

2011

BONSUCRO™
BETTER SUGAR CANE INITIATIVE



Bonsucro Production Standard Including Bonsucro EU Production Standard

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Better Sugar Cane Initiative Ltd ('Bonsucro') *

Principles and Criteria

Members recognize that there are sound business reasons to identify and adopt sustainable sugarcane production and processing practices and these Principles and Criteria (P&C) provide a framework within which such practices can be demonstrated. The P&C address sugarcane production in the field and processing issues in the mill, including all sugarcane derived products, as they incorporate economic, financial, environmental and social dimensions and reflect good industry practices for the sugarcane sector.

We believe that adoption of these P&C's will generate business benefits and opportunities, as well as providing safe and secure employment and protection of the environment. To be effective the P&C's need to be delivered in the context of long term economic and financial viability for individual companies and the sector as a whole, and through timely and transparent disclosure of information on company environmental and social performance to stakeholders.

We further believe that the implementation of these P&C's across the sugarcane industry is an important undertaking given the significance and growth of sugarcane and all its derived products.

Specific tools will be developed in order to detail the procedures that producers will have to follow to proceed to a self-assessment of their performances against the production standard.

The standard is intended to constitute an auditable document and not merely a reporting framework, according to ISO 65. All Indicator Notes have been amplified in the accompanying Bonsucro Standard Audit Guidance document.

Accordingly, Members undertake to:

- PRINCIPLE 1. Obey the law.**
- PRINCIPLE 2. Respect human rights and labour standards.**
- PRINCIPLE 3. Manage input, production and processing efficiencies to enhance sustainability.**
- PRINCIPLE 4. Actively manage biodiversity and ecosystem services.**
- PRINCIPLE 5. Continuously improve key areas of the business .**

In addition, the Production Standard contains Chain of Custody requirements in Section 7. These are a set of technical and administrative requirements for enabling the tracking of claims on this sustainable production of Bonsucro sugarcane and all sugarcane derived products in the cane supply area and in the milling operations including the transport of cane to the mill. The Chain of Custody requirements contained in this Production Standard are identical to the requirements of the Bonsucro Mass Balance Chain of Custody Standard.

In order to achieve compliance with Bonsucro Standard and therefore be entitled to Bonsucro certificates, 80 % of the indicators contained in principles 1 to 5 must be satisfied and 80% of the criteria contained in the chain of custody chapter must be satisfied. In addition, there are a number of core criteria which must be fully satisfied before compliance will be considered. The core criteria are:

1.1 To comply with relevant applicable laws.

2.1 To comply with ILO labour conventions governing child labour, forced labour, discrimination and freedom of association and the right to collective bargaining.

2.4 To provide employees and workers (including migrant, seasonal and other contract labour) with at least the national minimum wage.

4.1 To assess impacts of sugarcane enterprises on biodiversity and ecosystems services.

5.7 For greenfield expansion or new sugarcane projects, to ensure transparent, consultative and participatory processes that address cumulative and induced effects via an environmental and social impact assessment (ESIA).

All abbreviations used are listed in Appendix 1.

Updated on 7th March 2011

* Bonsucro is a not for profit company limited by guarantee, registered in the United Kingdom

Bonsucro Production Standard
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Introduction to 'Bonsucro EU'

For the production of ethanol intended to be put onto the European Union market, the following additional requirements and rules apply:

In order to obtain a 'Bonsucro EU certificate' from Bonsucro, compliance with the Bonsucro Production Standard must be met, that is to say 80% compliance with indicators contained in principles 1 to 5, as well as in Section 7, and full compliance with the core criteria set out in these principles and in Section 7. In addition, full compliance with the additional requirements listed under section 6 of the production standard is mandatory.

Section 6 covers the requirements for biofuels under the EU Renewable Energy Directive (RED) 2009/28/EC and the revised Fuel Quality Directive (FQD) 2009/30/EC. References in the Bonsucro documentation to EU requirements refer to the Renewable Energy Directive. Where the Fuel Quality Directive contains a corresponding provision, they apply equally to that Directive.

Pending recognition by the European Commission in the form of a Decision published in the Official Journal of the European Union, the Bonsucro EU scheme intends to cover:

- accurate data for the purposes of measuring greenhouse gas savings for the purpose of Article 17(2);
- mandatory land use sustainability criteria in the EU legislation within Article 17(3) to (5);
- other sustainability issues covered in the second subparagraph of Article 18(4), namely measures taken for the conservation of areas that provide basic ecosystem services in critical situations (such as watershed protection and erosion control), for soil, water and air protection, the restoration of degraded land, the avoidance of excessive water consumption in areas where water is scarce;
- issues listed in article 17(7)

Verification System

Attached to the Bonsucro Production Standard, the Certification Protocol covers the verification and audit requirements for Bonsucro EU certificates' claims. In particular, it specifies

- the documentation management;
- how the yearly retrospective audit on a sample of claims is planned, conducted and reported upon;
- the procedure for the auditors selection, accreditation and training to ensure they are independent, external, have both the generic and specific skills to undertake the tasks required;
- the validity of a Bonsucro EU certificate, as defined in the Bonsucro Certification Protocol.

Within the Bonsucro Production Standard, the Chain of Custody chapter and its guidelines are designed to ensure that a warrant, compiling the sustainability characteristics, remains assigned to a biofuel consignment. Bonsucro arranges for a Mass Balance check and balances of claims (described in the Mass Balance Chain of Custody Standard) made under the scheme, that ensures that among these characteristics are:

- a description of the raw material used (sugarcane)
- the proportion of production/processing residues (molasses) used in the production, if possible;
- the country of origin;
- evidence showing compliance with the required criteria;
- the sugarcane was obtained in a way that complies with the mandatory land use restrictions criteria;
- a GHG emissions figure derived from criterion 6.1.;
- a statement that the product was awarded a certificate of type 'Bonsucro EU' from Bonsucro.

Those Chain of Custody requirements that are applicable to the mill and its cane supply area are already included within the Production Standard (Section 7) and are identical to those of the Mass Balance Chain of Custody Standard.

Mills and their cane supply area wishing to become Bonsucro EU compliant must implement and demonstrate compliance to the Production Standard (including the Chain of Custody chapter - Section 7) and its additional EU RED requirements.

PRINCIPLE 1. Obey the Law

CRITERIA	INDICATOR	Processing & Milling	Agriculture	Verifier	Standard	NOTES
1.1 To comply with relevant applicable laws.	Relevant national laws and international conventions complied with .	•	•	Yes/No	Yes	Relevant legislation includes laws and international conventions, but is not limited to: regulations governing land tenure and land-use rights, labour, agricultural practices, environment, transportation and processing practices, acting with integrity. A list of relevant international conventions is included in Appendix 2. The more strict regulation or convention ratified by the country - national or international - should prevail unless otherwise specified. The principles and criteria in this standard provide some guidance for defining the relevant laws.
1.2 To demonstrate clear title to land in accordance with national practice and law.	The right to use the land can be demonstrated and is not legitimately contested by local communities with demonstrable rights.	•	•	Yes/No	Yes	Those rights can be related either to legal ownership or lease of the land or to customary rights. Legal ownership shall be the official title in the country (e.g. notary, government agency or other). Guidance for customary rights is provided in ILO conventions 169 and 117. See also Criterion on participation and Criterion on Environmental and Social Impact Assessment 5.7.

KEY TO INDICATORS:

- Symbol indicates to whom it applies

CRITERION	INDICATOR	Processing & Milling	Agriculture	Verifier	Standard	NOTES
2.1 To comply with ILO labour conventions governing child labour, forced labour, discrimination and freedom of association and the right to collective bargaining.	Minimum age of workers	•	•	Years	18 for hazardous work 15 for non hazardous work	Definition of Child labour in Appendix 1 & Appendix 2 (Convention 138 and C182). As per ILO Art 3 C 138 and C182, the minimum age for admission to any type of employment or work which by its nature or the circumstances in which it is carried out is likely to jeopardise the health, safety or morals of young persons shall not be less than 18 years (see also art 16, Convention 184 Health and Safety in Agriculture). Work by children on family small holdings is only acceptable under adult supervision and when work does not interfere with the child's schooling and does not put at risk his or her health.
	Absence of forced or compulsory labour	•	•	Yes/No	Yes	Forced or compulsory labour as defined per ILO Convention 29 and ILO 105. The major forms of forced or compulsory labour are defined in Appendix 1. Verification shall address all male and female workers.
	Absence of discrimination	•	•	Yes/No	Yes	Discrimination as defined by ILO C111 (see full definition in Appendix 1). Verification to be done by interviewing workers
	Respect the right of all personnel to form and join trade unions and/or to bargain collectively in accordance with the law.	•	•	Yes/No	Yes	Employers should respect such rights and should not interfere with workers' own efforts to set up representational mechanisms in accordance with the law.
2.2 To apply Bonsucro human rights and labour standards to suppliers and contractors.	Percentage of contractors and major suppliers who have demonstrated compliance with human rights and labour standards	•	•	%	>95	Labour contractors and major suppliers to the mill and to cane growers shall demonstrate compliance with basic human rights (e.g. no forced labour, no child labour, no discrimination, freedom of association and labour standards, etc.). Effective compliance will be verified by auditors by sampling at mill and farm level. The existence of codes of conduct in contracts will be considered as proof of compliance. Sampling method based on volume provided by supplier to the mill

2.3 To provide a safe and healthy working environment in work place operations.	Lost time accident frequency.	•	•	number per million hours worked	Mill <15; Agric < 45	A lost time accident is defined as an incident involving an employee which causes him to be unable to carry on with his/her normal duties on the next day or next shift due to injury. Where a fatal injury occurs, this to be noted separately.
	Assessment of the main health and safety risks and measures implemented for mitigation of risk.	•	•	Yes/No	Yes	Key health and safety risks to be known and assessment formalized. Assessment to be performed at least once a year. Measures to be taken to either eliminate risk, prevent risk or reduce risk in agreement with national laws if existing. The recommendations 192 of ILO Convention 184, or national laws if any provide guidance for the list of key potential areas of risks to assess.
	Appropriate personal protective equipment supplied to and used by all workers.	•	•	Yes/No	Yes	Regular maintenance and effective use of personal protective equipment.
	Training for health and safety.	•	•	%	>90	The standard is an average measure, of the % of new employees receiving training, and the % of existing employees getting updated training at least every 5 years (e.g. promotion and participation in health and safety seminars, lectures, campaigns, etc). Employees and workers (including migrant, seasonal and other contract labour) to have basic training in health and safety measures related to their operation upon starting work and then with regular updating. Effective compliance can be verified by sampling.
	Availability of sufficient safe drinking water to each worker present on the field and/or mill.	•	•	Yes/No	Yes	Visual check of access to sufficient drinking water especially under high temperature conditions, and of absence of contamination sources near the drinking water source.
	Access to first aid and provision for emergency response.	•	•	Yes/No	Yes	Access to first aid and proximity as defined by national legislation or in absence by ILO.
2.4 To provide employees and workers (including migrant, seasonal and other contract labour) with at least the national minimum wage.	Ratio of lowest entry level wage including benefits to minimum wage and benefits required by law.	•	•	\$\$	≥1	Minimum wage as fixed by legal requirement and in the absence of same, ILO C131 can serve as a basis for the definition.
2.5 To provide clear, equitable and comprehensive contracts.	Existence of a contract or equivalent document.	•	•	%	100	All workers to be provided with a contract or equivalent document (e.g. national working card), to be aware of their rights, and to be paid in a form and at a frequency convenient to them. If not specified by the law the contract shall include at least the following elements: hours of work, overtime payment, notice, holidays, wages, and mode of payment. Payment of wages in conformity with ILO Convention no. 95 and ILO C110.

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PRINCIPLE 3. Manage input, production and processing efficiencies to enhance sustainability

CRITERION	INDICATOR	Processing & Milling	Agriculture	Verifier	Standard	NOTES
3.1 To monitor production and process efficiency; to measure the impacts of production and processing so that improvements are made over time.	Total raw materials used per kg product .	•		kg/kg	< 11 if no ethanol produced; <20 for full ethanol production	Sustainability measure includes cane as major raw material as well as material amounts of chemicals, fuels etc. Standard required varies between 2 limits depending on proportions of sugar and ethanol produced. If a mill exports power, any fuels purchased will not be recorded as raw materials consumed.
	Sugarcane yield.		•	tc/ha harvested/y	See Appendix 1	Standard values depend on whether rain-fed or irrigated. Value for reporting period or 5 year rolling average can be used.
	Working hours lost as percent of total hours worked .	•		%	< 5	This represents working hours lost through absence (all unplanned causes - strikes, sickness, absenteeism etc. but not holiday, legal time off such as maternity leave, or training).
	Mill overall time efficiency.	•		%	>75	Processing time as a percentage of total time. Value for reporting period or 5 year rolling average can be used.
	Factory Performance Index.	•		%	>90	Used if sugar and not ethanol is produced. Ratio of actual sugar recovery to theoretical recovery of sugar from cane. In rare cases where high grade molasses is exported for fermentation, industrial efficiency can be used instead.
	Industrial Efficiency.	•		%	>75	Used if ethanol only or sugar and ethanol are produced in the same mill. It is the ratio of (sugar+equivalent ethanol+eq.sucrose in molasses)/(sucrose in cane+RS in cane converted to sucrose+RS in molasses converted to sucrose+yeast eq to sucrose), expressed as a %.
3.2 To monitor global warming emissions with a view to minimizing climate change impacts.	Global warming burden per unit mass product.	•	•	t CO ₂ eq/t sugar	Total <0.4	Only used if sugar is being produced. Field-to-gate emissions. Environmental Burden is t carbon dioxide equivalent.
		•	•	g CO ₂ eq/MJ fuel	Total <24	Only used if ethanol is produced. Environmental Burden is g carbon dioxide equivalent.

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PRINCIPLE 4. Actively manage biodiversity and ecosystem services

CRITERION	INDICATOR	Processing & Milling	Agriculture	Verifier	Standard	NOTES	
4.1 To assess impacts of sugarcane enterprises on biodiversity and ecosystems services.	Aquatic oxygen demand per unit mass product.	•		kg/t	<1 kg COD or 0.5 kg BOD ₅	Oxygen demand by calculation of quantity and analysis of runoff. Environmental burden can be expressed in terms of either COD or BOD ₅ , depending on routine measurements available.	
	Percent of areas defined internationally or nationally as legally protected or classified as High Conservation Value areas (interpreted nationally and officially as described in Appendix 1) planted to sugarcane after the cut off date of 1 January 2008.		•	%	0	To prevent expansion or new sugarcane development into areas of critical biodiversity (including HCVA categories 1-4). National definitions of HCVA to take precedence over international where both exist. In the absence of national HCVA maps or data base, credible documentary evidence required that no HCVA converted after 1 Jan 2008.	
	Existence and implementation of an environmental management plan (EMP) taking into account endangered species, habitats and ecosystems as well as reference to ecosystem services and alien invader plant and animal control. Coverage of issues required in Appendix 4.			•	%	>90	To protect any existing riparian areas, wetlands or other significantly affected natural habitats in a satisfactory state, to provide habitat corridors and to conserve any rare, threatened or endangered species.
	Use of co-products does not affect traditional uses (e.g. fodder, natural fertilizer, local fuel) or affect the soil nutrient balance or soil organic matter.	•	•	Yes/No	Yes	Use of agricultural co-products as inputs must not jeopardize local uses or adversely affect soil quality.	
	Fertilizer applied according to soil or leaf analysis.		•	Yes/No	Yes		
	Nitrogen and phosphorus fertilizer (calculated as phosphate equivalent) applied per hectare per year.		•	kg/ha/y	<120	Environmental burden is kg phosphate equivalent as defined in Appendix 1 - measuring risk (i.e. amounts applied) rather than level in downstream water. Quantities of nitrogen and phosphorus fertilizer applied calculated as the phosphate equivalent as a measure of potential effects on eutrophication per hectare per year. To minimise losses from over application and consequent ground water or downstream contamination.	
	Herbicides and pesticides applied per hectare per year.		•	kg active ingredient/ha/y	<5	To minimise air, soil and water contamination. Quantities of pesticide (including herbicides, insecticides, fungicides, nematicides, ripeners) applied calculated as a measure of potential toxic effects on environment. Also note the requirement to use only products registered for use and at registered rates and to comply with the Stockholm convention on persistent organic pollutants and requirements in relation to agrochemicals rated as 1a, 1b or 2 under World Health Organisation (WHO) classification.	
4.2 To implement measures to mitigate adverse impacts where identified.	Documented plan and implementation of mitigation measures.	•	•	Yes/No	Yes	Existence of a list of identified adverse impacts such as smoke, fallout from fires, water pollution downstream, drift from agrochemical spraying and noise. Existence of a mitigation plan, and verification of the implementation of mitigation measures, including consultation with affected stakeholders. Programs with objectives developed at the sectorial level can be considered.	

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CRITERION	INDICATOR	Processing & Milling	Agriculture	Verifier	Standard	NOTES
5.1 To train employees and other workers in all areas of their work and develop their general skills.	Training expense of workers as a percentage of payroll expense.	•	•	%	>1.0	Total training expenses for all personnel, split between factory and basic workers, intermediate management and upper management.
5.2 To continuously improve the status of soil and water resources.	Net water consumed per unit mass of product.	•	•	kg/kg	Mill, 20 kg/kg sugar or 30 kg/kg ethanol. Agric <130 kg/kg cane	In agriculture, water captured/bought for use in irrigation; in processing, water used less water returned from mill to water courses.
	% Ground cover of tops or leaves after harvest.		•	%	>20	To ensure the continuous improvement of soil organic carbon.
	Soil surface mechanically tilled per year (% of area under cane).		•	%	<20	To minimise the opportunity for erosion. Soil surface tilled per year. Hectares tilled as a percentage of area under cane.
	Percent fields with samples showing analyses within acceptable limits for pH.		•	%	> 80	To ensure the maintenance of acceptable soil pH. Sampling to be carried out at least once per crop cycle.
5.3 To continuously improve the quality of sugarcane and products from the sugar mill.	Theoretical recoverable sugar content of cane.	•	•	%	>10	The theoretical recovery normalized for juice purity and cane fibre content calculation shown in Appendix 1. Value for reporting period or 5 year rolling average can be used. Used only if ethanol not produced.
	Fermentable total sugars content of cane, expressed as invert (TSAI).	•	•	kg/t cane	>120	Used if ethanol is produced, on its own or in conjunction with sugar production. Based on a 90.5 % utilization of Total Sugars As Invert (TSAI). Known as ATR in Brazil. Value for reporting period or 5 year rolling average can be used.

5.4 To promote energy efficiency.	Total Net Primary Energy Usage per kg product.	•	•	kJ/kg	Total <3000	Direct and indirect energy inputs. See Appendix 3 for details.
	Energy used in cane transport per tonne cane transported.	•	•	MJ/t cane	<50	See Appendix 3 for details.
	Primary energy use per tonne of sugarcane.		•	MJ/t	<300	See Appendix 3 for details.
5.5 To reduce emissions and effluents. To promote recycling of waste streams where practical.	Atmospheric acidification burden per unit mass product.	•	•	kg/t	< 5	Environmental Burden is kg sulphur dioxide equivalent.
	Non-hazardous solid residues per tonne cane.	•	•	t/t cane	< 1.0	By-products of processing, namely compost, filter cake, soil/mud, boiler ash, bagasse.
5.6 To foster effective and focused research, development and extension expertise.	Research and extension costs as a % of sales.	•	•	%	>0.5	Includes levies to research institutes for research and extension.
5.7 For greenfield expansion or new sugarcane projects, to ensure transparent, consultative and participatory processes that address cumulative and induced effects via an environmental and social impact assessment (ESIA).	Compliance with a recognized ESIA.	•	•	Yes/No	Yes	Cut-off date 1 January 2008. The ESIA shall cover all aspects related to baseline surveys and assessments, implementation, mitigation, monitoring and evaluation plans as required. Transparency and participatory consultation with all relevant stakeholders required. Where an impact assessment is required by national, regional, and/or local laws, the process shall be integrated to avoid duplication of effort.
	High Conservation Value areas (interpreted nationally as described in Appendix 1) used as a % of total land affected by a new project or an expansion.	•	•	%	0	Cut-off date 1 January 2008. NB This indicator duplicated in 4.1.2 but here it includes HCV categories 5 and 6.
5.8 To ensure active engagement and transparent, consultative and participatory processes with all relevant stakeholders.	Existence of a recognized grievance and dispute resolution mechanism for all stakeholders.	•	•	Yes/No	Yes	Existence of an official dispute resolution mechanism recognized by all stakeholders. Channel of communication (eg ombudsman, dedicated phone line) can be considered if recognized by all stakeholders.
	Percentage of meetings of stakeholder engagement where agreement has been reached by consensus driven process.	•	•	%	>90	Establish whether a process exists for consultation where all the stakeholders (gender sensitive and including indigenous people) are provided with information in advance of consultation and which results in consensus-driven negotiated agreements. Evidence of negotiated agreements to be demonstrated.
5.9 To promote economic sustainability.	Value added / tonne cane.	•	•	\$/t cane	Mill >4; agric >2	Value added by the operation is the value of sales less the price of goods, raw materials (including energy) and services purchased.

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Section 6. Additional mandatory requirement for biofuels under the EU Renewable Energy Directive (2009/28/EC) and revised Fuel Quality Directive (2009/30/EC)

CRITERION	INDICATOR	Processing & Milling	Agriculture	Verifier	Standard	NOTES
6.1 To monitor global warming emissions with a view to minimizing climate change impacts.	Global warming burden per unit of energy.	*	*	g CO ₂ eq/MJ fuel	Total <50	<p>Biofuels/bioliqids produced by installations* that were in operation on 23 January 2008 are exempted from complying with the greenhouse gas saving criterion until 1 April 2013. No Bonsucro EU-compliant claim can be made after 1 April 2013 for biofuel/bioliqids produced in installation that was in operation before 23 January 2008 and that does not comply with the GHG saving required by this standard.</p> <p>To calculate the greenhouse gas emissions from the production and use of sugarcane ethanol, the following disaggregated default values provided in point D of the annex V of the EU Directive must be used. The default value is the sum of the default value for cultivation: 14 g CO₂eq/MJ + the default value for processing (including excess electricity): 1 g CO₂eq/MJ + the default value for transport and distribution: 9 g CO₂eq/MJ. Emissions from the manufacture of machinery and equipment shall not be taken into account. The operator may use this default value of 24 gCO₂eq/MJ fuel if the annualized emissions associated with carbon stock changes caused by land use change after January 2008 are zero.</p> <p>If carbon stock changes due to land use change after January 2008 are not zero, greenhouse gas emissions resulting from changes in land carbon stocks must be added to the default values from the production and use of sugarcane ethanol. Emissions from carbon stocks changes must be calculated in accordance with Appendix 5 of this standard and Appendix 4 of the Audit guidance.</p> <p>The calculation of actual values is not permitted at present. In future revisions of section 6 of the Standard, the possibility of using actual or a combination of disaggregated default and actual values will be offered. The methodology to calculate actual values will follow the rules established by the Directive 2009/28/EC and the procedures will have to be submitted to the European authorities for formal approval.</p> <p>* The term 'installation' includes any processing installation used in the production process. It should not be understood as including production facilities that might have been intentionally added to the production chain only to qualify for the exemption foreseen in this provision.</p>
6.2 To protect land with high biodiversity value, land with high carbon stock and peatlands.	Percentage of land with high biodiversity value, high carbon stock or peatlands planted to sugarcane after the cut off date of 1 January 2008.		*	%	0%	<p>Land with high biodiversity value. Land that had one of the following statuses in or after January 2008, whether or not the land continues to have that status:</p> <p>(a) primary forest and other primary wooded land, namely forest and other wooded land of native species, where there is no clearly visible indication of human activity and the ecological processes are not significantly disturbed;</p> <p>(b) areas designated by law or by the relevant competent authority for nature protection purposes; or for the protection of rare, threatened or endangered ecosystems or species recognised by international agreements or included in lists drawn up by intergovernmental organisations or the International Union for the Conservation of Nature, subject to their recognition by the European Commission; unless evidence is provided that the production of that raw material did not interfere with those nature protection purposes;</p> <p>(c) highly biodiverse grassland that is: (i) natural grassland that would remain grassland in the absence of human intervention and which maintains the natural species composition and ecological characteristics and processes; or (ii) non-natural grassland that would cease to be grassland in the absence of human intervention and which is species-rich and not degraded, unless evidence is provided that the harvesting of the raw material is necessary to preserve its grassland status.</p> <p>(d) new nature protection areas derived from a published European Commission decision. Bonsucro will communicate to economic operators any details of lists on protected areas as soon as they are available from the EC.</p> <p>Land with high carbon stock: Land that had one of the following statuses in January 2008 and no longer has that status:</p> <p>(a) wetlands, namely land that is covered with or saturated by water permanently or for a significant part of the year;</p> <p>(b) continuously forested areas, namely land spanning more than one hectare with trees higher than five metres and a canopy cover of more than 30 %, or trees able to reach those thresholds in situ (It does not include land that is predominantly under urban or agricultural use, understood as tree stands in agricultural systems, such as fruit tree plantations and agroforestry systems when crops are grown under tree cover);</p> <p>(c) land spanning more than one hectare with trees higher than five metres and a canopy cover of between 10 % and 30 %, or trees able to reach those thresholds in situ, unless evidence is provided that the carbon stock of the area before and after conversion is such that when GHG emissions savings is calculated, it complies with the minimum threshold established in criterion 6.1 of the Bonsucro standard.</p> <p>Peatland. Crops for biofuels cannot be grown on land that was peatland in January 2008 unless the soil was completely drained by January 2008 or there has been no draining of the soil since January 2008.</p>

Section 7. CHAIN OF CUSTODY REQUIREMENTS

CRITERION	INDICATOR	Standard	NOTES
<p>7.1 Traceability</p> <p>Each economic operator in the chain of custody is responsible for the data supplied in the product declarations submitted to the next economic operator.</p>	7.1.1. Final certified products can be traced from the dispatch area of the processor until next owner.	<p>≥ 90% traceable*</p> <p>*) The auditor takes a sample of 10 and when this sample shows 0 or 1 defects this will be qualified compliant and reported >= 90 % a.. When more than 1 defect is found the criteria score will be reported < 90% and the criteria will be checked for non – compliant.</p>	<p>The processor keeps track of the transport until delivery to the next owner of the product</p> <p>Next owner signs for reception of the product and takes over responsibility from the processor.</p>
	7.1.2. Each following link in the chain keeps track of the products.	≥ 90% traceable	Each economic operator can trace back 1 step and trace forward 1 step.
<p>7.2 Identification, traceability and verification of sustainability characteristics</p> <p>The sustainability criteria are listed in the Bonsucro production standard and are in compliance with the EU RED art. 17. For each consignment at any stage of the chain of custody sustainability characteristics need to be identified and assigned to the consignment.</p>	7.2.1. Each consignment has a unique identification #.	≥ 90% identified	<p>The identification can be both physical and administrative and in that case needs to be identical</p> <p>It is allowed to have only administrative control of consignments.</p>
	7.2.2. Each consignment contains a specification with at a minimum the data specified in Appendix 4 of the Mass Balance Chain of Custody Standard.	≥ 90% with specification	<p>When a next owner is accepting ownership for a consignment without specification or incomplete specification he takes responsibility to supply this information by himself.</p>
	<p>BONSUCRO EU REQUIREMENT</p> <p>7.2.3. Consignments clearly specify the scope of compliance:</p> <p>Non compliant</p> <p>Bonsucro compliant</p> <p>Bonsucro EU compliant</p>	<p>Major</p> <p>No false claims</p> <p>Eg. non compliant may not show up as compliant or Bonsucro compliant may not show up as Bonsucro EU compliant.</p>	<p>By taking ownership over consignments that are non compliant the owner takes full responsibility over the consignment and needs to provide evidence of compliance before a claim of compliance can be made.</p>
	<p>BONSUCRO EU REQUIREMENT</p> <p>7.2.4. Each Bonsucro EU compliant consignment contains a specification with at a minimum the data specified in appendixes 4 and 5 of the Mass Balance Chain of Custody Standard. GHG emissions figures must be calculated according to specifications laid down in appendixes 2 and 3 of the same document.</p>	Major	<p>Only for option Bonsucro EU in addition to the above data for Bonsucro.</p>

<p>7.3 Control of Mass Balance System</p> <p>The mass balance system, according to article 18 of the EU RED means a system in which "sustainability characteristics" remain assigned to "consignments" and evidence showing compliance with these characteristics are required and need to be documented and recorded. See Appendix 6 of the Mass Balance Chain of Custody Standard for principles.</p> <p>The mass balance system must be controlled a) in periods of time in which the balance of Bonsucro certified sustainable product versus not sustainable product should be equal or positive at the moment of balance. Evidence of balance must be recorded and must be verifiable by periodic balance reports over that particular period, showing all inputs, mixes, conversions, stocks and outputs.</p> <p>The accounting year for Mass Balance includes a full annual harvest cycle, which is not allowed to be divided over 2 accounting years.</p>	<p>7.3.1. The accounting system for the control of the mass balance is documented and mass balance records and data are maintained on a daily base and verifiable.</p>	<p>≥ 90 % validated within 1 week</p>	<p>The economic operator may collect data and records within intervals as documented in procedures on site before entering these in the accounting system; data must be updated and verifiable within one week the latest, preferably within 36 hours.</p>
	<p>7.3.2. Validation of data before official entering in the accounting system. The management representative is responsible for validation, as indicated in Bonsucro Certification Protocol.</p>	<p>≥ 90 % validated within 1 week</p>	<p>Once validated the data entered can not be changed (are fixed within the software) or are clearly marked as validated showing data and time. The management representative has physically signed the documents or either approved through digital procedures for validation.</p>
	<p>BONSUCRO EU REQUIREMENT</p> <p>7.3.3. Mass Balance "in time periods" shows over the time period the evidence that the balance of certified sustainable product versus not certified sustainable product is at least equal or positive.</p> <p>The management representative or a third party (RE the above art 7.3.2) is responsible for validation.</p>	<p>Major in case of absence of data or longer than 1 period (max month) no report of balance.</p> <p>Major in case of negative balance and no actions taken to correct within next period.</p>	<p>The interval for the documented periodic mass balance reports is maximum 1 month. Each period (month) balance must be validated by the management representative. Cumulative month to date mass balance report must be recorded showing the development of the mass balance data during the harvest period and/or accounting year .</p>

<p>BONSUCRO EU REQUIREMENT</p> <p>7.3.4. The mass balance is based on sugar or alcohol weight or volume calculation based on sampling and analysis by a qualified laboratory; using normative methods and results of measuring are validated by an accredited laboratory preferably (but not mandatory) holding an ISO IEC 17025 accreditation (RE: to reference list ISO IEC 17025 for the accreditation of testing laboratory).</p> <p>Metering and weighing equipment in the operations or used by subcontractors for volume or weight input and output of the mass balance is required calibration with a minimum frequency of 1 x year by a calibration and testing organisation preferably (but not mandatory) accredited for ISO IEC 17025.</p>	<p>Major In case of total failure to calibrate.</p> <p>Minor Otherwise: too late > 1 year.</p> <p>Not complete</p>	<p>Volumes may vary because of concentrating or diluting processes. For this reason and effective mass balance on volumes only is not possible.</p> <p>The basis for the balance is the combination of weight (mass), volume, and the content of the consignment in either % of sugar (w/w) or alcohol % (v/v).</p> <p>Through conversion calculations sugar may be expressed in alcohol vice versa.</p> <p>Permitted methods for the calculation conversions are given in the Bonsucro P&C chapter 3 and in the Mass Balance Choc Appendixes 1, 2, 3.</p> <p>Methods applied require documentation and validation and cannot vary within one accounting year.</p>
<p>7.3.5. The total mass balance in the period is reliable within a tolerance of +/- 5% calculated over the total sugar and/or alcohol content input - output In case of losses or spillage this is counted for By products are also counted for as these may contain sugar and/or alcohol rests that require to be reported.</p>	<p>≥ 90 % of mass balance within tolerance</p>	<p>The mass balance is the result of all inputs and outputs in a period. Many data entries occur and laboratory testing takes place. Given the fact that volumes, weight and % have tolerances the total result needs to give confidence that the whole accounting, measuring and testing system is reliable; Exceeding the level of 5% difference in balance might indicate errors that require correction.</p>

<p>7.4 Control of Consignments</p> <p>Key for identification and traceability of sugarcane during the production stages, logistics and trading is to keep control over the consignments and keep records of production data including, volumes, weight, products specifications, sugar % and alcohol %, density etc. (minimum set of data as specified in the criteria) together with the records about the sustainability characteristics assigned to the consignment.</p>	<p>BONSUCRO EU REQUIREMENT</p> <p>7.4.1. Consignments have a unique # for identification; the # identifies the accounting year for the harvest, the unit of operation (farm, site etc.) and the # is generated by the accounting system in sequence of time when the consignment was first entered in the system.</p> <p>Each time when new consignments are created either by mixing or splitting new unique consignment # will be generated for the mixture or for each consignment that has been split off. Each new # contains references to the previous consignment # (see below mixing and splitting of consignments how to address these operations).</p> <p>From the consignment #, date and time the physical location of the consignment can be retrieved.</p>	<p>Major System is not operational</p> <p>Minor ≥ 90% compliance</p>	<p>The consignment and all attached information can be identified and traced back and forward by using the consignment #.</p>
<p>7.5 Control of mixes of consignments</p> <p>It is common and often inevitable in sugarcane production, logistics and trade that consignments are mixed. Mixing of consignments with different sustainability characteristics is allowed and also the mixing of not sustainable with sustainable consignments is permitted as long as the balance (see 7.3) of sustainable product keeps positive. A mixture can have any form where consignments would normally be in contact, such as in a container, processing or logistical facility or site (defined as geographical location with precise boundaries within which products can be mixed). There are rules to be respected in order to control the mixing of consignments that are specified in the indicators on the right.</p>	<p>7.5.1. A new consignment # is generated for a mix; procedure is equal to the individual consignment.</p> <p>7.5.2. The separate sizes and sustainability characteristics of each individual consignment remain assigned to the mixture.</p> <p>7.5.3. Provides the sum of all consignments withdrawn from the mixture to be described having the same sustainability characteristics in the same quantities, as the sum of all consignments added to the mixture.</p> <p>7.5.4. To avoid double counting: at the moment the individual assignments are assigned to the mixture they will automatically booked off from the previous # as "sold" to the new # of the mix.</p>	<p>≥ 90% compliance</p> <p>≥ 90% compliance</p> <p>≥ 90% compliance</p> <p>≥ 90% compliance</p>	<p>It depends on the accounting system how the mix will show up and which # is possible in terms of characters Some systems allow for indicators identifying a mix.</p> <p>See Appendix 6 of the Mass Balance Chain of Custody Standard.</p> <p>See Appendix 6 of the Mass Balance Chain of Custody Standard.</p> <p>The way this happens may be different depending on the possibilities of the accounting system.</p>

<p>7.6 Control of splitting of consignments from mixtures</p> <p>Once the sustainability characteristics have been assigned to consignments the values can be calculated and added to the specification of the consignment. The calculation methods, terms, definitions, tools and default values are listed and referred to in the indicators on the right.</p>	<p>7.6.1. Any consignment split off from a mixture or split off from an individual consignment requires a new #; use procedure 7.5 new consignment.</p>	<p>≥ 90% compliance</p>	<p>It depends on the accounting system how the split will show up and which # is possible in terms of characters Some systems allow for indicators identifying a new consignment as split from previous mixes.</p>
	<p>7.6.2. The sustainability characteristics of the mixture consignment remain assigned to the consignments# that have been split off in proportion of the volume that has been split off.</p>	<p>≥ 90% compliance</p>	<p>See Appendix 6 of the Mass Balance Chain of Custody Standard.</p> <p>NO AVERAGING</p>
	<p>7.6.3. To avoid double counting: at the moment a new unique nr. has been assigned to the to the split this will automatically be booked off from the previous # from the mix as "sold" to the new # of the split consignment.</p>	<p>≥ 90% compliance</p>	<p>The way this happens may be different depending on the possibilities of the accounting system.</p>

Appendix 1. Definitions

		Reference																
Company	The entirety of any organization or business entity responsible for implementing the standard.	SA 8000																
Supplier/contractor	A business entity which provides the company with goods and/or services integral to, and utilized in/for, the production of the company's goods and/or services.	SA 8000																
Subcontractor/sub-supplier	A business entity in the supply chain which, directly or indirectly, provides the suppliers with goods and/or services integral to, and utilized in/for, the production of the suppliers's and/or company's goods and/or services.	SA 8000																
Agricultural Worker Categories	There is a lack of clear-cut distinctions between different categories of workers. Consequently, there are numerous types of labour relations and different forms of labour force participation. The different categories of workers also vary within each country and, in certain cases, a single farmer may be grouped in more than one category. Many smallholders supplement their income with wages earned by working in large commercial farms during harvesting periods.	ILO																
	Summary of broad categories of agricultural workers:																	
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">NON WAGED</th> <th style="text-align: center;">WAGED</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Large and Middle Scale Farmers</td> <td style="text-align: center;">Permanent Workers</td> </tr> <tr> <td style="text-align: center;">Small Scale farmers</td> <td style="text-align: center;">Temporary and Seasonal workers</td> </tr> <tr> <td style="text-align: center;">Subsistence farmers</td> <td style="text-align: center;">Migrant workers</td> </tr> <tr> <td style="text-align: center;">Unpaid Family workers</td> <td style="text-align: center;">Subcontracted Workers</td> </tr> <tr> <td style="text-align: center;">Collective farmers</td> <td style="text-align: center;">INFORMAL SECTOR</td> </tr> <tr> <td></td> <td style="text-align: center;">Squatters</td> </tr> <tr> <td style="text-align: center;">Tenants and Share Croppers</td> <td style="text-align: center;">Land-less workers</td> </tr> </tbody> </table>	NON WAGED	WAGED	Large and Middle Scale Farmers	Permanent Workers	Small Scale farmers	Temporary and Seasonal workers	Subsistence farmers	Migrant workers	Unpaid Family workers	Subcontracted Workers	Collective farmers	INFORMAL SECTOR		Squatters	Tenants and Share Croppers	Land-less workers	ILO. <i>Safety and health in Agriculture</i> document
NON WAGED	WAGED																	
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Unpaid Family workers	Subcontracted Workers																	
Collective farmers	INFORMAL SECTOR																	
	Squatters																	
Tenants and Share Croppers	Land-less workers																	
Child	Any person less than 15 years of age, unless local minimum age law stipulates a higher age for work or mandatory schooling, in which case the higher age would apply. If however, local minimum age law is set at 14 years of age in accordance with developing country exceptions under ILO convention 138, the lower age will apply.	ILO																
	The ILO Minimum Age Convention, No. 138 (1973) states that the minimum age of employment should not be less than the age of completion of compulsory schooling and, in any case, shall not be less than 15 years. However a Member country whose economy and educational facilities are insufficiently developed, may under certain conditions initially specify a minimum age of 14 years.	ILO																
Child labour	Any work by a child younger than the age (s) specified in the above definition of a child, except as provided by ILO recommendation 146	ILO																
Young worker	Any worker over the age of a child as defined above and under the age of 18.	ILO																
Worst forms of child labour	Whilst child labour takes many different forms, a priority is to eliminate without delay the worst forms of child labour as defined by Article 3 of ILO Convention 182.	ILO																
Hazardous child labour	Hazardous child labour is defined by Article 3 (d) of the ILO Convention concerning the Prohibition and Immediate Action for the elimination of the worst forms of child labour, 1999 (182) 3D work which, by its nature or its circumstances in which it is carried out is likely to harm the health, safety or morals of children.	ILO																
Occupational accident	An Occupational accident is an unexpected and unplanned occurrence, including acts of violence, arising out of or in connection with work which results in one or more workers incurring a personal injury, disease or death. Included in occupational accidents are travel, transport or road traffic accidents in which workers are injured and which arise out of or in the course of work, i.e. while engaged in an economic activity, or at work, or carrying on the business of the employer. Occupational injury: any personal injury, disease or death resulting from an occupational accident; an occupational injury is therefore distinct from an occupational disease, which is a disease contracted as a result of an exposure over a period of time to risk factors arising from work activity.	ILO Resolution/Convention 155 on statistics of occupational injuries (resulting from occupational accidents), adopted by the Sixteenth International Conference of Labour Statisticians, (Oct.1998)																
Occupational disease	A disease contracted as a result of an exposure to risk factors arising from work activity	ILO																

