



Food and Agriculture Organization  
of the United Nations

# The FAO LEAP suite of tools for climate action and environmental improvement

## Livestock Environmental Assessment and Performance Partnership (FAO LEAP)

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COP26 side event

*3 November 2021*





## LEAP objectives

- Building common ground to understand and assess the environmental impacts from livestock systems
- Foster evidence-based climate action and environmental improvement for sustainable livestock through the application of the FAO LEAP guidelines



# LEAP1 (2012-2015) | LEAP2 (2016-2018) | LEAP (2019-2021)

## Technical guidance + data

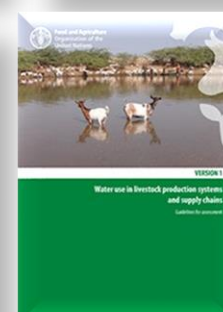
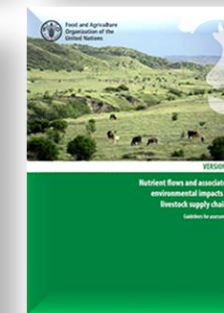
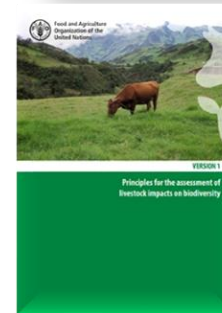
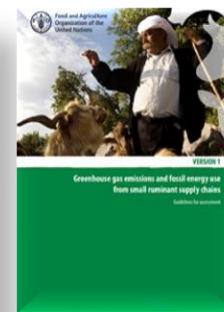
### LEAP | Achievements

Feed, Small and Large Ruminants, Poultry, Pigs

Biodiversity, Feed additives, Nutrients, Soil Carbon, Water use

*Methane (Peer-review in Nov. 2021)*

Feed crops database



GLEAM output

Region/Type/Country	Agro Ecological Zone	Production System	Production Practice
Region: [dropdown]	Production System: [dropdown]	Production Practice: [dropdown]	

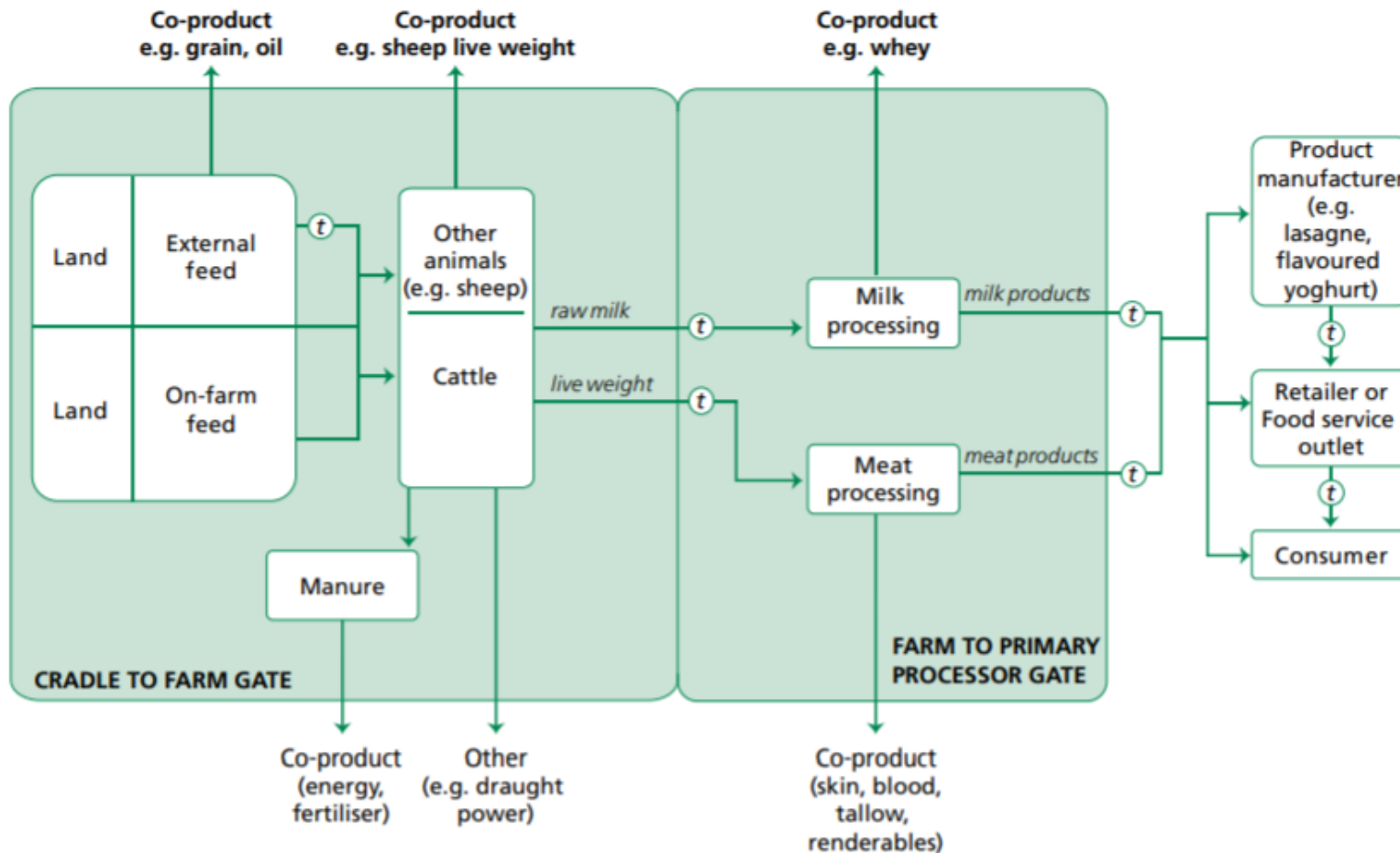
  

Life Cycle Inventory (LCI)	GLEAM output
Land use: 117.22 [E] t CO <sub>2</sub> e / t FM	Land use: 117.22 [E] t CO <sub>2</sub> e / t FM
Organic fertilizer: 133.22 [E] t CO <sub>2</sub> e / t FM	Organic fertilizer: 133.22 [E] t CO <sub>2</sub> e / t FM
Artificial fertilizer: 133.22 [E] t CO <sub>2</sub> e / t FM	Artificial fertilizer: 133.22 [E] t CO <sub>2</sub> e / t FM
Water: 2.22 [E] m <sup>3</sup> / t FM	Water: 2.22 [E] m <sup>3</sup> / t FM
Land use change: 133.22 [E] t CO <sub>2</sub> e / t FM	Land use change: 133.22 [E] t CO <sub>2</sub> e / t FM
Land use: 117.22 [E] t CO <sub>2</sub> e / t FM	Land use: 117.22 [E] t CO <sub>2</sub> e / t FM
Organic fertilizer: 133.22 [E] t CO <sub>2</sub> e / t FM	Organic fertilizer: 133.22 [E] t CO <sub>2</sub> e / t FM
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Land use change: 133.22 [E] t CO <sub>2</sub> e / t FM	Land use change: 133.22 [E] t CO <sub>2</sub> e / t FM



## Life Cycle Assessment approach

### System boundary diagram for the life cycle of cattle



### Functional unit/reference flow

Main product type	Cradle to farm gate	Cradle to primary processing gate
Meat	Live weight (kg)	Meat product(s) (kg)
Draught Power	MJ	
Milk	FPCM (kg)	Dairy product(s) with specific fat and protein content (kg)



# Global Assessment of Soil Carbon Stocks in grasslands



# Leap

LIVESTOCK ENVIRONMENTAL ASSESSMENT AND PERFORMANCE PARTNERSHIP



Overview

Partners

Activities

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Applications

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News

Events

## Modelling soil carbon storage in grasslands through the LEAP guidelines and the GLEAM model



**12/05/2020** Managed grasslands and rangelands represent around 70 percent of the global agricultural area. The soils of these agroecosystems contain nearly 20 percent of the world's soil organic carbon (SOC) stocks, which implies that they play a significant role in the global carbon and water.

Changes in SOC levels are relevant to the environmental performance assessment of livestock product systems, primarily due to its effects on the balance of greenhouse gas (GHG) emissions in the system, which affects climate change impacts. Moreover, SOC is an indicator of soil quality, reflecting its ability to provide ecosystem services, such as biotic production and climate change mitigation.

In the past months, LEAP has worked closely with FAO and INRAE to incorporate an additional component in the Global Livestock Environmental Assessment Model (GLEAM), a modelling framework to estimate livestock and environment interactions such as GHG emissions, nitrogen use, water, soil carbon, and biodiversity.

The LEAP guidelines for SOC assessment describe the approaches to measure and model SOC stock and stock changes in livestock production systems. For this purpose, three modelling approaches have been recommended: empirical models (Level 1), soil models (Level 2), and ecosystem models (Level 3).





## Catalogue of Applications

The LEAP catalogue of applications contributes to FAO knowledge sharing and stimulates evidence-based climate action and environmental improvement of feed and livestock systems.

The catalogue allows any entity using the environmental assessment approaches in the FAO LEAP guidelines to disseminate the outcomes of own work and hence to mainstream innovation and best practices in policy and environmental management.

To contribute to the FAO LEAP action, applicants are requested to fill out the reporting template available for download from [here](#), and to submit the compiled form (filling out fields from page 6 to 8 is optional) to [Livestock-Partnership@fao.org](mailto:Livestock-Partnership@fao.org)

This catalogue contains information provided by applicants. No endorsement can be assumed by FAO and its LEAP partners. The applicants are the only responsible for the accuracy and truthfulness of the information in own submission.

- 1. Assessment of the national sectoral GHGs emissions from New Zealand livestock production**
- 2. Assessment of the environmental sustainability of Canadian beef production systems**
- 3. Environmental footprint of a feed additive**
- 4. Environmental assessment of intergrated livestock production at farm level**
- 5. Global assessment of livestock systems**
- 6. Assessment involving farmers in reducing GHGs emissions and increasing carbon sequestration**
- 7. LCA database on feed production**
- 8. Environmental assessment of the livestock sector**



## LEAP4 (2022-2024) Guideline development



- *Ecosystem services*
- *Direct land use change*
- *Circular bio-economy*
- *Leather*







## LEAP4 (2022-2024) Multi-stakeholder workshops

*Conveners:* FAO country/regional office in liaison with FAO HQs

*Participants:*

- ✓ Ministries of Agriculture and/or the Environment
- ✓ Ministries of Research and Education
- ✓ Extension services organizations
- ✓ Academia
- ✓ TAG members: national experts
- ✓ National Business Associations
- ✓ Local NGOs and civil society organizations
- ✓ National/Regional Networks about feed, livestock, LCA and environmental improvement platforms







# LEAP4 Action

Disseminating evidence-based climate solutions and examples of better practices



Building global consensus on comprehensive guidance and methodology



Facilitating environmental assessment of feed and livestock production

Developing baseline assessments to support the global implementation of livestock-related policies





Join LEAP4 action!

Livestock-Partnership@fao.org

Zoom Meeting

Recording...



Kim van Seeters, the Neth...



DeCamillis, Camillo (NSAL)



NEW ZEALAND Don Syme



Hsin Huang, International...



Tim McAllister



Gianni Motta (INAC-Urug...



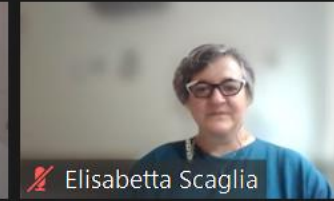
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Henning Steinfeld FAO



Elisabetta Scaglia



Ivan KRAL (UNIDO)



Alexandra de Athayde, IFIF



Shirley Tarawali



Pablo Manzano



BRA - Eleneide Sotta



Andreas Pilzecker



Caroline Emond-IDF



Simon Leiva (GACSA)



DalenaWhite



Ruairaidh Petre



Kevin Lovell



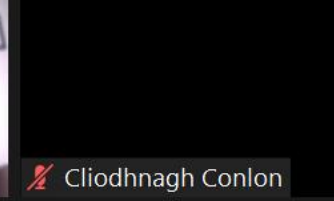
Canada - Julie Emond



Marcel Beukeboom



Emmie Wachira



Cliodhnagh Conlon