



Climate-Smart Agronomy for Improved Soil Health and Biodiversity

'Sixth Open Session – Technical Seminar: Climate-smart Innovations as Game Changers for Cotton Production'

81st ICAC Plenary meeting in Mumbai, December 4th, 2023

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Content

1. About AbtF
2. Background of CSA
3. Changing focus
4. CSA practices and new findings
5. AbTF approach

About the Aid by Trade Foundation

The Aid by Trade Foundation (AbTF) is an **internationally recognized non-profit organization** for sustainable raw materials that makes a decisive and measurable contribution to nature protection and **to improving the living conditions of people and animals**. Under the credo to help people help themselves through trade it stands for an **innovative approach that focuses on activating market forces** instead of relying on charity. Its network includes partners along the global textile supply chains as well as governmental and non-governmental organizations.

<https://cottonmadeinafrica.org/>

<https://thegoodcashmerestandard.org/>

<https://regenerative-cotton.org/>



**COTTON
MADE IN
AFRICA**



**THE GOOD
CASHMERE
STANDARD**
AbTF



**REGENERATIVE
COTTON
STANDARD**

The Aid by Trade Foundation an umbrella organization for three sustainable fibre standards.



Background of Climate-Smart Agriculture (CSA)

Climate-smart agriculture (CSA) is an approach that helps guide actions to transform agri-food systems towards green and climate resilient practices.

CSA supports reaching internationally agreed goals such as the SDGs and the Paris Agreement.

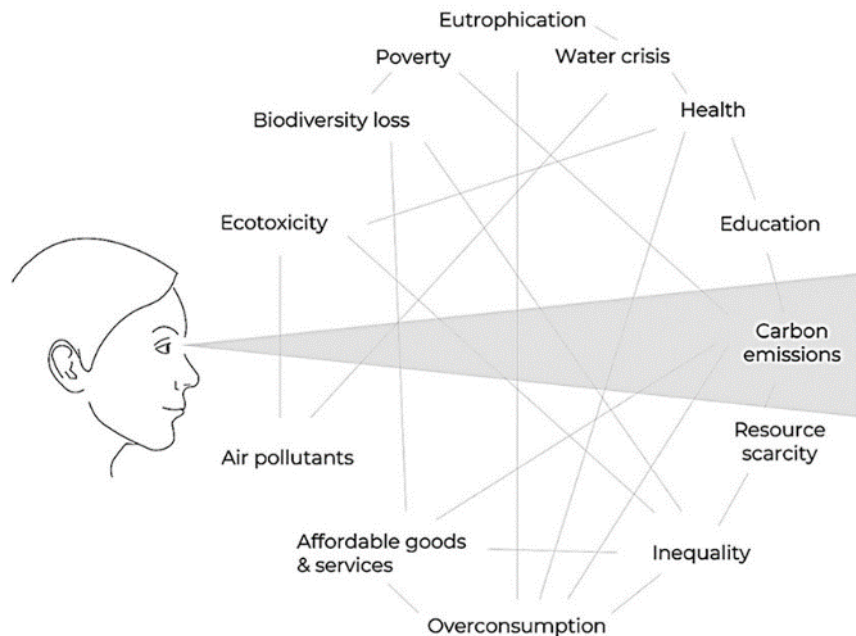
It aims to tackle three main objectives: sustainably **increasing agricultural productivity and incomes**; adapting and building **resilience to climate change**; and **reducing and/or removing greenhouse gas emissions**, where possible. [definition by FAO]



Picture: Aid by Trade Foundation

How CSA is understood

Carbon Tunnel Vision



Graphical presentation of Carbon Tunnel Vision; Photo by Jan Konietzko from <https://www.sei.org/perspectives/move-beyond-carbon-tunnel-vision/>

During the past decade the main benefit was seen in **adaption to climate change and in the potential for carbon sequestration**, which was mainly marketed as a **benefit for companies to offset their company or product emissions**.

A barrier in considering a scope beyond carbon was the **inhomogeneity of commonly agreed on metrics and high efforts of measurement** when it comes to each of the interrelated other impacts.

With upcoming clarity on requirements for companies, the „tunnel vision“ has started to become wider.

Changing focus

1. CSA has been a buzzword like sustainable or even regenerative agriculture, yet the intention is similar (with many individual interpretations by its users)
2. Recently, the requirements for companies selling in the EU on claiming for and reporting on carbon emission reductions and removals as well as other impacts have been sharpened
3. Scientific robustness of C removal modelling has been revised
4. Advances in remote sensing and AI enables easier monitoring of land use, biomass changes, soil carbon removal as well as changes in biodiversity

Requirements for companies regarding their climate and biodiversity impacts

ESG reporting rules with international impact

EU Corporate Sustainability Reporting Directive (“CSRD”) : “Big” EU companies and companies with significant EU revenues and an EU branch or subsidiary must disclose on *how sustainability-related factors impact their business and vice-versa* (double materiality).

Environmental disclosures covering each of the EU Taxonomy environmental objectives, which are climate change mitigation (including Scope 1, Scope 2 and Scope 3 greenhouse gas emissions), climate change adaptation, water and marine resources, resource use and circular economy, pollution, and biodiversity and ecosystems.

As part of these disclosures, companies will be required to disclose their plans to ensure that their **business models and strategies are compatible with the goal of limiting global warming to 1.5 °C** in line with the Paris Agreement and the EU’s own European Climate Law, which aims to achieve climate neutrality by 2050. Companies will also be required to disclose the due diligence processes they have implemented with regard to sustainability matters, including any **actions they have taken to prevent or mitigate any actual or potential adverse impacts** related to their own operations or value chain.

Voluntary initiatives becoming widely known are:

Science-Based Targets initiative (SBTi): Targeting Scope 3 supply chains with large focus in land use, especially deforestation

Science-based Targets for Nature (SBTN): guidance on impacts on Freshwater, Land, Biodiversity, Ocean, and Climate (SBTi)

Requirements for companies on climate and biodiversity impacts



Why is that relevant for you



-> The cotton traders will be more and more interested in the state of the land as well as in any improvement initiatives.

Climate- and biodiversity - smart agricultural practices

Measure	Adaptation/ removal	Biodiversity/ Soil Health	C efficiency	Cost
Agroforestry	AD/RE	+++	+++	+++
Living soil cover	AD/RE	+++	+	+++
Reduced/no-till	AD/RE	+(+)	+	+
Organic fertilization	AD/RE	+++	++	++
Biochar application	AD/RE	+(+)	+++	+
Addition of bacteria, mycorrhiza etc.	AD/RE	+++	++(+)	++(+)
Intercropping	RE	++	+	+

Source: adapted from Soil & More Impacts

+++ high; ++ medium; + low () depends

Relevant new scientific findings (1)

- **Soil organic carbon (SOC)** is not a stable C pool. Parts of SOC are fluctuating over time, or even more when climate extremes occur. This becomes relevant for Carbon projects with historically optimistic models on agricultural soil as a C storage.
- Therefore, **returning C in form of biologically activated charcoal** with a **high temperature and low-emission technology** becomes an interesting and relevant practice.



Charcoal made from corn cobs
Picture: CmiA

Relevant new scientific findings (2)



Fungal filaments in Biochar- and compost-enriched soil

Picture: CmiA

- **Mychorrhizal fungi have great potential for C removal**
- Management strategies steering towards more fungal activity, but also high functional diversity of fungi will lead to more stable carbon sources in soil, but also affect the structure of the soil food web up to ecosystem level (Hanula; Morrien, 2023).

The AbTF approach to climate-smart agriculture

From overview to detailed assessment up to project development

- 1) **Remote sensing:** CmiA, Geocledian, and Alliance Gineries Ltd. begin implementation for African Cotton
- 2) **In-field soil analysis:** CmiA partners are testing the infrared soil scanner device by AgroCares
- 3) **Soil Health:** simple/manual field soil assessments for CmiA & RCS partners
- 4) **Climate projects:** Development of guidelines for easier recognition of case-specific potential and cost-benefit-analysis with sustainable AG

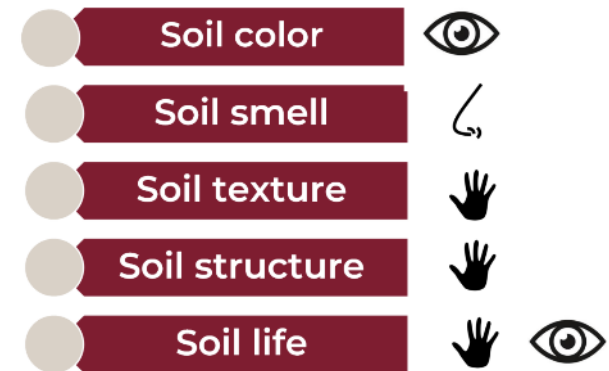


2) Soil Scanner. ©SoilCares

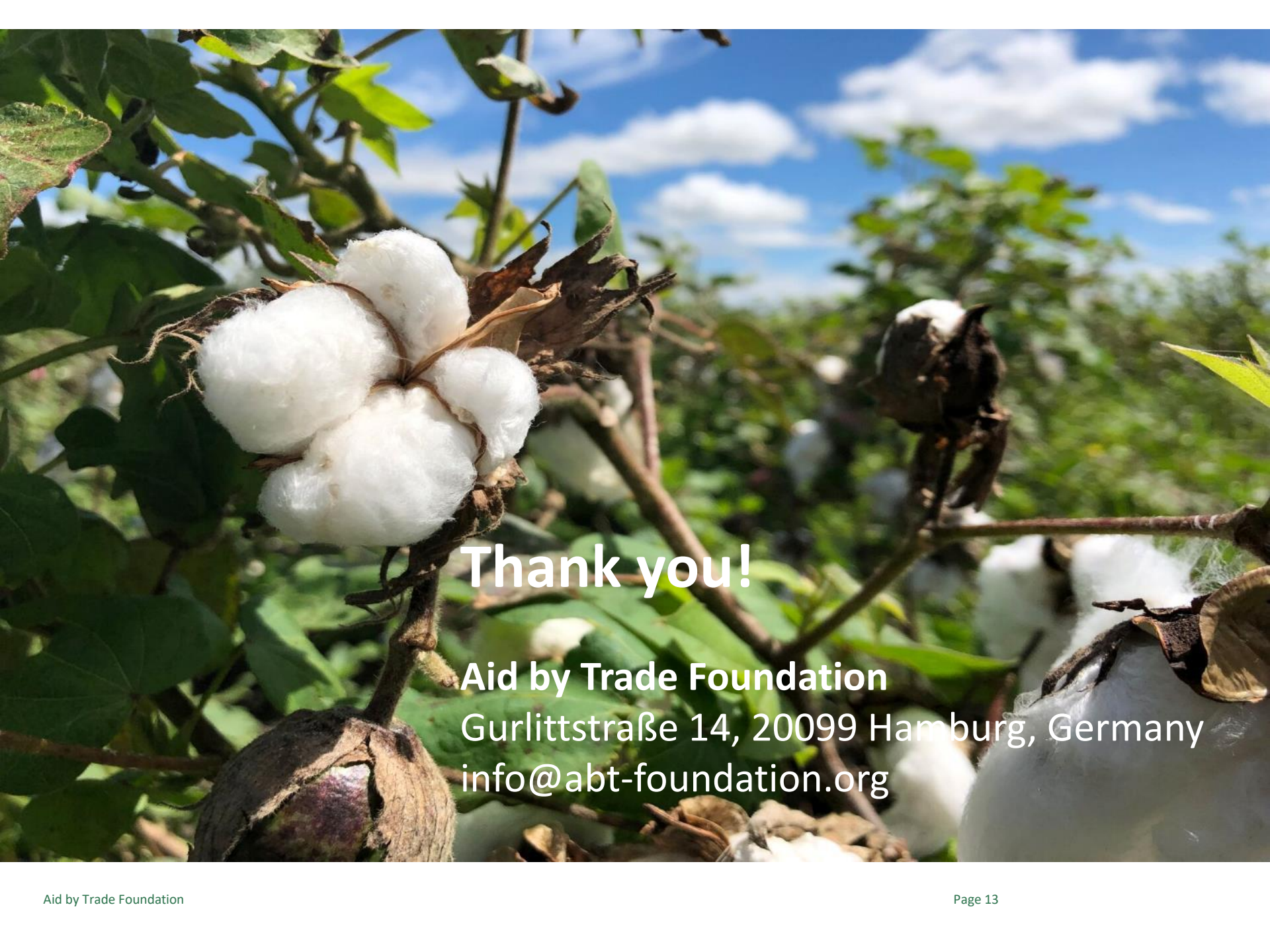


1) Satellite.
©ESA/ATG medialab

The five points of basic soil evaluation without a lab



3) Soil Assessment.
©Cotton made in Africa



Thank you!

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