African swine fever- recent research advances and strategies to combat the disease in Europe

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The surveillance of African swine fever in wild boar population in Serbia

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African swine fever (ASF) is a highly contagious haemorrhagic disease of pigs, and one of the most serious transboundary animal diseases with the potential for rapid international spread, and high socio-economic impact. In 2007, ASFV was introduced into Georgia and subsequently into other Transcaucasian Countries, the Russian Federation, Ukraine and Belarus, where it has caused outbreaks in wild boar and domestic pigs. In 2014 ASF entered the EU in Poland, Lithuania, Latvia and Estonia, where outbreaks in both wild boar and domestic pigs have been notified. There is a non-negligible risk of ASFV introduction to other parts of Europe via transport vehicles, movement of people and other human-induced activities. Prevention and control of ASF is based on two main principles: early detection and strict sanitary measures. Wild boar (WB) appears to be a key factor in maintaining the disease in endemic areas and local spread across EU borders. Therefore it is crucial to establish the monitoring the WB population for the presence of ASF. The population of WB in Serbia was approximately estimated on >25,000 heads and the population density ranges from 0.2/km^2 to over 20/km^2. In the country there are about 300 hunting grounds with WB and their surface ranges from 20 to 1000 km^2.

Surveillance of classical swine fever (CSF) in WB was established in Serbia since 2009 and maintained the last 6 years as part of the Program of control and eradication of CSF and rabies in Serbia. The surveillance includes serological testing of WB blood samples on presence of antibodies, and tissue samples on CSF virus presence. For each of 25 district in Serbia, based on estimated population size and projected annual hunting bag, the number of samples to be examined is determined to confirm the presence or absence of infection with CSF (5-10%, 95% CL). Due to the epidemiological situation of ASF in Europe, from 2013/2014 hunting season, 20% of WB samples collected for CSF testing were also tested on the presence of anti-ASF antibodies by commercial ELISA test. In the last three years (hunting seasons) about 900 WB blood samples collected throughout the whole country were tested per each season. All the blood samples tested in the past 3 years give negative result on the presence of anti-ASF antibodies. The short overview of methodology and results of testing of WB sera samples collected on the northern and on the southern part of Serbia is presented.

Out of 2383 WB samples from 13 districts (8 from northern and 5 from southern part) of Serbia, planned for CSF testing in 2013/2014 hunting season, in total 485 samples were tested for ASF antibodies presence. Tested samples belonged to the young, up to 6 months old animals (7.84%), to 6 - 18 months old WB (36.49%), 1.5 – 2.5 year old WB (21.03%) and more than 2 year old WB (34.64%). During hunting season 2014/2015, out of 2383 samples planned for CSF testing from the same afore mentioned territory, 475 samples were tested for ASF antibodies presence. Tested samples belonged to the young, up to 6 months old WB (17.26%), to 6 - 18 months old WB (47.58%), 1.5 – 2.5 year old WB (15.58%) and more than 2 year old animals (19.58%). Out of 2027 WB samples from 6 districts, all from northern part of Serbia, planned for CSF testing in 2015/2016 hunting season, in total 406 samples were tested for ASF antibodies presence. The samples were tested from young, up to 6 months old WB

(20.44%), from 6 - 18 months old WB (50.99%), 1.5 – 2.5 year old WB (21.67%) and more than 2 year old animals (6.99%). All samples tested during the whole surveillance period were negative on anti-ASF antibodies.
In the absence of efficient vaccine, ASF control relying in efficient early diagnosis and on the stamping out policy for infected and in contact pigs. Maintenance of the early warning system through continuous testing of WB on anti-ASF antibodies, but also as active and passive surveillance on ASF virus presence, that is established and based on risk assessment, is a highly valuable tool for on time reaction in the case of possible ASF outbreak in Serbia.

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