

# GLOBAL RESEARCH ALLIANCE

ON AGRICULTURAL GREENHOUSE GASES

## Country report : Switzerland

Presentation to IRG Annual Meeting  
24-25 June 2021

# Projects, initiatives and contributions to IRG's topics

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## soil carbon sequestration

### CarboSeq: EJP Soil Project. Jens Leifeld leads a work package on **biochar** modelling

- In this WP, it will be examined to which extent the processing of organic material that is incorporated to soil affects SOC-stocks, considering carbonization (**biochar**) as well as composting, fermentation and as additional amendment also liming. The goal is to provide emission factors, describe C-input stability changes, suggest model parameters for selected amendments, and identify positive/negative side effects.

### GSOCseq (FAO Project):

- Technical specifications and guidance for the generation of national Soil Organic Carbon Sequestration Potential (GSOCseq) maps at 1km resolution for agricultural lands, based on a 'bottom-up', country-driven approach.
- Use of **RothC** as a standard spatialized SOC model.
- The global soil partnership will organize training sessions to support countries that require technical assistance to produce their own maps, and will facilitate the production of datasets for countries lacking the required local input data.
- The final product will be relevant to identify which regions, environments and agricultural systems present the greater potential for increasing SOC stocks, and to establish priorities for the implementation of global and national public and private policies.

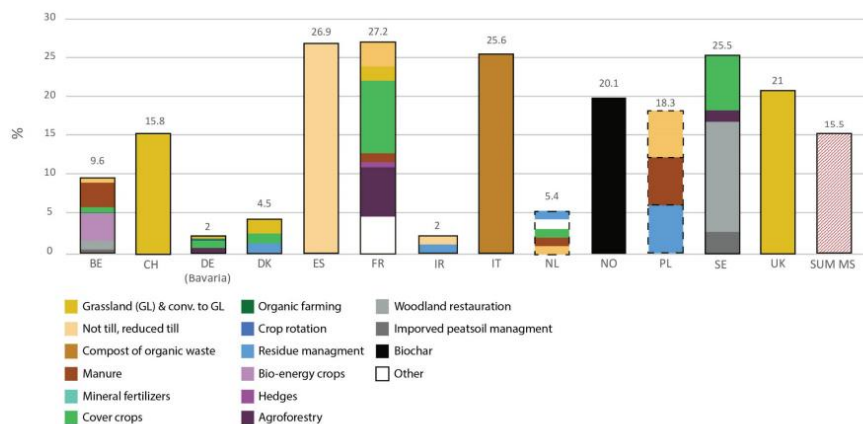
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## soil carbon sequestration

EJP Soil: Synthesis on estimates of achievable soil carbon sequestration on agricultural land across Europe (Rodrigues et al. 2021)



**Figure 4** Share of potentials to the annual total emissions from the agricultural sector for each country and share of measures involved. Dashed squares indicated unknown proportion of measures. Selection of maximum potential per country—additional potentials of countries are included in Table 2.



Country based knowledge and engagement is still poor.

Only half of the MS can provide information on achievable carbon sequestration at national and regional scales. Information provided is mostly based on rough estimates without consideration of technical and socio-economic feasibilities.

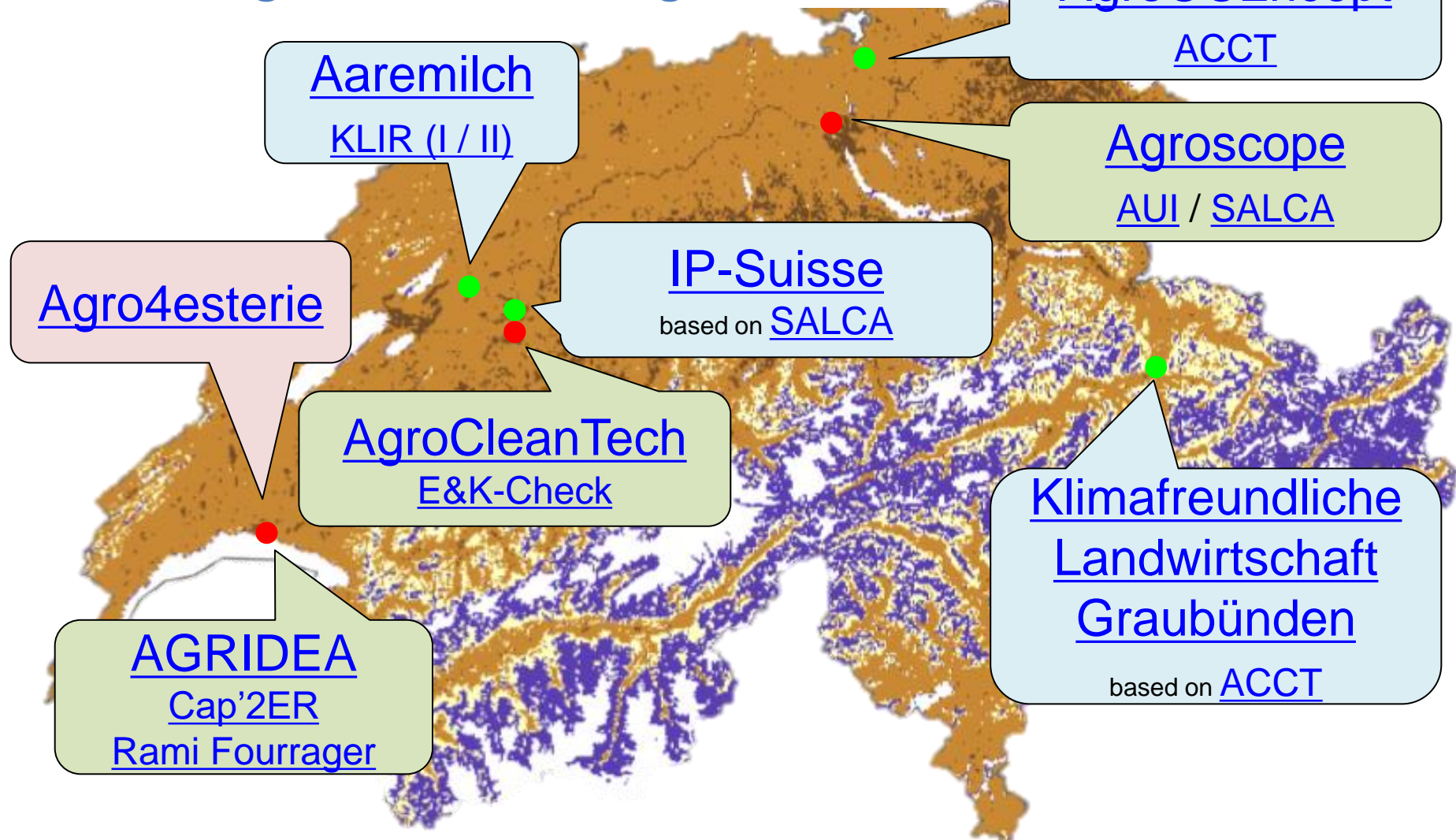
In contrast to mineral soils, effective mitigation measures for organic soils while maintaining agricultural production are much less studied.

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## farm to regional scale integration



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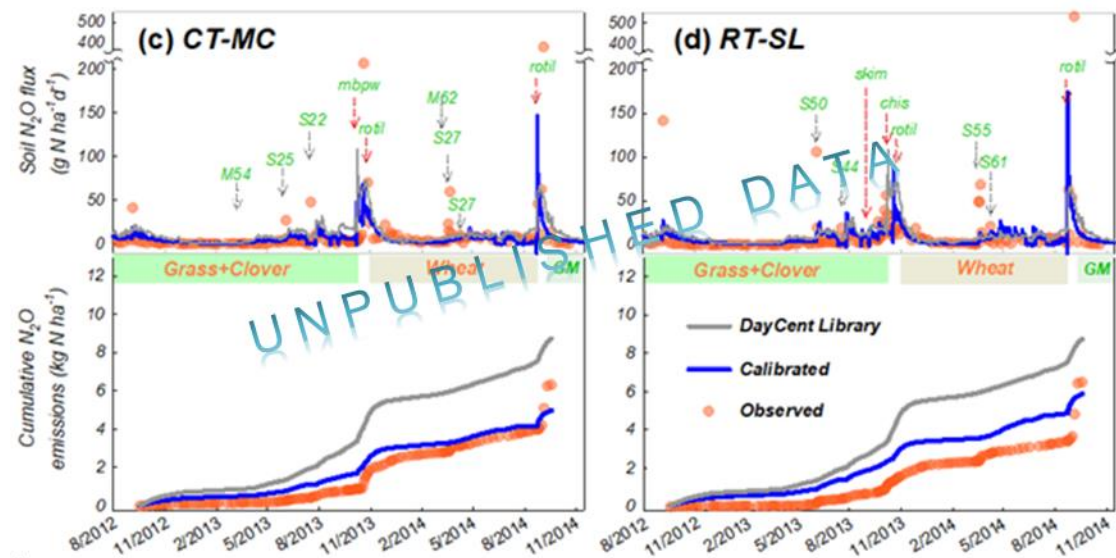
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## GHG inventories and NDCs

### LACHSIM / LACHMESS

- **Daycent** modelling of  $N_2O$  emissions from mineral cropland and grassland soils.
- **Integrative measurement of  $N_2O$  emissions** with semi-automated chambers on cropland soils.

Frick, Switzerland



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## GHG inventories and NDCs

### REFGRASS: N<sub>2</sub>O emissions from pastures (Waldegg)

- Measurement of N<sub>2</sub>O emissions from pasture soils with **eddy covariance** and **fast box systems**.
- Modelling of N<sub>2</sub>O emissions from pasture soils with **EcoSys**.
- Partitioning of N<sub>2</sub>O emissions for the estimation of **EF for (national) inventory purposes**.



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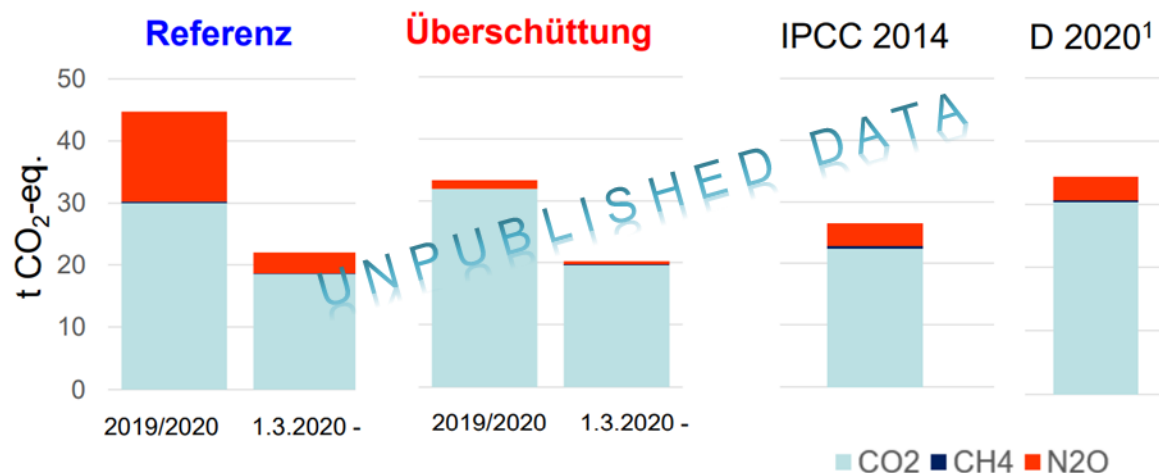
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## GHG inventories and NDCs

### Rüti-Project: GHG-Emissions from organic soils

- Measurement of CO<sub>2</sub>- and N<sub>2</sub>O-fluxes from managed **drained organic soils** under permanent grassland.
- Investigating the influence of **cover fill** on soil GHG-fluxes.
- Partitioning of N<sub>2</sub>O emissions for the estimation of **EF for (national) inventory purposes**.



<sup>1</sup>Tiemeyer et al. 2020



# Thank you for your attention

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