SVEPM

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Exotic disease surveillance in Swedish livestock - (un)expected variation over time and space

Notification of suspicions of exotic disease based on clinical signs or postmortem findings is an important surveillance component.

We put trust in this surveillance component in relation to early detection of exotic diseases. But how well does it perform?

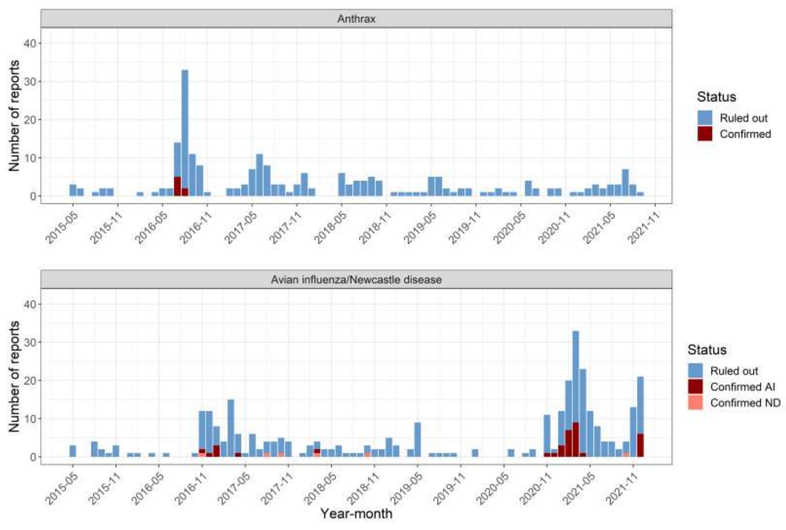

Figure 1. Notifications of suspected and confirmed cases of Anthrax and HPAI/Newcastle disease in Swedish poultry.

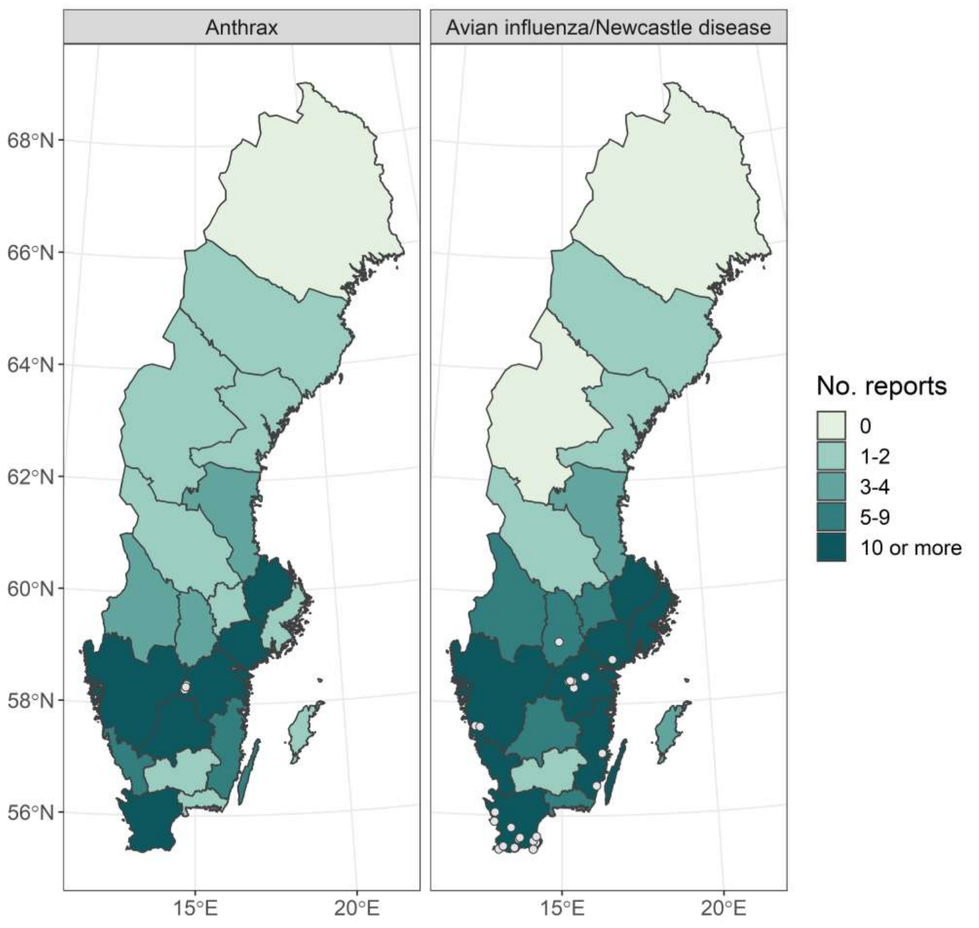

Figure 2. Notifications of suspected cases of Anthrax and HPAI/Newcastle disease in Sweden by country with the locations of positive cases shown as white dots.

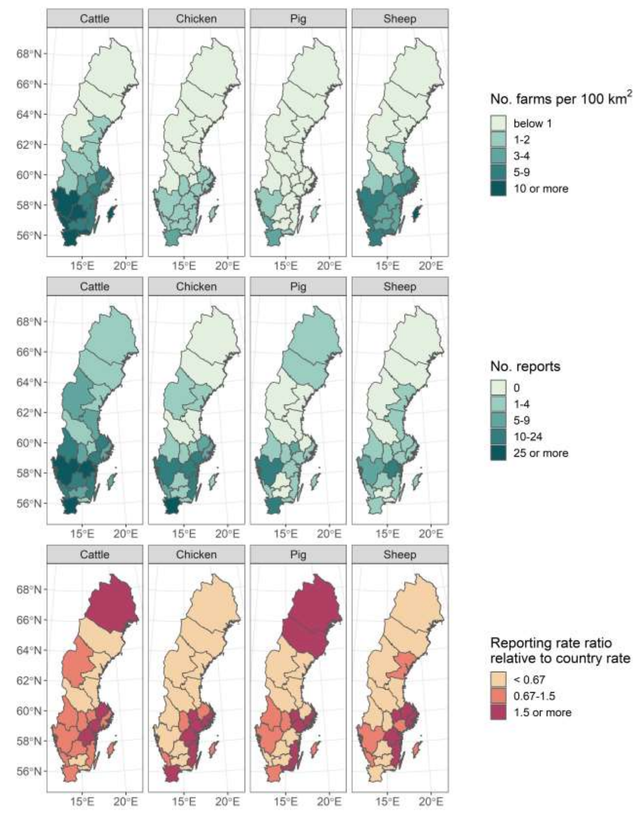

Figure 3. Notifications of suspected cases of exotic diseases in Sweden by county, species and number of farms of relevant species.

Aim

To investigate notifications of livestock diseases which are mandatorily notifiable upon clinical signs, postmortem- or laboratory findings as a basis for improving clinical surveillance.

Materials & Methods

Data were extracted from the Urax-database at SVA, between 6 May, 2015 (date of the first report) and 31 December, 2021. Data were analyzed by disease, species, confirmation status, county and reason for suspicion (clinical suspect, postmortem or slaughter findings, positive in screening, sampling prior to export, contact tracing, other). Livestock data from the Swedish Board of Agriculture were used.

Results

There was large variation; e.g. 325 reports of Avian Influenza (HPAI), 224 of Anthrax and 27 of FMD, while other diseases were not suspected and notified during the period.

There was also variation in time and space (Fig. 1 and 2). Confirmed outbreaks of Anthrax and HPAI were correlated with peaks of notification both in time and space, while Newcastle disease outbreaks did not generate corresponding peaks. Further, the reasons of notification varied by disease (results not shown) and

the number of reports in relation to population size varied between counties (Fig. 3).

Discussion

Peaks observed in relation to HPAI and Anthrax are not unexpected since outbreaks tend to increase awareness among farmers and vets and some notifications are true cases, but the clinical signs of other causes (not caused by exotic diseases) resulting in notifications would be expected to be present at a more constant level, not showing the pattern observed.

Splitting notifications by reason, season, geography, confirmed outbreaks and population enable analysis of the performance of different surveillance components. The study has increased our understanding of the clinical surveillance of exotic disease in livestock in Sweden.

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