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PANORAMA

Thematic portfolio

Global Burden of Animal Diseases (GBADs)



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What is an ontology and why do we need one for animal health? How do we combine data from different databases in a meaningful way? How much of the total burden of animal disease is attributable to a specific disease such as foot and mouth disease?

Animal health ontology

The development of digital technologies in agricultural infrastructure produces large quantities of data that provide information on the structure of animal populations and production systems and enable the compilation of health-related records, e.g. disease reports, clinical observations. Collation and synthesis of these data will facilitate understanding of livestock health systems and the burden of disease [1].

An ontology organises data resources into meaningful, computer-readable information [2], allowing characterisation of key data concepts and categories, facilitating understanding of relationships between data resources, and providing digital representation of core subjects.

Animal health ontology (AHO) supports the interoperability of data collated for the Global Burden of Animal Diseases (GBADs) programme by building on existing ontologies [3, 4] and harnessing GBADs' international expertise in animal health, economics and informatics.

> An ontology is a representation of the animal health domain (or part thereof) where key concepts, as well as the relationships between those concepts, are defined.

Using ontologies to link GBADs' methods and metrics to OIE–WAHIS, global data sets (e.g. FAOSTAT), published research, and government and private-sector databases will allow seamless integration of these systems.

Disease attribution

Quantifying the burden of specific diseases, e.g. foot and mouth disease (FMD), helps us to determine the appropriateness of current control expenditure and to understand where additional resources should be assigned. In FMD-free countries, disease incursions are mitigated by large investment in surveillance and border-control measures [5]. In contrast, where FMD is endemic, local outbreaks can have devastating effects, with related losses being 16–60% of annual household income [6]. Other factors to consider include: the livestock production system; country/region/zone-specific trade agreements; and seasonal aspects determining production losses.

AHO and attribution methodology will integrate components of GBADs, transforming core subject understanding to inform priority setting in the animal health sector.

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DOSSIER

Animal health ontology and attribution

Linking key elements in the GBADs programme

KEYWORDS

#animal health, #data management, #economics in animal health, #Global Burden of Animal Diseases (GBADs), #livestock sector, #statistics.

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