





ICRAD

International Coordination of Research on infectious Animal Diseases

About

ICRAD is the ERA-Net for International Coordination of Research on infectious Animal Diseases. The network was launched in 2019 for a period of five years. The EU-funded consortium of 28 partners from 19 countries will address the global threats of infectious animal diseases through joint efforts via multidisciplinary research on mechanisms of host/vector/pathogen interactions, epidemiology, diagnostics and vaccination strategy. ICRAD will build on the work of the two previous ERA-NET programmes with successful outcomes that were dedicated to ensuring sustainable livestock production along with safety in international trade.

Aim

ICRAD aims to:

• Support cross-cutting research to improve public health, and animal health and welfare, with associated benefits towards the environment and the economy.

Connect research partners with different but complementary scientific and technological expertise to maximise resources and share risks, costs and skills. The partnership between industrial and academic researchers, where appropriate, will improve and accelerate the development of technological solutions for the benefit of animal health and welfare.

Challenges

Animal diseases cause severe social, economic and environmental damage and in some cases threaten human health as well. Animal health is a key and a fundamental pre-requisite to ensure and enable global food safety and security, public health, international trade, and contribute to high standards of animal welfare.

The World Organisation of Animal Health (OIE) estimates that morbidity and mortality due to animal diseases cause the loss of at least 20% of livestock production globally. This represents at least 60 million tonnes of meat and 150 million tonnes of milk with an estimated value of \$300 billion per year.

Moreover, five influenza pandemics, starting with the Spanish flu, have killed millions of people, and the outbreak of ASF in Europe and Asia has killed thousands of animals, resulting in serious economic impacts on the livestock industry.

The disease threats to the livestock industry have increased steadily over the past decades due to globalisation, increased farming intensification with changed husbandry and management structure, climate changes, changes in the weather conditions and changes in wildlife management. These factors contribute to the risk of spread and evolution of pathogens. African Swine Fever (ASF) for instance, has been spreading steadily in Europe since its introduction into Georgia in June 2007, and has had outbreaks in Asia, Haiti and the Dominican Republic.

Another example is the poultry industry, which has suffered from multiple avian influenza outbreaks over the past decade. Avian influenza poses a major threat to public health and continuously new



human cases reported regularly by Chinese authorities. Since February 2013, there have been 1568 confirmed human cases and 616 deaths.

Antimicrobial resistance (AMR) is a major threat to the livestock industry and public health. In May 2015, the World Health Organisation (WHO) agreed on a global plan to combat resistance to antibiotics in the framework of the "One World, One Health" concept.

Furthermore, there is currently no prophylaxis and/or therapies for some diseases like paratuberculosis in cattle, avian influenza and ASF in pigs, and for a number of other diseases the efficacy of existing vaccines is insufficient and new/improved vaccines would increase animal health and welfare and reduce the need for antibiotic use.

Globally, the EU Member States and the partners of the International Research Consortium on Animal Health (global network STAR-IDAZ IRC) invest significant amounts in the development of new or improved control strategies for a range of diseases. However, more could be achieved through increased coordination of the research efforts, joint funding of activities and sharing of results. These efforts would be greatly facilitated by a coordinated international funding initiative focused on some of the critical challenges affecting the public health, environment and livestock industries. For some of the emerging diseases including ASF, there is an urgent need for R&D cooperation between European and other countries to avoid knowledge gaps and increase the level of expertise.

Scope, goals and research topics

Research and innovation co-funded through ICRAD would seek a concerted approach towards the development of novel and improved instruments to address and control infectious diseases, particularly regarding novel detection, intervention and prevention strategies to:

- Increase preparedness and ability to respond to emerging and endemic livestock threats
 - Control: by improving control of specific infectious animal diseases, in particular those where the role of wildlife and vectors are prominent, by further understanding the epidemiology, ecology and means of surveillance and control
 - New generic tools: by providing new generic tools, systems for better prevention and improved preparedness to react to infectious animal disease outbreaks, in particular by designing and developing new or improved vaccines, diagnostic and surveillance tools and vaccination/immuno-stimulation strategies
 - Translation: by improved translation of key knowledge on host and pathogen interaction and pathogen transmission into pathways for means of prevention, detection and control of animal infectious diseases
- Contribute to the reduction of antimicrobial and antiparasitic use in livestock and to minimising the development of resistance for the benefit of animal and public health
- Contribute to animal welfare by better prevention of diseases and renewed animal management and farming systems
- On a larger scale, contribute to food security and competitive and sustainable livestock systems, by reducing the burden of disease and reducing impact on international animal trade



ICRAD contributed significantly to the Strategic Research and Innovation Agenda for the European Partnership on Animal Health and Welfare, 2023. The SRIA lists the main research needs and priorities in animal health and welfare which are fully in line with the scope and goals of ICRAD.

The AH&W Partnership addresses these challenges:

- Control of contagious and zoonotic animal diseases and assess and improvement of animal welfare.
- Prevention strategies, control measures, diagnostic and alternatives to the use of antibiotics and other substances/techniques to tackle antimicrobial resistance and threats from biological hazards.
- Tackling the links between plant, animal, ecosystems and public health from One Health-One Welfare and Sustainable Development Goals/Global-Health perspectives.

Priority Area: Surveillance / monitoring systems and risk assessment for animal health and welfare

- Contribute to design and harmonize surveillance and monitoring systems for animal health and welfare
- Contribute to adapt risk assessment and alert communication to the new needs in animal health and welfare

Priority Area: Procedures, methodologies and tools to analyse animal health and welfare

- To develop diagnostic procedures, methodologies and tools to support the surveillance of animal health
- To develop procedures, methodologies and tools to support the monitoring of animal welfare

Priority Area: Management and husbandry guidelines on farm including aquaculture, during transport and at slaughter

- To develop guidelines and preventive tools to fight against animal infectious diseases on farm and during transport
- To develop guidelines and prototype solutions that advance animal welfare on farm, during transport and at the end of life

Priority Area: Treatments & vaccines

- To develop new interventions and treatments, or improve existing ones, against specific priority animal infectious disease
- To develop new vaccines or improve existing vaccines, including adjuvants and immunemodulators

Transversal Priority Area: Integrated approach, including socio-economic aspects of animal health & welfare

• To develop an integrated approach on animal health and welfare including socioeconomic aspects