

A survey of Big Liver Syndrome in commercial layers in Poland - field cases and proposed solutions

Juliusz Jatczak⁽¹⁾, Jerzy Orciuch⁽²⁾, Marta Krupa⁽³⁾

1. Fermy Drobiu Woźniak, 2. Kanvet Sp. z o.o., 3. Phibro Animal Health
marta.krupa@pahc.com



Introduction

Big Liver and Spleen disease (BLS) is a disease of both layer and broiler-type chickens caused by the Hepatitis E virus. The first cases in Europe were reported in Italy and Hungary in 2004 and 2005. In Poland have been observed at least 2007, although the first confirmed diagnose aHEV in layers was in 2010.

The literature indicates that birds of all ages are susceptible to the disease, and clinical symptoms usually occur in adult hens (30-72 weeks of age, especially between 40 and 50 weeks of age).

In the period 2015-2024 we conducted observations on a population of app. 15 000 000 commercial laying hens in various age (16–90 weeks) localised in Poland.

We observe that the disease occurs in two periods of life: entering lay - 18-24w (75% of cases) and later 48-52w (25% of cases).

Depending on the time of onset of the disease, its clinical course varies.

In young hens we observe a much more severe course of the disease. In older hens – subclinical form of the disease was noticed.

The disease lasted about three weeks. After recovering (in young age), it could return in age app. 50 weeks but with a milder course.

There is no treatment. A decrease in mortality by about 50% was observed after the administration of bis(sulphate) bis(peroxymonosulphate) pentapotassium (Virkon), vitamin K and supporting liver function products (silymarin).

The HP and PCR test were used for diagnostics:

- Kylt® Avian Hepatitis E (aHEV) BLS: in younger hens CT<30; in older hens CT>30

- HP: liver - congestion, blood extravasations in the parenchyma, blood stasis, extensive hepatocyte necrosis, multifocal lymphoid cell infiltrates around blood vessels (periphlebitis); spleen - extensive reticular cell necrosis.

In our opinion, HP and RT PCR are the most effective diagnostic methods for BLS.

In the autopsy: an enlarged, swollen liver with a friable consistency. Visible liver ruptures with blood clots and bloody fluid in the body cavity (CL 18-24w); Fatty liver (CL 46-52w); Enlarged, swollen spleen - 30% of cases.

Keywords: *Big Liver and Spleen disease (BLS), Hepatitis E, liver ruptures, commercial layers*

Material and Methods:

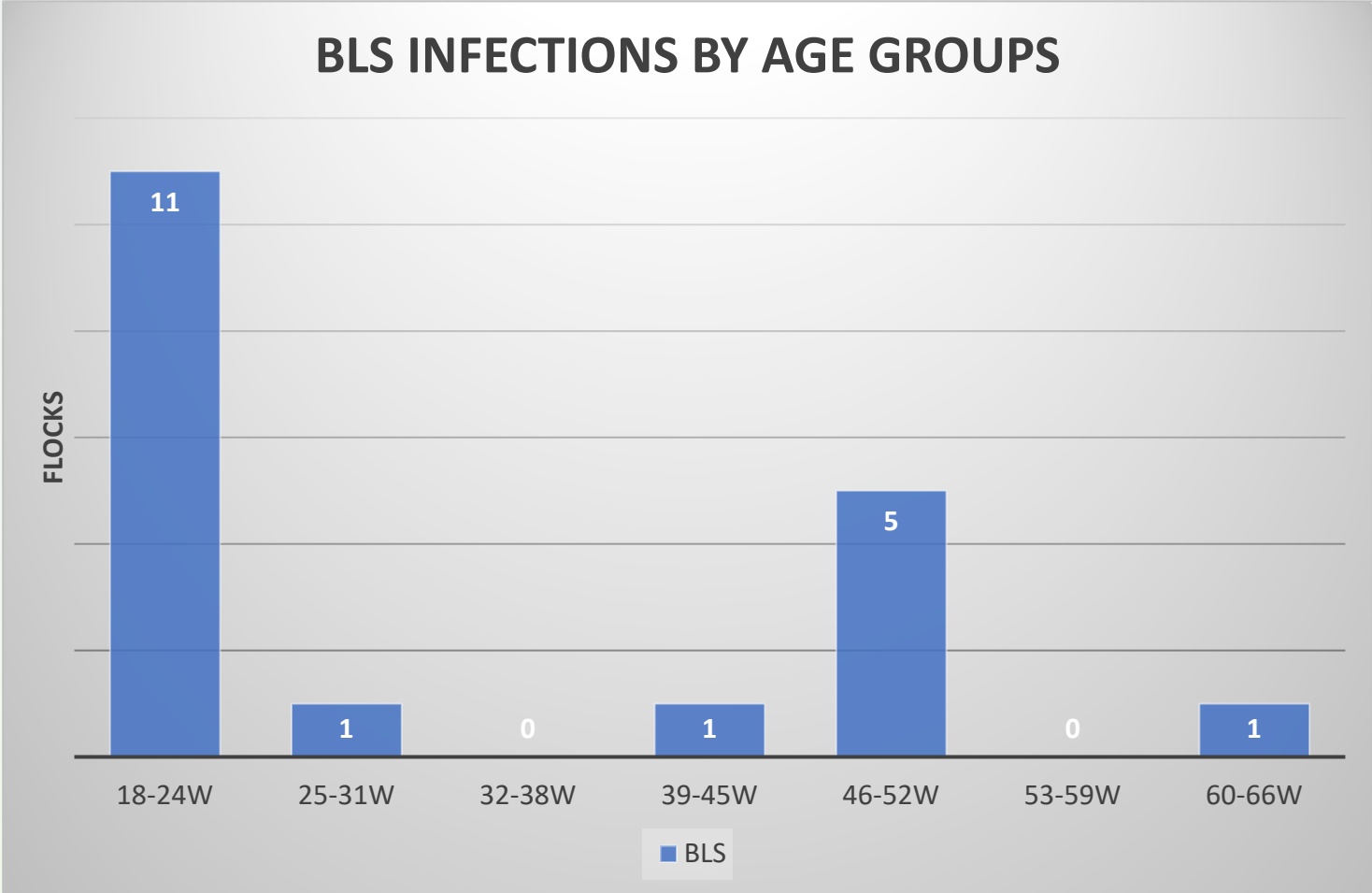
Samples: The HP (20 results) and RT-Real-time PCR (30 results) test were used for diagnostics

Type of samples: PCR – liver swabs, HP – liver and spleen

Lab test: Taq Man real-time RT-PCR

Labs: Clinic for Poultry and Fish Medicine, University of Veterinary Medicine, Vienna, Austria; AGRO-VET Wojciech Wieliczko Laboratorium Weterynaryjne, Wrocław, Poland; Katedra Anatomii Patologicznej, UWM Olsztyn, Poland

Results:



Conclusions:

- BLS is a problem which should be considered within commercial layers diseases.
- Clinical signs of the disease is evaluating and changes with time and development of production technology which is clearly visible in Poland (one of the biggest poultry producer in EU).
- aHEV is widely distributed in flocks of hens and chickens in Poland. The presence of specific anti-aHEV antibodies was found in 81.0% of commercial layers flocks.
- Prevention and control of the disease is difficult. There is no causal treatment or vaccines for preventive vaccination. It is generally recommended to adhere to the principles of production hygiene and implement an enhanced sanitary regime. However, the significant resistance of the virus to physical and chemical factors means that the cleaning and disinfection agents used are insufficient to protect the flock against aHEV.
- Biosecurity on farms is currently of paramount importance.

MORTALITY per 100k birds	
18-24w	3000 – 4000 (3-4%)
46-52w	500 – 1000 (0,5-1%)

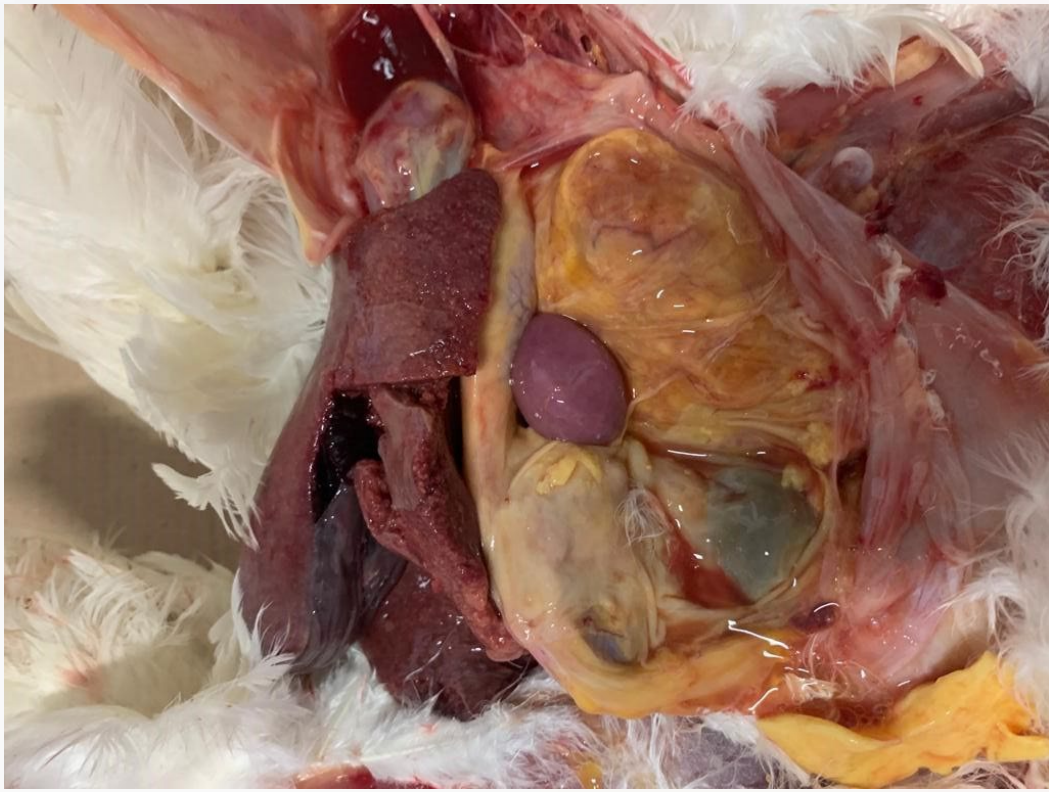
The disease lasts about three weeks.

CT RANGE in liver	
18-24w	25,65 – 29,12
46-52w	34,89 – 37,81

Kylt® Avian Hepatitis E (aHEV) BLS



Rupture of the liver capsule (CL 22w)



Bloody fluid in the abdominal cavity, friable, enlarged liver. Multiple necrotic foci in the liver parenchyma. Enlarged spleen. Ovarian atrophy.



Significant liver enlargement. Numerous necrotic foci and hemorrhages were present in the liver parenchyma.