

Conference-related project article:

Storing Water in Agriculture Soils Charcoal, Arbuscular Mycorrhizal (AM) Fungi and Hydrogels

Within the adaptation to Climate Change for agriculture due to less and more heavy rainfall the increase of the water retention capabilities of soils has been field of scientific institutions. As research of Ms. Prof. Dr. Kammann [1] of University Geisenheim and Mr. Prof. Dr. Glaser [2] of University Halle-Wittenberg shows, plant-based charcoal can help to enhance soils microbial life and the uptake of nutrients also fostering the storing of water in agricultural soils. Prof. Dr. Kray at Offenburg [3] will introduce charcoal for agriculture in a pioneering project titled "Landwirtschaft [Agriculture] 5.0" [4] with more than 30 partners combining it with agrophotovoltaics, biodiversity-mangement and solar-powered land-machines. The city of Stockholm has introduced charcoal in its urban tree-planting strategy [5] that showed good results, also for storing water. Charcoal can be produced by pyrolysis, for example in Germany Fraunhofer UMSICHT Institute [6] is working on that approach, also enterprises like Pryeg [7], a spin-off of Technical University of Bingen, or young Start-Up Carbonauten [8].



- [1] Prof. Dr. Kammann (english): <https://www.hs-geisenheim.de/...>
[2] Prof. Dr. Glaser (english): <https://www.landw.uni-halle.de/...>
[3] Prof. Dr. Kray (english): <https://www.hs-offenburg.de/...>
[4] Video (english): <https://twitter.com/KrayDaniel/status/1265630909547655170>
[5] Stockholm (english): <https://www.biochar-journal.org/en/ct/77>
[6] Fraunhofer UMSICHT (english): <https://www.umsicht-suro.fraunhofer.de/...>
[7] Pryeg (english): <https://www.pyreg.de/>
[8] Carbonauten: <https://www.carbonauten.com/homepage>

In the year 2015 Dr. Schüßler, head of enterprise Symplanta [1], received a IKU Innovation award [2] of German Ministry of Environment and German Industrial Federation (BDI) for introducing breeding Arbuscular Mycorrhizal Fungi and (re-)applying it to agriculture. By that microbial life and the uptake of nutrients like nitrogen and phosphorus in soils is enhanced as well as the retention of water. By that approach also the amount of artificial fertilizers can be reduced to a large extent. At BOKU Vienna [3] scientists have developed a bio-based and bio-degradable hydrogel [4] based on wood that has shown an ability to increase the water retention capabilities of agricultural soils by up to 40 percent. At present the technology will be prepared for a market uptake within a Universtiy Start-Up.

- [1] Symplanta (english only): <https://symplanta.com/>
[2] IKU award Video (choose automatic translation): <https://youtu.be/GGowoVvuUU8>
[3] BOKU Vienna (german only): <https://boku.ac.at/...>
[4] Video (english): <https://youtu.be/RQ2KHR20FnM>

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