Evidence that exposure to Schmallenberg virus has been quite widespread in Southern and South-eastern counties of Ireland during 2012

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Schmallenberg virus (SBV) was first identified in Germany in late 2011. The virus, which is transmitted by biting midges is capable of causing disease in infected cattle and sheep, primarily leading to the birth of malformed calves and lambs. Since its discovery, evidence of infection of livestock with this virus has been found across Northern Europe with first reports of the virus reaching South East England in January 2012. Given the likelihood that this vector-borne virus would eventually reach our shores, DAFM began targeted surveillance in January 2012 and all deformed calves and lambs presented for examination to Department Regional Veterinary Laboratories (RVLS) since then have been tested for the presence of the virus. The first positive case was detected in a cattle herd in County Cork in late October 2012. To date the infection has been confirmed in foetuses obtained from a further 20 cattle herds and 12 sheep flocks (33 herds/flocks in total). All of these confirmed cases have been confined to Co. Cork (16 cases) and South Eastern counties (8 in Wexford, 7 in Kilkenny, 1 in Wicklow and 1 in Waterford) as illustrated in the map in Annex 1 below.

It was expected that once the virus arrived in Ireland it would spread rapidly throughout the country during those times of the year when biting midges were active – the so-called “vector-active season” (which in most years in Ireland extends from the beginning of April through to the beginning of December). DAFM has recently completed a preliminary survey of cattle herds and sheep flocks (undertaken since the virus was first discovered here) to establish just how widespread exposure to the virus has been during 2012. This was with a view to trying to predict what the likely impact of this new infection will be during the 2013 spring calving and lambing season.

Blood samples which had been collected for brucellosis testing from herds in all 26 counties since mid November were tested for antibodies to Schmallenberg virus - the presence of antibodies indicating previous exposure to the virus. In summary, 15 brucellosis-tested herds were randomly selected from each county and six animals were randomly selected from each of these herds. The results are illustrated in the map in Annex 2 below and show a very marked regional distribution – greatest exposure to the virus having occurred in Southern and South-Eastern counties with much less evidence of exposure in the North and West.

Facts about Schmallenberg virus infection

- It can cause abortion and stillbirth in ruminants (cattle and sheep) and the birth of deformed lambs and calves
- It is transmitted by biting midges - during April to December
- It is not known to pose any risk to human health
- It does not pose a risk to non-ruminant animals such as horses
- It is NOT a notifiable disease
Blood samples from randomly-selected sheep flocks have also recently been tested for antibodies to Schmallenberg virus but these samples were collected in late Summer/early Autumn for other purposes, and with the exception of one flock in Co. Waterford, showed little evidence of exposure to the virus at that time. Taken together this preliminary data suggests that the greatest risk of exposure of flocks/herds to this virus during 2012 was in the South and East of the country and towards the end of the vector season.

**What does this mean for herd and flock owners?** Firstly it is important to emphasise that to date we have only confirmed 33 clinical cases despite the evidence of widespread exposure to the virus. However there are now numerous reports from flock owners of malformed lambs being born to early lambing flocks in the South East and a small number of these affected lambs have been submitted to Kilkenny and Cork RVLs since Christmas. Typical malformations in lambs can be seen in the attached photograph which shows a lamb with stiff neck, bent limbs and shortening of the lower jaw. Problems with malformed calves and lambs are most likely to arise when pregnant cows and sheep are exposed to the virus during a critical time window in early to mid pregnancy (estimated to be 40-120 days gestation in cattle and 20-80 days gestation in sheep). As the time of exposure is uncertain it is too early to estimate what percentage of exposed herds/flocks are likely to have affected calves/lambs. Based on the pattern in the UK and elsewhere, between 4-6% of holdings are likely to be affected. In those holdings that are affected, the within-herd/flock impact in terms of deformities is likely to be mild in most cases at 2-5% of affected pregnancies, but moderate at worst. The highest level of problems would be expected in herds that have synchronised breeding programmes and where large numbers of animals were infected during the critical period of pregnancy in 2012.

*Fig.* Photograph of a deformed lamb showing arthrogryposis, torticollis and brachygnathia (bent limbs, twisted neck and shortened lower jaw). *Photograph courtesy of Cosme Sanchez*
Herd/Flock owners will need to be extra vigilant as foetal malformations can give rise to significant lambing and calving difficulties with associated welfare problems. Farmers are advised that as malformed lambs and calves may be alive at birth they should seek appropriate advice from their veterinary surgeon.

Farmers who suspect they have problems caused by SBV should discuss with their veterinary surgeon what action they should take including the submission of samples, if appropriate, to the local Regional Veterinary Laboratory. Deformed lambs or calves can be tested for the presence of virus. Alternatively, blood or milk samples can be tested for antibodies to confirm that the cow (or ewe) has been exposed to SBV.

The European Centre for Disease Prevention and Control has determined that there is unlikely to be any human health risk. Therefore, no additional hygiene measures are required at calving/lambing other than the standard advice in relation to other infectious disease risks, that pregnant women should avoid contact with pregnant sheep and cattle at calving/lambing.

Further spread to unaffected herds/flocks in northern and western counties is very likely to occur during the 2013 vector season but should have relatively little impact in non-pregnant livestock. It is generally impractical to attempt midge control measures except for valuable breeding stock and it would be hoped that a strategy of exposure of non-pregnant animals may in fact be beneficial pending the development of an effective vaccine. Exposed animals develop a strong immunity and are unlikely to suffer any ill-effects if exposed to the virus on a subsequent occasion. If this viral infection becomes endemic the ill-effects are likely to be confined to younger animals and cows and ewes that have not been previously exposed. Based on Australian experience in vaccinating against a similar virus/disease (Akabane virus infection) we would anticipate that vaccination is likely to be an effective tool in control of the SBV infection. Although vaccine development is in progress there is likely to be some delay before any candidate vaccine is licenced and becomes commercially available, but the Department will monitor developments closely.

What next? DAFM is meeting with representatives of the farming community and veterinary practitioners this week to discuss the possible implications of these latest findings and what further steps need to be taken to monitor the likely impact of this infection.
ANNEX 1

Distribution of holdings confirmed positive on PCR for SBV to 15 January 2013
Map courtesy of the Centre for Veterinary Epidemiology and Risk Analysis, University College Dublin
Distribution of antibody positive cattle holdings in samples collected in November/December 2012

Map courtesy of the Centre for Veterinary Epidemiology and Risk Analysis, University College Dublin