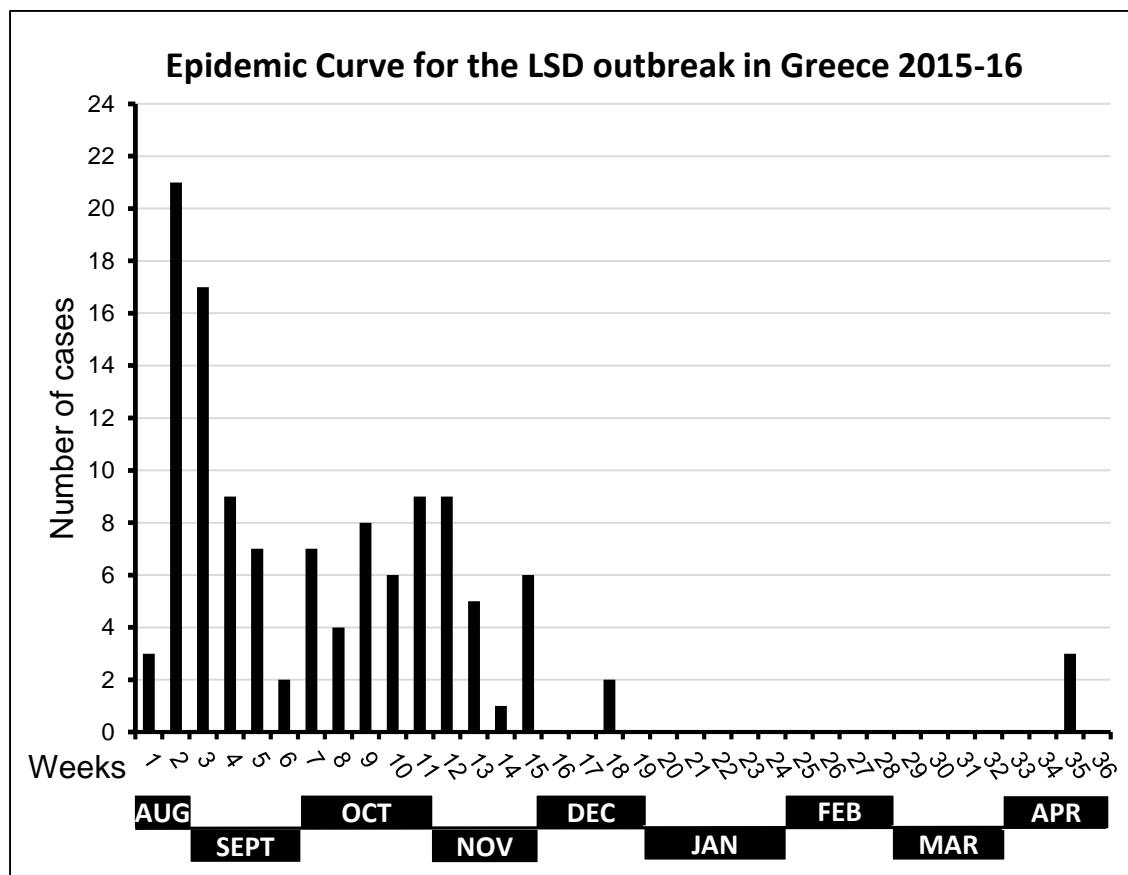


Allergic wheals, abortion and LSD.

Allergic wheals and unexplained abortions in cattle should be given special consideration in the UK and the rest of Europe this summer and autumn. They may represent the early signs of LSD (Lumpy Skin Disease). Named after the raised areas that appear on the skin of infected cattle, LSD was referred to as “pseudo-urticaria” when first described in Southern Africa in 1929 (Macdonald 1930). In the first outbreaks in Israel in 1989 skin lesions were mistaken for vaccine associated allergic wheals, animals were treated accordingly and diagnosis was delayed by about a month (Yeruham and others 1995, Brenner and other 2006). Although associated with a capripox virus, LSD does not behave like a typical infectious disease. Morbidity is low (reviewed by Tuppurainen & Oura 2012). Only 4-5 animals in an infected herd of 100 may show clinical signs. Awareness of unexplained abortions is important because retrospective examination of the health records of infected herds indicated that this was the earliest clinical sign (Brenner and other 2006).

This OIE listed notifiable disease has never occurred in the UK. Once confined to Africa, it is now on our doorstep. Eight months ago LSD was identified in the European Union for the first time. Greece reported two outbreaks in August 2015, clinical signs were detected in (10.1%:10/99) and (4.1%:4/98) cattle respectively. (OIE WAHIS 2015). Over 100 additional outbreaks were reported between September and December 2015 (Fig 1.). About 7000 oxen have been slaughtered. The cluster unadjusted, pre-culling morbidity is 7.9% and the mortality 0.4%. No outbreaks were reported between mid-December and April but LSD appeared again earlier this month (April 2016). Almost simultaneously LSD was reported from a second EU country, Bulgaria and in the Former Yugoslav Republic of Macedonia (OIE WAHIS 2016a,b,c).



The mechanism of transmission of LSD is incompletely understood. This makes the risk of spread difficult to assess. Spread within herds, between adjacent herds and apparent geographical jumps need to be explained. The presence of virus in saliva and its survival in skin lesions may explain within herd spread. The disappearance of disease in the winter months (Fig 1) and the historical failure of conventional methods of disease control, such as culling and movement restrictions to completely control LSD spread has implicated arthropod vectors in its transmission. This is supported by mathematical models (Magori-Cohen and others 2012).

Mechanical transmission by *Aedes aegypti* mosquitos has been shown to occur (Chihota and others 2001). Stable flies (*Stomoxys calcitrans*), other species of mosquito (*Anopheles stephensi* and *Culex quinquefasciatus*) and biting midges (*Culicoides nubeculosus*) have been implicated but experimental attempts to demonstrate their involvement in LSD transmission have been unsuccessful. Nevertheless transmission by *Stomoxys calcitrans* is the current explanation for the transmission of disease between Egypt and Israel – a distance of 50 miles. An interesting recent development in this conundrum has been the demonstration of LSD transmission by hard ticks and the transtadial and transovarian survival and subsequent transmission of the capripox virus (Lubinga and other 2014).

Immunity to natural infection appears long lived and the major strategy for LSD control is vaccination. Currently a live attenuated capripox vaccine is used in countries free of sheep and goat pox and some cattle develop lesions at the injection site (reviewed by Tuppurainen & Oura 2012).

Early recognition is imperative in limiting the impact of novel or exotic diseases. Where clinical signs are easily visible, as is the case with LSD, there is a need for everyone who regularly observes cattle, stockmen and women, transport drivers, auctioneers, inseminators, abattoir workers and veterinarians to be vigilant to the appearance of skin wheals or lumps.

Skin wheals, whether visible or palpable and unexplained abortions should now trigger the addition of LSD to the list of differential diagnoses. Look out also for the swollen legs and lymph nodes.

Up to date details of the LSD outbreak in Europe and a detailed risk analysis are available on-line from OIE (OIE WAHIS 2016) and EFSA (EFSA 2015) respectively. Descriptions of the clinical disease are available on YouTube from FAO (FAO EMPRESS 1996), if you have 15 minutes and enjoy a comprehensive voice-over or at MODISAR if you have only 1 minute and prefer a catchy backing track, even the cows are in key. Congratulations MODISAR on a nice video but isn't "Mokokomalo" Botulism?

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