



ONEforest



DEVELOPING A MULTI-CRITERIA DECISION SUPPORT SYSTEM FOR A COMMON FOREST MANAGEMENT TO STRENGTHEN FOREST RESILIENCE, HARMONIZE STAKEHOLDER INTERESTS AND ENSURE SUSTAINABLE WOOD FLOWS

Alessandro Sorze, Giulia Fredi, Andrea Dorigato and Alessandro Pegoretti

Introduction

Working group 'forest management, wood production and forest operations'

WP1 - Boreal forests
EULS, UTA, ULJ

WP2 - Alpine forests
WSL, ULJ, EULS,
CESEFOR, UNIBZ

WP3 Mediterranean
forests
CFTC, UJI, EULS,
CESEFOR

European
biogeographic
regions

WP4 - Continental
forests
UGOE, UJI, EULS, CFTC,
CESEFOR, WSL

WP5 Forest
management
and wood
supply
UFR, THRO,
WSL, UNITN,
UNIBZ, ULJ,
TUG, CTFC

WP9
Communication
and
dissemination
CESEFOR, all

WP10 Project
management
THRO, BayFOR

External
Advisory Board
FTP, EUSTAFOR,
IUFRO,
InnovaWood,
BTG, FTP,
Slovenian CC

Working group 'assessment of stakeholder demands and policy context'

WP6 Requirements of the stakeholders and societal demands
SLU, ULJ, THRO, WSL, TUM, UFR, TUR, ANW, CE

Working group 'multi-criteria decision support'

WP7 Modelling secure and sustainable wood flows through
a dynamic value chain model
THRO, SLU, UGOE, CE

WP 8 Multi-Criteria
Decision Support System
TUD, THRO, WSL, UGOE

WP 5 AIM: Top-soil cover (TSC) and Ground-soil cover (GSC) engineering and planting.

Requirements: biodegradable wood-based bio-composite, with water regulating properties.



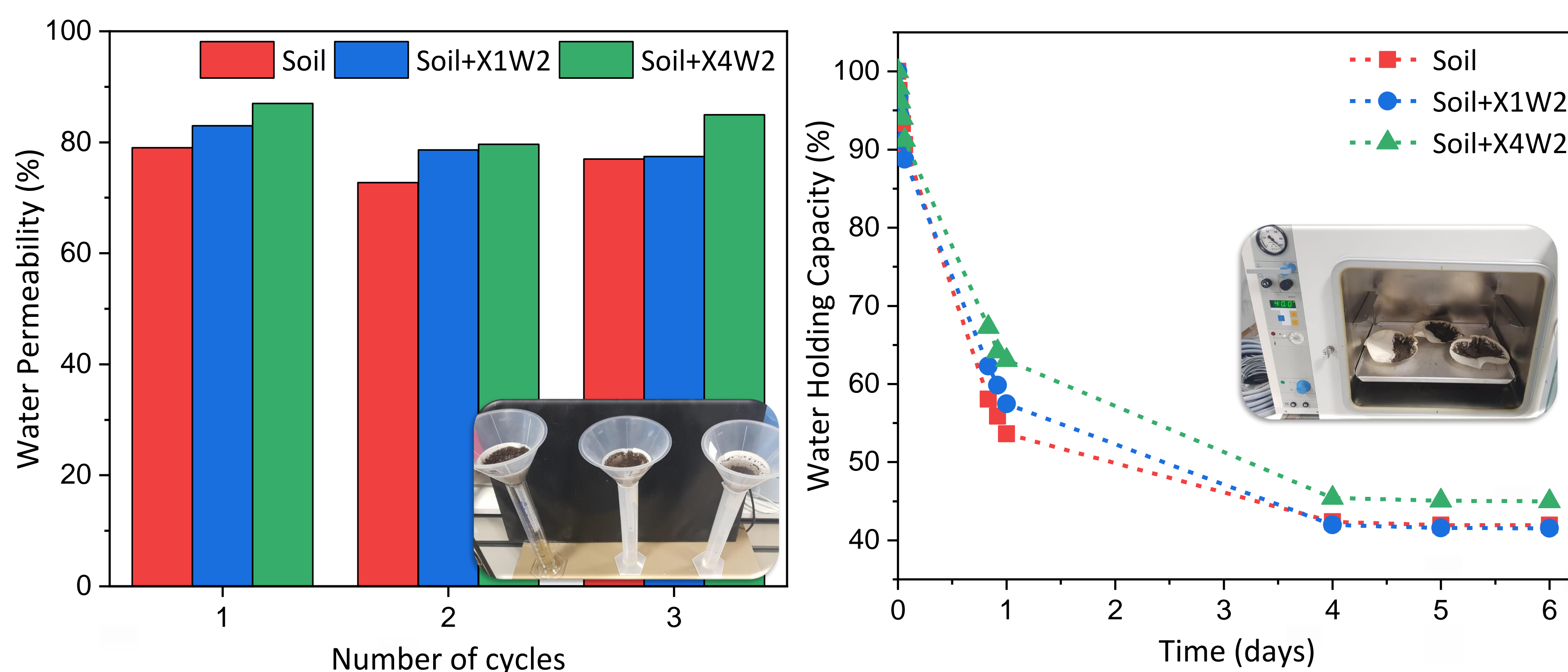
UNITN is developing:

- GSC based on biopolymer **Xanthan gum (X)** dissolved in water and mixed with **wood fibers (W)**.
- TSC based on xanthan gum, **crosslinked** with citric acid, and wood fibers



Results

Soil-water characteristics



Presence of hydrogel composites in the soil **enhances** the **water permeability** and at the same time increase the water holding capacity of the soil (**slower water evaporation rate**)

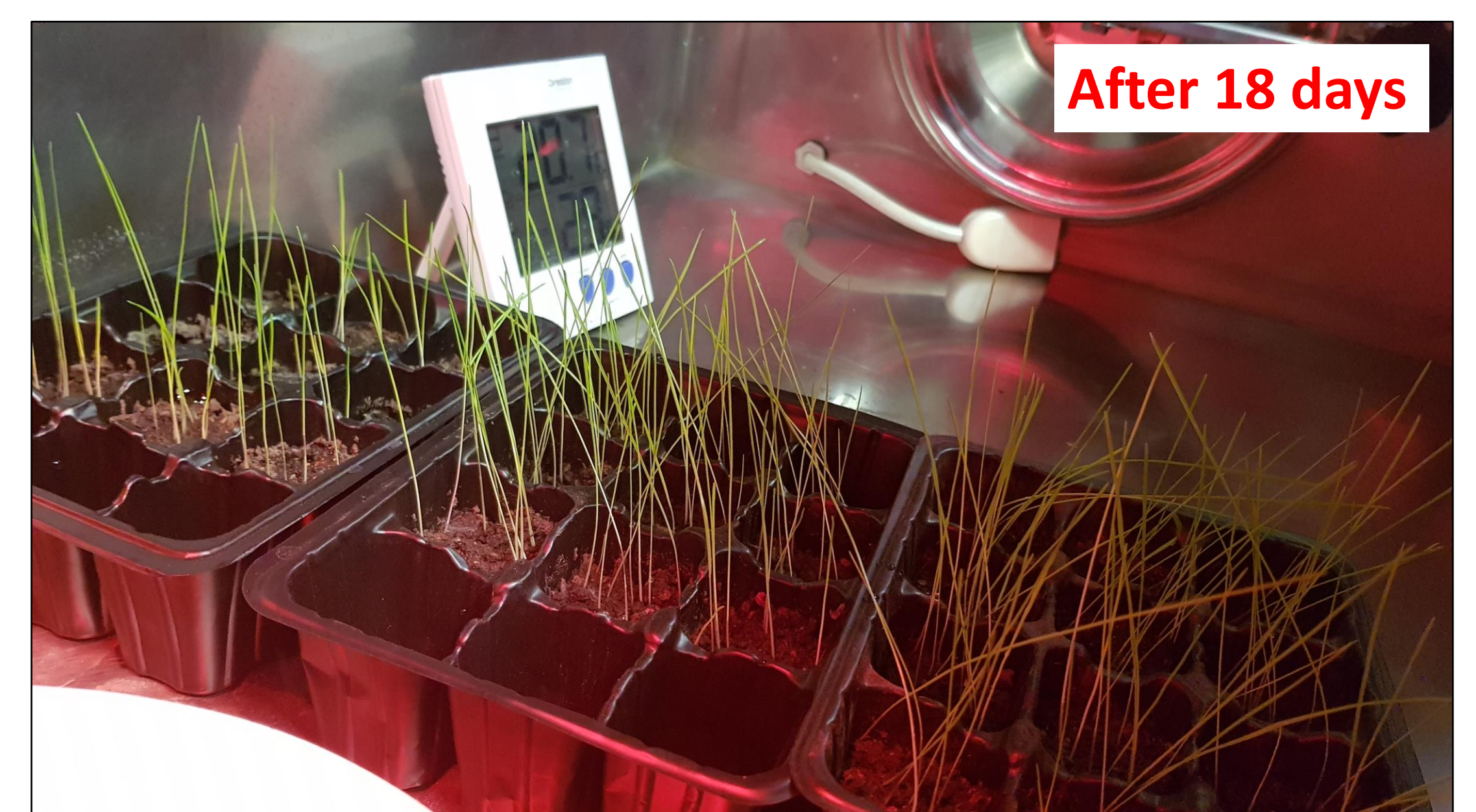
Conclusions

- Soil treated with the developed bio-composites showed **better soil-water characteristics** and mechanical consistency.
- Practical applications in lab showed an increase in the **resistance of the plants** in case of modified soils.

REFERENCES

Chang, I.; Im, J.; Prasadhi, A.K.; Cho, G-C., *Construction and Building Materials*, **2015**.
Fatehi, H.; Abtahi, S.M.; Hashemolhosseini, H.; Hejazi, S.M. *Construction and Building Materials*, **2018**.
V.B. Bueno, R. Bentini, L.H. Catalani, D.F. Petri. *Carbohydrate Polymers*. **2013**.

Practical applications



Planting trials in laboratory (soil + 8 hydrogel compositions)



Planting trials on field (Saxony-Anhalt, Germany, 28/03/2022)

www.oneforest.eu

//

info@oneforest.eu

//

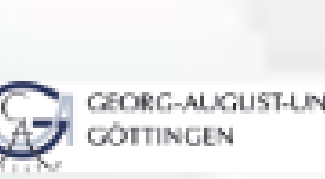
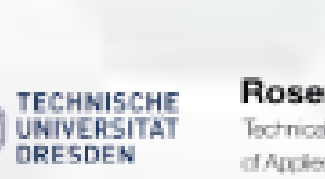
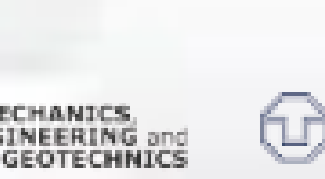
Twitter @Oneforest_H2020

//

LinkedIn @one-forest-h2020

Duration of the action: 36 months
Starting date: 1 June 2021
Grant amount: EUR 5.241.423,75
Funded under: H2020-EU 3.2.14

Funding Scheme:
RIA - Research and Innovation action
Project coordinator:
Rosenheim Technical University of Applied Sciences



This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement N°101000406.