Geophysical Research Abstracts
Vol. 20, EGU2018-12771, 2018
EGU General Assembly 2018

Biochar: NET-2-U. Biochar: Negative Emission Technologies are nice to the environment.

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The aim of this project was to communicate biochar research findings to a wider public through a participation model of communication. Making the public aware of nature-based negative emission technologies (NETs), specifically biochar addition to soil as a viable climate change combating strategy. In creating this interest so we wanted to engage the public in a horizontal dialogue on climate change and inspire attitude and behavioral changes. We specifically wanted to create a general discourse on the important role of soils and agriculture in combating climate change globally.

Moreover we wanted to offer the opportunity to citizens of participating in their own experiment, so at each event we encouraged the public to participate in our pot-scale Citizen Science endeavor.

In temperate Austria we have identified that biochar could be particularly useful in extreme drought years. We saw ten percent greater yields in biochar amended soils than in control soils in the very dry year of 2011. We set out to investigate if this increase in soil water holding capacity is a generic property of adding wood-based biochar to different soils across Austria. There is preliminary evidence that biochar can reduce water usage and increase resilience to extreme heat events whilst capturing significant quantities of carbon and improving nutrient and soil retention. We wanted to test this hypothesis in using a citizen science approach and provide scientific evidence of biochar's water use improving properties in a wide range of Austrian soils. We used the simple Δ13C-stable isotope method to assess plant water use efficiency (WUE). The beauty of this method is that it allowed us to assess WUE over the growing season and that it is incredibly simple to apply, in a citizen science context. Moreover it gave the citizen scientists the chance to run the experiment from seed to harvest and observe the effects of the biochar directly in their garden or on their balcony. But it also gave us the chance to collect useful data on the impact of biochar WUE across a range of soils. In doing so it provided an entry point for the citizen scientist's into the more technical world of stable isotopes and allowed them to expand their knowledge in this area. The action therefore functioned at two levels, the more basic level of growing and seeing the effects of biochar on the plants for the children, with easy to conduct experiments about soil, needs of plants etc., but also at a higher level for the parents. In these experiments we wanted to create an awareness of the vital role that soils can play in combating climate change.

Finally we collected, collated, discussed and interpreted the data bringing together all social actors and Citizen Scientists in a Biochar Day where we fostered a global outlook by making tangible links to on-going projects in developing countries.

The results and conclusions from this project will be presented.