RISK ANALYSIS CONCERNING LUMPY SKIN DISEASE INTRODUCTION TO UKRAINIAN TERRITORY. ASPECTS OF LSD PREVENTION

A. P. Gerilovych, B. T. Stegniy, O. M. Korneykov, I. O. Gerilovych
antger2011@gmail.com

National Scientific Center "Institute for Experimental and Clinical Veterinary Medicine", Kharkiv, Ukraine

The lumpy skin disease (LSD) is viral vector-borne disease, caused by the Capriposvirus. The disease incidence could reach up to 90 %, with the mortality rate about 45 %, and significant economic losses consist of rubbish and death of the diseased livestock. The decreasing of productivity, quality of milk and leather raw materials, abortions, stillbirth, and infertility could be detected. The consequences of the LSD are devastating not only for agricultural regions, but also at the national level. According to the O.I.E. classification, the LSD is classified as particularly dangerous and subjects to mandatory notification. The disease prevention is based in mass alive vaccines application. Since last couple of years LSD is potentially hazardous for our country.

The epidemic situation concerning LSD was studied in the affected countries, most closely located to Ukraine, using the O.I.E. data and personal communications. The risks for disease introduction were calculated by the ball rate factors-assessment matrix. The populations of potential LSDV vectors were tested for virus presence using in house PCR protocol for Capripoxvirus. The comparative review of vaccines for LSD prevention.

The confirmed high level risks (12 balls) for LSDV introduction in cattle herds from Russia, Central Europe and Turkey. Situation regarding LSDV introduction to Ukraine is likely to be non-optimistic. Russia, Caucasian countries, and Bulgaria high LSD-associated risks put our territory on high range of risk regarding LSDV introduction. Disease introduction probabilities could be estimated as extremely high and high from the side of Russia. The first way for possible introduction could be potentially associated with warm and wet summer-spring period, sufficient for growing of the population of different insects, potentially could be LSDV transmission factors in the wildlife and farming animals, especially backyards kept on free pastures.

Polymerase chain reaction (PCR) and loop-mediated isothermal amplification (LAMP), as very fast tools for agent's identification are widely used and recommended by OIE. In house PCR test has been development in NSC IECVM and SSRILDVSE based on FAO protocol. The PCR-based screening of the midges, and biting-flies demonstrated absence of viral DNA in samples of insects collected in Sumy and Kharkiv regions.

As far as LSD vaccines are concerned, only live attenuated vaccines against LSD are currently commercially available. RM-65 attenuated sheep pox vaccine at the recommended dose for sheep has limited effectiveness in protecting animals from LSD. The Neethling attenuated lumpy skin disease virus vaccine is highly effective in the prevention of morbidity, thus confirming the need to use homologous vaccines for the control of Capripoxvirus infections. Nevertheless, some safety issues have been reported that are linked to generalize clinical reactions due to vaccination with LSD strains that can be observed.

The high level risks (12 balls) for LSDV introduction are existing for Ukraine. Effective prevention could be realized by the application of regular surveillance of disease, including monitoring of the vectors populations. Vaccines reserve could be also created for the specific disease prophylaxes.

Keywords: LUMPY SKIN DISEASE (LSD), CAPRIPOSVIRUS, UKRAINE