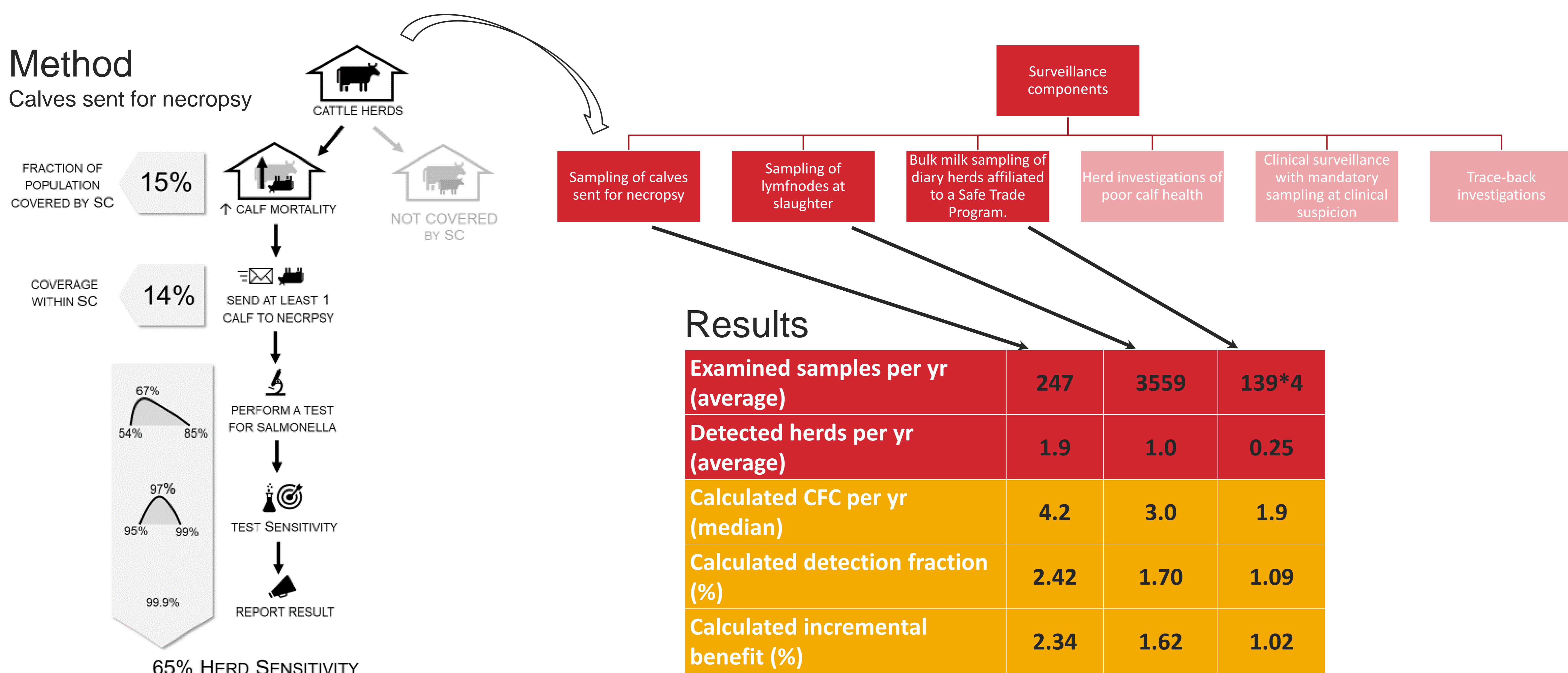




Assessing surveillance of endemic disease by calculation of case-finding capacity

In this study we explored a method to evaluate endemic disease surveillance with multiple and risk-based components (SC). The expected number of detected cases within each surveillance component was calculated (CFC), as well as the detection fraction (DF) and incremental benefit. The method was applied on Salmonella surveillance in Swedish cattle.



Method

We used a method developed by Cameron and co-workers and used by EFSA to assess the contribution of meat inspection to animal disease surveillance. It is similar to scenario-tree modelling for demonstrating disease freedom, but with case-finding capacity as main outcome instead of system sensitivity. It is based on proportions of different strata of the population, differences in risk of infection between different strata of the population, and probabilities of events throughout the chain of events within each surveillance component. The design prevalence used in our case was 1% infected herds. The DF was the fraction of cases expected to be detected out of the total number of expected cases within each surveillance component. The incremental benefit of each component took population coverage and overlap of surveillance components into account.

Results

CFC, DF and incremental benefit was calculated for three surveillance components (see Results table). The total DF of the three evaluated components was 5.3% with a case-finding capacity of 9.0. The low DF and CFC is in agreement with detected herds each year.

Conclusions

- The method provides an opportunity to compare the efficiency of different surveillance components.
- The method can be used to compare effectiveness of existing surveillance components to potential new components.
- The incremental benefit allows for evaluation of additional value of a surveillance component, when other surveillance components are in place.
- The method requires quantitative input in many steps and sometimes it was difficult to find reliable input.