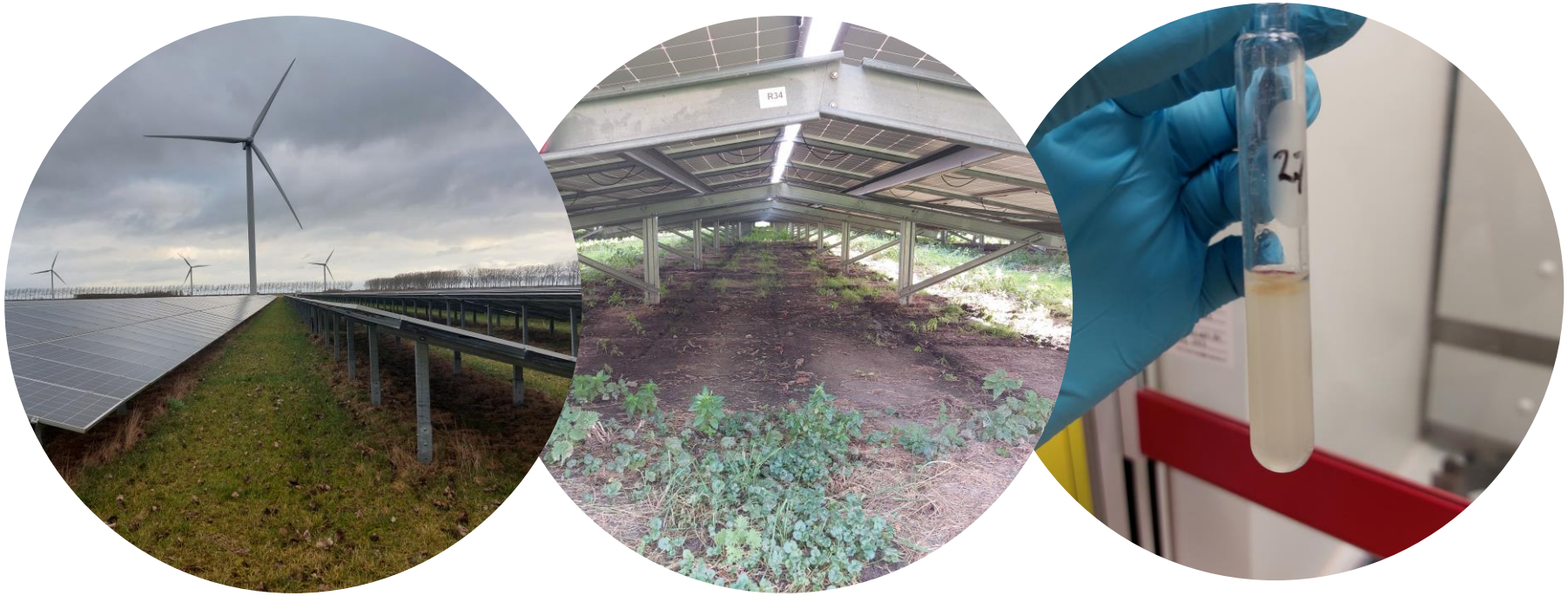
EcoCertified Solar Parks

Progress soil 2022

Luuk Scholten / WUR

Overview fieldwork 2022

- 17 parks were sampled
- Diemen and Fort de Pol excluded



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Overview fieldwork 2022

- 17 parks were sampled
- Diemen and Fort de Pol excluded

April: **Preparation**
Placing plots, sensors & teabags

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Overview fieldwork 2022

- 17 parks were sampled
- Diemen and Fort de Pol excluded

April: Preparation	May: Soil sampling
Placing plots, sensors & teabags	Carbon: HWC, SOM, total C & N
	Microbial community & biomass: PLFA
	Bulk density
	pH, texture, mineral nitrogen.. (still to do)

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Overview fieldwork 2022

- 17 parks were sampled
- Diemen and Fort de Pol excluded

April: Preparation	May: Soil sampling	July: Vegetation & teabag sampling
Placing plots, sensors & teabags	Carbon: HWC, SOM, total C & N	Aboveground biomass
	Microbial community & biomass: PLFA	Removing teabags
	Bulk density	Reading sensors
	pH, texture, mineral nitrogen.. (still to do)	

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Overview fieldwork 2022

- 17 parks were sampled
- Diemen and Fort de Pol excluded

April: Preparation	May: Soil sampling	July: Vegetation & teabag sampling	October: Vegetation sampling
Placing plots, sensors & teabags	Carbon: HWC, SOM, total C & N	Aboveground biomass	Aboveground biomass
	Microbial community & biomass: PLFA	Removing teabags	Reading sensors
	Bulk density	Reading sensors	
	pH, texture, mineral nitrogen.. (still to do)		

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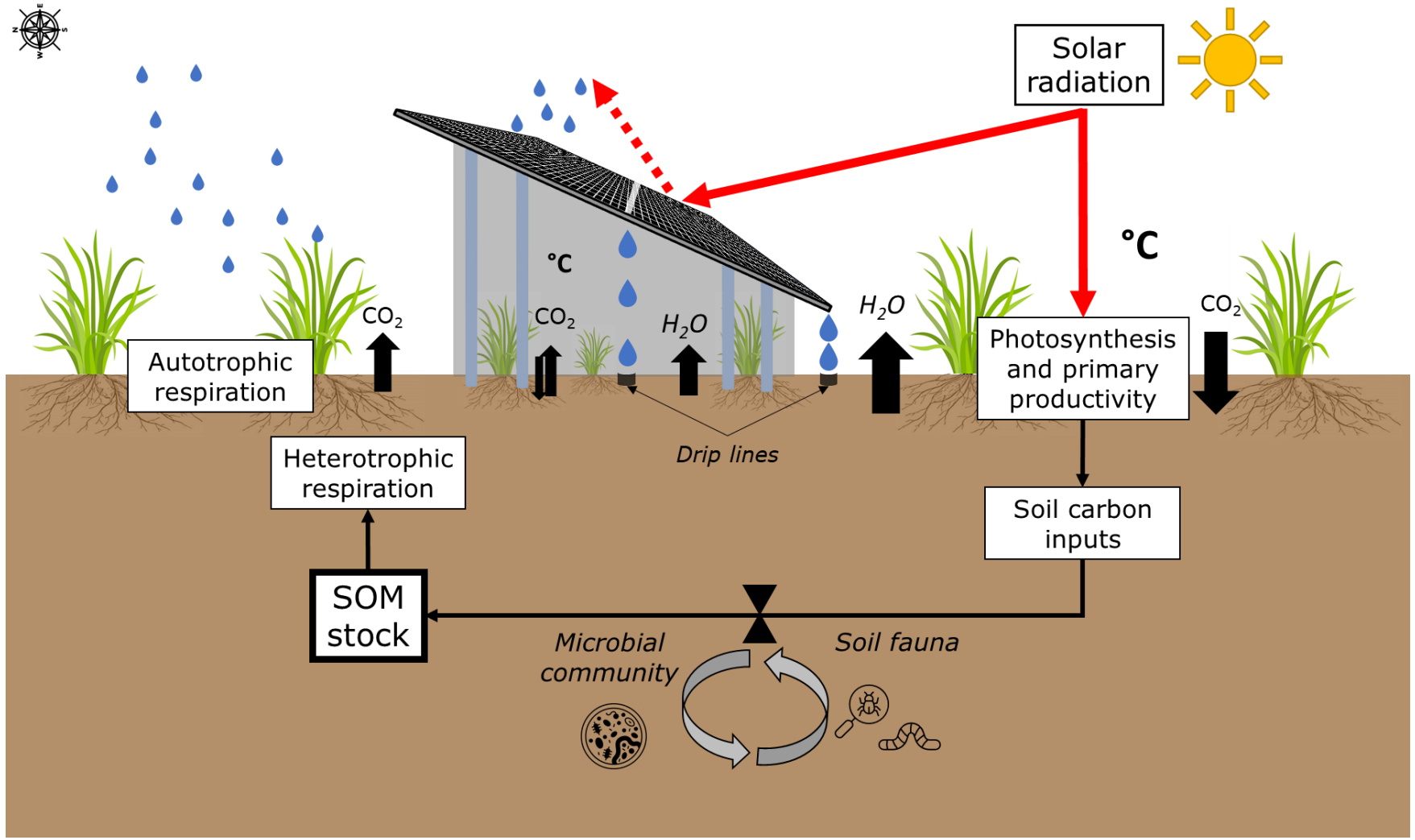
Context


Solar radiation
°C
°C
CO_2
CO_2
H_2O
H_2O
CO_2
Autotrophic respiration
Photosynthesis and primary productivity
Drip lines
Heterotrophic respiration
Soil carbon inputs
SOM stock
Microbial community
Soil fauna

April: Preparation

Placing plots, sensors & teabags

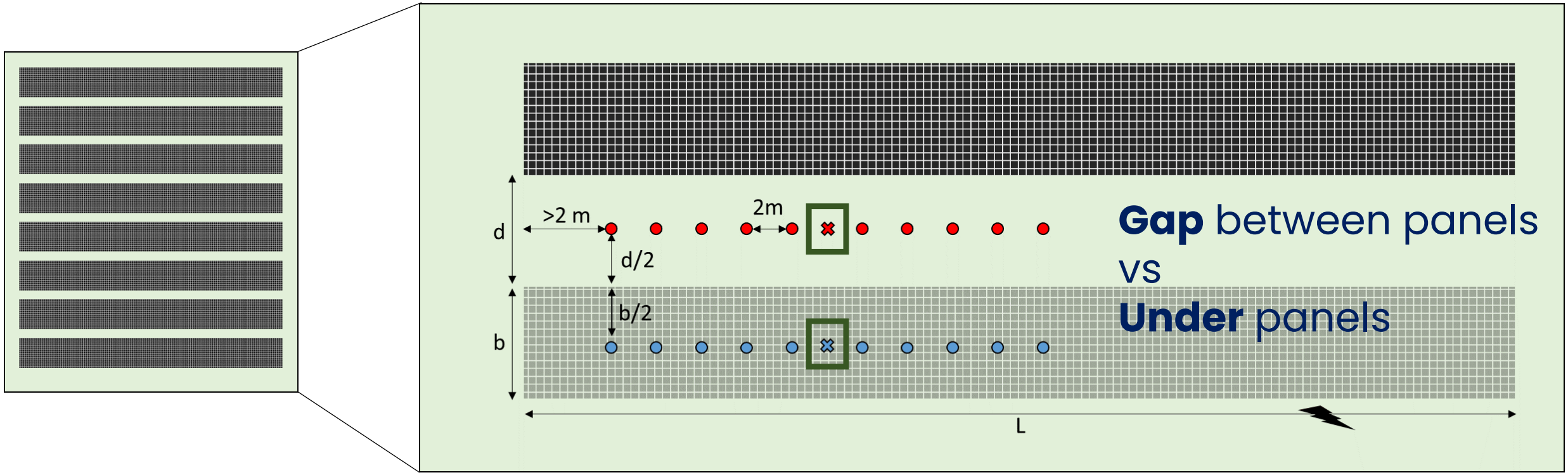
April : Preparation

Without and…

With sheep

Soil and vegetation sampling

May: Soil sampling
Carbon: HWC, SOM, total C & N
Microbial community & biomass: PLFA
Bulk density
pH, texture, mineral nitrogen.. (still to do)



Location soil core Vegetation plot Location sensor

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Soil sampling

May: Soil sampling
Carbon: HWC, SOM, total C & N
Microbial community & biomass: PLFA
Bulk density
pH, texture, mineral nitrogen.. (still to do)

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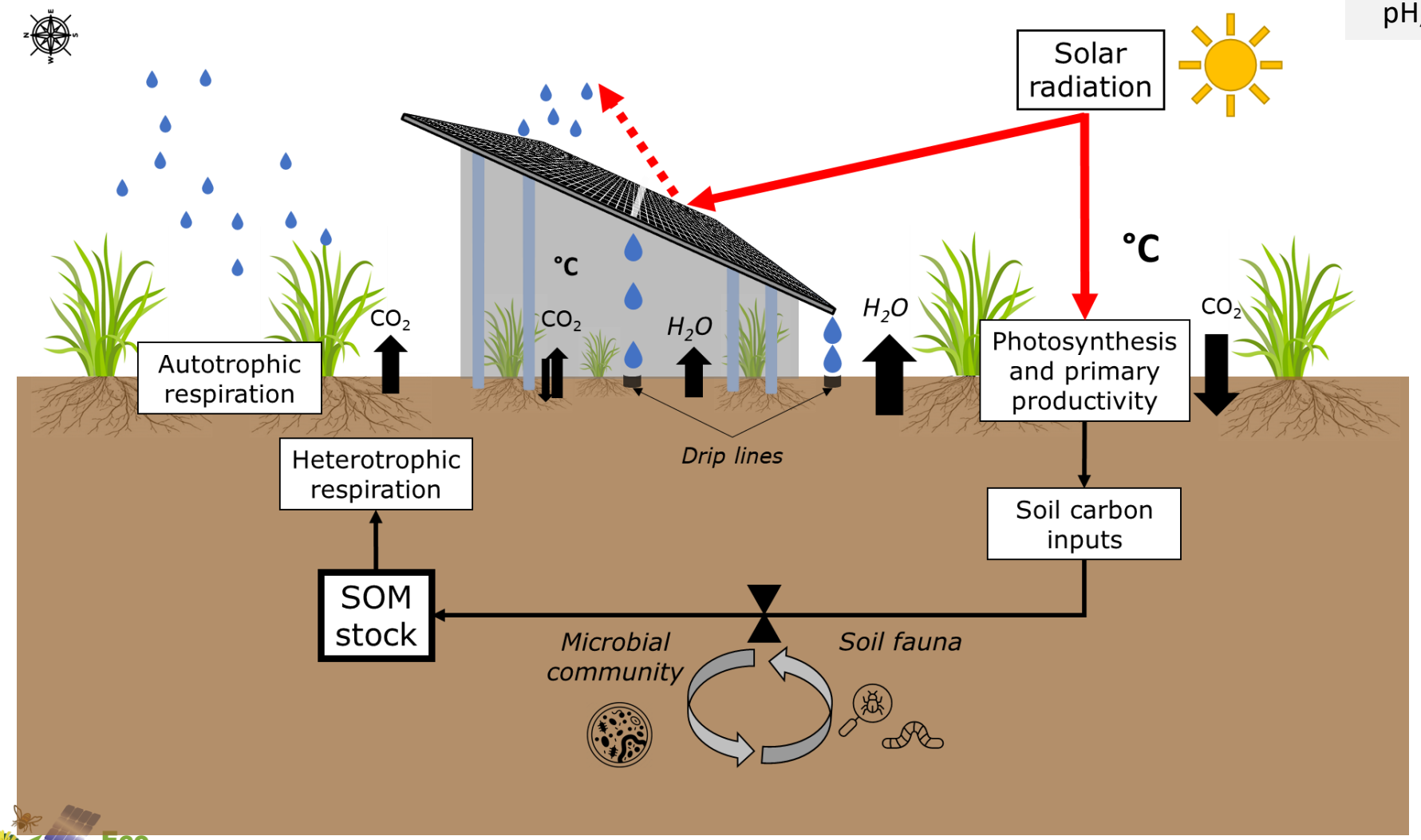
Carbon

May: Soil sampling
Carbon: HWC, SOM, total C & N
Microbial community & biomass: PLFA
Bulk density
pH, texture, mineral nitrogen.. (still to do)



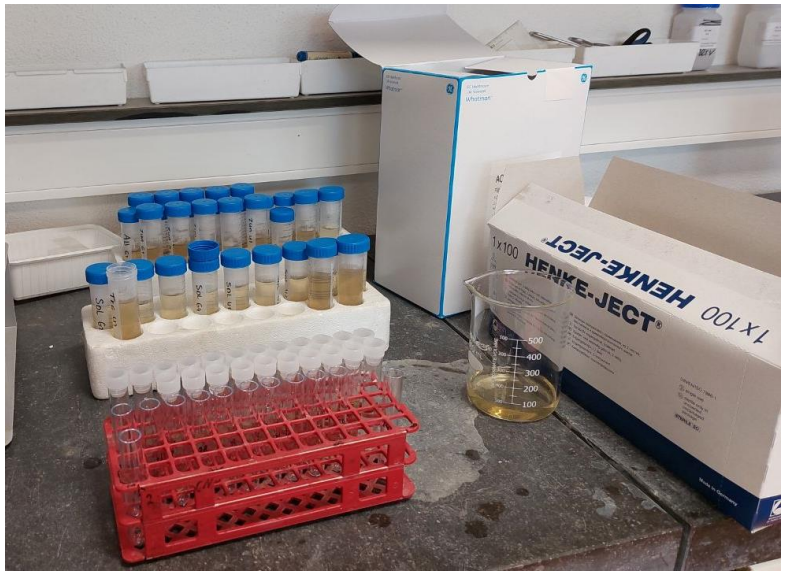
Carbon measure :

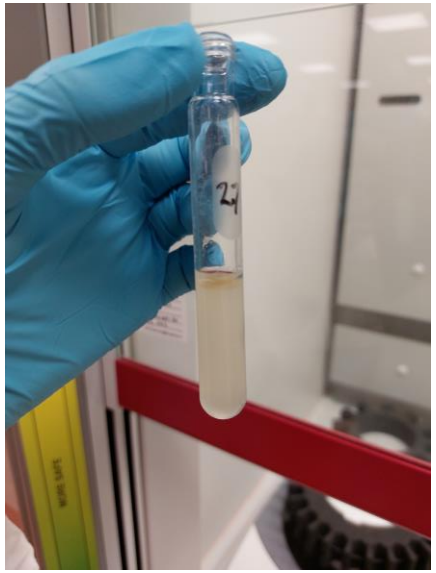
- Total Carbon
- Hot Water Extractable Carbon (HWC)
- Soil Organic Matter (SOM)

Soil sampling

May: Soil sampling
Carbon: HWC, SOM, total C & N
Microbial community & biomass: PLFA
Bulk density
pH, texture, mineral nitrogen.. (still to do)

Sieving and processing samples





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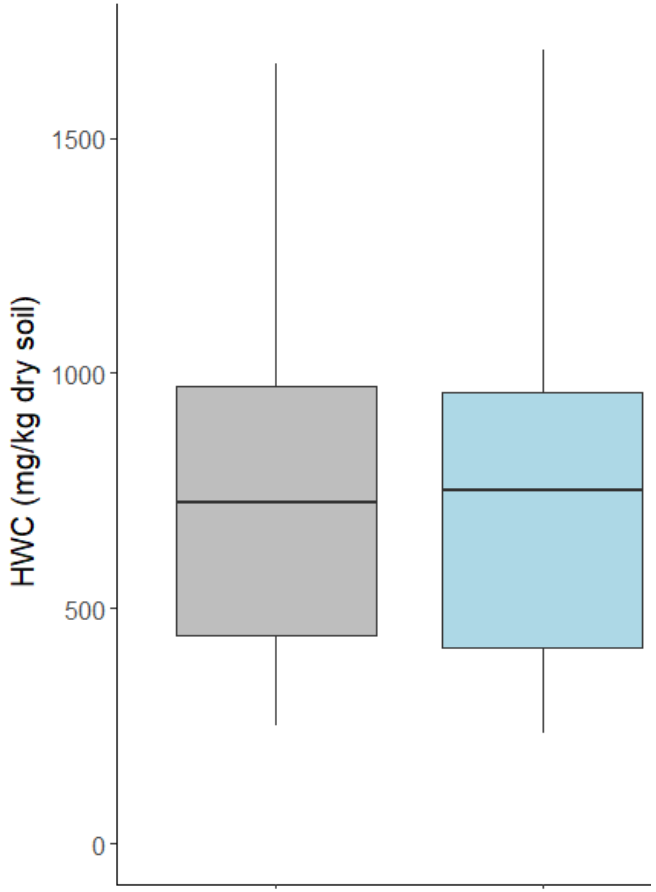
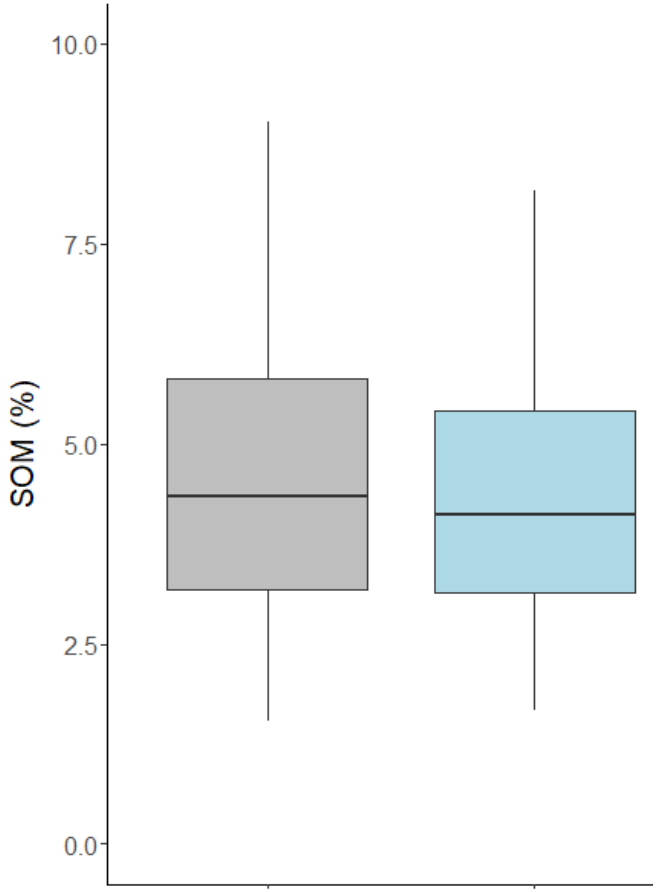
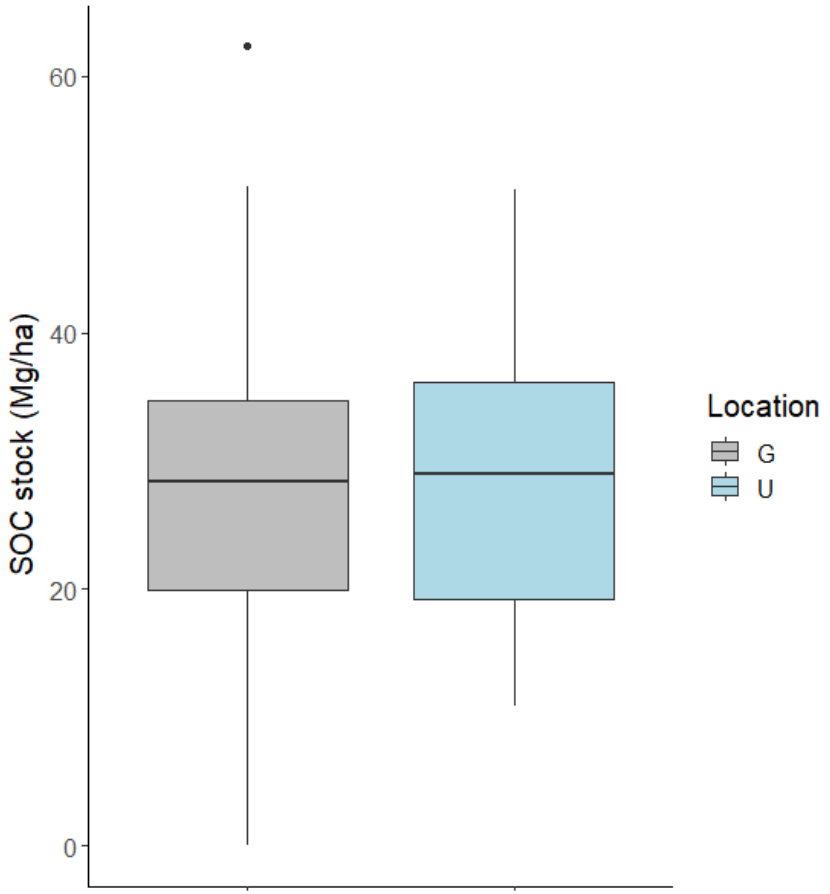
Results carbon







*SOM and SOC: results from 12 sites

G = Gap between Panels, **U** = Under panels

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Vegetation sampling

July:
Vegetation & teabag sampling

Aboveground biomass

Removing teabags

Reading sensors

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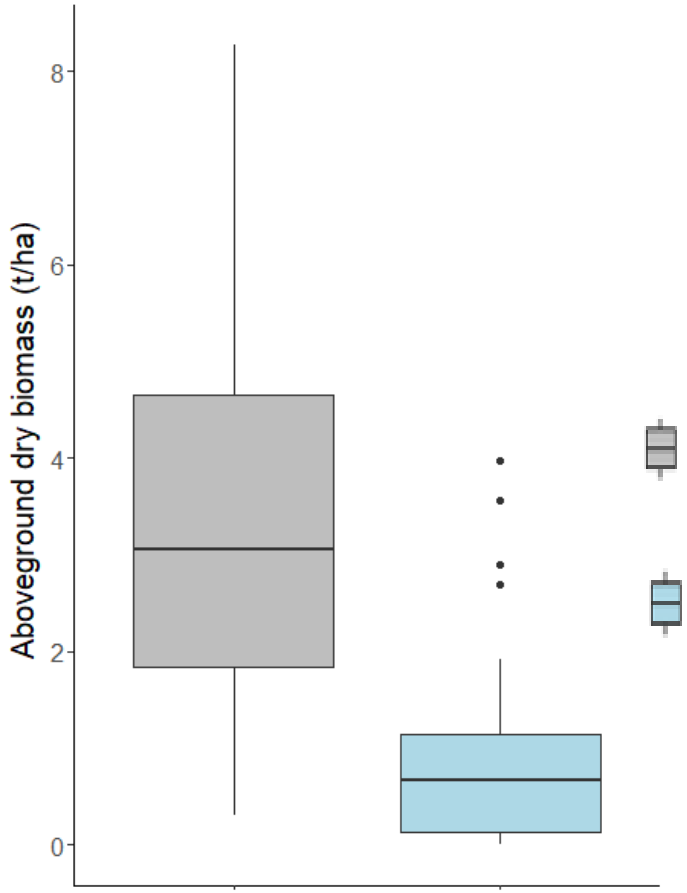
Results vegetation

July:
Vegetation & teabag sampling

Aboveground biomass

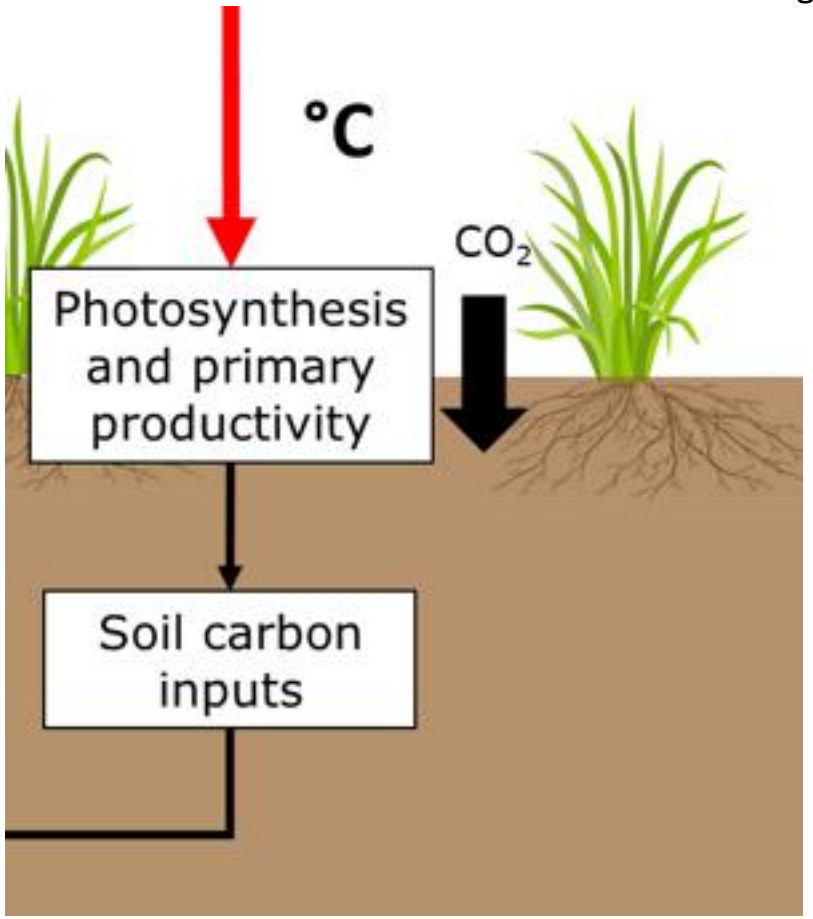
Removing teabags

Reading sensors



Gap between Panels

Under panels



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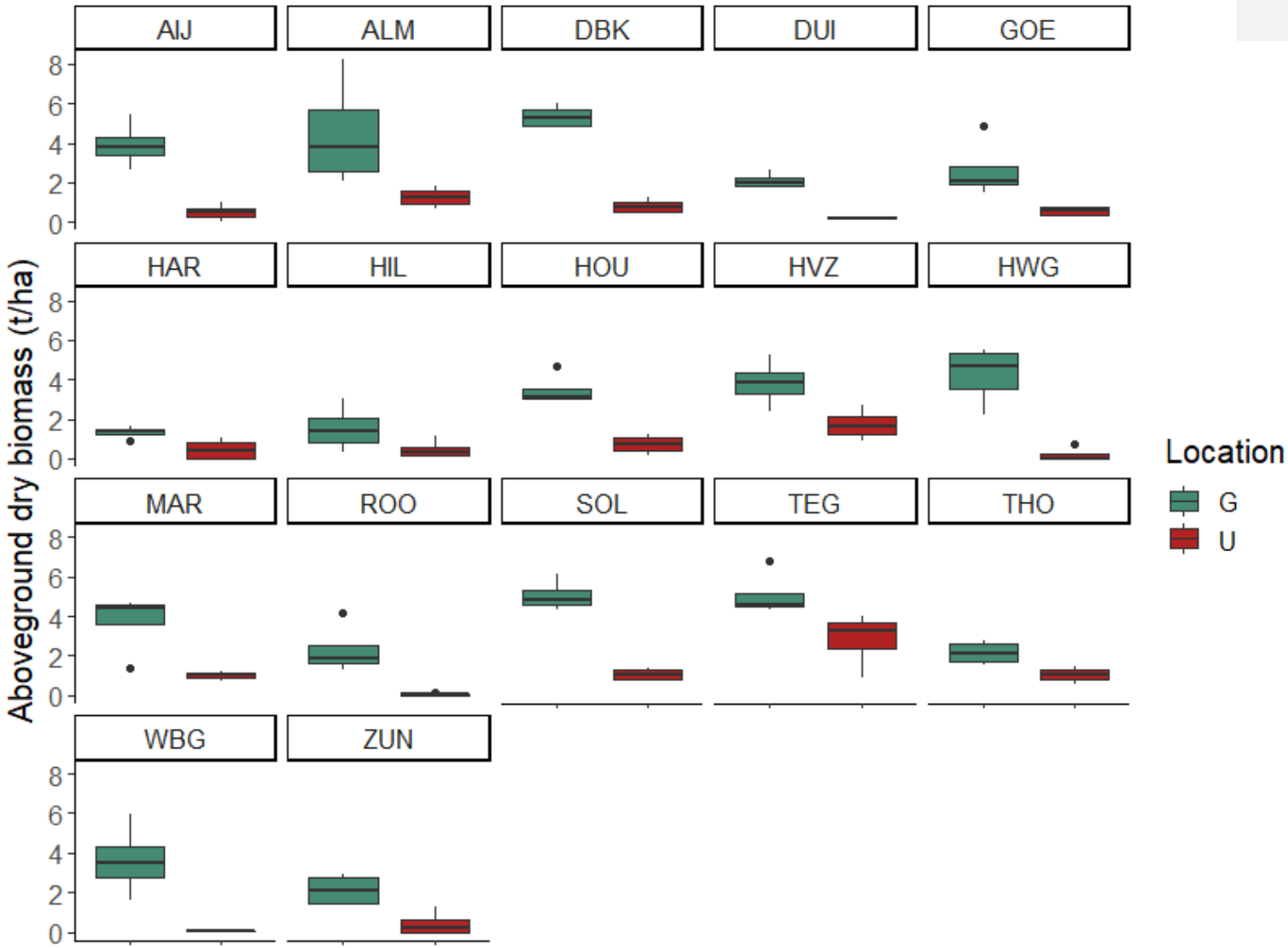
Results vegetation

July:
Vegetation & teabag sampling

Aboveground biomass

Removing teabags

Reading sensors



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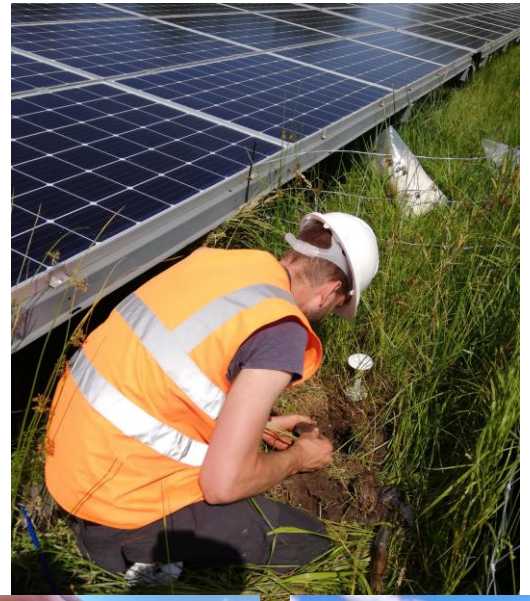
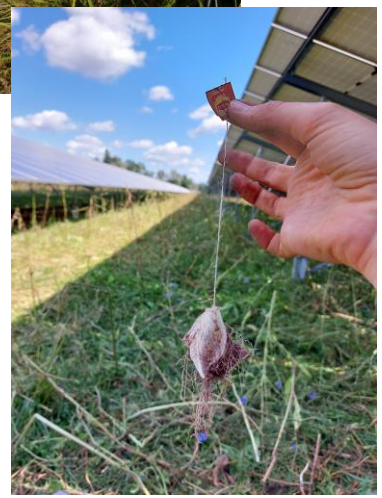
Vegetation sampling

July: Vegetation & teabag sampling
Aboveground biomass
Removing teabags
Reading sensors



Tea time



Reading sensors

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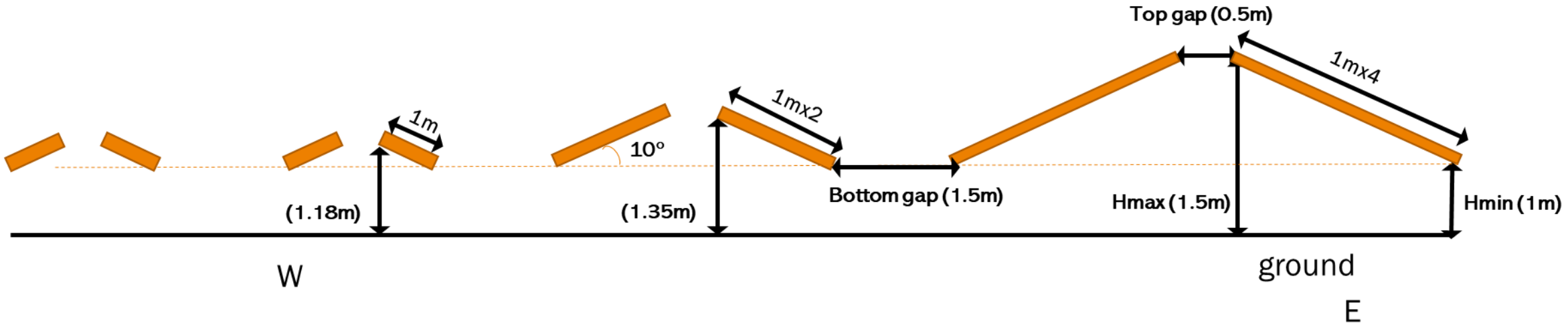
Outlook: Mock experiment campus

- **Setup:** east-west tables of different sizes to create a light gradient



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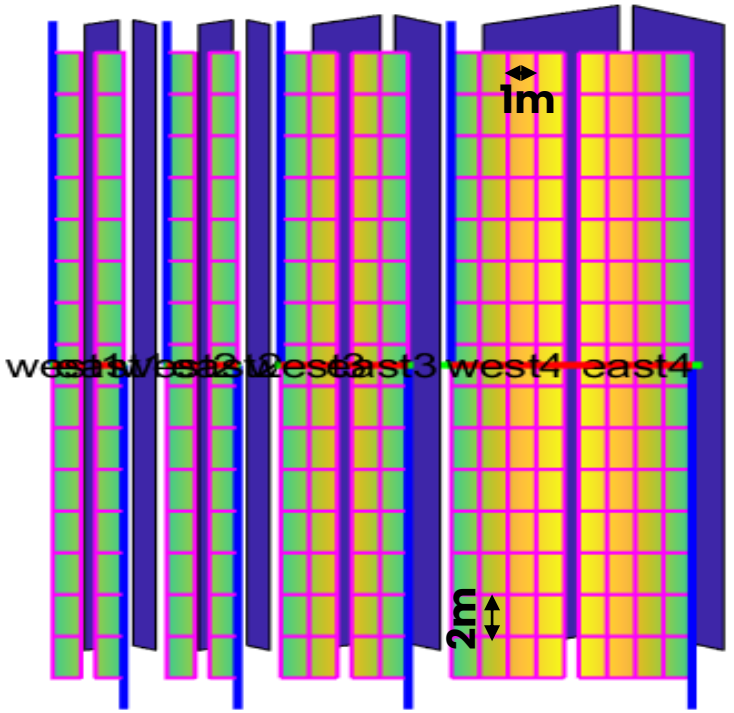
Outlook: Mock experiment campus

- **Main goals:** effect of light reduction on plant growth and soil CO_2 emissions <-> soil carbon balance

- **3 vegetation treatments:** no sowing, “standard” mixture, “good” mixture (to be determined)



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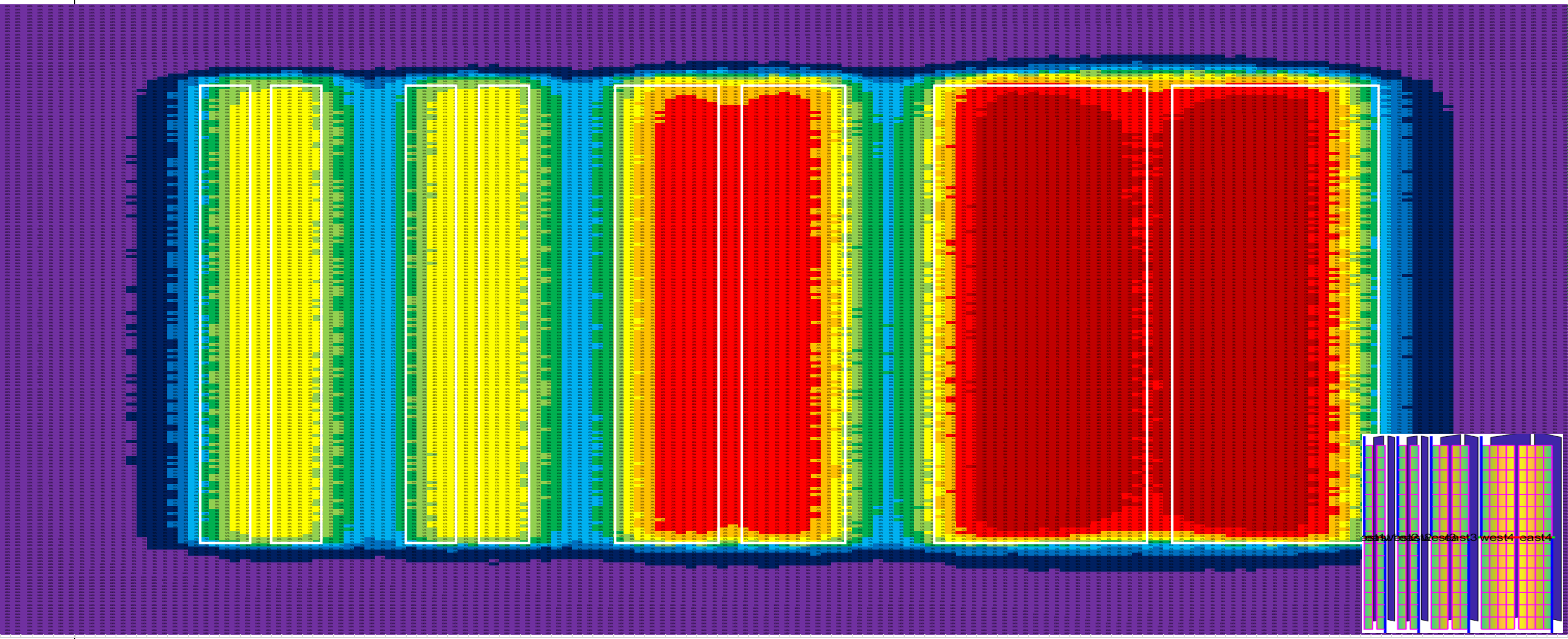
Modelled light gradient (from TNO)



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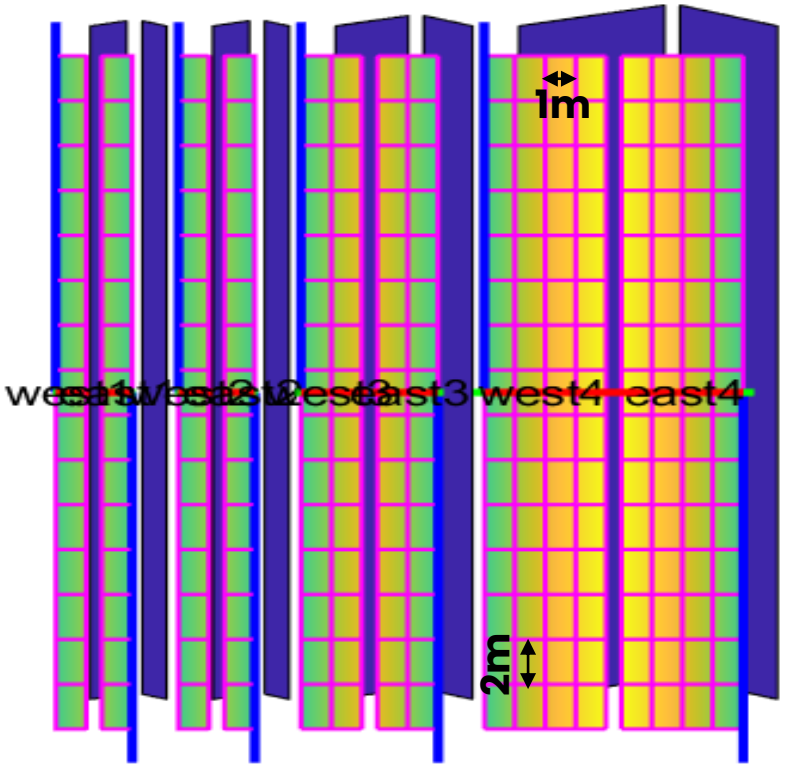
TNO innovation for life

Outlook: Mock experiment campus

- Some (potential) difficulties..
  - Maybe need a permit to build
  - (material) costs



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Outlook coming months

- Fieldwork October: second harvest
- Finish lab work samples 2022
- Other activities

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Thank you