

African swine fever situation in Lithuania



S. Pileviciene¹, V. Jurgelevicius^{1,2}, J. Buitkuvieni¹, R. Zagrabaskaite¹, G. Pridotkas¹

¹ National Food and Veterinary Risk Assessment Institute, Vilnius, Lithuania;

² Vytautas Magnus University, Kaunas, Lithuania.

Keywords: African swine fever, molecular epidemiology, wild boar, pig

INTRODUCTION

African swine fever virus (ASFV) was first reported in eastern Europe/Eurasia in 2007. Continuous spread of ASFV placed the first outbreak in Lithuania on January 2014. The results were confirmed by the EURL CISA-INIA. Sequencing showed the identical isolates to 2013 ASFV from Belarus, but different from the virus isolated in Georgia in 2007. On July 2014, an ASFV outbreak was detected in pig farm “Idavang” in Ignalina district (in the east of Lithuania, near Belarus).

Since 2014 ASF outbreak territory from the east and south has expanded to the middle of Lithuania.

MATERIALS AND METHODS

Wide range of sample: tissues, blood-EDTA, serum, were tested to detect the ASFV genome using the OIE RT-TaqMan PCR. Commercial blocking INGENASA ELISA (VP72) and IDvet indirect screening ELISA (p32, p62, p72) were used for serological investigation of ASF in serum and blood samples. The indirect immunoperoxidase technique (IPT) was introduced in 2015 for specific antibody detection on Vero cell-adapted ASFV strain Ba71V. Though IPT is not supported by ENAC accreditation, it was used to follow up confirmation of positive and/or doubtful results by ELISA.

RESULTS

From 2014 until the first half of 2016 (I) the PCR positive prevalence in wild boars (WB) increased from 0.36% to 1.44% (although more positive cases were found of dead than hunted WB) (Table 1). Meanwhile, serologically more positive WB cases were found using the IPT than ELISA (except in 2014 before IPT implementation). However, many samples were of inappropriate quality to test by ELISA, therefore the detection of positive cases were higher testing by IPT.

Out of 114 positive domestic pig DP cases in 2014, 40 cases were presented by “Idavang” pig farm and 36 tested positive by PCR (1 by ELISA) confirming ASF outbreak. The remaining DP samples of 2014 through until 2016 (I) (consisting of sporadic cases from small farms) were mostly found positive by PCR and only one sample was detected by IPT (Table 2).

Comparing WB and DP samples within the same time period, more positive samples were found by PCR than ELISA or IPT.

DISCUSSION

ASF has emerged in several European countries. Since it is complicated to control the Euroasian WB population and movements, the ASF spread among animals in this area is getting progressive. Although large pig farms are better protected by biosecurity, ASF infected WB contaminating the environment could pose a threat.

The PCR is the main diagnostic tool when the viral isolates are highly virulent and are lethal to animals before immune response. However, due to the presence of strains of reduced virulence that result in a lower mortality, the ASF disease can be diagnosed by serological tests.

Laboratory testing of WB and DP is essential for monitoring new ASF outbreaks and implementing effective control programs.

Table 1 ASF detection results in wild boar (WB) samples

Period	No. of WB tested by PCR	positive/ (%)	No. of WB tested by ELISA	positive/ (%)	No. of WB tested by IPT	positive/ (%)
2014	19526	71 (0.36)	7934	1 (0.01)	0	0
2015	12824	94 (0.73)	7219	23 (0.32)	5610	56 (1.0)
2016 (I)	9374	135 (1.44)	6745	8 (0.12)	2467	17 (0.69)
Total	41724	300 (0.72)	21898	32 (0.15)	8077	73 (0.90)

Table 2 ASF detection results in domestic pig (DP) samples

Period	No. of DP tested by PCR	positive/ (%)	No. of DP tested by ELISA	positive/ (%)	No. of DP tested by IPT	positive/ (%)
2014	19715	114 (0.58)	22981	1 (<0.01)	0	0
2015	15268	29 (0.19)	21613	0	2550	1 (0.04)
2016 (I)	1268	4 (0.32)	5255	0	217	0
Total	36251	147 (0.41)	49849	1 (<0.01)	2767	1 (0.04)

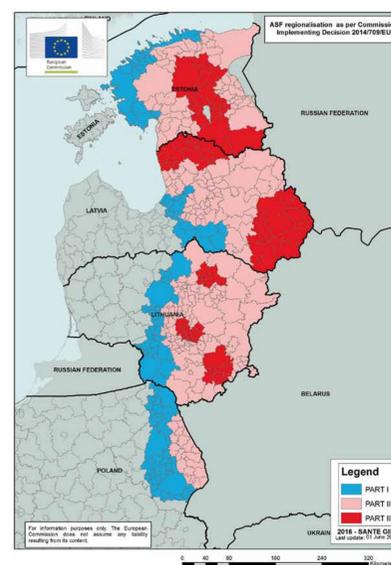


FIGURE 5. Map of ASF regionalization in Poland, Lithuania, Latvia and Estonia according to epidemiological situation on 01 June 2016.
Part IV: occurrence of ASF in both domestic pigs and wild boar. The situation is endemic.
Part III: occurrence of ASF in both domestic pigs and wild boar. The situation is not yet endemic.
Part II: occurrence of ASF in wild boar.
Part I: higher risk area with no cases, nor outbreaks, of ASF and where higher surveillance is applied.

ACKNOWLEDGEMENTS

We appreciate the intellectual and practical contributions of the EU ASF CISA-INIA team.