

Long Term Experiment Platform: proposition for a global site network and experience coordination for the study of agronomical and environmental effects of biochar

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Rationale - Lack of long-term data and knowledge about soil organic carbon (SOC) stocks due to a lack of historical databases. Studies have shown that few experiments have lasted over 3 and focused on estimating SOC increase from biochar application. Additionally, few of these studies have measured biochar decay rate.

Purpose - The LTEP-BIOCHAR is community-driven resource dedicated to biochar and includes to date 22 long-term experiments from Europe, the Middle East, and Africa. The platform aims to list active field experiments, identify methodological gaps in current experiments, suggest new hypotheses, establish a minimum standard of analysis, create a network of expert researchers, support the design of coordinated experiments, and promote the platform at a wider international level.

Main Findings: all researchers adopted variable methods and protocols and that only a few specific measurements allow paired comparisons (e.g., soil pH prior to and after application, biochar rate).

Treatment: biochar (66.6%), biochar and compost (27.8%), and biochar and fertilizers (5.6%).

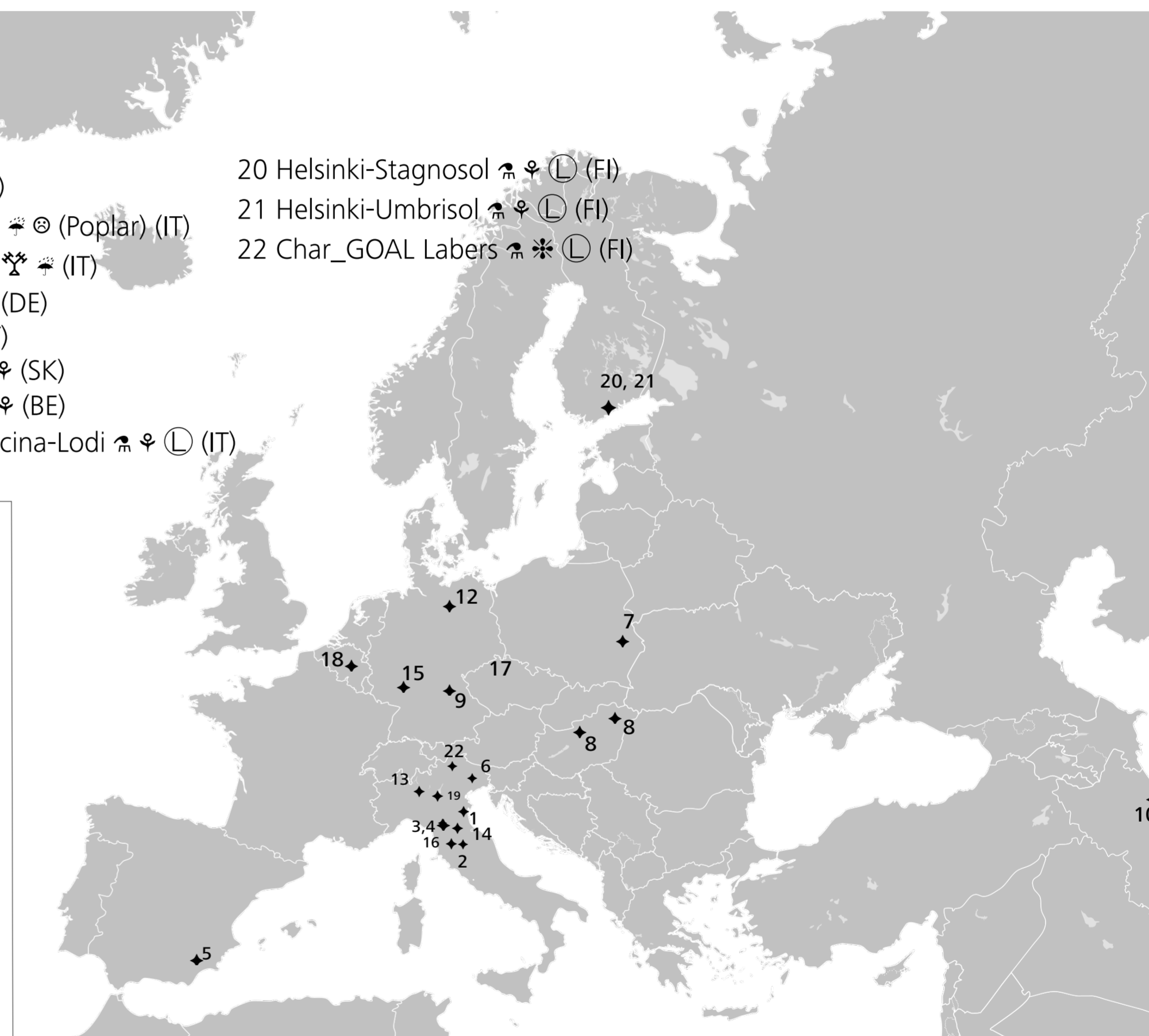
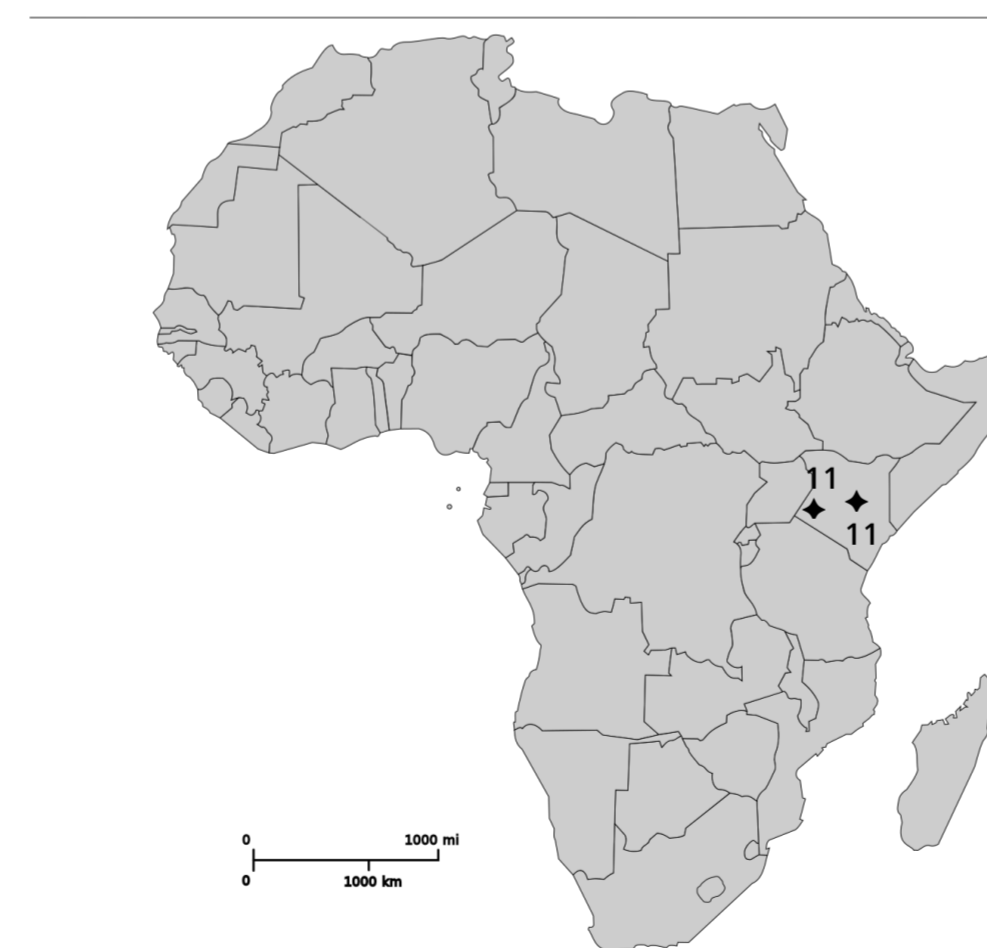
Cropping systems: 50% annual crops 22 % vineyards, and 28 % olive groves.

Main Purpose: effects of biochar on SOC content, 20% yield increase, and 10% on soil biology.

Future directions: expanding the platform to include more experiments, data, and experiences, both geographically (at a global scale) and in scope. Towards a “system-oriented perspective”: reserach community driven infrastructure to design experiments exploring interactions among the biochar type, biochar application rate, fertilization rate, and their impact on the ecosystem in which the experimental site is located.

1. Tebano 🌱🌳🌿 (IT)
2. Braccasca 🌱🌳🌿 (IT)
3. Poggio Torselli Olive 🌱🌳🌿 (IT)
4. Poggio Torselli Wine 🌱🌳🌿 (IT)
5. Jumilla 🌱🌳🌿 (ES)
6. Udine 🌱🌳🌿 (IT)
7. Bezek 🌿 (PL)
8. Órbottyán-Nyírlugos (HU)
9. Donndorf-Eckersdorf 🌿 (DE)
10. Mashhad 🌿 (IR)
11. Siaya-Nyabeda-Kibugu 🌿 (KE)
12. Gartow 🌿 (DE)
13. Prato Sesia 🌳🌿🌿 (Poplar) (IT)
14. Frescobaldi 🌱🌳🌿 (IT)
15. Groß-Gerau 🌿 (DE)
16. Cesa 🌱🌳🌿 (IT)
17. Dolna Malata 🌿 (SK)
18. Merelbeke 🌱🌿 (BE)
19. Azienda.Baroncina-Lodi 🌱🌿 (IT)

- 20 Helsinki-Stagnosol 🌱🌿 (FI)
- 21 Helsinki-Umbrisol 🌱🌿 (FI)
- 22 Char_GOAL Labers 🌱🌳🌿 (FI)



🌱 = ongoing experiment; 🌿 = annual crops; 🌳 = vineyard; 🌿 (circle) = duration is > 5 years; 🌳🌿 = agroforestry (olive groves if not specified otherwise); 🌱 = rainfed; 🌱 (diamond) = biochar still onsite; 🌳 (circle) = field/biochar not available anymore