



Animal health management

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Introduction

Animal health management poses one of the greatest challenges for veterinarians and other stakeholders in the livestock and wildlife industries. Because it is no longer acceptable to control animal diseases in a vacuum without regard for the environmental-ecological and socio-economic effects of the measures used, i.e. the 'one health' concept, there is a need to find alternatives for many of the conventional tools that have been used to control animal diseases.

Why animal health must be managed

Since the earliest times associations between humans and animals have developed that have the potential to impact either negatively or positively on the health of both. Hunting wild animals as food was largely replaced by keeping livestock to supply humans with products like milk and meat. Animals were also domesticated for other purposes that include performing work (traction, hunting, guarding) and providing recreation and companionship. Human activities have had major impacts on animal health in various ways: moving animals over great distances and thereby exposing new populations to different pathogens, genetic selection and intensive management to maximize productivity, exploitation and conservation of wildlife, environmental change and habitat destruction. Human health has in turn been influenced by exposure to pathogens that cause zoonotic diseases. Humans therefore have a responsibility to manage animal diseases in order to improve livestock health, production and welfare, to protect and promote human health, to protect wildlife resources and to support trade in livestock commodities and products.

Principles of animal health management

To manage animal health it is necessary to understand how diseases are transmitted, why we need to control them, which populations are susceptible and how to create barriers between pathogens and susceptible animal populations. These barriers may be physical (e.g. fences, insect-proof mesh), chemical (e.g. medicines and disinfectants), or biological (e.g. vaccines and other biologicals). When all else fails and an outbreak of disease occurs, control is often effected by pre-emptive removal of the entire susceptible population in the area deemed to be at risk. Growing opposition to massive culling and disposal of animals has created the need to search for alternatives that are less drastic and devastating. Increasingly, it is becoming a principle of disease control that the control measures should not have harmful effects such as excessive restriction of movement of wildlife, environmental pollution, exposure of humans to potentially harmful substances, and destruction of livelihoods and income. This limits the options and places emphasis on developing safe husbandry practices that depend as little as possible on the use of products and measures that are not sustainable in terms of human, animal and environmental health and wellbeing.

Tools for animal health management

The tools used for animal health management include tools for gathering and storing information about diseases and tools for preventing or controlling diseases. Surveillance for animal diseases, laboratory capacity to diagnose diseases and to perform molecular epidemiological studies to determine the relationships and geographical distribution of



pathogens, identification and traceability of animals, quarantine and movement control, prophylactic and therapeutic agents, biosecurity measures and their application to achieve freedom from specific diseases in so-called compartments, and skilled veterinary and paraveterinary professionals are all part of the animal health management toolbox. Some of the traditional tools like extensive fencing to create zones free from particular diseases and mass culling of animals when outbreaks occur are increasingly being questioned because of their negative effects on animal and/or human populations, and new tools that require more participation by the animal owners are being sought to replace them.

Challenges and opportunities

The realization that humans have a compelling responsibility to conserve biodiversity has provided new challenges for animal health managers by increasing the livestock-wildlife-human interface and demanding a 'one health' approach. This changes the narrow focus of managing particular diseases to a broad focus that takes into account the landscape in which the disease events occur and the ecological and socio-economic effects of control measures as well as of failure of disease control. Other challenges are posed by modern intensive husbandry systems in which large numbers of animals are kept at very close quarters under potentially stressful conditions and by consumer opposition to such systems, resulting in a demand for more extensive farming that exposes the animals to 'old' diseases and parasites. The new approaches required often appear to be overwhelmingly complex. On the other hand the 'one health' approach offers unprecedented opportunities for the different sectors of the human community concerned with animals to work together to develop innovative approaches to old problems and overcome new ones in a way that is beneficial for everyone.

Find out more

- Web-based modules for degree purposes or CPD on animal health management are available in which objectives, approaches, impacts and challenges are explored.
- Web-based modules on high impact diseases provide more detail on how individual diseases of importance are managed.
- Web-based modules on the various tools used for animal health management provide more detail on laboratory diagnostics, molecular applications, passive and active surveillance for animal diseases including participatory surveillance, animal identification and traceability, disease freedom for countries, zones or compartments, the use of vaccination, the role of therapeutics and the principles of biosecurity.
- Web-based modules on zoonotic diseases explore the way those diseases manifest in and spread between humans and animals.
- Web-based modules for CPD or degree purposes on emerging and re-emerging diseases discuss the drivers that have resulted in 'new' diseases, many of which are zoonotic, and the challenges that occur when a 'new' disease emerges or an old disease assumes new patterns.

