Australasian Regional Association of Zoological Parks and Aquaria
<b>BA</b>	Biosecurity Act
<b>BNZ</b>	Biosecurity New Zealand (part of MAF)
<b>CTO</b>	Chief Technical Officer
<b>DOC</b>	Department of Conservation
<b>EDRC</b>	Exotic Disease Response Centre (defined in 153 Standards)
<b>EU</b>	European Union
<b>IDC</b>	Investigation and Diagnostic Centre (part of BNZ)
<b>MAF</b>	Ministry of Agriculture and Forestry
<b>MOH</b>	Ministry of Health
<b>NZFSA</b>	New Zealand Food Safety Authority (part of MAF)
<b>OIE</b>	Office Internationale des Epizooties (World Organisation for Animal Health)
<b>PIANZ</b>	Poultry Industry Association of New Zealand
<b>EPFNZ</b>	Egg Producers Federation of New Zealand
<b>S&amp;IR</b>	Surveillance and Incursion Response (part of BNZ)
<b>SAG</b>	Stakeholder Advisory Group
<b>TAG</b>	Technical Advisory Group