



bci[™]
better cotton
initiative

Life Cycle Assessment Claims Guidance

May 2026
Version 1.2

Contents

Version History	2
-----------------	---

Introduction	3
---------------------	----------

LCA Data Available	3
---------------------------	----------

1. Available Metrics	3
----------------------	---

2. LCA Data Collection	4
------------------------	---

Member BCI LCA Data Use & Limitations	4
--	----------

3. Requirements for Use	4
-------------------------	---

4. Use Cases	5
--------------	---

5. Further Guidance	5
---------------------	---

6. Limitations of LCA Data Use	6
--------------------------------	---

Links to Find Out More	8
-------------------------------	----------

Annexe 1: What LCAs Can and Cannot Do	9
--	----------

Annexe 2: Best Practices for Using LCA Data in Claims	10
--	-----------

Version History

Version	Date	Changes made
v1.0	January 2025	First publication.
v1.1	November 2025	Minor changes made to accommodate for organisational rebrand.
v1.2	May 2026	Revisions to improve document flow and inclusion of further guidance taken from ' From Data to Impact: How to Get Cotton LCAs Right '.

© 2026 Better Cotton Initiative (BCI). This document is protected by copyright. All rights are reserved. Written permission by BCI is required for reproduction in entirety or portion.

Any defined terms included herein, if not defined, follow those contained in the Claims Framework. If there are inconsistencies in any of the definitions in these documents, those contained herein shall prevail.

Introduction

Since 2021, the Better Cotton Initiative (BCI) has worked with [Cascale](#) on the development of a Life Cycle Assessment (LCA) methodology for the Higg MSI, as part of the Cotton Expert Team. This Expert Team was established to develop a cotton-specific methodology that seeks to address some of the challenges related to creating a model for cotton LCA data and its uses. The result of this work was the development of the '[Industry Aligned Life Cycle Assessment Methodology and Requirements for creating Cotton Fiber Datasets for the Higg Product Tools](#)'. Whilst the challenges related to the modelling of LCA data for the cotton context remain, BCI is pleased to collaborate with Cascale and has provided Cascale with a cotton fibre dataset for BCI Cotton production to be used in the Higg MSI. The LCA results are available directly to users of the Higg MSI and any Retailer Brand and Buyer (RBB) Member of BCI currently sourcing BCI Cotton.

LCA Data Available

1. Available Metrics

BCI's holistic and inclusive standard, its [Principles & Criteria](#), lays out the global definition of the BCI Standard through six guiding principles and sets forth a continuous improvement pathway characterised by the adoption of improved cotton production practices.

LCAs cover some aspects of the environmental footprint of cotton production but not all aspects that BCI and its Programme Partners are working towards on their sustainability journey, like the efforts on decent work and sustainable livelihoods. LCA datasets therefore only partially reflect BCI's vision and mission.

BCI's LCA datasets are for the raw material production stage until the gin gate. Specifically, BCI LCAs provide the results for the production of 1 kilogram of cotton fibre (i.e. cotton lint) and its packaging at the gin gate.

The following LCA metrics are available for BCI Cotton production:

- 1. Global warming (CO₂);**
 - I. This metric measures the contribution of cotton production to climate change, expressed as carbon dioxide (or CO₂-equivalent).
- 2. Eutrophication;**
 - I. Eutrophication measures the potential for nutrient pollution of water and soil, mainly from nitrogen and phosphorus losses linked to fertiliser use.
- 3. Water use;**

- I. This metric quantifies the amount of freshwater used during cotton production, focusing primarily on irrigation water.

4. Abiotic Depletion (Fossil Fuels).

- I. Abiotic Depletion (Fossil Fuels) measures the use of non-renewable energy resources, such as oil, gas, and coal.

We currently have LCA metrics available from the following regions:

- China
- Egypt
- Pakistan
- Tajikistan
- India

BCI uses a three (3) season average for the LCA's published. BCI will then update datasets for the same countries and/or regions, where applicable, up to a maximum of every three (3) growing seasons, which would allow the BCI LCA metrics above to be eventually compared over time and showcase the impact of our programme over time.

Important: Comparisons are subject to the limitations outlined in Section 6 below.

2. LCA Data Collection

BCI collects Results Indicator (RI) field-level performance data on an annual basis from BCI Producers to measure progress towards sustainability improvements in all production areas. This is the data that informs the LCA calculations. Our [Working with Results Indicators](#) guide outlines BCI's methodologies for data collection and sampling. It also presents what measures are regularly taken to ensure data is credible, how BCI analyses the RI data, and what information is shared back to our Programme Partners for learning purposes. A subset of this RI data is used for LCA modelling purposes and Higg MSI. For further information on the RI data management processes used by BCI to ensure data quality and credibility, see the [Results Indicator Data Management Process](#) guidance documentation.

Member BCI LCA Data Use & Limitations

3. Requirements for Use

BCI LCA data available through the Higg MSI database can be used for claims to be disclosed in sustainability reporting. For all Members, the requirements for using the BCI LCA data are the following:

- 1) BCI will provide the results only to Members who are actively sourcing BCI Cotton, and/or who have sourced BCI Cotton during the previous calendar year that they wish to report on.
- 2) No Claims, statements or uses of the LCA datasets may be done outside of what is prescribed in this guidance document and the Claims Framework for BCI Cotton production and sourcing.
- 3) All Claims must be submitted in the usual claims submission process on the myBCI Member portal, and gain approval of the BCI claims team.

Important: The use of BCI LCA datasets is optional, and compliance with relevant regulatory requirements or specific voluntary reporting frameworks is the responsibility of the Member.

4. Use Cases

BCI supports the use of its LCA data by eligible Members for the following use cases:

- 1) **'Footprinting' or 'Hotspot' Analysis.** The LCA results can be used to identify the environmental footprint of a Member's raw material sourcing and/or identify hotspots in their supply chain and/or different product groups.
- 2) **Carbon Accounting.** Subject to requirements for specific reporting frameworks, Members can use the LCA results to calculate scope 3 emissions of their purchased or produced goods, or for other reporting frameworks that require or encourage LCA-based environmental impact calculations.
- 3) **Risk Assessment.** LCA findings can aid climate and nature risk assessments (such as those aligned with TCFD or TNFD frameworks) by identifying sourcing vulnerabilities within the supply chain that stem from environmental and climate-related changes.

Note: Examples of correct claims wording can be found in Annexe 2 of this document.

5. Further Guidance

The following guidance for use of the Higg MSI LCA data has been prepared with Earthshift Global consulting:

- Claim text should be truthful, clear, accurate, unambiguous, and proportionate.

- Although the involved lifecycle stages, geography, and temporality are reported as part of the Higg MSI dataset documentation, it is recommended this information is also described as part of the claim for transparency purposes.
- Should include a link to or QR to the Higg MSI database access page and refer to the name of the dataset used.
- Should consider country-specific consumer protection regulations, if applicable.
- Claim text should not be used in conjunction with ambiguous statements or stand-alone terms like carbon neutral, climate neutral, net zero, or sustainable.
- Consideration of offsets or any Beyond Value Chain Mitigation should be clearly stated in text and separate from the LCA claim.
- Claims must refer to explicit environmental impact magnitude(s) in terms of relevance for company's operations.

Further Reading: Annexe 1, 'What LCAs Can and Cannot Do' and Annexe 2, 'Best Practices for Using LCA Data in Claims' provide readers with further guidance on how to use LCA claims in practice.

6. Limitations of LCA Data Use

Members using BCI LCA results should not use them for the following purposes:

- 1) **Product-Level Claims.** In accordance with the Claims Framework, none of the results provided via the BCI LCA can be used at the Product-Level which includes statements on, alongside or in connection with products, whether on physical labels or on e-commerce webpages.
- 2) **Comparisons.** Due to the limitations outlined below, LCA results from different regions, seasons, or other cotton programmes should not be used to inform sourcing decisions. Specifically, the following comparisons should not be made using LCA data:
 - a. **Time-Bound.**
Until there is more than one LCA available for each geography (country-level) for BCI programmes, no comparisons can be made. LCA comparisons require the same exact data set, country and methodology across a different time period for meaningful comparison.

Note: Any LCA data comparisons outside of time-bound comparisons described above should never be performed. See limitations below.

- b. **Geographic**
LCA data collected for the different BCI growing regions varies significantly due to different growing contexts. It is therefore not possible to compare between BCI regions since model assumptions would be different. It is also important to note that regions have differences in terms of irrigation, climate, pest pressure or

socioeconomic configurations which make it impossible to meaningfully compare regions.

Note: Geographic or regional results comparisons should not be used to inform sourcing decisions.

c. **Between Cotton Sustainability Programmes**

Each cotton programme's data is different. Besides location or geography, things like how well the data represents the area, the year it was collected, the different data gaps and assumptions, and how and when it was collected all vary. This makes it hard to compare programmes fairly, which doesn't help with sourcing decisions and therefore should not be done.

d. **Between BCI Cotton and 'Conventional' Cotton**

The datasets used to calculate the scores and/or metrics for conventional cotton and BCI Cotton are not the same. In the same way that BCI shouldn't be compared to another cotton programme or between BCI Cotton producing regions, it also can't be compared to conventional cotton.

Example of Misuse: 'By switching our sourcing of cotton from Pakistan to BCI Cotton in India, we have reduced our CO2 emissions by 8%'.

Links to Find Out More

Cascale website: <https://cascale.org/tools-programs/higg-product-tools-cotton-lca-methodology/#:~:text=Download%20the%20Methodology>

BCI LCA blog: <https://bettercotton.org/life-cycle-assessments-why-we-are-changing-our-approach-to-lcas/>

From Data to Impact: How To Get Cotton LCAs Right:
<https://bettercotton.org/documents/from-data-to-impact-how-to-get-cotton-lcas-right/>

For questions, please contact: claims@bettercotton.org

Annexe 1: What LCAs Can and Cannot Do

What you Can & Cannot do with LCAs

Identify environmental hotspots and supply chain risks (e.g., irrigation, energy use), which guides interventions and support to address greatest impact across supply chains.

Support regulatory compliance (e.g., CSRD, PEF), which provides data for meeting evolving disclosure requirements.

Support Scope 3 emissions reporting and science-based target setting by providing high-quality, consistent input data. LCA data can complement GHG accounting by revealing methodological boundaries and system-wide effects that traditional Scope 3 reporting and SBTi frameworks may overlook, helping reduce the risk of misleading claims from simple emission factors, even if the broader system impacts don't support that claim.

Track long-term change, which allows assessment of environmental improvements over time.

Highlight trade-offs, which helps balance the benefits and tradeoffs of interventions.

Enhance transparency when contextualized, which builds trust through credible, data-driven communication.

Accurately compare cotton types or regions without aligned methodology considering the same level of data inputs and contextual factors, as context-specific data and assumptions make cross-comparisons misleading.

Capture social, economic, or compelling biodiversity and microfibers impacts, as LCAs focus on well-studied environmental categories. It misses relevant environmental aspects of emerging concern for which robust impact characterization factors are under development.

Serve as a stand-alone sustainability metric, as sustainability is multi-dimensional and LCAs are only one tool among many.

Reflect short-term changes in farming practices, as LCAs are designed for long-term trend analysis, not seasonal nor incremental shifts.

Support overgeneralized or headline claims, as LCAs simplify nuanced environmental and social realities, risking misinformation (IWTO, 2022).

Justify prescriptive sourcing decisions in isolation, as LCAs overlook complex trade-offs and risks unintended consequences.

Source: [From Data To Impact: How To Get Cotton LCAs Right - Better Cotton Initiative](#)

Annexe 2: Best Practices for Using LCA Data in Claims

Source: [From-Data-to-Impact_How-to-Get-Cotton-LCAs-Right_October-2025.pdf](#)

Guidance One

How to Use LCA Data

Introduction

Rationale and Target Audience

The Better Cotton Initiative (BCI) seeks to provide members with further guidance on how to responsibly use cotton Life Cycle Assessment (LCA) data when making environmental claims. The main objective of this document is to guide the proper use of LCA data.

Proper data use can increase benefits while reducing risks. One particular risk is greenwashing (when an organization claims a product is more environmentally responsible than it is, leading to stakeholder distrust). This document offers best practices for leveraging LCA data and ensures alignment with global green claims legislation and traceability requirements. This document is intended to provide clear guidance on **how organizations sourcing BCI Cotton can and cannot use the LCA data** from cotton fiber LCA studies, BCI data in Higg MSI, Scope 3 intervention projects, and yearly GHG footprints for sustainability reporting. It is important to note the use of BCI data and any claims stemming from its use are subject to the requirements of the BCI [Claims Framework](#).

Section One

LCA and GHG Accounting Scopes

LCA is a standardized methodology for assessing environmental impacts across all stages of a product or process life cycle. It evaluates resource use, emissions, and ecological footprints from raw material extraction to disposal. LCA measures greenhouse gas (GHG) emissions, or “carbon footprint”, as well as other impact metrics.

Figure 1 presents a case for the LCA of a garment. It is a system boundary diagram showing the product system, depicting the general unit processes that are accounted for in the study. A garment lifecycle involves many more steps than assessing cotton lint, where the agricultural and ginning stages are the only two major processes. In this case, the study is a cradle-to-cradle analysis assessing cotton lint input, garment production, use, and recycling at the end of life.

LCAs evaluate the impact of a product or a service in terms of a unit of a fulfilled function and calculate impacts, such as GHG emissions. The Greenhouse Gas Protocol for carbon accounting includes Scope 1, 2, and 3 GHG emissions. An LCA assessment accounts for all three Scopes; however, this impact is most commonly presented as total GHG emissions. In order to organize the resulting GHG emissions from the LCA assessment into 1, 2, and 3 Scope GHG emissions, it is vital to understand at which point in the lifecycle the emissions are being considered, as well as from whose perspective.

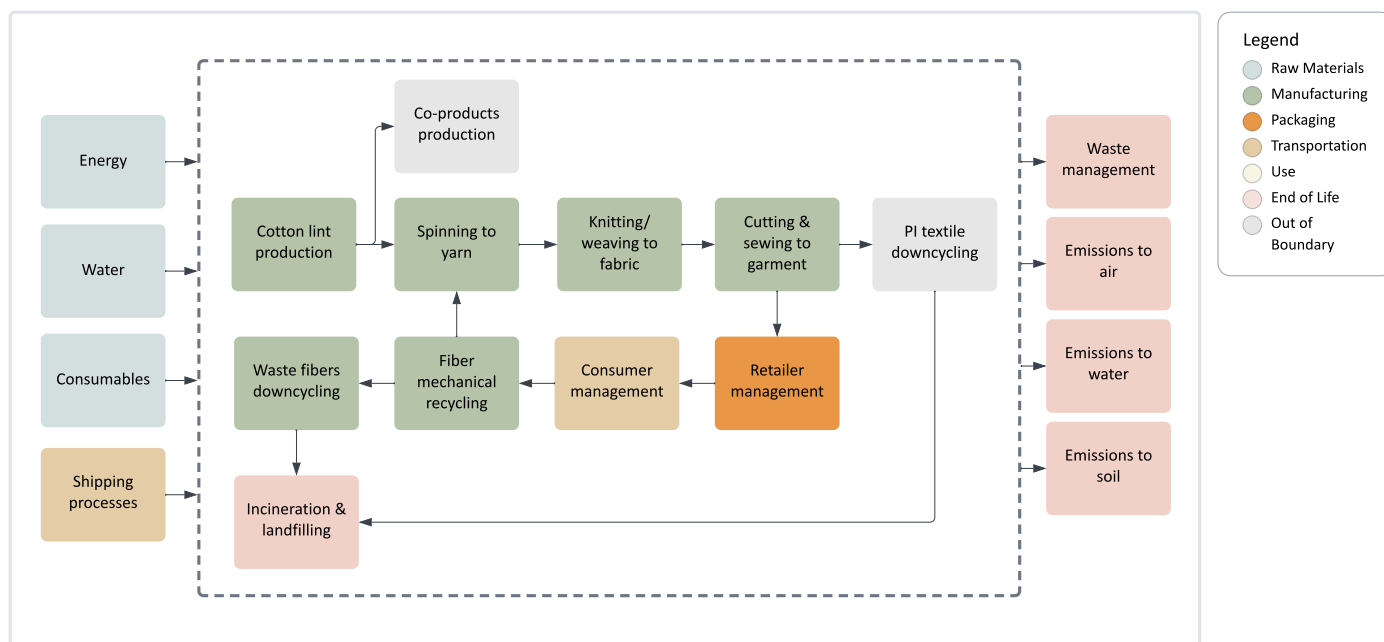


Figure 1. System boundaries for the LCA of a garment from cradle-to-cradle.

For example, for the retailer of a garment, Scope 1 may include air conditioning, fugitive emissions, and fuel combustion from its trucks transporting apparel to different locations. Scope 2 may include electricity consumption in the warehouse and retail stores. Scope 3 may include the remaining emissions, such as the emissions that occurred due to manufacturing the owned vehicles to the emissions from making and applying the fertilizers used in cotton production.

From the cotton farm perspective, Scope 1 includes emissions from fertilizer application, Scope 2 may include electricity used for irrigation, and Scope 3 may include the emissions from fertilizer production, for example.

Thus, the cotton farm's Scopes 1, 2, and 3 emissions are all part of the retailer's Scope 3 emissions.

Better Cotton Initiative (BCI) members include cotton producers, cotton suppliers and manufacturers, brands and retailers, and certification bodies. For each type of member, Scopes 1, 2, and 3 imply a different set of operations at each level in the supply chain.

Unlike GHG accounting, an LCA always includes all of these impacts and Scope 3 is never optional. Further, LCA includes other metrics, such as ozone depletion, eutrophication (excess nutrients), and resource consumption.

A simple way to distinguish LCA metrics from GHG scope metrics is that LCAs focus on products, processes or services, while GHG scope reporting centers on entities or organizations. Cotton LCA metrics are often used in organizations' GHG reports, specifically in regard to Scope 3 accounting. There are multiple sources of cotton LCA data available, but it's important to consider their limitations when using them.

GHG emissions from cotton lint production are an important sustainability metric for all members. Accurate use of LCA GHG data for Scopes 1, 2, and 3 therefore requires an understanding of life cycle stage and stakeholder perspective.

Section Two

Sources of Cotton LCA Data

Cotton LCA data is based on cotton LCA studies and LCA datasets.

- **An LCA study**, depending on its goal and scope, will assess a specific cotton for a certain organization, within a country or region, with specific agronomic inputs, practices, and yield.
- **An LCA dataset** is derived from one or multiple studies. Datasets are available through LCA databases and are usually built following specific quality criteria and published after an extensive review process before they are available for use by database users to develop more LCA studies. For the case of cotton, several LCA databases provide generic datasets users can integrate into a model to calculate a yarn or a garment's environmental impact.

LCA studies depend on methodological sources, and choices made when assessing cotton lint production will affect the results. *This means results from different LCA studies cannot be compared if the methodological and data sources used in the LCA studies are different.* For example, LCA metrics can be representative of a country's average production, based on statistics and assumptions, or be specific to an organization using primary data to represent its operation. Moreover, the methodological choices in an LCA model play an important role in the results. For this reason, cotton lint LCAs require thoughtful interpretation to ensure accurate application. It's also why many programs set specific guidelines regarding how an LCA must be conducted.

While separate LCA studies should not be directly compared, the following sources of data can be used by Better Cotton Initiative (BCI) members to explore the impact of cotton production:

- **BCI Cotton Datasets available through the Higg Materials Sustainability Index (Higg MSI) Platform.** Higg MSI uses LCA to measure material impacts, including cotton. BCI submits LCA datasets to Higg MSI, which are based on primary data collected by BCI's implementation partners and are thus representative of BCI farms' production processes as a whole. Currently, information is available for India; the assessment and submission to the MSI Contributor tool for the remaining regions is in progress. While the Higg MSI may be useful for assessing the production of a whole garment, because the data comes from different sources making different choices, comparisons using the Higg MSI should be used with care.
- **BCI Study Reports.** BCI has published a comparative GHG emissions study of BCI Production and comparable production across five countries (India, Pakistan, China, Tajikistan, Turkey) and GHG emissions for countries contributing over 80% of BCI's total production (India, Pakistan, China, Brazil and USA). In both reports, the impact is representative of the period 2015-2018. Newer and updated GHG reports will be available on a periodic basis beginning in 2026. The update is to be based on a farm footprinting report plan and updated baseline for comparison. Like the Higg MSI data, these data may be used for the carbon footprint of a garment, for example, and allow for comparisons of products made from cotton from different countries. Comparison with other fibers is not recommended.
- **Other Higg MSI Cotton Datasets** are available for a range of cotton products, independent from BCI, including cotton representative of other programs, and cotton producing regions unaffiliated with any program. Users of any dataset must review each dataset detail and choose accordingly, on a case-by-case basis, depending on what is sought to be represented (e.g., geographic sourcing, sourcing from standards or certified materials, etc). These datasets should not be used for cotton sourcing comparisons.
- **Commercial LCA Databases**, like ecoinvent, WFLDB, Agrifootprint, GaBi, and others are another source of information for the impacts of cotton lint production offering country, regional, or global estimates. Here, users must be aware of identifying the correct product they are looking for: cotton, cotton seed, seedcotton, lint, or others. Understanding the complexity of LCA databases may require some level of practice in the field

- **Private Independent Studies** on cotton and lint production at the farm level developed for farms or farm organizations, or with farms' data, are another potential source of information if they have been critically reviewed for ISO 14044 compliance. The cotton is usually the highest quality for use in a product LCA or footprint. An example of this kind of study is the [LCA of cotton cultivation systems commissioned by C&A Foundation](#). In general, independent studies are valuable when the commissioner needs to be able to compare cotton alternatives for decision making or for marketing purposes.

In all cases, data timeframe, impact allocation choices between seedcotton and lint, and impact assessment method, among other aspects, make each dataset and study unique. This is why independent studies and datasets should not be used for comparisons. Making comparative claims without having a proper comparative ISO conformant critically reviewed LCA study for substantiation can pose risks (see section four) for member organizations.

Section Three

Uses of Cotton LCA Datasets and LCA Metrics

In general, LCA is a great tool for impact contribution and hotspot analysis, understanding levers for environmental improvement, product comparison based on their function, assessing more than only GHG emissions, and thus identifying environmental tradeoffs when comparing different products or intervention alternatives.

Co-benefits of doing LCA may include fostering relationships with suppliers while collecting data and co-creating positive interventions in the supply chain to reduce impact.

In order to compare LCA values, the product systems must adhere to consistent methodological choices. It is inaccurate to compare LCA metrics from independent studies unless they follow the same specific guidelines. And even if the guidelines are the same, these comparisons are not allowed under ISO standards for LCA. For product comparisons, ISO standards require a comparative LCA study; this means that for product comparison, a case-by-case specific comparative LCA study must be developed.

Using independent datasets or independent single product studies to make sourcing decisions is also not viable because methodological choices, uncertainty drivers, and even temporal aspects of the information may differ. Comparative LCAs ensure consistency and functional equivalence. Thus, for sourcing decisions, it is advisable that companies develop a specific comparative LCA study for their specific decision goals.

The following table summarizes the potential cotton lint LCA uses based on the source of LCA data. Observing this guideline is meant to help Better Cotton Initiative (BCI) members understand what type of LCA data can be used for different purposes.

Table 1. Available cotton LCA data sources and their potential application for different uses.

LCA use/ data source	Higg MSI database (including BCI datasets)	LCA commercial databases	Independent assessments
Hotspot analysis (e.g., Is fertilization more impactful than irrigation?)	At material category and production phase level, as available in the Higg product module	Sometimes at country level	At any level, including farm level
Fiber/ lint comparison (e.g., Is cotton from x less impactful than y?)	Comparisons are not allowed	Not advisable without carefully reviewing dataset assumptions and methodological aspects	Yes, from studies comparing the fiber/lint in question
Cotton products comparison (e.g., Is yarn from x less impactful than y?)	Comparisons are not allowed	Not applicable, but could be an input to independent assessments	Yes, from comparative studies
Identifying tradeoffs from intervention projects (e.g., Will increasing yield by incrementing fertilizer input be beneficial for all environmental aspects?)	Not applicable	Not applicable	Yes, if defined as part of the Goal and Scope of the study
Fostering relationships with suppliers (e.g., Would cotton x and y suppliers be open to implement changes to source 100% renewable electricity in irrigation?)	Not applicable	Not applicable	Yes, if suppliers are involved in data collection efforts and next steps after learnings from study
Report on Scope 3 metrics (e.g., What data can be used to report the GHG emissions of the cotton we source?)	Potentially, disclosing caveats	Potentially, disclosing caveats	Yes, if the study is specific to or for the reporting organization

Section Four

Risks of Misusing LCA Metrics

Environmental claims not backed by robust assessments or following established standards are considered greenwashing and pose specific risks.

- ▶ **Reputational risks:** allegations of greenwashing can diminish trust and cause reputational damage. Erosion of trust can result in short and long term damage to the brand, and diminished support from core stakeholders including consumers and investors. These risks are amplified by the nature of social media and how quickly information is shared.
- ▶ **Regulatory risks:** specific communication and reporting regulations exist to require companies to explain green claims, and to investigate and enforce actions against misconduct. These regulations vary by country, so it is critical to understand the regulations in the countries in which an organization chooses to operate.
- ▶ **Litigation risks:** civil litigation against organizations accused of greenwashing – in particular, climate-related greenwashing is becoming increasingly common.

Section Five

Greenwashing and Regulatory Compliance

Greenwashing refers to misleading sustainability claims that exaggerate environmental benefits. Common examples include vague claims (e.g., "eco-friendly" without substantiation), cherry-picking favorable data while ignoring negative impacts or tradeoffs, and using unverified or self-declared sustainability labels. In order to avoid this, Better Cotton Initiative (BCI) members should align to the following key regulations, among others, when developing claims.

- ▶ **EU Green Claims Directive:** Requires verifiable and scientifically sound claims.
- ▶ **ISO 14021 & ISO 14067:** Guidelines on self-declared environmental claims and carbon footprint quantification.
- ▶ **US Federal Trade Commission (FTC) Green Guides:** Framework for ensuring truthful environmental marketing.

For ensuring compliance, it is recommended to use third-party verified data where possible, provide accessible documentation to substantiate claims, and avoid comparative claims unless they are based on standardized methodologies.

Section Six

Best Practices for Using LCA Data in Claims

These are the best practices for using LCA data in claims. Following these best practices will help minimize the risks of greenwashing.

Transparency and Accuracy

Following ISO 14044 requirements for claims will protect against the risks identified above.

- ▶ Clearly state the scope and boundaries of the LCA study used (e.g., cradle-to-gate vs. cradle-to-grave).
- ▶ Use the best available data; in the best-case scenario, this would be the most up-to-date and peer-reviewed data available. When the best available is somewhat old and not totally representative of a specific geography, this should be documented explaining the caveat and the justification for why this data metric was chosen.
- ▶ Avoid overgeneralizing results—LCA findings vary based on region, production method, assumptions, and LCA assessment method. The method used, including Global Warming Potential (GWP) factors, should be disclosed.
- ▶ An internal review (external for ecolabeling) is recommended prior to sharing impact scores or footprints.
- ▶ For comparisons, claims can only be published if supported by a third-party reviewed ISO conforming comparative LCA report. Backing claims with uncertainty analysis is recommended.
- ▶ For traceability purposes, data sources (published reports, database, or other) shall be specified.

Example 1

Incorrect	The water scarcity score for our sourced cotton fiber is 3.5.
Correct (LCA practitioner language)	The water scarcity impact for 1 kg of our sourced cotton fabric is assumed to be 3.5L at gin gate. The value is the best available at the moment for our company. It is based on available data for India for the period 2016-2023. The dataset was taken from ecoinvent 3.10 database and assessed using the AWARE method 1.06.
Correct (marketing language)	<p>In 2023, the water scarcity impact for 1 kg of our sourced cotton fabric was measured at 3.5L. Footnote 1.</p> <ol style="list-style-type: none"> 1. This value was calculated at the gin gate stage and is based on available data for India for the period 2016-2023 using datasets from the ecoinvent 3.10 database, and calculated using the AWARE method 1.06 assessment method.

Contextualizing Results

- Provide comparative references where applicable.
- Clarify the units of measurement and time frame (e.g., kg CO₂e per kg of fiber).
- Highlight limitations and uncertainties in the data to ensure claims remain balanced and factual.

Example 2

Incorrect	Sourcing Better Cotton Initiative (BCI) fiber has a footprint impact of 3.5 kgCO ₂ e.
Correct (LCA practitioner language)	Based on a study developed for BCI by the firm Anthesis, GHG emissions from BCI production across China, India, Pakistan, Tajikistan, and Turkey are, on average, 3.589 kgCO ₂ e/ kg lint. The study considered data for 3 growing seasons, between 2015 and 2018, and includes agriculture, transportation, and ginning operations. 84% of emissions were allocated to lint, and 16% to cotton seed. The study report is available in this link .
Correct (marketing language)	<p>GHG emissions from BCI in China, India, Pakistan, Tajikistan, and Turkey averaged 3.589 kgCO₂e/ kg of lint in 2018. 84% of emissions were allocated to lint, and 16% to cotton seed. Footnote 1.</p> <ol style="list-style-type: none"> 1. Study considered data for 2015-2018 growing seasons and included agriculture, transportation, and ginning operations. Full study report available here.

Avoiding Misrepresentation

- Do not use LCA data selectively to make misleading claims.
- Ensure claims reflect an entire product lifecycle, not just a single stage for the benefit of the stakeholder making the claim. Likewise, if the claim pertains to a specific lifecycle stage, ensure transparency.
- Refrain from implying absolute environmental benefits without considering trade-offs.

Example 3

Incorrect	Our intervention program for improved carbon management achieved a 15% reduction in global warming.
Correct (LCA practitioner language)	Our intervention program for improved carbon management was assessed with LCA. The results showed a 15% reduction in GHG emissions at the farm gate per lb of harvested cotton. However, trade-offs were found as the remaining of impact categories assessed, including eutrophication, and water scarcity show a 5-10% increase in impact.
Correct (marketing language)	<p>According to LCA analysis, our intervention program for improved carbon management resulted in a 15% reduction in GHG emissions per pound of harvested cotton for the time period X compared to Y.</p> <p>The LCA analysis also identified increases in eutrophication (5%) and water scarcity (10%), indicating trade-offs with the intervention program. We plan to explore these in more detail as we consider how to advance this program. Footnote 1</p> <p style="padding-left: 40px;">1. The LCA study was performed by ... (provide study details)</p>

The Better Cotton Initiative (BCI) LCA data available through the Higg MSI database can be used in claims to be disclosed to the public. These claims have to refer to explicit environmental impact magnitude(s). Comparative assertions are not supported by BCI.

For all stakeholders, the requirements for using the BCI LCA data are the following:

- Claim text should be truthful, clear, accurate, unambiguous, and proportionate.
- Although the involved lifecycle stages, geography, and temporality are reported as part of the Higg MSI dataset documentation, it is recommended this information is also described as part of the claim for transparency purposes.
- Should include a link to or QR to the Higg MSI database access page and refer the name of the dataset used.
- Should consider country-specific consumer protection regulations, if applicable.
- Claim text should not be used in conjunction with unambiguous statements or stand-alone terms like carbon neutral, climate neutral, net zero, or sustainable.
- Consideration of offsets or any Beyond Value Chain Mitigation should be clearly stated in text and separate from the LCA claim
- Claims should use published indicators only.

Section Seven

Conclusion and Next Steps

Responsible use of LCA data strengthens credibility and trust among stakeholders. Better Cotton Initiative (BCI) encourages members to:

- Follow best practices in LCA interpretation and communication. This includes avoiding the use of independent LCA metrics for making comparisons and sourcing decisions.
- Align claims with regulatory requirements to avoid greenwashing, and regularly update them as new data emerges.
- Seek third-party verification for added credibility. In some cases (e.g., the Green Claims Directive of the European Union), claims are subjected to verification as part of regular checks required from

government entities. In addition, verification must also be conducted when substantiated complaints are submitted by persons or organizations with legitimate interest.

- Seek independent legal review of intended claims against applicable regulations.
- Consider that LCA is more than the GHG emissions indicators, helping to overcome a limited carbon tunnel vision. At the same time, LCA has limitations, such as the fact that it does not consider holistic sustainability. It focuses on environmental impacts only. Other tools need to be used to measure socioeconomic impacts.

Guidance Two

How to Use LCA Data in Scope 3 Accounting

Introduction

Rationale and Target Audience

A significant body of literature already exists on the life cycle impacts of cotton, other fibers, textiles, and LCA (Life Cycle Assessment) methods, which are used globally by industry operators, policy developers, regulators, and academic researchers. However, despite international standards such as ISO 14040, ISO 14044, and the Greenhouse Gas Protocol, there remains variability in LCA practice. This leads to variability in potentially comparable results, which in turn affects policy development, corporate use, and regulatory effectiveness.

This guidance is for Better Cotton Initiative (BCI) members who seek to establish or improve scope 3 accounting with the use of supply chain data, including LCA data.

Section One

Cotton GHG Footprint Data in Scope 3 Accounting

Available data for reporting Scope 3 Greenhouse Gas Emissions (GHG) is diverse. Practitioners may use available cotton lint or fiber impact indicators from published reports by different organizations, refer to the values found in LCA generic commercial databases, or seek specialized LCA databases like the Higg MSI. Values may be similar to the ones in the following table, which depicts the Global Warming Potential (GWP) for 1 kg of cotton lint as modeled in the ecoinvent 3.10 database, analyzed under different impact methods for climate change.

Table 1. Some examples of cotton LCA datasets from the ecoinvent 3.10 database and its impact result under different IPCC methods.

Dataset	Geography	Temporality	IPCC 2013 100y	IPCC 2021 100y	IPCC 2021 100y with carbon uptake
Fibre, cotton {GLO} market for fibre, cotton Cut-off, U	Global	2011 data, last updated in 2024	4.06	4.1	1.01
Fibre, cotton {IN} fibre production, cotton, ginning Cut-off, U	India	2017 data, last updated in 2024	9.48	9.57	6.62
Fibre, cotton {RoW} fibre production, cotton, ginning Cut-off, U	Rest of the World	2018 data, last updated in 2024	2.16	2.17	-0.963

It is not only the choice of dataset and database¹ that matters, but also the geography and data temporality. As seen from the example above, the choice of method also yields different results.

Independent cotton LCA studies and dataset metrics use specific system boundaries² and technologies³ for production, coproduct allocation choices, timeframe for validity, and overall assumptions. Moreover, as shown above, the results vary depending on the LCA method used for the assessment. For this reason, the selection of cotton LCA data (whether taken from a dataset analysis or a published LCA report) must take into consideration the functional unit and key methodological aspects.

When a dataset for a database is created, the process follows an established methodology and goes through critical review to ensure representativeness, consistency, and overall quality. Something similar occurs when developing an LCA study for publishing. LCA practitioners are responsible for developing studies in accordance with a defined goal and scope, while study reviewers are responsible for ensuring alignment with the ISO LCA 14040 standards and any other methodological framework implied. Aside from that, the correct use of LCA impact indicators when building Scope 3 GHG inventories is the responsibility of the data user.

The GHG protocol Scope 3 guidance, which is the most commonly recommended for Scope 3 accounting, specifies what type of data can be used to estimate emissions. The choice is based on data availability. If the goods supplier can provide cradle-to-gate GHG data, then such primary data should be used considering the supplier's specific method of calculation. If only some data is available from the supplier, then a hybrid method is suggested. If no data is available from the supplier, average data is acceptable, relying on LCA databases.

Considering the SBTi, for example, primary data usage is recommended for measuring progress against targets in the apparel and footwear sector. However, it is also recognized that most companies will likely need to rely on the Higg MSI LCA data, although there is no specific recommended nor preferred LCA database. The recommendation set by this program guidelines is that, to choose a LCA database, companies should consider the transparency, completeness, and applicability of the data.

¹ Databases are libraries of datasets representing production processes. Each dataset within a database represents a modeled product (cotton lint, for example) with singular characteristics.

² Cradle to farm gate, or cradle to ginning gate, or cradle to user gate, for example.

³ Consider irrigation, pest management, or fertilization packages, for example.

It is recommended that Better Cotton Initiative (BCI) members chose a study or a dataset that is representative of what they are producing, supplying, or sourcing. This is to avoid public relations risks and ensure high quality data is used. Specific considerations include:

- **Geography coverage:** should be as close as possible to the actual location
- **Temporality coverage:** should be aligned to the reporting year or the most recent available
- **Technology representativeness:** should check similar growing practices are modeled (tillage, no tillage, irrigation method, etc.) or address this representativeness by using the specific data provided by the standards from whom the cotton is being sourced.

Furthermore, besides the above-listed aspects, it is necessary to check what processes are included within the dataset. For example, cotton crop production, ginning, and transportation could be one case of included processes or system boundaries. Another example could be including crop production and ginning, but not transportation, for example. If the chosen data follow the GHG Protocol, the scope of the study (Scope 1, 2, and what is included in Scope 3) should be clearly documented.

Section Two

Suggested Data Sources for Scope 3 Reporting: Decision Tree

The following decision tree is aimed at helping Better Cotton Initiative (BCI) Members determine which available data is best depending on the guidance and reporting requirements. Commercial and not country, program or site specific publicly available LCA data would most likely not be useful for reporting if the member's objective is to show improvement over time, to drive and show changes in agricultural practices, or to estimate land-based removals accounting to claim carbon credits.

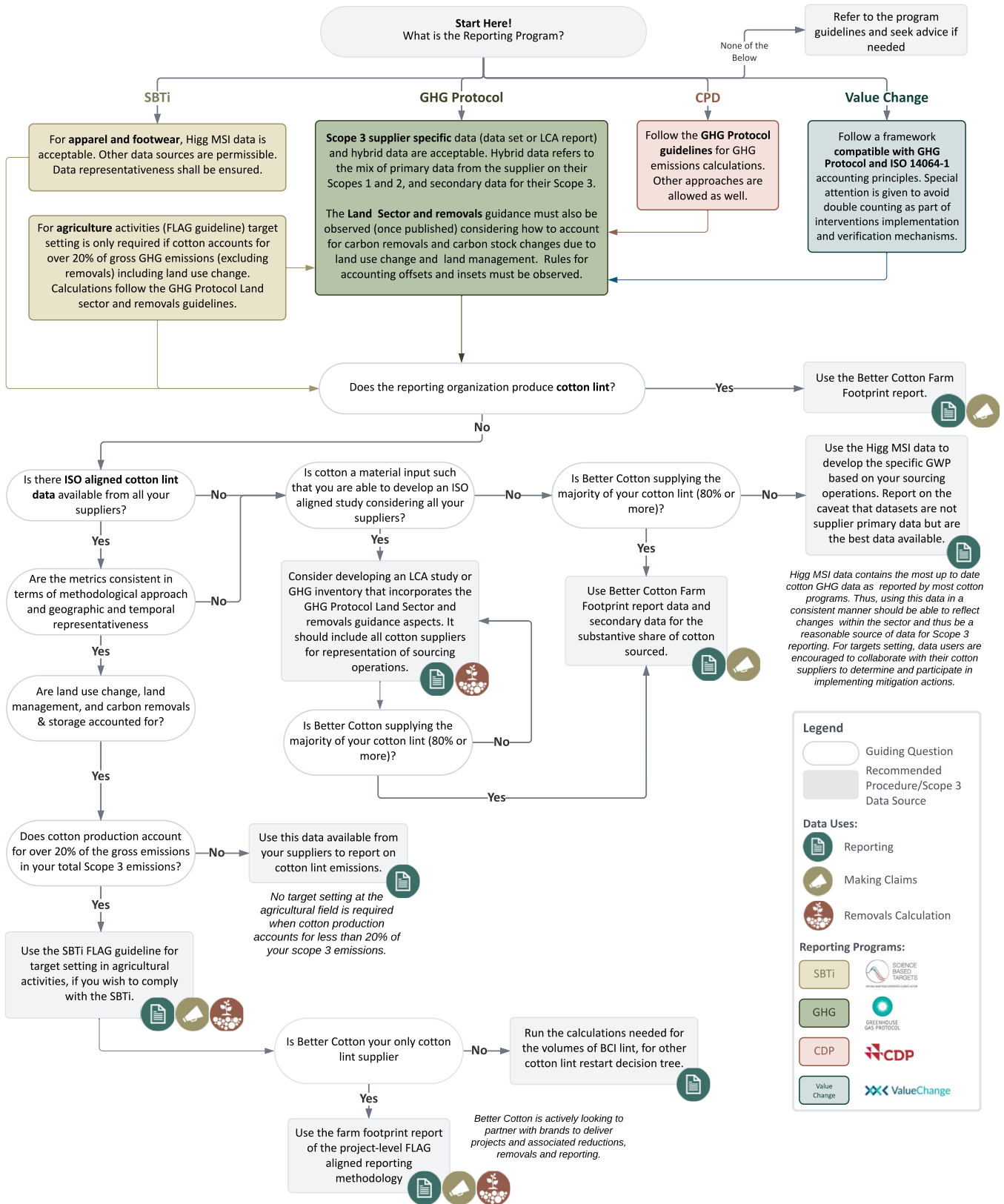
The decision tree focuses on four common reporting programs, signaling the general requirements each one has for Scope 3 data. Based on who the reporting party is (a cotton producer or a cotton buyer) and the availability of primary data, coupled with the need to follow certain methodological aspects for some of the programs, the gray boxes suggest what data could be used.

When members do not have the capacity or do not need to delve into the process of calculating their cotton supply chain specific emissions, use of the BCI farm footprinting report and Higg MSI datasets Global Warming Potential (GWP) impact is recommended.

Beyond Scope 3 accounting and reporting, a potential co-benefit of reporting is the possibility of making claims in some cases. For example, including the farm footprinting report, there is potential for claims on variation over time on BCI farms (for example, Production in India with partners that have been in the program since 2022 shows a decrease of xx% in emissions intensity from 2022 - 2026). Likewise, when following the GHG Protocol methodology for Land Sector and Removals and the Value Chain Initiative guidelines, carbon removals are accounted for. These would be derived from farm interventions seeking to increase carbon uptake in soils and biomass. Thus, these kinds of initiatives could potentially be turned into sustainability claims.

Which Cotton Production Data Should I Use?

The following decision tree is aimed at helping Better Cotton Members determine which data is best depending on the guidance and reporting requirements they are compliant with.



Legend

- Guiding Question
- ▭ Recommended Procedure/Scope 3 Data Source

Data Uses:

- 📄 Reporting
- 🏠 Making Claims
- 🌱 Removals Calculation

Reporting Programs:

- SBTi
- GHG
- CDP
- Value Change

Section Three

Traceability Considerations

For data traceability aspects, environmental metrics used for general Scope 3 reporting must be used consistently and must reference data sources. It is recommended that general descriptors on data quality assessment, such as geographical, temporal, and technological representativeness, are documented as well.

For Scope 3 with Science Base Target Initiative (SBTi) Forest Land and Agriculture (FLAG) requirements, in addition to the above, the FLAG guidelines should be followed documenting methodological choices and data sources. The same applies to Scope 3, net emissions, and the accounting of removals.

- Depending on the accounting category for land use and management emissions, specific data quality requirements apply based on the level of physical traceability of the sourced cotton (unknown origin, jurisdiction, specific sourcing region, specific land management unit, etc.).
- For reporting land management CO₂ removals, primary data traceability requirements apply; thus, the primary carbon stock change has to be specific to the site being reported.
- Moreover, when companies source from certification programs such as the Better Cotton Initiative (BCI), they need physical traceability of the purchased cotton to account for scope 3 emissions and removals. This means more granular data geographically and technologically specific to the sourced cotton is needed.

Regarding supply chain traceability, the need to fulfill guideline requirements is often dependent on the size of the reporting company. For example, the need for mitigation activities and GHG emissions reduction reporting may not be required. In the other extreme, for some companies, implementing improvements is practically impossible because the emission sources (for some suppliers) are untraceable. The decision tree use is viable when the cotton suppliers are either traceable or semi-traceable. Otherwise, the use of a generic global cotton dataset could be recommended.