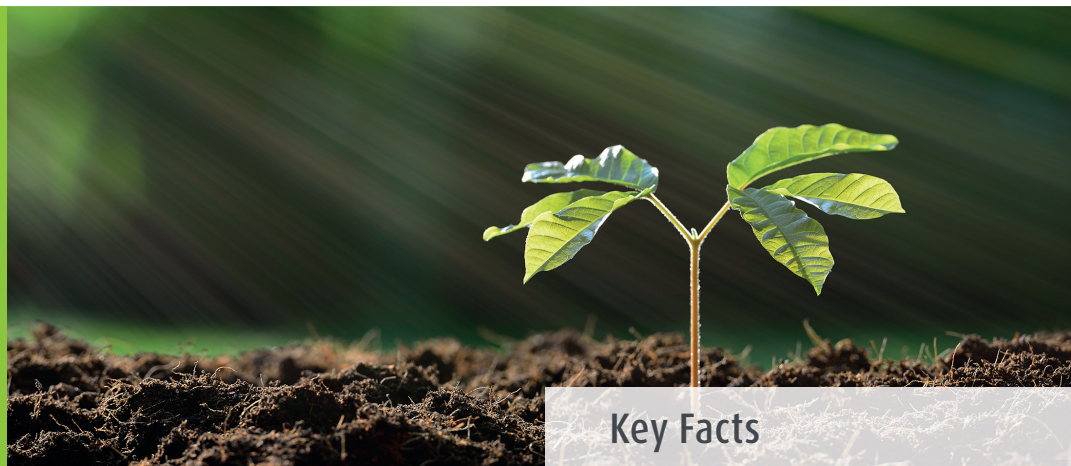


Carbon Sequestration Through Biochar



Key Facts

Location:

Various sites across Europe, incl. Germany, United Kingdom, Switzerland

Project Type:

Program

Standard:

ISO 14064 / Gold Standard

Program Start Date:

11.06.2019

Background

Biochar is a carbon-rich substance produced from wood chips, crop residues or other plant material in a process called pyrolysis. The technology for producing high-quality biochar has seen rapid development in recent years.

When applied to soils, biochar is highly resistant against degradation by microorganisms and abiotic factors. Biochar persists in soils for several hundred and even thousands of years, thereby creating a permanent sink for its carbon content that was originally removed from the atmosphere by the plants serving as raw materials. In addition, biochar has been shown to reduce emissions of other harmful gases from soils such as methane, nitrous oxide and ammonia.

Biochar offers numerous benefits for agricultural soils and farmers. It improves the retention of nutrients and water as well as humus build-up, thereby increasing soil fertility and resilience against droughts. It is also used as a feed additive to improve the well-being of cattle. Therefore, biochar can make important contributions to improving farm productivity and resilience against the adverse impacts of climate change.



The Program

In Europe as well as globally, only a few agricultural pioneers currently apply biochar. A wider application is impeded by cost- and information barriers. Against this background, First Climate initiated a program in 2018 to promote the production of biochar and its application to agricultural soils as a long-term sink for atmospheric carbon. Under the program, proceeds from the sale of certified carbon removals are used to lower the sales price of biochar while ensuring an adequate return for biochar producers.

The program also promotes innovative uses of biochar in non-agricultural contexts, always with long-term carbon storage. For urban forestry and gardening, biochar is an ideal co-substrate. In construction, biochar has shown promising results as a light-weight insulation material. Participating producers must conform with the quality standards of the European Biochar Certificate.

Technology

Biochar is produced by heating biomass to temperatures between 380 and 1'000 °C while restricting oxygen levels (pyrolysis). In this thermo-chemical treatment, the organic components of biomass are broken down and transformed into biochar and mix of gases comprising H₂, CO, CO₂ and hydrocarbons as well as water and heat.

The process heat requirements are met by combusting the pyrolysis gases. In addition, the pyrolysis process generates excess heat which is used for drying raw materials, for heating nearby buildings and / or for generating electricity.

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