Advice 09-2015 of the Scientific Committee of the FASFC on a risk evaluation of the highly pathogenic avian influenza viruses in Belgium, in particular the H5N8 strain

Since early November 2014 several outbreaks of avian influenza caused by the highly pathogenic avian influenza (HPAI) H5N8 virus have been reported in Europe. In this context, nine questions are asked to the Scientific Committee. A partial answer to the first question about the duration of the period of increased risk was given in the rapid advice 06-2015 of the Scientific Committee. The aim of this rapid advice was to provide a scientific basis for the decision of the Minister on the duration of the period of increased risk and on the associated preventive measures.

The HPAI H5N8 virus currently circulating in Europe and in the United States is one of the many descendants of the highly pathogenic Asian H5N1 virus. This H5N8 virus is a reassortant belonging to the clade 2.3.4 who exchanged genetic segments with low pathogenic avian influenza (LPAI) H4N2, H11N9 and H5N8 viruses in Asia. This virus is highly pathogenic for domestic poultry. It is less pathogenic or asymptomatic for wild birds. There are no reported human cases of H5N8 virus infection so far.
In this opinion, the Scientific Committee does not limit itself to the HPAI H5N8 virus but takes all the HPAI viruses of the H5N1 Asian lineage into consideration.

According to the Scientific Committee, the domestic bird species susceptible to the H5N8 virus are a priori the same as those described for the H5N1 virus. Domestic poultry of the Gallinacae family, for which the virus is lethal, is the most susceptible species. Domestic ducks are less susceptible than domestic Gallinacae but can get sick and die from the virus infection. There is no information about the susceptibility of pigeons to the H5N8 virus.

The transmission ways of the H5N8 virus to domestic species are the same as those described for the H5N1 virus: direct transmission by contact with living infectious domestic or wild birds, and indirect transmission (mechanical) via fomite, persons, vehicles, animal products or materials that have been in contact with faeces or other secretions from infectious birds.

The wild bird species constituting a risk of introduction of H5N8 viruses in Belgium are a priori the same as those identified for the H5N1 virus. They belong to the following families: *Anatidae* sp., *Laridae* sp., *Limicolae* sp., *Rallidae* sp., *Ardeidae* sp., *Accipitridae* sp., *Falconidae* sp., *Strigidae* sp.

There are currently insufficient data to assess the risk of endemic establishment of HPAI viruses in wild birds in Belgium. There are no arguments to conclude that such an endemic establishment currently exists in Belgium. However, this risk cannot be excluded concerning the H5N8 virus. Indeed, the H5N8 virus is less pathogenic for wildlife than the H5N1 virus and is even asymptomatic for some species of wild birds. In addition, while the H5N1 virus is essentially excreted via the trachea, the H5N8 virus is excreted as well via the cloacae as via the tracheal way. Both elements can favor the transmission of the virus in wild birds and potentially increase the risk of its establishment. Therefore, the surveillance in wild birds is required to detect a possible endemic situation of HPAI viruses in Belgium.

To enable the risk manager to take proactively preventive measures against the introduction of HPAI viruses in Belgium, the Scientific Committee proposes to set up a warning system with several risk levels based on scientific parameters and on signal capture outside of Belgium. Three risk levels have been defined. The lowest risk level is the “basic vigilance level”. The intermediate risk level is the “increased vigilance level”. The highest risk level is the “increased risk level” and the latter is divided into 3 sub-levels: pre-alert, alert and emergency.
These risk levels are matched with specific preventive biosecurity measures that should be taken in professional exploitations and/or by hobby owners, either throughout the year or temporarily, and either on the whole territory or only in sensitive natural sensitive areas, depending on the risk level.

Concerning the preventive biosecurity measures, the Scientific Committee stresses the importance of the presence of a prelocal at the entrance of each compartment with a clear separation between dirty and clean area’s and with a device for hand washing, and from which the wearing of clothing and footwear specific to the exploitation is mandatory. The Committee also recommends more attention to the control of the biosecurity related to movements of persons and vehicles between farms.

The Scientific Committee is of the opinion that an active surveillance of H5N8 virus in wild birds is even more justified than it was for the H5N1 virus because, although still equally pathogenic for domestic gallinacae (chicken, turkey), it causes less mortality in wild birds than the H5N1 virus. This has two consequences: it is less detectable via the passive surveillance, and the risk for endemic establishment in wild birds is higher. The Scientific Committee agrees with the modalities of the current active surveillance of wild birds. It is a flexible system combining a sampling on the entire territory (where the objective is to estimate prevalence's) and a risk based sampling in sensitive natural areas (where the objective is to detect cases of HPAI during risk periods). However, the Committee recommends that the sample size is calculated based on a realistic limit prevalence determined beforehand by the risk manager.

Regarding the passive surveillance, it should be intensified via an increase of the number of analysed dead birds. The Scientific Committee also recommends the stimulation of the notification of avian mortality cases in hobby farms to enhance the passive surveillance of HPAI in Belgium, and the intensification of the vigilance and of the awareness of the professional sector and the hobbyists, as well as the general public, during periods of increased risk.

Maintaining sensitive natural areas remains relevant because the very large concentrations of wild birds found there (1) increases the risk of transmission of avian influenza viruses between wild and domestic birds, and (2) justifies taking specific preventive biosecurity measures throughout the year. They could however be refined every 5 years, namely on the basis of the evolution of the annual counts of bird populations or on the basis of the appearance or disappearance of wetland.

The full text is available on this website in dutch and in french, respectively under the section "Wetenschappelijk Comité/Adviezen" and "Comité scientifique/Avis".