Innovation in Veterinary Medicines and the Competitiveness of Livestock Farming in the EU
A Success Story to be continued?’
ZOETIS Workshop - Brussels, 26 February 2013

- What is the role of innovation to enhance Europe's agricultural competitiveness?
- What can policy do to target disease control in livestock farming
- How urgent is the need?
Plan

Tackling animal health challenges (toolbox, AMR, OneHealth)

Role of FP7 to date

Horizon 2020: what's in?
Animal disease consequences

- Reduced production: e.g. mastitis
- Decrease animal welfare
- Restricted market for animal products
- Threat for human health
Animal and human: "One Health"

- **Zoonoses**: pathogens transmitted between animals and humans:
  - Influenza
  - BSE
  - Foodborne pathogens (Salmonella, Campylobacter, parasites as Trichinella or Echinococcus). They do not necessarily cause serious illness in animals

- **Neglected zoonoses**: under control in the EU but can still be a threat and cause serious losses/health problems in certain areas of the world:
  - Brucellosis
  - Tuberculosis
  - Teniasis/Cysticercosis
  - Rift Valley Fever Virus

- **Antimicrobial resistance**
The toolbox for tackling animal health challenges

1. Knowledge of the disease
   Host/pathogen interactions; Epidemiology (sources, transmission...); Impact

2. Diagnostic tools
   Pen-side diagnostics; multispecies diagnostics;

3. Prevention (better than cure)
   Network of epdemiosurveillance (networks); Good management practices; Precision farming; Breeding (for robustness, resistance); Nutrition (probiotics, prebiotics...); Vaccine (not for all diseases...)

4 Treatments:
   Antiparasitic (prudent use); Antimicrobials (prudent use); others
Anti-Microbial Resistance (AMR)

- **Increasing worldwide** and leading to treatment failures both for human and animal.

- The European Medicines Agency (EMA) and the European Centre for Disease Prevention (ECDC) have reported ≈ 25,000 patients died in the EU from an infection due to multidrug resistance bacteria.

- Under the Framework Programmes (FP) for Research from FP5 to FP7 (1999-2012) ≈ €600 million were spent mostly in human health.

- A high priority in the last work programmes of FP7, with a package of call topics in 3 work programmes for a total of over €100million.
Anti-Microbial Resistance (AMR)

*Food production and livestock management*

- **Ban of the use of antimicrobials in feed as from 2006.**

- **Research projects with 2 main objectives:**
  - alternative products (e.g. plants extracts; phages)
  - changes of production systems (e.g. investigating gut function, genetic resistance to disease).

- **Need more knowledge on AMR in animals (mastitis, pig respiratory diseases, etc) and on the potential transmission to human pathogens**
Last call of FP7: KBBE.2013.1.3-05: EU contribution €9Mio:

*Ecology of drug resistant bacteria and transfer of antimicrobial resistance throughout the food chain*

- food chain as reservoir + disseminator AMR
- other transmission pathways (e.g. environment, wildlife, companion animals, humans)
- correlation with the use of AM substances
- economic impacts of AMR in the food chain
- environmental impact

*Identify risk factors and propose actions.*
Anti-Microbial Resistance (AMR): the way forward

The 5-year Action Plan against the rising threats of AMR launched by the European Commission in November 2011, contains two actions related to research:

**Action 6**, that aims to promote public-private collaborative research and development to bring new antibiotics to patients and

**Action 11**, that calls for reinforcing and co-ordinating research efforts.

Cooperation between Member States takes place also in a European frame, e.g. through ERA-NETs and joint programming. A recent Joint Programming Initiative on AMR is due to develop a strategic research agenda and expected to implement joint activities in 2013. This initiative is not exclusively focussed on the human side.

In further support to the 5-year Action Plan, the European Commission intends to focus on AMR in its next framework programme on research (i.e. Horizon 2020) currently in the legislative process. COM (2011)748
The role of FP7 to date

- Federate and prioritize animal research funding at the EU level, including structuring projects, networking and surveillance
- Better control of specific epidemics and endemic diseases
- Management & selection of animals for decreasing the impact of production diseases

- A book on a decade of EU-Funded animal health research:
ANIHWA ERA-NET

*Follow up to successful EMIDA ERA-NET (Animal Health)*

*Increase cooperation and coordination of national research programmes on animal health and welfare, including fish and bees*

30 partners from 19 countries.
CA €2Mio EU contribution
Started on January 1st 2012
First transnational call for research proposals at the end of 2012
STAR-IDAZ

"Global Strategic Alliances for the Coordination of Research on the Major Infectious Diseases of Animals and Zoonoses”

International forum of R&D programme owners/managers and international organisations for sharing information, improving collaboration and working towards common research agendas and coordinated research funding on the major animal diseases affecting livestock production and/or human health

22 partners from all over the world.
Coordination Action: €1Mio EU contribution, 4 years
Started 1st February 2011
DISCONTOOLS

FP7 project (CSA-SA) started on 1 March 2008, for 60 months.

3 objectives:

- Develop a disease prioritisation methodology
- Gap analysis for each of the prioritised diseases to identify where research is needed.
  
  A database with 52 diseases is available on the project website: http://www.discontools.eu/Diseases

- To explore how new technologies can be deployed more efficiently in the animal health research area.
Some FP6-FP7 Collaborative projects centered on animal health

The EU research covers most tools and types on diseases.

• Control of epizootic diseases (vaccines): Bluetongue (BTVAC); CSF (CSF-GoDIVA)
• Knowledge + vaccine for production diseases: Porcine coronavirus (PCVD), Porcine respiratory and reproductive syndrome (PoRRSCon), Tuberculosis (TB-step), etc
• Epidemi-surveillance (e.g. Arbo-zoonet, Wildtech)
• Quick on field diagnostic tools (e.g. Rapidia-Field)
• Neglected zoonoses (e.g. ICONZ)
• Parasites (e.g. PARAVAC)
Sustainable production and management of biological resources from land, forest and aquatic environments

**Livestock:**
- Fostering the exploitation of 'omics' technologies to support innovation in livestock breeding
- Supporting the Implementation of the Action Plan against the rising threats from AMR
- Initiatives on animal health: emerging vector borne diseases; cooperation with China on infectious diseases; integrated approach on production diseases.
- Bee genetic diversity and health
Horizon 2020: What’s in?

- A single programme bringing together three separate programmes/initiatives: the 7th research Framework Programme (FP7), innovation aspects of Competitiveness and Innovation Framework Programme (CIP), EU contribution to the European Institute of Innovation and Technology (EIT)

- More innovation, from research to retail, all forms of innovation

- Focus on societal challenges facing EU society, e.g. health, food security and sustainable agriculture, clean energy and transport

- Simplification: new simplified rules of participation with a reduced number of funding schemes.
Europe 2020 Priorities

- Tackling Societal Challenges
  - Health, demographic change and wellbeing
  - Food sec., sust. agri., mar. res. & bioeconomy
  - Secure, clean and efficient energy
  - Smart, green and integrated transport
  - Supply of raw materials, resource efficiency and climate action
  - Inclusive, innovative and secure societies
  
  *EIT will contribute to addressing these challenges*

- Creating Industrial Leadership and Competitive Frameworks
  - Leadership in enabling and industrial technologies (Biotechnology,...)
  - Access to risk finance
  - Innovation in SMEs

Excellence in the Science Base

- Frontier research (ERC)
- Future and Emerging Technologies (FET)
- Skills and career development (Marie Curie)
- Research infrastructures

Shared objectives and principles

- International cooperation
- European Research Area
- Simplified access
- Common rules, toolkit of funding schemes
- Coherence with other EU and MS actions
Proposal for Horizon 2020
Societal Challenge 2: Food security, sustainable agriculture, marine and maritime resources & the bioeconomy

To secure sufficient supplies of safe and high quality food and other bio-based products, by developing productive and resource efficient primary production systems, fostering related ecosystem services, along side competitive and low carbon supply chains. This will accelerate the transition to a sustainable European bio-economy

Broad lines of activities:
2.1 Sustainable agriculture and forestry
2.2 Sustainable and competitive agri-food sector for a safe and healthy diet
2.3 Unlocking the potential of aquatic living resources
2.4 Sustainable and competitive bio-based industries

Animal health; zoonoses; AMR fall mostly under sub-challenge 2.1
Horizon 2020 and partnering

Public private partnerships:
Through Joint Technology Initiatives or other formal structures (Art. 187)
Through contractual agreements, which provide inputs for work programmes
Only when criteria met, e.g. clear commitments from private partners

Innovative Medicines Initiative (covering Human Health)

Public public partnerships:
Through “ERA-Nets” for topping up individual calls/ actions (replacing current ERA-Net, ERA-Net Plus, Inco-Net, Inno-net)
Through participation in joint programmes between Member States (Art. 185)
Supporting agendas of Joint Programming Initiatives when in line with Horizon 2020
Only when criteria met, e.g. financial commitments of participating countries

A recent Joint Programming Initiative on AMR is due to develop a strategic research agenda and expected to implement joint activities in 2013. This initiative is not exclusively focussed on the human side. (http://www.jpiamr.eu/)

European Innovation Partnerships
Not funding instruments, but for coordination with broader policies and programmes

EIP on "Agricultural Productivity and Sustainability"
Animal health science and policy making

The EU Animal Health Law is in the process of being revised. The legislative framework for food safety, the Action Plan against the rising threats from Antimicrobial Resistance, the International Agreements etc, call for more science as a basis for action.

Research will increasingly play a major role in the process, together with other aspects (e.g. societal demands, economy, enforceability of legislation)
Thank you

Budgets are limited, priorities need to be set

Be innovative, reinforce cooperation and create partnerships.
It is the responsibility of all