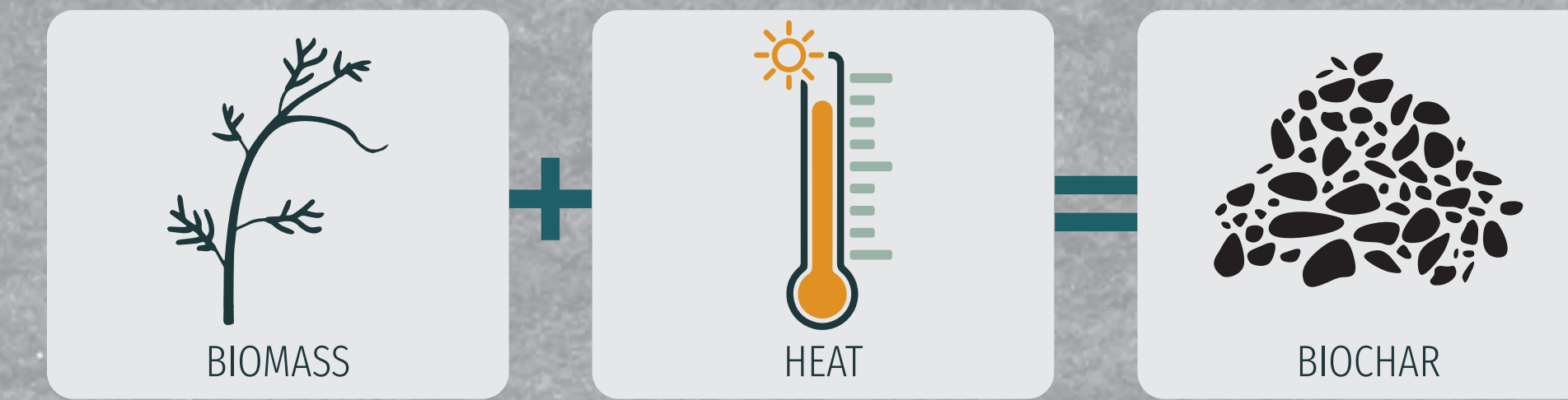




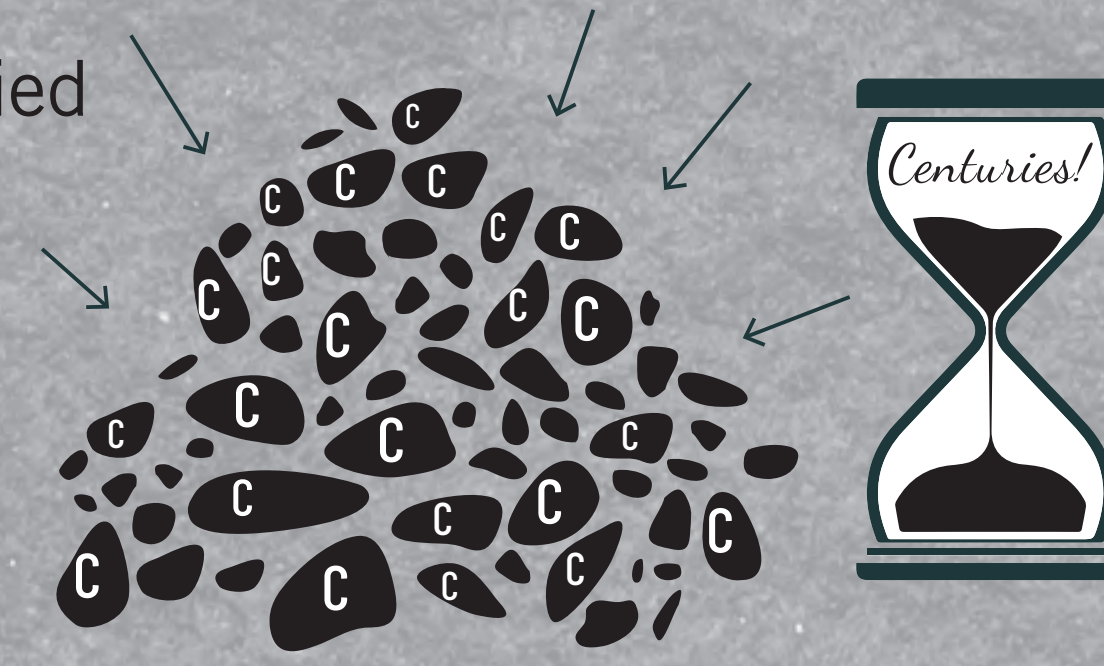
BIOCHAR: CLIMATE SUPERSTAR

WHAT IS BIOCHAR?

Biochar is the product of heating biomass (material from a biological source) at high temperatures in an oxygen-limited setting.

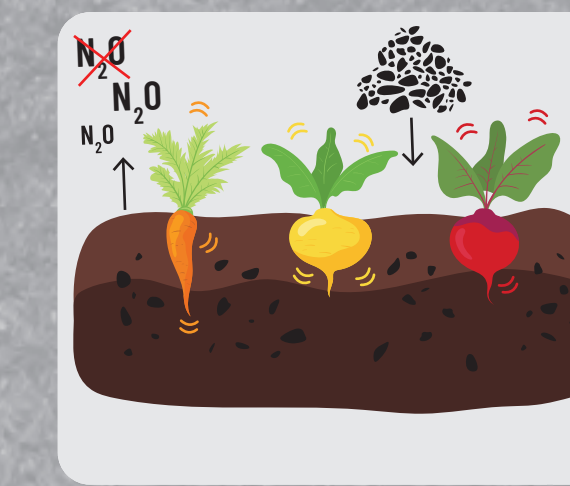


This carbon-densified material can store carbon out of the atmosphere for centuries, if not millennia.



BENEFITS OF BIOCHAR

In addition to climate benefits, biochar can provide important co-benefits:



When applied as a soil amendment, biochar can improve productivity and reduce nitrous oxide emissions.



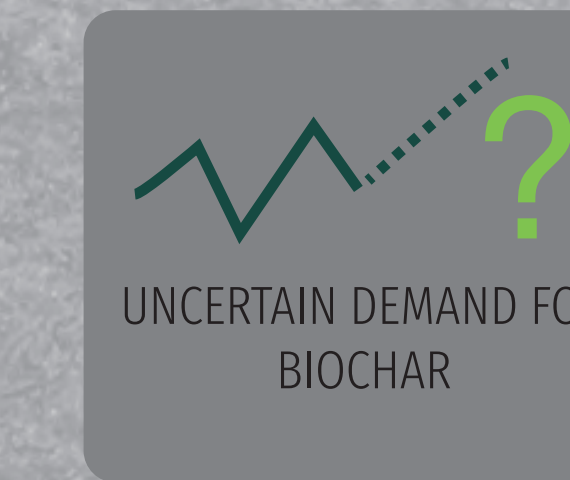
When used as a compost additive, biochar can reduce methane emissions, air pollutants, and odors from compost production.



When used as an additive for other agricultural, industrial, and commercial purposes, biochar can improve the performance of the materials to which it is added.

WHY CARBON CREDITS ARE NEEDED TO SUPPORT BIOCHAR

In the U.S. and Canada, the biochar market has struggled due to:



UNCERTAIN DEMAND FOR BIOCHAR



FEEDSTOCK SUPPLY INCONSISTENCY



HIGH SALES PRICES TO COVER HIGH PRODUCTION COSTS



Biochar is an uncommon use for biomass

Although over 200k tons of biochar are produced annually in the US and Canada, over 1 billion tons of waste and residual biomass is potentially available each year.

In the absence of carbon markets, biochar production would likely remain constrained. However, revenue from carbon credit sales will improve the viability of biochar production.

HOW DOES A BIOCHAR PROJECT EARN CARBON CREDITS UNDER THE CLIMATE ACTION RESERVE?

A biochar project must meet strict standards for acquisition, production, and application to ensure long-term carbon storage.

Acquisition

Biomass for biochar production may be sourced from feedstocks on the Eligible Biochar Feedstocks List, which include the following kinds of sources:

Waste & By-product Biomass

Non-merchantable waste, by-product, or residue biomass from forest, agricultural, and other resource management industries that otherwise would release carbon into the atmosphere via combustion or decomposition if it isn't diverted to make biochar.



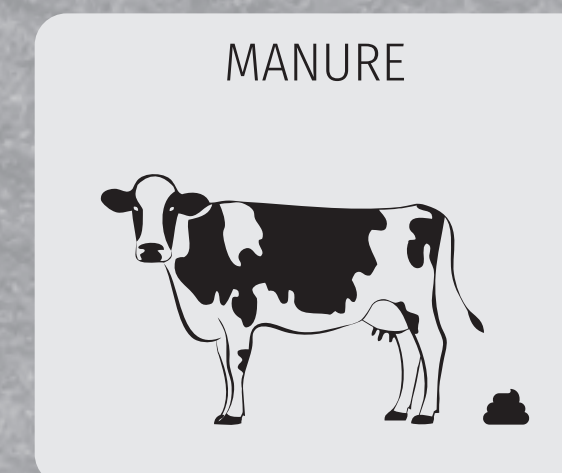
FORESTRY WASTE/ RESIDUE



AGRICULTURAL WASTE/ RESIDUE



WOOD PROCESSING RESIDUE



MANURE

Purpose-grown Biomass

Grown under certain limited conditions for the purpose of producing biochar. Biomass must be grown on marginal lands or reclaimed mining sites that for the past 3 years were not used for commodity crops, natural vegetation, or vegetation with a higher carbon-density, and harvested in ways that do not result in the loss of soil carbon.



GROWN ON MARGINAL LANDS



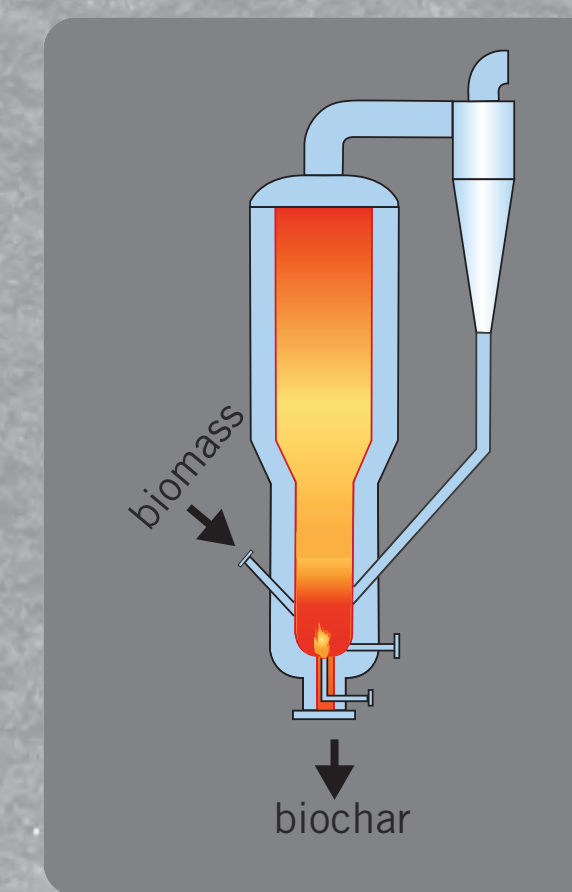
GROWN ON RECLAIMED MINING SITES



HARVESTED WITHOUT LOSS OF SOIL CARBON

Production

Biochar must meet rigorous standards for production and quality.

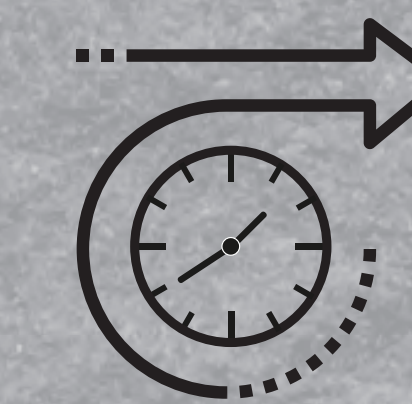


Biochar is produced via pyrolysis, gasification, or other thermochemical conversion processes.



Biochar meets quality standards for long-term carbon sequestration. Ongoing sampling and lab analysis of biochar are required to determine organic carbon content and molar ratio of hydrogen to organic carbon, which must be < 0.7.

Application



Biochar must be applied to a durable use to provide for long-term carbon sequestration. Eligible uses are provided in the Eligible Biochar End Uses List.

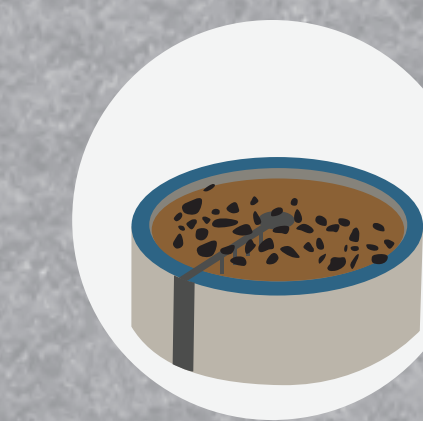
Examples of accepted biochar applications:



Agricultural, horticulture, home gardening, and/or forestry applications – eg soil amendment



Construction/engineered materials – eg additive for cement



Environmental remediation/stabilization and wastewater sanitation – eg erosion control



Permanent storage structures – eg landfill solidification/stabilization



Urban applications – eg green roofs



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