



UCD School of Veterinary Medicine

27 October 2016

Martin Blake  
Chief Veterinary Officer  
Department of Agriculture, Food and the Marine  
Kildare St, Dublin 2

23 March 2016

**Re: National Farmed Animal Health Strategy Framework Consultation**

Dear Martin

Thanks very much for the opportunity to comment on the National Farmed Animal Health Strategy Framework. I have discussed in detail with staff of the Centre for Veterinary Epidemiology and Risk Analysis at University College Dublin, and include a submission that we have developed jointly.

I hope that it will be helpful.

Please come back to me if there is a need for clarification or further information.

Yours sincerely

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Centre for Veterinary Epidemiology and Risk Analysis  
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Based within the School of Veterinary Medicine at University College Dublin, CVERA is Ireland's national resource in veterinary epidemiology and risk analysis. Its primary task is to provide world-class scientific information to support national policy decision-making in animal health and welfare. The work of CVERA is broad-ranging, addressing the following three areas:

- Epidemiological support for the control and eradication of *regulatory animal diseases*, which includes national programmes for bovine tuberculosis (bTB), bovine brucellosis and bovine spongiform encephalopathy;
- Epidemiological support for the work of Animal Health Ireland, which is seeking to provide a proactive, coordinated and industry-led approach in Ireland to *non-regulatory animal health issues* (including CellCheck (the national mastitis control programme), the bovine viral diarrhoea (BVD) eradication programme, and national Johne's disease (JD) control).
- Epidemiological support for a broad range of *other animal health and welfare issues* relating to emergency animal disease preparedness and response (for example, avian influenza, bluetongue and equine infectious anaemia), on-farm investigations, welfare of farmed livestock and horses, health of companion animals and farmed fish, and international collaboration; and

As currently written, the document does not comprehensively reflect either *the scope or depth* of CVERA's current work, and its contribution to national farmed animal health. We suggest that this could be addressed in several possible ways:

a. The inclusion of the 'Centre for Veterinary Epidemiology and Risk Analysis' as a named section within Chapter IV (Supporting infrastructure and systems). The work of the Centre is broad-ranging, including surveillance, modelling of infectious diseases, animal health economics, epidemiological aspects of laboratory investigation, and statistical analysis. Further, CVERA plays a key role in support of the Wildlife Administration Unit, conducts scientific research to support Animal Health Ireland, and interacts closely with colleagues in Northern Ireland and Great Britain.

b. Mention of CVERA's work under each relevant section within Chapter IV (Supporting infrastructure and systems). To illustrate, there is substantial CVERA input into each of the following (here presented briefly in dot-points):

- A. Animal Health Surveillance
  - Relating to endemic disease surveillance (eg bTB, BVD)
    - Scientific research:
      - Investigating defined surveillance systems (strengths, weaknesses, relative effectiveness etc)
      - Investigating sociological constraints (eg milk quality)

- Research support
        - GIS mapping (wildlife unit support)
    - Relating to freedom from disease/early detection surveys (eg Schmallengberg, bluetongue)
      - Support for surveillance design
- B. Contingency Planning and Emergency Response
  - A central role in FMD preparedness and response
  - General epidemiological support for contingency planning
- C. Epidemiological and Risk Analysis
  - Scientific research
    - Leadership and management of broad portfolio of research projects in support of national farmed animal health
  - Scientific support
    - General research support through disciplinary expertise and the provision/facilitation of national resources (eg detailed database queries)
    - CVERA plays a key role in support of the Wildlife Administration Unit
- E. Animal Health/Animal Disease Statistical Modelling [note that this is better termed '*population dynamics modelling*']
  - bTB modelling (*in collaboration with Wageningen University*)
  - BVD modelling (*in collaboration with Helmholtz Centre for Environmental Research – UFZ*)
- I. Supporting Access to International Markets
  - A research portfolio and associated scientific support contributing to the credibility both of Irish animal health and welfare science and of quality claims regarding Irish livestock and livestock products
- M. Independent Scientific Advice
  - The primary work of CVERA is to provide independent scientific advice (specifically world-class scientific information to support national policy decision-making in animal health and welfare)
- N. Education, Training and Communication
  - CVERA contributes to DAFM education and training, for example the ongoing Private Veterinary Practitioner (PVP) training for the Knowledge Transfer (KT) Scheme. The work of CVERA is communicated widely, to the international scientific community
- O. Research and Innovation
  - The CVERA research portfolio contributes substantially to national research and innovation. Emerging from CVERA research, AHI was awarded an Irish Times/Intertrade Ireland Innovation Award in 2014.

CVERA is a research centre within University College Dublin. However, it is not strictly an 'academic centre', as has been suggested on p44.

## Additional topics

*These comments are presented alphabetically not in order of importance.*

### Animal health economics

Throughout the document, economic modelling is mentioned as an important tool to assist in the decision-making process. We highlight the need to reflect economic models are reliant on and closely linked to robust epidemiological data.

### Animal Health Ireland

AHI is mentioned extensively in the document. It is important to highlight that their work is underpinned by scientific research, including considerable contribution from CVERA.

### Animal welfare

Animal welfare is of considerable importance to the general public, and is an issue where DAFM plays a substantial role. Further, welfare is closely linked to animal health, the primary focus of the Strategy. Currently, however, animal welfare is not considered in any detail in the document.

### Bovine tuberculosis

In the document, there is little mention of the bTB programme, including the badger vaccination programme. However, these are key areas of responsibility within DAFM Veterinary Services.

### Compliance with animal health standards (Chapter V)

The document focuses on 'ensuring compliance'. However, shouldn't Ireland be aiming for better than compliance (that is, achieving more than just the legislative baseline)?

### Environmental impact

The environmental impact of farmed animal production is not currently addressed in the document. Yet, these impacts are both an important societal concern and will contribute to the long-term sustainability of farmed animal production in Ireland.

## Epidemiological and Risk Analysis (Chapter IV, section D)

There is some confusion in this section between:

- the processes of risk assessment (the science) and risk management (the policy), which underpin the interaction between science and policy both at a European level and in Ireland, and
- the science of risk analysis, which describes a formal process to identify, assess, manage and communicate a specific hazard.

With respect to the latter dot-point, examples include import risk analysis and the analysis of biological hazards in animal-based products. These could be commercial risks, but also risks to animals, risks of spread of infection to other species, or risks to humans etc.

There is a clear potential link between epidemiology and economics, although much of the epidemiological work conducted in Ireland does not currently include economic considerations. A GIS component is particularly relevant to epidemiological studies, to allow investigation of spatial issues, for example including the spread of diseases.

## Horses

While equidae do fall under the Department's remit, they are a distinctly different category to bovines, ovines etc. That is, they don't ordinarily enter the human food chain. Is there a case that they should be included in a distinct section within this strategy document?

## ICT Developments and Data Management (Chapter IV, section K)

There is good connectivity of most, but not all, national databases relevant to animal health. The key exceptions include the national LIMS database, the bulk milk tank database, the interferon- $\gamma$  testing database and the cull cow sampling database.

We suggest several further recommended strategic actions, including:

- To ensure connectivity between all DAFM's ICT systems relevant to animal health
- To facilitate access to these databases for scientific research of a public good nature, using procedures that are in compliance with national data protection legislation

## Population dynamics modelling (Chapter IV, section E)

Part E. (Animal Health/Animal Disease Statistical Modelling) should more correctly be termed 'Population dynamics modelling'. These are epidemiological models that study

dynamics within a population. These models were initially developed to answer questions on whether or not a specific pathogen could invade and persist in a certain population. Traditionally, these epidemiological models for animal health have had a strong mathematical basis (Garner and Hamilton, 2011), and it is for this reason that they are commonly referred to as mathematical models. Sometimes they are also referred to as compartmental models, as the population under study is divided in different categories (for example, an SIR model, referring to Susceptible, Infectious and Recovered). As computing power has increased, different types of simulation techniques have been applied to these models in order to evaluate the effect of several control/eradication options. The term 'Population dynamics modelling' is a better term than mathematical modelling or compartmental modelling as it encapsulates also simulation models that have a compartmental approach.

Such models seek to represent biological processes, offering the opportunity to ask 'what-if' questions given different scenarios. Mathematical components are used, underpinned by compartmental models and, often, simulation. In Ireland, population dynamic modelling is being used to assist in both the bovine tuberculosis and BVD eradication programmes.

CVERA has expertise in the area of population dynamics modelling, and is the Irish link for two substantive projects including:

- bTB modelling, in collaboration with Wageningen University
- BVD modelling, in collaboration with Helmholtz Centre for Environmental Research – UFZ

It is important to note that statistical modelling is conducted routinely as part of CVERA's work.

Garner, G.M., Hamilton, S.A., 2011. Principles of epidemiological modelling. *Rev sci tech Off int Epiz* 30, 407–416.

### Quality control

In the document, there is currently no mention of work on quality control. However, this is a substantial area of work, certainly within the current research portfolio of CVERA, including the quality of field and abattoir surveillance in the national bTB programme, and the impact of a range of legislative and other factors on herd eligibility to support raw milk for processing of dairy products.

### Research and Innovation (Chapter IV, section 0)

National research prioritisation is problematic, noting that the outcome of prioritisation is generally influenced by the expertise of participating scientists. As part of

recommended strategic actions we suggest that there is a need for Ireland to identify and apply methodologies to allow unbiased evaluation of critical knowledge gaps, in particular gaps that if filled would make a substantial difference in the medium and long term in Ireland to the health and welfare of farmed animals and to the international competitiveness of animal products.

#### Strategic outcomes (Chapter II, section 7)

In the strategic outcomes section (Chapter II section 7) there is no mention of endemic diseases, animal welfare or quality. For a strategy aimed at farmed animal health these may be more relevant outcomes than an increase in productivity.

#### Traceability (Animal Identification and Premises Registration) Systems (Chapter IV, section H)

We suggest one further recommended strategic action, namely the ongoing and transparent evaluation of the accuracy and completeness of the national cattle identification and movement control system, using defined KPIs, to inform stakeholders and facilitate continuous improvement.

#### Veterinary Medicinal Products (Chapter IV, section L)

We accept that antimicrobial resistance needs to be tackled both nationally and internationally. It is important that Ireland learn lessons from member states where on-farm antimicrobial usage has been substantially and sustainably reduced. In each of these countries, systems are in place to allow farm-level measurement of antimicrobial usage, thereby facilitating objective and transparent comparison and benchmarking of farming systems, of prescribing veterinarians and of farms. Please note that opportunities for benchmarking and comparison will be greatly reduced if data are collected at higher levels of aggregation (e.g., nationally, by livestock sector). A number of other factors are also important, including ambitious national targets, transparent (and detailed) reporting of progress, and restriction on access to antimicrobials considered critically important for human health.

#### General comments

The selection of the subheadings within chapter IV is not ideal; Infrastructure meaning organizations/institutions/sections within DAFM should be separated from tools (i.e. animal disease statistical modelling).

There are some statements in the document that should be supported by references e.g. line 30 on page 5 states “...production to increase by 60% to 70% to meet expected population demands by 2050.”

At times, there is a blurring between actual and planned activities. As one illustration, the text on p32 would suggest that there is an outcome for having horizon scanning and risk analysis coordinated centrally with data sharing between all stakeholders. This is mirrored on pages 38 and 56.