# Examination of abortions in food producing animals

## Background

Postmortem examinations are considered important for early detection and national surveillance for infectious and emerging disease. As mentioned in the chapter “Postmortem examinations in food producing animals”, the Swedish Board of Agriculture has financed a programme to encourage such examinations for the past 20 years. However, some infections do not produce lesions that can be detected at necropsy or cause only non-specific macroscopic changes. Brucellosis, porcine reproductive and respiratory syndrome (PRRS) and classical swine fever (CSF) are examples of infections that may be present without specific macroscopic findings on post-mortem. Moreover, the clinical picture in herds affected by these diseases can be non-specific, which may cause a delay before the suspicion of these infections occurs in clinical surveillance.

## Surveillance

This surveillance component was introduced in 2008. It includes examinations for brucellosis in all ruminant foetuses and for brucellosis, PRRS and CSF in all pig foetuses submitted for necropsy through the postmortem examination programme. These infections often cause abortion so, by sampling aborted foetuses, the sampling occurs within a risk group. This increases the chance of detecting the infectious agents, if present. The Swedish Board of Agriculture finances the sampling and testing of foetuses for *Brucella*, PRRS and CSF. The National Veterinary Institute (SVA) is responsible for the organisation of the aborted foetus examination programme. Samples from aborted foetuses are either submitted to SVA by veterinarians performing postmortems at regional laboratories or are taken from fetuses submitted directly to SVA for postmortem examination. All diagnostic testing is performed at SVA. Testing for the presence of CSFV and PRRS genome is done by PCR and for *Brucella* by bacterial culture.

## Results

In 2019, a total of 67 foetuses from 44 herds were examined (Table [tab:abortion-by-species]). This represents an increase from 2017, when the lowest number of foetuses was submitted for necropsy since the surveillance programme started in 2008. However, this number remains below the 140 foetuses that were expected to be examined during the year. All analysed samples were negative for *Brucella*, PRRS and CSF.

## Discussion

The postmortem examination and sampling of aborted foetuses is an important part of the national surveillance for infectious and emerging diseases. This was demonstrated in 2012–2013, when the then newly-identified Schmallenberg virus (SBV) was detected in Sweden through the surveillance of aborted foetuses. At that time, in addition to testing for *Brucella*, ruminant foetuses were also examined for the presence of SBV. Testing for SBV did not continue beyond 2013 because the disease became established in Sweden and elsewhere in the EU with limited economic impact, and was therefore delisted at EU-level.

Since 2008, the number of foetuses of different species submitted for examination has varied from year to year. In 2013, the number of ruminant foetuses submitted was extraordinarily high, most likely because of concerns about SBV. For the last six years, the number of submissions has been less than anticipated across all species (Table [tab:abortion-by-species]). Activities to increase awareness about the opportunity to submit aborted fetuses among veterinarians and animal producers will be undertaken in 2020.

## Tables

Table [tab:abortion-by-species]: Number of foetuses (herdsA) investigated by species from 2010–2019 through the aborted foetus examination programme.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Species | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
| Cattle | 62 | 21 | 63 | 114 | 32 (27) | 29 (23) | 34 (23) | 20 (18) | 34 (28) | 21 (20) |
| Goat | 9 | 3 | 5 | 4 | 2 (2) | 0 | 2 (2) | 2 (1) | 5 (3) | 3 (2) |
| Sheep | 70 | 45 | 79 | 89 | 28 (14) | 31 (21) | 16 (13) | 22 (15) | 23 (16) | 12 (8) |
| Alpaca | 5 | 0 | 0 | 0 | 0 | 2 (1) | 1 (1) | 0 | 0 | 0 |
| Bison | 0 | 0 | 1 | 0 | 0 | 0 | 1 (1) | 0 | 0 | 0 |
| Visent | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Gnu | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pig | 61 | 51 | 54 | 46 | 31 (12) | 17 (10) | 43 (22) | 6 (4) | 16 (9) | 31 (14) |
| Water buffalo | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 (1) | 0 | 0 |
| **Total** | **207** | **122** | **203** | **259** | **93 (55)** | **79 (55)** | **97 (62)** | **51 (39)** | **78 (56)** | **67 (44)** |

ANumber of herds not available prior to 2014