

## **Animal health surveillance systems**

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Surveillance plays an important role in biosecurity – to establish the status of the population and the hazards when programs are originally developed; to support risk analysis; and to provide ongoing assurance of the effectiveness of the measures introduced. Recent research in approaches to surveillance has provided a range of new opportunities to gather better quality and more cost-effective information for decision making.

In the area of freedom from animal diseases, risk-based surveillance can achieve a high probability of detecting disease at much lower costs. New analytical techniques allow data from risk-based and non-representative surveillance to be quantitatively analysed. Evidence from multiple existing (often passive) data sources can be quantified and combined to give a more complete picture of the disease situation. Furthermore, the value of historical data can be incorporated into estimates of current disease status.

Other tools including syndromic surveillance and advanced systems for the early detection of pattern anomalies provide improved approaches to the detection of previously unrecognised and potentially subtle emerging diseases.

However the emphasis on endemic disease surveillance has been decreasing. Information required for endemic disease management, risk analysis and priority setting is becoming less available. Creative cost-effective approaches are required to fill this gap.

The new surveillance tools provide a range of opportunities for animal and plant disease and pest surveillance. However, these new approaches are increasingly complex, requiring a detailed understanding of the risk structure of the population and of the surveillance processes, and the use of mathematical modelling and advanced statistical techniques.

To take advantage of the surveillance opportunities available two changes are required: firstly, a detailed understanding of the use and complexities of these new techniques; and secondly, improvement of the global, regional, bilateral and local regulatory frameworks for surveillance to allow better, cheaper techniques to be adopted.