

**PERSISTING SPREAD OF HIGHLY PATHOGENIC AVIAN INFLUENZA A
IN BULGARIA DURING 2019
(SUMMARY)**

For Bulgaria, the predisposing factor for the emergence of HPAI H5N8 is the density of birds in a poultry sector (hens and waterfowl birds) and the density of the flocks. By the reservoir and spread mechanism, Influenza A virus can be maintained on farms depending of level of hygiene, human activities, transport vehicles and equipment. This was the main factor for virus maintenance during the second and third wave of HPAI H5N8 epizootic in Bulgaria in 2017-2018. The number of the epizootic outbreaks and farm density in Plovdiv, Haskovo, Yambol, Stara Zagora and Dobrich regions creates a large risk zone for the maintenance of the Influenza A viruses.

Bulgaria is one of the leading countries known for the industrial ducks rearing for the production of "foie gras" duck liver. One of the main mechanisms for transmitting infection is through their premises and equipment. Other sources are the lack or insufficient measures for biosecurity, free movement of people and vehicles, contact of domestic with wild synanthropic and migratory waterfowl birds.

In the last two years – 2018 - 2019 (30.05.2019) the active and passive surveillance of Influenza A for wild migratory and synanthropic birds in Bulgaria shows that the wild birds were not a factor in the Influenza A epizootic transmission chain to the industrial poultry farms.

In Bulgaria in 2019 two epizootic clusters were identified of HPAI H5N8 with a total of 5 epizootic outbreaks - 2 outbreaks in duck fattening farms, 1 outbreak in backyard birds and 2 - in laying hens farm. In the Lovech region HPAI H5N8 were registered in duck fattening farm where the initial data indicated that the outbreak in Listets village was manifested after the import of ducks and probably the virus was introduced from Hungary. Whole genome sequence analysis have to be performed on the viral isolates from this outbreak and to compare their sequences with those viruses isolated from Hungary or with other viruses from the gene bank of the European Union Reference Laboratory. Genetic studies will support an epizootiological study to determine the origin of the infection.

The appearance of Influenza A HPAI H5N8 outbreak in the village of Krumovo, on a farm from the so-called "back yard" and in other 2 epizootic outbreaks in the production farms for laying hens in Assenovgrad town implies the possibility that the virus has penetrated as a result of non-detected by the surveillance program virus circulation and indicate that it has not yet been eradicated in our farms. Explaining the origin of the virus would be more credible by analyzing the virus strain genome and comparing its sequences with those isolated from previous epizootic outbreaks in the region.

After May 2018, Bulgarian Food Safety Agency took in place strict measures to limit the HPAI H5N8 virus circulation. This virus persisted in the environment and potentially in the industrial farms bird populations and sporadically circulated until November 2018 with a decreasing trend of epizootic intensity ($R_0 \leq 1$). The recent cases of HPAI H5N8 in Plovdiv area in 2019 occurred most likely due to undetected circulation of viruses in some of the farms. This indicates that the Influenza A virus can continue pose a risk to the poultry

holdings where there are lack in biosecurity. This indicate that the implementation of the strict measures for control of the Avian influenza A in birds imposed by the competent authorities in Bulgaria should be continued.