

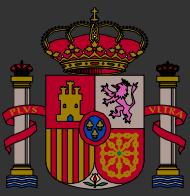


MINISTERIO
DE MEDIO AMBIENTE
Y MEDIO RURAL Y MARINO

INFORMATION FROM SPAIN ON THE POSSIBLE MUTATION OF A LPAI TO HPAI STRAIN IN A FARM (H7N7)

S. G. Sanidad de la Producción Primaria

SCoFCAH, May 3-4, 2010



HPAI H7N7 IN SPAIN

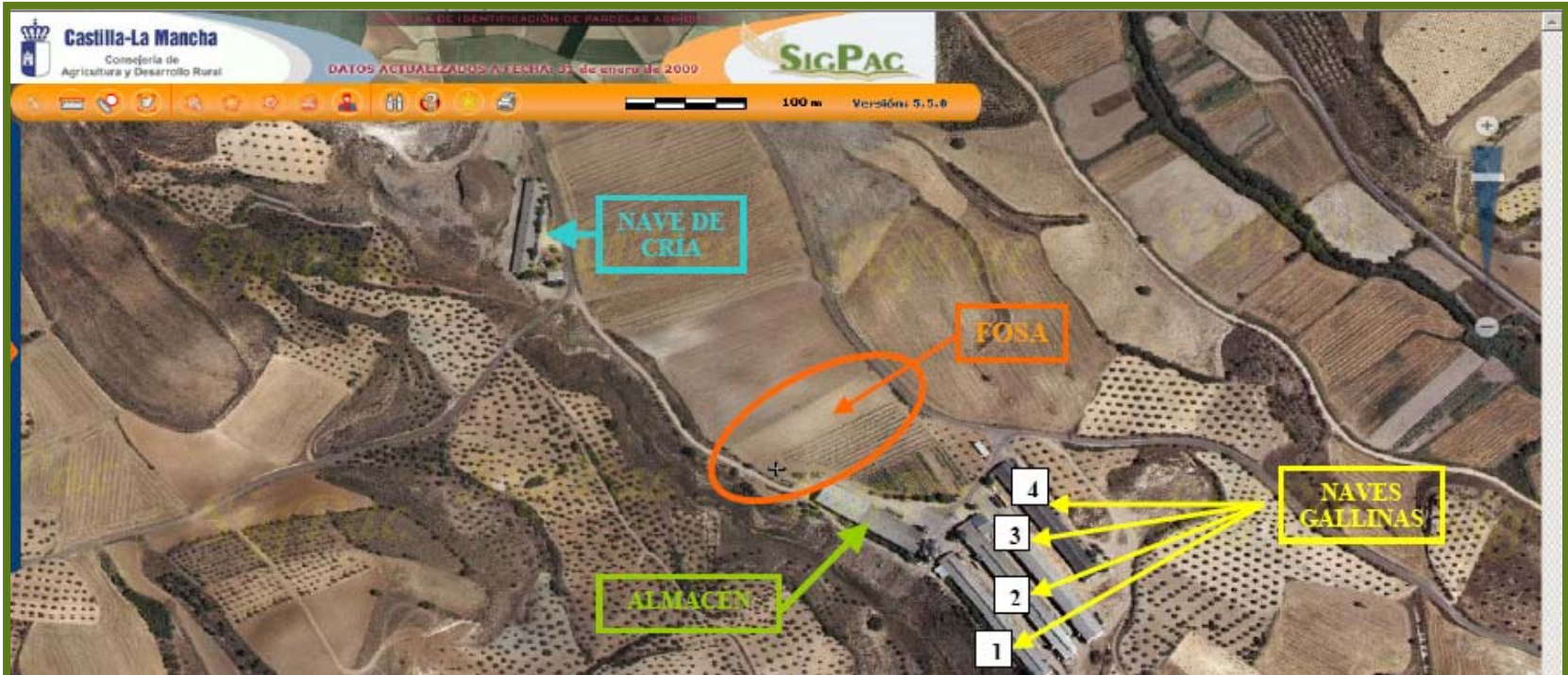


OCTOBER 13rd, FIRST HPAI H7 OUTBREAK IN POULTRY (LAYING HENS) IN SPAIN

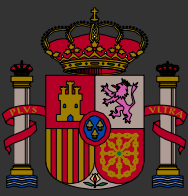
JUNTA DE COMUNIDADES DE CASTILLA LA MANCHA



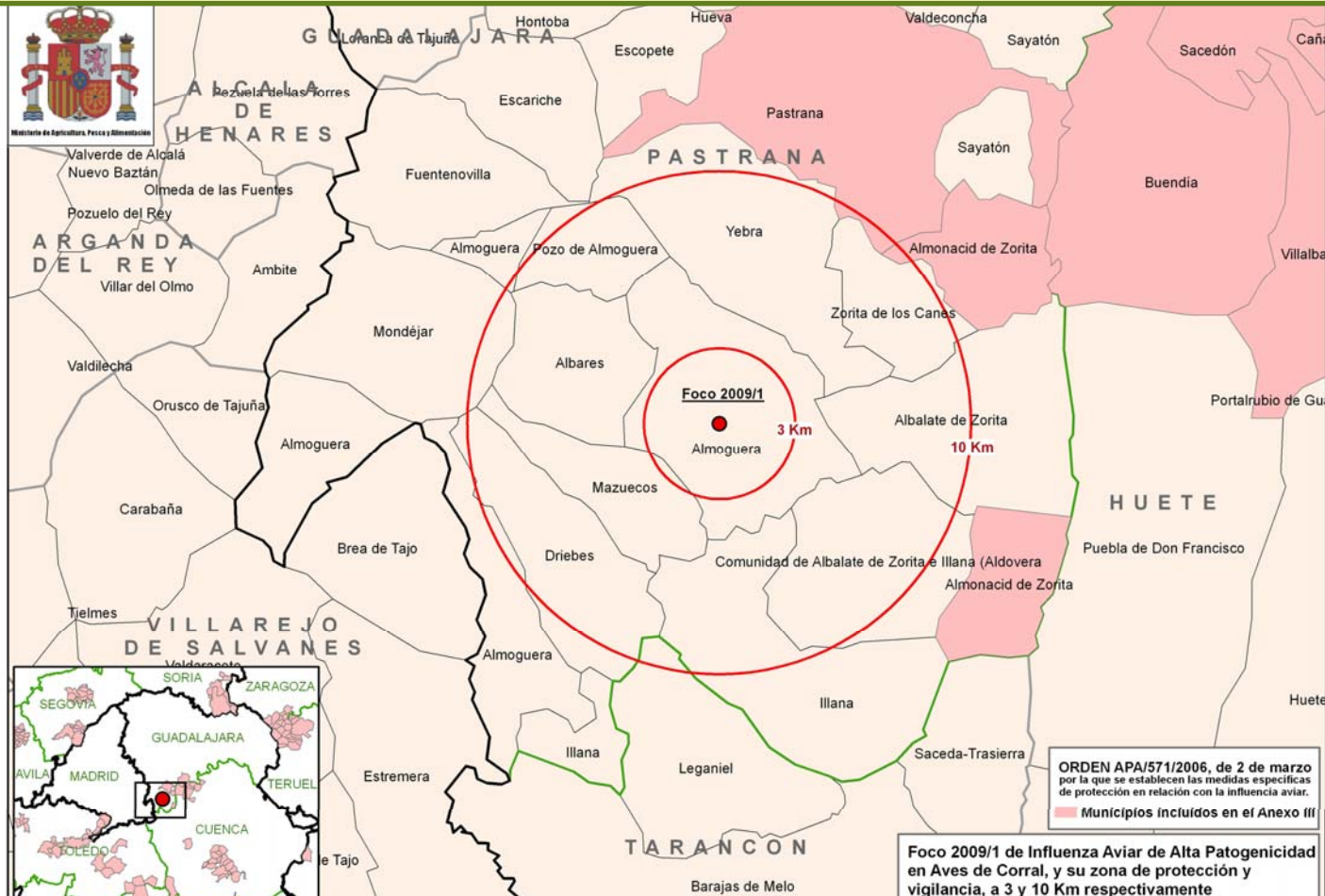
HPAI H7N7 IN SPAIN. EPIDEMIOLOGICAL INFORMATION



- 308.640 hens aprox
- 5 flocks, 4 of them close proximity, common caretaking



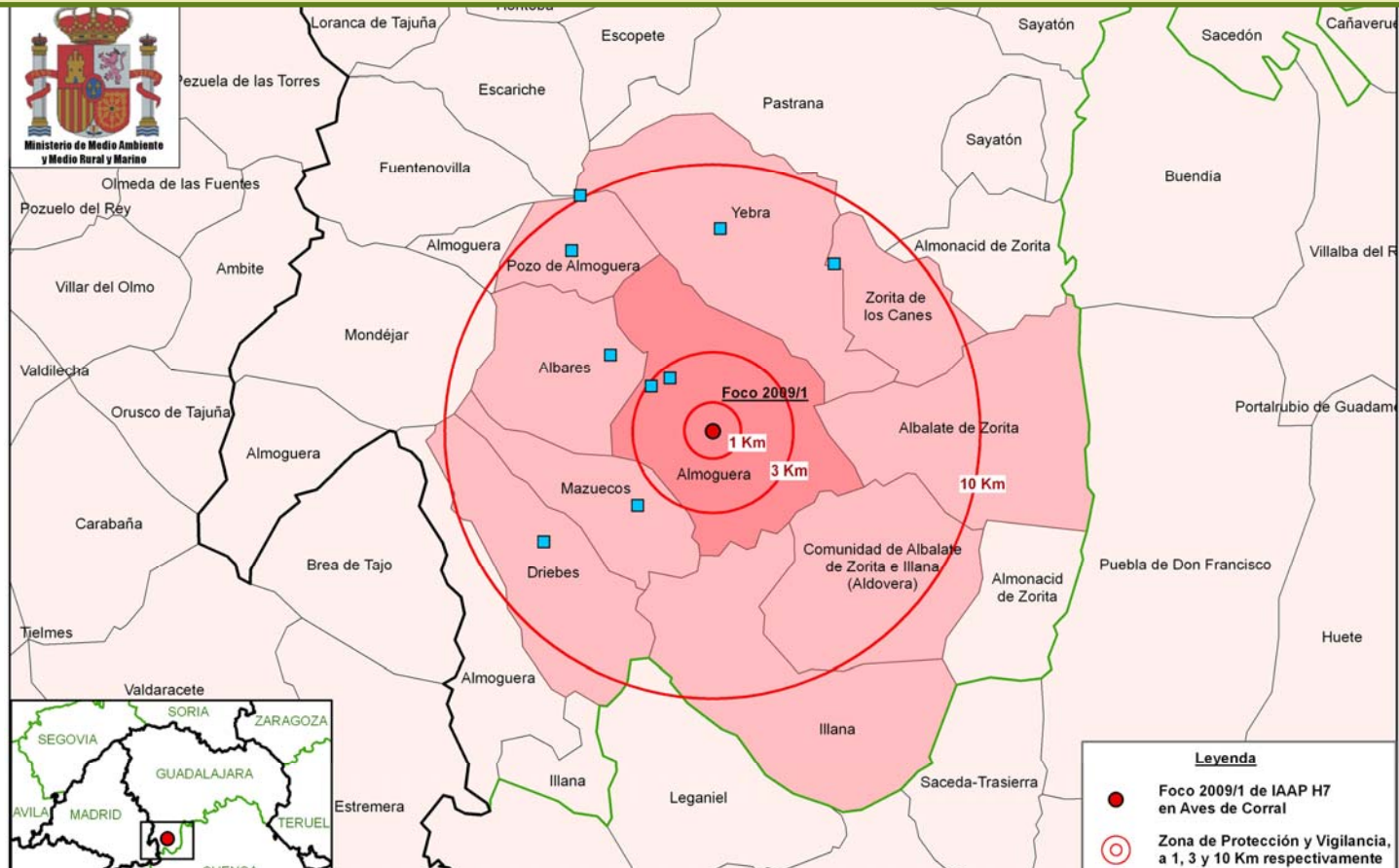
HPAI H7N7 IN SPAIN. FARM UBICATION



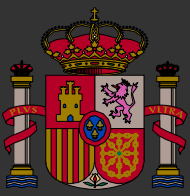
**ALMOGUERA (GUADALAJARA).
JUNTA DE COMUNIDADES DE CASTILLA-LA MANCHA**



HPAI H7N7 IN SPAIN. ZONIFICATION



- 2 AVIAN FARMS & 1 PIG FARM WITHIN 3 KM
- 7 AVIAN FARMS WITHIN 10 KM
- ANOTHER 3 FARMS WITHIN 12 KM



MINISTERIO
DE MEDIO AMBIENTE
Y MEDIO RURAL Y MARINO

HPAI H7N7 IN SPAIN. MEASURES ADOPTED



MEASURES ADOPTED (1)

Epidemiological survey

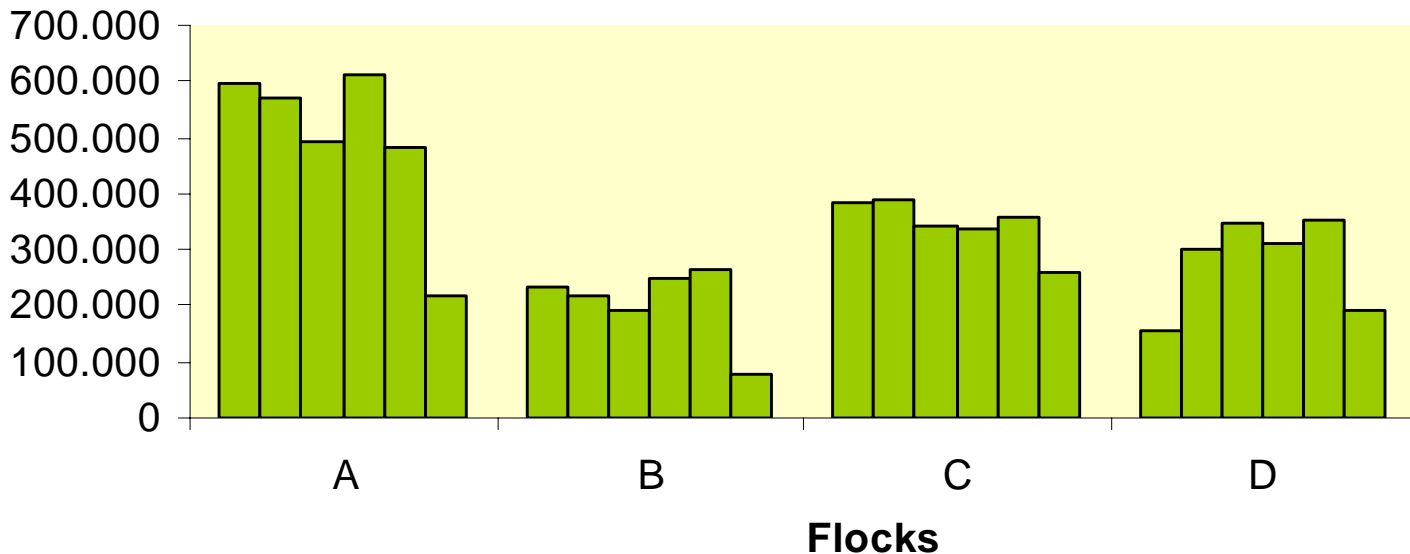
Movements control

Stamping out finished on October 18th



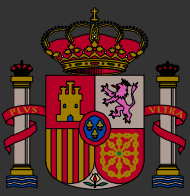
EVOLUTION OF EGG PRODUCTION

**Weekly Egg Production
(31st Aug. to 11th Oct.)**



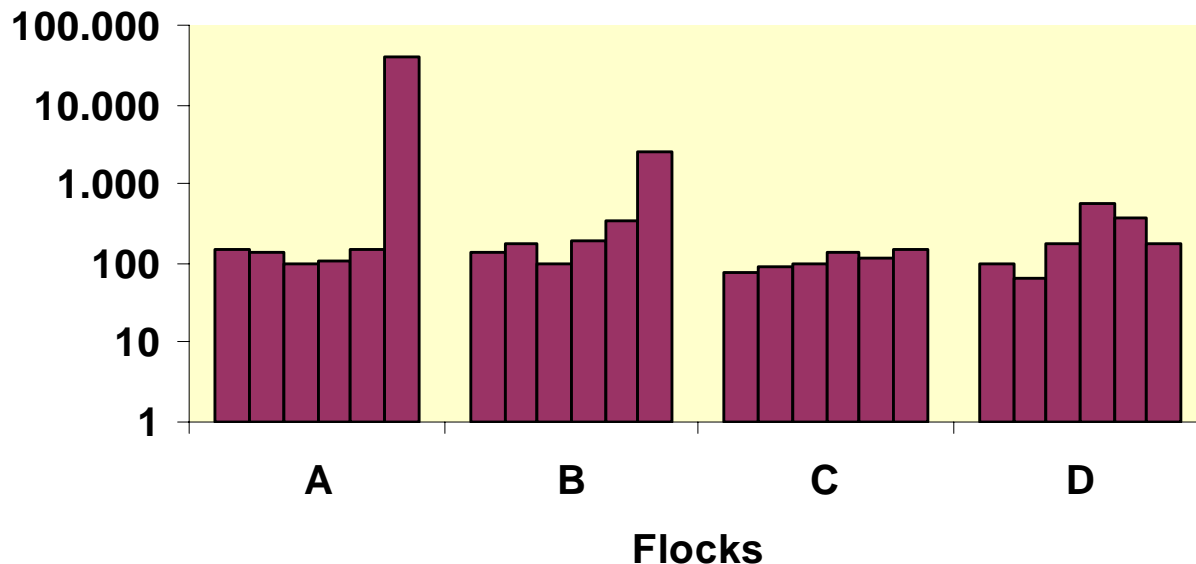
MEASURES ADOPTED (2)

Epidemiological survey: egg production in the affected holding



HPAI H7N7 IN SPAIN. MEASURES ADOPTED

**Weekly Mortality
(31st Aug. to 11th Oct.)**



MEASURES ADOPTED (3)

Epidemiological survey: deceases in the affected holding



HPAI H7N7 IN SPAIN. MEASURES ADOPTED

ZONA DE PROTECCIÓN				
NÚMERO	MUNICIPIO	NAVE	Nº DE MUESTRAS	RESULTADOS
AVES			Hisopos	RT-PCR
1	Almoguera	7	28	-
2	Almoguera	5	27	-
Total			55	-
ZONA DE VIGILANCIA				
NÚMERO	MUNICIPIO	NAVE	Nº DE MUESTRAS	RESULTADOS
			Hisopos	RT-PCR
1	Mazuecos	3	20	-
2	Albares	3	20	-
3	Driebes	2	20	-
4	Pozo de Almoguera	1	20	-
5	Yebra	6	42	-
6	Yebra	2	20	-
7	Yebra	3	20	-
Total			162	

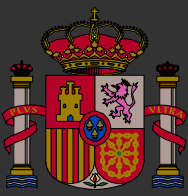
MEASURES ADOPTED

Surrounding & linked farms clinical and production control and sampling weekly (last sampling on November 9th)



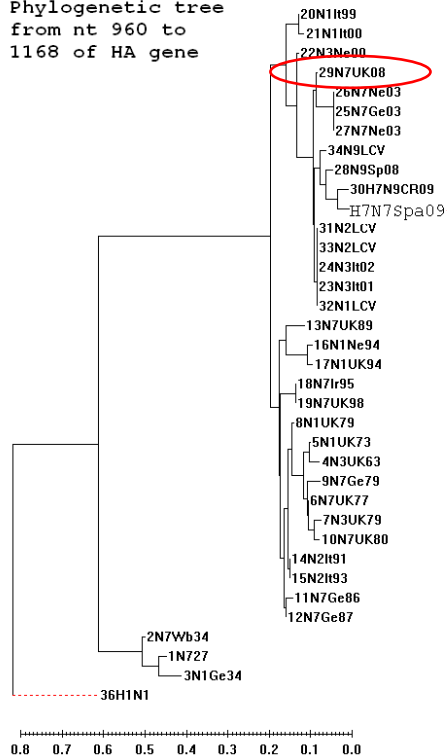
HPAI H7N7 IN SPAIN. OUTBREAK CRONOLOGY

- October 13rd: ADNS outbreak notification.
- October 15th, NRL identification H7N7
- October 18th, stamping out completed.
- October 29th, preliminar cleaning and disinfection completed.
- October 19th and 26th, and November 9th, resampling of all farms in restricted area, negative results (rt-PCR).
- November 30th, restrictions lifted.



HPAI H7N7 IN SPAIN. MOLECULAR EPIDEMIOLOGY

Phylogenetic tree
from nt 960 to
1168 of HA gene



Dendrogram obtained by neighbor-joining
Date: 16/10/2009 time: 9:30:36
Nucleotide distance: Jukes & Cantor (Subst. per site)
Indeterminations: Remove all undefined sites
Deletions: Remove all sites with deletions

Format: [GenBank](#) [FASTA](#) [Graphics](#) [More Formats](#)

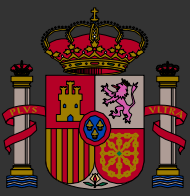
GenBank GU121458.1

Influenza A virus (A/chicken/Spain/6279-2/2009(H7N7)) segment 4 hemagglutinin (HA) gene, partial cds

[Features](#) [Sequence](#)

LOCUS GU121458 749 bp cRNA linear VRL 28-OCT-2009
DEFINITION Influenza A virus (A/chicken/Spain/6279-2/2009(H7N7)) segment 4 hemagglutinin (HA) gene, partial cds.
ACCESSION GU121458
VERSION GU121458.1 GI:261889968
KEYWORDS .
SOURCE Influenza A virus (A/chicken/Spain/6279-2/2009(H7N7))
ORGANISM [Influenza A virus \(A/chicken/Spain/6279-2/2009\(H7N7\)\)](#)
Viruses; ssRNA negative-strand viruses; Orthomyxoviridae; Influenzavirus A.
REFERENCE 1 (bases 1 to 749)
AUTHORS Agüero, M., Rocha, A., Tena-Tomas, C., Buitrago, D., Sanchez-Sanchez, A. and San Miguel, E.
TITLE Highly pathogenic Avian Influenza A H7N7 in Spain 2009
JOURNAL Unpublished
REFERENCE 2 (bases 1 to 749)
AUTHORS Agüero, M., Rocha, A., Tena-Tomas, C., Buitrago, D., Sanchez-Sanchez, A. and San Miguel, E.
TITLE Direct Submission
JOURNAL Submitted (21-OCT-2009) Laboratorio Central de Veterinaria-Sanidad Animal, Laboratorio Central de Veterinaria, Ctra Algete km 8, Algete, Madrid 28110, Spain
FEATURES Location/Qualifiers

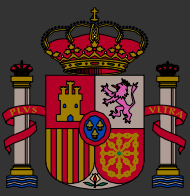
Estudios de epidemiología molecular no detectaron ninguna otra cepa conocida con una homología del 100% con la aislada en este foco.
No ligado al brote en UK del H7N7 2008



HPAI H7N7 IN SPAIN. MOLECULAR EPIDEMIOLOGY

	RT-PCR/pathogenicity	ELISA (serology)
SITE 1	+ / IAAP PELPKGTKPRRR/GLF	+
SITE 2	+ / IAAP PELPKGTKPRRR/GLF	+
SITE 3	NEGATIVE	Non data
SITE 4	+ / IABP PELPKGR/GLF	+

100% de homología entre IAAP y IABP en secuenciación parcial de 208 nt del gen de la hemaglutinina, a excepción de una inserción de 18 nt en la cepa IAAP, responsable de la adquisición de la característica de ALTA PATOGENICIDAD.



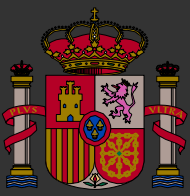
HPAI H7N7 IN SPAIN. MOLECULAR EPIDEMIOLOGY

	PCR / pathogenicity (pre-CD)	PCR / pathogenicity (post-CD)
SITE 1	+ / IAAP PELPKGTKPRPRR/GLF	- / nd
SITE 2	+ / IAAP PELPKGTKPRPRR/GLF	- / nd
SITE 3	+ / IAAP/ IABP PELPKGTKPRPRR/GLF PELPKGR/GLF	- / nd
SITE 4	+ / IABP PELPKGR/GLF	- / nd



HPAI H7N7 IN SPAIN. CONCLUSIONS

- LPAI strain entry by site 3/4, without clinical symptoms (serology +)
- Mutation to HPAI in site 3/4, co-existing both strains in site 3
- Spread of HPAI strain to sites 1 y 2, detected by the high mortality



MINISTERIO
DE MEDIO AMBIENTE
Y MEDIO RURAL Y MARINO



THANK YOU...