

APPENDIX 2. Questionnaire used in the poultry industry surveys

Table A2-1. Questions included in the 2005 censuses of the chicken meat, duck and turkey industries and the 2007 census of the chicken egg industry

Topic	Question	Response
Location	What is the farm's street address?	Open
	What is the farm's postcode?	Open
	Which state/territory is it in?	Open
	What is the name of the nearest town?	Open
Independent/ Integrated status	Does the farm operate independently or as part of a vertically integrated operation? If part of an integrated operation, what is the name of the integrator the farm is associated with?	Independent or integrator's name
Production system	What industry is this farm associated with?	Chicken meat, chicken egg, turkey, duck, emu, ostrich, quail and/or gamebirds
	What class of birds are present on the farm?	Great grandparent breeders, grandparent rearer breeders, grandparent breeders, parent rearer breeders, parent breeders, grower birds, pullets or layers.
	How many sheds are on the farm?	Open
	What is the total capacity of this farm?	Open or categorical (small <50,000; medium 50,000 to 100,000; large 100,001 to 250,000; or extra large > 250,000)
Farm characteristics	Does the farm have a single or multi-aged flock?	Single or multi-aged
	How is used litter or manure disposed of?	Buried, contractor, incinerated, removed by local user or spread on site.
	How are dead birds disposed of?	Buried, composted, contractor, incinerated, landfill or rendering
	Are other species of birds present on the farm?	No, Yes
	What other species of birds are present on the farm?	Open
Live bird movements onto the farm	Who supplies new day old chicks, pullets or rearer birds to the farm?	Name of the source(s) of new birds
	Who are they transported by?	Name of new transporter(s)

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Table A2-1. Questions included in the 2005 censuses of the chicken meat, duck and turkey industries and the 2007 census of the chicken egg industry

Topic	Question	Response
Live bird movements off the farm	Where are live birds moved to off the farm?	Market, processing plant, rearer/pullet transfer, farm gate sales or rendering
	Who are the pickup crew?	Name of pickup crew(s)
	Who transports them?	Name of live bird transporter(s)
	Where are they transported to?	Name of live bird destination(s)
Eggs trays and transportation	What type of egg trays are used?	Plastic sanitised, plastic not sanitised, cardboard new, cardboard re-used.
	Where are fertile or table eggs transported to?	Name of hatchery or egg processing plant
	Who transports these eggs?	Name of egg transporter
Service providers	Who carries out the vaccination of birds?	Farm staff, contactor or integrator
	Who is the vaccination contractor, if applicable?	Name of vaccination contactor(s)
	Who carries out shed sanitation operations?	Name of shed sanitation contactor(s)
	Who is the sanitation contractor, if applicable?	Name of sanitation contactor(s)
	Where is feed obtained?	Commercial, from the integrator, from other producers, or from their own mill
	What is the name of the feed supplier?	Name of feed supplier(s)
	Who is the dead bird transporter?	Name of dead bird transporter(s)
	Who supplies fresh litter to the farm?	Name of fresh litter supplier(s)
	Who transports used litter or manure from the farm?	Name of used litter or manure transporter(s)

APPENDIX 3. Parameter estimates for AISPREAD

Table A3-1. Production parameters for chicken meat farms			
Farm Type	Parameter description	Parameter value(s)	Reference(s)
Broiler	Age at first thinning (days)	Beta pert (31,33,35)	P. Scott, pers. comm., April 2008
	Age at second thinning (days)	Beta pert (40,42,44)	P. Scott, pers. comm., April 2008
	Age at final depopulation (days)	Beta pert (48,52,56)	P. Scott, pers. comm., April 2008
	Time between batches (days)	Beta pert (5,14,28)	P. Scott, pers. comm., April 2008
Parent breeder	Age of birds when moved to farm (days)	Beta pert (126,140,154)	P. Scott, pers. comm., April 2008
	Age at spiking (days)	Beta pert (280,315,331)	P. Scott, pers. comm., April 2008
	Age at depopulation (days)	Beta pert (420,448,490)	P. Scott, pers. comm., April 2008
	Time between batches (days)	Beta pert (28,35,63)	P. Scott, pers. comm., April 2008
Parent rearer and breeder	Age at first vaccination crew visit (days)	Beta pert (8,10,12)	P. Scott, pers. comm., April 2008
	Age at second vaccination crew visit (days)	Beta pert (77,84,91)	P. Scott, pers. comm., April 2008
	Age at third vaccination crew visit (days)	Beta pert (112,119,126)	P. Scott, pers. comm., April 2008
	Age at spiking (days)	Beta pert (280,315,331)	P. Scott, pers. comm., April 2008
	Age at depopulation (days)	Beta pert (420,448,490)	P. Scott, pers. comm., April 2008
	Time between batches (days)	Beta pert (28,35,63)	P. Scott, pers. comm., April 2008
Parent rearer	Age at first vaccination crew visit (days)	Beta pert (8,10,12)	P. Scott, pers. comm., April 2008
	Age at second vaccination crew visit (days)	Beta pert (77,84,91)	P. Scott, pers. comm., April 2008
	Age at third vaccination crew visit (days)	Beta pert (112,119,126)	P. Scott, pers. comm., April 2008
	Age at depopulation (days)	Beta pert (126,140,154)	P. Scott, pers. comm., April 2008
	Time between batches (days)	Beta pert (21,28,63)	P. Scott, pers. comm., April 2008
Grandparent breeder	Age of birds when moved to farm (days)	Beta pert (126,140,154)	P. Scott, pers. comm., April 2008
	Age at spiking (days)	Beta pert	P. Scott, pers.

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Table A3-1. Production parameters for chicken meat farms			
Farm Type	Parameter description	Parameter value(s)	Reference(s)
		(280,315,331)	comm., April 2008
	Age at depopulation (days)	Beta pert (420,448,490)	P. Scott, pers. comm., April 2008
	Time between batches (days)	Beta pert (28,35,63)	P. Scott, pers. comm., April 2008
Grandparent rearer and breeder	Age at first vaccination crew visit (days)	Beta pert (8,10,12)	P. Scott, pers. comm., April 2008
	Age at second vaccination crew visit (days)	Beta pert (77,84,91)	P. Scott, pers. comm., April 2008
	Age at third vaccination crew visit (days)	Beta pert (112,119,126)	P. Scott, pers. comm., April 2008
	Age at spiking (days)	Beta pert (280,315,331)	P. Scott, pers. comm., April 2008
	Age at depopulation (days)	Beta pert (420,448,490)	P. Scott, pers. comm., April 2008
	Time between batches (days)	Beta pert (28,35,63)	P. Scott, pers. comm., April 2008
Grandparent rearer	Age at first vaccination crew visit (days)	Beta pert (8,10,12)	P. Scott, pers. comm., April 2008
	Age at second vaccination crew visit (days)	Beta pert (77,84,91)	P. Scott, pers. comm., April 2008
	Age at third vaccination crew visit (days)	Beta pert (112,119,126)	P. Scott, pers. comm., April 2008
	Age at depopulation (days)	Beta pert (126,140,154)	P. Scott, pers. comm., April 2008
	Time between batches (days)	Beta pert (28,35,63)	P. Scott, pers. comm., April 2008
Great-grandparent breeder farm	Age of birds when moved to farm (days)	63	P. Scott, pers. comm., April 2008
	Age at spiking (days)	Beta pert (280,315,331)	P. Scott, pers. comm., April 2008
	Age at depopulation (days)	Beta pert (420,448,490)	P. Scott, pers. comm., April 2008
	Time between batches (days)	Beta pert (28,35,63)	P. Scott, pers. comm., April 2008
Multi-aged broiler farm	Batches per year	5	P. Scott, pers. comm., April 2008
	Time between batches (days)	Beta pert (4,14,46)	P. Scott, pers. comm., April 2008

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Table A3-2. Production parameters for chicken layer farms			
Farm Type	Parameter description	Parameter value(s)	Reference(s)
Layer	Age of birds when moved to farm (days)	Beta pert (84,112,133)	P. Scott, pers. comm., April 2008
	Age at egg production (days)	Beta pert (105,119,140)	P. Scott, pers. comm., April 2008
	Age at depopulation (days)	Beta pert (420,518,770)	P. Scott, pers. comm., April 2008
	Time between batches (days)	Beta pert (14,21,28)	P. Scott, pers. comm., April 2008
Layer and pullet	Age at first vaccination crew visit (days)	Beta pert (63,84,98)	P. Scott, pers. comm., April 2008
	Age at egg production (days)	Beta pert (105,119,140)	P. Scott, pers. comm., April 2008
	Age at depopulation (days)	Beta pert (420,518,770)	P. Scott, pers. comm., April 2008
	Time between batches (days)	Beta pert (14,21,28)	P. Scott, pers. comm., April 2008
Pullet	Age at first vaccination crew visit (days)	Beta pert (63,84,98)	P. Scott, pers. comm., April 2008
	Age at depopulation (days)	Beta pert (84,112,133)	P. Scott, pers. comm., April 2008
	Time between batches (days)	Beta pert (14,21,28)	P. Scott, pers. comm., April 2008
Breeder	Age at first vaccination crew visit (days)	Beta pert (8,10,12)	P. Scott, pers. comm., April 2008
	Age at second vaccination crew visit (days)	Beta pert (77,84,91)	P. Scott, pers. comm., April 2008
	Age at third vaccination crew visit (days)	Beta pert (112,119,126)	P. Scott, pers. comm., April 2008
	Age at spiking (days)	Beta pert (280,315,331)	P. Scott, pers. comm., April 2008
	Age at depopulation (days)	Beta pert (420,518,770)	P. Scott, pers. comm., April 2008
	Time between batches	Beta pert (14,21,42)	P. Scott, pers. comm., April 2008
Multi-aged layer farms	Batches per year	8	P. Scott, pers. comm., April 2008
	Time between batches (days)	Beta pert (14,28,42)	P. Scott, pers. comm., April 2008

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Table A3-3. Production parameters for duck farms			
Farm Type	Parameter description	Parameter value(s)	Reference(s)
Grower	Age at final depopulation (days)	Beta pert (35,42,46)	P. Scott, pers. comm., April 2008
	Time between batches (days)	Beta pert (14,21,28)	P. Scott, pers. comm., April 2008
Parent breeder	Age at depopulation (days)	Beta pert (455,462,469)	P. Scott, pers. comm., April 2008
	Time between batches (days)	Beta pert (14,21,28)	P. Scott, pers. comm., April 2008
Grandparent or great-grandparent breeder	Age at depopulation (days)	Beta pert (483,490,497)	P. Scott, pers. comm., April 2008
	Time between batches (days)	Beta pert (21,28,42)	P. Scott, pers. comm., April 2008
Multi-aged duck farm	Batches per year	5	P. Scott, pers. comm., April 2008
	Time between batches (days)	Beta pert (7,10,14)	P. Scott, pers. comm., April 2008

Table A3-4. Production parameters for turkey farms			
Farm Type	Parameter description	Parameter value(s)	Reference(s)
Grower	Age at first depopulation (days)	Beta pert (63,70,77)	C. Prestwood, pers. comm., April 2008 ^a
	Age at final depopulation (days)	Beta pert (119,119,126)	C. Prestwood, pers. comm., April 2008
	Time between batches (days)	Beta pert (7,14,63)	C. Prestwood, pers. comm., April 2008
Parent breeder	Age at depopulation (days)	Beta pert (406,413,420)	C. Prestwood, pers. comm., April 2008
	Time between batches (days)	Beta pert (14,14,21)	C. Prestwood, pers. comm., April 2008
Grandparent or great-grandparent breeder	Age at depopulation (days)	Beta pert (406,413,420)	C. Prestwood, pers. comm., April 2008
	Time between batches (days)	Beta pert (14,14,21)	C. Prestwood, pers. comm., April 2008
Multi-aged turkey farm	Batches per year	12	C. Prestwood, pers. comm., April 2008
	Time between batches (days)	Beta pert (7,7,10)	C. Prestwood, pers. comm., April 2008

^a In 2008, C. Prestwood was the president of the Australasian Turkey Federation.

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Table A3-5. Other production parameters		
Parameter description	Parameter value(s)	Reference(s)
Time between feed deliveries (days)	7	P. Scott, pers. comm., April 2008
Time between of dead bird collection (days)	7	P. Scott, pers. comm., April 2008
Time between collection of compost bins Time between	60	Assumption

Table A3-6. Disease parameters for unvaccinated farms		
Parameter description	Parameter value(s)	Reference(s)
Latent period (all farms) (days)	1	
Infectious period (Chicken meat farms) (days)	Beta pert (27,29,32)	Chapter 7 ^a
Infectious period (Chicken layer farms) (days)	Beta pert (18,20,24)	Chapter 7
Infectious period (Duck farms) (days)	Beta pert (13,13,15)	Chapter 7
Infectious period (Turkey farms) (days)	Beta pert (19,21,25)	Chapter 7
Probability of reporting infection (all farms) (days)	1	Chapter 7
Reporting period (Chicken meat farms) (days)	Beta pert (8,9,12)	Chapter 7
Reporting period (Chicken layer farms) (days)	Beta pert (6,7,10)	Chapter 7
Reporting period (Duck farms) (days)	Beta pert (10,11,12)	Chapter 7
Reporting period (Turkey farms) (days)	Beta pert (7,7,11)	Chapter 7
Immune period (all farms) (days)	Beta pert (180,250,365)	Assumption
Days <i>Empty</i> farms remain contaminated (days)	Beta pert (10,14,28)	Assumption

^a subtracting an one day latent period from the simulated duration of the epidemic.

Table A3-7. Basic transmission parameters		
Parameter description	Parameter value(s)	Reference(s)
Transmission probability (feed)	0.15229	Chapter 6
Transmission probability (dead bird collection)	0.2027	Chapter 6
Transmission probability (litter and manure collection)	0.47504	Chapter 6
Transmission probability (day old chick delivery)	0.081067	Chapter 6
Transmission probability (litter delivery)	0.162135	Chapter 6
Transmission probability (sanitation)	0.142945	Chapter 6
Transmission probability (egg movements)	0.45117	Chapter 6
Transmission probability (routine vaccination)	0.438575	Chapter 6
Transmission probability (other slaughter crews)	0.664	Chapter 6
Transmission probability (broiler and turkey pickup crews)	0.776445	Chapter 6

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Industry	Farm Type	Bio-containment probability	Bio-exclusion probability	Reference(s)
Chicken meat	Broiler	1	0.75	Chapter 6
	Parent breeder	0.33	0.33	Chapter 6
	Rearer and parent breeder	0.33	0.33	Chapter 6
	Rearer parent breeder	0.33	0.33	Chapter 6
	Grandparent breeder	0.29	0.2	Chapter 6
	Rearer and grandparent breeder	0.29	0.2	Chapter 6
	Rearer grandparent	0.29	0.2	Chapter 6
	Great-grandparent breeder	0.29	0.2	Chapter 6
	Independent broiler	1	1	Chapter 6
Chicken layer	Layer	1	1	Chapter 6
	Pullet and layer	1	1	Chapter 6
	Pullet	1	1	Chapter 6
	Breeder	0.29	0.2	Chapter 6
Duck	Grower	0.75	0.75	Chapter 6
	Parent breeder	0.33	0.33	Chapter 6
	Elite breeder	0.29	0.2	Chapter 6
	Independent grower	1	1	Chapter 6
Turkey	Grower	0.5	1	Chapter 6
	Parent breeder	0.33	0.33	Chapter 6
	Elite breeder	0.29	0.2	Chapter 6
	Independent grower	1	1	Chapter 6

Description	Parameter value(s)	Reference(s)
Days fomites remain contaminated	5	Shortridge et al. (1998)
Decay parameter (day 0)	1	Shortridge et al. (1998)
Decay parameter (day 1)	0.7100	Shortridge et al. (1998)
Decay parameter (day 2)	0.7100	Shortridge et al. (1998)
Decay parameter (day 3)	0.0790	Shortridge et al. (1998)
Decay parameter (day 4)	0.0044	Shortridge et al. (1998)

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Parameter description	Parameter value(s)	Reference(s)
Restricted Area (RA) radius (km)	3	Animal Health Australia (2008a)
Control Area (CA) radius (km)	10	Animal Health Australia (2008a)
Daily probability dead bird collection on a farm in the RA	0.07	Animal Health Australia (2008a)
Daily probability dead bird collection on a farm in the CA	0.014	Animal Health Australia (2008a)
Sensitivity of dead bird surveillance	0.95 ^a	Chapter 5
Surveillance visits (per day)	Unlimited	Chapter 5
Sensitivity of surveillance visits	0.95 ^a	Chapter 5
Sensitivity of tracing	0.95 ^a	Chapter 5
Vaccination teams	10	DAFF, unpublished data
Vaccination rate (birds per day)	15,000	G. Arzey, pers. comm., August 2007
Culling rate (sheds culled per day)	1	R. Rubira, pers. comm., 2008
Culling teams	6	Baldock (1992)
^a In the sensitivity analysis presented in Chapter 8 these parameters were assumed to be 1 (Section 8.6) . These revised estimates were used for studies presented in Section 8.7 and Chapters 9 and 10.		

Industry	Parameter description	Single vaccination	Double vaccination	Reference
Chicken meat	Susceptibility	1	0.65	Chapter 7
	Sensitivity of surveillance	0.53	0.06	Chapter 7
	Infectiousness	0.2	0.2	Assumption
	Latent period (days)	1	1	Assumption
	Infectious period (if infection not reported) (days)	Beta pert (1,7,27) ^a	Beta pert (1,1,8) ^a	Chapter 7
	Reporting period (if infection reported) (days)	Beta pert (3,4,28)	Beta pert (3,4,5)	Chapter 7
Chicken layer	Susceptibility	0.99	0.75	Chapter 7
	Sensitivity of surveillance	0.47	0.08	Chapter 7
	Infectiousness	0.2	0.2	Assumption
	Latent period (days)	1	1	Assumption

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Table A3-11. Baseline farm-level vaccination parameters (assuming 80% flock immunity)				
Industry	Parameter description	Single vaccination	Double vaccination	Reference
	Infectious period (if infection not reported) (days)	Beta pert (1,2,20) ^a	Beta pert (1,1,8) ^a	Chapter 7
	Reporting period (if infection reported) (days)	Beta pert (3,6,20)	Beta pert (3,4,5)	Chapter 7
Duck	Susceptibility	0.98	0.96	Chapter 7
	Sensitivity of surveillance	1	0.95	Chapter 7
	Infectiousness	0.2	0.2	Assumption
	Latent period (days)	1	1	Assumption
	Infectious period (if infection not reported) (days)	n/a	Beta pert (1,1,1) ^a	Chapter 7
	Reporting period (if infection reported) (days)	Beta pert (3,5,7)	Beta pert (3,5,10)	Chapter 7
Turkey	Susceptibility	1	0.62	Chapter 7
	Sensitivity of surveillance	0.43	0.19	Chapter 7
	Infectiousness	0.2	0.2	Assumption
	Latent period (days)	1	1	Assumption
	Infectious period (if infection not reported) (days)	Beta pert (1,2,25) ^a	Beta pert (1,1,7) ^a	Chapter 7
	Reporting period (if infection reported) (days)	Beta pert (3,4,19)	Beta pert (3,4,11)	Chapter 7
All	Time until immunity after vaccination (days)	14	14	Assumption
	Minimum time between first and second doses (days)	n/a	14	Lee et al. 2004
^a subtracting one day from the duration of the epidemic to account for the latent period				

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Table A3-12. Alternative farm-level vaccination parameters (assuming 90% flock immunity)				
Industry	Parameter description	Single vaccination	Double vaccination	Reference
Chicken meat	Susceptibility	1	0.5	Chapter 7
	Sensitivity of surveillance	0.24	0.08	Chapter 7
	Infectiousness	0.1	0.1	Assumption
	Latent period (days)	1	1	Assumption
	Infectious period (if infection not reported) (days)	Beta pert (2,2,15) ^a	Beta pert (1,1,3) ^a	Chapter 7
	Reporting period (if infection reported) (days)	Beta pert (3,5,13)	Beta pert (3,3,4)	Chapter 7
Chicken layer	Susceptibility	1	0.41	Chapter 7
	Sensitivity of surveillance	0.3	0.05	Chapter 7
	Infectiousness	0.1	0.1	Assumption
	Latent period (days)	1	1	Assumption
	Infectious period (if infection not reported) (days)	Beta pert (1,2,16) ^a	Beta pert (1,1,4) ^a	Chapter 7
	Reporting period (if infection reported) (days)	Beta pert (3,5,11)	Beta pert (3,3,3)	Chapter 7
Duck	Susceptibility	1	0.93	Chapter 7
	Sensitivity of surveillance	0.95	0.91	Chapter 7
	Infectiousness	0.1	0.1	Assumption
	Latent period (days)	1	1	Assumption
	Infectious period (if infection not reported) (days)	Beta pert (1,1,1) ^a	Beta pert (1,1,1) ^a	Chapter 7
	Reporting period (if infection reported) (days)	Beta pert (3,5,8)	Beta pert (3,6,9)	Chapter 7
Turkey	Susceptibility	1	0.44	Chapter 7
	Sensitivity of surveillance	0.22	0.07	Chapter 7
	Infectiousness	0.1	0.1	Assumption
	Latent period (days)	1	1	Assumption
	Infectious period (if infection not reported) (days)	Beta pert (1,2,12) ^a	Beta pert (1,1,5) ^a	Chapter 7

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Table A3-12. Alternative farm-level vaccination parameters (assuming 90% flock immunity)				
Industry	Parameter description	Single vaccination	Double vaccination	Reference
	Reporting period (if infection reported) (days)	Beta pert (3,3,11)	Beta pert (3,3,3)	Chapter 7
All	Time until immunity after vaccination (days)	14	14	Assumption
	Minimum time between first and second doses (days)	n/a	14	Lee et al. (2004)
^a subtracting one day from the duration of the epidemic to account for the latent period				

APPENDIX 4

A4.1 Hard copy questionnaire used in the face to face workshop

Introduction and aim of the survey

Understanding the likelihood of highly pathogenic avian influenza spread between commercial poultry farms in Australia

A survey to support Australia's emergency preparedness

Office of the Chief Veterinary Officer
Australian Government Department of Agriculture Fisheries and Forestry

Faculty of Veterinary Science
University of Sydney

The purpose of this survey is to collect expert opinion about the potential spread of highly pathogenic avian influenza (HPAI) between commercial chicken meat, chicken egg, duck and turkey farms in Australia. Data collected in this survey is important for simulation studies investigating the likely spread of infection and the efficacy of potential control measures.

Please return the questionnaire to:

**Dr Sam Hamilton
Office of the Chief Veterinary Officer
Department of Agriculture Fisheries and Forestry
GPO Box 858
Canberra ACT 2602**

APPENDIX 4

**INFORMATION GATHERED IN THIS SURVEY IS STRICTLY
CONFIDENTIAL**

APPENDIX 4

Likelihood categories

The following section aims to quantify the likelihood of highly pathogenic avian influenza spread between farms by a number of exposure scenarios.

Please rate the likelihood of each scenario using the following scale:

Category	Description	Frequency of transmission per 1,000 farm-to-farm contacts
<i>Negligible</i>	The event would almost certainly not occur	0 to 0.001 times per 1000 contacts
<i>Extremely low</i>	The event would be extremely unlikely to occur	0.001 to 1 times per 1000 contacts
<i>Very low</i>	The event would be very unlikely to occur	1 to 50 times per 1000 contacts
<i>Low</i>	The event would be unlikely to occur	50 to 300 times per 1000 contacts
<i>Moderate</i>	The event would occur with an even probability	300 to 700 times per 1000 contacts
<i>High</i>	The event would be very likely to occur	700 to 1000 times per 1000 contacts

Example: likelihood of human mortality in Australia

This table lists the likelihood of death for Australians by a number of causes, categorised using the previous scale. It may be a useful reference for you.

Category	Cause	Likelihood
<i>Negligible</i>	Death by lightning strike (per year)	0.0001 per 1000 people
<i>Extremely low</i>	Death by transport accident (per year)	0.1 per 1,000 people
<i>Very low</i>	Death by any cause (65 and over years) (per year)	42.5 per 1000 people
<i>Low</i>	Probability of death within a year after diagnosis of colon cancer (Victoria)	190 per 1000 people
<i>Moderate</i>	Probability of death within a year after diagnosis of mesothelioma (Victoria)	580 per 1000 people
<i>High</i>	Probability of death within five years after diagnosis of lung cancer (Victoria)	890 per 1000 people

Uncertainty categories

Questions in this section are designed to gather your opinion about specific outbreak scenarios. Because there is limited experience with HPAI spread in Australia, we don't know the "right" answers.

Because of this, it is useful for us to know how certain you are that your answer is correct.

For each response please indicate how certain you are that your judgement is correct using the following scale:

Category	Description
<i>Not certain at all</i>	you do not feel qualified to give an opinion
<i>Very uncertain</i>	you slightly prefer your answer to other available choices
<i>Low level of certainty</i>	you have some reason or a “gut feeling” for your choice
<i>Fairly certain</i>	you are aware of evidence from an similar situation that supports your opinion
<i>Very certain</i>	you are aware of data which directly supports your opinion

APPENDIX 4

Likelihood of HPAI transmission between broiler farms by pickup crews

Farm B is a single-aged broiler farm, contracted to a commercial integrator. It has 35 day old birds on site. This farm has been infected with highly pathogenic avian influenza for one week. Although there has been a mild increase in mortalities, the farm continues to operate as usual. The ambient temperature is between 15 to 20°C

Scenario 10. A thinning crew catches broilers on **Farm B**, which are transported to the integrator’s processing plant. Later that night the crew and the vehicle pickup birds from another broiler farm.

1. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *worst* plausible case? (Mark one)

Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *best* plausible case? (Mark one)

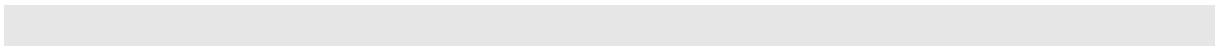
Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *most likely* case? (Mark one)

Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. How certain are you that this assessment is correct? (Mark one)

Not certain at all	Very uncertain	Low level of certainty	Fairly certain	Very certain
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



APPENDIX 4

Likelihood of HPAI transmission between layer farms by feed deliveries

Farm A is a multi-aged combined pullet and layer farm has been infected with highly pathogenic avian influenza for one week. Infection has not been detected yet and the farm continues to operate as usual. The ambient temperature is between 15 to 20°C.

This farm is an independent operation, but shares services with a number of layer farms in the region.

Scenario 1. Farm A receives a delivery of feed. Later that day, the same truck and driver deliver feed to a second layer farm.

5. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *worst* plausible case? (Mark one)

Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *best* plausible case? (Mark one)

Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *most likely* case? (Mark one)

Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. How certain are you that this assessment is correct? (Mark one)

Not certain at all	Very uncertain	Low level of certainty	Fairly certain	Very certain
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

APPENDIX 4

Likelihood of HPAI transmission between farms by contractors removing dead birds

Scenario 2. A waste removal contractor has made a collection of dead bird carcasses from **Farm A**. Later that day, the same vehicle and driver make a collection of dead birds from a second layer farm.

9. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *worst* plausible case? (Mark one)

Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *best* plausible case? (Mark one)

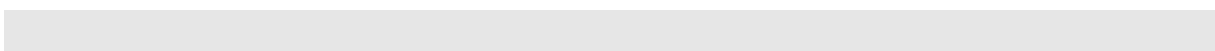
Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *most likely* case? (Mark one)

Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. How certain are you that this assessment is correct? (Mark one)

Not certain at all	Very uncertain	Low level of certainty	Fairly certain	Very certain
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



APPENDIX 4

Likelihood of HPAI transmission between layer farms by contractors removing manure

Scenario 3. A haulage company collects manure from **Farm A** and transports it to a local processing centre. Later that day, the driver and truck collect manure from a second layer farm.

13. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *worst* plausible case? (Mark one)

Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *best* plausible case? (Mark one)

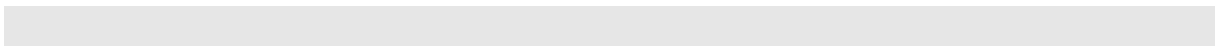
Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

15. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *most likely* case? (Mark one)

Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

16. How certain are you that this assessment is correct? (Mark one)

Not certain at all	Very uncertain	Low level of certainty	Fairly certain	Very certain
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



APPENDIX 4

Likelihood of HPAI transmission between layer farms by day-old chick deliveries

Scenario 4. Farm A receives a delivery of day-old chicks from a hatchery in the region. Later that day the truck and driver return to the hatchery and deliver another batch of day-old chicks to a second layer farm.

17. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *worst* plausible case? (Mark one)

Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

18. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *best* plausible case? (Mark one)

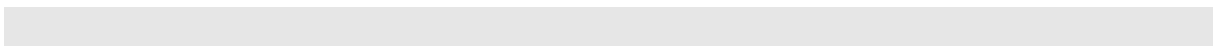
Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

19. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *most likely* case? (Mark one)

Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

20. How certain are you that this assessment is correct? (Mark one)

Not certain at all	Very uncertain	Low level of certainty	Fairly certain	Very certain
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



APPENDIX 4

Likelihood of HPAI transmission between layer farms by fresh litter deliveries

Scenario 5. Farm A receives a delivery of fresh litter from a litter supplier. The next day the same vehicle and driver make a delivery of litter to another layer farm.

21. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *worst* plausible case? (Mark one)

Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

22. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *best* plausible case? (Mark one)

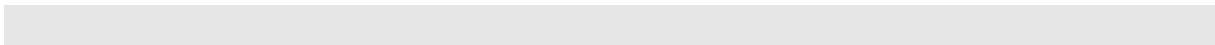
Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

23. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *most likely* case? (Mark one)

Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

24. How certain are you that this assessment is correct? (Mark one)

Not certain at all	Very uncertain	Low level of certainty	Fairly certain	Very certain
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



APPENDIX 4

Likelihood of HPAI transmission between layer farms by sanitation crews

Scenario 6. A sanitation crew visits **Farm A** and decontaminates and disinfects an empty shed on the property. The next day this crew visits another layer farm.

25. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *worst* plausible case? (Mark one)

Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

26. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *best* plausible case? (Mark one)

Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

27. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *most likely* case? (Mark one)

Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

28. How certain are you that this assessment is correct? (Mark one)

Not certain at all	Very uncertain	Low level of certainty	Fairly certain	Very certain
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

APPENDIX 4

Likelihood of HPAI transmission between layer farms by the re-use of cardboard egg trays

Scenario 7. Consignments of eggs are transported daily from **Farm A** to a grading and packing floor using cardboard egg trays. Another layer farm also supplies eggs to this grading and packing floor. The next day egg trays from **Farm A** are sent to the second farm.

29. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *worst* plausible case? (Mark one)

Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

30. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *best* plausible case? (Mark one)

Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

31. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *most likely* case? (Mark one)

Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

32. How certain are you that this assessment is correct? (Mark one)

Not certain at all	Very uncertain	Low level of certainty	Fairly certain	Very certain
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



APPENDIX 4

Likelihood of HPAI transmission between layer farms by vaccination crews

Scenario 8. A vaccination crew visits **Farm A** to vaccinate pullets. The next day this crew vaccinates pullets on another layer farm.

33. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *worst* plausible case? (Mark one)

Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

34. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *best* plausible case? (Mark one)

Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

35. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *most likely* case? (Mark one)

Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

36. How certain are you that this assessment is correct? (Mark one)

Not certain at all	Very uncertain	Low level of certainty	Fairly certain	Very certain
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



APPENDIX 4

Likelihood of HPAI transmission between layer farms by pickup crews

Scenario 9. Spent layer hens on **Farm A** are transported to slaughter using a contractor's truck. The next day this contractor visits another layer farm.

37. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *worst* plausible case? (Mark one)

Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

38. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *best* plausible case? (Mark one)

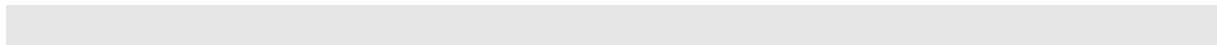
Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

39. In your opinion, what is the likelihood of HPAI transmission to the second farm in the *most likely* case? (Mark one)

Negligible	Extremely low	Very low	Low	Moderate	High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

40. How certain are you that this assessment is correct? (Mark one)

Not certain at all	Very uncertain	Low level of certainty	Fairly certain	Very certain
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



APPENDIX 4

Other questions (1)

41. In your opinion, what is the *maximum*, *minimum* and *most likely* number of broiler pickup crews servicing individual integrated chicken meat processing plants?

Maximum	
Minimum	
Most likely	

42. How certain are you that this assessment is correct? (Mark one)

Not certain at all	Very uncertain	Low level of certainty	Fairly certain	Very certain
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

43. In your opinion, what is the *maximum*, *minimum* and *most likely* number of day-old chick delivery trucks operating out of hatcheries owned by integrated companies?

Maximum	
Minimum	
Most likely	

44. How certain are you that this assessment is correct? (Mark one)

Not certain at all	Very uncertain	Low level of certainty	Fairly certain	Very certain
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

APPENDIX 4

Other questions (2)

The following questions are included to gather a better understanding of the movements of used cardboard egg trays between farms in the chicken layer industry.

45. In your opinion, what percent of chicken egg layer farms would receive used cardboard egg trays onto the farm from external source (e.g. a grading/packing facility)?

%

46. How certain are you that this assessment is correct? (Mark one)

Not certain at all	Very uncertain	Low level of certainty	Fairly certain	Very certain
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

47. If a farm receives used cardboard egg trays from an external source, in your opinion what would be the *maximum*, *minimum* and *most likely* number of times per week used cardboard egg trays come onto to the farm?

Maximum	<input type="text"/>	Per week
Minimum	<input type="text"/>	Per week
Most likely	<input type="text"/>	Per week

48. How certain are you that this assessment is correct? (Mark one)

Not certain at all	Very uncertain	Low level of certainty	Fairly certain	Very certain
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

49. Are records kept about these movements? If so, what sort of records are kept?

APPENDIX 4

Other questions (3)

The following questions are included to gather a better understanding of the contacts between independent processing plants and the mainstream chicken meat industry.

50. In your opinion, does the supply of broilers from integrated farms to independent processing plants represent a significant biosecurity risk for the spread of AI?

51. Are the birds transported by trucks managed by the independent processor or the chicken meat integrator?

52. Typically, what level of decontamination and disinfection is practiced on vehicles, crates and personnel used for these movements?

53. Are records kept about these movements? If so, what sort of records are kept?

APPENDIX 4

Comments

54. Any other comments? How could this process be improved?

A4.2 Additional questions included in the online questionnaire but not in the face to face workshop

General information

1. How long have you been employed in the poultry industry (in years)?

2. Which category or categories best describe your current employment?

University

Government

Industry

Private consultant

Other (please specify)

3. Have you ever drafted biosecurity protocols for poultry farms?

Yes

No

APPENDIX 4

Uncertainty categories

Questions in this section are designed to gather your opinion about specific outbreak scenarios. Because there is limited experience with HPAI spread in Australia, we don't know the "right" answers.

Because of this, it is useful for us to know how certain you are that your answer is correct.

For each response please indicate how certain you are that your judgement is correct using the following scale:

Category	Description
<i>Not certain at all</i>	you do not feel qualified to give an opinion
<i>Very uncertain</i>	you slightly prefer your answer to other available choices
<i>Low level of certainty</i>	you have some reason or a “gut feeling” for your choice
<i>Fairly certain</i>	you are aware of evidence from an similar situation that supports your opinion
<i>Very certain</i>	you are aware of data which directly supports your opinion

Ranking the effectiveness of biosecurity practiced on different types of poultry farms

For the purposes of this exercise, farm biosecurity can be classified into two categories:

- a) **Bioexclusion** - *the ability to prevent the introduction of infection into susceptible flocks from contaminated objects*
- b) **Biocontainment** - *the ability to prevent virus escaping from infected flocks by decontaminating contaminated objects*

The following section aims to quantify the relative effectiveness of bioexclusion and biocontainment practices on different types of farms compared with an **average independent chicken egg layer farm**.

APPENDIX 4

Relative effectiveness of bioexclusion practices

4. In your opinion, how much more or less likely are the following types of farms to become infected with HPAI if visited by contaminated personnel, vehicles or equipment compared with an *independent chicken egg layer farm*? Please tick your response.

In each case please tick how certain you are that your assessments are correct.

Type of farm	Relative likelihood of transmission of infection to poultry	Your level of certainty
Chicken layer pullet farm	<input type="checkbox"/> ≥5 times MORE likely <input type="checkbox"/> 4 times MORE likely <input type="checkbox"/> 3 times MORE likely <input type="checkbox"/> 2 times MORE likely <input type="checkbox"/> EQUALLY likely <input type="checkbox"/> 2 times LESS likely <input type="checkbox"/> 3 times LESS likely <input type="checkbox"/> 4 times LESS likely <input type="checkbox"/> ≥5 times LESS likely	<input type="checkbox"/> Not certain at all <input type="checkbox"/> Very uncertain <input type="checkbox"/> Low level of certainty <input type="checkbox"/> Fairly certain <input type="checkbox"/> Very certain
Integrated parent breeder farm	<input type="checkbox"/> ≥5 times MORE likely <input type="checkbox"/> 4 times MORE likely <input type="checkbox"/> 3 times MORE likely <input type="checkbox"/> 2 times MORE likely <input type="checkbox"/> EQUALLY likely <input type="checkbox"/> 2 times LESS likely <input type="checkbox"/> 3 times LESS likely <input type="checkbox"/> 4 times LESS likely <input type="checkbox"/> ≥5 times LESS likely	<input type="checkbox"/> Not certain at all <input type="checkbox"/> Very uncertain <input type="checkbox"/> Low level of certainty <input type="checkbox"/> Fairly certain <input type="checkbox"/> Very certain
Integrated GP or GGP farm	<input type="checkbox"/> ≥5 times MORE likely <input type="checkbox"/> 4 times MORE likely <input type="checkbox"/> 3 times MORE likely <input type="checkbox"/> 2 times MORE likely <input type="checkbox"/> EQUALLY likely <input type="checkbox"/> 2 times LESS likely <input type="checkbox"/> 3 times LESS likely <input type="checkbox"/> 4 times LESS likely <input type="checkbox"/> ≥5 times LESS likely	<input type="checkbox"/> Not certain at all <input type="checkbox"/> Very uncertain <input type="checkbox"/> Low level of certainty <input type="checkbox"/> Fairly certain <input type="checkbox"/> Very certain
Integrated broiler farm	<input type="checkbox"/> ≥5 times MORE likely <input type="checkbox"/> 4 times MORE likely <input type="checkbox"/> 3 times MORE likely <input type="checkbox"/> 2 times MORE likely <input type="checkbox"/> EQUALLY likely <input type="checkbox"/> 2 times LESS likely <input type="checkbox"/> 3 times LESS likely <input type="checkbox"/> 4 times LESS likely <input type="checkbox"/> ≥5 times LESS likely	<input type="checkbox"/> Not certain at all <input type="checkbox"/> Very uncertain <input type="checkbox"/> Low level of certainty <input type="checkbox"/> Fairly certain <input type="checkbox"/> Very certain
Independent chicken meat farm	<input type="checkbox"/> ≥5 times MORE likely <input type="checkbox"/> 4 times MORE likely <input type="checkbox"/> 3 times MORE likely <input type="checkbox"/> 2 times MORE likely <input type="checkbox"/> EQUALLY likely <input type="checkbox"/> 2 times LESS likely <input type="checkbox"/> 3 times LESS likely <input type="checkbox"/> 4 times LESS likely	<input type="checkbox"/> Not certain at all <input type="checkbox"/> Very uncertain <input type="checkbox"/> Low level of certainty <input type="checkbox"/> Fairly certain <input type="checkbox"/> Very certain

APPENDIX 4

Type of farm	Relative likelihood of transmission of infection to poultry	Your level of certainty
	<input type="checkbox"/> ≥5 times LESS likely	
Integrated duck grower farm	<input type="checkbox"/> ≥5 times MORE likely <input type="checkbox"/> 4 times MORE likely <input type="checkbox"/> 3 times MORE likely <input type="checkbox"/> 2 times MORE likely <input type="checkbox"/> EQUALLY likely <input type="checkbox"/> 2 times LESS likely <input type="checkbox"/> 3 times LESS likely <input type="checkbox"/> 4 times LESS likely <input type="checkbox"/> ≥5 times LESS likely	<input type="checkbox"/> Not certain at all <input type="checkbox"/> Very uncertain <input type="checkbox"/> Low level of certainty <input type="checkbox"/> Fairly certain <input type="checkbox"/> Very certain
Independent duck farm	<input type="checkbox"/> ≥5 times MORE likely <input type="checkbox"/> 4 times MORE likely <input type="checkbox"/> 3 times MORE likely <input type="checkbox"/> 2 times MORE likely <input type="checkbox"/> EQUALLY likely <input type="checkbox"/> 2 times LESS likely <input type="checkbox"/> 3 times LESS likely <input type="checkbox"/> 4 times LESS likely <input type="checkbox"/> ≥5 times LESS likely	<input type="checkbox"/> Not certain at all <input type="checkbox"/> Very uncertain <input type="checkbox"/> Low level of certainty <input type="checkbox"/> Fairly certain <input type="checkbox"/> Very certain
Integrated turkey grower farm	<input type="checkbox"/> ≥5 times MORE likely <input type="checkbox"/> 4 times MORE likely <input type="checkbox"/> 3 times MORE likely <input type="checkbox"/> 2 times MORE likely <input type="checkbox"/> EQUALLY likely <input type="checkbox"/> 2 times LESS likely <input type="checkbox"/> 3 times LESS likely <input type="checkbox"/> 4 times LESS likely <input type="checkbox"/> ≥5 times LESS likely	<input type="checkbox"/> Not certain at all <input type="checkbox"/> Very uncertain <input type="checkbox"/> Low level of certainty <input type="checkbox"/> Fairly certain <input type="checkbox"/> Very certain
Independent turkey farm	<input type="checkbox"/> ≥5 times MORE likely <input type="checkbox"/> 4 times MORE likely <input type="checkbox"/> 3 times MORE likely <input type="checkbox"/> 2 times MORE likely <input type="checkbox"/> EQUALLY likely <input type="checkbox"/> 2 times LESS likely <input type="checkbox"/> 3 times LESS likely <input type="checkbox"/> 4 times LESS likely <input type="checkbox"/> ≥5 times LESS likely	<input type="checkbox"/> Not certain at all <input type="checkbox"/> Very uncertain <input type="checkbox"/> Low level of certainty <input type="checkbox"/> Fairly certain <input type="checkbox"/> Very certain

APPENDIX 4

Relative effectiveness of biocontainment practices

5. In your opinion, if the following types of farms were infected with HPAI how much more or less likely would it be that personnel, vehicles or equipment would be contaminated with virus after leaving the site compared with an *independent chicken egg layer farm*? Please tick your response.

In each case please tick how certain you are that your assessments are correct.

Type of farm	Relative likelihood of transmission of infection to poultry	Your level of certainty
Chicken layer pullet farm	<input type="checkbox"/> ≥5 times MORE likely <input type="checkbox"/> 4 times MORE likely <input type="checkbox"/> 3 times MORE likely <input type="checkbox"/> 2 times MORE likely <input type="checkbox"/> EQUALLY likely <input type="checkbox"/> 2 times LESS likely <input type="checkbox"/> 3 times LESS likely <input type="checkbox"/> 4 times LESS likely <input type="checkbox"/> ≥5 times LESS likely	<input type="checkbox"/> Not certain at all <input type="checkbox"/> Very uncertain <input type="checkbox"/> Low level of certainty <input type="checkbox"/> Fairly certain <input type="checkbox"/> Very certain
Integrated parent breeder farm	<input type="checkbox"/> ≥5 times MORE likely <input type="checkbox"/> 4 times MORE likely <input type="checkbox"/> 3 times MORE likely <input type="checkbox"/> 2 times MORE likely <input type="checkbox"/> EQUALLY likely <input type="checkbox"/> 2 times LESS likely <input type="checkbox"/> 3 times LESS likely <input type="checkbox"/> 4 times LESS likely <input type="checkbox"/> ≥5 times LESS likely	<input type="checkbox"/> Not certain at all <input type="checkbox"/> Very uncertain <input type="checkbox"/> Low level of certainty <input type="checkbox"/> Fairly certain <input type="checkbox"/> Very certain
Integrated GP or GGP farm	<input type="checkbox"/> ≥5 times MORE likely <input type="checkbox"/> 4 times MORE likely <input type="checkbox"/> 3 times MORE likely <input type="checkbox"/> 2 times MORE likely <input type="checkbox"/> EQUALLY likely <input type="checkbox"/> 2 times LESS likely <input type="checkbox"/> 3 times LESS likely <input type="checkbox"/> 4 times LESS likely <input type="checkbox"/> ≥5 times LESS likely	<input type="checkbox"/> Not certain at all <input type="checkbox"/> Very uncertain <input type="checkbox"/> Low level of certainty <input type="checkbox"/> Fairly certain <input type="checkbox"/> Very certain
Integrated broiler farm	<input type="checkbox"/> ≥5 times MORE likely <input type="checkbox"/> 4 times MORE likely <input type="checkbox"/> 3 times MORE likely <input type="checkbox"/> 2 times MORE likely <input type="checkbox"/> EQUALLY likely <input type="checkbox"/> 2 times LESS likely <input type="checkbox"/> 3 times LESS likely <input type="checkbox"/> 4 times LESS likely <input type="checkbox"/> ≥5 times LESS likely	<input type="checkbox"/> Not certain at all <input type="checkbox"/> Very uncertain <input type="checkbox"/> Low level of certainty <input type="checkbox"/> Fairly certain <input type="checkbox"/> Very certain
Independent chicken meat farm	<input type="checkbox"/> ≥5 times MORE likely <input type="checkbox"/> 4 times MORE likely <input type="checkbox"/> 3 times MORE likely <input type="checkbox"/> 2 times MORE likely <input type="checkbox"/> EQUALLY likely <input type="checkbox"/> 2 times LESS likely <input type="checkbox"/> 3 times LESS likely	<input type="checkbox"/> Not certain at all <input type="checkbox"/> Very uncertain <input type="checkbox"/> Low level of certainty <input type="checkbox"/> Fairly certain <input type="checkbox"/> Very certain

APPENDIX 4

Type of farm	Relative likelihood of transmission of infection to poultry	Your level of certainty
	<input type="checkbox"/> 4 times LESS likely <input type="checkbox"/> ≥5 times LESS likely	
Integrated duck grower farm	<input type="checkbox"/> ≥5 times MORE likely <input type="checkbox"/> 4 times MORE likely <input type="checkbox"/> 3 times MORE likely <input type="checkbox"/> 2 times MORE likely <input type="checkbox"/> EQUALLY likely <input type="checkbox"/> 2 times LESS likely <input type="checkbox"/> 3 times LESS likely <input type="checkbox"/> 4 times LESS likely <input type="checkbox"/> ≥5 times LESS likely	<input type="checkbox"/> Not certain at all <input type="checkbox"/> Very uncertain <input type="checkbox"/> Low level of certainty <input type="checkbox"/> Fairly certain <input type="checkbox"/> Very certain
Independent duck farm	<input type="checkbox"/> ≥5 times MORE likely <input type="checkbox"/> 4 times MORE likely <input type="checkbox"/> 3 times MORE likely <input type="checkbox"/> 2 times MORE likely <input type="checkbox"/> EQUALLY likely <input type="checkbox"/> 2 times LESS likely <input type="checkbox"/> 3 times LESS likely <input type="checkbox"/> 4 times LESS likely <input type="checkbox"/> ≥5 times LESS likely	<input type="checkbox"/> Not certain at all <input type="checkbox"/> Very uncertain <input type="checkbox"/> Low level of certainty <input type="checkbox"/> Fairly certain <input type="checkbox"/> Very certain
Integrated turkey grower farm	<input type="checkbox"/> ≥5 times MORE likely <input type="checkbox"/> 4 times MORE likely <input type="checkbox"/> 3 times MORE likely <input type="checkbox"/> 2 times MORE likely <input type="checkbox"/> EQUALLY likely <input type="checkbox"/> 2 times LESS likely <input type="checkbox"/> 3 times LESS likely <input type="checkbox"/> 4 times LESS likely <input type="checkbox"/> ≥5 times LESS likely	<input type="checkbox"/> Not certain at all <input type="checkbox"/> Very uncertain <input type="checkbox"/> Low level of certainty <input type="checkbox"/> Fairly certain <input type="checkbox"/> Very certain
Independent turkey farm	<input type="checkbox"/> ≥5 times MORE likely <input type="checkbox"/> 4 times MORE likely <input type="checkbox"/> 3 times MORE likely <input type="checkbox"/> 2 times MORE likely <input type="checkbox"/> EQUALLY likely <input type="checkbox"/> 2 times LESS likely <input type="checkbox"/> 3 times LESS likely <input type="checkbox"/> 4 times LESS likely <input type="checkbox"/> ≥5 times LESS likely	<input type="checkbox"/> Not certain at all <input type="checkbox"/> Very uncertain <input type="checkbox"/> Low level of certainty <input type="checkbox"/> Fairly certain <input type="checkbox"/> Very certain

APPENDIX 4

Other questions (1)

6. Commercial feed mills routinely operate a number of trucks to deliver feed. In your opinion, what is the *maximum*, *minimum* and *most likely* number of trucks operated by individual feed mills in Australia?

Maximum	
Minimum	
Most likely	

7. How certain are you that this assessment is correct? (Mark one)

Not certain at all	Very uncertain	Low level of certainty	Fairly certain	Very certain
[]	[]	[]	[]	[]

8. Dead bird collection contractors routinely operate a number of trucks. In your opinion, what is the *maximum*, *minimum* and *most likely* number of trucks operated by individual dead bird collection contractors in Australia?

Maximum	
Minimum	
Most likely	

9. How certain are you that this assessment is correct? (Mark one)

Not certain at all	Very uncertain	Low level of certainty	Fairly certain	Very certain
[]	[]	[]	[]	[]