

Standards Benchmarking

Verifik8 – Bonsucro

Project report

Project Name: Green Verifik8 – Bonsucro
Smallholders Calculator Benchmarking
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1. Executive Summary

Sugarcane is one of Thailand's most important agricultural crops becoming critical to its economy. The sugarcane supply chain – consisting of the growers, millers, and associated logistics personnel- provides job for more than 1.5 million people and generate almost \$6 billion USD per year.

The Thai sugar industry is highly competitive. The modern sugarcane has challenges, like climate change and sustainable agriculture, the need of continuous improvement, environmental sustainability, social impact, and economic performance. With all of this under the medias lens, triggers the need to prove the efforts that the industry is taking to comply with them.

Bonsucro is the global platform for sugarcane industry that offers a logical framework to measure environmental, social, and economic performance. It allows to communicate with the same criteria through all the supply chain, using metrics and monitoring by a third part that certifies their achievements. The Bonsucro Production Calculator and Bonsucro Smallholders Calculator is the tool used to measure the level of performance in environmental, social, and economic indicators.

VerifiK8 System is a web-based system with a mobile application for farm data collection. This tool makes environmental and social footprint monitoring easy at a reasonable cost. It can be personalized for several type of users corresponding to the stakeholders of the supply chain. Each user can have their own version of the app and his own dashboard. The data entry is multiple: farmers, workers, suppliers, and buyers can use VerifiK8 to enter data and get an overview on their activity. Thus, more than only collecting data, VerifiK8 is a mean to verify the information by crosschecking the data input by different users.

The dashboards show the most important metrics to farmers, as they can monitor their practices, and can show millers, buyers, and auditors, evidence of compliance. The tool can be the sugarcane industry solution to help promote sustainable farming practices and keep records and evidence of each farm.

This tool is helpful for all the stakeholders of the supply chain to achieve the Bonsucro certification and for auditing as well as it reduces the time and cost, while data collection is available and provides trustful information.

To assure this is a helpful tool to achieve Bonsucro certification, it must be compared to the Bonsucro smallholders group calculator and determine if all the criteria is met, specially the core criteria, which may be fully met to certify.

2. Background to Project

2.1. Rationale of Project

VerifiK8 is a monitoring tool in sugar cane which verifies information entered by various users and measures sustainability performance, for this, a benchmark against the standard must be done in the previous phases to be sure alignment is met, and the tool is appropriate to ease compliance steps with the Bonsucro Smallholders standard and show performance.

VerifiK8 is following an iterative process to support the adoption of this tool by its users, so therefore the metrics and criteria must find equivalence on what other standards and clients require. Full alignment of metrics and criteria must be met under the server testing to assure they are aligned before VerifiK8 moves to a production server.

2.2. Implementation Partners

Bonsucro

Bonsucro is a global multi-stakeholder non-for-profit initiative dedicated to reducing the environmental and social impacts of sugarcane production while recognising the need for economic viability. The organization has a standard system that is broadly accepted by major industrial buyers in the sugar sector and is increasingly being used to certify mills and supplying farms around the world, particularly those that own or manage large estates for the cultivation of sugarcane. Bonsucro has however identified that the complexity of the Standard and the investment required for compliance to the Standard, may create barriers of entry for smallholders and aims to use the results if this benchmarking to address such challenges and improve the accessibility of the standard system to smallholder producers.

Two Bonsucro documents were included in the benchmarking:

- Smallholders Production Standard
- Smallholders Group Calculator.

Benchmarked scheme VerifiK8

VerifiK8 is a technology and market-driven solution to monitor and verify social and environmental performances in the agribusiness supply chain. This web-based system and mobile application helps farmers to collect data and implement data models for agriculture management.

It provides data intelligence and analytics for robust agribusiness suppliers screenings and monitoring, to help obtain a more transparent view of the supply chain and through this, provide evidence for audits and demonstrate sustainability goals accomplishment.

The solution improve transparency and make procurements safer, while enhancing producer's compliance to international sustainability standards. It reflects in secured access to market and secured livelihoods.

Trough the platform, areas of improvement can be identified and incorporate early warnings alerts.

Consultant: Ruth Ascencio

Ruth has more than 20 years of experience in the food industry, mainly advising agro-industrial companies in the implementation of quality management, safety and sustainability systems such as ISO-9001, FSSC-22000 and BONSUCRO as a Certified Auditor of the Bonsucro Standard and Lead Auditor in the ISO 9001 and FSSC 22000.

In 2012 she met the sugarcane industry, coordinating the different certification in a Honduran Mill (AZUNOSA), resulting in the first Bonsucro certified mill in Central America. The first country to have a certified mill after Brazil and Australia. This achievement was recognized by the "Bonsucro Leadership Award 2015".

Since then, Ruth has supported the implementation of sustainable practices in the sugar cane sector of Mexico and Central America while helping different organizations like WWF and Coca Cola to meet their sustainability goals through the communication of sustainable practices. Some of the main achievements are:

- Participated in the development of the "Regional Guide for the Promotion of Healthy Living in Heat Environments" (Asociación del Istmo Centro Americano AICA).
- Speaker in different forums concerning issues of sustainable development in the sugar sector in Costa Rica, Mexico City, Guatemala, and Honduras.
- Developed for WWF (World Wildlife Fund) and APAH. (Asociación de Productores de Azúcar de Honduras) The "Guiding Principles of Sustainability for the Sugar Industry in Honduras".
- Consultant for the implementation acceleration Project of Bonsucro in Mexico through the ELF project (Enhancing Livelihoods Fund).
- Bonsucro Technical Week trainer at Dominican Republic, Argentina, and Honduras.
- Consultant for implementing the standard in different mills of the region.
- Part of the Working Group for the revision of the Production Standard.

3. Smallholders Group Calculator & VerifiK8 tool comparison

Considering that VerifiK8 is a tool that helps the farmers and buyers to achieve Bonsucro smallholder certification, it is needed to assure through a benchmark that the criteria and

indicators are met and that they are included in the income information, so it can be displayed in the outcome report.

The comparison here was done through a simple desktop review mainly focused on the Bonsucro Smallholder Group Calculator and VerifiK8 tool. Where needed, this was supplemented with some research on the webpages of the two organizations.

Comparison was done on the following broad areas:

- General Criteria in both tools
- Core indicators
- Other indicators.

3.1. Standard Systems & Characteristics

AREA	BONSUCRO	VERIFIK8
<i>Available documentation</i>	Smallholder standards, Smallholder Group Calculator & guidance documents	VerifiK8 platform for smallholder sugar cane farms.
<i>Standards review</i>	At least every 5 years (Current version 2016)	Continuous improving of the tool and planning stage.
<i>Unit of certification</i>	Group of smallholders and group management	Group of smallholders and group management of Smallholders
<i>Criteria and indicator applicability</i>	All immediate	All immediate (Annex 1 – Benchmark)
<i>Criteria and indicator type</i>	Core & general	Core & general
<i>Basis for compliance</i>	Quantitative (metric based) and qualitative (yes/no)	Quantitative (metric based) and qualitative information (yes/no + upload)
<i>Publicly available information</i>	Standards, certified entities, Bonsucro web page.	VerifiK8 data framework, dataflow and data set. VerifiK8 web page.
<i>Revision timeframe</i>	N/A	N/A

Unit of certification

Bonsucro Smallholder certification applies only for smallholders where farms are 25 Ha or less in average, and they fill the farm diary and Smallholder Group Calculator.

For VerifiK8 the unit of certification is considered small farms <156 rai (25 ha) and medium/big farms >156 rai. The measuring unit for area in Thailand is the rai. 1 rai = 0.16 hectares.

Criteria and indicator type and applicability (core, non-core, others)

All criteria and indicators from the Smallholder Standard will be compared to the VerifiK8 tool to measure if there is compatibility between both tools and identify if all the criteria, including the core criteria are considered on the VerifiK8 system.

Basis for compliance

The Bonsucro standard system has a largely metric and quantitative approach to determining compliance. The smallholder standard calculator seeks to measure the alignment of farmers with limited cultivated area. The VerifiK8 system uses its web-based system and mobile application to collect the farms data. While the approaches of the two standards differ, it needs to be noted that both ensure compliance with similar sustainability outcomes.

Specific recommendations to address this in alignment and mutual recognition will be discussed in the detailed reporting on the benchmarking below, but mainly, its measures focus on 1) smallholders calculator tool and 2) VerifiK8 system.

3.2. Audits

Bonsucro can be certified after the auditors verify the compliance an operation has with the Bonsucro Production standard or the Bonsucro smallholder standard. For this, data must be gathered through and audit. The operation certifies if it complies with all the core criteria (100% core) and has over 80% compliance in the overall performance.

The audits are done by an approved certification body and are independent from Bonsucro, but they need to follow the Bonsucro Certification Protocol.

REA	BONSUCRO SH CALCULATOR	VERIFIK8 SYSTEM TOOL
<i>Measures for pre-assessment</i>	Available but optional	N/A
<i>3rd party independent audits</i>	Yes	N/A
<i>Approved auditors</i>	Variety: FoodChain ID, SGS. Control Union, SCS Global, LRQA	N/A
<i>Membership</i>	To be audited must be a member of BS	N/A
<i>Audit stages</i>	Two stages possible: Internal Control System (ICS) audit and implementation audit	N/A
<i>Audit plan</i>	Developed and shared with operator prior to audit	N/A
<i>Specifications for audit teams</i>	Yes	N/A

<i>Specific audit time (based on size of operator)</i>	Yes	N/A
<i>Standardized CC or audit checklist</i>	No	N/A
<i>Calculation Tool for compliance against metric indicators</i>	Yes	Data collection and outcome reports to support compliance.
<i>Opening and closing meetings</i>	Yes	N/A
<i>Guidance on farmer sample size</i>	Yes	N/A
<i>Development of action plan for non-conformities</i>	Yes	N/A
<i>Classification of non-conformities</i>	Major & minor	Dashboards show performance and give some level of analysis.

As can be seen from the table above, VerifiK8 is not an auditable scheme but a tool that can offer evidence and support data that may be useful during an audit.

3.3. Certification

AREA	BONSUCRO	VERIFIK8
<i>Certification cycle</i>	<ul style="list-style-type: none"> • Three years cycle • Initial audit • Annual surveillance audits • Re-certification audit 	No certification protocol, it is a data collection tool to show transparency and continuous improvement.
<i>Compliance</i>	<p><u>Production Standard</u></p> <ul style="list-style-type: none"> • Full compliance on core indicators • Minimum of 80% of all indicators <p><u>Chain of Custody Standard</u></p> <ul style="list-style-type: none"> • Full compliance on all indicators 	<p>It includes alignment with the social and environmental criteria.</p> <p>The outcome report can show compliance with the Bonsucro smallholders' standard indicators.</p>
<i>Measures for suspension</i>	Yes	
<i>Measures for decertification</i>	Yes	
<i>Appeal procedure</i>	Yes	

Where certification is concerned, VerifiK8 is not a certification standard, it is a tool that can show compliance with the Bonsucro Standards and help certificate Bonsucro, but it does not generate a certificate by itself.

The difference mainly focusses on Bonsucro whole certification system where there is a certification protocol, a production standard, and a tool to measure the compliance while VerifiK8 is a data collecting tool, so in this case only the measuring tools will be compared.

4. Smallholders group calculator & VerifiK8 tool.

4.1. Introduction

The project focussed on the review and benchmarking of the following tools:

- Bonsucro
 - Smallholders calculator
- Fairagora
 - Green VerifiK8 tool for farm owners

The initial intention is to review the Bonsucro Smallholders Calculator and VerifiK8 tool and benchmark focussing on the equivalence of the income data needed to generate outcome reports, identifying the core criteria and other indicator from the Bonsucro Standard in each tool.

The plan is to go through the VerifiK8 tool and compare the information required and the outcome report with the smallholder group calculator.

Comparison include the following broad areas:

- General Criteria in both tools
- Core indicators
- Other indicators.

All the indicators were compared, to see how many are included in the tool, specially the core indicators.

The other documents reviewed and included in alignment indication as described above were:

- Bonsucro
 - Certification Protocol
 - Guidance to the Bonsucro Production Standard
- VerifiK8
 - Data feeds
 - VerifiK8 platform

4.2. Purpose of Smallholder Group Calculator and VerifiK8

STANDARD	PURPOSE
Bonsucro Smallholder Group Calculator	The primary purpose of the calculator is to measure the performance on the indicators of the Standard by the input data of the group of farmers. The group results show the performance of operators against the three pillars of sustainability.
VerifiK8 tool	Collects data to measure environmental, production and social performance. Identify areas of improvement with a transparent view of the supply chain. Digitalise data records and reduce time and cost in auditing.

Both tools state the compliance with social, production, and environmental performance. The VerifiK8 tool includes support information that can be uploaded as evidence. There are no contradictions in the purpose statements of the tools but there is variation on how the inputs are filled out and how the results are shown.

4.3. Methods used for assurance or verification

STANDARD	PURPOSE
Bonsucro Small holders Production Standard Group Calculator	<ul style="list-style-type: none"> ● Filling the group calculator and farm diary by the farm manager ● Calculator filled by the auditor during the audit ● Onsite audit for certification. ● Document review ● Physical audit of mill and sample of farmers ● Quantitative verification
VerifiK8 tool	<ul style="list-style-type: none"> ● Input information and records filled in the mobile and web application by the farmers or group manager. ● Uploaded evidence ● Access to different users of the supply chain ● Combination of qualitative and quantitative verification ● Not for certification purpose.

The methods used for assurance or verification are mainly through records and documents that support the data that is filled in the calculator or mobile system. Audits help assurance with the standards, uploaded information can help but is not enough support to claim conformity with the standard. Bonsucro requires an onsite audit whereas VerifiK8 has some inputs and access for the rest of the supply chain, and also included an internal audit input in the web app so the farmer can check their farm performance.¹ VerifiK8 doesn't have a certification protocol as the tool was not intended for certification purposes.

¹ From PPT 7.3.1 Internal Audit inspection formula.

4.4. Tools used for reporting or calculation of assurance or verification

STANDARD	PURPOSE
Bonsucro Production Standard	<ul style="list-style-type: none"> ● Bonsucro smallholders group calculator ● Checklists developed by accredited Certification Bodies in line with the indicators in the Bonsucro Production Standard ● Audit report
VerifiK8	<ul style="list-style-type: none"> ● Income data on the mobile app ● Outcome reports customized depending on the viewer's needs. ● Information uploaded to the data collection ● Audit report

As observed in Section 3.1 above, Bonsucro and VerifiK8 have a quantitative (metric based) and qualitative (yes/no) approach to assurance and verification and for this reason both tools are required to be prepared prior to the certification audit.

The results and outcome reports show the compliance in social, production and environmental indicators. The Smallholder Production calculator is an excel based datasheet, which is filled out by the group manager who is meant to support the input data with the evidence of the farm group.

The Smallholder calculator results show the compliance with the core criteria and the overall compliance that must be over 80% to be a candidate to obtain the Bonsucro certification.

The VerifiK8 outcome report is customized depending on the viewer's needs. The report information can be tailored for:

- Farm report- Report at the farm level
- Processing report – farm report and buyers report
- Buyers report (mill, auditor, brands)- averages and totals of the group of farms.

The VerifiK8 outcome reports are specific for each user and tailored as they need. For this, VerifiK8 has different level of access to the information and complies with the data protection and confidentiality requirements of Soft Law. The Bonsucro Calculator filled by the auditor is only accessible to the Certification Body and the Farm Manager.

VerifiK8 tool is filled by the farm manager and the Bonsucro calculator is filled by the auditor through an audit. Please note that the checklist used for the Bonsucro audits and the Bonsucro audit reports must be done independently by approved CB's for Bonsucro, following the Certification protocol.

In the other hand, VerifiK8 must be filled on the mobile app or direct to the web system by the farm manager or farm owner. It is expected to be filled through continuous monitoring of the operation, and the dashboards with the results may be tailored as needed. For the farmer the

outcome information is more granular than for the other users, so they can handle information and take decisions on their farming.

5. The Benchmarking Tool

5.1. Benchmark tool

For this project, the benchmarking tool does not fit to compare the Bonsucro Smallholder Calculator and VerifiK8 tool because it is the tools that we need to compare, and not the standards.

The tool used was provided by Bonsucro, but it had to be modified as the benchmark is for a tool and not for a different standard. The Bonsucro Benchmark Protocol in its version 1.2.1 (September 2018) frames the process used in this specific situation but had to be adapted to focus on the tools.

As it is defined, the VerifiK8 owners participated actively on the benchmark filling the benchmark templates and some other useful information comparing the VerifiK8 tool to the Smallholders group Calculator. All this information was revised to confirm that the information was accurate.

The comparison used the Bonsucro Smallholder standard as reference to assure that the sustainability approach is fulfilled by the VerifiK8 tool, addressing production, environmental and social indicators. Fairagora filled a data sheet meant to measure if the VerifiK8 tool is aligned with the smallholders Standard and the Smallholders Group Calculator and then the inputs on the calculator were compared against the inputs on the VerifiK8 web platform. This exercise was done several times to include the modifications on VerifiK8 tool.

Comparison was done on the following broad areas:

- General Criteria in both tools
- Core indicators
- Other indicators.

5.2. Use of the Tool

The Fairagora team filled a spreadsheet to compare VerifiK8 and other standards with the Bonsucro Standard and sent some support documents referring on detailed information used to align both tools. The benchmark only revised the information between Smallholders production standard calculator and VerifiK8 tool inputs.

I was given access to the GreenVerifiK8 test farm owner platform. This partial access permitted to verify how information is collected and recorded by the farm managers.

The Spreadsheet was used to compare that all the information is included and aligned between both systems. VerifiK8 created specific inputs to meet the BSHC requirements, including the inputs to demonstrate the implementation of core indicators. During the benchmark, the tool was modified to include all the inputs needed to meet the requirements of the Bonsucro calculator.

Then, the inputs of VerifiK8 were compared on the Bonsucro smallholder calculator in the BC Comparative spreadsheet, to see if the inputs match the calculator requirements, this because some inputs are needed to calculate the results, and may ask for different inputs.

During the benchmark, the VerifiK8 tool was modified to include all the inputs needed to present the results that Bonsucro Smallholders Calculator includes. Bonsucro Smallholder calculator shows the group results to indicate if compliance with the standard is achieved through the audit process. The outcome reports cannot be compared, as VerifiK8 offers to develop those outcome reports as needed by the user but offers all the options in the report information record as the inputs are aligned to the Bonsucro Smallholders calculator.

6. Alignment of the Smallholder Group Calculator and the VerifiK8 Tool

6.1. Alignment status

The benchmark was made between both tools income information to check if they are aligned to fulfil information of the indicators:

- General Criteria in both tools
- Core indicators
- Other indicators.

Each indicator was assigned one of four categories indicating alignment:

- Full alignment: this status is assigned when the indicators and the inputs for the measurement of the indicators are in full alignment and there is an indication of the threshold Bonsucro requires for compliance”.
- Partial alignment: this status is assigned when the same input is found to be present in both standards and when the focus on the sustainability outcome to be achieved by the indicators showed similarity or need a calculation to meet the standard requirement.

- No alignment: this status was assigned when a specific indicator was absent from the income data or the outcome report.
- Not applicable: The principle applied in assigning non-applicable as an alignment status could be that there were certain areas with related indicators that are not part of the tool.

For core indicators, the comparison only indicated if the inputs to collect the data of core indicators were included. VerifiK8 does not mention if the input resembles to a core or non core indicator, letting the collection of the data objective. In any case, all the core indicators were included in the VerifiK8 tool inputs.

VerifiK8 is only a tool to gather the farm data without interfering on compliance. The auditor or the Standard owners will only decide compliance after the audit when comparing the information with the evidence. In this benchmark, the output and results dashboards are still in a planning stage and will move forward once the process moves from Benchmarking to the Phase of Recognition.

In VerifiK8 there are few other indicators needed specifically for the country where it is designed for, and also includes the option to record data in other units different from the Metric System, so the farmers can feel more comfortable and keep information of local requirements that Bonsucro do not needs.

6.2. Alignment summary

Bonsucro Smallholder Standard intention is to create a new way for Smallholder farmers (less than 25 Ha) to identify their performances, so they comply with sustainable practices on their farms. VerifiK8 intention is to develop a tool to gather data that shows alignment with Bonsucro sustainable principles so it can be used as support for the farmers in case they need to certificate.

Totals were generated for: 1) all indicators across the 7 principles, 2) for the indicators from the Bonsucro Smallholder Production Standard and the inputs in VerifiK8 tool.

Bonsucro key points are Obey the Law, Respect Human Rights, Manage input production and processing, Ecosystem & Biodiversity and Business Continuity. VerifiK8 tool was compared to the Smallholder Standard, where 40 of 42 indicators where included initially and later, after some work they fulfil the 100%.

In the next figures, you will appreciate the level of alignment between Bonsucro Smallholder Standard with VerifiK8 using the Bonsucro Standard Benchmark tool for each principle filled by Fairagora, where each indicator is given a letter V, D or X.

V stands for full alignment

D stands for Dashboard or dashboard calculation

X Stands for non-existent.

Principle 1. Obey the law has complete alignment between VerifiK8 and the Smallholder Standard.

BONSUCRO framework				
Principle	INDICATOR	Bonsucro Standard	smallholder standard	V8 Web
1	Obey the law			
1.1.1	National laws complied with	100%	V	V
1.2.1	The right to use land and water shall be demonstrated	100%	V	V
1.2.2	Land that is legitimately contested by other users	100%	V	V
1.2.3	Water that is legitimately contested by other users	100%	V	V

Principle 2. Respect human rights and labour standards has complete alignment between VerifiK8 and the Smallholder Standard.

BONSUCRO framework				
Principle	INDICATOR	Bonsucro Standard	smallholder standard	V8 Web
2	Respect human rights and labour standards			
2.1.1	Minimum age of workers and absence of forced or compulsory labour	100%	V	V
2.1.2	absence of forced or compulsory labour	100%	V	V
2.1.3	Absence of discrimination	100%	V	V
2.1.4	Respect the right of all workers to form and join trade unions and/or to	100%	V	V
2.2.1	Lost time accident frequency	100%	V	V
2.2.2	Assessment of the main health and safety risks and measures	100%	V	V
2.2.3	Appropriate personal protective equipment supplied to and used by all	100%	V	V
2.2.4	Percentage of staff trained for health and safety at start and at least	100%	V	V
2.2.5	All workers present in the field and/or mill have access to drinking	100%	V	V
2.2.6	All workers present on the field and/or mill have access to first aid and	100%	V	V
2.2.7	Working hours lost as percentage of total hours worked	100%	V	V
2.3.1	Ratio of lowest entry level wage including benefits to minimum wage	100%	V	V
2.3.2	Maximum number of hours worked	100%	V	V
2.3.3	Overtime is paid at a premium rate or equally compensated	100%	V	V
2.3.4	Payment for cane deliveries are made according to agreed contract	100%	V	V
2.4.1	Existence of a contract or equivalent document	100%	V	V

Principle 3. Manage input, production & processing efficiencies to enhance, only applies to smallholder farms the yield of production, and it is aligned between VerifiK8 and the Smallholder Standard, the rest of indicators from the Bonsucro Standard are non applicable.

BONSUCRO framework				
Principle	INDICATOR	Bonsucro Standard	smallholder standard	V8 Web
3	Manage input, production & processing efficiencies to enhance			
3.1.1	Total raw materials used per kg product	100%	V	x
3.1.2	Yield of production	100%	V	V
3.1.3	Mill overall time efficiency	100%	x	x
3.1.4	Factory Performance Index	100%	x	x
3.1.5	Industrial efficiency	100%	x	x
3.2.1	GHG emissions per tonne of cane	100%	x	x
3.2.2	GHG emissions per tonne of sugar produced;	100%	x	x
3.2.3	GHG emissions per MJ of ethanol	100%	x	x

Principle 4. Actively manage biodiversity and ecosystems services has complete alignment between VerifiK8 and the Smallholder Standard indicators.

BONSUCRO framework				
Principle	INDICATOR	Bonsucro Standard	smallholder standard	V8 Web
4	Actively manage biodiversity and ecosystem services			
4.1.1:	Dissolved Oxygen in receiving streams	100%	x	x
4.1.2	Percentage of areas defined internationally or nationally as legally	100%	V	V
4.1.3	The key environmental issues are covered by an appropriate and	100%	V	V
4.1.4	Ratio of fertilizer N and P applied (expressed in equivalent phosphate)	100%	V	V
4.1.5	Agro-chemicals applied per hectare per year	100%	V	V
4.1.6	Banned agro-chemicals applied per hectare per year	100%	V	V

Principle 5. Continuously improve key areas of the business. For this principle 10 indicators are not required, 6 indicators of them are fully aligned and 3 of them are included in the dashboard calculations for the VerifiK8 tool. There are also 3 indicators from the Bonsucro Production Standard that are included in the VerifiK8 tool.

BONSUCRO framework				
Principle	INDICATOR	Bonsucro Standard	smallholder standard	V8 Web
5 Continuously improve key areas of the business				
5.1.1	Percentage of payroll spent for or time spent by direct employees in	100%	x	V
5.2.1	Net water consumed per unit mass of product	100%	x	V
5.2.2	Water use efficiency	100%	V	V
5.2.3	Percentage ground cover of tops or leaves after harvest	100%	V	V
5.2.4	Soil surface tilled per year (% of area under cane)	100%	V	V
5.2.5	Percentage fields with samples showing analyses within acceptable	100%	V	V
5.3.1	Theoretical recoverable sugar content of cane	100%	V	D
5.3.2	Fermentable total sugars content of cane, expressed as invert (TSAI).	100%	V	D
5.4.1	Total net primary energy usage per kg product	100%	x	x
5.4.2	Energy used in cane transport per tonne of cane transported	100%	x	x
5.4.3	Primary energy use per tonne of sugarcane	100%	x	x
5.5.1	Atmospheric acidification burden per unit mass of product	100%	x	x
5.5.2	Non-hazardous solid residues per tonne of cane	100%	x	x
5.5.3	Percentage of categories of non-production waste categories that are	100%	x	x
5.6.1	Research and extension costs as a % of sale	100%	x	x
5.7.1	Percentage of greenfield expansion or new sugarcane project covered	100%	V	D
5.8.1	Existence of a usage of a recognized grievance and dispute resolution	100%	V	V
5.8.2	Percentage of projects involving multi stakeholders where agreement	100%	x	V
5.9.1	Value added / tonne of canne	100%	V	V

Principle 6. Additional mandatory requirement for biofuels under the EU Renewable Energy Directive (2009/28/EC) and revised Fuel Quality Directive (2009/30/EC) can not be used to demonstrate compliance with the EU Renewable Energy Directive, and does not apply to VerifiK8 or the Smallholder Production standard so this principle is not included in the benchmark.

Principle 7. Organization of farmers is fully aligned, after modifying VerifiK8 tool to complete the inputs required.

BONSUCRO framework				
Principle	INDICATOR	Bonsucro Standard	smallholder standard	V8 Web
7				
7.1.1	Identify Group and Manager		V	V
7.1.2	Farm Calculator from Certified Farms (% of target)		V	V
7.2.1	Provide training to farms within the unit of certification (% of target)		V	V
7.2.2	Extension services are in place - ratio 1:		V	V
7.3.1	Conduct internal inspections to verify compliance		V	V
7.4.1	Track volumes of cane production and sales		V	V

The results of this alignment exercise are shown in the table below.

RESULTS COMPARING VERIFIK8 WITH SHPS		
	Indicators aligned	Alignment %
PRINCIPLE 1	4/4	100%
PRINCIPLE 2	16/16	100%
PRINCIPLE 3	1/1	100%
PRINCIPLE 4	5/5	100%
PRINCIPLE 5	9/9	100%
PRINCIPLE 6	N/A	N/A
PRINCIPLE 7	6/6	100%

In the other hand, the VerifiK8 tool was compared to the Bonsucro smallholder standard. The summary of alignment between Bonsucro Smallholder standard and VerifiK8 input data feed, show 33 indicators to be fulfilled, and after some adjustment all 33 indicators are fully aligned (100%). And in addition, indicator 5.9 for example, exceeds the requirements of Bonsucro Standard, which means 100% of the indicators are equivalent somehow.

Even though, VerifiK8 presents all the indicators of the Bonsucro standard, it does not remark which of them are core. For the same reason, if an audit takes place using the VerifiK8 tool, the auditor should be capable to cover all the inputs Bonsucro Smallholder calculator needs.

Please see below the summary of the alignment status for all indicators.

<i>Bonsucro Smallholder Standard</i>								
<i>No</i>	<i>Principle</i>	<i>No</i>	<i>Sub-section</i>	<i>Total indicators</i>	<i>Full</i>	<i>Partial</i>	<i>None</i>	<i>Not applicable</i>
1	Obey the Law	1.1	To comply with applicable laws	1	1			
		1.2	Demonstrate clear title to land and water in accordance with national practice and law	1	1			
2	Respect Human Rights and Labor Standards	2.1	To comply with ILO labor conventions governing child labor, forced labor, discrimination and freedom of association and the right to collective bargaining	4	4			
		2.2	To provide a safe and healthy working environment in workplace operations	6	6			
		2.3	Provide employees with at least the applicable minimum wage	2	2			

		2.4	To provide clear, equitable and comprehensive contracts	1	1			
3	Manage input, production, and processing to enhance sustainability	3.1	To monitor production and process efficiency; to measure the impacts of production and processing so that improvements are made over time	1	1			
4	Actively manage biodiversity and ecosystem services	4.1	To assess impacts of sugarcane enterprise on biodiversity and ecosystem services	5	5			
5	Continuously improve key areas of the business	5.1	To continuously improve the status of soil and water resources	0	0			
		5.2	To continuously improve the quality of sugarcane and products from the sugar mill	3	3			
		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)	1	1			
		5.8	To ensure active engagement and transparent, consultative, and participatory processes with all relevant stakeholders	1	1			
		5.9	To promote economic sustainability	1	1			
7	Organization of Farmers	7.1	Farmers in the Unit of Certification	2	2			
		7.2	Training and Extension Provision	2	2			
		7.3	Internal Inspection	1	1			
		7.4	Volume tracking	1	1			
Total				33	33	0	0	0
Percentage					100%	0.0%	0.00%	0.00%
Percentage alignment (omitting NA)				33	100%	0.0%	0.00%	

Bonsucro calculator inputs comparison

The comparison between the input information of the Bonsucro Smallholder Calculator indicators, one by one with the VerifiK8 inputs showed that the calculator has 58 inputs, where 47 indicators are included or equivalent, 6 are partially aligned or may differ and 5 are not included in VerifiK8 inputs.

The indicators that are not included in VerifiK8 inputs and that appear on the Bonsucro Calculator are related to productivity and specific information from the standard such as the Average cane quality and others related to ethanol production that may be given by the Mills. This inputs are:

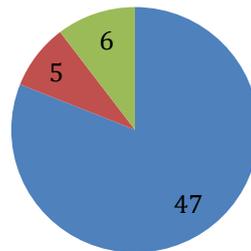
- 5.3.1 Fibre content of cane
- 5.3.1 Raw juice purity
- 5.3.1 Sucrose content of cane
- 5.3.2 Total sugars content of cane expressed as reducing sugars
- 5.3.2 Reducing sugar / sucrose ratio in cane

The inputs that are not equivalent but are somehow similar or a calculation is needed and lead to partial alignment are:

General	Number of female workers	Indirectly
4.1.4	Average recommended application of Nitrogen	They do not ask for recommendation only for soil analysis
4.1.4	Average recommended application of P2O5 (Phosphorus)	They do not ask for recommendation only for soil analysis
4.1.4	Is fertilizer applied according to recommendation (or below recommendation)?	They do not ask for recommendation only for soil analysis
7.3.1	Number of internal inspections that have been conducted	They ask for plot activities follow up
General	Year of Compliance (year 1, 2, 3, 4, 5)	This is directly necessary for audit purposes.

Comparative between Bonsucro Smallholder Calculator and Verifik8 inputs

■ Equivalent ■ Not included ■ Partially



VerifiK8 has worked and adapted some of the inputs to make sure that all the information is included and met alignment with Bonsucro SHC. In some indicators, such as 5.9 To promote economic sustainability, the VerifiK8 tool exceeds the requirements for the Bonsucro Standard.

In other indicators, VerifiK8 has modified the inputs to make sure that all the information is included and met alignment with Bonsucro SHC. For example, VerifiK8 included the links that Bonsucro uses to calculate productivity by climatic zones.

VerifiK8 aims to collect several data points from farms and mills to assess progress against Bonsucro Standard while Bonsucro Calculator aims to compute compliance against the standards, therefore VerifiK8 can be enriched with additional data points from other stakeholders.

7. Recommendations

7.1. General observations

It is important to clarify that this benchmark compared the inputs of the Bonsucro Smallholder Calculator with the inputs required in the VerifiK8 tool. The outputs are still in development stage for the VerifiK8 Dashboards, and are tailored to the user needs, so compliance is based on the inputs needed to demonstrate that the principles of the smallholder production standard are included.

VerifiK8 tool keeps social and environmental records for this indicators, and records of water usage, fertilizers and agrochemicals use for productivity inputs to calculate some indicators to show the compliance required. These records can be helpful for an audit to demonstrate

traceability and transparency of the information as records can be filled as they are collected on the farms.

VerifiK8 is available in the Web App and in the Mobile App. The latest one is generally used by the farmers due its friendliness for data input. The mobile app collects the data actively by the farmers and can be consulted by the mills, buyers and/or suppliers on the website making it easier to follow up through the website.

In the other hand the Bonsucro smallholder calculator is only to be used as a tool for the audit process once they have set a complete year information and the results are shared on the audit report to the farmer group manager. To collect data from time to time there is the farm diary, which is only mandatory to be filled by the 20% of the group farmers prior to first year of certification and increase in 20% every year.

About the core indicators, all of them are included as an input, but there is no reference or any emphasis that they are core. This may be positive to maintain objectivity during the data collection.

It is important, if interested on the Bonsucro certification, when developing the outcome dashboards that they fit the outcome reports of the Bonsucro Smallholder Calculator, and to include somehow the core indicators to help identify them and assure compliance. The outcome reports may guide the farmers to take actions on the indicators that need work and work on plans for continuous improvement.

7.2. Structures and auditing of Standards

As indicated before, VerifiK8 is not a standard or a compliance tool for certification, but a practical tool that permits farmers keep records on their performance to show sustainable practices. And this can be shared with different users, and adequate for their roll.

To certify, the Farms must have an onsite audit where the auditor fills the calculator with the collected evidence, and the calculator results must show that all the core indicators are complied and obtain over 80% overall. The audits are ruled by the Bonsucro Certification Protocol, and results are reported directly to Bonsucro and the client.

VerifiK8 is focused on recording data for social, production and environmental performance, for farmers. Even though this is not a tool for certification, this can be an excellent way to show evidence and support data when a Bonsucro audit takes place.

In any case, the auditors must validate the information collected with evidence recovered through the onsite audit and fill by themselves the Bonsucro Smallholder Calculator. The evidence can be collected through interviews, observations, and documented evidence, and this is where VerifiK8 can help as support tool.

It is important that training is given on the Bonsucro Smallholders Standard if there is intention to achieve this certification. Once the farmers feel that they are prepared and comply with the core indicators and have a good chance to get the required score on the calculator, they may ask for a Certification Body that is approved by Bonsucro to audit their farms. VerifiK8 records can be used to show the information records as a data base and evidence of compliance.

7.3. Quantitative vs qualitative Standards approach

As some of the indicators need qualitative approach, it is important to define the size of the sample or the support information to define compliance. This must have a broad explanation in how to fill the information on the app when it complies and what information supports the evidence.

VerifiK8 has the possibility to attach documents and pictures to prove some of the requirements, giving chance to show evidence on qualitative information such as the permissions and contracts.

For the qualitative information, both tools need that the data is filled on the correct measuring units. Some of the inputs are used for further calculations, the formulas used on VerifiK8 are equivalent to those of the Bonsucro Smallholder calculator.

It is important to recall when it is needed the measuring unit as a brief instruction or note in the VerifiK8 tool, to be sure that the information compared or shared with the auditors is aligned.

7.4. Dashboards

The dashboards shown in the web app, can show progress in a timeline, and can filter information for different plots or farms. The outcome reports can be tailored as needed for each user. The information is not public, VerifiK8 has a data policy which states who has access to the information, safeguards the ownership to the data generator and follows the EU Code of Conduct on Agricultural data sharing.

VerifiK8 has developed different dashboard for each user: farmers, suppliers and mills which are made of:

- i- top section with key numbers for each specific user
- ii- customizable inputs graphs and maps of the users related information
- iii- Readiness toward Bonsucro
- iv- detail information in relation to each user

The dashboards can be adapted to the user needs. The below dashboard are some examples to illustrate how information can be shown to the various users.

Dashboards -

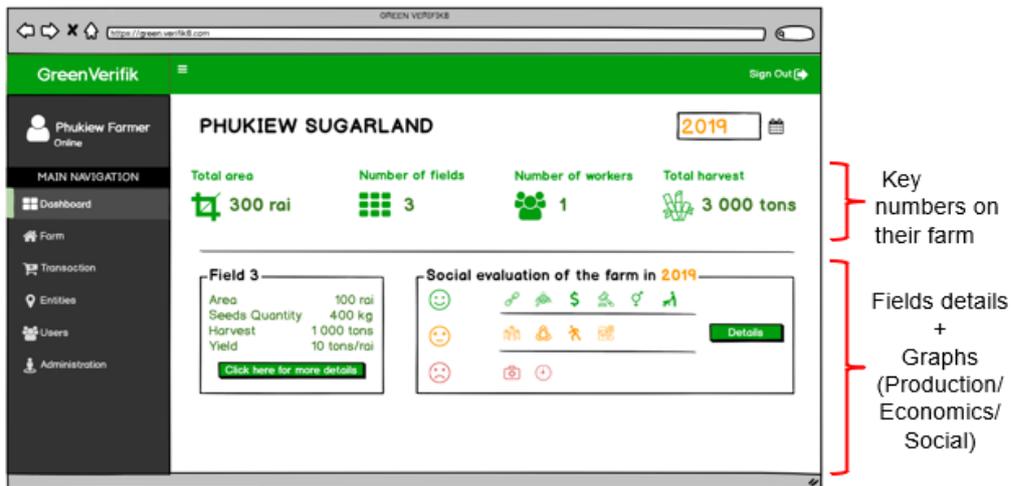


Figure 1 Farm dashboard example showing social indicators

Dashboards -

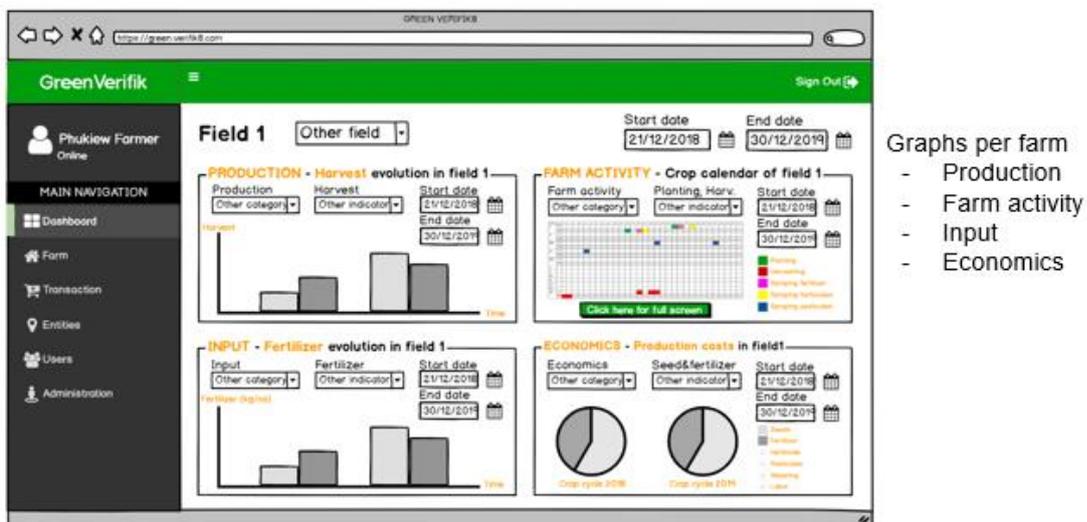


Figure 2 Farm dashboard example showing productivity indicators

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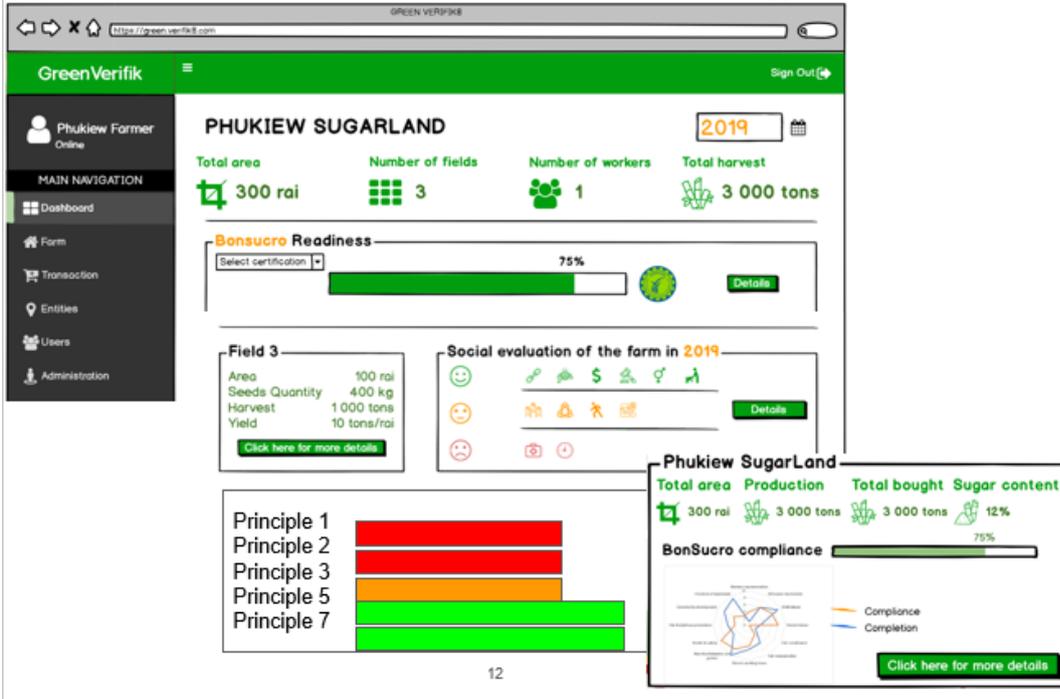
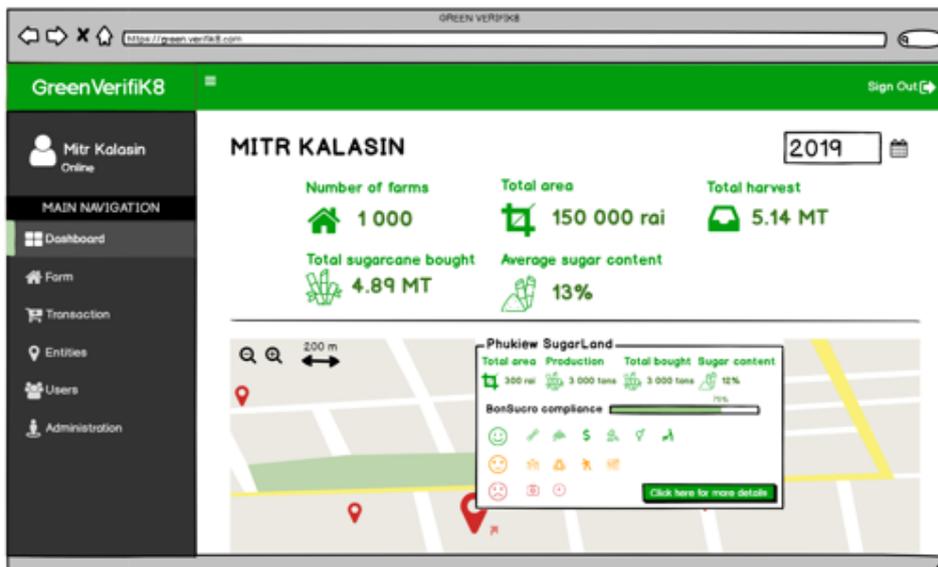


Figure 3 Dashboard showing improvement on Bonsucro Standard certification goal example

Dashboards -



Key numbers on the farms they buy from

Map of the farms they buy from

Figure 4 Mill dashboard example

7.5. Development of Guidance documents and training

Bonsucro standards include a guidance document where every indicator is explained broadly. VerifiK8 is still developing the system to collect information, so it is recommended to include instructions or a guidance on how to fill the inputs or what is needed to be considered as compliance when information is asked.

VerifiK8 staff has been working closely with hundreds of farmers and various mills to seek if the system is adequate and easy to fill. This may be included in a guidance or instruction document for users.

7.6. Small Producer Organizations and smallholders

For Bonsucro the smallholder farmers group or association can be formed by many small farms (managing under 25Ha) listed or organized with the purpose of achieve certification. This group must be leaded by a group manager who is responsible for the actions of the group.

VerifiK8 also permits to group different plots and farmers. The information can be filtered in the system to include or exclude any of the farms in a period.

7.7. Other observations

The Bonsucro Smallholder calculator is the one that would determine the level of compliance with the Bonsucro production standard for smallholders (farms under 25 Ha). Even though the VerifiK8 tool can collect all the info, it must be still verified by an auditor and fill the Bonsucro Smallholder Calculator. Therefore, the tool does not guarantee that you will be certified by Bonsucro.

Now that we know that the inputs in each tool are equivalent and aligned, the VerifiK8 tool can be helpful during and audit to show the farms performance in each indicator through time. If all the inputs the tool asks for are completed, it can be a good option for farmers to present the information as evidence of their good practices and crop management.

It must be noted that the farmers must count with technical support, hardware, and internet access for VerifiK8 to operate. There must be a training for how to fill information in VerifiK8 and availability for farmers to access to the mobile app or system to collect and record information successfully.

Finally, in case that VerifiK8 is utilized to monitor the performance of the Bonsucro standard or to determine the indicators, it must be assured that the dashboards are designed presenting the corresponding results to ease the audit process and to demonstrate the different users compliance with the standard or specific indicators, such as child labour.

8. Bibliography

Manivong Phengkhouane, Bourgois Emmanuelle, 2017 White Paper. Thai Sugarcane Sector & Sustainability, FairAgora Asia Co Ltd <https://www.bonsucro.com/wp-content/uploads/2017/08/Thai-White-Paper-FINAL-LowRes.docx.pdf>

VerifiK8 2018, <https://www.VerifiK8.com/>

Bonsucro, 2018, Bonsucro Production Standard for Smallholder Farmers Version 1.0 www.bonsucro.com

Bonsucro, 2016, Bonsucro Production Standard Version 4.2 www.bonsucro.com

Bonsucro, 2016, Guidance for Bonsucro Production Standard Version 4.2 www.bonsucro.com

Bonsucro, 2017, Bonsucro Certification Protocol Version 5.1 www.bonsucro.com