

Making livestock farming sustainable

Improving the sustainability of livestock farming requires more than controlling its environmental footprint. European scientists and farmers are steering livestock farming towards a sustainable future

With increasing demands for both a sustainable and competitive livestock sector around the globe, actors right along the livestock value chain need to innovate if they are to find ways to respond to these growing ecological and socioeconomic challenges. Livestock farming certainly generates benefits that exceed the production of food – landscape conservation, provision of employment or natural fibres to name just a few – but costs also need to be addressed. In order to reduce these costs, sustainability actions must be chosen wisely.

A comprehensive approach to sustainability

An improvement in one sustainability aspect – for example an increase in biodiversity – could also have an impact on other aspects such as economic or social. While there may be synergies between different sustainability aspects, improvements in one aspect may well lead to trade-offs in another.

For example, if farmers in high-density livestock areas choose to let their livestock outdoors for animal welfare reasons, ammonia emissions given off by the livestock into the local environment may exceed a tolerable level both in terms of air quality and in terms of quality of life for neighbouring communities.

Furthermore, there is increasing demand for regionally produced protein feedstuffs in dairy, pig and poultry farming, but is the current domestic production sufficient and, if so, at what cost for farmers and the environment? Sustainability needs to be addressed comprehensively. Banning cows in one region only to import milk from another will merely solve emission problems in a small restricted area – not globally.



Translocation effects and synergies must not be neglected when assessing the sustainability of livestock farming.

Moreover, farm sustainability is a necessary but not sufficient condition to overall sustainability because a sustainable farm can occur in an unsustainable region.

To enable livestock farming to achieve complete sustainability, AnimalFuture will tackle such issues in close co-operation with practitioners and key stakeholders from the livestock value chains across Europe.

Sustainability is a complex issue. It's difficult to fully understand interrelations between environmental, economic and social aspects and even more challenging to estimate the impact of sustainability measures. This makes it important to provide decision makers – be they farmers, policymakers or other stakeholders – with easy-to-understand information about how sustainability can be assessed and improved in their own area of action.

The AnimalFuture DST

For that purpose, AnimalFuture will develop a 'decision support tool' (DST) which will allow decision makers to estimate the impact of sustainability measures and innovations (i.e. precision feeding or smart buildings) at farm level. The DST will support decision makers in their operational planning and daily practice by integrating both sustainability and competitiveness constraints and enabling a win-win situation for both the environment and the consumer. However, constraints and conditions vary greatly from one European region to another and from one type of livestock to another, so customised solutions are a key challenge for the AnimalFuture partners.

To create the DST, 150 livestock farms within ten European regions, each specialised in a particular type of livestock, will be thoroughly analysed. Furthermore, the DST will integrate farm data collected in the respective regions through an intensive knowledge exchange with all relevant actors. It will analyse the impact of innovations

not only at the three sustainability aspects but also on multiple levels – from farm to region to Europe.

The DST will be developed in three main steps:

■ **Multiple actors:** AnimalFuture considers it essential to involve agricultural practitioners and other relevant actors of the livestock value chain in all steps. During various communication activities (workshops, summer school and a ‘listening tour’) sustainability issues and possible solutions will be jointly identified to ensure they are relevant and feasible in daily practice. The proposed issues and solutions will be further assessed and evaluated in the course of the project. Regular exchanges with stakeholders will ensure the relevance of the DST and facilitate its use post-development;

■ **Multiple dimensions:** Later on in the project, various scenarios will be modelled for the test farms. This means that impacts of different sustainability measures and innovation will be simulated at farm level, thus revealing trade-offs and synergies. Economic, ecological and social aspects will be considered for the sustainability evaluation. Being one of the most controversial aspects of modern agriculture, animal welfare will receive special attention within the framework of AnimalFuture. In the assessment it will be included in the social pillar of sustainability to take account for changing societal demands; and

■ **Multiple levels:** By upscaling the results of the farm-level assessment, sustainability can be evaluated in a wider geographical context. Side effects of sustainability actions (leakages, trade-offs, synergies and displacement effects) can be captured from the regional to the national to the European level.

The DST will take the form of an interactive web-based dashboard offering decision makers an easy-to-access and easy-to-use tool, supporting them in selecting the most



sustainable and cost-efficient practices and measures to be implemented.

Knowledge transfer and exchange

Innovations need to reach their target audience to take effect. Another important pillar of AnimalFuture is therefore knowledge transfer and active dissemination of project results. Intensive outreach activities will ensure that policymakers, farmers and other stakeholders as well as scientists are informed in a timely manner of project outcomes and, in particular, the potential of the DST for practitioners. To encourage an exchange of views and ideas between science, practice and the public, a stakeholder platform will be launched.

With target-oriented communication strategies, AnimalFuture will not only help to improve sustainability in livestock farming but also improve society's view of livestock farming by pointing out the various benefits best-practice livestock farming can provide to society at large.

Project insights Funding

- ERA-NET Cofund SusAn: Sustainable Animal Production;
- Funded by the EU research and innovation programme Horizon 2020; and
- Project started in June 2017 and will run for 36 months.

Participants

- French National Institute for Agricultural Research, France;
- University of Natural Resources & Life Sciences, Austria;
- Wageningen University, the Netherlands;
- Scotland's Rural College, United Kingdom;
- Bavarian State Research Centre, Germany;
- Agrifood Research and Technology Centre of Aragón, Spain;
- French Livestock Institute, France; and
- Association of Instituto Superior Técnico for Research and Development, Portugal



ERA-NET SUSAN

Muriel Tichit
Project Co-ordinator
INRA -Science for Action and
Development
AgroParisTech, Paris-Saclay University
+33 (0) 1 44 08 86 70
muriel.tichit@inra.fr
<http://www.animalfuture.eu>