

GENERAL INFORMATION

Certificate: BL017
Issue date: 23 December 2022
Ithaka Institute Sulawesi project with University of Muhammadiyah Pare-Pare in Indonesia
of farmers: 5
of biochar activities: 9
of local verifiers: 1
Amount of biochar (DM): 2.98 tonnes
H/C org ratio: 0.26
C-content: 60.00%

EMISSIONS & C-SINK SUMMARY

Total GHG emissions: 0.20 t CO₂eq
Per tonne of biochar: 0.07 t CO₂eq
Per tonne of biochar: 0.02 t C

C-sink potential: 58.20% of DM

Gross sink (per tonne of biochar): 2.20 t CO₂eq
Net sink (per tonne of biochar): 2.13 t CO₂eq

Total net sink: 6.35 t CO₂eq
Total net sink (c100): 4.70 t CO₂eq

BIOMASS

Type of biomass: Corn cob and stalk
Estimated amount of biomass: 15 tonnes
Emissions due to ferlization: 0.00 t CO₂eq
Transportation of biomass to pyrolysis site: 0.00 t CO₂eq
Preparation of feedstock: 0.00 t CO₂eq
Emissions for drying of feedstock: 0.00 t CO₂eq
Feedstock storage emissions: 0.00 t CO₂eq
Total biomass related GHG emissions: 0.00 t CO₂eq

PYROLYSIS

Equipment: low tech (kon-tiki, trench, trough, TLUD)
Electricity consumption for entire pyrolysis plant: 0.00 t CO₂eq
LPG and other external fuel for reactor heating: 0.00 t CO₂eq
Carrier gas emissions: 0.00 t CO₂eq
CH₄ emissions: 89 t CO₂eq (30.00 kg CH₄ / t biochar)
Amount of compensated methane emissions: 100%
Total pyrolysis related GHG emissions: 0.00 t CO₂eq

POST-PYROLYSIS

Prep of BC-based fertilizer (milling, mixing) or feed: 0.00 t CO₂eq
Transport emissions from kiln to field: 0.00 t CO₂eq
Emissions from soil application of biochar: 0.00 t CO₂eq
Compensated CO₂eq from soil application: 0.00 t CO₂eq
Total post-pyrolysis GHG emissions: 0.00 t CO₂eq

Detailed data of the farmer biochar activities can be accessed via the Biochar Life portal.

SOCIAL IMPACT

The present certificate provides record of the social impact of engaging smallholder farmers and communities in the production and usage of biochar. A majority of the proceeds from the purchase of the present certificate is directly distributed to the farmer and local community personnel used to support the training of farmers, production of biochar and data gathering.

The prevention of open field burning has significant benefits to the health of the farmer and surrounding communities by the reduction of PM_{2.5} and other particulates released in the atmosphere.

NOTES AND COMMENTS

The production (i.e., making) and usage of the biochar occurred on or near the farmer sites. Therefore, minimal emissions occurred for preparation and storage of the biomass. There was minimal moving or transportation of the biomass or biochar. Additionally, a security margin of 3% of Carbon content was deducted to account for any minor emissions that may occur during the production process.

The carbon sink potential provides the percentage of a mass unit of biochar that, on a dry matter base, can be considered as a long-term (> 100 years) carbon sink. The C-sink potential is calculated using the Carbon content provided by the EBC database less any emissions and security margin. The total net sink is determined by adding up the total quantity of dry matter biochar applied to the soil for all the associated records of this certificate in tonnes. The total tonnes of biochar is multiplied by the C-sink potential.

The CH₄ emissions caused by the production in farm scale equipment (e.g., Kon-Tiki, TLUD, etc.) correspond to a global warming potential over 20 years (GWP₂₀). The GWP₂₀ of these CH₄ emissions was entirely compensated by preventing and cessation of open field burning of the crop waste by the farmers or other methods approved under the EBC standard. In the case of cessation of open field burning of crop waste, each farmer signed a declaration to stop crop waste burning, the signed document can be found in each production record.

Every kg of biochar produced and applied has been tracked and recorded. The data is independently reviewed and verified. Additionally, each record includes timestamps, geographical data, images of the production and usage process.

The biochar that is applied to soil or as animal feed which undergoes a slow biological degradation of 26% over the first 100 years. Therefore, the carbon fraction that is persistent after 100 years (C_{sink100}) has been calculated above.