Ways to demonstrate ‘invisible’ climate smart practices

Many climate smart practices are invisible, or their impact only becomes visible over time. Think about practices for soil improvement to increase resilience, reduced greenhouse gas emissions or better water retention. It can be difficult to show these practices during a demo event. Here we present three ways to demonstrate such ‘invisible’ climate smart practices. In all cases, it is helpful to let the host farmer explain what they have already changed and how these changes have led to reduced GHG emissions or a farm resilient against extreme weather.

1. Sensory methods

Working with anything you can see, touch, hear, smell or feel is the most accessible way to show the effects of climate smart practices. Sensory methods are often cheap and can be a creative and fun way to show (the effects of) climate smart practices during a demo.

There are many exercises that include sensory experiences to show the effects of climate smart farming practices in a simple way. Some examples:

- **The ‘soil your undies’ test** to show microbial activity in the soil
- **Slake tests** to evaluate soil structure or earthworm counting to show soil aeration.
- **Digging a soil profile pit** to show soil and root structure or make comparisons between plots, for example by doing a Visual Soil Examination and Evaluation (VESS) test
- **Smelling different samples of compost** to showcase differences in e.g. compost with too much nitrogen (ammonia smell) versus healthy compost
- **Tasting crops** to show the effects of a climate smart practice on taste or texture
- **Examining/ handling/touching** different fertiliser or compost types; different types of soil;



Digging a soil pit during a demo event in Finland.
Picture: Thomas Alföldi

You can make physical props to show a practice on a smaller scale. For example, using buckets of different manure types, buckets with different soil structures to show water retention differences, or feed samples to smell any differences between samples.



Buckets with different types of manure during a demo event in The Netherlands.

Comparison plots are an effective way to show the difference between plots with and without the climate smart farming practices. Think about soil pits in a ploughed versus no-till plot to show differences in soil structure, or pastures receiving different levels of fertiliser N.

> We carried out visual and sensory soil assessment using the different soil samples collected from the farm. Participants were encouraged to evaluate the soil using their senses, observing characteristics such as structure, texture, colour, smell, and biological activity.
>
> **Jacobo Monereo - Spanish Pilot Demo Farmer**

2. Quantification through data and audits

Farmers often appreciate quantification and data that show a farm's GHG emissions, economic effects or other effects on a farms' performance. Quantification is more labour intensive and requires access to relevant data.

Some ways to use quantification in a climate farm demo:

- **Carbon footprint calculators** and **auditing tools** such as CAP2ER, BOVID-CO2 or AgNav show a farms' performance in GHG emission reduction
- **The Adaptation and Mitigation Plans** of the Climate Farm Demo project can be used to show farm emissions and trends over time. The plans can be visualised using information boards, as for example seen in this example of a demo in The Netherlands

> We used (...) CAP2ER reports and graphical outputs for real farms from Veneto and Emilia-Romagna [with] slides showing emission breakdowns and mitigation scenarios. These materials helped participants visualise where emissions occur and which management changes could have the greatest impact.
>
> **Flavio Luongo - Italian Pilot Demo Farmer**

3.Digital visualisation

Use digital tools to calculate emissions and effects of climate smart measures and then visualise or display them in a precise, attractive and easy to understand way. Similar to quantification, digital visualisation is more labour intensive and can also be expensive compared to sensory methods.

- **Real-time monitoring** with digital platforms and sensors can be used to measure and visualise climate related farm data, from GHG emissions and resource use to soil moisture levels, weather conditions or crop health. Examples of tools to use are soil moisture sensors, electrotensiometers, temperature and humidity sensors or CO2 monitoring.
- **Thermal imaging** with thermal cameras can be used to show e.g. thermal energy losses in greenhouses
- **Precision mapping** with satellite data and NDVI (Normalised Difference Vegetation Index) maps can be used to visualise e.g. crop biomass and water stress
- **Simulations** show the effects of climate smart practices, using Excel sheets, or tools such as ClimAléas Diag, NDICEA or Klimaatstresstest. More climate and carbon assessment tools can be found on the Farming with Climate repository.

Supporting materials

Farming with Climate Web Platform
Click here

Using VESS for the visual examination of soils
Click here

Proof by underpants Beweisstück Unterhose
Click here

@FarmDemo YouTube video
Click here

Funded by the European Union

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