

# Soil health in Swiss agroforestry systems

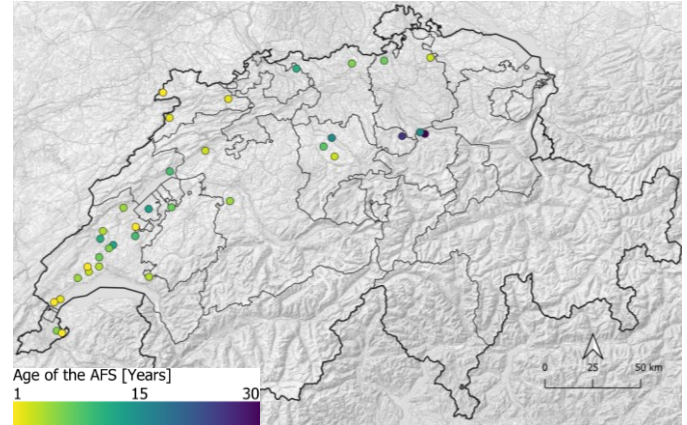
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## Introduction

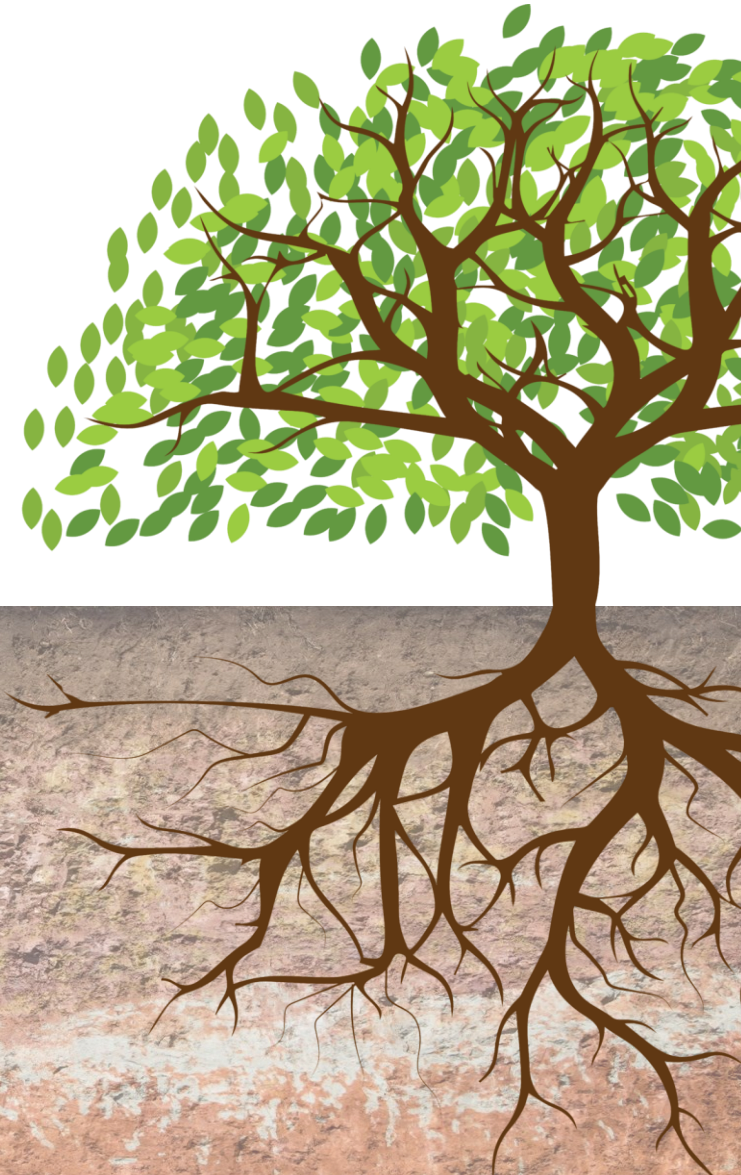
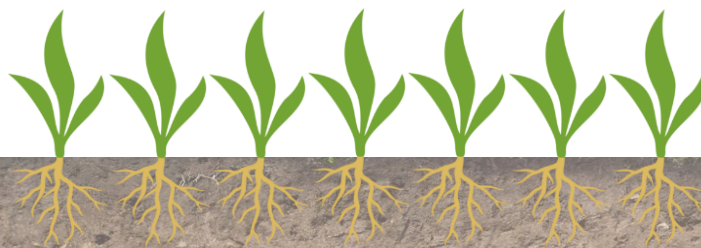
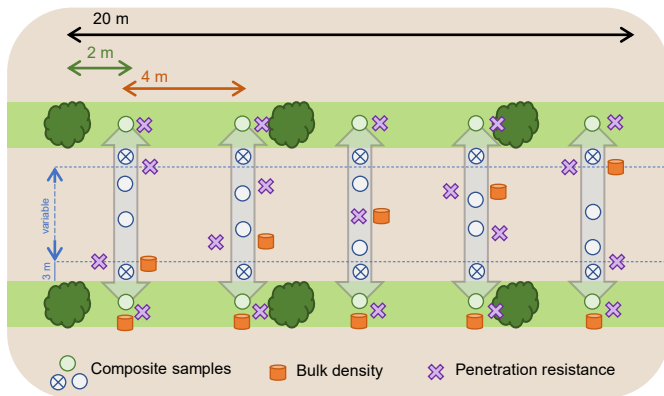
**Silvoarable alley intercropping agroforestry systems (ACS)** have started to be implemented with increasing frequency in recent years. ACS could help meet the challenges facing agriculture, such as biodiversity loss, climate change adaptation and mitigation. Benefits of ACS for **soil health** properties are well established. However, little is known on **how different ACS characteristics such as age or diversity** affect soil health in temperate regions. This study is conducted at various farms throughout Switzerland to shed light on how differences in ACS implementations and pedoclimatic conditions impact soil health – assessed as **biological**, **chemical** and **physical** soil health indicators. This may give us inferences on: at what (i) age, (ii) density and (iii) level of diversity an ACS can have an impact on soil properties.

## Agroforestry sites



**Figure 1:** Map of selected agroforestry fields. The age of the systems (trees) is indicated by a coloured gradient.

## Sampling design



## Assessed soil properties

### chemical

- > pH<sub>CaCl2</sub>
- > CEC
- > Inorg C (CaCo<sub>3</sub>)
- > P Olsen
- > Available K, Mg, Ca (AAEDTA-CO<sub>2</sub>)
- > C<sub>tot</sub>
- > N<sub>tot</sub>
- > TOC<sub>400</sub>

### physical

- > Texture
- > Bulk density
- > Penetration resistance

### biological

- > Microbial biomass (incl labile C and N)
- > Microbial respiration
- > Functional community (Biolog®)