

Growing energy crops on contaminated land for biofuels and soil remediation

GOLD - Bridging the gap between phytoremediation solutions on growing energy crops on contaminated lands and clean biofuel production, is a research and innovation action funded by the European Union Horizon 2020 Programme.

Since the last newsletter the project has completed another year of field trials, biomass conversions are underway, and consortium partners have been busy presenting at conferences around the world. This newsletter provides a summary of the main activities and where our project videos can be seen.

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1. Upcoming GOLD International Workshop – 13 March 2024, Athens

International workshop organised by GOLD project entitled “Bridging the gap between phytoremediation solutions on growing energy crops on contaminated lands and clean biofuel production”.

Join us for this free International workshop, online and in person, in which three projects funded by the European Commission: GOLD Project H2020, Phy2Climate Project, & CERESIS project, are coming together to present in Athens, Greece.

During this event you will hear how each of these projects is using phyto-remediation crops not only to clean soils, but also as a feedstock to produce clean biofuels, through innovative conversion processes.

Free registration here:

Online attendance [Webinar – Zoom](#)

In Person attendance [In Person – Eventbrite](#)



2. GOLD WP2 is getting underway with biomass conversion

The thermochemical pretreatment trials of the first selected contaminated biomass, sorghum, have been completed by TNO and RE-CORD.

TNO has carried out several series of TorWash screening lab-scale tests to set the best operational conditions in removing contaminants, e.g. heavy metals, from the biomass feedstocks. These optimized conditions were used at larger scale to produce about 6 kg of decontaminated TorWash sorghum solids, which were sent to TUM for entrained flow gasification tests.

RE-CORD has carried out lab-scale slow pyrolysis trials for the identification of the best operating conditions to be adopted in the pilot-scale campaigns. The latter

were carried out in the RE-CORD screw pyrolysis unit, SPYRO, in which both inert and oxidative slow pyrolysis were tested. The char from inert and oxidative slow pyrolysis showed similar properties and contaminant concentration, but the one obtained from the oxidative operation showed a greater surface area.

The pretreated products have been delivered to TUM for the gasification experimental campaign and to CERTh for characterization and investigation on the fate of contaminants.

Treatment and analysis of other biomass crops will follow in the next six months with the anticipated dissemination of results to start early summer 2024.



Figure 1: Decontaminated TorWash sorghum solids. Credit: TNO



Figure 2: Biochar from contaminated sorghum; “Simone Piazzini monitoring an experiment in the RE-CORD screw pyrolysis unit (SPYRO). Credit: Amr Sanad, RE-CORD R&D engineer

3. GOLD project activity videos

Keep up-to-date with all of GOLDs activities in the field with our video series:

Field activities 2023
<https://www.gold-h2020.eu/news/gold-field-trials-2023/>

Bologna site visit
<https://www.gold-h2020.eu/news/new-video-field-trials-in-bologna-italy/>

GOLD Harvesting 2022
<https://www.gold-h2020.eu/news/new-video-harvesting-2022/>

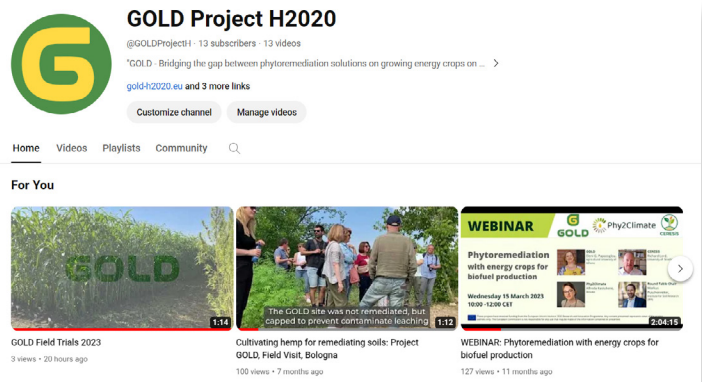


Figure 3: Project YouTube Channel

4. Past GOLD events

The GOLD consortium has been very active in presenting the projects research, in the last year the project has been presented at the following:

- Project Gold was one of the co-organisers of an international scientific seminar entitled “Eco-innovations for the public sector”, which was held on September 11th 2023 at the ECOTECH-COMPLEX Analytical and Programme Centre for Advanced Environmentally-Friendly Technologies in Lublin, Poland.
- An abstract on the topic of phytomanagement strategies was presented by project partners, INRAE, at the 8th colloquium of the ECOTOX Network, held in La Rochelle on November 13, 14 and 15th 2023, colloquium theme: Climate change and ecotoxicology or ecotoxicology + 2°C.
- On 11th Oct 2023, Eleni Papazoglou, WP1 leader, Agricultural University of Athens (AUA), presented project GOLD at the University of Iceland, as part of a

workshop organized under the frame of project BriZE (www.brize.gr), under the title: Interdisciplinary R&D cooperation between Iceland and Greece – ongoing projects and future potentials.

- On 6th to 10th September 2023, Felix Ofori-Agyemang presented at the 1st Joint ICOBTE-ICHMET International Conference in Wuppertal, Germany.
- UNIBO representatives presented GOLD at 6th Doctoral Colloquium BIOENERGY, Göttingen, Germany, 18-19 September 2023 and RemTech Expo, Ferrara, Italy 18-23 settembre 2023
- On 6 – 8 September, Heather Wray, TNO, gave a plenary presentation at the WASTES conference in Coimbra, Portugal. The title of the talk was “The Role of Biomass Wastes in the Energy and Materials Transition” and included information about GOLDs research.
- GOLD project and its partners played a big role at EUBCE 2023 from plenary chairs, to poster presentations, to workshop hosts and much more.



Figure 4-5-6-7: GOLD at EUBCE 2023

GOLD

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