

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
Total	102	62	57	51	231	503

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

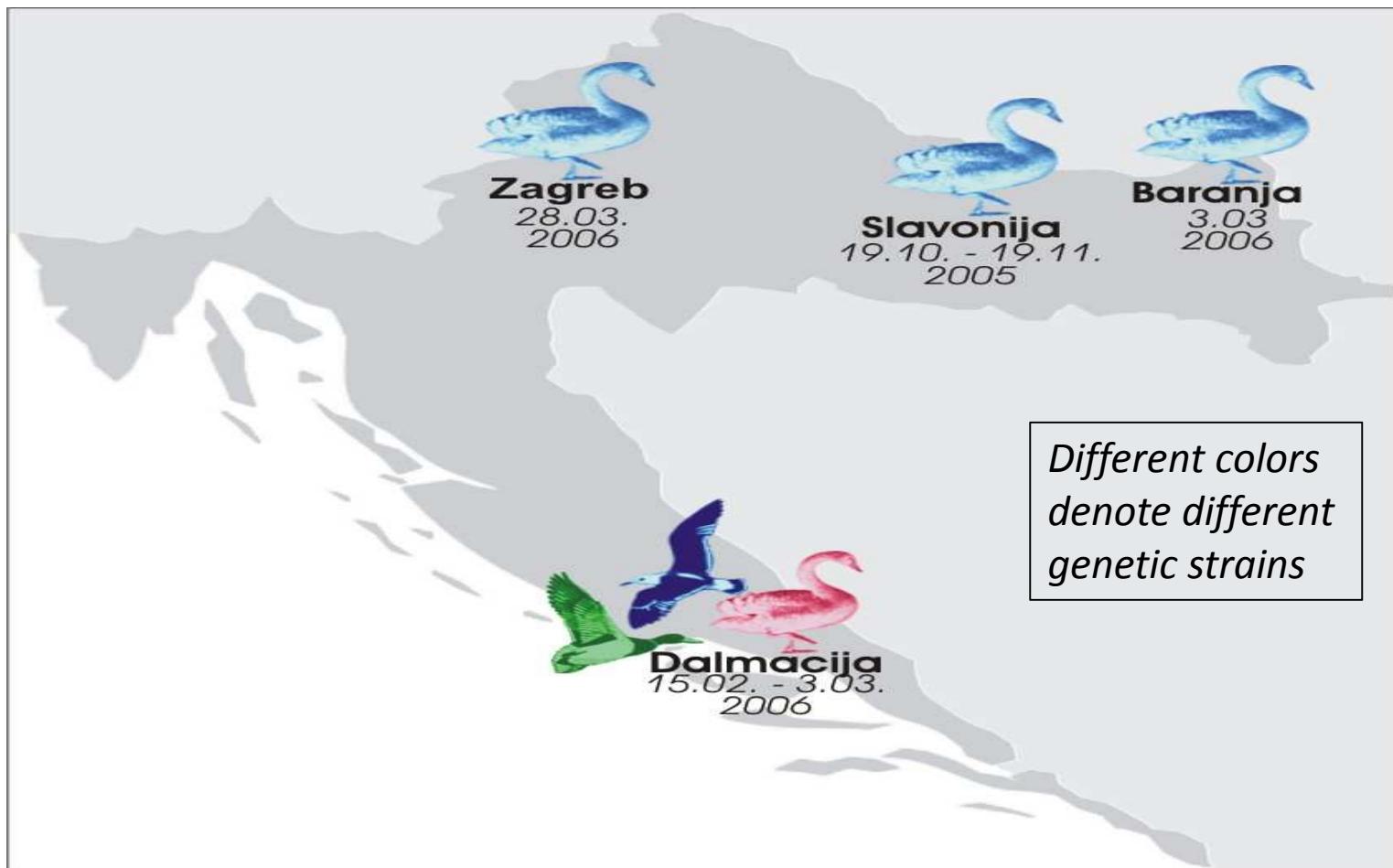
2005-2013 extensive active monitoring of wild birds (>4000 birds/year)

2014/2015 only passive 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

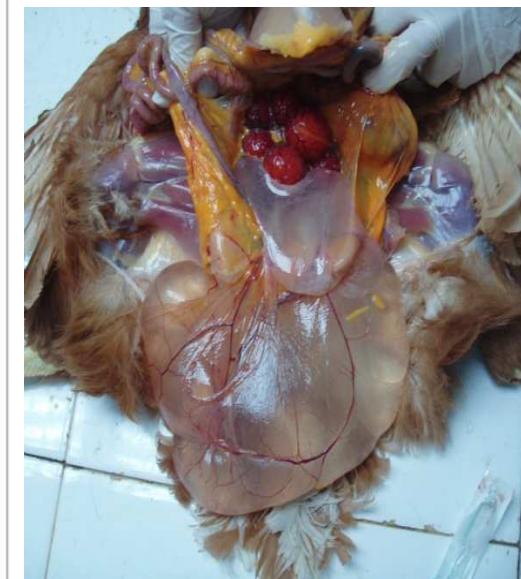
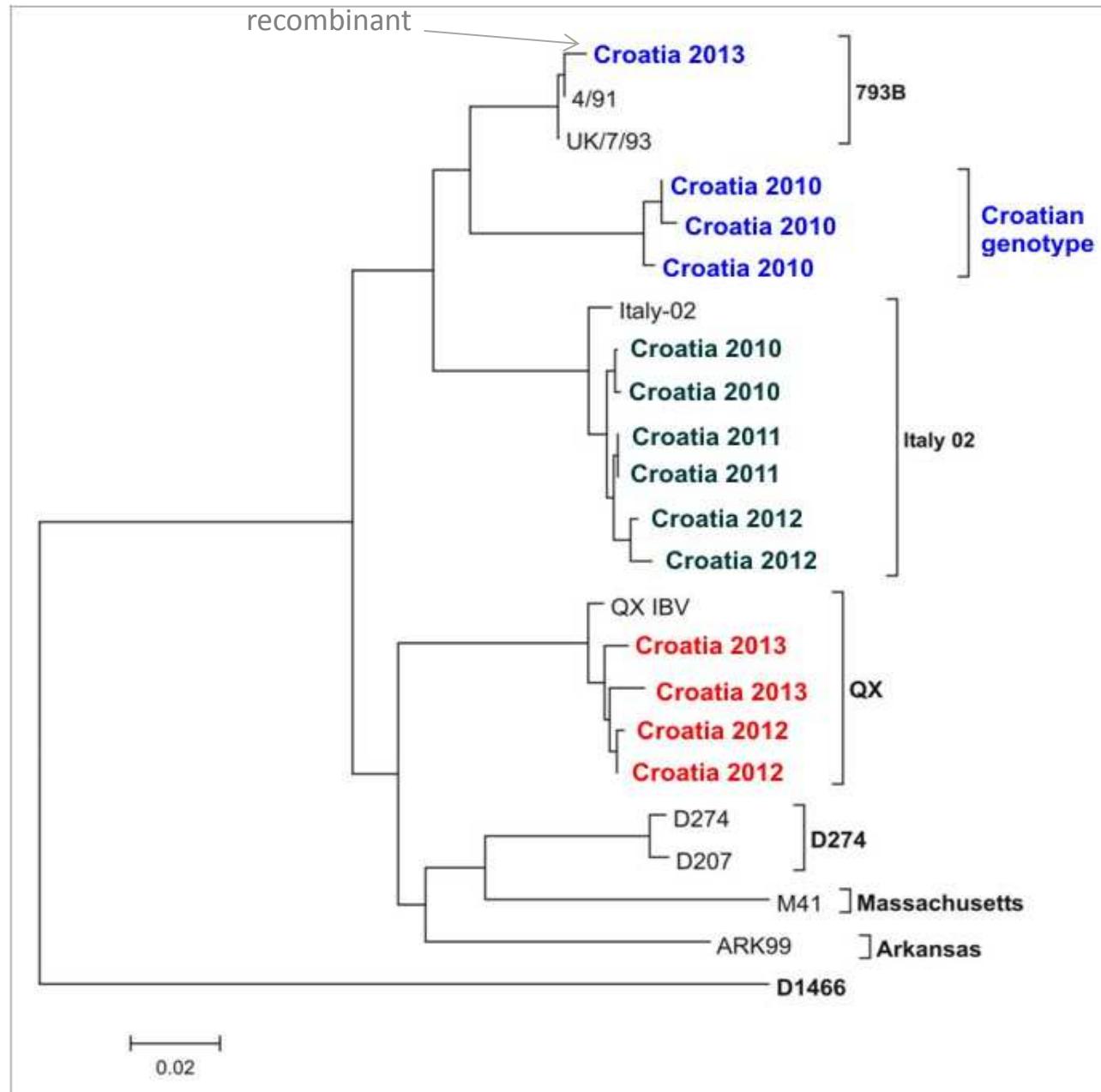
Three major genotypes detected:

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%)

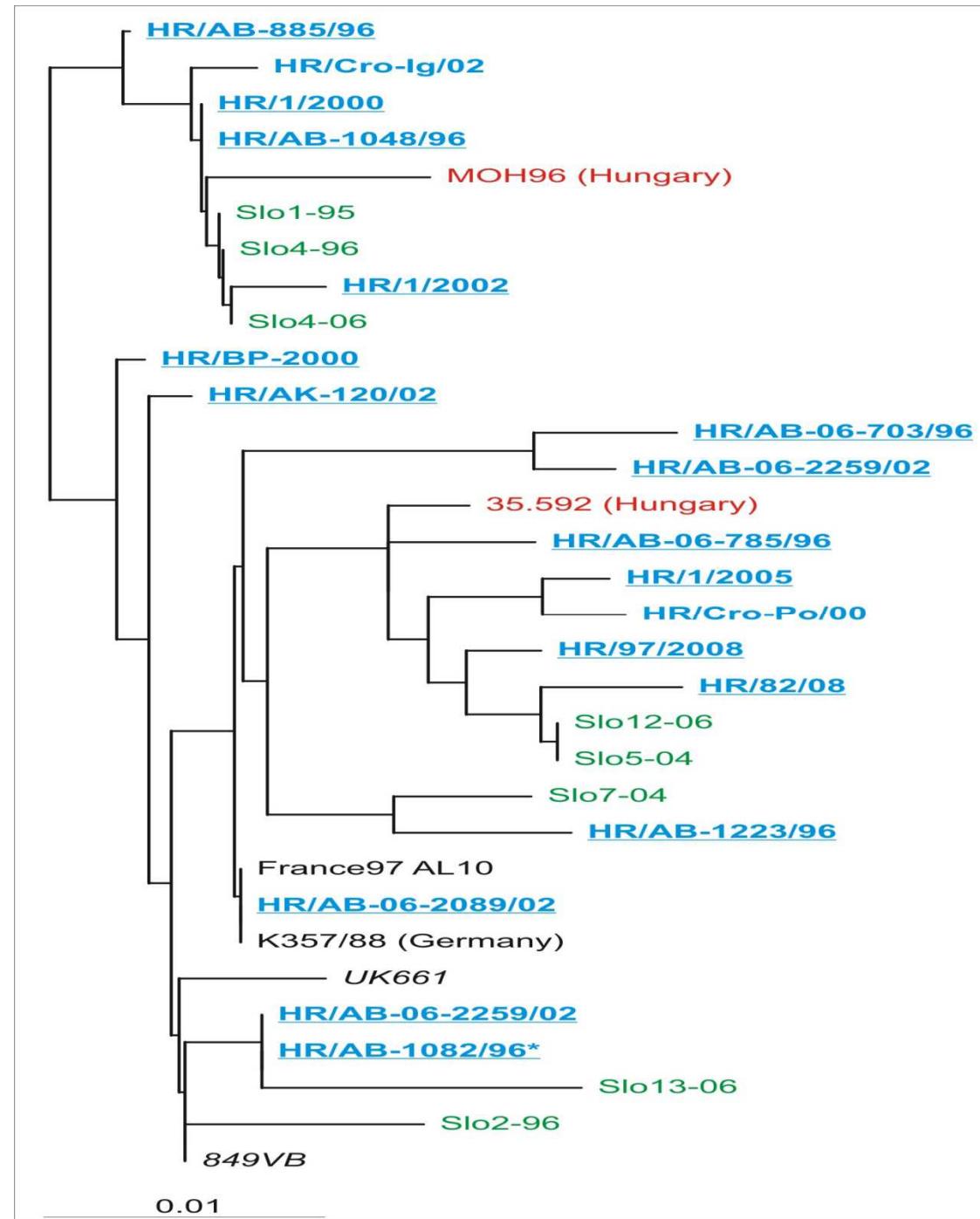
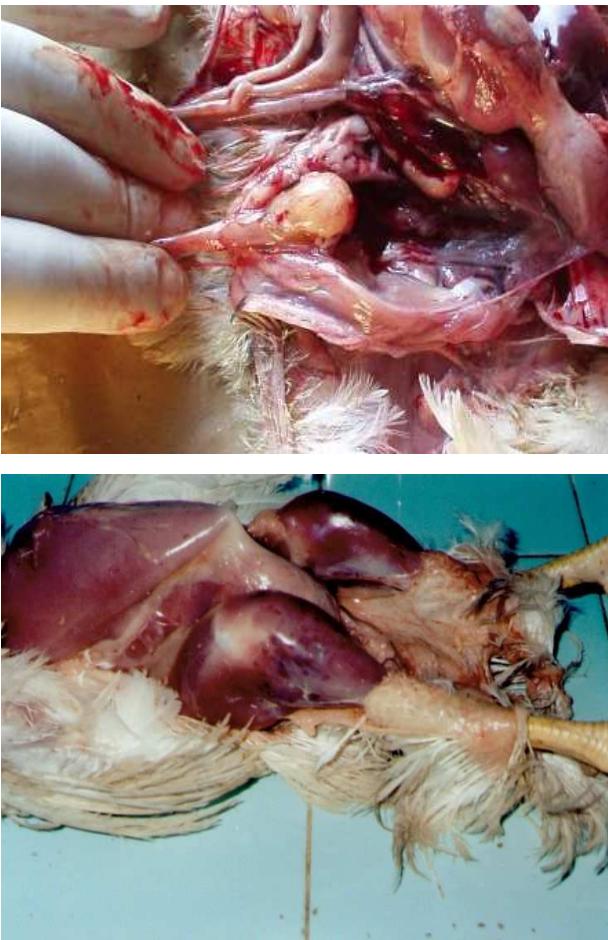
Major peak with multiple outbreaks in 1998-1999

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 laringotracheitis

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

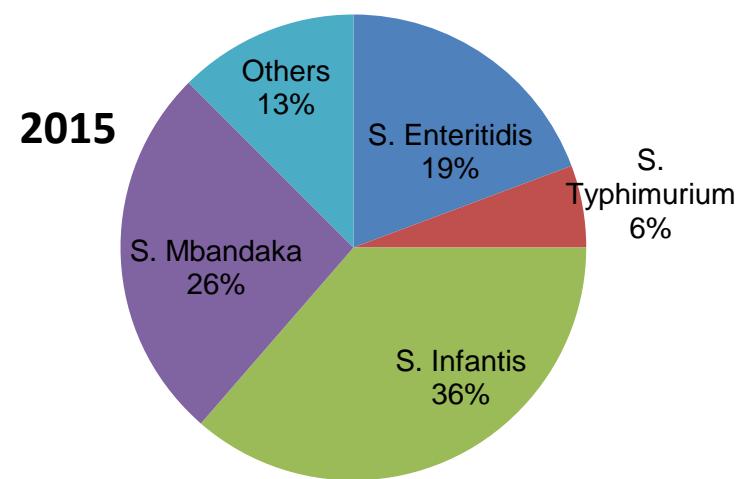
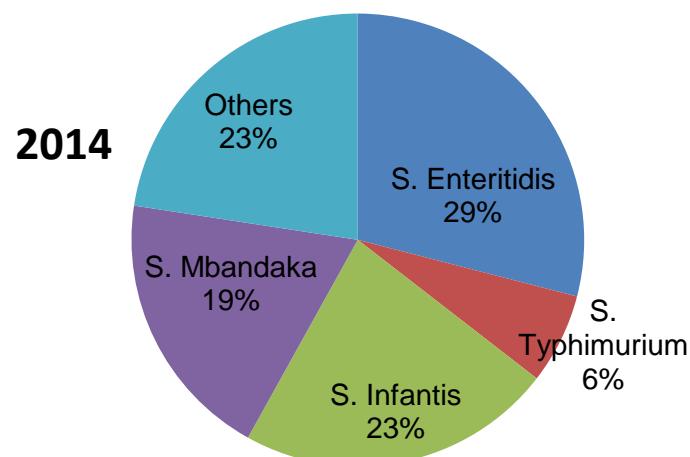
Duck plague

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 (1.64%)	108	24	14	12	7	-
1-6. 2015	6,579	88 (1.34%)	56	23	1	3	1	4



Culturing of carcas 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.

