BACKGROUND PAPER / GUIDANCE TO THE WORKSHOP

FACCE-JPI & ERA-NET Cofund SusAn Joint Exploratory Workshop on

Phenotyping/Genotyping and Novel Breeding Techniques for adaptation and mitigation to Climate Change in the livestock sector

INTRODUCTION:

The **Joint Programming Initiative on Agriculture, Food Security and Climate Change (**FACCE-JPI**)** brings together 24 countries who are committed to building an integrated European Research Area (ERA) addressing the interconnected challenges of sustainable agriculture, food security and impacts of climate change. FACCE-JPI provides and steers research to support sustainable agricultural production and economic growth, to contribute to a European bio-based economy, while maintaining and restoring ecosystem services under current and future climate change.

The **ERA-NET Cofund on SUStainable ANimal Production Systems (**SusAn**)** was initiated 2016 under the current European research and innovation programme Horizon 2020. 38 partners from 23 European countries in ERA-NET SusAn endorsed scientific excellence and recommended an integrated, interdisciplinary, cross-cutting and multi-actor approach to research and knowledge exchange which reflects the complexity of the research requirements for sustainable European animal production. Based on the three pillars of sustainability - economy, environment and society – SusAn targets innovative research across all areas of the animal production system such as health and welfare, feeding and nutrition, reproduction, breeding and genetics, housing, nutrient management and economics.

The FACCE-JPI & SusAn Joint Workshop on phenotyping/genotyping and novel breeding techniques for adaptation and mitigation to climate change in the livestock sector is an exploratory action under the FACCE-JPI 2018-2020 Implementation Plan (IP) and one of the additional activities of ERA-NET SusAn on top of the cofunded call.

AIM & OBJECTIVES:

The workshop brings together **researchers, stakeholders and policy makers** with the aim to assess the **current state of the art of the phenotyping/genotyping and novel breeding techniques in the livestock sector** conducted in the EU, to identify **existing networks and their major stakeholders**, and to identify **major challenges and specific opportunities** related to **adaptation and mitigation to climate change** from different perspectives but focusing on genetic entry and the role of breeding to reduce GHG emission: methane but also N_2O emission, feed efficiency especially in case of low quality feeds.

Objectives:

- To assess the **current state of the art** of phenotyping/genotyping and novel breeding techniques in the livestock sector conducted in the EU.
- To outline **gaps and potentials** of respective technologies in the context of adaptation and mitigation to climate change.
- To explore **major challenges and specific opportunities** related to adaptation and mitigation to climate change from different perspectives.
- To identify existing **networks** and their major stakeholders.
- To identify **potential actions** in the area of phenotyping/genotyping and novel breeding techniques, which can be implemented by FACCE-JPI and/or SusAn in the future, and how.

The output of the workshop is expected to be a report summarising the outcomes comprising **concrete and actionable recommendations** for the decision-making boards of FACCE-JPI and SusAn.

Key questions:

The following questions are intended to guide the workshop discussion but not restrict it:

A. Identification of possible gaps in research in Europe

- How phenotyping/genotyping are currently used in the livestock sector?
- Which breeding techniques are currently used, what are their limitations/challenges?
- How to achieve a multi-disciplinary and multi-stakeholder approach not only to improve novel breeding techniques development and knowledge but also favour the implementation of existing technologies and approaches? Which data issues must be considered?
- What is needed to translate research into applicable solutions for end users?
- Which ethical considerations must be taken into account?

B. Identification of existing initiatives, actions and organizations in Europe and the major stakeholders acting in the field

- Which questions are already addressed by which initiative?
- What kind of synergies can be used?

C. Identification of needs and challenges of different stakeholders including policies

- What is expected from specific novel breeding techniques in the livestock sector?
- What or where are the possibilities for public-private research?
- What are the near and far future expectations for phenotyping/genotyping and novel breeding techniques in the livestock sector in relation to the EU legal/policy framework?
- Could the potential for adaptation and mitigation to climate change in the livestock sector be also associated to conservational or rural development issues?

D. Exploration and identification of possible roles of FACCE-JPI / SusAn

- Are there any possibilities for FACCE-JPI and / or SusAn to play a new role in the field of phenotyping/genotyping and novel breeding techniques for the livestock sector?
- What kind of action is needed to address the identified questions (e.g. research call, knowledge hub, exploratory action, policy brief, etc.)?