



# Poultry production and actual poultry health situation in Croatia

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# Farm poultry production in Croatia in numbers

## Capacities

- 951 farms with >500 birds
- in 2013/2014 only 52.9% (503) farms are active

	Size of the farm					Total
	>500-2500	2501-5000	5001-7500	7501-10000	> 10001	
Layers	53	29	13	11	35	141
Chicken breeders	8	5	2	3	4	22
Broilers	23	24	35	36	185	303
Turkey breeders	1	-	-	-	2	3
Fattening turkeys	4	3	7	1	4	19
Duck breeders	3	-	-	-	-	3
Fattening ducks	7	1	-	-	1	9
Goose breeders	2	-	-	-	-	2
Fattening geese	1	-	-	-	-	1
<b>Total</b>	<b>102</b>	<b>62</b>	<b>57</b>	<b>51</b>	<b>231</b>	<b>503</b>

# Poultry production in Croatia in numbers

## **Production** *(average 2009-2013):*

Number of poultry – **9,853,600**

Meat production – **107,800 tons**

Egg production - **680,400,000**

## **Consumption per capita** *(average 2007-2011):*

Poultry meat – **18,36 kg**

Eggs - **151**

## General vaccination program for layer/breeders

Age	Disease	
Hatchery	<b>MD</b> (bivalent)	Marek's disease
Hatchery / 1. day	<b>IB</b> (H120 live)	Infectious bronchitis
5. day	<b>SE</b> ( <i>live vaccine</i> )	<i>S. enteritidis</i>
14. day* MDA timing	<b>ND</b> ( <i>LaSota live</i> )	Newcastle disease
23. day* MDA timing	<b>IBD</b> ( <i>live intermediary type</i> )	Infectious bursal disease
26. day	<b>IBD</b> ( <i>live intermediary type</i> )	Infectious bursal disease
20. day	<b>IB</b> (4-91 live)	Infectious bronchitis
6-7 weeks	<b>SE</b> ( <i>live</i> )	<i>S. enteritidis</i>
8 weeks	<b>ND</b> ( <i>LaSota live</i> )	Newcastle disease
10. weeks	<b>POX</b> ( <i>live</i> ) + <b>AE</b> ( <i>strain</i> )	Avian pox + Avian encephalomyelitis
12 weeks	<b>IB</b> (H120 or 4-91 live)	Infectious bronchitis
16-18 weeks	<b>ND+ IB + EDS + IBD</b> (breeders only) – <i>inactivated</i>  <b>SE + ST</b> – <i>inactivated</i>	Newcastle disease + Infectious bronchitis + Egg drop syndrome + Infectious bursal disease  <i>S. enteritidis</i> + <i>S. typhimurium</i>

IB vaccinated in production every 8 weeks (*H120 and 4-91 alternate*)

Some layer farms vaccinate IBD with recombinant HVT vaccine in hatchery

## General vaccination program for broilers

All flocks vaccinated against **Newcastle disease**

Most of the flock vaccinated against **Infectious Bronchitis** in hatchery/1.day

All flocks vaccinated against **Infectious Bursal Disease** – once or twice,  
mostly with intermediary type vaccine  
intermediary plus, including immune complex vaccines, recently in use

## Newcastle disease in Croatia in brief

- Until 1992 it occurred regularly – *exclusively genotype V*
- In 1994 the last recorded outbreak in Croatia
- Vaccination is mandatory for **all** poultry  
*La Sota live vaccine mandatory for backyard and free range*
- Regular post-vaccinal immunity assessment according to the National Program for control of Newcastle disease  
*(hemagglutination inhibition test - HI)*

## Avian influenza in Croatia in brief

Regular serological monitoring of poultry (H5 and H7 subtypes)

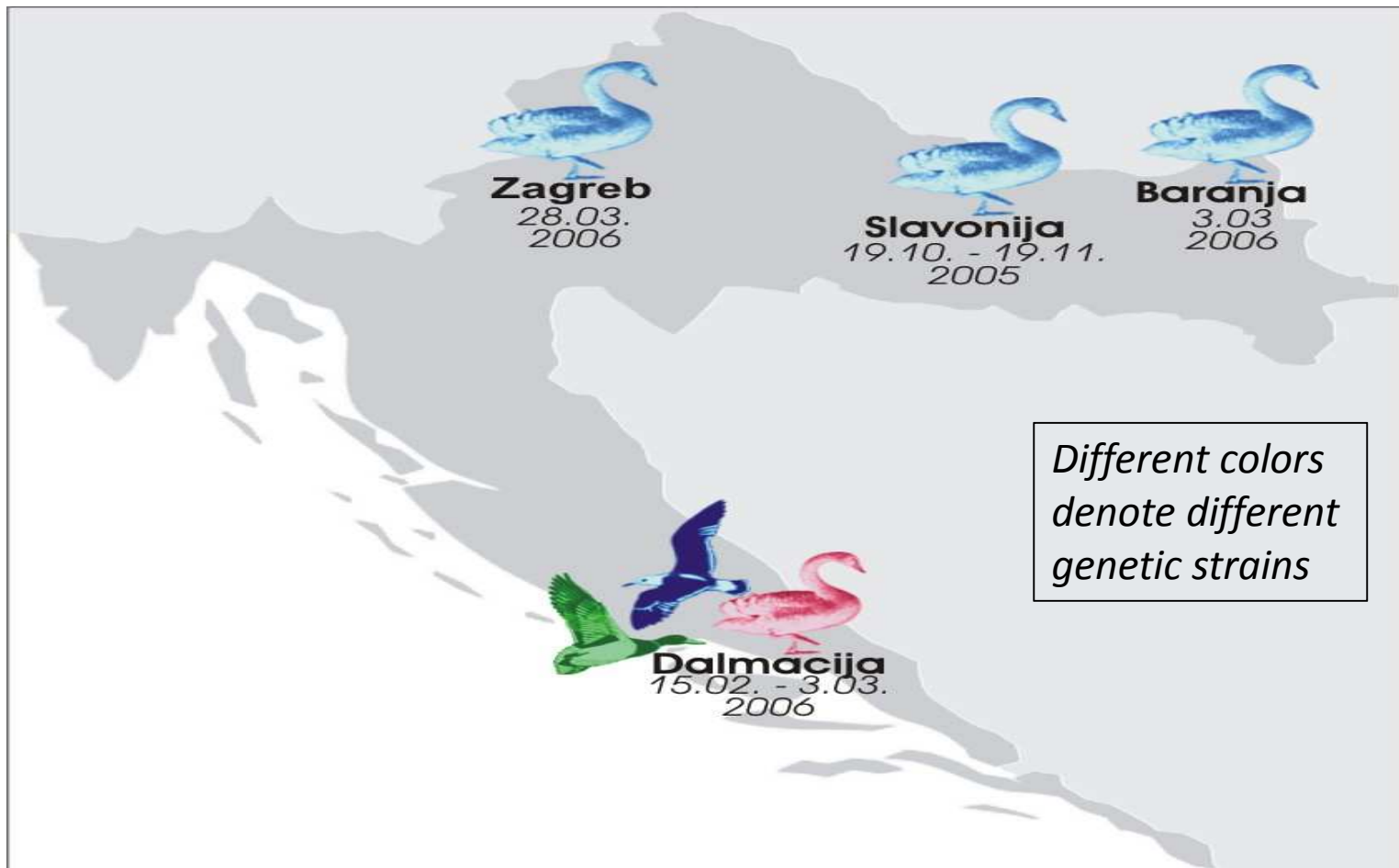
2005-2013 extensive active monitoring of wild birds (>4000 birds/year)

2014/2015 only pasive monitoring of wild birds



## Avian influenza in Croatia in brief

- Avian influenza never reported in poultry (any type)
- H5N1 HPAI detected in wild birds October 2005 - March 2006





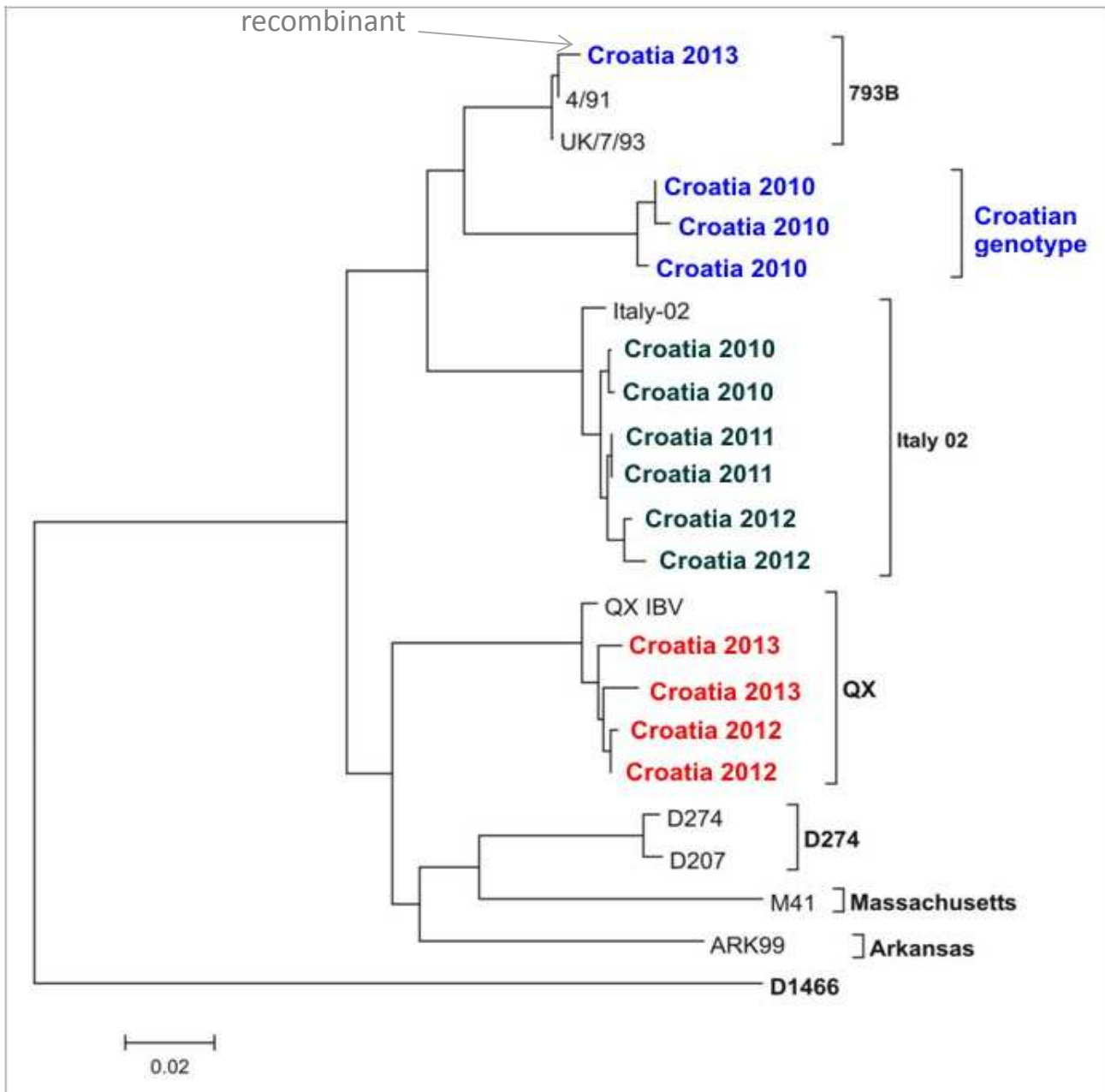
## Infectious bronchitis in Croatia

The most important infection in farm poultry in Croatia

Three major genotypes detected:

1. **Local genotype** - at least from 1992 until 2012, in three major waves  
1992-1995; 2000-2003; 2010-2013  
*Mortality in broilers 15-20%, egg drop up to 17%*
2. **Italy02** – 2010-2013
3. **QX** – December 2012-present  
major peak with multiple outbreaks in summer 2013

# Simplified phylogenetic tree of recent IBV isolates in Croatia



## Infectious bursal disease in Croatia

Incursion of very virulent strains in December 1995

Entirely replaced classical strains

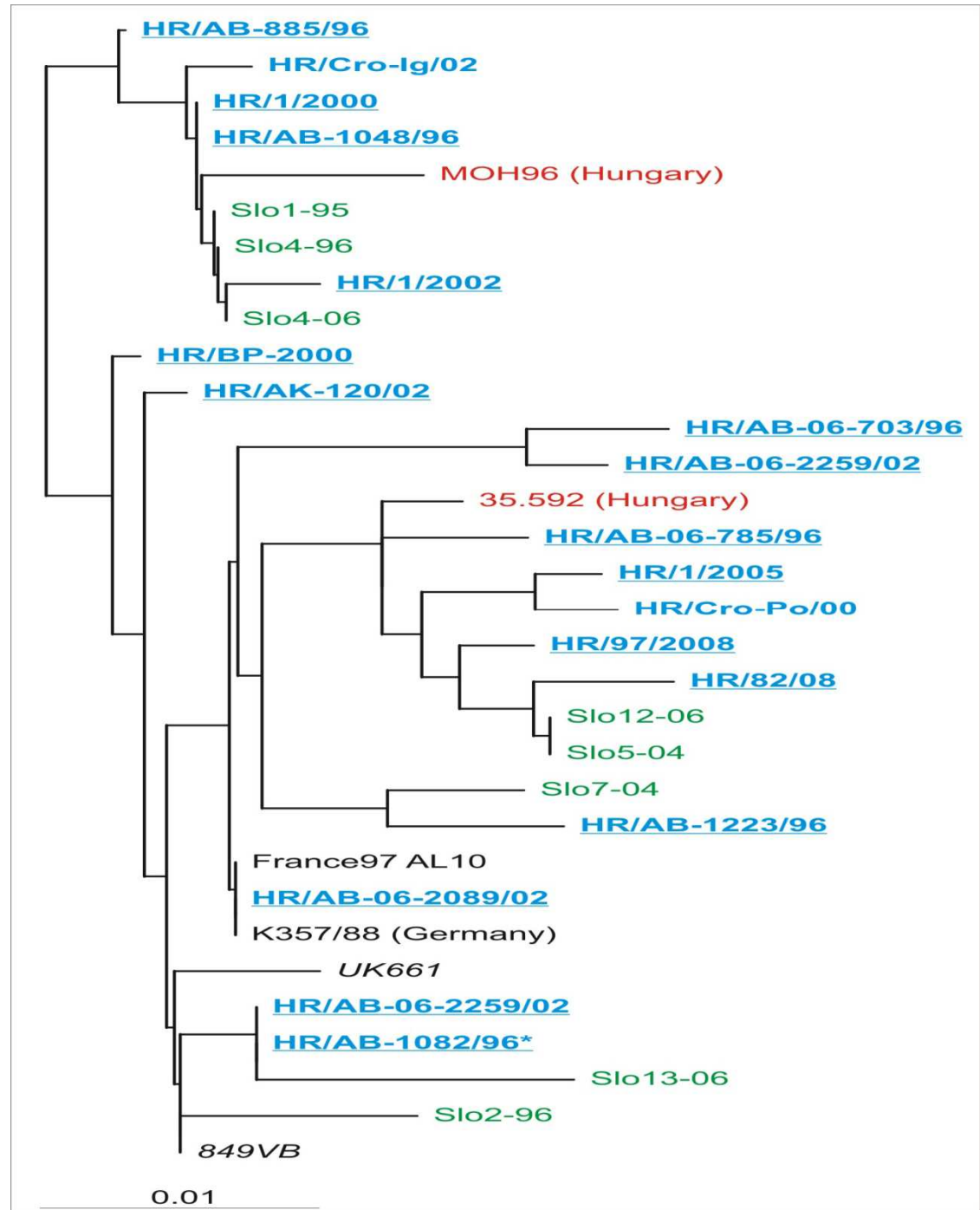
Mortality:           - broilers up to 10% (sometimes 20%)  
                          - layers 60% (up to 100%)

Major peak with multiple outbreaks in 1998-1999

In 2008 second peak and still continues to cause outbreaks in farms

Typical seasonal character - starts in spring and wane in autumn  
This is in relation with backyard flocks (young birds)

**Simplified  
phylogenetic tree of  
early IBD isolates in  
Croatia**



## **Other viral diseases with low incidence in poultry in Croatia**

### **Aviadenoviruses of A, D and E type**

sporadically detected in heavy hybrids with suspicious to Inclusion Body Hepatitis

### **Fowl pox**

only in backyard poultry, usually in early autumn

### **Infectious laryngotracheitis**

sporadically in fancy chickens- related to exhibitions and shows

### **Marek's disease**

very low incidence; single outbreak also recorded in fattening turkeys (early 2013)

### **Reovirus arthritis and related conditions**

Low incidence, related to poor management and/or type of equipment

### **Chicken anemia**

Significant outbreaks in summer 2015, related to progeny from single broiler breeder flock

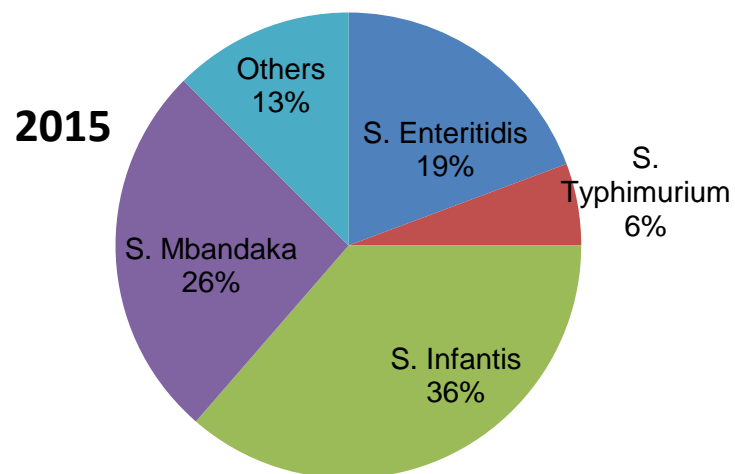
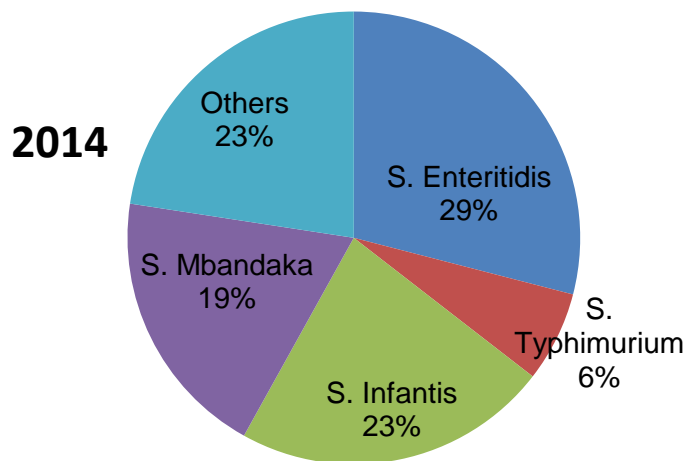
### **Duck plague**

Single outbreak in imported fancy ducks in March 2014

# Bacterial infections in poultry in Croatia

## Salmonella (monitoring by culturing)

	Samples tested	Samples positive						
		Total	Broilers	Layers	Br. breeders	Turkeys	Ducks	Geese
2014	10,049	165 <b>(1.64%)</b>	108	24	14	12	7	-
1-6. 2015	6,579	88 <b>(1.34%)</b>	56	23	1	3	1	4



## Culturing of carcass organs (diagnostic purposes)

mainly *E.coli*, sporadically *Clostridium*

and a single case of *Erysipelothrix rhusiopathiae* in layers (2014)

# Bacterial infections in poultry in Croatia

## Mycoplasmas

Broiler breeders serologically tested for *M. gallisepticum*, sometimes for *M. synoviae*  
- all negative so far

Turkeys serologically tested for *M. gallisepticum*, *M. synoviae* and *M. meleagridis*  
-all negative so far

Sporadic detection (PCR) of *M. gallisepticum* in broilers and backyard poultry

# Necropsy findings in poultry in Croatia

Conditions caused by inadequate nutrition and breeding technology  
in 40% of all carcasses

Predominant findings by poultry category:

Layers – **fatty liver syndrome** and **cannibalism**

Broilers – **ascites** and **sudden death syndrome**

Turkeys – **metabolic non-infectious cardiovascular diseases**, **malabsorption syndrome** and **poult enteritis mortality syndrome (PEMS)**



Thank you for your attention.

