

Land, ocean and water for climate action (HORIZON-CL6-2021-CLIMATE-01)

Resilient livestock farming systems under climate change Specific conditions

Expected EU contribution per project

The EU estimates that an EU contribution of around EUR 12.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.

Indicative budget

The total indicative budget for the topic is EUR 12.00 million.

Type of Action

Research and Innovation Actions

Color code: **WORK** (Underline) **CONSORTIUM** ("C" in margin)

OUTCOMES/IMPACT ("I" in margin; at second stage)

Expected Outcome: A successful proposal will contribute to the European Green Deal and international objectives to foster climate change mitigation and adaptation in agriculture. It will in particular support the Farm to Fork Strategy objective for a transition to a fair, healthy and resilient European agriculture. It will contribute to climate action on land and more specifically towards climate neutrality by reducing GHG emissions and enhancing natural carbon sinks: better understanding and mobilising the mitigation and adaptation potential of livestock farming and related sectors based on the sustainable management of natural resources.

The following outcomes are expected:

- Enhanced adoption by farmers and other relevant actors of innovations that increase the mitigation and adaptation capacity of livestock farming systems to climate change, at animal, population and farm level, therefore improving the resilience of production systems as well as animal health and welfare.
- Improved capacity to assess the environmental and socio-economic impact of mitigation and adaptation practices and options at different scales, alone and in combination.
- Consolidated transition towards a resilient livestock production with novel integrated approaches (in terms of management, breeding, feeding, local resources use, etc.) defined for different climate change scenarios

Color code: **WORK** (Underline)

CONSORTIUM (“C” in margin)

IMPACT (“I” in margin; at second stage)

Scope: Terrestrial livestock production is considered a large contributor to anthropogenic GHG emissions worldwide. Although emission intensity in Europe is lower in comparison to many other regions of the world, **options to better assess and improve the emissions balance** of terrestrial livestock production, weather **intensive** or **extensive/low** input, including **organic**, are necessary, including the evaluation of appropriate **indicators** of GHG emissions in **different breeds, environments and production systems**, in order not to rely solely on a reduction of the demand in food of animal origin to improve the emission balance of the sector. A variety of options have been identified, but are not yet common practice, and the **potential of breeding to contribute to an improved GHG balance** was not much investigated so far. In addition, the likelihood of further climate change occurring, and the increasing scale of potential climate impacts require addressing agricultural adaptation of the livestock sector as well.

The proposals should **investigate** at different levels (**animal, herd, farm and sector, region**) and with a coherent approach, practices and innovations that **enable a reduction of the net GHG emissions** by terrestrial livestock, while striving to ensure farm viability and resilience of production systems, including adaptation to climate change, and taking into account the impact on the environment and biodiversity. **Trade-offs within and between the different levels** should be addressed. At animal level, the research should use **systems biology** to study **interactions between host and environment** (e.g. **feed and microbes**) and how this interplay affects the efficiency of feed utilisation (**energy and proteins**) and GHG emissions, not least methane. Proposals will **define and investigate traits/phenotypes**, and the **potential of breeding**, to reduce GHG animal emissions or/and adapt to climate change. At **farm level**, different **husbandry practices** should be addressed. At **sector/regional level**, a **system approach** should investigate how different actors can cooperate to improve the GHG balance of livestock production, **optimising the use of resources**, including feed (e.g. production and origin), **improving circularity**. In addition to **biophysical research**, the proposals should address the potential **socio-economic impact** of the proposed practices and innovations, and look at options to facilitate their uptake. Proposals should **develop or refine related tools** for a proper assessment of practices and proposed innovations. Proposals should take into account **novel farming systems** and future scenarios, **different breeds**, particularly local breeds, various **management approaches, climatic conditions and regional specificities**. Proposals should address at least **cattle and pigs** and may address any other relevant species.

Proposals should fall under the concept of the **multi-actor approach** and ensure adequate involvement of the **farming sector, terrestrial livestock breeders, advisers** and other relevant actors.

The proposals should take into account other EU-funded projects, including those funded under the ERA-NETs SusAn and ERA-GAS .