

## Isn't it time for facts to dominate the biosecurity conversation?

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**A**midst concerns about Avian Influenza it is understandable that sometimes fear and perceptions could trump facts although, for any biosecurity message to be effective it should be based primarily on facts.

Therefore, it is rather intriguing that in every AI biosecurity forum that I have attended since 2007, some respected colleagues seem to forget the facts about avian influenza outbreaks in Australia and point the finger at small non-aligned producers.

In a presentation to the AVPA in 2016, the need to enforce sound biosecurity policies among non-aligned producers was highlighted.

Earlier in 2010 in a forum assessing AI risk in small landholders it was reported that "poultry experts believe there is another sector of the industry which does not fall within the definition of commercial layer operation, have poor biosecurity measures and are not part of any integrated system (Small

landholders, commercial livestock producers and risks to Australian livestock Stakeholder Forum Report)

One might think that biosecurity in the aligned sectors is optimal, that outbreaks of avian influenza are rare in this sector and it is the small non-aligned producers that 'spoil it for everyone else'.

Suboptimal biosecurity is likely to present a risk regardless of the sector involved but the risk attributed to the non-aligned sector by some experts is disproportionate and technically ill-considered as it lacks factual consideration. This has the potential to hinder biosecurity acceptance by this sector.

### Facts

#### Biosecurity awareness

Some sectors of the industry adopted biosecurity concepts very early (mainly poultry breeders) and some governments produced literature

on 'keeping disease out' as early as 1986. The biosecurity concept started gaining momentum at the national level following the AI outbreak in Tamworth in 1997, the ND outbreaks in NSW between 1998 to 2002 and reached some prominence after the emergence of the Bird Flu (H5N1) in South East Asia in 2004.

*Biosecurity Management Practices and Procedures to reduce the risk of Avian Influenza outbreaks in the poultry industries* was produced by Animal Health Australia in 1998. The first Code of Practice, Biosecurity in the egg industry was produced in 2001 and a National Biosecurity Manual, Contract chickens followed a year later. A plethora of AI workshops and forums started in 2005 (NSW) and nationally in 2007.

#### Highly Pathogenic Avian Influenza (HPAI) outbreaks in Australia

Earlier outbreaks of HP AI were reported in Australia in 1976, 1985, 1992, and 1994, well before the importance of biosecurity in poultry was emphasised nationally. These early outbreaks were reported in a variety of commercial chicken enterprises, the smallest being a 17,000 breeder farm (1992).

No details of biosecurity audits on these outbreaks are available but significant biosecurity failures were mentioned in the literature that described some of these cases.

Since 1997 all HP AI outbreaks have been reported in large commercial flocks that were aligned with AECL and its Codes or with significant players in the meat industry.

- 1997 (Tamworth) - Large chicken complex of chicken meat breeders (company A)
- 1997 (Tamworth) - 30,000 chicken meat breeders (company B)
- 2012 (Maitland) - Large (50,000) layer enterprise. Member of AECL
- 2013 (Young) - Very large (400,000) layer enterprise (member of AECL)
- 2013 (Young) - 40,000 hens layer enterprise (member of AECL).

#### Low Pathogenic Avian Influenza (LPAI) in Australia

All LPAI incidents that occurred in flocks of chickens or turkeys where



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domestic ducks were not present on the farm were reported on large farms aligned to major industry players.

**H6N4** – 2006 Sydney area, chickens, Company C

**H10N7**- 2010 Sydney area, chickens, Company C

**H9N2** – 2012 Hunter area, turkeys Company B

All other LPAL incidents in Australia since 1976 have been reported in either mixed duck and chicken enterprises (3) and duck commercial enterprises (7).

The risk of incursion of AIV into a flock and successful mutation would depend on the size of the flock.

Successful spread is also less likely in non-aligned enterprises than in integrated companies or large flocks just because of the low volume of movements from small farms.

These facts do not support the contention that the risk of AI in Australia is largely imposed by small non-aligned egg producers. If any conclusion can be drawn it is that Avian influenza viruses can be present in domestic ducks without showing clinical signs and can serve as a potential source for neighbouring chicken or turkey farms.

While domestic ducks can serve as a source of AI viruses for chickens and turkeys and indeed in the 1976 and the 1992 AI outbreaks, domestic ducks on neighbouring properties were regarded as a potential epidemiological source. Selleck *et al* (1997) in their paper in the *Aust. Veterinary Journal*, Vol 75, 1997 went even further stating that “The presence of antibody to H7 influenza A in chickens and ducks from neighbouring farms suggests that transmission from the duck farm to the chicken farm was responsible for spread of the virus”.

Both the National Farm Biosecurity Manual for chicken growers (point 2.16) and the National Farm Biosecurity Technical Manual for Egg Production (point 2.15) state that “If more than one commercially produced avian species is kept in the production area, the species should be housed and managed separately”.

The Manuals do not recognise the significantly high risk from domestic ducks and do not prohibit outright the presence of ducks and chickens/ turkeys in one production area. Instead they suggest that mitigations could be used to reduce the risk.

With this optimistic approach to biosecurity why would one expect small poultry enterprises (aligned or non-aligned) that mix different species of poultry in their production area to

recognise this risk?

Pointing the finger at non-aligned egg producers does not help to enhance the cause or help progress biosecurity in Australia.

The sincerity of the biosecurity message is judged not only by protocols and biosecurity manuals but largely by actions.

Gilchrist and Edwards (Biosecurity Post Mortem Report on the 1999 Mangrove Mountain Newcastle

disease outbreaks) emphasised that location and development of Industry enterprise standards have been based on economic consideration (rather than biosecurity) and this needs to be examined.

This trend continues with new, large poultry developments being placed either less than recommended distances from wetlands or/and water dams being built in alarming close proximity to sheds (only the Qld



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◁ Guidelines, Meat chicken Farms specify a minimum distance of dams from sheds). Farms are built with little regard to proximity to public roads (imposing a significant biosecurity risk through the haulage of live, and dead birds as well poultry litter).

To make it worse, some local councils when deciding the fate of poultry farm development applications (e.g. Wollondilly) still believe that AIV is not present in Australia and that "This is a matter for Customs, the Commonwealth Department of Agriculture and the NSW Department of Primary Industries in regards to controlling imported livestock".

Far too often the ability of Industry to mitigate biosecurity risks is used as an argument to circumvent minimum sensible separation distances between significant recognised risks and poultry sheds.

Optimal structural biosecurity of poultry farms is often sacrificed under the belief that protocols and biosecurity guidelines can prevent incursion of AI, somehow ignoring the critical element of biosecurity – human behaviour.

Economics trump biosecurity even when the risk of avian influenza in free range flocks is considered. While ministers signed off on a new standard for free-range stocking density allowing 10,000 hens per hectare, somehow the fundamental modulator of a direct exposure between wild waterfowl and the recipient (chickens) i.e. flock size, is ignored as a significant risk.

As larger numbers of hens use the range daily, the likelihood of a successful direct encounter between wild waterfowl's AI viruses and

individual hens in a flock increases. This is supported by the fact that the only 2 HPAI outbreaks in Australia have been in large to very large free range layer flocks.

It was stated on July 7, 2015 during sessions of the USA Senate Committee on Agriculture, Nutrition and Forestry, following the HPAI outbreaks in USA 2014-2015 that "scrupulous biosecurity practices may not fully protect against AI. The poultry industry increased biosecurity after the 1980s HPAI outbreak.

"Other regulations, such as the Food and Drug Administration's Egg Safety Rule, 36 require egg producers to implement certain biosecurity measures. But as the UEP (United Egg Producers) witness pointed out in testimony, his farm, one of the largest egg farms in Iowa, received a perfect score on a USDA biosecurity audit two months before being infected with HPAI".

The size of the commercial farms that contracted avian influenza in the 2014-2015 USA AI outbreaks suggests that most of the affected farms were not small rogue operators. In the turkey sector these were company farms that, as the USA epidemiological report concluded, generally followed biosecurity protocols established by the company and biosecurity policies on the affected farms may be typical for the industry.

In the layer sector the first commercial flock was a flock of 112,000 hens (Kings County 12/2/2014) and on April 11, Jefferson County, 200,000 hens, followed on April 20 by a 3.8 million egg layers in Osceola County.

Bearing all these in mind perhaps it is time that a more factual conversation about biosecurity and AI risks dominate the discussion?

Perhaps it is time to consider the importance of structural biosecurity and the vulnerability of mitigations that rely on human behaviour. This should include examination of the location of drainage dams required by councils and their proximity as well as the proximity of other dams to poultry sheds.

Lessons should be learned also from the on-going ILT outbreaks in Victoria and NSW where proximity of farms to roads carrying poultry has been playing a role.

Proximity to roads has been recognised in the NSW Prime-Fact as a biosecurity concern ("Build sheds as far from the road as possible" - [http://www.dpi.nsw.gov.au/\\_data/assets/pdf\\_file/0007/526768/Poultry-health-keeping-diseases-out.pdf](http://www.dpi.nsw.gov.au/_data/assets/pdf_file/0007/526768/Poultry-health-keeping-diseases-out.pdf)).

All these risk elements must somehow be acknowledged and incorporated into the reality of biosecurity manuals and guidelines as well as poultry development guidelines. Rather than conveniently pointing the finger at small, non-aligned operators, perhaps it is time for governments and Industry to examine the less convenient issues, like mixed farming, proximity of farms, proximity of dams and wetlands, proximity to public roads as well as the size of free range flocks.

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