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Greenhouse gas mitigation and soil carbon sequestration practices in the sheep sector

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Abstract

Greenhouse gas (GHG) emissions from sheep production contribute eight per cent to global GHG emissions from the livestock sector. In some countries, GHG emission intensity from sheep meat production even accounts for the highest share of the country's GHG emission intensity from the livestock sector. However, little is known about current GHG mitigation and soil organic carbon (SOC) sequestration practices in the sheep sector. Therefore, this study aims on identifying policies and actors promoting these practices as well as what kind of practices are adopted, including adoption barriers. Data were collected in 2022 through a survey of 16 agricultural economic experts from 12 countries (Algeria, Argentina, Australia, Canada, Colombia, France, Germany, India, Iran, Peru, Spain and Tunisia). The results reveal that governments in 11 out of 12 countries have implemented at least one policy instrument to promote GHG mitigation and SOC sequestration practices with relevance for sheep production. These are often soft policy instruments such as research and development and/or farmers' training. Research bodies and independent farm advisors are the non-governmental stakeholders that are most active in promoting these practices. On average, farmers in the selected countries are likely to adopt animal management practices or practices that enhance productivity to reduce GHG emissions. The practices that are most likely to be adopted by farmers are feeding a diet balanced in energy and protein, increasing diet digestibility, increasing the lamb growth rate for earlier finishing and improving ewe nutrition in late gestation. However, the adoption of soil and pasture management practices to reduce GHG emissions or enhance SOC is less likely. This is especially the case for practices related to pasture renovation and plant selection, land use change, fertiliser and nutrient management or soil moisture. Avoid conversion of peatlands is the practice that has been selected most often to be unlikely adopted by farmers. The adoption of practices that enhance productivity is mainly prevented by economic barriers (e.g. uncertain returns and results as well as hidden costs). Behavioural/psychological barriers are the main reason for the non-adoption of soil and pasture as well as animal management (e.g. conflict with traditional methods) practices.

Keywords: Adoption barriers, adoption of GHG mitigation practices