ROTHAMSTED RESEARCH

EGU General Assembly

Global Long-Term Agricultural Experiment Network

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https://glten.org

Percy Thrifty · Lawes Agricultural Trust · UKRI Biotechnology and Biological Sciences Research Council

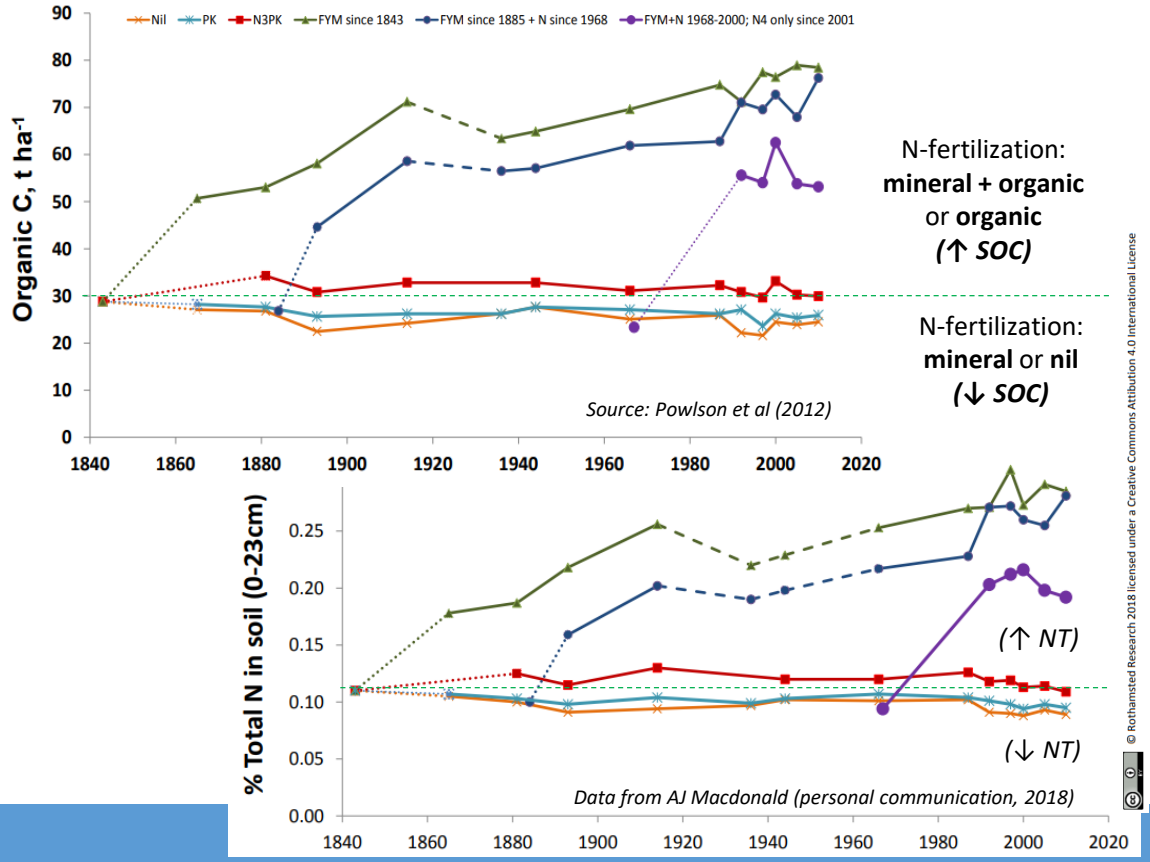
INTRODUCTION: The **GLTEN** is an **international network** of **long-term** (≥ 10 yr) **agricultural experiments** and associated researchers spanning six continents and representing a range of climates, environments, cropping systems and farming practices

Long-term experiments (LTEs) inherit **trustworthy data** that can be **re-purposed** to support the realization of the UN'S SDGs addressing 21st Century Societal Challenges

Source: https://www.un.org/sustainabledevelopment/news/communications-material/

LTE datasets are essential to monitor **environmental changes** over the time and extremely useful for supporting the development of **environmental modelling**

Broadbalk: changes in SOC and soil-N



GLTEN- METADATA PORTAL: it is a AWS-**cloud platform** that facilitate the **findability** and **accessibility** to LTEs-data, and to drive improvements in data quality

Metadata Schema

Findable Accessible Interoperable Reusable

FORCE11
The Future of Research Communications and e-Scholarship

- Description
- Organisations
- People
- Location
- Temporal coverage
- Publications
- Data access and licencing

https://www.glten.org

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DataCite
FIND, ACCESS, AND REUSE DATA

Metadata
Schema 4.0

- Crops
- Cropping System
- Experiment Designs
  - factors
- Site characterisation
  - Climate
  - Soil
- Measurements

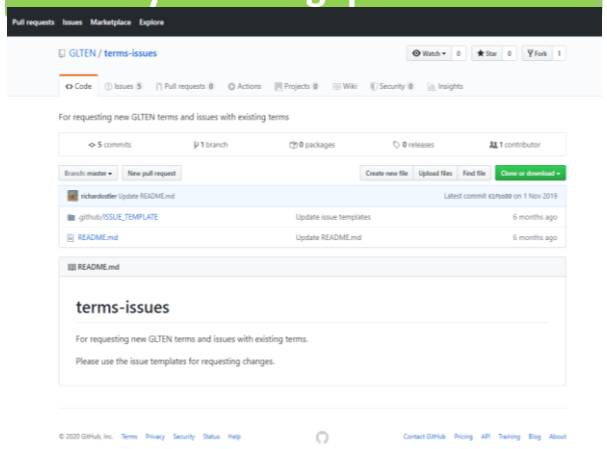
Planteome

Envo

AGROVOC

Agronomy Ontology

Identify and fill gaps



Source: **AIMS webinar series by Ostler, R. (2019)** https://www.youtube.com/watch?time_continue=1&v=llxMwjhRKpk&feature=emb_logo

Metadata:* each **GLTEN-member upload and manage their own LTE-metadata

***Dataset Access:* dataset remains strictly the property of the data owner (GLTEN-member). Access to data should be available to other GLTEN-member following reasonable request, based on the associated Institutional Data Policy

COLLABORATIVE RESEARCH: the **GLTEN** portal aim to increase the **visibility** of global agricultural **LTEs**. By **facilitating LTEs findability**, the GLTEN support and foster **partnerships** to develop **collaborative research** designing approaches for **sustainable agriculture intensification**.

*GLTEN towards **partnerships** to support actions addressing food security and climate change*

- Mapping LTEs worldwide
- Collect LTE-Metadata
- Harmonize LTE-Metadata
- Provide interoperable LTE-Metadata
- Enhance LTE visibility

- Identification of LTEs potential partners
- Establishment scientific collaborations
- Develop research plan
- Support Grant proposals

LTEs-Soil C stocks data: understanding mechanisms; improving future scenarios predictions/modelling, and supporting verification/certification)

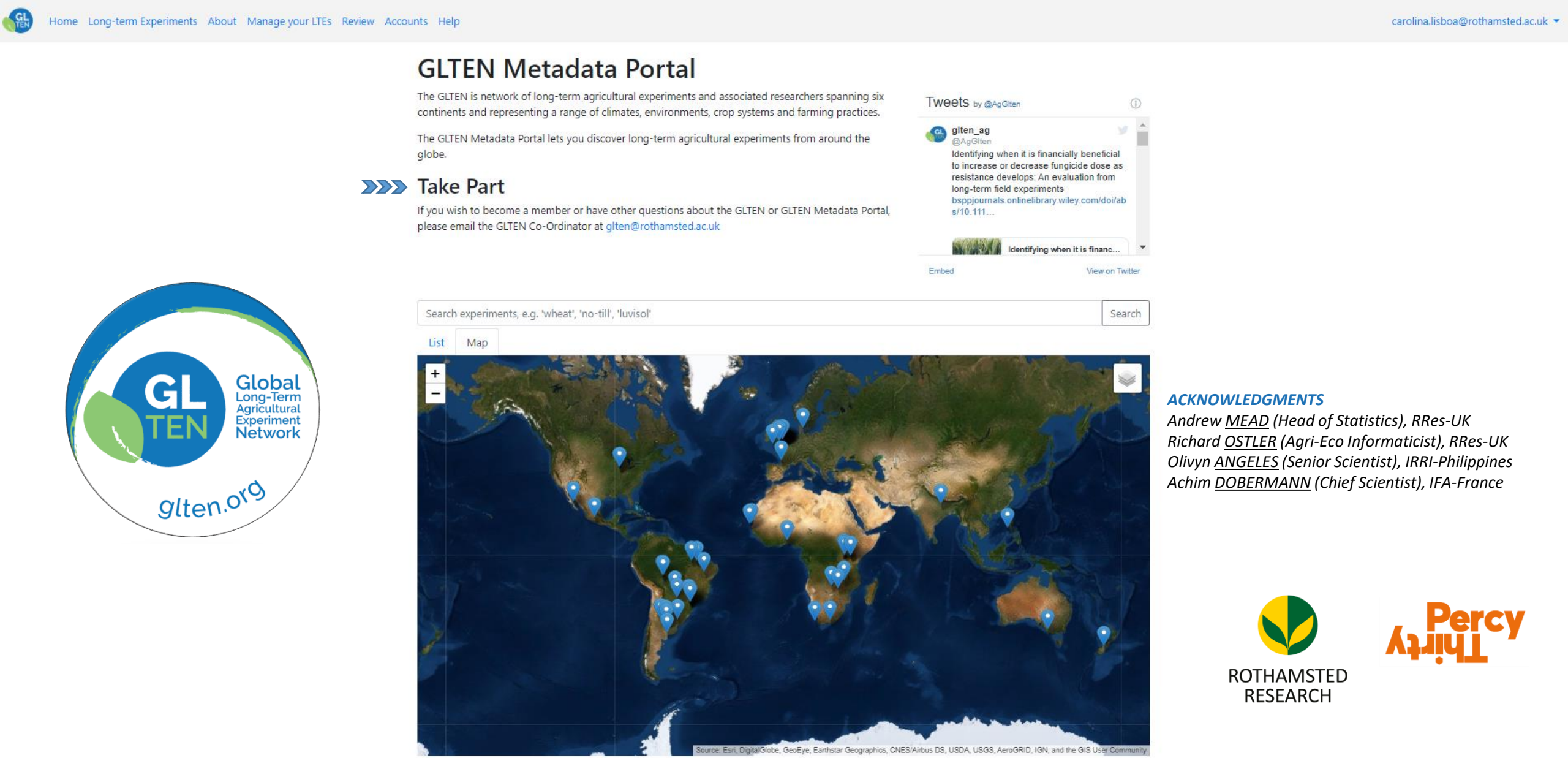
GLTEN approach on 'Soil Action'

Proposal

- C-soil datasets from LTEs provide unique opportunity to identify the role of C-soil stocks underpinning sustainable land managements that can promote an more resilient agricultural intensification whilst enhance food security. Perform data analysis applying free available modelling tools, e.g. **RothC** model (https://www.rothamsted.ac.uk/rothamsted-carbon-model-rothc) and **CBP tool** (https://cbp.nrel.colostate.edu/) **etc.**

Where we are?

- Developing research concept in collaboration with GLTEN-members
- Inviting potential LTE-partners within and beyond the GLTEN community



GL TEN Global Long-Term Agricultural Experiment Network
glten.org

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