



# Summary of animal health information relevant to human exposure to avian influenza H5N1 in Vietnam

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FAO-OIE-WHO scientific consultation on avian influenza at the human animal interface  
Verona, Italy, 7-9 October 2008



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## Presentation Outlines

1. Livestock production of Vietnam
2. H5N1 situation in animals
3. H5N1 control measures in poultry
4. Country-specific risks
5. AH/PH collaborations
6. Acknowledgements

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# 1. Livestock production

(2002 – 2007 (Thousand))

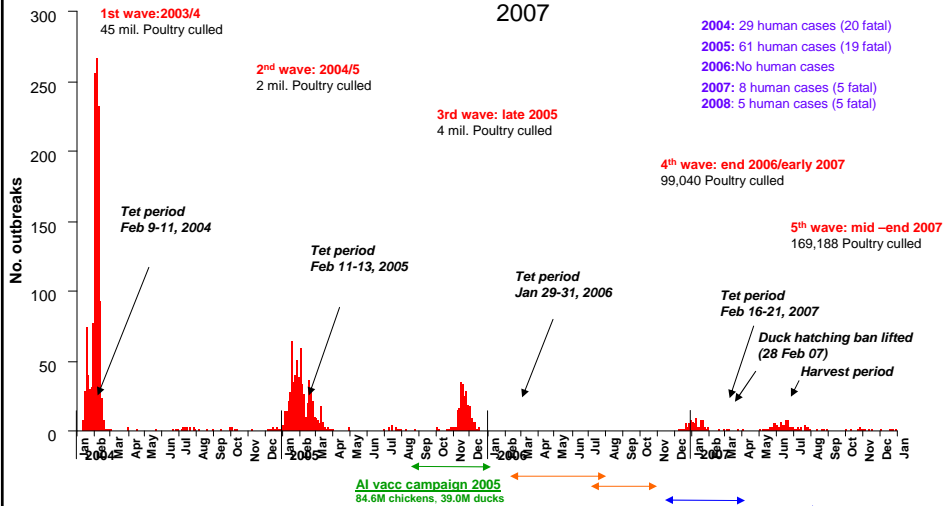
Year	Buffalo	Cattle	Pigs	Goat/ Sheep	Poultry (Mil)
2002	2.814	4.062	23.170	0.622	233.3
2003	2.835	4.395	24.885	0.780	254.0
2004	2.869	4.908	26.144	1.020	218.1
2005	2.920	5.540	27.730	1.310	219.9
2006	2.920	6.510	26.850	1.500	214.56
2007	2.996	6.724	26.560	1.777	226.027



# 2. H5N1 situation in animals (1):

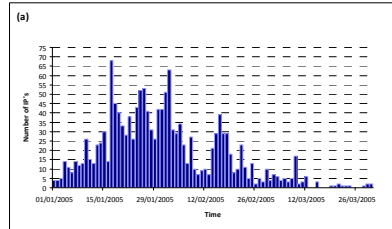
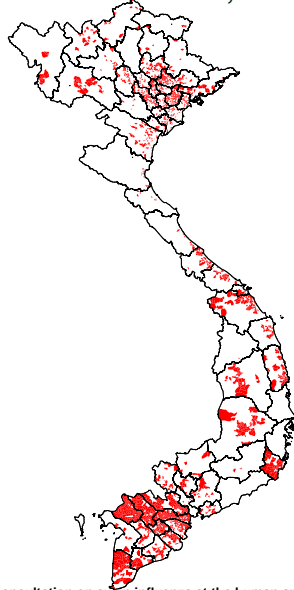
Temporal distribution

Temporal Pattern of HPAI outbreaks in Vietnam From Jan 2004 to Dec 2007



## 2. H5N1 situation in animals (2):

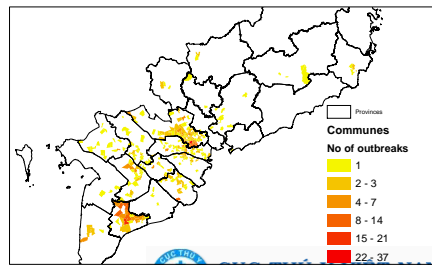
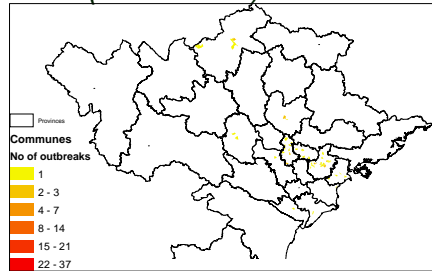
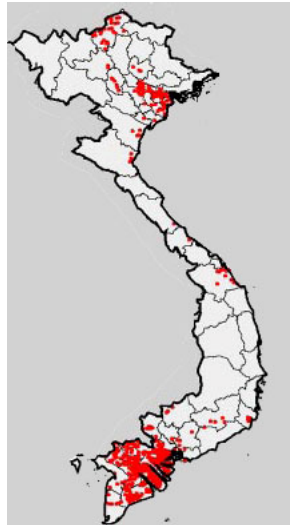
*Spatial distribution, 1<sup>st</sup> wave (2003-2004)*



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## 2. H5N1 situation in animals (3):

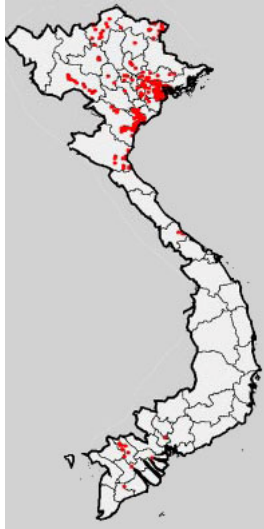
*Spatial distribution, 2<sup>nd</sup> wave (2004-2005)*



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## 2. H5N1 situation in animals (4):

*Spatial distribution, 3<sup>rd</sup> wave (late 2005)*



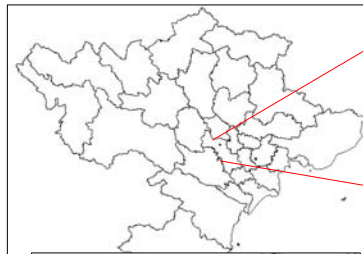
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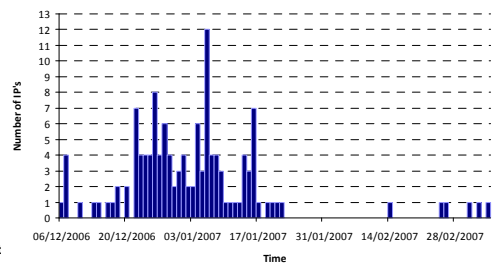
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## 2. H5N1 situation in animals (5):

*Spatial distribution, 4th wave (Dec 2006 – Mar 2007)*



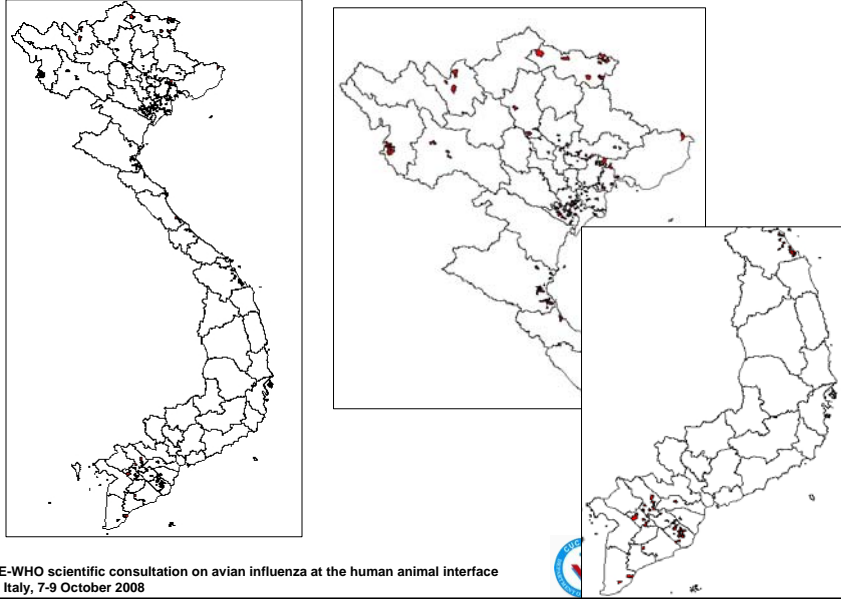
(b)



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## 2. H5N1 situation in animals (6):

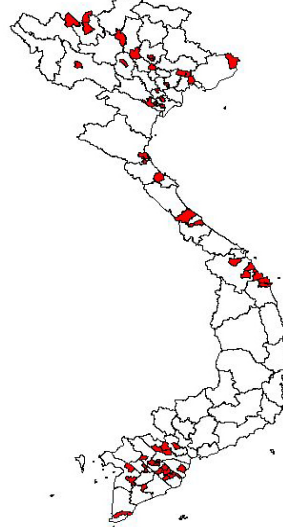
*Spatial distribution, 5th Wave (5-7/2007)*



## 2. H5N1 situation in animals (7):

*H5N1 in 2008: Sporadic outbreaks*

- Totally, 97 outbreaks occurred in 74 communes of 51 districts in 27 provinces. 75,470 birds culled (29,048 chickens & 43,457 ducks, plus 2,965 Muscovy ducks).
- To date, only one province (Ca Mau) where AI outbreak have been reported within the last 21 days.



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## 2. H5N1 situation in animals (8):

- Species affected: almost all domestic poultry was affected during the three waves; during the 4<sup>th</sup> and 5<sup>th</sup> waves, most of species affected have been ducks and chickens.
- Poultry sector(s) affected: All sectors was affected during the first wave of AI outbreaks (2003-2004). Sectors 3 and 4 are the most vulnerable during the subsequent waves. Especially when vaccination start (2005), the majority of infected flocks have been those of Sector 3.
- Evaluation of level of outbreak reporting: it is evidence that there is a certain level of outbreaks from Sector 4 that went unnoticed. Inadequate compensation would be one of reason contributing to the under-reporting.

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## 3. H5N1 control measures in poultry (1)

- Mass vaccination and post-vaccination monitoring, backed up by vaccine efficacy trials;
- Improved disease surveillance with focus on community-based and risk-based surveillance, including also enhanced surveillance of AI in wild birds;
- Outbreak containment: rapid response by culling (of birds within infected flock) with compensation;
- Strict animal movement, especially border control;
- Restructuring of poultry production, marketing and processing (slaughtering);
- Improved communication and education.

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### 3. H5N1 control measures in poultry (2): *vaccination program*

- Since 2005, mass vaccination was implemented nationally;
  - Phase 1 (2005-2006) 640M doses: 365M doses H5N1 + 275M doses H5N2
  - Phase 2 (2007-2008): 1009M doses: 1000M doses H5N1 + 9M doses H5N9. Besides, there were 16.7M doses H5N2 donated by OIE.
- The goal vaccination is to reduce the virus circulation rather than elimination of virus.
- The serological monitoring and virological surveillance activities show that vaccination works adequately.

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### 4. Country-specific risks

- Farming system: Backyard poultry production system is dominant.
- Live animal markets: slow progress of improving biosafety of live bird markets.
- Cock fighting: is a particular risk for human exposure.



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## 5. AH/PH collaborations

- Though a lot of improvements have been made through joint outbreak investigations and exchange of viruses, further collaborations are still required.
- Laboratory cooperation between animal health and public health needs to be strengthened.
- WHO and FAO is trying to bring AH-PH closer (possibly with the use of a broader umbrella with zoonosis as the key area).

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## 6. Acknowledgements

- Dr. Dung H. Do, DAH Epidemiology Division.
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- FAO and various donors...



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