BLUETONGUE VIRUS RISK ASSOCIATED WITH WIND STREAMS

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The introduction of bluetongue virus (BTV) infected Culicoides carried by the wind is an important way of disease introduction into BTV-free areas. The aim of this study was to estimate the amount of Culicoides that could potentially be carried by the wind into Europe from disease-prevalent surrounding countries. Firstly, we focused on the estimation of the potential introduction of Culicoides by using a climatic model called the Dust Regional Atmospheric Model (DREAM). It is used to estimate dust particle transportation and final deposition in Europe by measuring the surface concentration (µg/m³/day). We hypothesised that there is a significant association between dust introduction into Europe and Culicoides introduction by wind. Data of the surface concentration per day were collected for each of the centroids of a 0.5x0.5 degree grid, and a temporal and spatial analysis was performed. Preliminary results of the spatial and temporal variation of dust deposition were presented for Spain. The correlation between outbreak occurrence in North Africa, dust introduction and outbreak occurrence in Spain was also

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Tel.: + 34 9 13 94 37 02; Fax: + 34 9 13 94 39 08 E-mail: beatriz@sanidadanimal.info evaluated. Preliminary results revealed that *Culicoides* introduction was most likely to occur in the south-eastern part of Spain and the Canary Islands, and sporadically in the Balearic Islands. The period from April to July was found to be at highest risk for *Culicoides* introduction. The combination of outbreak occurrence in Algeria or Tunisia and dust entrance was found to be correlated with the risk of outbreak occurrence in the Balearic Islands. Similarly, the combination of outbreaks in Morocco and dust introduction was correlated with the risk of outbreak occurrence in Andalucía. Results of this study will be useful to help European countries to develop policies and to allocate resources in areas and periods of time at highest risk for BTV introduction, helping ultimately to mitigate the consequences of BTV incursion into the countries.

Keywords: Bluetongue virus – Culicoides – Risk – Wind – Climate – Model – Spain.

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