Measuring climate mitigation contributions from CAP-funded agri-food action

Tackling climate change is a priority for the Common Agricultural Policy (CAP) and a range of financial support is available through CAP Strategic Plans (CSPs) for agri-food climate action. This funding can help reduce greenhouse gas (GHG) emissions and increase stored carbon in soil and biomass. Measuring, reporting, and verification (MRV) of climate contributions from CAP funds is vital and such transaction costs can be eligible for CSP support.

MRV cost and accuracy are confirmed by the European Parliament as key challenges for upscaling agricultural contributions to Europe's Fit for 55 climate goals. A Technical Guidance Handbook on Setting up and implementing result-based carbon farming mechanisms in the EU notes that MRV can incur considerable costs and greater MRV accuracy can equate with greater cost. More understanding of climate MRV systems for agri-food activity is useful for CSPs stakeholders.

"If you can't measure it, you can't manage it" is a famous business quote and agri-food MRV systems for GHGs can measure and manage both business and environmental results. MRV systems can serve both as the base for an effective design of policies and as a tool for land managers necessary for income generation (as well as climate action tools) facilitating tradeable carbon credits, repayable EU finance for climate investments, and climate action payments from the CAP, Cohesion policy or elsewhere. In the hands of land managers in the form of a user-friendly tool, this can help by creating awareness, undertaking eco-design and increasing the uptake of good practices showing the advantages of their implementation.

"If you can't measure it, you can't manage it"

MRV decisions

The choice of MRV systems is influenced by the business rationale behind a specific climate action. For instance, if farmers/foresters aim to sell GHG credits then robust and accurate MRV is normally important. Less stringent MRV could be applied if the main goal is based on increasing understanding about managing land productivity more sustainably through the implementation of good practices.

MRV systems can use a combination of direct measurements and modelling calculations which can be translated and quantified into GHG emissions and/or related carbon sequestration. Direct in-situ measurement is often more accurate but can be expensive due to site visits, sampling, and laboratory tests. Modelling may involve proxy measurements and satellite sensing which, overall, can be cheaper and simpler but less accurate. Three criteria can help guide decisions about MRV systems: reliability, feasibility, and synergy (see table).

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Reliability

- Scientific robustness is more reliable using in-situ tools and transparent analysis that can be scrutinised by independent expertise.
- The **Gold Standard** is one of the most widely respected international market standards for MRV reliability.
- Double-counting risks can be reduced by MRV safeguards e.g. **blockchain**.

Feasibility

- The practicality of MRV can help upscale climate action. Time, financial costs, and complexity affect participation.
- Lack of user capacity can inhibit reliable MRV. Skills often take time, effort, and costs to develop.
- MRV can be applied to the climate footprint of an entire agri-food business, or a specific commodity (along its full value chain).

Synergy

- Climate MRV can be designed wisely to simultaneously understand business profitability, biodiversity impact, water usage, nutrient leaching, and animal welfare, etc.
- Climate MRV can also simultaneously take advantage of existing data collected by farmers and foresters for other land management purposes.

Good MRV practices that help balance reliability, feasibility, and synergy involve:

- Tools calibrated to local circumstances
- Modelling based on similar farms and conditions
- Limiting the numbers of tools to assist consistency
- Using scientifically proven techniques and/or large data sets

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Techniques and toolkits

Climate action MRV techniques and tools for agri-food projects can measure a wide range of emission and sequestration parameters – firstly to set baselines and thereafter to assess performance. Soil properties and topography; crop types and vegetal cover including hedges or trees; livestock breeds and numbers; feed and manure; fertilisers and herbicides; fuel and power, as well as services like maintenance and travel can all be accounted in MRV calculations.

Emission measurements can be classified by '**scope**' as either:

- **Scope 1**: covering all emissions from on-farm operations;
- **Scope 2:** regarding emissions from electricity purchased;
- or **Scope 3:** concerning emissions associated to external inputs like agri-chemicals and veterinary services etc.

Carbon sequestration calculations include measuring aboveground biomass (AGB) which is multiplied by a factor to indicate belowground biomass (BGB). Depending on the type of practice and context, it may take up to five years before soil carbon changes can be detected.

Sharing MRV knowhow

Dozens of different tools are available to aid MRV for agri-food carbon sequestration and GHG emissions. Many methodologies have been developed with EU funds like HORIZON and LIFE. An internationally recognised standard is the 'EX-Ante Carbon-balance Tool (EX-ACT)' from the Food and Agriculture Organization of the United Nations. This is based on the Intergovernmental Panel on Climate Change (IPCC) methodology and has a broad scope comprising agricultural inputs, energy, infrastructure, wetlands, and aquaculture.

For further information: the ENRD website hosts a collection of MRV-connected resources including evaluation aspects. EIP-AGRI is another useful knowledge source for climate MRV as well as digital and data approaches that are integral to smart MRV.

Using your networks to exchange information about how best to monitor, report, and verify CAP climate contributions and sharing solutions to associated challenges can help accelerate the upscaling of climate commitments by CAP beneficiaries. Encouraging and supporting this knowledge exchange at local, regional, national, and international levels can help farmers and foresters and CSP implementation authorities gain greater insight into technical and policy issues concerning MRV reliability, feasibility, and synergies.