Session 4.2: Climate Change Mitigation Strategies.

S04.O-09

RE-LIVESTOCK – FACILITATING INNOVATIONS FOR RESILIENT LIVESTOCK FARMING SYSTEMS

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Climate change is primarily caused by greenhouse gas (GHG) emissions that result in warming of the atmosphere. Around 15% of all global GHG emissions are attributed to livestock production. Here, we present an overview of the Horizon Europe project Re-Livestock – Facilitating innovations for resilient livestock farming systems. Re-Livestock is a five-year project (2022-2027) with the overall objective to increase the resilience of the livestock sector. This will be achieved by understanding and mobilizing adoption of innovative practices, which are applied cross-scale on animal, herd and farm, sector and region levels, to reduce GHG emissions of livestock farming and adaptation to climate change effects, mainly heat stress. Re-Livestock proposes a holistic approach based on the Re-Concept: Re-Evaluation of feeding inputs and nutrient cycling, Re-Exploring animals' adaptive capacity to integrate mitigation and adaptation and Re-Design of livestock systems. Specifically, Re-Livestock will evaluate low carbon footprint feed materials, the role of grasslands in low carbon livestock production and the use of feed supplements to suppress enteric methane. Animal breeding has been shown to be a permanent, cumulative and cost-effective GHG mitigation strategy In Re-Livestock we will demonstrate the potential of animal breeding in climate change mitigation and design breeding strategies that reduce GHG emission. We will collaborate across countries and examine if individual methane emission of cattle recorded with different devices and in different countries is genetically the same or different traits. We will further investigate the usefulness of the rumen microbiome as predictor of individual methane emission in cattle across countries and develop novel models to determine the genetic architecture of methane emission in cattle. System specific on-farm level husbandry practices to reduce GHG emission will be evaluated by re-defining housing and management strategies, promoting practices to recycle nutrients in indoor and outdoor livestock systems, and using precision livestock farming data to support decision-making. Innovative holistic farm-level environmental and socio-economic assessment tools to enhance the adoption of strategies by farmers will be applied. The primary data generated by different work packages on feeding, breeding and husbandry will then be used to build improved Life Cycle Assessment indicators and to assess European circular food systems re-designs to climate change. This presentation will give an overview of the objectives of Re-Livestock with focus on GHG mitigation strategies applicable on animal level. Re-Livestock receives funding from the European Union under Grant Agreement No. 101059609.