atf animal task force

A European Public-Private Partnership

Plants for the Future

European Technology Platform

POLICY BRIEF - APRIL 2020

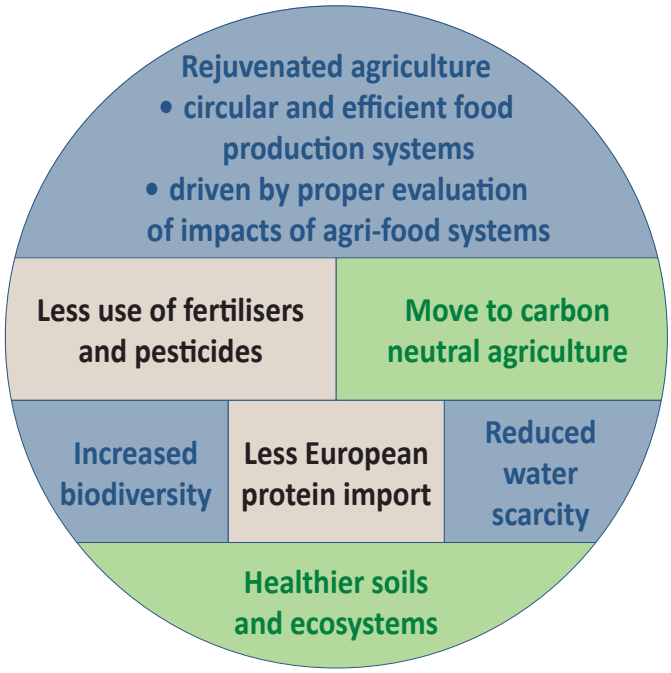
Research and innovation towards a more sustainable and circular European agriculture

Exploring synergies between livestock and crop sectors

The Farm-to-Fork strategy opens the way towards a rejuvenated agriculture that stays within planetary boundaries.
The goal is to arrive at a climate change-mitigating, circular, resource efficient agri-food system with closed nutrient cycles, healthy soils and ecosystems, restored biodiversity and an attractive landscape.

The "Animal Task Force" (ATF) and the "Plants for the Future" European Technology Platform (Plant ETP) recognise the urgency to transition towards sustainable agricultural practices and published, in September 2019, R&I opportunities for the crop-livestock value chain (see Joint Position Paper).

The R&I proposals aim at improving agricultural sustainability from an environmental, social and economic angle by developing synergies between livestock and crop production.



POLICY CHALLENGES

A Farm to Fork strategy to rejuvenate agri-food systems

Benchmarking improvements in sustainability

To enable agri-food systems players, policy makers and researchers to assess the sustainability of current and future practices and products, sector-wide indicators refining current Life Cycle Assessment (LCA) methodologies need to be established. Multiple elements are already in place, yet not designed to offer the necessary predictiveness on long term sustainability.

A protein plan for Europe

The current level of EU protein self-sufficiency is ~78%. As global demand for protein is rising, price volatility endangers the European food industry. The EU Commission is looking into ways to enhance the sustainability of protein imports and to reduce its dependency. An increased production of European protein crops would also benefit the environment by extending crop rotation options and nitrogen fixation in soils. It would help reduce the use of synthetic fertilisers and pesticides, while improving soil quality and enhancing biodiversity.

Integration of livestock and crop production

During the green revolution livestock and crop production became more intensive, specialised and spatially separated. Local re-integration of livestock and cropping offers new opportunities to reduce the environmental footprint and restore ecosystems functions, soil quality and organic content. The ability of livestock to utilise a broad range of biomasses could help diversify crop rotations, close nutrient cycles, reduce pest pressure and chemical inputs, and enhance biodiversity.

A society calling out for agriculture to change

To match societal expectations for more sustainable products, better human health and nutrition as well as animal health and welfare, a conversion of the agri-food sector is required. This will rely on major innovations from the agricultural sector, as well as new business models. Product and production traceability will be critical for customers to direct their buying behaviour based on sustainability criteria.

RECOMMENDATIONS

Topics for Research and Innovation

Recommendation 1
An LCA upgrade to track progress towards more sustainable farming

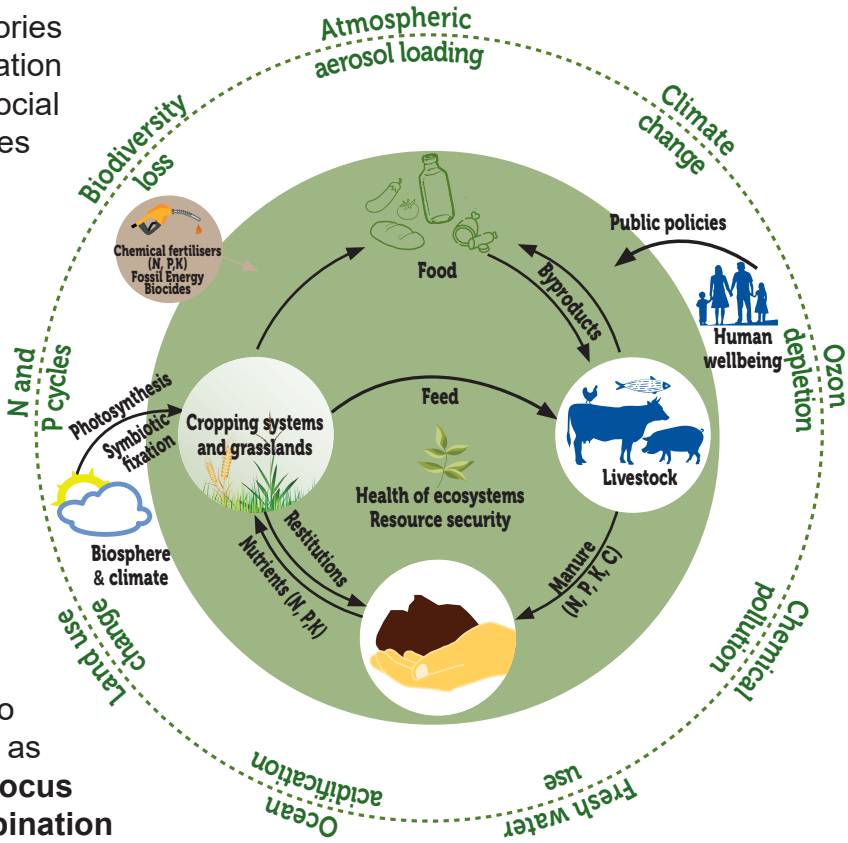
The ability to assess the sustainability of a circular agri-food system and compare it to a benchmark offers change opportunities to value chain players and policy makers. Improvements require **more accurate models to assess the multi-functionality and complexity of agriculture**. LCA should improve to capture the interactions between crop and livestock sectors in a circular economy, and be applicable to production systems, territories and diets and allow for proper evaluation of biodiversity, economic and social (employment, rural vitality) performances of value chains.

Recommendation 2A
Identification and development of innovative cropping systems

Strategies will combine a panel of crops allowing for permanent soil cover and aiming at maximising yield, contributing to close nutrient cycles with a targeted use of animal-based fertilisers and mineral fertilisers, stimulating soil fertility, and maximising both the use of biomass not edible to humans for feed and the use of manure as commercial bio-fertiliser. **R&I should focus on new crops and rotations in combination with precision farming practices.**

Recommendation 2
Optimise synergy in circular livestock-cropping systems

To set out a European strategy for a balanced circular food production within planetary boundaries, it is recommended to develop an assessment of which combinations of crop genetics and livestock genetics are best grown in which regions/locations. We propose **R&I on novel circular approaches** that integrate new cropping schemes fit for plant-based food and livestock production with local biorefinery, and to explore synergy effects at production level. Such exploration would require governmental public procurement and risk investment funding.



→ *Roles of livestock and crops in realising a European sustainable circular Bioeconomy*

RECOMMENDATIONS

Topics for Research and Innovation

Recommendation 2B
Genetic improvement of plants and animals to optimise resource utilisation

Development of crops with improved nutritional and digestive properties as well as animals better capable of metabolising plant raw materials is technically feasible; yet risk, cost and timelines are prohibitive. We therefore propose a **virtual European Knowledge Platform** that captures both academic and sector findings on crops and animals and offers sector players new academic and breeding starting points to align productivity and resource use of crops and livestock, and to achieve better utilisation of lower quality and more diversified crops and an increased metabolic conversion and uptake by farm animals.

Animal Task Force (ATF) is a European Public-Private Partnership and a leading body of expertise linking European industry and research providers for developing innovation in the livestock sector.

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The European Technology Platform (ETP) 'Plants for the Future' is a membership-based platform representing the agricultural innovation system from fundamental plant research to crop production and food processing.

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Recommendation 2C
Development of biorefineries to maximise European self-sufficiency

Biorefinery approaches enable co-product strategies that maximise the utilisation of the produce. They have the potential to improve edibility and nutritional value of plants and plant by-products, as well as nitrogen and protein use from manure and green biomass, thereby increasing European protein and nitrogen self-sufficiency. **R&I to identify, test and establish meaningful biorefining approaches in support of circularity** should thus involve both the crop and livestock sector, and aim at improving the underlying economics.

Recommendation 3
Governance, roles of stakeholders and public policies to promote changes over time

Migration to sustainable practices and products must allow for business continuity so that employment is not at risk. This requires policies that offer clarity on realistic, progressively rising standards. In addition, low margins at farm and processing level constitute a barrier to transition due to costs and risks, and sometimes lack of skills. **Migration to more sustainable products and processes will need to be rewarded, be visible and get economic appreciation**. We propose to de-risk migration and to promote R&I on new business models and on product communication from farm supplier to end consumer and to foresee early demoing with agri-food systems stakeholders.