



NATIONAL NEWCASTLE DISEASE MANAGEMENT PLAN

August 2020

A NATIONAL APPROACH TO THE LONG-TERM
MANAGEMENT OF NEWCASTLE DISEASE IN AUSTRALIA

ACKNOWLEDGEMENT

Members of the Newcastle Disease Management Plan Steering Committee are gratefully acknowledged for their input into the development of this version of the Management Plan. The Committee consists of representatives of:

- Primary Industries and Regions, South Australia
- Department of Agriculture and Fisheries, Queensland
- Department of Primary Industries, New South Wales
- Department of Jobs, Precincts and Regions, Victoria
- Department of Primary Industries, Parks, Water and Environment, Tasmania
- Department of Primary Industries and Regional Development, Western Australia
- Australian Government Department of Agriculture, Water & the Environment
- Australian Centre for Disease Preparedness
- Australian Eggs Ltd
- Chicken Meat Federation of Australia Inc
- Ingham's
- Baiada
- Scolexia Pty Ltd

Final version

CONTENTS

ACKNOWLEDGEMENT	2
CONTENTS	2
1. INTRODUCTION	4
2. NATIONAL APPROACH TO NEWCASTLE DISEASE	6
Objectives	6
Components of the National Approach	6
Response to Disease Incidents under the Emergency Animal Disease	
Response Agreement	7
Reporting Requirements	7
3. IMPLEMENTATION OF THE MANAGEMENT PLAN	9
4. METHODOLOGY	11
5. COSTS AND FUNDING OF THE PLAN	12
6. LONG TERM STRATEGY	12
APPENDIX 1- NEWCASTLE DISEASE VACCINATION	
STANDARD OPERATING PROCEDURES	13

1. INTRODUCTION

The prevention of Newcastle disease (ND) in Australia has been managed under successive National ND Management Plans since 2002. The ND Management Plan Steering Committee has subsequently developed this current management plan that will operate from June 2019 forward, and until such time a new plan is developed and agreed by all (industry and government) stakeholders in the control of ND in Australia.

The purpose of this Plan is to implement a vaccination and surveillance program that mitigates the risk of a ND outbreak in Australia.

A risk-based national approach to ND prevention and management is necessary to reduce the prevalence of circulating precursor ND viruses that may mutate into virulent forms, resulting in clinical disease or an incursion and establishment of a virulent ND of exotic origin.

There have been no outbreaks of ND since compulsory vaccination commenced under the first plan (2002-2003) was fully implemented. The current Plan maintains the principle of compulsory vaccination of higher risk flocks (all long lived birds) alongside the principle of withdrawal from compulsory vaccination in lower risk categories (broilers) in lower risk regions, but introduces an option for active surveillance in broiler flocks in states or regions where vaccination of broilers is not compulsory and where the owner of such unvaccinated flocks chooses not to vaccinate.

The Plan includes vaccination (according to nationally agreed standard operating procedures [SOPs]) of commercial¹ domestic chickens in all states and territories. In jurisdictions considered to be of low risk for an outbreak of ND, vaccination of short-lived birds (i.e. birds of relatively low risk) is voluntary. However, in such flocks that opt not to vaccinate, surveillance protocols as detailed in this plan should be implemented according to the management plan.

Risk assessment, management and commercial drivers will play a major role in achieving these outcomes. There is scope to significantly reduce the risk of potential negative effects of the occurrence of virulent ND at a flock and regional level with existing technology. On-farm management programs, coupled with market-driven quality assurance programs, can successfully lower the overall risks.

Since the inception of the original Plan, there have been significant biosecurity improvements in the industry, through regulated requirements for compliance with biosecurity measures in the poultry meat sector (through jurisdictional implementation of food safety standards), through independently audited compliance in the egg industry (currently through the Egg Standards of Australia (ESA) program²), and through biosecurity investments on the ground (e.g. shed upgrades).

¹ Commercial flock is defined as 1,000 or more chickens that are managed as a group

² www.australianeggs.org.au/for-farmers/egg-quality-standards/

The Food Standards Australia New Zealand *Primary Production and Processing Standard for Poultry Meat* (the Poultry Standard³) came into effect on 20 May 2012.

- a) The Implementation Sub-Committee of the Food Regulation Standing Committee (consisting of all relevant regulators of the states and territories) has agreed that compliance with the *National Farm Biosecurity Manual for Poultry Production* (2009)⁴ will be deemed to satisfy the requirements of the Poultry Standard.
- b) It is up to each state and territory to apply the Poultry Standard to their specific legislative framework. In Victoria⁵, for example, the completion of a food safety management statement is a legal requirement for all commercial poultry producers under the Poultry Standard. In New South Wales, the requirements are incorporated in the *Food Regulation 2010*.

In the egg industry, the Australian Eggs Limited ESA program already includes ND vaccination, i.e. all egg producers must operate in accordance with state legislation for all requirements including vaccination. Compliance is audited by a registered third-party auditor. The program is currently undergoing further development, and all supporting materials are being rewritten to reflect a new QA Standard for Australian eggs that meets ISO reporting guidelines. There is a heavy focus on biosecurity control points (HACCP) and more prescriptiveness with respect to vaccination (e.g. the development of a pullet rearing standard).

The National ND Management Plan involves a broad range of stakeholders including poultry farmers and processors, poultry organisations, governments, avian societies and ratite industries.

This current version of the ND Management Plan is the next iteration of the 2013-2016 Plan and allows for active surveillance in unvaccinated broiler flocks in States where vaccination of broilers is not compulsory. No changes in vaccination or surveillance requirements have been made for layers and layer and broiler breeders anywhere in Australia.

³ www.foodstandards.gov.au/code/primaryproduction/poultry/pages/default.aspx

⁴ www.agriculture.gov.au/pests-diseases-weeds/protect-animal-plant/bird-owners/poultry_biosecurity_manual

⁵ PrimeSafe Guidelines Food Safety Management Statement for Poultry Producers (1 May 2011)

2. NATIONAL APPROACH TO NEWCASTLE DISEASE

OBJECTIVES

Objectives of the national approach are:

- minimise the risk of ND outbreaks;
- reduce the risk of negative social, economic and trade effects of ND at farm, regional and national levels;
- cost-effective use of vaccination, targeting the highest risks to achieve the above.

COMPONENTS OF THE NATIONAL APPROACH

The components of the national approach include:

- the strategic application and monitoring of vaccination using live V4 and – where applicable – inactivated vaccine
- active and passive national surveillance

1. Risk-based vaccination of chickens by the commercial layer, poultry breeding and broiler industries

Use of vaccination reduces the risk of exotic or Australian-origin virulent ND virus through:

- improving flock protection against ND virus, and
- the displacement of precursor viruses which have the potential to mutate to virulent ND virus.

A risk management approach has been adopted that involves vaccination and monitoring for vaccine uptake, according to recommended national vaccination SOPs, and active surveillance in flocks exempted from compulsory vaccination.

2. Ongoing surveillance to determine the ND viruses that are circulating in Australia

National surveillance for ND facilitates early detection and rapid response of exotic and Australian-origin virulent ND. Surveillance also informs cost-effective risk-based vaccination.

National passive surveillance

Ongoing passive surveillance, as a minimum, involves detecting flocks affected by virulent ND and precursor viruses and determining changes in the distribution, prevalence and types of ND virus circulating in Australia, including by opportunistic sampling of laboratory submissions.

The following elements of a national surveillance program, as endorsed by the Consultative

Committee on Emergency Animal Diseases (CCEAD), are requirements under this Plan:

- All poultry farms that report signs that may be suggestive of infection with precursor or virulent ND virus must be investigated and samples must be taken for ND virus testing.
- Other disease investigations should be used as an opportunity for attempting to isolate ND virus where appropriate.
- Diagnostic opportunities to monitor ND virus presence in poultry submissions to veterinary laboratories should be taken wherever possible.
- All isolations of ND virus and consolidated serology results from government as well as private laboratories must be reported routinely in quarterly returns to the National Animal Health Information System (NAHIS).
- All isolates of ND virus must be held at laboratories for at least 12 months.
- All isolates of ND virus from any farm where ND virus has not been isolated within the previous three months or where ND is suspected must be submitted to AAHL for sequencing (HN and F genes).

Active Surveillance in Unvaccinated Broiler Flocks

In addition to the national passive surveillance, active surveillance may be conducted in unvaccinated broiler flocks in states where vaccination of broilers is not compulsory. This active surveillance component is introduced to allow industry in low risk jurisdictions that do not require broiler vaccination to monitor if there is precursor/progenitor strain in the unvaccinated broiler, and to guide biosecurity and vaccination practices. Details of the active surveillance program are provided in Appendix 2 (*Newcastle Disease Surveillance Plan for Unvaccinated Broilers*).

RESPONSE TO DISEASE INCIDENTS UNDER THE EMERGENCY ANIMAL DISEASE RESPONSE AGREEMENT

In the event of a ND incident, the EAD Response Agreement provisions will apply where all Parties are meeting their obligations (e.g. vaccination, surveillance and biosecurity).

Outbreaks of ND will be managed in line with the AUSVETPLAN *Disease strategy: Newcastle disease*, as endorsed by Animal Health Committee and industry.

The details of an eradication program will be determined by CCEAD in a manner specific to the nature of the outbreak.

REPORTING REQUIREMENTS

States and territories are responsible for maintaining a database that includes details of:

- date of notification
- reason for investigation (mortality, morbidity, egg production problems,

- veterinarian suspicion, farmer reporting, investigation into other problems, etc.)
- location, address, geo-reference, species, type of enterprise and other characteristics (if applicable: cage, free range, number of sheds, etc.)
- class of poultry (pullet, layer, meat, breeder; chicken/duck/turkey, etc.)
- number of stock
- age
- mortality
- morbidity
- predominant clinical signs
- relevant vaccination history
- summary of sample collected and dates
- basis for suspicion/diagnosis
- if no ND diagnosis, the differential diagnosis and poultry veterinarian &/or virologist's comments
- date of diagnosis
- ND viruses isolated and their molecular characteristics.

NAHIS, through its database and *Animal Health Surveillance Quarterly* (with summary data in the annual *Animal Health in Australia* reports) will report:

- date of notification
- state/territory
- class of poultry
- findings
- ND viruses isolated and their molecular characteristics.

3. IMPLEMENTATION OF THE MANAGEMENT PLAN

The ND Steering Committee in September 2012 endorsed several changes to the 2008-2012 Plan. These changes have the net effect of altering the vaccination and monitoring protocols for ND in a manner consistent with the modifications introduced in 2008.

The 2013-2016 ND Management Plan was the follow up from the 2008-2012 Plan with regard to reduced compulsory vaccination requirements for broilers, based on the assessed risk of an outbreak of virulent ND within Australia. This has required minor modification of the SOPs as they were previously written (ND Plan 2008-2012). The modifications to vaccination and monitoring only affect broilers, initially in Tasmania, Western Australia, Queensland and South Australia, and subject to review, in Victoria and New South Wales after two years into the Plan. There are no modifications for layers and layer breeders anywhere in Australia.

The current ND Management Plan program is consistent with the 2013-2016 ND Management Plan, and is laid out below:

Level 1 – Tasmania and Western Australia

In these two jurisdictions, compulsory vaccination for broilers is not required. Passive surveillance will continue in accordance with the principles established above and as described in Section 5: “Methodology” and Appendix 2 (*Newcastle Disease Surveillance Plan for Unvaccinated Broilers*).

Layers and layer and broiler breeders must be vaccinated, but the use of an inactivated ND virus vaccine is not required; rather, multiple live vaccine may be used, as per the SOPS (at Appendix 1).

If producers wish to voluntarily vaccinate their broilers or use inactivated ND virus vaccine for their layers or layer and broiler breeders, **they will still be able to do so.**

Serological monitoring to determine post-vaccination titres is not compulsory in these states due to the low risk of ND virus infection.

Level 2 – Queensland and South Australia

In these two jurisdictions, compulsory vaccination for broilers is not required. Passive surveillance will continue in accordance with the principles established above and as described in Section 5: “Methodology” and Appendix 2 (*Newcastle Disease Surveillance Plan for Unvaccinated Broilers*).

Layers and layer and broiler breeders must be vaccinated, but the use of an inactivated ND virus vaccine is not required; rather, multiple live vaccine may be used, as per the SOPS (at Appendix 1).

As per the Appendix 1, in the case of the above categories (layers and layer and broiler breeders) in Queensland and SA, producers wishing to use multiple live V4 vaccine (rather than SOP option using the killed vaccine) must demonstrate that they are maintaining a titre

of 2³. Producers who opt to continue the use of killed vaccines will not need to demonstrate their compliance by serological monitoring. For replacement pullets, a titre of 2³ (which is considered by the Steering Committee the minimum standard to give protection against ND) at 16-18 weeks of age will be accepted as providing sufficient protection.

If producers wish to voluntarily vaccinate their broilers or use inactivated ND virus vaccine for their layers or layer and broiler breeders, **they will still be able to do so.**

Level 3 – New South Wales and Victoria

The existing SOPs are not changed. Results from surveillance activities (both active and passive) will inform the future consideration of when and under what conditions vaccination requirements for short-lived birds in Victoria and New South Wales can be reduced.

Implementation of Agreed Standard Operating Procedures

Vaccination of all commercial layer, broiler, breeder and production flocks in all states and territories must be performed in accordance with the agreed SOPs (Appendix 1, Table 1). Serological targets are given in Table 2; however, serological testing to demonstrate that these titres have been achieved are not mandatory in all cases – refer to Table 3 in Appendix 1.

If a national shortage of vaccine (either live or inactivated) arises then a Jurisdiction's CVO may agree to vary the procedures. Producers should determine if there is a permit to do so in this situation and follow any instructions it contains. Permits will be tailored to each situation according to a risk assessment.

The national SOPs will continue to be monitored and amended as necessary to ensure their effectiveness, that is, to ensure that vaccination is achieving the desired results.

4. METHODOLOGY

Case definition for the purpose of passive surveillance

Broilers

- any shed experiencing unexplained disease-related mortalities (not including culling) of **1% or more** in 24 hours after the first week of placement OR;
- any shed with evidence of respiratory signs lasting more than 2 consecutive days OR;
- any shed with nervous signs regardless of the duration.

Layers and breeders

- any flock (shed) suffering a 10% drop in egg production or the appearance of 5% white eggs or 5% shell-less eggs over a period of 2-3 consecutive days OR;
- any flock (shed) suffering increased mortality of more than 0.5% per day for 3-5 consecutive days OR;
- any flock (shed) where nervous signs or respiratory disease signs are detected.

Laboratory/ test considerations

Laboratories testing for ND must use standardised tests supported by appropriate quality assurance⁶ and a proficiency testing program (e.g. the haemagglutination inhibition test as described in the Australian New Zealand Standard Diagnostic Procedure), with participation in a proficiency testing program coordinated by the Australian National Quality Assurance Program overseen by Animal Health Committee's National Laboratory Task Group (NLTG).

Birds that have not been immunised or infected with ND virus usually have titres $< 2^3$. Non-specific titres above this level are rare.

Cross reactions between various paramyxoviruses are a consideration, but for the purpose of this surveillance this is not an issue because any flock with titres of 2^3 , or more than 20% of the titres with 2^2 , will be investigated further.

For the purpose of this surveillance, it is assumed that the sensitivity of ND virus haemagglutination inhibition test is 95%.

It is also assumed, based on surveillance during the ND outbreaks in New South Wales, that because broilers are on litter in a confined space, ND virus infection is likely to spread to 90% of the flock by the time they reach processing age (unless exposure occurred close to processing), and (based on data during surveillance in New South Wales and the practicality of broiler farming) that all sheds on the farm are likely to be exposed to ND virus if one shed is exposed.

⁶ NATA accreditation to ISO/IEC 17025 Animal Health. The scope of accreditation must include the applicable services

5. COSTS AND FUNDING OF THE PLAN

The Plan relies on significant financial input by industry because the additional cost of vaccination alone could amount to \$6 million per year.

Costs of compliance with the vaccination SOPs will be met by poultry producers.

Monitoring of compliance with the SOPs in each jurisdiction is the responsibility of the respective jurisdiction.

The broiler industry (i.e. the owners of broiler flocks which are unvaccinated) will be responsible for funding and managing the collection of samples for surveillance in unvaccinated broiler flocks, and for funding the testing costs associated with surveillance in unvaccinated broiler flocks.

The jurisdictions will be responsible for storing and managing the testing of swabs collected as required by the surveillance plan for unvaccinated broiler flocks.

6. LONG TERM STRATEGY

This Management Plan is expected to be reviewed periodically and adjusted as the risk-profile changes to ensure the vaccination and surveillance continues to be cost effective and risk-based. The risk of exotic and Australian-origin ND subtypes may change over time. Furthermore, with continued surveillance, it may be possible to update protocols to better reflect the current risks, particularly the vaccination protocols for broilers in Victoria and New South Wales and active surveillance protocols for unvaccinated broiler flocks.

APPENDIX 1- NEWCASTLE DISEASE VACCINATION

STANDARD OPERATING PROCEDURES

The following three tables show:

1. the vaccination programs (Table 1)
2. the serological targets for vaccination outcomes in each program, expressed as mean haemagglutination inhibition titres (Table 2)
3. the sampling protocols where sampling and testing are required to demonstrate that those targets have been reached (Table 3).

The information is provided by bird category (in rows) and jurisdiction (in columns).

In each table, 'meat chicken' includes off sex layers (cockerels) or meat chickens grown for meat and kept longer than 12 weeks. The titres need to stay at 2^3 for the duration of their life. This may require repeated vaccination with live vaccine. If chickens are grown for longer than 24 weeks of age, the requirements are as per layers in each jurisdiction.

Note:

- If a national shortage of vaccine (either live or inactivated) arises then a Jurisdiction's CVO may agree to vary the procedures in Table 1. Producers should determine if there is a permit to do so in this situation and follow any instructions it contains. Permits will be tailored to each situation according to a risk assessment.
- That the definition of adequate titres (mean haemagglutination inhibition titres) as shown in Table 2 does not automatically require sampling and testing to demonstrate those titres; the requirements for sampling and testing vary between states and vaccination programs and are detailed in Table 3.
- In Table 3 (Sampling protocols), on each occasion samples from a minimum of 15 birds should be tested to determine mean haemagglutination inhibition titres. Although sampling and testing may not be required, records must be kept for at least 3 years to demonstrate during any audit that vaccination has taken place.

Table 1. Vaccination programs

Bird category	Age of birds at vaccination ⁷	Tasmania, Western Australia	Queensland, South Australia	New South Wales, Victoria
Layer breeders	2-4 weeks, and	Live V4, and		
	12-18 weeks, or	Inactivated ND vaccine, or		Inactivated ND vaccine
	12-14 weeks and every 6 to 8 weeks thereafter	Live V4		Not permitted ⁸
Meat breeders	2-4 weeks, and	Live V4, and		
	12-18 weeks, or	Inactivated ND vaccine, or		
	12-18 weeks and every 6 to 8 weeks thereafter	Live V4		
Laying hens and pullets (grown in cages during the vaccination program)	2-4 weeks, and	Live V4, and		
	6-8 weeks, and	Live V4, and		
	10-14 weeks ⁹ , or	Inactivated ND vaccine, or		Inactivated ND vaccine
	10-14 weeks and every 6 to 8 weeks thereafter	Live V4		Not permitted ⁸
Laying hens and pullets (grown on litter/ ground during the vaccination program)	2-4 weeks ¹⁰ , and	Live V4, and		
	10-14 weeks ¹¹ , or	Inactivated ND vaccine, or		Inactivated ND vaccine
	12-14 weeks and every 6 to 8 weeks thereafter	Live V4		Not permitted ⁸
Meat chickens	Day-old, or	Optional: Live V4 as coarse spray ¹²		Live V4 as course spray, or
	7-14 days	Optional: Live V4 in drinking water		Live V4 in drinking water

⁷ Additional vaccination may be permitted (for example, in day-olds).

⁸ If there is an inactivated vaccine shortage, a permit for live vaccine use may be issued by the Jurisdiction's CVO and the parameters as for meat breeders followed, including titre levels and testing (different requirements for each state)

⁹ A gap of 4-6 weeks between the last V4 and inactivated ND vaccine is the optimal interval. For example, to be able to vaccinate with inactivated ND vaccine at 10 weeks of age, V4 should have been given no later than 6 weeks of age.

¹⁰ Guidance: In case of multi-age rearing of birds, it is recommended to vaccinate closer to 2 weeks.

¹¹ If there is evidence of HI titres lower than 2³ prior to administration of inactivated vaccine, additional live V4 should be introduced between 6-8 weeks of age for subsequent flocks.

¹² For two of the three available vaccines, this route is currently not a registered product label claim and therefore requires off-label use permission by a registered veterinarian who is supervising these flocks.

Table 2. Serological target for vaccination outcome

Bird category	Tasmania, Western Australia	Queensland, South Australia	New South Wales, Victoria	
	The following titres are defined as adequate:			
Layer breeders	A titre of at least 2^3 at 16-18 weeks of age, with 66% or more of samples at or above 2^3 .	A titre of at least 2^3 for the duration of the life of the bird. Continuous vaccination with live V4 requires monitoring as per Table 3 and revaccination with V4 or inactivated ND vaccine if titres are below 2^3 and 66% of the birds sampled do not have at least a titre of 2^3 .	From four weeks after the first vaccination with V4, the titre of the flock is at least: (1) 2^3 to 18 weeks of age; and (2) 2^5 thereafter, with 66% or more of samples at or above 2^5 .	
Meat breeders				
Laying hens and pullets (grown in cages during the vaccination program)				From four weeks after the first vaccination with V4, the titre of the flock is at least: (1): 2^3 and (2) 2^5 by 6 weeks post vaccination with inactivated ND vaccine, with 66% or more of samples at or above 2^5 .
Laying hens and pullets (grown on litter/ground during the vaccination program)				
Meat chickens	Not applicable (vaccination optional)		By 35 days of age, the titre of the flock is at least 2^3 , and at least 66% of the samples reach a titre of 2^3 or higher.	

Table 3. Sampling protocol

Bird category	Vaccination program	Tasmania, Western Australia	Queensland, South Australia	New South Wales, Victoria
Layer breeders	Live V4 and inactivated ND vaccine	Not required		
	Live V4 every 6-8 weeks	Not required	Producers must be able to demonstrate a titre of 2^3 or above in at least 66% of the sampled birds, at least 3 times, at point of lay, mid and late lay.	This vaccination program is not permitted in these states.
Meat breeders	Live V4 and inactivated ND vaccine	Not required		
	Live V4 every 6-8 weeks	Not required	Producers must be able to demonstrate a titre of 2^3 or above in at least 66% of the sampled birds, at least 3 times, at point of lay, mid and late lay.	Producers must be able to demonstrate a titre of 2^5 or above in at least 66% of the sampled birds, at least 3 times, at point of lay, mid and late lay.
Laying hens and pullets (grown in cages during the vaccination program)	Live V4 and inactivated ND vaccine	Not required		
	Live V4 every 6-8 weeks	Not required	Producers must be able to demonstrate titre of 2^3 or above in at least 66% of the sampled birds, at least 3 times, at point of lay, mid and late lay.	This vaccination program is not permitted in these states.
Laying hens and pullets (grown on litter/ground during the vaccination program)	Live V4 and inactivated ND vaccine	Not required		
	Live V4 every 6-8 weeks	Not required	Producers must be able to demonstrate a titre of 2^3 or above in at least 66% of the sampled birds, at least 3 times, at point of lay, mid and late lay.	This vaccination program is not permitted in these states.
Meat chickens	Live V4	Not compulsory, to be conducted only if deemed necessary. If titres of 2^3 by 35 days of age in 90% of sheds are not achieved, report the sampling results to the jurisdiction and review vaccination program and technique.		



P 61 2 6232 5522

E aha@animalhealthaustralia.com.au

www.animalhealthaustralia.com.au