

WP2: Field Data Collection

Landwise Fieldwork Working Group

Centre for Ecology & Hydrology, University of Reading,
British Geological Survey, Forest Research, Project
Partners: Landowners and Farm Advisors

1. Objectives

- Collect and compile evidence from field surveys and laboratory analyses
- Quantify changes in key soil properties that affect infiltration and soil moisture storage under different land management strategies

2. Collate existing data

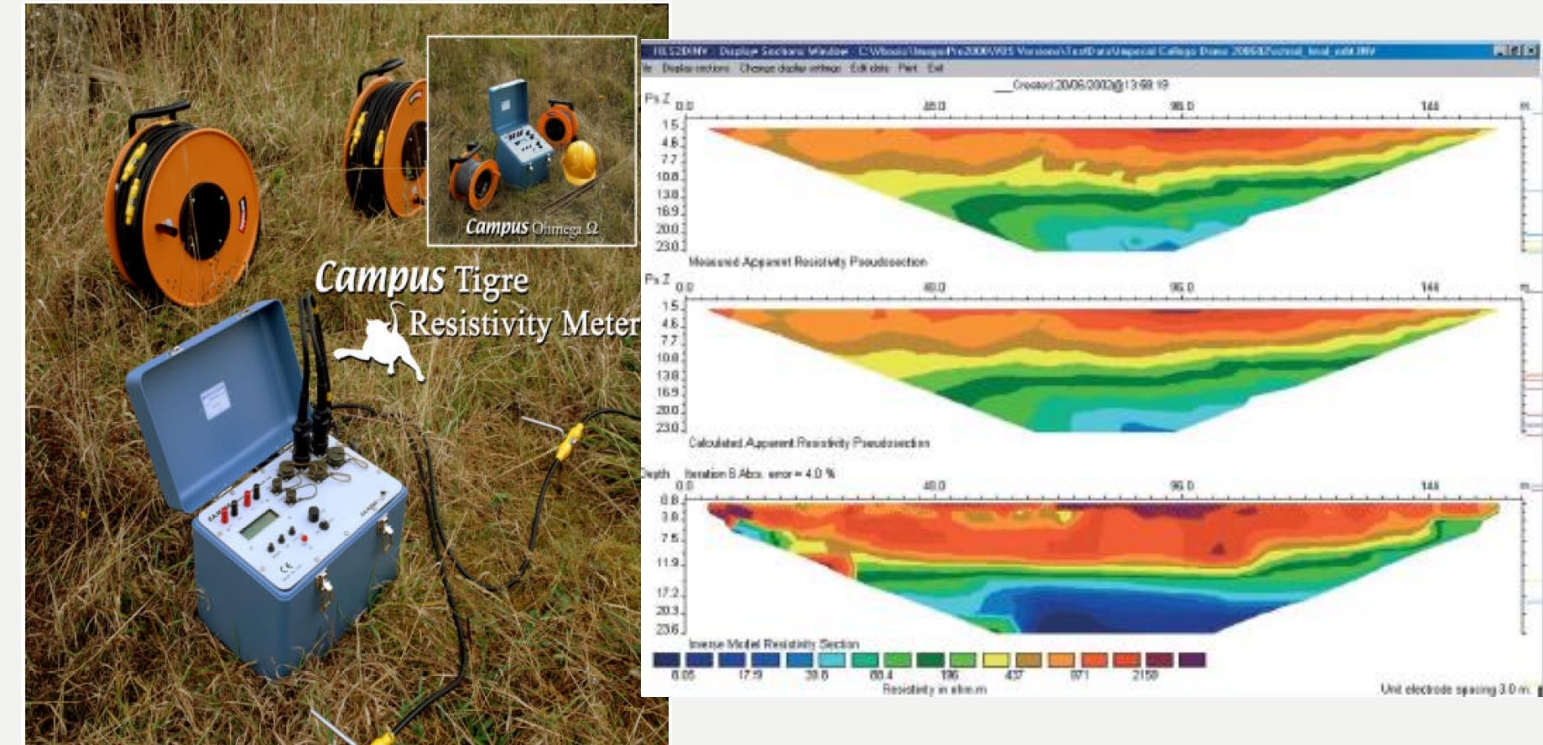
- West Thames long-term monitoring and other data sources (research projects, farmers and agronomists, project partners)
- Hydrological variables and soil and vegetation properties

4. New data from detailed field survey (surface & sub-surface)

- 9 detailed survey sites, repeated over time
- Linked to LANDWISE remote sensing fieldwork



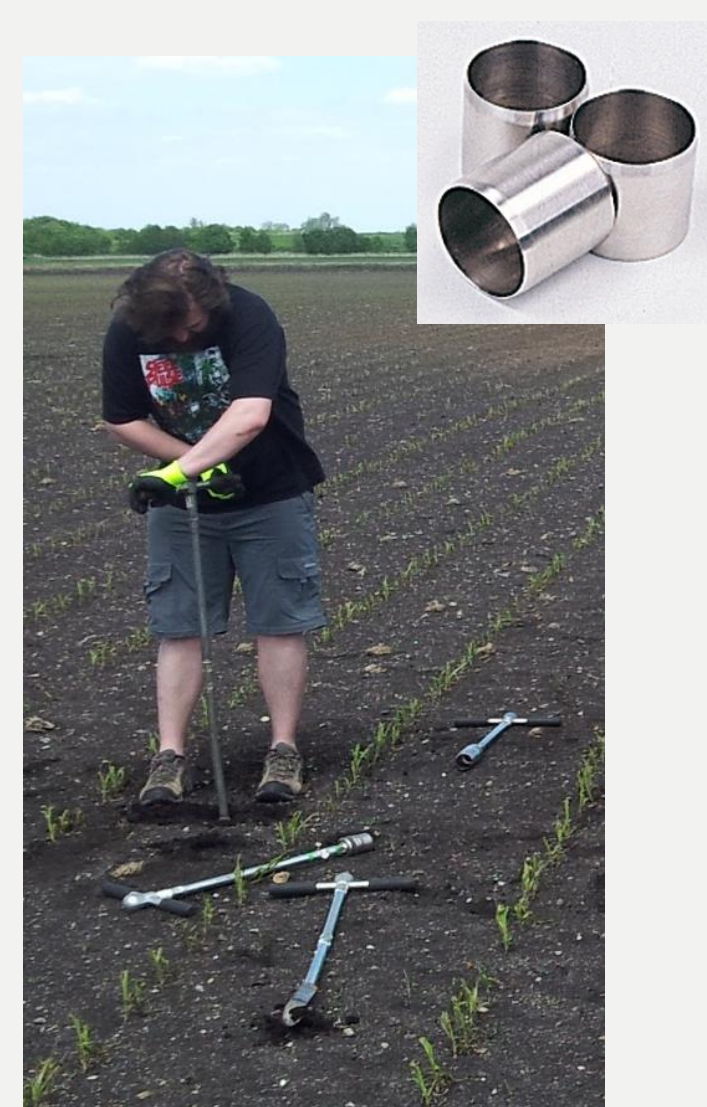
Surface soil moisture by roving TDR probe



Soil moisture transect by ERT



Vegetation properties – leaf area index, type, condition, height, cover; photo: Farmers Weekly



Soil sampling and vegetation assessment



Visual Evaluation of Soil Structure; photo: SRUC



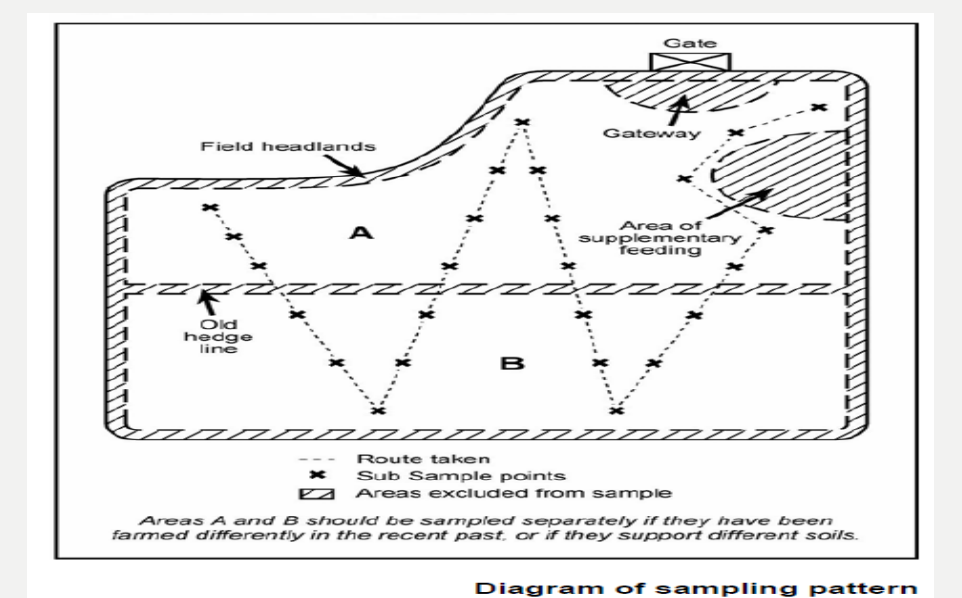
Soil hydraulic conductivity by Guelph permeameter, infiltration rate by double ring and/or mini disk infiltrometer



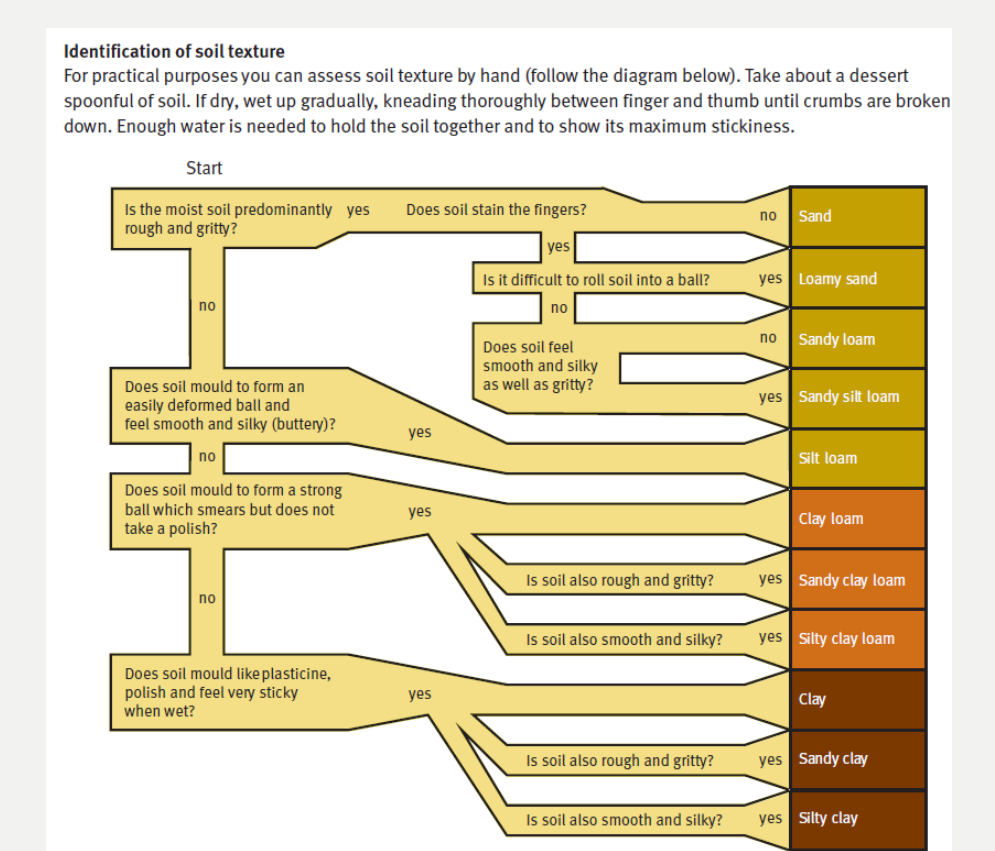
Soil moisture retention by sand/kaolin tables and pressure vessels

3. New data from broad-scale field survey (near-surface)

- 25 CEH survey sites and 55 partner survey sites
- Co-developing survey design, methodology, protocols
- Existing land-based NFM measures and reference conditions:
 - Arable: cover crops, zero/min/conv. till, pesticide, novel rotations, organic amendments, combinations?
 - Livestock: herbal lays/permanent pastures, mob grazing, stocking density?
 - Machinery: Controlled traffic?
 - General: buffer strips/zones?
- Representative locations (infield, margins, headlands, tramlines)



'W-walk' sampling; diagram: NE (2008)



Soil texture by hand; diagram: EA (2007)



Soil texture by sieving and laser particle sizer



Soil stability/slaking; photo: EA (2007)



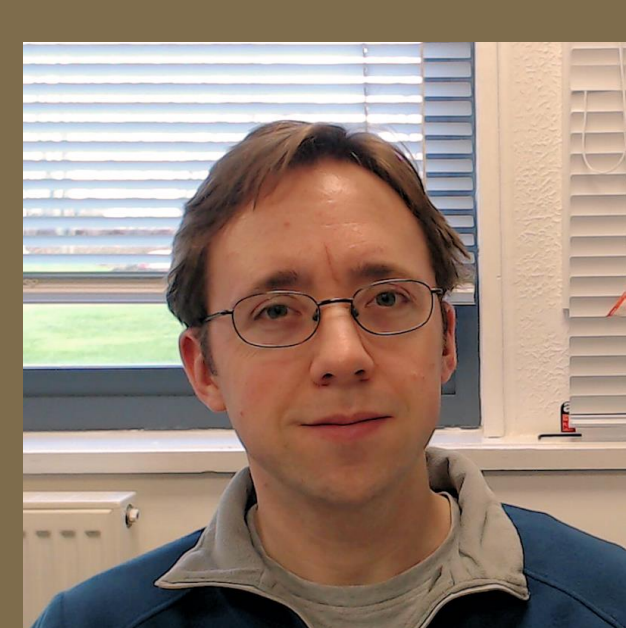
Soil moisture and bulk density by oven drying



Soil organic matter by loss on ignition

5. Data preparation, derivation and evaluation

- Field evidence database (including additional soil hydraulic properties derived from texture, organic matter and bulk density)
- Impact of NFM measures on soil and vegetation properties – statistical analysis, papers, articles
- Implications for model parameterization and reliable soil moisture storage estimates
- Provides data to support LANDWISE remote sensing and modelling



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