

BETTER COTTON ASSURANCE PROGRAM WORKING WITH RESULTS INDICATORS

APPLICABLE FROM 2014 HARVEST SEASON

ORIENTATION	<i>This document provides guidance on the required methodologies to use for Results Indicators data collection and sampling. It also presents what measures are regularly taken to ensure data is credible, how BCI analyses Results Indicator data, and what information is shared back to partners for learning purposes.</i>
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OVERVIEW

Reporting on Results Indicators is fully integrated into the Better Cotton Assurance Program to ensure that sustainability improvements are adequately measured everywhere Better Cotton is produced. This data must be collected every season at Producer Unit or farmer level depending on the category of farmer (smallholders, medium farms and large farms). Farms are categorised in recognition of the differences in production methods and workforces they use. Smallholders and medium farms are grouped into *Producer Units*, while large farms go through the assurance process on an individual basis. Smallholders are further organised into *Learning Groups*.

In addition to the data recorded by Better Cotton farmers (in their Farmer Field Books), BCI requires data to be collected from farmers using conventional methods for comparison. BCI also annually conducts independent case studies to collect data from samples of Better Cotton and control farmers. The findings of these independent studies are compared to the data reported by farmers and any major discrepancies are examined.

The table summarises the indicators to be collected and reported for each type of farm.

Better Cotton Results Indicators				
Results Indicators	Measurement	Small-holders	Medium Farms	Large Farms
1. Pesticide use	Kilograms / hectare / for each active ingredient	✓	✓	✓
2. Fertiliser use	Kilograms / hectare / for each type of fertiliser	✓	✓	✓
3. Water use for irrigation	Cubic metres / hectare	✓	✓	✓
4. Yield	Total cotton produced in kilograms of lint / total cotton production area in hectares	✓	✓	✓
5. Profitability	Net income / hectare	✓	✓	
6. Elimination of child labour A - Leveraging partnership with local specialist organisations	Existence of partnership(s) established by or on behalf of the Producer Unit with credible local organisations to address child labour, in particular to identify and reduce barriers to formal schooling	✓	✓	
7. Elimination of child labour B - Improving understanding and awareness	Percentage of farmers who can accurately differentiate between acceptable forms of children's work and hazardous child labour	✓	✓	
8. Inclusion of Women	Number of farmers and workers receiving BCI training who are women, by training topic	✓	✓	

Results Indicators reports are to be provided to BCI **within 12 weeks of the end of harvest**. BCI reserves the right to cancel a licence if requirements on Results Indicators reporting are not met.

This document is divided into the following sections:

- **Section 1 defines the Results Indicators**
- **Section 2 explains the sources and flow of Results Indicator data**

This document is accompanied by templates for data collection tailored for each category of farmer, as well as an explanatory document to assist Producer Units and large farms in using the templates, including compilation of data for Producer Units.

SECTION 1 – BETTER COTTON RESULTS INDICATORS DEFINED

Introduction

BCI exists to make global cotton production better for the people who produce it, better for the environment it grows in, and better for the sector's future. Collecting, sharing, and learning from Results Indicators helps to:

- Measure changes brought about through implementing the Better Cotton Standard System
- Show progress over time and evaluate success
- Provide the basis for further impact studies
- Ensure accountability to its beneficiaries, donors and members, credibility, and transparency
- Inform strategy and how to improve the Better Cotton Standard System
- Build capacity by learning from experience

For these reasons, BCI requires its partners to collect data on environmental, economic, and social results experienced by Better Cotton farmers. These results are compared to farmers using conventional methods working in the same area – BCI refers to these farmers as control farmers.

ENVIRONMENTAL INDICATORS

1.1 Pesticide Use

The indicator measures the **amount of active pesticide ingredient applied, per hectare of cotton cultivated**.

Pesticides include insecticides, herbicides, acaricides, and fungicides, applied in any way to the field between the harvesting of any previous crop (including non-cotton crops), and the harvesting of the cotton crop under consideration.

Each farmer records in the Farmer Field Book the total amount of pesticide applied to the cotton crop each year per active ingredient, trade name, and concentration of the active ingredient in grams per kilogram or litre of pesticide applied. For multiple applications of the same pesticide, the farmer should record each separate application.

BCI groups pesticides (by active ingredient) as follows:

- (i) Highly hazardous (Ib)
- (ii) Moderately hazardous (II)
- (iii) Slightly hazardous (III)
- (iv) Unlikely to present acute hazard in normal use (U)
- (v) Not classified
- (vi) Botanic

(vii) Endosulfan

The reference in brackets indicates the World Health Organisation (WHO) categorisation of pesticides. Endosulfan is reported separately and any active ingredient not listed in the WHO list is presented in the 'not classified' category. Botanic pesticides refer to home-made preparations.

1.2 Fertiliser Use

The indicator measures the **volume of fertiliser applied, per hectare of cotton cultivated**.

Farmers record the total volume in kilograms or litres of each type of fertiliser or soil conditioner applied to the field growing cotton either prior to planting or during the season on each farm. The starting point for calculating the season should be after the harvest of the previous crop (whether cotton or another crop). All types of fertilisers applied should be recorded, whether they are mineral, organic, or synthetic. BCI does not require chemical analyses to be conducted to determine the nutrient levels of non-standard or home-made fertilisers.

Farmers and Producer Units report on the exact composition of each fertiliser. The detailed information is stored by BCI to be used in future more detailed studies. BCI communicates on:

- National average use of commercial fertilisers per hectare
- National average use of organic fertilisers per hectares

1.3 Water Use for Irrigation

The indicator measures the **volume of water used for irrigation, per hectare of cotton cultivated**. Water use is not recorded for rain-fed cotton cultivation.

A cotton crop should be considered irrigated if it receives one or more irrigations in a season. The farmer records:

- The total volume of water extracted in cubic metres (m³) applied to irrigate the cotton crop (1 cubic metre = 1,000 litres). This includes any pre-watering or watering-up irrigations required to prepare the seed bed or establish the crop.
- The area of cotton irrigated in hectares.

These two figures are used to calculate the average water use per hectare.

ECONOMIC INDICATORS

1.4 Yield

The indicator measures the **volume of harvested cotton, per hectare**.

Farmers record the total amount, in kilograms, of **seed** cotton (pre-ginning) they harvest and the total area, in hectares, harvested (not the area initially planted, as these areas may differ).

The yield is calculated in metric tonnes (MT) of **lint** cotton (post-ginning) produced per hectare. As the total production at farm level is expressed in kilograms of seed cotton, BCI converts the unit of measurement by multiplying the amount of seed cotton in kilograms by the national gin turnout ratio (set separately for each country) and dividing by 1,000.

The expression of yield in terms of lint cotton is most relevant to the majority of supply chain actors and the public, so this is what is communicated externally. For learning purposes, BCI reports yield back to Producer Units expressed in seed cotton harvested per hectare, as this is normally more relevant to farmers.

1.5 Profitability

The indicator measures **profitability, defined as the net income earned from producing the cotton crop**. It is calculated as the gross income received from the sale of the cotton crop minus the total variable costs of growing the cotton crop. The profitability is expressed per hectare and per season.

To enable detailed analysis and comparison between Better Cotton and control farmers, a fixed set of variable costs and sources of income are listed in the Farmer Field Book. The following provides guidance on the information required (gross income and variable costs) to calculate profitability.

Gross Income

Farmers record gross income from the sale of their cotton crop in local currency in the Farmer Field Book.

Costs

Farmers record variable costs they spent during the production of their cotton crop. Categories of costs are defined in the data collection templates and further explained in the accompanying instructions for each type of farm.

BCI never communicates absolute values of profitability; rather profitability is presented in terms of relative comparisons with data gathered from control farmers.

Profitability data does not need to be reported by large farms.

SOCIAL INDICATORS

BCI considers social issues experienced by farmers and workers in terms of its decent work Production Principles. Many of the decent work issues that BCI and its implementing partners (IPs) work on are related to complex and deep-rooted socio-economic challenges. Issues like child labour are not simple or easily resolved and do not lie wholly within BCI's and its partners' sphere of influence. BCI's dual focus is to apply standards while also striving to create conditions that enable cotton producer communities to meet the standards.

In 2012-2013, the BCI Secretariat commissioned an independent study¹ of decent work challenges faced by cotton producers and workers in India, Mali, and Pakistan. One of the outcomes of the research was a set of three recommended indicators that BCI and its partners can use to measure level of knowledge and preliminary actions taken related to child labour and inclusion of women. These indicators are simple, actionable, and appropriate in the early stages of Better Cotton. In coming years, more change-oriented indicators will be developed. BCI believes the first step is to catalyse partnership, raise awareness, and share knowledge, as this ensures that producers and their communities have a good understanding of decent work standards on which they will be able to take meaningful action.

These indicators are not kept in the Farmer Field Book by individual farmers; instead, relevant information is reported by Producer Units. These social indicators are not reported by large farms.

1.6 Eliminating Child Labour – Leveraging Partnership with Local Specialist Organisations

The indicator measures the **existence of partnership(s) established by or on behalf of the Producer Unit with credible local organisations to address child labour, in particular to identify and reduce barriers to formal schooling.**

Partnerships in the context of this indicator are defined as documented working arrangements with a third party – state agency, civil society organisation, or international organisation – that lays claim to recognised expertise in either child labour remediation; child rights; or supporting access to formal schooling.

To be eligible, the partnership must include regular contact and joint activities that relate directly to the achievement of BCI decent work criteria on child labour, and should include an expressed objective to increase access to formal schooling, as well as enrolment and attendance of children at risk, in the context of a measurable logical framework.

The existence of a partnership with local specialist organisations is measured at the level of the Producer Unit working with smallholders and medium farms.

1.7 Eliminating Child Labour – Improving Understanding and Awareness

The indicator measures the **percentage of farmers who can accurately differentiate between acceptable forms of children's work and hazardous child labour.**

This indicator requires the use of country-specific pictorial / photographic materials representing typical farm activities, of which those defined as hazardous labour under national law – or in the absence of national scheduled activities, consistent with ILO C182 – are clearly understood by the staff (Field Facilitator) undertaking the assessment. Those materials are developed by BCI in each country implementing Better Cotton and shared with Implementing Partners.

During collection of Results Indicator data at farm level, Field Facilitators conduct a rapid test with each selected farmer and with control farmers. Farmers are shown images depicting

¹ The study was conducted by Ergon Associates Limited in 2012-2013. The executive summary of the report is available at the BCI website and the full study report is available upon request.

hazardous child labour or acceptable child work and asked to distinguish between the two. Each farmer will be given a score and the indicator is then calculated as the percentage of farmers who can accurately differentiate between child work and child labour.

1.8 Women's Inclusion in BCI Activities

The indicator measures the **number of farmers and workers receiving BCI training who are women (by training topic)**, compared to the number of male farmers and workers trained.

Reaching women and building their capacity to improve farming practices has been a consistent challenge for the Better Cotton System. This indicator is therefore meant to capture the extent to which Better Cotton training programs are reaching female farmers and workers as a first step to supporting women's access to information and improved working conditions.

SECTION 2 – SOURCES AND FLOW OF DATA

1. Farmer Field Book

The starting point for all data collection and reporting associated with the Results Indicators is the information recorded by the farmer during the season in their Farmer Field Book or equivalent record keeping system. A template Farmer Field Book (FFB) indicating the sort of information that should be recorded by farmers is provided in the Appendices of the Better Cotton Assurance Program. Note that the actual format of the FFB should be tailored to what is most suitable for the farmer, and could equally be in the form of a computerised record keeping system in the case of large farm. The critical issue is the recording of the actual data and information required (e.g. water use, fertiliser use, pesticide use, costs, etc.).

2. Sampling Approach for Smallholders

Producer Units (PUs) are groups of cotton farmers that live in the same area. Producer Units gather around 3,500 smallholders organised in Learning Groups. Each Learning Group has on average 35 smallholder producers. Therefore, there are on average 100 Learning Groups per Producer Unit. The group of farmers that make up a Producer Unit tends to be quite similar in farming techniques, climate, and living conditions, so the Results Indicator data of a sample of smallholders can inform on the situation of the other farmers in the Producer Unit.

During the harvest years between 2010 and 2012, BCI collected Results Indicator data from all farmers participating in the Better Cotton System. As Better Cotton becomes more widespread – expanding from four countries in 2010 to eight in 2013 – and the number of smallholders rapidly increases, the costs and effort associated with collection and management of detailed Results Indicator data from hundreds of thousands of farmers become increasingly high.

Accordingly, BCI developed a sampling methodology for smallholders, which was then reviewed and endorsed by researchers at Wageningen University in the Netherlands. The methodology includes the collection of data both from a fixed number of farmers as well as from a sample of Learning Groups that are randomly selected on a yearly basis. The Farmer Field Book will still be maintained by all farmers for learning purposes.

2.1 Fixed sample

A 'lead farmer' will be identified in each Learning Group (LG) based on the existing leadership of the group. Lead farmers are expected to facilitate the learning of all LG members.

Lead farmers will be responsible to accurately measure and record detailed data on their activities. The Results Indicator data of **all lead farmers** will be collected and reported to BCI on a yearly basis. Lead farmers are also expected to support other farmers to maintain their FFB and to identify and share learning based on the Results Indicator data.

Collecting Results Indicator data from all lead farmers is much simpler than an annually-run random sampling. It also offers a good basis for measuring change over time as data from the very same farmers can be compared from one year to another. BCI recognises that such a fixed sample is likely to affect the representativeness of the data. Lead farmers may

indeed be the best performers or receive more support and their practices may not be representative of that of all the farmers in the LG.

2.2 Randomly selected groups

In order to avoid selection bias and also to capture the differences within LGs, Results Indicator data will also be collected from a sample of **10 Learning Groups per Producer Unit**. Such a sample will be representative of the population of the whole PU. The random selection of the LGs will be made automatically on a yearly basis by BCI and communicated to the PU. Elements of stratification such as facilitator, villages, and previous selection is included in the automatic calculation.

The combination of the lead farmer and the randomly selected groups will inform on changes over time, adoption rates, as well as on the parameters of the whole PU, minimising the risk of bias.

In addition to collecting data from farmers participating in the Better Cotton System, BCI and its partners believe it valuable to use complementary mechanisms to put the data into context. Two of the methods used are the collection of control data and the commissioning of independent case studies.

2.3 Control data

Producer Units are responsible for collecting data from **100 control smallholder farmers** (farmers who are not part of Better Cotton related capacity building programmes and use conventional cultivation methods).

Control farmers can live in the same village as Better Cotton farmers, in neighbouring villages or even in other locations, as long as they are similar to BC farmers. The critical issue is that their key characteristics make them as similar to project farmers as possible.

Control farmers should present similar socio-economic characteristics as Better Cotton farmers. The characteristics of their farm should also be taken into account:

- number and type of employees
- size
- irrigation system
- general soil fertility
- crops grown
- experience in growing cotton

The selection of the control farmers is the responsibility of the Producer Unit. There is no universal incentive to enlist the participation of control farmers. The local context will dictate the options for how best to ensure control farmers' participation. The BCI team remains available to respond to any specific questions PUs may have.

2.4 Independent case studies

In addition to the data reported by farmers and PUs, BCI annually contracts researchers or consultants to conduct **independent case studies** to collect data from samples of Better Cotton and control farmers. The findings of these independent studies are compared to the data reported by farmers and PUs. This will corroborate – or not – the data reported by farmers and PUs and any major discrepancies will be investigated. While the case studies are not fully representative of the population, they do show general trends that can be compared to BC farmer data.

Summary of the data collection process in the case of smallholders

1. **All farmers** participating in the Better Cotton program **record data** in their Farmer Field Books or other data management system from the beginning of each season.
2. BCI randomly selects 10 Learning Groups (LG) from each Producer Unit (PU).
3. At the end of harvest, BCI informs Producer Units of the Learning Groups selected.
4. Each Producer Unit informs the selected Learning Groups that Results Indicator data is to be collected.
5. The selected Learning Groups each collect data from **all farmers** in their groups and submit compiled reports to the Producer Unit.
6. The remaining Learning Groups submit Results Indicator data for the **lead farmer** (the fixed sample) in their groups.
7. Each Producer Unit collects Results Indicator data from **100 control farmers** (farmers in the area with similar living conditions who use conventional cotton production methods).

In the case of smallholders, there are therefore four sources of data for the Better Cotton Results Indicators, each complementing each other and reinforcing the credibility of the data. These are data from (i) a fixed sample of lead farmers, (ii) randomly selected Learning Groups, (iii) control farmers and (iv) independent case studies. The table below summarises the selection method and sample size of the four sources of Results Indicator data for smallholders.

Sources of data	Sampling	Estimated Number of farmers providing data per PU	Advantages
Lead Farmers	1 per LG	100	<ul style="list-style-type: none"> • Capacity to collect and record accurate data • Enables comparisons over time
Farmers from a Sample of LGs	10 LG per PU	10 x 35 = 350	<ul style="list-style-type: none"> • Representative sample • Informs on differences within LG and different adoption level with lead farmer
Control farmers	100 per PU	100	<ul style="list-style-type: none"> • Informs comparisons with Better Cotton farmers
Independent case studies	Done at country level		<ul style="list-style-type: none"> • Independent data, validates or invalidates data reported by PUs

Representativeness

The sampling approach adopted to collect Results Indicator data is representative. For farmers grouped in Producer Units, data of a representative sample is collected on a yearly basis. For an average-sized Producer Unit of 3,500 farmers, data is collected from about 450 farmers: 100 lead farmers and farmers from 10 randomly selected LGs, or about 350 farmers. These 350 randomly selected farmers alone represent about 10% of the whole population. Using a basic computation, this is associated with a 5 point confidence interval and a 95% confidence level.

Beyond its mere size (in total, data from about 125,000 farmers is expected to be collected by 2015), the representativeness of the sample is ensured by the selection approach. It is further strengthened by the comparison with the data collected by the independent case studies.

3. Medium and Large Farms

In the case of medium and large farms, data is collected from all participating farmers. Therefore no sampling methodology is required.

Control data is also collected for medium and large farms. The minimum number of control farmers from whom to collect data will be 10% each of the number of medium and large farms.

Summary of the data collection process for medium and large farms

Sources of data	Sampling
Participating medium and large farms	100%
Control medium and large farms	10% of participating medium and large farms
Independent case studies	Done at country level

4. Learning

BCI operates in a continuous cycle of learning and improvement. The Results Indicators, along with the other aspects of the Assurance Program, contribute to this learning cycle.

Due to the sheer volume of data collected, compiled, and analysed since the first Better Cotton harvest, Results Indicators have been aggregated at the country level and top line results shared back to partners once a year. BCI is developing a database that will make sharing results with individual Producer Units and Implementing Partners more streamlined, thus improving opportunities for learning from data closer to real time. Once data is cleaned, an automatic summary will be made for Producer Units and Large Farms. The database is expected to be operational in time to process data from the 2014 harvest.

5. Communications

BCI analyses Results Indicator data and then uses that data in a variety of ways, these include (but are not limited to):

- Country-level analysis presented in the annual Harvest Report released to the public and published on the BCI website.
- Quarterly reports to the BCI Council, which governs BCI.
- Quarterly reports to BCI funding partners.

BCI is careful to communicate on Results Indicator data in a simple and clear way. The monitoring of Results Indicators in itself does not measure the impact² of the Better Cotton Standard System. Rather, the data compares the situation of Better Cotton farmers with that of farmers using conventional methods during the same season and in the same country. BCI is aware of the importance of measuring impact and is planning further studies to be conducted in the next three to five years to identify real longer-term impact.

² Impact as defined as positive and negative long-term effects resulting from the implementation of a standards system, either directly or indirectly, intended or unintended (from the ISEAL Impacts Code, adapted from OECD Glossary).

6. Results Indicator Data Flow

The graphic below illustrates the general flow of Better Cotton Results Indicator data. The green boxes indicate the actors who record or compile information. They are linked with arrows to show the direction of data flow. The grey boxes describe the responsibility appropriate to the corresponding actor. The curved arrows show the feedback of results BCI will give to the Implementing Partners (IPs), large farms, and information communicated to external audiences. The IPs further share the information with the other actors with whom they work.

