USING METRICS TO DRIVE SUSTAINABILITY AND GROWTH: LESSONS FROM BONSUCRO AND THE SUGARCANE SECTOR

G20 BIOECONOMY TECHNICAL BRIEFING

Mike Ogg

Regional Head, Africa and the Middle East, Bonsucro

Mbombela Campus, University of Mpumalanga

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Sustainability

WHY METRICS MATTER

It promotes
Transparency
Trust
Trade

Science-based metrics

Alignment & Transparency
Speak a common language on productive & climate-smart agriculture

Performance & Impacts
Understand relative and absolute performance over time, pointing to potential positive and negative impacts

Prioritisation
Shows where to focus efforts and investment

Agility
Make better, faster, data-driven decisions

Sustainable growth

SUGARCANE AS A FORCE FOR GOOD

It's the **world's largest agricultural plant by biomass** – grown in over 100 countries.

Its production **supports an estimated 100 million people**.

Over 80% of the world's sugar comes from sugarcane.

It's versatile – used in the production of food, rum, sustainable aviation fuel, packaging, and clothing.

It's extremely efficient at converting solar energy into chemical energy.

…making sugarcane an extremely important crop for the bioeconomy

EVOLUTION OF THE BONSUCRO STANDARD

To collectively accelerate the sustainable production and uses of sugarcane

The Initiative
(2005-10)

The Certification Scheme
(2011-15)

The Global Sugarcane Platform
(2016 onwards)

A multi-stakeholder initiative drawn from all parts of the sugarcane sector with an interest in sustainability.

The **first ever metric-based Standard** for an agricultural feedstock.

Strategic aims **correspond to three pillars of sustainable development**.

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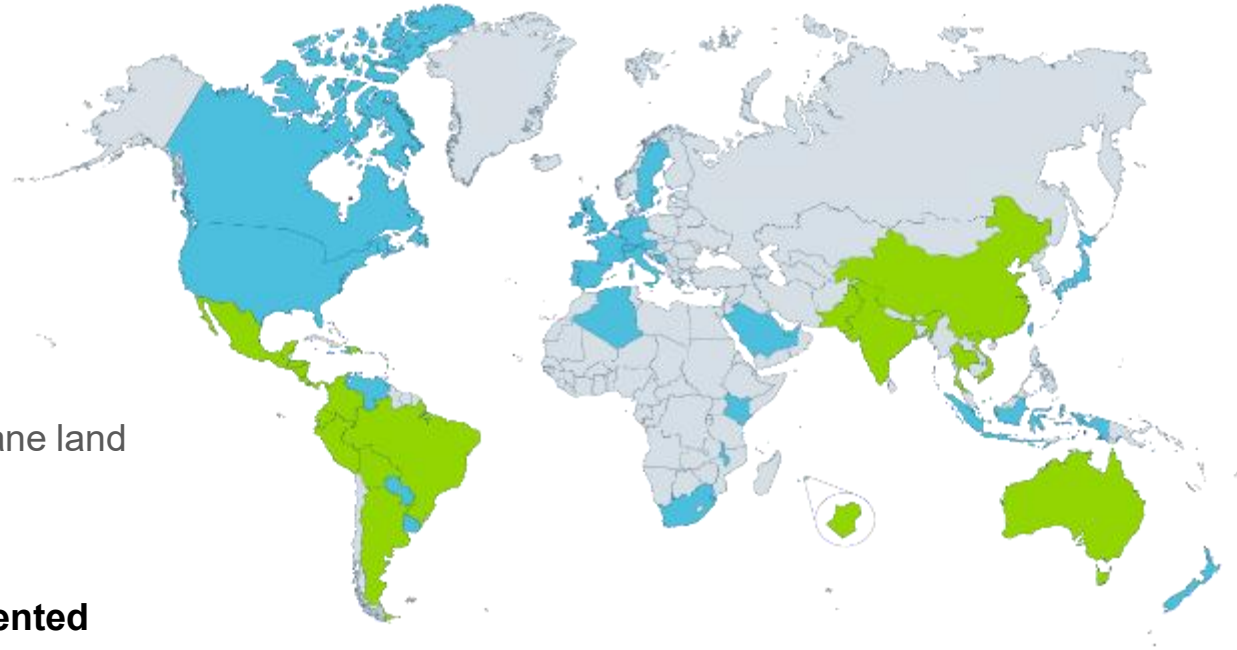
THE LEADING GLOBAL SUSTAINABILITY PLATFORM AND STANDARD FOR SUGARCANE

BON SUCRO
The global sugarcane platform

- 330+ members in 50+ countries
- 2.36 million hectares of certified sugarcane land
- 264 certified mills
- **Bonsucro certified sugarcane represented 7.8% of global production in 2022-23**



Countries with Bonsucro members
Countries with certified mills

Data from March 2024

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IMPROVE THE ENVIRONMENTAL IMPACT OF SUGARCANE

14%
lower GHG emissions by certified producers

41%
lower water use by farms*

CREATE VALUE IN THE SUPPLY CHAIN

26%
more land growing Bonsucro certified sugarcane

14,000+
Certified smallholder farmers (+600 in 2023)

11.2 million
tonnes of certified sugar produced – **up by 18%**

STRENGTHEN HUMAN RIGHTS AND DECENT WORK IN SUGARCANE CULTIVATION AND MILLING

21%
fewer accidents on certified farms and **17% fewer in certified mills***

120,000
farm workers received personal protective equipment

**after 5 years of Bonsucro certification*

USING THE BONSUCRO CALCULATOR

300 data points in the Bonsucro calculator used to generate:

50+
input metrics

e.g., total water applied, rainfall, working hours, wages, energy-use in mill, sugar recovery rates

13
output metrics

e.g., yield (t/ha), water-use efficiency, GHG emissions per tonne of product, % area free from conversion of natural ecosystems

Each output metric has a threshold, which needs to be met to be certified.

Data organised into 5 principles and relevant criterion:

- Principle 1: Assess and manage risks
- Principle 2: Respect for human rights
- Principle 3: Manage operational efficiencies
- Principle 4: Actively manage biodiversity
- Principle 5: Continuously improve

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DEVELOPMENT AND EVOLUTION OF METRICS

v4

$$WP = (kg(sugarcane)/ha/mm$$

Measure was **≥ 90**

- Measure of all irrigation water applied.
- Did not consider local growing conditions and rainfall.

v5.1

$$WP = (kg(sugarcane)/ha/mm$$

Measure was **≥ 66 + 0.05 Rainfall**

- Measurement refined to assess total water including vinasse, wastewater, etc.

v5.2

$$WPo \text{ and } Wpa = (CY * 1000) / Irr$$

Latest measure is **WPa ≥ WPo**

- Used SASRI's MyCanesim model and made it internationally applicable.

BONSUCRO PRODUCTION STANDARD

HOW DOES BONSUCRO MEASURE IMPACT AND DRIVE CLIMATE ACTION?

Aligned with

Bonsucro Standards

- Required to develop a climate mitigation and adaptation plan
- Contains thresholds on GHG emissions.

Bonsucro Calculator

- GHG emissions
- Soil carbon content
- Water-use
- Living Wage

ClimateCane Tracker

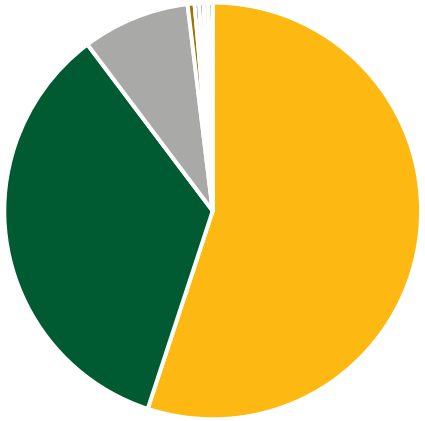
- Sets science-based targets for reducing emissions in sugarcane production.

Forest, Land and Agriculture (FLAG) climate targets

METRICS TO UNDERSTAND PERFORMANCE AND IMPACT

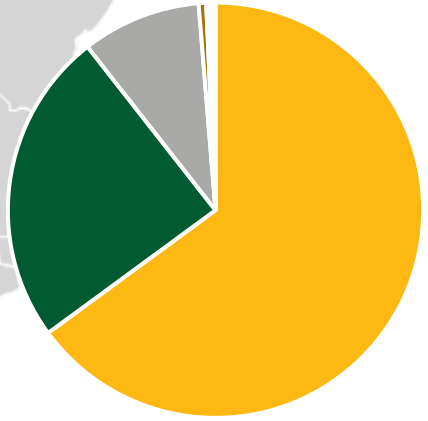
Net GHG emissions per tonne of cane (kg CO_2 eq/t cane)
Standard: <40

Suppliers Avg. GHG Contribution Analysis 2020



- Fertiliser
- Fuel consumption
- LUC
- Agrochemicals
- Cane burnt
- Cane residue
- Chemical transport
- Electricity

Suppliers Avg. GHG Contribution Analysis 2021



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Fertilisers, fuel consumption and land-use change have been the three main components of suppler GHG in Brazil.

TURNING DATA INTO DECISION-MAKING

Helping planners and policymakers to understand the implications of various land-use choices.

Supporting businesses to understand and address the risks in their supply chains.

Enabling sustainability systems to strengthen their standards and maximise their impact.

Supporting better design and implementation of sustainability policies and practices to maximise the benefits and minimize trade-offs.

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Confederazione Svizzera
Confederaziun svizra
Swiss Confederation

Federal Department of Economic Affairs, Education and Research EAER
State Secretariat for Economic Affairs SECO

College of Food, Agricultural and Natural Resource Sciences
University of Minnesota

GPSNR DIAGEO RSPO PEPSICO BON SUCRO

SCOPE

IMPROVING THE ENVIRONMENTAL IMPACT OF SUGARCANE

If all the sugarcane used by a major corporation was produced to the Bonsucro Production Standard...

93% Reduction in conversion of forests, grasslands, and savannahs.

90% Reduction in GHG emissions from land-use change.

66% Reduction in GHG emissions from sugarcane cultivation.

50% Reduction in water-use.

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SCOPE

LESSONS LEARNED

Challenges

- Cost
- Inclusivity (macro- and micro-level)
- Accessibility
- Harder to measure metrics (i.e., social issues)

Benefits

- Consensus-building
- Transparency
- Sector-wide improvement

Opportunities

- Investment in data governance
- Not just for certification but sustainability and productivity of supply
- Alignment of standards and metrics with international frameworks

Metrics = measurable impact + insights for continuous improvement

AMPLIFYING WHAT WORKS: WORKING TOGETHER FOR LASTING IMPACT

- **There's a growing number of sustainability standards for biofuels and biomaterials** across voluntary schemes and legislation.
- **There is often misalignment in terms of requirements and methodology** which can create challenges in interpretation and comparison.
- **Transparency and convergence are key factors** for building credibility and actionable insights.
- **Working together and building on existing schemes can accelerate the bioeconomy** with trusted sustainability claims.

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BON SUCRO
The global sugarcane platform

OUTCOME REPORT
2023 - 2024

Thank you