Ministry for Primary Industries
Manatū Ahu Matua

Review of Submissions

Draft Import Health Standard: Duck Meat and Duck Meat Products

Draft Import Risk Analysis: Chicken and Duck Meat for Human Consumption (October 2012)

Draft Risk Management Proposal: Duck Meat and Duck Meat Products

Draft Guidance Document: Duck Meat and Duck Meat Products

April 7 2014

Growing and Protecting New Zealand

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Standards Branch

REVIEW OF SUBMISSIONS

Duck meat and duck meat products

April 7 2014

Approved for general release

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1 Introduction

The draft Import Health Standard: Duck Meat and Duck Meat Products was notified for consultation on 9th October 2013. The consultation period closed on the 10th December 2013.

The Ministry for Primary Industries (MPI) received submissions from the following:

- **European Union** 10th December 2013

- **Poultry Industry Association of New Zealand, Inc. (PIANZ)**
  Kerry Mulqueen 10th December 2013

This document summarises the issues raised in the submissions, and presents the MPI response to each.

2 Acronyms used in the document

AI	avian influenza	IRA	import risk analysis
APMV	avian paramyxovirus	LPAI	low pathogenicity avian influenza
Code	OIE Terrestrial Animal Health Code	MPI	Ministry for Primary Industries
CTO	Chief Technical Officer	NAI	notifiable avian Influenza
DHV	duck hepatitis virus	NAIV	notifiable avian influenza virus
DVE	duck virus enteritis	ND	Newcastle disease
HEPA	high-efficiency particulate air	NDV	Newcastle disease virus
HACCP	Hazard Analysis and Critical Control Point	OIE	World Organisation for Animal Health
ELISA	enzyme-linked immunosorbent assay	ORT	*Ornithobacterium rhinotracheale*
HPAI	high pathogenicity avian influenza	PAQ	post arrival quarantine
ICPI	intracerebral pathogenicity index	PCR	polymerase chain reaction
IDC	Investigation and Diagnostic Centre	RMP	risk management proposal
IHS	import health standard	SPS	sanitary and phyto-sanitary measures
		WTO	World Trade Organisation

3 Summary of amendments

As a result of comments made, the following is a summary of amendments made to the Import Health Standard: Duck Meat and Duck Meat Products

- Section 2.4 – the wording in clause 2.4.1. has been amended from:

  The product for export must be derived from flocks kept since hatching in a country recognised by the Competent Authority as free of DHV; or

  to:

  The product for export must be derived from flocks kept since hatching in a country recognised by the Competent Authority as free of duck virus hepatitis; or

- Section 2.4.2.a. – the wording has been amended from:

  Kept since hatching in an establishment managed in accordance with the Code Chapter for biosecurity procedures in poultry that is free of DHV; and

  to:

  Kept since hatching in an establishment managed in accordance with the Code Chapter for biosecurity procedures in poultry where duck virus hepatitis has not been recognised; and

Copies of all external stakeholder submissions in their entirety are presented in Appendix 1.

4 Other amendments

The following changes have been made to the documents. These changes are the result of MPI's own further consideration of the documents:

Changes to IHS

- Renaming of appendices to schedules
- Definitions: added for meat and meat products. Clarification of production cycle definition. Addition of the web link to legislation for definitions contained in the Biosecurity Act 1993.
- Rewording of clause 2, Schedule 2, clarifying the Competent Authority must have verified or approved the effectiveness of the HACCP programme and GMP
- Schedule 3 – extension to include requirements for approved zones, in addition to compartments.
- Expansion of the acronym ICPI in clause 2.1 (2) b).
- Amendments to the wording for certification requirements in section 1.10 to clarify.
- Minor rewording in all of Part 1 for clarity of requirements.
- Section 1.7. – Diagnostic testing and vaccination – the wording has been amended to remove the OIE prescribed testing as this may be phased out by the OIE, instead all diagnostic tests and vaccines must be listed in the MPI document Approved Diagnostic Tests, Vaccines, Treatments and Post-Arrival Testing Laboratories for Animal Import Health Standards (MPI-STD-TVTL). This may reference testing described in the OIE Manual. The guidance document has been amended accordingly.
- General editing to formatting

Changes to Risk Management Proposal

- Editorial and formatting changes
- Changes to reflect those made to the IHS above.

Changes to Guidance document

- Minor changes to formatting and changes corresponding to those listed for the IHS.

5 Review of submissions

5.1 EU comments to the import health standard notified in document G/SPS/N/NZL/482

5.1.1 Avian paramyxovirus-2 (APVM-2)

The actual presence of APMV-2 virus in domestic duck meat is not supported by scientific evidence since literature has not reported the isolation of that virus from domestic or wild ducks[1]. The EU is therefore of the opinion that the proposed requirements in point (2) are not justified.

MPI Response

The October 2012 Import Risk Analysis: Chicken and Duck Meat for Human Consumption (the risk analysis) acknowledges that there is limited information concerning the epidemiology of avian paramyxoviruses other than APMV-1 (Alexander 2000). However, given the similarities between APMV-1 and other avian paramyxoviruses in infection and replication, it has been suggested that the same mechanisms of introduction and spread would apply (Alexander 2000).

As discussed in the risk analysis, APMV-2 has been recovered from both chickens and ducks (Lipkind *et al*. 1982; Goodman and Hanson 1988; Shihmanter *et al*. 1997). Although infected tissues would be limited to remnants of respiratory or intestinal tissues remaining in carcases after processing, the introduction of APMV-2 in the commodity would be associated with non-negligible consequences to the New Zealand poultry industries and wildlife.

Alexander DJ (2000). Newcastle disease and other avian paramyxoviruses. Revue Scientifique et Technique 19, 443-462.

Goodman BB, Hanson RP (1988). Isolation of avian paramyxovirus-2 from domestic and wild birds in Costa Rica. Avian Diseases 32, 713-717.

Lipkind MA, Weisman Y, Shihmanter E, Shoham D, Aronovici A (1982). Isolation of Yucaipa-like avian parmyxovirus from a wild mallard duck (Anas platyrhynchos) wintering in Israel. Veterinary Record 110, 15-16.

Shihmanter E, Weisman Y, Manwell R, Alexander D, Lipkind M (1997). Mixed paramyxovirus infection of wild and domestic birds in Israel. Veterinary Microbiology 58, 73-78.

5.1.2 Duck hepatitis virus (DHV)

It appears that the draft standard refers to DHV as targeting virus infection, instead of referring to DHV as targeting signs of the disease. The EU would like to ask for clarification to be provided on this, because there are at least three viruses which are concerned that are quite different: DHV type I (Picomaviridae Avihepatovirus), type II (astrovirus), type III (duck astrovirus type 2). These will be referred to respectively as DHV I, DHV II, DHV III.

DHV II has been detected in the EU only in the UK and has not been reported in the EU since 1984; whereas DHV III has only ever been detected in the US[2]. Consequently, it is the EU's view that these two viruses should be excluded from the requirements of New Zealand's IHS as long as the epidemiological

[1] Diseases of Poultry (13th edition =2013) D.E. Swayne et al Edts, Willey Blackwell publishing p. 90, 107-112,130-133, 417. Scopus data base examined on 7 November 2013 using as key words avian paramyxovirus (es)and duck and screening for all years.

[2] Diseases of Poultry (13th edition = 2013) D.E. Swayne et al Edts, Willey Blackwell publishing p. 422-431

situation remains as it is at present. Insofar as DHV I is concerned, given that DHV I serology is based on virus neutralisation tests, it cannot be used routinely[3].

It does not seem feasible therefore to comply with point (1) and point (2) a). The EU suggests to bring the wording in line with the one used for Duck viral enteritis (DVE) and Derzsy's disease and would propose to change the wording of point (1) to "*recognised by the Competent Authority as free of duck virus hepatitis"* and of point (2) b) to "*poultry where duck viral hepatitis has not been recognised*".

In conclusion, the EU believes that there is no scientific justification to deal with Duck viral hepatitis differently from DVE and Derzsy's disease, for which imports shall be accepted, provided the meat is derived from poultry free of disease. Laboratory testing requirements should therefore not be considered.

Requirements for the use of authorised vaccines (listed in the MPI document) will be difficult to achieve and information on the DHV I vaccine may not satisfy MPI. A first generation attenuated vaccine is used (not a DIVA vaccine) and it does not allow to distinguish vaccinated ducks from infected ones, as required in Chapter 6 p. 3. of the risk management proposal. However, e.g. in France only Peking breeders ducks are vaccinated (whatever the derived duckling).

MPI Response

MPI will consider a country's disease status at the time of veterinary certificate negotiation, and subsequently approve a certificate appropriate to the exporting country's disease status. MPI notes the points regarding description of the disease status of birds compared with virus status and will change the wording accordingly in the standard in line with the recommendations for Derzsy's disease and DVE.

If the requirements for vaccination cannot be met with the vaccines currently available, then the negotiated certificates will require that the birds for slaughter have not been vaccinated. The vaccination option will remain in the IHS in case of future vaccine or testing developments that could meet the vaccination requirements.

5.1.3 Duck virus enteritis (DVE) virus

Despite that fact that the EU is aware that vaccines against DVE are not routinely used, the EU would like to submit the same comments as for point 3.4. above regarding DHV.

MPI Response

If the requirements for vaccination cannot be met with the vaccines currently available, then the negotiated certificates will require that the birds for slaughter have not been vaccinated. The vaccination option will remain in the IHS in case of future vaccine or testing developments that could meet the vaccination requirements.

5.1.4 Derzsy's disease virus

Despite that fact that the EU is aware that vaccines against DVE are not routinely used, the EU would like to submit the same comments as for point 3.4. above regarding DHV. In addition, Chapter 7.6. point 2.4. of the risk management proposal proposes allowing only the use of inactivated vaccines which means that attenuated vaccines may not be authorised. This does not correspond to the state of the art vaccination schedule routinely applied for Muscovy ducks and their hybrids which cannot be changed.

[3] OIE Terrestrial Manual for diagnostic and vaccines (access on line) chapter 2.3.8 (version adopted in May 2012)

MPI Response

If the requirements for vaccination cannot be met with the vaccines currently available, then the negotiated certificates will require that the birds for slaughter have not been vaccinated. The vaccination option will remain in the IHS in case of future vaccine or testing developments that could meet the vaccination requirements.

5.2 Kerry Mulqueen, PIANZ

5.2.1 HPAI in Poultry

PIANZ notes the new requirements for avian influenza in the OIE Terrestrial Code section 10.4 dated October 2013:

Article 10.4.19.

Recommendations for importation from a country, zone or compartment free from avian influenza or free from infection with high pathogenicity avian influenza viruses in poultry
For fresh meat of poultry
Veterinary Authorities should require the presentation of an international veterinary certificate attesting that the entire consignment of fresh meat comes from poultry:

1. *which have been kept in a country, zone or compartment free from infection with high pathogenicity avian influenza viruses in poultry since they were hatched or for at least the past 21 days;*
2. *which have been slaughtered in an approved abattoir in a country, zone or compartment free from infection with high pathogenicity avian influenza viruses in poultry and have been subjected to ante- and post-mortem inspections in accordance with Chapter 6.2. and have been found free of any signs suggestive of avian influenza.*

Article 10.4.20.

Recommendations for the importation of meat products of poultry
Regardless of the avian influenza status of the country of origin, Veterinary Authorities should require the presentation of an international veterinary certificate attesting that:

1. *the commodity is derived from fresh meat which meet the requirements of Article 10.4.19.; or*
2. *the commodity has been processed to ensure the destruction of avian influenza virus in accordance with Article 10.4.26.;*
   AND
3. *the necessary precautions were taken to avoid contact of the commodity with any source of avian influenza virus.*

PIANZ notes the numerous published references that AI in ducks can be a subclinical infection and thus the movement of AI viruses in meats is considered an unquantified risk in duck meat from ducks of unknown AI health status.

- The OIE reports that HPAIV can be subclinical in ducks:
  "Several sublineages /strains of HPAIV H5N1 cause productive but subclinical infections in domestic ducks. These hosts serve as motors for the perpetuation of the virus in poultry populations.
  http://www.oie.int/fileadmin/Home/eng/Animal_Health_in_the_World/docs/pdf/AVIAN_INFLUENZA_FINAL.pdf"
  "If the H5N1 virus can persist in apparently healthy domestic duck and geese populations, then countries need to urgently reinforce their surveillance schemes in all regions with significant duck and geese production," FAO's Chief Veterinary Officer Joseph Domenech said. Healthy

domestic ducks and geese may transmit the virus to chickens, and play a more important role in the persistence of the virus in the region than previously thought, the agency said, stressing that H5N1 surveillance need to be increased immediately.

FAO's warning followed the detection of H5N1 in diseased young domestic ducks by German scientists.

- Ducks infected with HPAI and excreting the virus may not show any clinical signs or lesions:

http://www.oie.int/fileadmin/Home/eng/Animal_Health_in_the_World/docs/pdf/AVIAN_INFLUENZA_FINAL.pdf
Given the OIE report that this agent is subclinical in ducks, and the requirement in OIE Code, Article 10.4.2 that surveillance relies on:
"appropriate surveillance being in place to demonstrate the presence of infection in the absence of clinical signs in poultry"
the absence of clinical signs in ducks does not lead to an efficient and effective passive surveillance-based system and the reliance of signs or the absence of signs at processing is not an effective step for ducks. This is noted by the OIE in the revised chapter and also noted in correspondence from MPI Animal Exports to the NZ Poultry industry.

The reliance that ducks with AI viruses will not be processed and that GMP will remove affected birds is not considered a reliable risk mitigation step in a disease that is subclinical.

PIANZ also notes that the duck meat trade has been the vehicle for the transfer of AI viruses from one country to another.

PIANZ can find no published reports of ongoing surveillance of ducks for AI in any OIE member country.

The presence and number of virus particles present is thought to vary across the individual AI strains and thus present an unknown risk in the meat products. The status of the duck's health and its previous vaccination history will also affect virus loading.

Given that OIE requirements mention both active and passive surveillance – and that the active surveillance is at least six-monthly – and given that MPI approves plans for a not stated period, PIANZ is concerned that a method of surveillance for ensuring that countries are meeting OIE Code requirements on a six-monthly basis must be in place.

PIANZ believes further that the credibility of exporting countries to certify that they have the ability to certify a country/zone/compartment free from AI in commercial ducks needs to be carefully assessed.

PIANZ therefore requests that MPI reviews the ability of exporting countries to declare freedoms from HPAI or AI while not actively surveying commercial duck populations for the presence of AI viruses. An active surveillance component must complement the total surveillance system.

MPI Response

In the negotiation of individual country export certificates MPI will assess how the exporting country intends to meet the OIE Terrestrial Animal Health Code (*Code*) surveillance requirements. It is noted that the *Code* requires active surveillance at least 6 monthly, and that ducks may not show clinical signs of disease. MPI expects the exporting country will submit evidence of how it will address these points as part of the country assessment process.

Whilst MPI requires that the ducks are inspected ante-mortem and post-mortem under the supervision of an Official Veterinarian this is a general measure and is not the only measure imposed for avian influenza. The IHS requires the birds to be sourced from a country, zone or compartment free of highly pathogenic avian influenza or heat treated sufficiently to inactivate avian influenza viruses, as described in the *Code*.

The rationales for the options selected for the IHS are further discussed in the risk analysis and the risk management proposal.

5.2.2 LPAI in Ducks

Countries are required to notify the OIE of AI that is an H5 or an H7 type. Poultry meat from a flock which is not HPAI is a tradable item in terms of the NZ IHS for Duck Meats. If a country is prepared to apply different procedures for its domestic market, e.g. depopulate by euthanasia, but then be able to process and export the poultry meat without MPI or consumer knowledge, then the risk the exporting country perceives, and will not accept, becomes a risk for the poultry industry in the country the product is exported too.

This significant market issue, AI in poultry meats, is then left with the importing country to deal with.

PIANZ believes it is unacceptable to trade in meat from flocks with LPAI.

MPI Response

The risk analysis discusses the potential for transmission of LPAI in meat.

> *Studies have shown that there is a negligible likelihood of LPAI transmission to susceptible birds by feeding meat derived from an infected bird. Following natural infection, LPAI virus replication is limited mainly to the respiratory tract tissues although some infectivity might be associated with the pancreas, kidneys and reproductive tract. Notwithstanding the likelihood that some respiratory tract tissues may be present in imported duck carcases, given the wide range of LPAI viruses that have been described in New Zealand, LPAI is not identified as a potential hazard in imported chicken or duck meat.*

5.2.3 Avian paramyxovirus (AMPV-1) Newcastle Disease (NDV)

The OIE Code has the following recommendations for the trade in poultry meats

Article 10.9.14.

Recommendations for importation from an Newcastle disease free country, zone or compartment

For fresh meat of poultry

Veterinary Authorities should require the presentation of an international veterinary certificate attesting that the entire consignment of fresh meat comes from poultry:

1. *which have been kept in an ND free country, zone or compartment since they were hatched or for at least the past 21 days;*
2. *which have been slaughtered in an approved abattoir in an ND free country, zone or compartment and have been subjected to ante- and post-mortem inspections in accordance with Chapter 6.2. and have been found free of any sign suggestive of ND.*

Article 10.9.15.

Recommendations for importation of meat products of poultry

Veterinary Authorities should require the presentation of an international veterinary certificate attesting that:

1. *the commodity is derived from fresh meat which meet the requirements of Article 10.9.14.; or*
2. *the commodity has been processed to ensure the destruction of NDV in accordance with Article 10.9.21.;*

AND

3. *the necessary precautions were taken to avoid contact of the commodity with any source of NDV.*

PIANZ notes that the OIE Code recommendations differ from the MPI provisional IHS dated October 2013 in that the MPI document has a vaccination option.

Given that this option for trade in poultry meats is not included in the IOE Code, PIANZ wonders why it is being offered by MPI.

MPI has mentioned to PIANZ that the OIE Code conditions, if they exist, are what MPI will use in Import Health Standards.

MPI Response

MPI has based the IHS measures on the OIE *Code* recommendations for Newcastle disease virus. The information regarding vaccination is additional to the *Code* requirements, providing further context around vaccination that New Zealand would accept. Whilst it is not explicitly stated in the *Code* that vaccination is acceptable in the recommendations for importation of fresh meat and meat products of poultry, the surveillance measures in the *Code* required to demonstrate freedom clearly do allow vaccine use.

Article 10.9.25 of the *Code (2013)* states:

> *A Member Country declaring freedom of a country, zone or compartment (with or without vaccination) should report the results of a surveillance programme in which the ND susceptible poultry population undergoes regular surveillance planned and implemented according to the general conditions and methods described in these recommendations.*
>
> 1. *Member Countries declaring freedom from Newcastle disease for the country, zone or compartment*
>
> *In addition to the general conditions described in the Terrestrial Code, a Member Country declaring freedom from ND for the entire country, or a zone or a compartment should provide evidence for the existence of an effective surveillance programme. The surveillance programme should be planned and implemented according to general conditions and methods described in this chapter to demonstrate absence of NDV infection in poultry during the preceding 12 months.*
>
> 2. *Additional requirements for countries, zones or compartments that practice vaccination*
>
> *Vaccination against ND may be used as a component of a disease prevention and control programme.*
>
> *In vaccinated populations there is a need to perform surveillance to ensure the absence of NDV circulation. The use of sentinel poultry may provide further confidence of the absence of virus circulation. The surveillance should be repeated at least every six months or at shorter intervals according to the risk in the country, zone or compartment, or evidence to show the effectiveness of the vaccination programme is regularly provided.*

Because of this MPI has stipulated the maximum intra-cerebral pathogenicity index (ICPI) of the master seed of the vaccine to be used. This is an additional measure to the *Code* recommendations, which has been included to avoid the risk of introducing a vaccine strain of APMV-1 with an ICPI higher than is already present in New Zealand. This is further discussed in the risk management proposal and the risk analysis.

5.2.4 Suppression of disease by vaccination

The IHS is written in such a manner that if birds are vaccinated as per the IHS for NDV, then notification of NDV is not required even if there is NDV isolated in the export flock.

Given that NVD wild strains can be present in vaccinated birds (but due to the vaccination no clinical signs are present), or if the mortality is not excessive enough to initiate an investigation (in Denmark, the desire

to not use antibiotics can result in mortalities of up to 7% in some flocks), then there may be no investigation into this mortality. (World poultry.net/broilers/markets-Trade/2013/7/Danish-broiler-sector-off.)

Vaccination does not provide 100% protection against infection with a disease agent, and vaccinated birds may still become infected with the virus and shed the virus in certain conditions, e.g. the level of exposure to the virus. Moreover, vaccination may mask an outbreak of the disease, thereby delaying detection and increasing the risk of it spreading. If the vaccination is not properly applied, and proper surveillance is not carried out, the avian viruses (NDV) may continue to circulate within a vaccinated flock between incompletely immunised birds, albeit with a lower mortality and morbidity rate.

Thus the use of NDV vaccines applied to poultry destined for export in exporting countries – presuming they are vaccinated to stop ND viral infections because they are present in the local poultry population – could disguise a more virulent form of NDV present in the flock. The mere presence of vaccinated birds makes the surveillance by passive means very difficult.

It should be noted, however, that despite intensive vaccination with current vaccines creating high levels of antibody titres, virus can still be recovered from mucous surfaces.

The omnipresence of lentogenic NDV strains in birds in most countries and the almost universal use of live vaccines that cannot be distinguished, at least not serologically from wild-type NDV, means that the mere demonstration of infection is rarely an adequate cause for control measures to be imposed.

Since field disease may be an unreliable measure of the true virulence of the virus, it is necessary to further characterise the virus that is found.

The potential for silent infections and subclinical shedding of the virus and the difficulty in identifying infections in a vaccinated population is not addressed in the draft IHS.

Animal Health Australia reports that the extreme variation in virulence between strains of ND virus, the widespread, but variable occurrence of low pathogenicity strains in Australia and the use of live virus vaccines mean that the isolation of ND virus from a bird showing clinical signs of ND does not confirm a diagnosis of ND. An estimate of the virulence of the isolate is therefore required to differentiate between vaccine, endemic avirulent, Australian-origin virulent and exotic virulent strains.

http://www.animalhealthaustralia.com.au/wp-content/uploads/2011/04/ND3-2-21FINAL2May11.pdf

Surveillance for avirulent Newcastle disease viruses in domestic ducks (Anas platyrhynchos and Cairina moschata) at live bird markets in Eastern China and characterization of the viruses isolated.

Liu X, Wang X, Wu S, Hu S, Peng Y, Xue F, Liu X.

Experimental infections of Newcastle disease virus (NDV) strains of different avian origin and different virulence in mallard (Anas platyrhynchos) ducklings were undertaken to evaluate infectivity and pathogenicity of NDV for ducks and the potential role of ducks in the epidemiology of Newcastle disease (ND). Ducklings were experimentally infected with seven NDV strains, and their clinical sign, weight gain, antibody response, virus shedding, and virus distribution in tissues were investigated. The duck origin virulent strain duck/Jiangsu/JSD0812/2008 (JSD0812) and the Chinese standard virulent strain F48E8 were highly pathogenic for ducklings. They caused high morbidity and mortality, and they distributed extensively in various tissues of infected ducklings. Other strains, including pigeon origin virulent strain pigeon/Jiangsu/JSP0204/2002 (JSP0204), chicken origin virulent strain chicken/Jiangsu/JSC0804/2008 (JSC0804), goose origin virulent goose/Jiangsu/JSG0210/2002 (JSG0210), and vaccine strains Mukteswar and LaSota had no pathogenicity to ducklings. They produced neither clinical signs of the disease nor adverse effect on growth of infected ducklings, and they persisted in duck bodies for only a short period. Virus shedding was detectable in all infected ducklings, but its period and route varied with the virulence of NDV strains. The results suggest that NDV with high pathogenicity in ducks may arise from the evolution within its corresponding host, further confirming that the ducks play an important role in the epidemiology of ND.

Avian Diseases 57(1):8-14. 2013
doi: http://dx.doi.org/10.1637/10298-070212-Reg.1

The reference above clearly shows that the domestic duck population carries avirulent NDVs with genetic divergence with little clinical sign regularly and may act as one of the important reservoirs.

PIANZ requests that MPI should follow the OIE Code for the trade in poultry meats Article 10.9.14 and 10.9.17 and not allow the use of vaccines for NDV in poultry that will provide meats for export to NZ.

MPI Response

The risk analysis discusses the use of vaccines as follows:

> *Live vaccines derived from low virulence (lentogenic) APMV-1 strains and moderately virulent (mesogenic) APMV-1 strains are used to vaccinate poultry against ND. Inactivated vaccines are also used (Alexander 2008). Mesogenic vaccine viruses (used primarily in countries where ND is endemic) all have two pairs of basic amino acids at their F0 cleavage site and ICPI values around 1.4 so these strains are classified as NDV under OIE criteria (Alexander 2008). Vaccination may protect birds exposed to pathogenic virus from clinical disease but it does not prevent infection and subsequent viral excretion (Parede and Young 1990; Alexander* et al*. 1999), and pathogenic virus may still be recovered from the muscle of infected birds (Guittet* et al*. 1993).*
> *Article 10.9.25 of the Code makes provisions for the recognition of ND-freedom in countries, zones, or compartments that practise vaccination against NDV. New Zealand could recognise APMV-1 freedom in a country, zone, or compartment practising vaccination using a lentogenic virus strain with an ICPI < 0.7 or an inactivated APMV-1 vaccine. Vaccine strains with an ICPI ≥ 0.7 would be unsuitable for use in flocks destined for New Zealand.*

The rationale for providing a vaccination option is discussed in section 5.2.3 above. MPI notes that ducks may show no clinical signs of ND and that vaccinated birds may be infected without showing clinical signs. Vaccination is not offered as a standalone measure to prevent infection with ND. Birds must be sourced from a country, zone or compartment free of ND, where the *Code* surveillance measures are met. Where vaccination is used, the requirements of the *Code's* Article 10.9.25 "Documentation of Newcastle disease free status: additional surveillance procedures", must be met:

> *A Member Country declaring freedom of a country, zone or compartment (with or without vaccination) should report the results of a surveillance programme in which the ND susceptible poultry population undergoes regular surveillance planned and implemented according to the general conditions and methods described in these recommendations.*
>
> 1. *Member Countries declaring freedom from Newcastle disease for the country, zone or compartment*
>
>   *In addition to the general conditions described in the Terrestrial Code, a Member Country declaring freedom from ND for the entire country, or a zone or a compartment should provide evidence for the existence of an effective surveillance programme. The surveillance programme should be planned and implemented according to general conditions and methods described in this chapter to demonstrate absence of NDV infection in poultry during the preceding 12 months.*
> 2. *Additional requirements for countries, zones or compartments that practice vaccination*
>
>   *Vaccination against ND may be used as a component of a disease prevention and control programme.*
>
> ***In vaccinated populations there is a need to perform surveillance to ensure the absence of NDV circulation**. The use of sentinel poultry may provide further confidence of the absence of virus circulation. **The surveillance should be repeated at least every six months or at shorter intervals according to the risk in the country, zone or compartment, or evidence to show the effectiveness of the vaccination programme is regularly provided**.*

As noted in the *Code* (bold text above), where vaccination is used, the Competent Authority must have an effective surveillance strategy in place to demonstrate freedom from circulating virus. This would be considered by MPI during production system outline and country evaluation. MPI has the option to undertake an audit of the surveillance system as part of the production system outline at any time.

5.2.5 Hemagglutinating Agent Notification

PIANZ notes that there is no requirement for exporting countries to notify OIE and MPI of the isolation of any hemagglutinating virus found in the exporting flocks if it is not a H5 or H7 HPAI.

Given that hemagglutinating virus (HA) classification covers AI, NDV and AMPV-2, PIANZ believes this information should be supplied to MPI by the exporting country if any positives are found.

These viruses that are isolated in an overseas country are likely to be of a different linage and different pathogenicity to those present in New Zealand and a potential risk to NZ avian populations.

PIANZ considers an export flock should be shown to be free of the following hemagglutinating viruses:

- Newcastle Disease virus
- Avian Influenza virus (all types)
- APMV-2

Any HA virus isolation or molecular test positive will make the poultry meat ineligible for export to NZ. Importing meat with LPAI virus should not be acceptable.

The reliance within the IHS that poultry with subclinical disease will not be processed and that GMP will remove affected birds is not considered a reliable risk mitigation step for a disease that is subclinical or not investigated.

GMP does not recognise subclinical disease.

PIANZ believes that as part of export eligibility, access to flock data to ensure that mortality in a shed destined for export is investigated and causes are determined is a critical risk mitigation step. To ensure that this is a requirement it should be placed in the IHS.

Given that the vaccination can mask infection, PIANZ is concerned that the IHS allows vaccination in poultry eligible to supply poultry meats for export to NZ. This differs from the OIE Code guidelines.

MPI Response

Schedule 2 of the IHS includes a requirement for a production system outline endorsed by the Competent Authority of the exporting country that is to the satisfaction of the CTO. The production system outline must provide specific detail of the duck farm health monitoring and surveillance programmes/systems for risk organisms to meet the requirements in the IHS. In issuing this IHS, the CTO considers that the measures in the IHS provide effective management of these risks.

The *Code* defines Newcastle disease, and MPI has further stipulated that it will not accept meat from birds that have been vaccinated with a vaccine where the master seed strain has a higher ICPI than strains of APVM-1 present in New Zealand. The risk analysis states New Zealand has apathogenic and mildly pathogenic (ICPI<0.2) strains of APMV-1 present. All APMV-1 isolates recovered in New Zealand have been shown to have an ICPI< 0.7.This is further discussed in the RMP.

As discussed in point 5.2.4 above, the *Code* provides recommendations for declaring ND freedom when vaccination is used.

The same principles are applied when vaccination against avian influenza has been used. The *Code* chapter for avian influenza, Article 10.4.30 provides surveillance recommendations for demonstrating freedom from avian influenza when vaccination is used.

> *Additional requirements for countries, zones or compartments that practise vaccination*
>
> *Vaccination to prevent the transmission of high pathogenicity avian influenza virus may be part of a disease control programme. The level of flock immunity required to prevent transmission will depend on the flock size, composition (e.g. species) and density of the susceptible poultry population. It is therefore impossible to be prescriptive. Based on the epidemiology of avian influenza in the country, zone or compartment, it may be that a decision is reached to vaccinate only certain species or other poultry subpopulations.*
>
> *In all vaccinated flocks there is a need to perform virological and serological tests to ensure the absence of virus circulation. The use of sentinel poultry may provide further confidence of the absence of virus circulation. The tests have to be repeated at least every six months or at shorter intervals according to the risk in the country, zone or compartment.*
>
> *Evidence to show the effectiveness of the vaccination programme should also be provided.*

The risk analysis also discusses the evidence that there are low pathogenicity influenza A viruses[4], including those considered avian influenza[5] by the OIE circulating in New Zealand's wild bird population.

As a member country of the World Trade Organisation (WTO), New Zealand must abide by the rules set out in the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS). Under this agreement member countries "must ensure that their sanitary and phytosanitary measures do not arbitrarily or unjustifiably discriminate between Members where identical or similar conditions prevail, including between their own territory and that of other Members." Consequently, measures cannot be imposed for all strains of haemaglutinating viruses, including APMV-1 or influenza A viruses as New Zealand has strains of these viruses present.

For further discussion of APVM-2 see response 5.2.6.

5.2.6 APMV2

PIANZ is concerned that a sample testing option is being offered.

The incubation period for the AMPV viruses is considered to be 21 days.

This does not address the window of opportunity that is present post testing for APMV2 to infect birds and thus be present in the imported poultry meats.

This sampling at the point of slaughter does not provide the same degree of risk mitigation that a country, zone or compartment provides.

PIANZ again requests that country/zone/compartment freedom or cooking be the minimum requirement for import of poultry meats into NZ.

The OIE is clearly guiding trade toward freedom from disease within a country, zone or compartment based on surveillance. MPI is offering sampling as a means of trade.

[4] Formerly designated low pathogenic avian influenza (LPAI) viruses by the OIE
[5] Formerly classified as low pathogenic notifiable avian influenza by the OIE

PIANZ's view is that the use of sampling and testing is a part of a surveillance programme, not a replacement for a surveillance system.

PIANZ believes that APMV2 should be dealt with by the establishment of country, zone or compartment freedom along the guidelines established by the OIE for AMPV1.

MPI Response

APMV 2-9 are not OIE listed and there are no measures for international trade provided in the *Code*. The risk analysis discusses the rationale for including measures for APVM 2-9 in the IHS. One of the options presented is testing at slaughter; consequently there is no window of opportunity for infection post-testing. Approved tests would most likely require virus isolation methods rather than serology so there is no window of opportunity for infected birds that have not sero-converted to be tested negative for export.

5.2.7 *S. Arizonae*, *Salmonella* pullorum/gallinarium/typhimurium

The OIE Code 6.5 addresses the control of salmonella in poultry, live birds and fertile eggs.

It has within its guidelines words such as "should be sampled", not "must be sampled" when applied to poultry for the production of meat. (Clause 4.C)

It allows for the processing of Salmonella-infected flocks with clauses like "should be" and "control measures may be implemented".

Given that the Code offers the potential for not doing anything with a positive flock, can the risk requirements set out in the IHS deliver the desired risk mitigation reduction steps?

Again in the IHS there is provision for within 7-day testing which could also allow late infections to miss detection. PIANZ does not support within 7-day testing as a risk mitigation step.

PIANZ is also unsure that if a Salmonella pullorum/gallinarium or any salmonella species is detected that this will be reported to MPI.

Given that the sample size and media, with or without enrichment (tetrathionate was historically the selective medium of choice for S. arizonae) used to detect Salmonella can have a marked ability on the detection rate, PIANZ is of the view that every effort must be made to ensure that detection is optimum.

Poultry laboratories in NZ regularly detect Salmonella species in rendered products that are certified Salmonella-free by the producers of the rendered products.

It is in the interest of the poultry companies to detect these Salmonellas. The simple doubling of sample size can have a marked effect of recovery on Salmonella. PIANZ asks whether PCR options will be considered as a better laboratory test for Salmonella?

These Salmonella are considered a risk organism in hatching eggs but then fail to be considered a risk in imported poultry meats that originate from a sector of the industry where biosecurity is less stringent and the multiplication of Salmonellae is more common.

The recent experience in the USA of an epornitic of Salmonella enteritidis in commercial broilers is reported below. It is noted that these birds would still be eligible for export to New Zealand as the IRA and IHS do not consider there is any risk in this meat being exported to NZ.

> *Early mortality was high on affected broiler farms and morbidity and excess mortality became chronic in many houses with lameness, stunting and septicemia observed. Breeder flock tracebacks revealed that affected broilers were initially from a common group of young breeder*

flocks, ultimately expanding to include 28 breeder flocks placed over a five-month time period. Typical gross lesions of SE were observed in broilers while implicated hen flocks remained asymptomatic and tested negative via boot swab surveillance for SE. Antibiotics were administered to SE-positive breeder and broiler flocks to mitigate economic losses. An epidemiologic investigation was unable to determine a common source of SE contamination of SE positive breeder flocks.

2013 AAAP Scientific Program Proceedings.p35.
An epornitic of *Salmonella enteriditis* (SE) causing clinical disease in commercial broilers
G. Donald Ritter, DVM,ACPV
Mountaire Farms Inc. PO Box 1320Millsboro, DE 19966
dritter@mountaire.com

PIANZ is concerned that S.pullorum, S. gallinarium, S. enteritidis and S.typhimurium are not included in the IHS.

The reliance of GMP to control these Salmonellae is not considered by PIANZ as an adequate risk mitigation measure.

Again MPI is offering end-point testing of flocks as an equivalent to country, zone or compartment freedom.

PIANZ believes that the import of poultry meats from exporting countries should be subject to the same regulatory controls as placed on the NZ Industry for Salmonellae species.

MPI Response

The *Code* contains recommendations rather than legal requirements like the IHS, so uses the terminology "should" rather than "must" throughout. Whilst this theoretically creates the possibility for the exporting country's Competent Authority to certify the production system met the *Code* without implementing any measures, this would not be to the satisfaction of MPI when the production system outline is evaluated. It is necessary for the Competent Authority to demonstrate to MPI how they meet the *Code's* recommendations.

The IHS released for public consultation does not include the option of testing within the 7 days prior to slaughter. The option presented for testing requires the testing to be undertaken at slaughter by a test listed in MPI-STD-TVTL. MPI will consider the tests for approval, with consideration of the potential for birds carrying infection to go undetected. When submitting a test to MPI for approval the Competent Authority must provide details such as the sensitivity, specificity, testing methodology and validation in the species tested. This information will be reviewed by laboratory testing experts at MPI's Investigation and Diagnostic Centre (IDC).

PIANZ notes that there were measures for *S*.pullorum, *S*. gallinarium, *S*. enteritidis and *S*. typhimurium included in the IHS for hatching eggs, but they have not been included for duck meat. MPI noted specifically in the risk management proposal for hatching eggs of poultry and specific-pathogen-free eggs that measures for these organisms had been included due to the direct pathway to the poultry industry that hatching eggs presented. The risk analysis concluded that no risk mitigation measures are required for these organisms.

MPI notes that PIANZ believes that the import of poultry meats from exporting countries should be subject to the same regulatory controls as placed on the NZ Industry for Salmonellae species.

5.2.8 DVH

DVH is a disease that affects young ducks. It is reported to have run its course by day 10 of age and thus a risk mitigation step of no clinical disease at day of slaughter is of little use.

However, it is reported that in ducks 4-5 weeks of age, morbidity and mortality are low or negligible. Reus (1959) quoted by *Diseases of Poultry* (ref 97) notes that recovered ducks can excrete virus for up to 8 weeks.

Thus ducks that may have had DVH and have recovered may be presented for slaughter and be processed for export.

GMP and observation at slaughter will not detect infected birds and remove their meat from export.

The use of vaccines will again cloud the status of the DVE of the flock producing meat for export to NZ.

The issue of subclinical infection in vaccinated flocks leaves an unknown risk.

PIANZ requests that the risk mitigation process for DVH be reconsidered and consideration be given to a country, zone or compartment freedom to OIE standards as the minimum requirement for poultry meat imports.

MPI Response

PIANZ have challenged the requirement that ducks be free of clinical disease at slaughter as a risk management measure for DVH as vaccinated flocks may be subclinically infected and recovered ducks can excrete virus for up to 8 weeks.

This is recognised in Section 20.2.1 of the risk analysis which states:

> *DHV is an acute disease of young ducklings and birds of slaughter age are generally resistant to infection. Flocks infected with DHV are very likely to show evidence of disease and accordingly should not be slaughtered for human consumption. However, infection of Muscovy ducklings is often subclinical, which would not be detected. Recovered birds may excrete virus in their faeces for up to 8 weeks without clinical signs and these birds may be of slaughter age. Reversion to virulence has been demonstrated with attenuated live virus passages in ducklings (Woolcock and Crighton 1979) and vaccinated birds may be a source of DHV infection. Considering the above, the likelihood of entry in imported duck meat, duck meat products and entire duck carcases is assessed to be low.*

Following risk assessment, DVH is assessed to be a risk in imported duck meat and the risk analysis presented options to effectively manage the risk. As there are no measures for duck hepatitis virus in duck meat recommended in the current *Code*, the measures proposed for the IHS are adapted from the *Code* measures for live ducks.

The risk management measures proposed for the IHS require the Competent Authority to certify that the establishment has been managed in accordance with the *Code* Chapter for biosecurity procedures in poultry, where duck hepatitis virus has not been recognised. As discussed in the risk analysis flocks infected with DHV are likely to show evidence of disease. MPI expects the Competent Authority would undertake the necessary examination of the flock and flock records before certifying this clause.

The Risk Management Proposal notes under DHV:

> *Whilst only live attenuated vaccines are discussed in the OIE Manual, the option for vaccination is included if a suitable vaccine does become available. Any vaccines used would first need to be approved by MPI.*

The use of vaccines is further discussed in the Risk Management Proposal as follows:

The recommended options for the IHS specify which vaccines, if any, can be used to vaccinate the source flock. In some instances there is allowance for an MPI approved vaccine to be used. For a vaccine to be approved by MPI, the Competent Authority of the exporting country should submit details of the vaccination protocol, including vaccine type, discussion of potential risks with the vaccine and how they can be managed (for example reversion to virulence), and surveillance details, including how vaccinated animals will be distinguished from infected animals. If satisfied with the information received MPI will list the approved vaccines on the MPI document, Approved diagnostic tests, vaccines, treatments and post-arrival testing laboratories testing for animal import health standards (MPI-STD-TVTL).

5.2.9 DVE

The IHS does not address the possibility that ducks may have the virus present but not show clinical signs. The incubation period is noted as 3-7 days and testing at slaughter will not detect all infected birds.

The use of vaccines will again cloud the status of the DVE of the flock producing meat for export to NZ.

The issue of subclinical infection in vaccinated flocks leaves an unknown risk.

PIANZ therefore requests that the risk mitigation process for DVE be reconsidered and consideration be given to country, zone or compartment freedom to OIE standards as the minimum requirement for poultry meat imports.

MPI Response

Similarly, PIANZ have highlighted the fact that ducks infected with DVE may show no clinical signs so the measures needed to manage this risk have been challenged.

Again, this is recognised in Section 21.2.1 of the risk analysis which states:

> *Flocks infected with DVE are very likely to show evidence of disease and accordingly should not be slaughtered for human consumption.*
>
> *However subclinically infected birds, latent carriers, or birds with few gross lesions may be overlooked at necropsy (Wobeser 1987). In these birds, fragments of infective tissues present in duck carcases after processing may be a source of virus … Considering the above, the likelihood of entry of DVE in imported entire duck carcases is assessed to be non-negligible.*

Following risk assessment, DVE is assessed to be a risk in imported duck meat and the risk analysis presented options to effectively manage the risk.

The risk management measures included in the IHS require that the Competent Authority must certify that the birds are have been kept since hatching in an establishment where DVE has not been recognised. The Competent Authority would need to undertake the necessary investigation to certify this clause, which would require knowledge of the flock history and data.

As discussed for DVH, the use of vaccinations would require MPI's approval, with the potential for subclinically infected ducks to be addressed.

5.2.10 General comments

The move to free-range poultry both overseas and in New Zealand has not been acknowledged in the Risk Analysis. The presence of birds managed under lesser biosecurity, due to open sheds, increases the risk profile of exposure to wild birds.

This farming method is expected to trend higher and the exposure risk will therefore increase.

The Animal Welfare (Layer Hens) Code of Welfare 2012, which removes the option of conventional cages for layer hens by 2022 is likely to again increase the likelihood of free-range poultry production. Some estimates indicate that this may trend upwards to more than 30% of the current New Zealand flock of 3.3 million hens. These free-range flocks will tend to be smaller flocks, the managers of which may well feed food scraps and other by-products looking for a niche marketing strategy and advantage. This places them outside the normal chick/pullet supply chain but still with a significant number of poultry in production. This will change the risk profiles that were present at the date when this risk analysis was written.

There has also been a significant increase in commercial free-range poultry meat farming. This now sees 6,500,000 poultry meat birds farmed free-range in New Zealand.

This has changed the risk profile which needs to be addressed for some agents in the IRA.

MPI Response

PIANZ have highlighted the increase in free range flocks in New Zealand and this change in 'risk profile' should be addressed in the risk analysis. The risk analysis considers the likelihood of poultry being exposed to disease through contact with wild birds at a number of points throughout the risk analysis:

- *However, wild birds have been historically implicated in the introduction and spread of NDV on many occasions (Lancaster 1966) and, more recently, Alexander* et al *(1998) suggested migratory birds were responsible for the introduction of NDV into British poultry flocks in 1997 … In conclusion, the likelihood of exposure of backyard poultry, wild birds, and commercial poultry to NDV is assessed to be non-negligible. (Section 6.2.2)*
- *Recommended minimum biosecurity standards for domestic producers (Poultry Industry Association of New Zealand 2007) include measures to minimise the biosecurity risk posed by wild birds. Such measures reduce the likelihood of commercial poultry being exposed to free-living avian species. (Section 7.2.2)*
- *TRT is widespread in Minnesota but has not spread significantly to other turkey producing areas or into commercial chickens. Furthermore, Minnesota lies directly under a major wildfowl flyway from Canada to Central and South America and there is no evidence of southern spread of type C aMPVs from Minnesota or type A and B viruses from Central and South America (Gough and Jones 2008). (Section 8.2.2)*
- *Recommended minimum biosecurity standards for domestic producers (Poultry Industry Association of New Zealand 2007) include measures to minimise the biosecurity risk posed by wild birds. Such measures ensure that the likelihood of commercial poultry being exposed to free-living avian species will be very low. Infection of wild birds with IBV, with subsequent spread to poultry, has never been reported and the only evidence that wild birds are able to transmit IBV infection to chickens has been experimental. There are no reports implicating wild birds in the epidemiology of IBV and as described above, the likelihood that IBV would infect a wild bird consuming contaminated meat scraps is extremely low. It is therefore concluded that there is a negligible likelihood of commercial poultry being exposed to IBV through infected wild birds. (Section 9.2.2)*
- *However, the introduction of AI viruses to commercial poultry by migratory waterfowl has been documented (Halvorson et al 1985) so the likelihood of exposure of commercial poultry from free-living avian species is assessed as non-negligible. (Section 11.2.2)*
- *Only one report of productive infection of wild birds with IBDV has been identified (van den Berg et al 2001) which was achieved through an experimental infection using a very high dose of vvIBDV. The authors of that study concluded that game or ornamental birds investigated in*

their study do not represent a major IBD risk for the poultry industry. Although other studies have demonstrated seroconversion of wild birds to IBDV, no studies have shown a natural productive infection of wild birds with this virus … These findings are consistent with the findings of Biosecurity Australia that, while the establishment of IBDV infection has not been reported in wild birds, wild birds have developed antibody following exposure to the virus, presumably due to transient infection and that there was an extremely low likelihood that vvIBDV would infect a wild bird consuming contaminated meat scraps. Infection of wild birds with IBDV, with subsequent spread to poultry, has not been reported, and it was considered an extremely unlikely event (Biosecurity Australia 2008) … It is therefore concluded that there is a negligible likelihood of commercial poultry being exposed to IBDV through infected wild birds. (Section 12.2.2)

- *Ducks are the only natural host of DHV. Mallards are the predominant wild duck species in New Zealand (Hemsley 1996; Wood and Garden 2010). Female mallards are secretive while rearing their young and ducklings spend most of their time at well-concealed sites, particularly tall, dense vegetation (Shah* et al *2008). The average age at which mallard ducklings begin to fly ranges from 54-80 days (Greenwood 1974; Shah* et al *2008) which is after the development of age immunity to DHV (35-42 days) (Asplin 1958; Rispens 1969; Farmer* et al *1987). The likelihood of free-living ducks being infected with DHV through exposure to an infected backyard duck flock or to raw duck meat, duck meat products and entire duck carcases is assessed to be very low. (Section 20.2.2)*
- *Recovered birds may excrete virus in their faeces for many years without clinical signs. Experience in other countries is that outbreaks in commercial ducks and geese are usually associated with contact with wild waterfowl (Gough 2008). Therefore the likelihood of commercial ducks being exposed to DVE through exposure infected wild waterfowl is assessed to be non-negligible. (Section 20.2.2)*
- *Transmission of infection from infected wild geese to domestic geese or Muscovy ducks is however possible and the likelihood of commercial poultry being infected with Derzsy's disease through exposure to wild geese is assessed to be very low. (Section 22.2.2)*
- *Recommended minimum biosecurity standards for domestic producers (Poultry Industry Association of New Zealand 2007) include measures to minimise the biosecurity risk posed by wild birds. Such measures ensure that the likelihood of commercial poultry being exposed to free-living avian species will be very low. However, wild birds have been suggested as a common source for infection of poultry flocks so the likelihood of exposure of commercial poultry from free-living avian species is assessed to be non-negligible. (Section 29.2.2)*
- *Fresh or frozen poultry meat products produced for human consumption are not ordinarily considered risks for* M. gallisepticum *infection (Levisohn and Kleven 2000). Goldberg* et al *(1995) were unable to isolate any of the mycoplasmas usually associated with clinical problems in domestic poultry from wild birds and infection of wild birds with M. iowae, with subsequent spread to poultry, has never been reported. (Section 35.2.2)*

Throughout the risk analysis the exposure pathway to backyard flocks has also been assessed. This assessment would also apply to free range flocks. For example from section 6.2.2:

- *In New Zealand, commercial egg producers are required to have a risk management programme (RMP) that describes how their products are processed to meet the requirements of the Animal Products Act 1999. Such commercial producers should not feed food scraps to their birds whereas non-commercial poultry flocks containing 100 or fewer birds (such as backyard flocks) are not required to have an RMP and could be considered likely to feed food scraps to their birds (Wintle 2010). The feeding of uncooked waste food (including poultry*

meat) collected from retail and catering outlets to commercial and non-commercial poultry in New Zealand has been described (Mulqueen 2012).

- *It is assessed that there is a non-negligible likelihood of backyard poultry exposure to NDV from the feeding of raw scraps generated during the domestic preparation of imported chicken or duck meat or from feeding uncooked waste food collected from retail and catering outlets.*

5.2.11 GMP/Inspection at slaughter

The reliance on GMP/inspection at slaughter to remove birds/carcasses with risk organisms is mentioned in the RA.

PIANZ considers that this cannot be a risk mitigation step for some agents mentioned in the risk analysis.

GMP/inspection is a theoretical perspective but is not realistic in normal commercial practice, as the agents of interest when present in the viraemic/septicaemic stage and therefore of the highest risk may not result in pathological lesions at slaughter some weeks later.

In most countries undertaking poultry production there is a background presence of respiratory disease. This is due to viruses like NDV, IBD and IBV. These viral infections are often further complicated by bacterial infection, E.coli and Mycoplasma infections. There is an acceptance from companies and producers that when vaccinating for these viruses a percentage of birds will be affected and possibly not perform and die or become culled. Affected flocks are rarely routinely investigated unless mortality or morbidity is increased above "normal" levels for that flock. The mortality is accepted as normal. The result is a presence of virus circulating and subsequently present in poultry meat.

PIANZ is concerned that this normal behaviour will not uncover possible risk agents within the poultry and the meats that are eligible for export. This is possibly addressed in a biosecurity plan submitted to MPI by the exporter but this is not visible to PIANZ.

MPI Response

PIANZ suggest that there is too much reliance on infected birds not being processed and on good manufacturing process (GMP) to ensure the removal of infected birds. Although the risk analysis defines the commodity (chicken and duck meat) where the birds have passed ante-mortem and post-mortem inspection in slaughter and processing plants which operate effective GMP and Hazard Analysis and Critical Control Point (HACCP) programmes, there are numerous examples in the risk analysis that recognise the limitations of these in ensuring slaughtered birds are free of disease:

- *Infection with APMV-2 may be associated with mild respiratory signs so infected flocks may not be detected during routine ante and post-mortem inspection. (Section 7.2.1)*
- *Birds infected with IBV may not show gross pathological lesions that would prompt removal from the processing line. (Section 9.1.5)*
- *Flocks infected with DHV are very likely to show evidence of disease and accordingly should not be slaughtered for human consumption. However, infection of Muscovy ducklings is often subclinical, which would not be detected. (Section 20.2.1)*
- *Flocks infected with DVE are very likely to show evidence of disease and accordingly should not be slaughtered for human consumption. However subclinically infected birds, latent carriers, or birds with few gross lesions may be overlooked at necropsy. (Section 21.2.1)*
- *Infection with R. anatipestifer may be accompanied by marked clinical signs in live birds and significant post-mortem pathology. Imported chicken and duck meat will be derived from birds that have passed ante-mortem and post-mortem inspection. Although inspection is likely to detect clinically affected individuals, birds infected 2-5 days before slaughter or those exhibiting less marked clinical signs could go undetected. (Section 32.1.5)*

- *The clinical signs associated with O. rhinotracheale infection are extremely variable (Chin* et al *2008) so it is unlikely that infected flocks would be reliably detected during ante-mortem inspection. (Section 33.2.1)*
- *Infection with B. avium may be associated with mild clinical signs unless concomitant infections are present so it is unlikely that infected flocks would be reliably detected during ante-mortem inspection. (section 34.2.1)*
- *Mycoplasma infections are rarely associated with marked clinical signs unless accompanied by concurrent infections or environmental stressors. Subclinically infected birds are, therefore, unlikely to be detected during ante- and post-mortem inspection. (Section 35.2.1)*
- *It is recognised that infection with either R. anatipestifer or O. rhinotracheale may be accompanied by marked clinical signs in live birds and significant post mortem pathology. However, birds exhibiting less marked clinical signs may go undetected during ante-mortem and post-mortem inspection. It is assumed that this also applies to C. anatina. (Section 39.1.5)*
- *Infection with a highly virulent strain (of C. psittaci) would be likely to result in carcase condemnation, although slaughterhouse inspection might be unlikely to detect birds infected with less virulent strains or birds in the early stages of infection. (Section 43.1.5)*

However there are the following examples where detection at slaughter is thought likely but in all these cases there are other additional epidemiological reasons that impact on the assessment and in none of these cases is removal at slaughter or GMP relied on to ensure effective risk management:

- *Although chickens are the natural hosts of FAdV-4 and the virus may be found in many visceral organs, the risk of transmission of virus through poultry meat appears to be small. This is because flocks infected with significant adenoviruses would show evidence of disease and accordingly should not be slaughtered for human consumption. Additionally, adenoviruses will not multiply in carcase meat and it has been shown that high doses are required in order to induce mortality in birds older than 1 week of age. (Section 14.1.5).*
- *Consensus among studies is that the spleen is the most commonly and most consistently affected organ and the most infectious tissue. Given the anatomical location of the spleen (dorsal to the right lobe of the liver between the proventriculus and ventriculus) it is unlikely that remnants of splenic tissue would remain in chicken carcases following automated evisceration. Viraemia occurs only at the peak of clinical disease and coincides with marked splenic pathology (splenomegaly and mottling) which is likely to be detected at slaughter. Faecal contamination during slaughter might result in limited contamination of the skin of an infected bird but, unlike bacteria, viruses will not multiply on the carcase surface. (Section 15.2.1)*
- *Derzsy's disease is an acute disease of young Muscovy ducklings and birds of slaughter age are generally resistant to infection. Infected flocks are very likely to show evidence of disease and accordingly should not be slaughtered for human consumption. Recovered birds of slaughter age may be latently infected and a source of virus. Considering the above, the likelihood of entry in imported Muscovy duck meat, duck meat products and entire duck carcases is assessed to be low. (Section 22.2.1)*
- *In contrast to paratyphoid Salmonella spp. which colonise the alimentary tract and are frequently described as contaminants of chicken meat, contamination with S. Gallinarum-Pullorum has only been described in environments with poor hygiene practices. Maharjan et al (2006) described the recovery of S. Gallinarum-Pullorum from 9% of poultry meat samples taken from a local meat market in Kathmandu and it was noted that Maharjan and Sharma (2000) also found that 85.6% of water sources in Nepal were positive for faecal contamination and 10.8% of these were found to contain Salmonella spp. Similarly, Soomoro et al (2010) recovered S. Gallinarum-Pullorum from poultry meat samples collected at Hyderabad market in*

Pakistan and noted that a lack of disease control programmes associated with poor handling of raw material from production to marketing was a major problem in that country … Studies of poultry meat in a number of more developed countries including Korea (Chung et al 2003), Poland (Mikoajczyk and Radkowski 2002), Thailand (Padungtod and Kaneene 2006), Northern Ireland (Wilson 2002), Mexico (Zaidi et al 2006), Belgium (Ghafir et al 2005) and Spain (Capita et al 2003) have consistently failed to identify S. Gallinarum-Pullorum as a contaminant of chicken meat … The commodity considered in this import risk analysis will have passed ante-mortem and post-mortem inspection in slaughter and processing plants which operate effective Good Manufacturing Practice (GMP) and Hazard Analysis and Critical Control Point (HACCP) programmes. Chicken meat derived from such birds is considered unlikely to act as a vehicle for the spread of S. Gallinarum-Pullorum (Cobb 2011). The likelihood of entry is therefore assessed to be negligible. (Section 27.2.1)

5.2.12 Audits of biosecurity plans and exporting companies

PIANZ has concerns about MPI's resources for auditing the exporting farms and plants. PIANZ seeks MPI's commitment that regular and ongoing audits will be performed on exporting countries to ensure that MPI has confidence that the biosecurity plans are delivering the appropriate risk mitigation steps.

PIANZ would like an assurance that there will be audits of exporters' biosecurity plans, farms and processing plants. These audits should occur as a fundamental part of the risk mitigation process managed by the IHS.

PIANZ notes the issues regarding audits that have been raised around the imports of PKE. PIANZ notes the reluctance of MPI to audit overseas countries. This emphasises the necessity for quality audits.

PIANZ considers information from audits as a critical part of the risk mitigation process for imports of poultry products.

PIANZ has been involved in supplying information to MPI Market Access for the export of chicken meats to Australia. The questioner is titled "Evaluation of the Competent Authority of New Zealand. Questionnaire regarding the Animal Health Production and Export Controls applied to Chicken meats by The Australian Government, Department of Agriculture, Fisheries and Forestry.

PIANZ asks if MPI will be applying this same process to the same degree to countries that will apply to export poultry meats to New Zealand. Possibly MPI could use this as a guideline for supporting information from exporting countries.

MPI Response

MPI has the provision in the IHS to undertake audits. Audits could be in-country, or desk top audits depending on the level of confidence MPI has in the exporting country's Competent Authority and may be undertaken at the time of initial evaluation and at any other time. MPI will base Competent Authority evaluation on the OIE *Code* chapter for evaluation of veterinary services when considering requests from exporting countries to negotiate veterinary certificates for trade.

5.2.13 OIE guidelines for trade

The more recent OIE guidelines for poultry meat trade all are based on compartment, zone or country freedoms.

There is a move away from flock testing to a more measured and historical-based disease control system with freedom of disease as its core. This is a more transparent and robust system than a biosecurity plan

which is hidden from view. It may include serology or histology testing as part of the system but does not rely on these totally as means for establishing freedom from risk agents.

MPI Response

The OIE *Code* provides guidance on establishing country, zone, or compartment freedom for those diseases listed in the *Code*. *Code* Chapter 4.3, Zoning and compartmentalisation, provides further guidance around the requirements, although it does refer to individual disease chapters for full details. These principles have been used by MPI when establishing measures for the IHS, including for those diseases that are not OIE listed. The requirements for a biosecurity plan are listed in the *Code* requirements for free zones or compartments.

> *Zoning and compartmentalisation are procedures implemented by a Member Country under the provisions of this chapter with a view to defining subpopulations of distinct health status within its territory for the purpose of disease control and/or international trade. While zoning applies to an animal subpopulation defined primarily on a geographical basis (using natural, artificial or legal boundaries), compartmentalisation applies to an animal subpopulation defined primarily by management and husbandry practices related to biosecurity. In practice, spatial considerations and good management including biosecurity plans play important roles in the application of both concepts.*
>
> *An importing country should recognise the existence of this zone or compartment when the appropriate measures recommended in the Terrestrial Code are applied and the Veterinary Authority of the exporting country certifies that this is the case.*

As defined in the *Code* a free zone or compartment requires a biosecurity plan to be approved by the exporting countries competent authority. MPIs requirements in the IHS require that the production system outline, and any biosecurity plans when required for free zones or compartments, are approved by the exporting countries Competent Authority, as required in the OIE *Code*, and then submitted to MPI for approval, prior to export being allowed.

Where the *Code* has provided guidance on establishing freedom, including recommended surveillance measures these have been adopted by MPI. This is in line with New Zealand's obligations under Article 3.1 of the WTO's SPS agreement. For those diseases that are not OIE listed and there are no *Code* recommendations, risk management measures are based on the recommendations from the risk analysis for chicken and duck meat. These recommendations in some instances provide for a testing at slaughter option, which provides evidence that the product destined for New Zealand is not carrying the risk organisms, without relying on surveillance and testing protocols for diseases without *Code* recommendations.

6 Appendix 1: Copies of submissions

6.1 EU Submission

Subject: EU comments to the Import Health Standard notified in document G/SPS/N/NZL/497

Dear Madam,
Enclosed please find comments of the European Union on the text notified to the WTO in notification G/SPS/N/NZL/497.
Ella Strickland
EU SPS Notification Authority
EU Notification Authority and Enquiry Point of the WTÖ Agreement on SPS measures.
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Ref. Ares(2013)3691675 - 10/12/2013

COMMENTS OF THE EUROPEAN UNION TO THE NOTIFICATION SUBMITTED BY NEW ZEALAND CONCERNING THE DRAFT LEGAL TEXT NOTIFIED TO THE SECRETARIAT OF THE WTO AGREEMENT ON THE APPLICATION OF THE SANITARY AND PHYTOSANITARY MEASURES UNDER CODE G/SPS/N/NZL/497

The European Union (EU) would like to thank the Ministry for Primary Industries (MPI) of New Zealand for submitting notification G/SPS/N/NZL/497 and for the opportunity to comment on the proposed text concerning the draft Import Health Standard (IHS) for duck meat and meat products.
The EU is pleased to provide the following comments. These relate to Part 3 of the IHS on "Specified Requirements for Identified Risk Organisms".
A reply to these comments would be much appreciated.

3.2 Avian paramyxovirus-2 (APMV-2)

The actual presence of APMV-2 virus in domestic duck meat is not supported by scientific evidence since literature has not reported the isolation of that virus from domestic or wild ducks1. The EU is therefore of the opinion that the proposed requirements in point (2) are not justified.

3.4. Duck hepatitis virus (DHV)

It appears that the draft standard refers to DHV as targeting virus infection, instead of referring to DHV as targeting signs of the disease. The EU would like to ask for clarification to be provided on this, because there are at least three viruses which are concerned that are quite different: DHV type I (Picomaviridae Avihepatovirus), type II (astrovirus), type III (duck astrovirus type 2). These will be referred to respectively as DHV I, DHV II, DHV III. DHV II has been detected in the EU only in the UK and has not been reported in the EU since 1984; whereas DHV III has only ever been detected in the US2. Consequently, it is the EU's view that these two viruses should be excluded from the requirements of New Zealand's IHS as long as the epidemiological situation remains as it is at present. Insofar as DHV I is concerned, given that DHV I serology is based on virus neutralisation tests, it cannot be used routinely3.
It does not seem feasible therefore to comply with point (1) and point (2) a). The EU suggests to bring the wording in line with the one used for Duck viral enteritis (DVE) and Derzsy's disease and would propose to change the wording of point (1) to "*recognised by the Competent Authority as free of duck virus hepatitis"* and of point (2) b) to "*poultry where duck viral hepatitis has not been recognised'.*

1 Diseases of Poultry (13th edition =2013) D.E. Swayne et al Edts, Willey Blackwell publishing p. 90, 107-112, 130-133, 417. Scopus data base examined on 7 November 2013 using as key words avian paramyxovirus (es) and duck and screening for all years.
2 Diseases of Poultry (13th edition = 2013) D.E. Swayne et al Edts, Willey Blackwell publishing p. 422-431.
3 OIE Terrestrial Manual for diagnostic and vaccines (access on line) chapter 2.3.8 (version adopted in May 2012)

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In conclusion, the EU believes that there is no scientific justification to deal with Duck viral hepatitis differently from DVE and Derzsy's disease, for which imports shall be accepted,

provided the meat is derived from poultry free of disease. Laboratory testing requirements should therefore not be considered.
Requirements for the use of authorised vaccines (listed in the MPI document) will be difficult to achieve and information on the DHV I vaccine may not satisfy MPI. A first generation attenuated vaccine is used (not a DIVA vaccine) and it does not allow to distinguish vaccinated ducks from infected ones, as required in Chapter 6 p. 3. of the risk management proposal. However, e.g. in France only Peking breeders ducks are vaccinated (whatever the derived duckling).

3.5 Duck virus enteritis (DVE) virus

Despite that fact that the EU is aware that vaccines against DVE are not routinely used, the EU would like to submit the same comments as for point 3.4. above regarding DHV.

3.6 Derzsy's disease virus

Despite that fact that the EU is aware that vaccines against DVE are not routinely used, the EU would like to submit the same comments as for point 3.4. above regarding DHV.
In addition, Chapter 7.6. point 2.4. of the risk management proposal proposes allowing only the use of inactivated vaccines which means that attenuated vaccines may not be authorised. This does not correspond to the state of the art vaccination schedule routinely applied for Muscovy ducks and their hybrids which cannot be changed.
The EU would like to thank New Zealand again for the opportunity to comment on the text on IHS for duck meat and meat products and asks for its comments to be taken into account. The EU would also appreciate its questions being addressed and to receive a reply addressing the concerns laid out above.

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6.2 PIANZ Submission

10th December 2013
Animal Imports: Duck Meat IHS Consultation
Animal & Animal Products Directorate
Standards Branch
Ministry for Primary Industries
PO Box 2526
Wellington
Email: animalimports@mpi.govt.nz
Dear Sir/Madam

PIANZ Comments regarding the IHS and IRA for Duck Meat

Please find attached comments from PIANZ relating specifically to disease risks in the IHS for Duck Meat and Duck Meat Products into New Zealand.

HPAI in Poultry

PIANZ notes the new requirements for avian influenza in the OIE Terrestrial Code section 10.4 dated October 2013:

Article 10.4.19.

Recommendations for importation from a country, zone or compartment free from avian influenza or free from infection with high pathogenicity avian influenza viruses in poultry

For fresh meat of poultry

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that the entire consignment of *fresh meat* comes from *poultry*:

3. which have been kept in a country, *zone* or *compartment* free from *infection* with high pathogenicity avian influenza viruses in *poultry* since they were hatched or for at least the past 21 days;
4. which have been slaughtered in an approved *abattoir* in a country, *zone* or *compartment* free from *infection* with high pathogenicity avian influenza viruses in *poultry* and have been subjected to ante- and post-mortem inspections in accordance with Chapter 6.2. and have been found free of any signs suggestive of avian influenza.

Article 10.4.20.

Recommendations for the importation of meat products of poultry

Regardless of the avian influenza status of the country of origin, *Veterinary Authorities* should require the presentation of an *international veterinary certificate* attesting that:

3. the *commodity* is derived from *fresh meat* which meet the requirements of Article 10.4.19.; or
4. the *commodity* has been processed to ensure the destruction of avian influenza virus in accordance with Article 10.4.26.;

AND

4. the necessary precautions were taken to avoid contact of the *commodity* with any source of avian influenza virus.

PIANZ notes the numerous published references that AI in ducks can be a subclinical infection and thus the movement of AI viruses in meats is considered an unquantified risk in duck meat from ducks of unknown AI health status.

- The OIE reports that HPAIV can be subclinical in ducks:

"Several sublineages /strains of HPAIV H5N1 cause productive but subclinical infections in domestic ducks. These hosts serve as motors for the perpetuation of the virus in poultry populations.
http://www.oie.int/fileadmin/Home/eng/Animal_Health_in_the_World/docs/pdf/AVIAN_INFLUENZA_FINAL.pdf"
"If the H5N1 virus can persist in apparently healthy domestic duck and geese populations, then countries need to urgently reinforce their surveillance schemes in all regions with significant duck and geese production," FAO's Chief Veterinary Officer Joseph Domenech said. Healthy domestic ducks and geese may transmit the virus to chickens, and play a more important role in the persistence of the virus in the region than previously thought, the agency said, stressing that H5N1 surveillance need to be increased immediately.

FAO's warning followed the detection of H5N1 in diseased young domestic ducks by German scientists.

- Ducks infected with HPAI and excreting the virus may not show any clinical signs or lesions:

http://www.oie.int/fileadmin/Home/eng/Animal_Health_in_the_World/docs/pdf/AVIAN_INFLUENZA_FINAL.pdf
Given the OIE report that this agent is subclinical in ducks, and the requirement in OIE Code, Article 10.4.2 that surveillance relies on:
"appropriate surveillance being in place to demonstrate the presence of infection in the absence of clinical signs in poultry"
the absence of clinical signs in ducks does not lead to an efficient and effective passive surveillance-based system and the reliance of signs or the absence of signs at processing is not an effective step for ducks. This is noted by the OIE in the revised chapter and also noted in correspondence from MPI Animal Exports to the NZ Poultry industry.
The reliance that ducks with AI viruses will not be processed and that GMP will remove affected birds is not considered a reliable risk mitigation step in a disease that is subclinical.
PIANZ also notes that the duck meat trade has been the vehicle for the transfer of AI viruses from one country to another.
PIANZ can find no published reports of ongoing surveillance of ducks for AI in any OIE member country.
The presence and number of virus particles present is thought to vary across the individual AI strains and thus present an unknown risk in the meat products. The status of the duck's health and its previous vaccination history will also affect virus loading.
Given that OIE requirements mention both active and passive surveillance – and that the active surveillance is at least six-monthly – and given that MPI approves plans for a not stated period, PIANZ is concerned that a method of surveillance for ensuring that countries are meeting OIE Code requirements on a six-monthly basis must be in place.
PIANZ believes further that the credibility of exporting countries to certify that they have the ability to certify a country/zone/compartment free from AI in commercial ducks needs to be carefully assessed.
PIANZ therefore requests that MPI reviews the ability of exporting countries to declare freedoms from HPAI or AI while not actively surveying commercial duck populations for the presence of AI viruses. An active surveillance component must complement the total surveillance system.

LPAI in Ducks
Countries are required to notify the OIE of AI that is an H5 or an H7 type. Poultry meat from a flock which is not HPAI is a tradable item in terms of the NZ IHS for Duck Meats. If a country is prepared to apply different procedures for its domestic market, e.g. depopulate by euthanasia, but then be able to process and export the poultry meat without MPI or consumer knowledge, then the risk the exporting country perceives, and will not accept, becomes a risk for the poultry industry in the country the product is exported too.
This significant market issue, AI in poultry meats, is then left with the importing country to deal with.
PIANZ believes it is unacceptable to trade in meat from flocks with LPAI.

Avian paramyxovirus (AMPV-1) Newcastle Disease (NDV)
The OIE Code has the following recommendations for the trade in poultry meats

Article 10.9.14.

Recommendations for importation from an Newcastle disease free country, zone or compartment

For fresh meat of poultry

Veterinary Authorities should require the presentation of an international veterinary certificate attesting that the entire consignment of fresh meat comes from poultry:

3. *which have been kept in an ND free country, zone or compartment since they were hatched or for at least the past 21 days;*
4. *which have been slaughtered in an approved abattoir in an ND free country, zone or compartment and have been subjected to ante- and post-mortem inspections in accordance with Chapter 6.2. and have been found free of any sign suggestive of ND.*

Article 10.9.15.

Recommendations for importation of meat products of poultry

Veterinary Authorities should require the presentation of an international veterinary certificate attesting that:

3. *the commodity is derived from fresh meat which meet the requirements of Article 10.9.14.; or*

4. *the commodity has been processed to ensure the destruction of NDV in accordance with Article 10.9.21.;*

AND

4. *the necessary precautions were taken to avoid contact of the commodity with any source of NDV.*

PIANZ notes that the OIE Code recommendations differ from the MPI provisional IHS dated October 2013 in that the MPI document has a vaccination option.
Given that this option for trade in poultry meats is not included in the IOE Code, PIANZ wonders why it is being offered by MPI.
MPI has mentioned to PIANZ that the OIE Code conditions, if they exist, are what MPI will use in Import Health Standards.

Suppression of disease by vaccination
The IHS is written in such a manner that if birds are vaccinated as per the IHS for NDV, then notification of NDV is not required even if there is NDV isolated in the export flock.
Given that NVD wild strains can be present in vaccinated birds (but due to the vaccination no clinical signs are present), or if the mortality is not excessive enough to initiate an investigation (in Denmark, the desire to not use antibiotics can result in mortalities of up to 7% in some flocks), then there may be no investigation into this mortality. (World poultry.net/broilers/markets-Trade/2013/7/Danish-broiler-sector-off.)
Vaccination does not provide 100% protection against infection with a disease agent, and vaccinated birds may still become infected with the virus and shed the virus in certain conditions, e.g. the level of exposure to the virus. Moreover, vaccination may mask an outbreak of the disease, thereby delaying detection and increasing the risk of it spreading. If the vaccination is not properly applied, and proper surveillance is not carried out, the avian viruses (NDV) may continue to circulate within a vaccinated flock between incompletely immunised birds, albeit with a lower mortality and morbidity rate.
Thus the use of NDV vaccines applied to poultry destined for export in exporting countries – presuming they are vaccinated to stop ND viral infections because they are present in the local poultry population – could disguise a more virulent form of NDV present in the flock. The mere presence of vaccinated birds makes the surveillance by passive means very difficult.
It should be noted, however, that despite intensive vaccination with current vaccines creating high levels of antibody titres, virus can still be recovered from mucous surfaces.
The omnipresence of lentogenic NDV strains in birds in most countries and the almost universal use of live vaccines that cannot be distinguished, at least not serologically from wild-type NDV, means that the mere demonstration of infection is rarely an adequate cause for control measures to be imposed.
Since field disease may be an unreliable measure of the true virulence of the virus, it is necessary to further characterise the virus that is found.
The potential for silent infections and subclinical shedding of the virus and the difficulty in identifying infections in a vaccinated population is not addressed in the draft IHS.
Animal Health Australia reports that the extreme variation in virulence between strains of ND virus, the widespread, but variable occurrence of low pathogenicity strains in Australia and the use of live virus vaccines mean that the isolation of ND virus from a bird showing clinical signs of ND does not confirm a diagnosis of ND. An estimate of the virulence of the isolate is therefore required to differentiate between vaccine, endemic avirulent, Australian-origin virulent and exotic virulent strains.
http://www.animalhealthaustralia.com.au/wp-content/uploads/2011/04/ND3-2-21FINAL2May11.pdf
Surveillance for avirulent Newcastle disease viruses in domestic ducks (Anas platyrhynchos and Cairina moschata) at live bird markets in Eastern China and characterization of the viruses isolated.
Liu X, Wang X, Wu S, Hu S, Peng Y, Xue F, Liu X.
Experimental infections of Newcastle disease virus (NDV) strains of different avian origin and different virulence in mallard (Anas platyrhynchos) ducklings were undertaken to evaluate infectivity and pathogenicity of NDV for ducks and the potential role of ducks in the epidemiology of Newcastle disease (ND). Ducklings were experimentally infected with seven NDV strains, and their clinical sign, weight gain, antibody response, virus shedding, and virus distribution in tissues were investigated. The duck origin virulent strain duck/Jiangsu/JSD0812/2008 (JSD0812) and the Chinese standard virulent strain F48E8 were highly pathogenic for ducklings. They caused high morbidity and mortality, and they distributed extensively in various tissues of infected ducklings. Other strains, including pigeon origin virulent strain pigeon/Jiangsu/JSP0204/2002 (JSP0204), chicken origin virulent strain chicken/Jiangsu/JSC0804/2008 (JSC0804), goose origin virulent goose/Jiangsu/JSG0210/2002 (JSG0210), and vaccine strains Mukteswar and LaSota had no pathogenicity to ducklings. They produced neither clinical signs of the disease nor adverse effect on growth of infected ducklings, and they persisted in duck bodies for only a short period. Virus shedding was detectable in all infected ducklings, but its period and route varied with the virulence of NDV strains. The results suggest that NDV with high pathogenicity in ducks may arise from the evolution within its corresponding host, further confirming that the ducks play an important role in the epidemiology of ND.
Avian Diseases 57(1):8-14. 2013
doi: http://dx.doi.org/10.1637/10298-070212-Reg.1
The reference above clearly shows that the domestic duck population carries avirulent NDVs with genetic divergence with little clinical sign regularly and may act as one of the important reservoirs.

PIANZ requests that MPI should follow the OIE Code for the trade in poultry meats Article 10.9.14 and 10.9.17 and not allow the use of vaccines for NDV in poultry that will provide meats for export to NZ.

Hemagglutinating Agent Notification

PIANZ notes that there is no requirement for exporting countries to notify OIE and MPI of the isolation of any hemagglutinating virus found in the exporting flocks if it is not a H5 or H7 HPAI.
Given that hemagglutinating virus (HA) classification covers AI, NDV and AMPV-2, PIANZ believes this information should be supplied to MPI by the exporting country if any positives are found.
These viruses that are isolated in an overseas country are likely to be of a different linage and different pathogenicity to those present in New Zealand and a potential risk to NZ avian populations.
PIANZ considers an export flock should be shown to be free of the following hemagglutinating viruses:

- Newcastle Disease virus
- Avian Influenza virus (all types)
- APMV-2

Any HA virus isolation or molecular test positive will make the poultry meat ineligible for export to NZ.
Importing meat with LPAI virus should not be acceptable.
The reliance within the IHS that poultry with subclinical disease will not be processed and that GMP will remove affected birds is not considered a reliable risk mitigation step for a disease that is subclinical or not investigated.
GMP does not recognise subclinical disease.
PIANZ believes that as part of export eligibility, access to flock data to ensure that mortality in a shed destined for export is investigated and causes are determined is a critical risk mitigation step. To ensure that this is a requirement it should be placed in the IHS.
Given that the vaccination can mask infection, PIANZ is concerned that the IHS allows vaccination in poultry eligible to supply poultry meats for export to NZ. This differs from the OIE Code guidelines.

APMV2

PIANZ is concerned that a sample testing option is being offered.

The incubation period for the AMPV viruses is considered to be 21 days.

This does not address the window of opportunity that is present post testing for APMV2 to infect birds and thus be present in the imported poultry meats.

This sampling at the point of slaughter does not provide the same degree of risk mitigation that a country, zone or compartment provides.

PIANZ again requests that country/zone/compartment freedom or cooking be the minimum requirement for import of poultry meats into NZ.

The OIE is clearly guiding trade toward freedom from disease within a country, zone or compartment based on surveillance. MPI is offering sampling as a means of trade.

PIANZ's view is that the use of sampling and testing is a part of a surveillance programme, not a replacement for a surveillance system.

PIANZ believes that APMV2 should be dealt with by the establishment of country, zone or compartment freedom along the guidelines established by the OIE for AMPV1.

S. arizonzae, Salmonella pullorum/gallinarium/typhimurium

The OIE Code 6.5 addresses the control of salmonella in poultry, live birds and fertile eggs.

It has within its guidelines words such as "should be sampled", not "must be sampled" when applied to poultry for the production of meat. (Clause 4.C)

It allows for the processing of Salmonella-infected flocks with clauses like "should be" and "control measures may be implemented".

Given that the Code offers the potential for not doing anything with a positive flock, can the risk requirements set out in the IHS deliver the desired risk mitigation reduction steps?

Again in the IHS there is provision for within 7-day testing which could also allow late infections to miss detection. PIANZ does not support within 7-day testing as a risk mitigation step.

PIANZ is also unsure that if a Salmonella pullorum/gallinarium or any salmonella species is detected that this will be reported to MPI.

Given that the sample size and media, with or without enrichment (tetrathionate was historically the selective medium of choice for S. arizonae) used to detect Salmonella can have a marked ability on the detection rate, PIANZ is of the view that every effort must be made to ensure that detection is optimum.

Poultry laboratories in NZ regularly detect Salmonella species in rendered products that are certified Salmonella-free by the producers of the rendered products.

It is in the interest of the poultry companies to detect these Salmonellas. The simple doubling of sample size can have a marked effect of recovery on Salmonella. PIANZ asks whether PCR options will be considered as a better laboratory test for Salmonella?

These Salmonella are considered a risk organism in hatching eggs but then fail to be considered a risk in imported poultry meats that originate from a sector of the industry where biosecurity is less stringent and the multiplication of Salmonellae is more common.

The recent experience in the USA of an epornitic of Salmonella enteritidis in commercial broilers is reported below. It is noted that these birds would still be eligible for export to New Zealand as the IRA and IHS do not consider there is any risk in this meat being exported to NZ.

Early mortality was high on affected broiler farms and morbidity and excess mortality became chronic in many houses with lameness, stunting and septicemia observed. Breeder flock tracebacks revealed that affected broilers were initially from a common group of young breeder flocks, ultimately expanding to include 28 breeder flocks placed over a five-month time period. Typical gross lesions of SE were observed in broilers while implicated hen flocks remained asymptomatic and tested negative via boot swab surveillance for SE. Antibiotics were administered to SE-positive breeder and broiler flocks to mitigate economic losses. An epidemiologic investigation was unable to determine a common source of SE contamination of SE positive breeder flocks.

2013 AAAP Scientific Program Proceedings.p35.
An epornitic of *Salmonella enteriditis* (SE) causing clinical disease in commercial broilers
G. Donald Ritter, DVM,ACPV
Mountaire Farms Inc. PO Box 1320Millsboro, DE 19966
dritter@mountaire.com

PIANZ is concerned that S.pullorum, S. gallinarium, S. enteritidis and S.typhimurium are not included in the IHS.

The reliance of GMP to control these Salmonellae is not considered by PIANZ as an adequate risk mitigation measure.

Again MPI is offering end-point testing of flocks as an equivalent to country, zone or compartment freedom.

PIANZ believes that the import of poultry meats from exporting countries should be subject to the same regulatory controls as placed on the NZ Industry for Salmonellae species.

DVH

DVH is a disease that affects young ducks. It is reported to have run its course by day 10 of age and thus a risk mitigation step of no clinical disease at day of slaughter is of little use.

However, it is reported that in ducks 4-5 weeks of age, morbidity and mortality are low or negligible. Reus (1959) quoted by *Diseases of Poultry* (ref 97) notes that recovered ducks can excrete virus for up to 8 weeks.

Thus ducks that may have had DVH and have recovered may be presented for slaughter and be processed for export.

GMP and observation at slaughter will not detect infected birds and remove their meat from export.

The use of vaccines will again cloud the status of the DVE of the flock producing meat for export to NZ.

The issue of subclinical infection in vaccinated flocks leaves an unknown risk.

PIANZ requests that the risk mitigation process for DVH be reconsidered and consideration be given to a country, zone or compartment freedom to OIE standards as the minimum requirement for poultry meat imports.

DVE

The IHS does not address the possibility that ducks may have the virus present but not show clinical signs. The incubation period is noted as 3-7 days and testing at slaughter will not detect all infected birds.

The use of vaccines will again cloud the status of the DVE of the flock producing meat for export to NZ.

The issue of subclinical infection in vaccinated flocks leaves an unknown risk.

PIANZ therefore requests that the risk mitigation process for DVE be reconsidered and consideration be given to country, zone or compartment freedom to OIE standards as the minimum requirement for poultry meat imports.

General Comments

The move to free-range poultry both overseas and in New Zealand has not been acknowledged in the Risk Analysis. The presence of birds managed under lesser biosecurity , due to open sheds, increases the risk profile of exposure to wild birds.

This farming method is expected to trend higher and the exposure risk will therefore increase.

The Animal Welfare (Layer Hens) Code of Welfare 2012, which removes the option of conventional cages for layer hens by 2022 is likely to again increase the likelihood of free-range poultry production. Some estimates indicate that this may trend upwards to more than 30% of the current New Zealand flock of 3.3 million hens. These free-range flocks will tend to be smaller flocks, the managers of which may well feed food scraps and other by-products looking for a niche marketing strategy and advantage. This places them outside the normal chick/pullet supply chain but still with a significant number of poultry in production. This will change the risk profiles that were present at the date when this risk analysis was written.

There has also been a significant increase in commercial free-range poultry meat farming. This now sees 6,500,000 poultry meat birds farmed free-range in New Zealand.

This has changed the risk profile which needs to be addressed for some agents in the IRA.

GMP/Inspection at slaughter

The reliance on GMP/inspection at slaughter to remove birds/carcasses with risk organisms is mentioned in the RA.

PIANZ considers that this cannot be a risk mitigation step for some agents mentioned in the risk analysis.

GMP/inspection is a theoretical perspective but is not realistic in normal commercial practice, as the agents of interest when present in the viraemic/septicaemic stage and therefore of the highest risk may not result in pathological lesions at slaughter some weeks later.

In most countries undertaking poultry production there is a background presence of respiratory disease. This is due to viruses like NDV, IBD and IBV. These viral infections are often further complicated by bacterial infection, E.coli and Mycoplasma infections. There is an acceptance from companies and producers that when vaccinating for these viruses a percentage of birds will be affected and possibly not perform and die or become culled. Affected flocks are rarely routinely investigated unless mortality or morbidity is increased above “normal” levels for that flock. The mortality is accepted as normal. The result is a presence of virus circulating and subsequently present in poultry meat.

PIANZ is concerned that this normal behaviour will not uncover possible risk agents within the poultry and the meats that are eligible for export. This is possibly addressed in a biosecurity plan submitted to MPI by the exporter but this is not visible to PIANZ.

PIANZ has concerns about MPI's resources for auditing the exporting farms and plants. PIANZ seeks MPI's commitment that regular and ongoing audits will be performed on exporting countries to ensure that MPI has confidence that the biosecurity plans are delivering the appropriate risk mitigation steps.

Audits of biosecurity plans and exporting companies

PIANZ would like an assurance that there will be audits of exporters' biosecurity plans, farms and processing plants. These audits should occur as a fundamental part of the risk mitigation process managed by the IHS.

PIANZ notes the issues regarding audits that have been raised around the imports of PKE. PIANZ notes the reluctance of MPI to audit overseas countries. This emphasises the necessity for quality audits.

PIANZ considers information from audits as a critical part of the risk mitigation process for imports of poultry products.

PIANZ has been involved in supplying information to MPI Market Access for the export of chicken meats to Australia. The questioner is titled "Evaluation of the Competent Authority of New Zealand. Questionnaire regarding the Animal Health Production and Export Controls applied to Chicken meats by The Australian Government, Department of Agriculture, Fisheries and Forestry.

PIANZ asks if MPI will be applying this same process to the same degree to countries that will apply to export poultry meats to New Zealand. Possibly MPI could use this as a guideline for supporting information from exporting countries.

OIE guidelines for trade

The more recent OIE guidelines for poultry meat trade all are based on compartment/zone or country freedoms.

There is a move away from flock testing to a more measured and historical-based disease control system with freedom of disease as its core. This is a more transparent and robust system than a biosecurity plan which is hidden from view. It may include serology or histology testing as part of the system but does not rely on these totally as means for establishing freedom from risk agents.

Yours sincerely

Kerry Mulqueen
PIANZ
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