

## **Risk-based surveillance for disease freedom: Master class**

**28-31 October 2014**

**National Veterinary Institute**

**Uppsala, Sweden**

Risk-based methods for surveillance design and analysis are now reasonably well developed and numerous examples have now been published in the animal health literature. However, new developments are continuing to occur and some areas of the methodology are still subject to discussion and variations in interpretation. Previous courses have provided an introduction to scenario trees and risk-based methods and have provided the impetus for participants to apply the methods to real surveillance activities. This course builds on previous courses by providing participants with more detailed consideration of some of the more complex topics than has been possible in the earlier introductory courses. The course also provides an opportunity for participants to work on their own examples with guidance and advice from the tutors.

This course aims to give participants

- an high-level understanding of risk-based methods for design and analysis of complex disease surveillance systems
- practical experience with techniques and tools for design and analysis of complex, risk-based sampling schemes within surveillance programs
- an understanding of more complex issues in the analysis of surveillance data to demonstrate freedom from disease

Participants should have

- experience and interest in the principles of design and analysis of surveillance programs for livestock, aquatic animal or wildlife diseases;
- understanding of epidemiological principles, including sampling, laboratory test evaluation, basic probability theory and relative risk;
- laptop computers (preferably Microsoft not Mac operating system) with MS Excel, ability to connect to a wireless network, and (ideally) the administrator rights to install new software;
- expertise in use of MS Excel;
- previous experience of scenario tree modelling and analysis of complex surveillance systems for disease freedom (preferably attendance at a previous course on these topics).

### **Workshop details**

*Location:* National Veterinary Institute, Uppsala, Sweden

*Workshop size:* minimum 10; maximum 20

*Risk-based Surveillance Masterclass*

*Duration:* 28-31 October 2014, 4 days (Tuesday to Friday)

*Registration fee:* €1000 (employees of partner organisations in the RiskSur consortium are eligible for a €100 discount on registration). Registration includes provision of course materials, as well as refreshments and lunch on each day.

Registration details are available from <http://training.ausvet.com.au/index.php?n=Main.Welcome> in the near future

*Deadline for registration:* 31 August 2014

*Note:* if the minimum number of registrations is not achieved by 31 August 2014 the course will be cancelled or postponed.

The course will be presented jointly by Evan Sergeant and Angus Cameron. However, if the course is not fully subscribed Evan Sergeant may be the sole presenter/tutor, depending on final numbers.

*Additional Information and expressions of interest:*

[evan@ausvet.com.au](mailto:evan@ausvet.com.au) or <http://training.ausvet.com.au>

## Workshop outline

Workshop content will be based on presentation of concepts, interactive discussion, and reinforcement and application of concepts by practical exercises and case studies using *MS Excel EpiTools*<sup>1</sup> and *R* statistical environment. The program is intended to cover advanced topics in risk-based surveillance and scenario-tree modelling.

Participants should have preferably attended one of our earlier workshops on scenario-tree modelling or risk-based surveillance and be familiar with the basic concepts and application of risk-based surveillance methods and analysis of complex surveillance systems.

An overview of the program follows:

<i>Session</i>	<i>Topic</i>
<b>Day 1</b> <b>1</b>	<i>Welcome, Introductions, etc</i> <b>Introduction to the course and review of basic concepts</b> <ul style="list-style-type: none"><li>• surveillance concepts</li><li>• disease freedom concepts</li><li>• risk-based surveillance</li><li>• scenario trees</li><li>• including historical data</li><li>• surveillance systems and components</li><li>• terminology and definitions</li></ul>
<b>2</b>	<b>PIntro and design prevalence</b> <ul style="list-style-type: none"><li>• What is PIntro?</li><li>• How to determine PIntro</li><li>• How to determine design prevalence</li></ul>

<sup>1</sup> Sergeant, ESG, 2009. Epitools epidemiological calculators. Available at: <http://epitools.ausvet.com.au>

3 – 4	<b>Dealing with small populations for representative &amp; risk-based freedom surveys</b> <ul style="list-style-type: none"> <li>• hypergeometric approximation</li> <li>• Practical sessions on small population</li> </ul>
<b>Day 2</b> 1 – 2	<b>Passive surveillance systems</b> <ul style="list-style-type: none"> <li>• scenario trees for passive systems</li> <li>• modelling passive surveillance systems</li> <li>• practical sessions and case studies</li> </ul>
3 – 4	<b>Combining surveillance system components</b> <ul style="list-style-type: none"> <li>• accounting for independence</li> <li>• combining data</li> <li>• adjusting for lack of independence</li> <li>• practical sessions and case studies</li> </ul>
<b>Day 3</b> 1 – 2	<b>Simulating in Excel &amp; R</b> <ul style="list-style-type: none"> <li>• Poptools &amp; @Risk</li> <li>• R functions</li> <li>• Example models</li> </ul>
3 – 4	<b>Work on own models or case studies</b>
<b>Day 4</b> 1 – 2	<b>Tricks &amp; Traps</b> <ul style="list-style-type: none"> <li>• sample size calculations for risk-based surveillance</li> <li>• max pfree and time to reach it</li> <li>• design prevalence achieved for given PFree or CSe</li> <li>• problems and issues that can arise and invalidate a model or cause other problems</li> </ul>
3 – 4	<b>Work on own models or case studies</b>
<i>Wrap-up and close</i>	

Note: this program outline should be considered a guide only, as actual topics and timing of sessions may change depending on the needs and preferences of the participants.

Other topics that may be covered, time and participant preferences permitting, include:

- dealing with multiple risk factors
- model validation
- alternative approaches
- Determining initial prior probability of freedom
- SSe/sample size required to achieve desired PFree
- estimating relative risk
- considering consequences
- important formulae for risk-based surveillance

## Workshop presenters

### **Evan Sergeant**

Email: [evan@ausvet.com.au](mailto:evan@ausvet.com.au)

Evan is a Director of AusVet Animal Health Services and has worked as a senior consultant or Director for AusVet since 2001. In this role he has provided epidemiological input for a wide range of projects, including modelling, data analysis, risk analysis, disease surveillance and training. Evan has a particular interest in disease surveillance methodologies and has had an active involvement in development and application of analytical methods for risk-based surveillance. He also has extensive experience in providing training in epidemiological and surveillance methods.

### **Angus Cameron**

Email: [angus@ausvet.com.au](mailto:angus@ausvet.com.au)

Angus has been a Director of AusVet Animal Health Services since 2000. With the other members of the training team, he was involved in pioneering research into the quantitative evaluation of complex surveillance resulting in the development of the scenario-tree methodologies. Angus works in surveillance, information systems, GIS and epidemiological data analysis across a range of species (terrestrial, aquatic and human) and environments (developed and developing countries). He has extensive training experience having conducted courses on five continents.