Guidance

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 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 database[1] 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 boundaries[2] and technologies[3] 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.

It is recommended that Better Cotton 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:

[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.

- **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 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 Better Cotton 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 Better Cotton 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.

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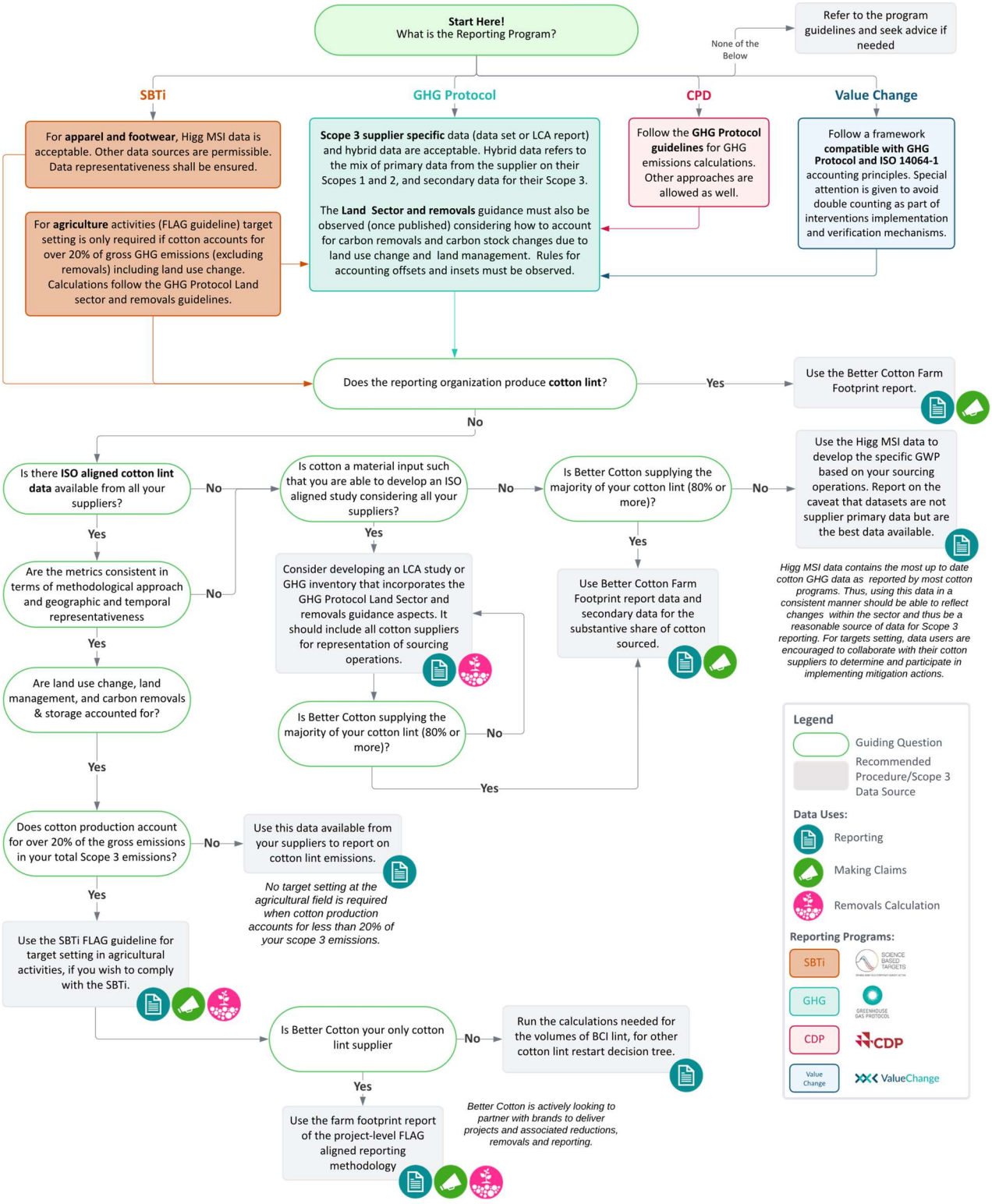
What LCA Data Should I Use?

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.



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 CO_2 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, 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.