Vector-borne disease surveillance in livestock populations: a critical review of literature recommendations and implemented surveillance (BTV-8) in five European countries - DTU Orbit (01/01/2019)

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Preparedness against vector-borne threats depends on the existence of a long-term, sustainable surveillance of vector-borne disease and their relevant vectors. This work reviewed the availability of such surveillance systems in five European countries (Denmark, France, The Netherlands, Sweden and United Kingdom, part of the CoVetLab network). A qualitative assessment was then performed focusing on surveillance directed particularly to BTV-8. Information regarding surveillance activities were reviewed for the years 2008 and 2012. The results were then complemented with a critical scoping review of the literature aimed at identifying disease surveillance strategies and methods that are currently suggested as best suited to target vector-borne diseases in order to guide future development of surveillance in the countries in question.

Passive surveillance was found to be efficient for early detection of diseases during the early phase of introduction into a free country. However, its value diminished once the disease has been established in a territory. Detection of emerging diseases was found to be very context and area specific, and thus active surveillance designs need to take the available epidemiological, ecological and entomological information into account. This was demonstrated by the effectiveness of the bulk milk surveillance in detecting the first case in Sweden, highlighting the need for output based standards to allow the most effective, context dependent, surveillance strategies to be used. Preparedness was of fundamental importance in determining the timeliness of detection and control in each country and that this in turn was heavily influenced by knowledge of emerging diseases in neighboring countries. Therefore it is crucial to share information on outbreaks between researchers and decision-makers and across borders continuously in order to react timely in case of an outbreak. Furthermore, timely reaction to an outbreak was heavily influenced by availability of control measures (vaccines), which is also strengthened if knowledge is shared quickly between countries. The assessment of the bluetongue surveillance in the affected countries showed that the degree of voluntary engagement varied, and that it is important to engage the public by general awareness and dissemination of results. The degree of engagement will also aid in establishing a passive surveillance system.