FACCE - JPI Workshop
Animal health/animal diseases and GHG mitigation
21th May 2014, Madrid

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July, 2014

Table of Contents

LIST OF ABBREVIATIONS

ADAS	Agricultural Development Advisory Service
ANIHWA	Animal Health and Welfare ERA-NET
ATF	Animal Task Force
CCAFS	Climate Change, Agriculture and Food Security
CGIAR	Consultative Group on International Agricultural Research
CWG	Collaborative Working Group
CRP's	CGIAR Research Programmes
Defra	UK Government Department for Environment, Food and Rural Affairs
EI	Emissions intensity
EPIZONE	International Research Network on Epizootic Diseases Diagnosis and Control
FACCE-JPI	The Joint Programming Initiative on Agriculture, Food Security and Climate Change
FAO	Food and Agriculture Organisation of the United Nations
GA	Global Agenda for Sustainable Livestock
GHG	Greenhouse Gas
GLEAM	Global Livestock Environmental Assessment Model
GRA	Global Research Alliance on Agricultural Greenhouse gases
IFAH	International Federation for Animal Health
ILRI	International Livestock Research Institute
INRA	French National Institute for Agricultural Research
IPCC	International Panel on Climate Change
LCA	Life Cycle Analysis
LRG	Livestock Research Group
MACC	Marginal Abatement Cost Curve
OIE	World Organisation for Animal Health
SAB	Scientific Advisory Board of FACCE-JPI
SAI	Sustainable Agriculture Initiative
SCAR	Standing Committe on Agricultural Research
SRA	Strategic Research Agenda
SRUC	Scotland's Rural College
StAB	Stakeholder Advisory Board of FACCE-JPI
STAR-IDAZ	Global Strategic Alliances for the Coordination of Research on the Major Infectious Diseases of Animals and Zoonoses
UK	United Kingdom
WUR	Wageningen University Research

1 FACCE-JPI BACKGROUND

1.1 Joint Programming

Joint programming is a concept introduced by the European Commission in July 2008 and is one of five initiatives aimed at implementing the European Research Area (ERA).

The objective of Joint Programming is to "increase the value of relevant national and EU R&D funding by concerted and joint planning, implementation and evaluation of national research programmes".

In Joint Programming, Member States are expected to coordinate national research activities, group resources, benefit from complementarities and develop common research agendas, in order to face grand societal challenges. JPIs specifically seek to identify areas or research activities that would benefit from either coordination, joint calls for proposals, pooling of resources or other novel means of integration, in order to reduce fragmentation and duplication and cover research gaps. Joint Programming intends to tackle the challenges that cannot be solved solely on the national level and allows Member States to participate in those joint initiatives where it seems useful for them.

1.2 FACCE-JPI

In October 2010, the European Council adopted Commission recommendations to launch the new JPI on “Agriculture, food security and climate change” (FACCE-JPI). 21 Member States[1] are currently committed to building an integrated European Research Area addressing the challenges at the crossroads of agriculture, food security and climate change.

Since its inception FACCE-JPI has made huge progress in its goal of bringing together European countries to identify, prioritise and deliver research, starting with the publication of a Strategic Research Agenda (SRA) in 2012 and a first Implementation Plan (IP) in 2013. Permanent governance has been established, consisting of a decision-making body, the Governing Board (GB) and two advisory boards: a high level Scientific Advisory Board (SAB) and a Stakeholder Advisory Board (StAB), both elected by the GB, as well as an executive body, the Secretariat.

Progress has been made on scoping the challenges of agriculture and food security against threats represented by climate change, global population increase, and food and non-food demand. Following the principles of the joint programming process, a common vision was decided, which provided the basis for the SRA that was adopted in October 2012. The SRA is based on the Scientific Research Agenda, elaborated by the SAB, and complemented thanks to the analysis of current research programmes in FACCE member countries and a series of consultations.

The SRA structures the current and future actions around five major core research themes (cf. Fig. 1) and defines short-, medium- and long-term research priorities. As a starting process towards defining strategies for alignment of national activities, an innovative system of mapping and foresight meetings was carried out on each of the core themes, providing valuable information on current and

[1] Austria, Belgium, Czech Republic, Cyprus, Denmark, Estonia, Finland, France, Germany, Ireland, Israel, Italy, The Netherlands, Norway, Poland, Romania, Spain, Sweden, Switzerland, Turkey, United Kingdom

future national programmes – but also on available instruments, institutions, infrastructures, people etc. – and priorities as part of the SRA.

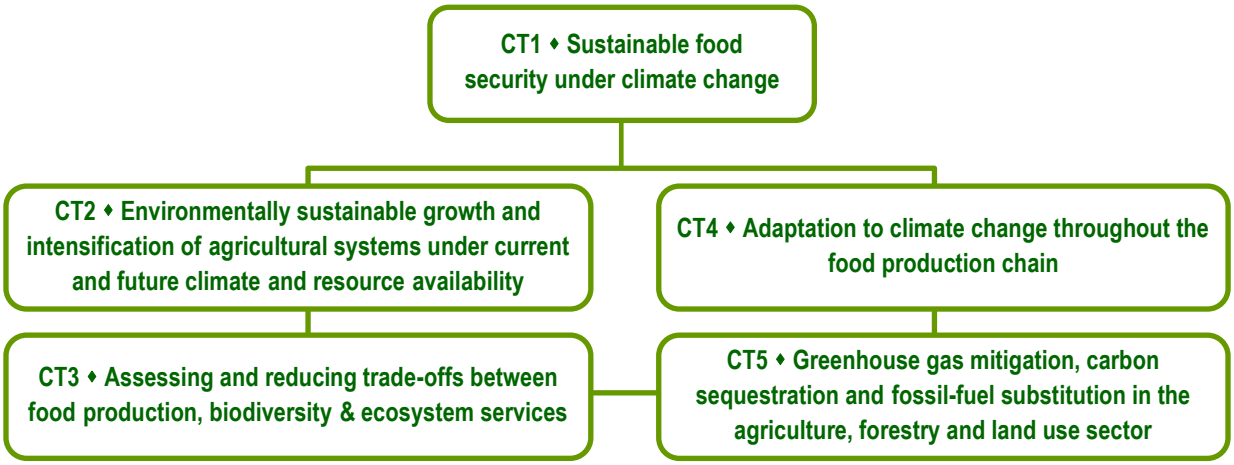

Figure 1. The five core themes (CT) covered by FACCE-JPI

Based on the identified short and medium-term priorities of the SRA as well as a final, broad-based concluding meeting of the mapping process, a first biennial Implementation Plan 2014-2015 was elaborated and adopted by the GB in October 2013 laying out the actions to be successively launched by the FACCE-JPI with an equilibrated approach between 1) alignment of national strategies and programming between the Member States, 2) exploring emerging areas through exploratory workshops or idea laboratories and 3) investing in areas where a need for greater trans-national efforts is identified (*i.e.* new funding either through transnational calls or through Horizon 2020, in the form of collaborative research projects, new ERA-NETs, or Research Infrastructures. It marks the beginning of a process which will be repeated every 2 years in order to be synchronised with the timing of the European Commission's Strategic Programmes and Work Programmes for H2020.

FACCE currently has 5 joint actions running:

- 17 countries supported a pilot action under Core Theme 1 funding a "Knowledge Hub", FACCE MACSUR, to bring together nationally-funded research groups already modelling how climate variability and change affect regional farming systems. This brings together models covering plants, livestock plus economic and trade issues to determine uncertainties and plan for the future. The Knowledge Hub was launched in June, 2012 and is currently up for a 2 year extension.
- 11 countries plus the United States, Canada and New Zealand supporting a multi-partner call on Agricultural Greenhouse Gas Research. Full proposals were due September 3, 2013. Five million euros in new money are available plus participation in kind. 11 research projects were funded.
- A joint call with the ERA-NET Biodiversa has been undertaken on "Promoting synergies and reducing trade-offs between food supply, biodiversity and ecosystem services". 7 JPI countries participated. Based on the ranking list established by an independent evaluation panel, the Call Steering Committee composed of BiodivERsA and FACCE partners

participating to the call has shortlisted the top 8 to 10 research projects (as 2 are presently on a waiting list) for a total funding amount of 9.2 to 10.3 Million €.

- FACCE – JPI ERA-NET Plus brings together 18 of its member countries to finance projects on "Climate Smart Agriculture: Adaptation of European agriculture to climate change". 16 million euros have been committed by the participants with an additional 4 million euros top-up from the Commission. 11 projects have been selected for funding and will start by the end of 2014.
- FACCE – JPI has co-constructed an international call with the Belmont Forum on food security and land use change. This call has a total of 14 participants, out of which 8 FACCE members (FR, UK, CY, NL, IE, IL, CH, RO). Total participation for the 2013 call amounts to € 9.485 million, out of which € 5.25 million for FACCE participation. 3 projects of the Type 1- Community building projects (12 to 18 months for up to 300 000 €). 34 Type 2 projects (Medium- to long-term integrated projects (3 to 5 years up to 3M€)) were submitted and 8 were selected for submitting a full proposal. The evaluation is currently ongoing.

This workshop was the first of 5 exploratory actions in the first Implementation Plan. For more information on FACCE-JPI activities, see www.faccejpi.com.

2 SUMMARY OF WORKSHOP

2.1 Session 1. Keynote speeches

Chair Harry Clark (New Zealand Agricultural Greenhouse Gas Research Centre) welcomed the participants.

Jean-François Soussana (INRA), Chair of the FACCE-JPI Scientific Advisory Board (SAB) presented the current context on climate change and introduced FACCE-JPI. He pointed out that even in the most optimistic scenarios, a 2°C warming is inevitable and this will have strong repercussions on crop yields, prices, etc. as highlighted in the latest IPCC report. Although FACCE is only one of the many initiatives that exist looking at these issues, the work carried out by FACCE as a research initiative will contribute to meeting the challenge posed by climate change.

Pierre Gerber (FAO) then presented "GHG emissions from livestock: overview and considerations on mitigation through animal health interventions". He began by recalling the drivers of increasing demand for livestock notably, population and income growth and urbanisation. The objective of the FAO-AGA group is to identify low emission pathways for the livestock sector, looking at physical and economic components. Livestock are identified as important sources of GHG but there is a large variability in the emission intensity depending on for example feed or health conditions. He then spoke of strategies for reducing emission intensity which include genetics but also feed and health. Health interventions affect productivity, through increasing yield, through effects on mortality and fertility and also through effects on loss of contaminated production. Using the "Global Livestock Environmental Assessment Model (GLEAM), regional level case studies have looked at the effect of reduced mortality on Ei and found reductions ranging from 7.9 to 14% depending on the region and the animal considered. Although it has been estimated that animal diseases cause losses of up to 30% of the animal output in developing countries" (FAO, 1990), there is very sparse information at the regional/global scale. The FAO-AGA group is working together with the GRA to design and assess mitigation packages to improve the understanding of mitigation options and potential in the livestock sector on a regional to global scale. This study will include disease prevention as an option. In conclusion it is likely that animal health interventions will have sizeable effect on emission intensities, mostly through productivity gains, with simultaneous effects on resource use efficiency. However it is important to provide the missing data to confirm this.

Harry Clark then spoke on "Animal health and GHG emissions: Can improving animal health contribute significantly to GHG mitigation?" He began by asking the question of what is the metric: if it is absolute emissions, then improved animal health will improve individual animal productivity and may reduce mortality which in turn may increase total emissions if there is no cap on product output; however, if it is emission intensity, then improved productivity and reduced mortality will reduce emissions per unit of product. He then reiterated that although animal disease has impacts on productivity, animal and human welfare and costs, the studies linking animal health and GHG are negligible. He then reviewed the available literature which includes only a handful of papers and stressed that there is need for more information on disease prevalence, impact on productivity and efficacy of treatment. As to the question of whether improving animal health contribute significantly to GHG mitigation, the small amount of data available suggests that improvements in animal health can reduce GHG emissions at zero cost in addition to having other benefits. In conclusion, animal

health interventions have potential for 'win-win' outcomes but bringing together the 2 disparate communities remains a challenge.

John Elliott (ADAS) then spoke on "Animal health and productivity in the EU – current and emerging issues". He began by describing the productivity trends in Europe and around the world and then the impacts of disease on productivity, notably, from mortality or loss of breeding or productive animals, a lowering of the efficiency of the production process and the productivity of resources employed i.e. through reduced feed conversion and, a reduction in output quantity. He then described how disease management can be achieved through changes in animal husbandry for example through measures to increase farm biosecurity, through the use of vaccines and antibiotics and through better regulation. Policy measures, for example on trade or surveillance of emerging diseases, may also help contribute to better animal health. There is some evidence that productivity gains do reduce GHG emissions. He then cited some emerging issues including the growing demand for animal products, the changing climate which put animals under stress and finally the role of gene technology and genomics to breed animals more capable of adapting. He then described the work carried out in the Defra research project AC0120: "Study to Model the Impact of Controlling Endemic Cattle Diseases" which generated LCA analysis of diseases and treatments on GHG emissions and then translated the LCA analysis into marginal abatement curves. Although the scope for improvement is small in Europe, there is scope for reducing emissions. Nonetheless this requires farmers' acceptance. He concluded, recalling that there are considerable data gaps in terms of disease prevalence and impact and the efficacy of treatments but that the opportunity for GHG abatement from disease control identified in the UK study could potentially be multiplied many times over if applied to cattle and other livestock globally.

Alistair Stott (SRUC) finished this session speaking on "Research linking animal health to GHG emissions". He began by presenting the "Future Farming Systems" research at SRUC which takes a systems approach. He then cited 2 case studies: one on periparturient parasitism and methane in lucerne-fed twin-rearing ewes and the other on trypanosomosis in East African cattle. In the first case, it was shown that sick ewes need to feed longer and this is associated with greater methane output so parasite control presents a win:win:win situation for productivity, environment and welfare. The second study similarly showed that removing disease leads to a reduction in the emissions intensity per unit of protein. He also cited a number of studies including the one previously described by John in which MACC curves were generated, showing the large opportunities for mitigation. Although there is clearly a possibility to improve health and reduce emissions, there is a barrier since endemic livestock disease was viewed as a problem only for 'bad' farmers. The behavioural economics response illuminates the road to uptake and hence impact. It is necessary to break the vicious cycle created between disease, climate and GHG emissions and this requires sustainable disease control. He concluded that although health is an important driver of technical and environmental efficiency, there is no silver bullet – it depends on disease and circumstances. Moreover it is necessary to consider whole farm efficiency issues and to take an interdisciplinary 'systems' approach.

2.2 Session 2. Introduction to existing projects and initiatives

A large number of projects and initiatives related to this area already exist. These were described briefly in order to better foster links and collaboration.

2.2.1 ANIHWA ERA-NET – Abdenour Besmansour (INRA)

ANIHWA is an ERA-NET under FP7. It comprises 30 partner organisations from 19 countries. The scope of ANIHWA is to enhance transnational coordination of national research programmes and research funding in animal health and animal welfare in all farmed animals, including fish and bees. The project has put in place a web-based Animal Welfare Archive (AWA'), a web-based Research Production Database. The open resources created allow for online multi-criteria and multi-scale analysis. ANIHWA has 2 calls that are completed or in progress and the subject of a third one has been approved and will open in November 2014. ANIHWA is developing a long-term Strategic Research Agenda for animal health and welfare giving a 20+ years outlook on animal health and welfare issues.

2.2.2 Global Research Alliance on Agricultural Greenhouse Gas Research (GRA) – Harry Clark

The GRA was started in 2009 and includes 41 countries with the mission to reduce the intensity of agricultural greenhouse gas emissions while safeguarding food supplies and security. It aims to bring greater collaboration to the international research effort in this area and to create synergies between adaptation and mitigation. It has developed a research agenda and aims to put in place mitigation measures on farms. There are 3 thematic groups one on rice, one on croplands and one on livestock, and 2 cross-cutting areas: inventories and measures and carbon and nitrogen cycling. The livestock group is a network of researchers that practice data sharing and who undertake joint projects (for example the FACCE-JPI multi-partner call on Agricultural Greenhouse Gas research). The GRA also has bilateral initiatives, a common database, capacity development and transfer of technology.

2.2.3 Animal Health & GHG Emissions Intensity Network – Tim Robinson (ILRI)

This network was originally proposed in 2011 as part of the Livestock Research Group of the GRA and had its first workshop this year in March with the aim of setting objectives, scoping the issues and determining funding sources. The objectives of the network are to : Share information on current and planned funding activities; Maintain and enhance capacity in this field of research, including the ability of practitioners from the GHG emissions intensity and animal health fields to interact; Encourage and facilitate a joined-up approach; Establish common agreement on priority issues and explore funding opportunities to address them including links with more traditional animal health and agricultural and rural development programmes and pursue synergies with stakeholders to further strengthen global cooperation and networks. IN particular, the network plans to make links with FACCE-JPI, the Global Agenda for Sustainable Livestock and STAR-IDAZ. Among the first actions of the network were the Project AC0120, led by John Elliott and a literature survey on Global GHG abatement from health interventions in the agricultural livestock sector. Among the research objectives are to standardise modelling assumptions and to improve accuracy of data and incorporate measurements from developing countries. In the next steps, a scoping study into research gaps will be carried out and the network will engage with other networks for funding, including FACCE.

2.2.4 STAR-IDAZ-- Luke Dalton (Defra)

The "Global Strategic Alliances for the Coordination of Research on the Major Infectious Diseases of Animals and Zoonoses" (STAR-IDAZ) is a global initiative to address the coordination of research programmes at international level in the area of animal health and in particular infectious animal diseases including zoonoses. It brings together research funders and programme managers from **23**

partners in 18 countries (plus ~ 40 regional network participants) including 3 industrial partners and 7 associated partners. Regional networks cover the Americas, Asia and Australasia, Europe and Africa. Among its objectives, STAR-IDAZ aims to analyse and respond to global, regional and industry sector priorities, facilitate the networking of on-going research activities on major issues and to develop strategic trans-national animal health research agendas. It has defined a number of research priorities selected for initial collaborative activity, one of which is reducing greenhouse gas emissions through improved animal disease control. STAR-IDAZ officially ends in January 2015 but there will possibly be an extension and/or it will be taken on/linked to OIE in some way. In terms of interaction with FACCE, besides having common partners, some STAR-IDAZ partners are potential co-funders for animal health/GHGe mitigation research.

2.2.5 Animal Task Force (ATF) – Martin Scholten (WUR)

The ATF is a European Public-Private Partnership (PPP) bringing together research, farmers and industries. It was set up in, 2011 to promote a sustainable and competitive animal production sector in Europe by fostering knowledge development and innovation in Europe. It covers the whole animal production chain. ATF's activities include developing dialogue with key stakeholders in Europe, providing input for EU research and innovation (contributing to SCAR, the GRA, FACCE, the Global Agenda for Sustainable Livestock…), enhancing cooperation in European and interstate research and innovation and enabling knowledge exchange. In 2013 they produced a white paper giving priorities with 3 main elements: resource efficiency, healthy livestock and people and responsible livestock farming. Animal health is an important issue for ATF.

2.2.6 International Federation for Animal Health (IFAH) – Declan O'Brien (IFAH)

IFAH-Europe is the federation representing manufacturers of veterinary medicines, vaccines and other animal health products in Europe. It is comprised of 13 animal health companies active across the EU, 20 national associations and 300 companies via association network of which 135 are small and medium sized enterprises (SMEs). In total, 90% of the €4.7 billion European market for veterinary medicinal products represented. The World Organisation for Animal Health (OIE) estimates that 20% of animal production is lost to disease so the animal health industry focus should be on reducing disease. IFAH is responsible for the platform ETGPAH (European Technology Platform for Global Animal Health), which has developed a Strategic Research Agenda and an action plan. Among the actions are 2 ERA-NETS (EMIDA and ANIHWA), the STAR-IDAZ project and DISCONTOOLS, a disease data base. It is in the form of a public website with searchable database. IFAH has identified stakeholder agreed prioritised research gaps and established a research agenda for the future. It will now focus funding on prioritised research gaps.

2.2.7 International Research Network on Epizootic Diseases Diagnosis and Control (EPIZONE) – Wim van der Poel (WUR)

EPIZONE is a European research group that began as Network of Excellence and which became an ERG in May 2012 with 15 founding partners from 11 countries. Its mission is "to improve research on preparedness, prevention, detection, and control of epizootic animal diseases through cooperation, with extra attention for new and emerging epizootic animal diseases including these which may have zoonotic potential". It is estimated that disease outbreaks lead to 20% of economic loss in food producing animals, totaling over 5 billion euros per year. EPIZONE's core activities include iintegration of research activities; research cooperation on four main themes: Diagnostics, Vaccine development, Epidemiology and surveillance, Risk assessment; communication, including workshops,

courses and maintenance of databases and annual scientific meetings. EPIZONE supports the "one health" concept which requires interdisciplinary research to tackle new challenges posed by climate change, new emerging infectious diseases and world food security. For the future, EPIZONE has established 3 main priorities: new emerging epizootic diseases; food production / food security in relation to epizootic diseases and epizootic diseases related to global changes (including greenhouse gas emissions).

2.2.8 Collaborative Working Group on Sustainable Animal Production – Babette Breuer (BLE)

As part of a SCAR collaborative working group, mapping and gap analysis have been carried out, indicating the need for research on this area, in the form of an ERA-NET. This group is led by Germany and Spain. The identified area is "Strengthening a competitive and sustainable livestock sector in Europe" with an integrated approach and a holistic view. This area has clear links to FACCE and a majority of GB members have already expressed an interest in participating in the ERA-NET. The research areas to be covered include: livestock production systems, environment, animal breeding and nutrition, knowledge transfer and evaluation and assessment. The ERA-NET is in the 2015 work programme of Societal Challenge 2.

2.3 Session 3. Breakout sessions on specific questions

Parallel Breakout sessions	Chairs:
A. Links between productivity, disease and GHG emissions	Adrian Williams and Pierre Gerber
B. Barriers to the adoption and uptake of animal health measures	Alistair Stott and Christine Fourichon
C. Data needs and data availability	Luke Dalton and John Elliott

In the afternoon, three parallel breakout sessions were held, with each group rotating through 2 sets of people. For each session, the Chairs prepared a series of questions that were then discussed by the two successive groups. Here, the main conclusions of each group are presented.

2.3.1 Links between productivity, disease and GHG emissions

The question of whether productivity is the main link between animal health and GHG emissions was yes, but that animal welfare is also an important factor and results vary depending on how you quantify productivity. There is a tension between intensity and overall emissions: while it is clear the emission per unit of product can be reduced, increasing demand will increase overall emissions. Because animal health itself is a desirable outcome, GHG abatement is a co-benefit.

In looking at disease, it is necessary to take a systems approach that is holistic and interdisciplinary, and to consider specific differences, e.g., between regions, farming systems and species. Research needs to reflect these requirements and will probably require policy support, e.g. to provide hard evidence of mitigation benefits from better animal health. A regional global assessment of baseline emissions is required and then modelling of scenarios. In the future, the interaction between climate change and disease will also need to be further assessed and the changes needed in production systems evaluated. A number of win-wins are possible, but there is need to overcome barriers. The need for upfront investment and associated risks need to be researched and understanding the social aspects, and good communication, will be necessary for uptake.

2.3.2 Barriers to the adoption and uptake of animal health measures

In terms of barriers, it was considered that awareness was a factor, as is the credibility of the research as far as farmers are concerned. There is also the perception that only "bad farmers" have sick animals. In terms of research, there is a lack of literature and of a holistic view. Until now, a disease by disease approach has prevailed. The challenge needs to be addressed at 3 levels: scientific, policy and farmers. There is also a question of how to reach developing countries which have different barriers than Europe. Another factor in this area is the balance between public and private funding: businesses do not necessarily have the same concerns as public research.

As far as who decides, although individual farmers have control over the health of their animals, GHG emissions are governed at the policy level. Risk is a key issue as are the trade-offs and how farmers perceive them. These are clearly interdisciplinary questions that require taking into account the social aspects, but also the economic aspects e.g., how will changing trade patterns alter risks for diseases.

2.3.3 Data needs and data availability

The lack of data on disease prevalence, mortality, etc. is clearly a main gap. In some cases, data protection laws present a barrier. It is felt that there is a strong need for an international study addressing the question of animal health, perhaps using drug use as a proxy for treatment uptake. The data linking animal health and GHG emissions is even more scant although culling data is available. The challenge is to estimate the burden of disease and to sort out the complex links for example to feeding. There is a need for a system to link all the data and there is a need for governments to see the (economic) benefit of gathering this data and using it. The use of productivity as a link between animal health and GHG emissions is not a linear relationship. To reflect this complexity, multi-disease, multi-factor models are needed and this implies linking researchers from different areas (GHG emissions, animal health, nutrition…). These questions should be linked to economic studies as well.

3 CONCLUSIONS OF WORKSHOP

Martin Scholten presented the overall conclusions of the day.

1. Awareness, evidence-based work to secure the win-win perspectives. There is need to communicate on the issues, for example by preparing a reference document describing the concept and the interconnections (health, feed, climate change, emissions….)
2. An integrative approach is essential: there are multiple interactions in the links between animal health care (intervention), GHG intensity (mitigation) and productivity (intensification). We need to come up with scenarios for optimising the win-win perspectives (economic, food security, climate). It is suggested to develop an interdisciplinary research agenda.

3. This is a very data poor domain: data collection requirements include veterinary data (prevelance of diseases, risk of emerging diseases, effectiveness of interventions)as well as

GHG intensity data. There is a need to draft a data collection scheme, and experiments to provide data or validate system based models from global scale to farm scale.

4. Adoption of the understanding that animal health is a key in mitigating GHG intensity and fostering climate adaptation capacity of livestock production is agreed. It is necessary to overcome barriers to uptake. There is a need to influence decision making so that risk based management = opportunity management, thus giving rise to win-win solutions. A consideration of public vs. private funding (endemic vs zoonotic) is necessary but there is a need for public-private partnerships. Implementation needs to be multi by farmers and "friends" (e.g; scientists, advisors, buyers giving integrated advice). Finally, system- based interventions at farm and regional level are needed.

5. There is a need for concerted actions: various international and global networks with impact can make a bigger impact and make things happen.

This workshop identified a number of research needs and in the discussion, a number of additional questions were raised, for example the need to look at the vectors of vector-borne parasites as well as the parasites themselves, the need to look at the effect of heat on animal health, determining whether breeding for better robustness is achievable, what is the role of farms buildings, etc. It was further pointed out that depending on the system, livestock has different roles which are tangible or not and there is a need for a common understanding at least, if not a common currency, to measure these roles.

3.1.1 Concrete actions proposed

- Preparation of a small booklet on the issues to distribute outlining EU and global priorities, including key results from pertinent literature (work of John Elliott, Alistair Stott, Michael Macleod, Pierre Gerber, global analysis that is being written up…)

- Preparation of a research agenda as input for the 2016-2017 Horizon 2020 work programme, FACCE-JPI 2016-2017 Implementation Plan, etc.

3.1.2 Funding opportunities

FACCE-JPI ERA-NET on "Monitoring and mitigation of agricultural and forestry greenhouse gases (GHG)". This ERA-NET, to be coordinated by Ireland, will fund research projects beginning in late 2016.

Global Research Alliance – Individual countries to co-fund study scoping study.

3.1.3 Next steps

The people gathered at this meeting should stay in contact and engaged. There should be a free exchange of information. It will be important to work together to tackle all aspects of the problem (EU, global…) and to use what exists already, for example several existing initiatives in terms of data (e.g. UK AgriTech strategy). FACCE-JPI will work closely with the Animal Health & GHG Emissions

Intensity Network to develop concrete actions. The Livestock Research Group of the GRA will adapt the outcomes of this meeting in the scope of work of its Animal Health & GHG network.

Acknowledgements: The French organising team would like to thank all the participants, the scientific committee (Harry Clark, Martin Scholten, John Elliott Thierry Pineau, Etienne Zundel), Renaud Lancelot, Thierry Lefrançois) and especially Harry Clark and Marten Scholten for their active participation and chairing. We also thank all the invited speakers and breakout session chairs for their contributions.

4 PHOTOS OF THE WORKSHOP

ANNEX 1. MEETING AGENDA

FACCE - JPI Workshop
Animal health/animal diseases and GHG mitigation
21th May 2014

Room Medici 1
Hotel Miguel Angel
Madrid

Agenda:

8:30 – 9:00	**Welcome coffee**	
9:00-11:00	**Welcome** **Introduction to workshop and its aims and brief introduction to FACCE – JPI** **Global perspective on food security, climate change and greenhouse gas emissions** **Animal health and GHG emissions: Can improving animal health contribute significantly to GHG mitigation?** **Animal health and productivity in the EU – current and emerging issues** **Research linking animal health to GHG emissions**	Chair Harry Clark, Jean-François Soussana Pierre Gerber, FAO Harry Clark John Elliott Prof Alistair Stott
11:00 – 11:30	**Coffee break**	
11:30 – 12:30	**ANIHWA** **GRA** **Animal Health & GHG Emissions Intensity Network** **STAR-IDAZ** **ATF** **IFAH** **EPIZONE** **SCAR CWG sustainable animal production**	Abdenour Benmansour Harry Clark Tim Robinson Luke Dalton Martin Scholten Declan O'Brien Wim van der Poel Babette Breuer

12:30 – 13:30	Lunch break	

13:30- 13:40	**Introduction to parallel breakout sessions**	
13:40 – 15:40	**Parallel Breakout sessions** **A. Links between productivity, disease and GHG emissions** **B. Barriers to the adoption and uptake of animal health measures** **C. Data needs and data availability**	Chairs: Adrian Williams and Pierr Gerber Alistair Stott and Christine Fourichon Luke Dalton and John Elliott
15:40 – 16:00	Coffee break	
16:00 – 17:30	**Reports from Breakout sessions, discussion and identification of priority areas for action**	Chairs: Martin Scholten & Harry Clark

If you are interested in participating, please contact Heather McKhann (heather.mckhann@paris.inra.fr) as places are limited.

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