

# REPORTING ON RESULTS INDICATORS – GUIDANCE FOR MEDIUM FARMS

APPLICABLE FROM 2014 HARVEST SEASON

## Overview

This document explains how to use the templates provided by BCI to assist Producer Units in the annual collection and reporting of Results Indicators. It includes:

1. Guidance for data collection and compilation using the templates.
2. For each Result Indicator, an explanation of how to report the required information, including units to be used and guidance on specific measurements and calculations.
3. Discussion of data cleaning process and feedback provided.

## 1. Guidance for Data Collection and Compilation

The Producer Unit submits the Results Indicators Report to BCI within 12 weeks of harvest finishing, which means that medium farms need to provide their completed Results Indicator Forms to the Producer Unit well enough in advance of this deadline to allow the Producer Unit sufficient time to aggregate the information from all farms in the unit. The same applies to data collected from control groups.

### *Results Indicators Reporting for Medium Farms – Process Summary*

Sources of Data	Sampling Methodology	Estimated number of farms providing data per PU	Template to Use
Medium Farms	100%	100	Results Indicators Form for individual farmer
Control Farms	10% of participating farmers	10	Results Indicators Form for individual farmer
Summary Data from medium and control farms		110	Results Indicators Report for Producer Unit (medium farms)

## 1.1 Results Indicators Form for Individual Farmers

This form is a one-page document used to collect data from individual medium farms. It can either be printed or used in Excel format and then forwarded to the Producer Unit Manager.

## 1.2 Results Indicator Report for Producer Unit (Medium Farms)

The Producer Unit Manager compiles the data from the paper or electronic forms received from medium farms into the Results Indicators Report. Once data is included in the worksheet, the Producer Unit Manager sends it to BCI (at the latest 12 weeks after harvest is finished).

## 2. Explanation of Reporting Results Indicators

Producer Units are responsible for reporting Results Indicators to BCI for medium farms operating within their structure. Data from all medium farms is collected as well as data from control farmers.

The BCI Results Indicators are designed to capture comparable information about the results achieved by Better Cotton farmers around the world. While farmers in different countries use a variety of units of measure, it is essential that Results Indicators are reported in the required units to achieve standardisation across the Better Cotton System. For example, BCI expresses all agronomic and economic indicators on a per hectare basis. The accuracy of the production area expressed in terms of hectares is thus very important. Producer Units are responsible for ensuring correct use of units of measure; therefore this may require additional calculations before data is reported to BCI.

### 2.1 Identification, Area, Production

#### Identification

Enter the name or other identifier of each farmer, the learning group ID (if applicable), and the status of the farm (Better Cotton or control).

#### Total Area Harvested

- The total cotton production area of each farmer will be indicated in **hectares**. Where other units are used by farmers, Producer Unit Managers are responsible to ensure proper conversion into hectares.
- The total area harvested should be indicated (not the area initially planted).
- '0' will be indicated for farmers not growing cotton in a given year.

#### Total Seed Cotton Harvested

- The total cotton production is indicated in **kilograms of seed** cotton.
- The yield is then calculated by BCI as the volume of cotton harvested per hectare.
- '0' will be indicated for farmers who did not harvest any cotton in a given year.

### 2.2 Water Use for Irrigation

Water extracted to irrigate the cotton crop during the season (including any pre-watering or watering-up irrigations required to prepare the seed bed or establish the crop) is measured. A cotton crop should be considered as irrigated if it receives one or more irrigations. Rainwater is not recorded.

- Farmers record the total volume of water used for irrigation in **cubic meters** (m<sup>3</sup>), 1 m<sup>3</sup>= 1,000 litres). The area of cotton actually irrigated with the water is also recorded.



- Ideally, farmers will use water meters to measure the volume of water extracted for irrigating the cotton crop. If water meters are not installed, then flow rates will need to be estimated.
- Description of the estimation of flow rate:

For water that is delivered via a pipe, if the flow rate is not too great, the flow rate can be estimated using a container of known volume by timing how long it takes to fill the container. For water delivered via canal, channel, or ditch, various methods are available for estimating flow rates. Please contact BCI for further information on methods for estimating flow rates in open canals.

Once the flow is estimated, the duration of each irrigation should be recorded. The total volume applied will be the product of the total duration of all irrigations multiplied by the flow rate.

Parameter	Estimated flow rate	Estimated flow rate	Duration of all irrigations	Total volume (m <sup>3</sup> )
<b>Unit</b>	Litres per minute	Litres per hour	In hours	Cubic meters (m <sup>3</sup> )
<b>Formula</b>	See description for estimating flow rate	= Estimated flow rate per minute x 60	= Sum (irrig.1 +irrig.2 +...)	= (duration of all irrigations x flow rate) / 1000
<b>Example</b>	1,200	72,000	12	864

## 2.3 Profitability

Profitability is defined as the net income to a farmer or farm of growing the cotton crop, recorded in **local currency**. It is calculated as the gross income received from the cotton crop minus the total variable costs of growing the cotton crop. The profitability is expressed per hectare and per season.

### Gross Income

Gross income is the value derived from the sale of the cotton crop.

### Variable Costs

Variable costs to be included (as applicable) are included in the table below.

Variable Costs	Explanation
<b>Seeds</b>	
<b>Fertilisers</b>	
<b>Pesticides</b>	
<b>Irrigation</b>	Water and any related costs such as drip irrigation tubes laid each year (more permanent infrastructure is considered investment, and thus not included as a variable cost)
<b>Labour – Land preparation</b>	All labour costs incurred for sowing, thinning, weeding, gap-filling
<b>Labour – Irrigation</b>	All labour costs incurred after sowing and before harvesting
<b>Labour – Fertiliser application</b>	
<b>Labour – Pesticide application</b>	
<b>Labour – Harvest</b>	All labour costs incurred during the harvest
<b>Other costs</b>	Any other costs incurred like transport to gin, consultants, etc.

If certain growing costs cannot readily be separated (e.g. labour costs where the worker works in more than one crop) then the costs should be included.

The following costs should *not* be included in the calculation of variable costs:

- Fixed costs (such as interest costs, depreciation and leasing costs for land or machinery)
- Costs associated only with other crops
- Investments (for example, in machinery and tools that have not been used exclusively for the cotton crop of the given season)
- Time that does not carry any financial compensation, e.g. costs by the farmer himself

## 2.4 Child Labour

The child labour indicator reported with the Results Indicators measures whether farmers are able to correctly differentiate between acceptable forms of children's work and hazardous child labour. There are country-specific pictograms or photographs that depict children's work and child labour.

At the time of Results Indicator data collection, the individual gathering data from farmers conducts a simple test with each farmer by showing the images and asking the farmer to indicate whether each illustrates children's work or child labour. The individual collecting data will note whether the farmer can or cannot differentiate between the two by noting Yes or No. The same exercise is conducted with control farmers.

BCI compares the percentage of Better Cotton farmers in the PU who know the difference between children's work and hazardous child labour with the percentage achieved by control farmers.

## 2.5 Fertiliser Use

The term 'fertiliser' covers mineral, organic, or synthetic fertilisers and includes soil conditioners applied to the cotton field after the harvest of the previous crop (whether cotton or another crop).

- Report the total volume (in **kilogram or litre**) of fertiliser applied to the cotton field either prior to planting or during the season.
- The Result Indicator templates contain a list of commonly used fertilisers with a set composition (e.g. urea, Nitrophos, Di Ammonium Phosphate, etc). For all other fertilisers used, Field Facilitators and Producer Unit Managers must indicate the typical analysis of commercial fertilisers (% Nitrogen, Phosphorous, Potassium, etc.). There are a set of columns to the right of the fertiliser section in which other formulations of fertiliser can be recorded.
- Chemical analyses are not required to determine the nutrient levels of non-standard or home-made fertilisers.

## 2.6 Pesticide Use

The term 'pesticide' includes 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.

- Report the total volume (in **kilogram or litre**) of pesticide applied to the cotton crop each year per active ingredient.
- The exact concentration of active ingredient of each product must be recorded. Pesticide labels should indicate, in addition to the trade name, the name of the active ingredient as well as its concentration. The concentration should be indicated in **grams per kilogram / litre**. For example, a concentration of active ingredient of 20% should be recorded as 200 (200 gram per litre corresponds to 20%).
- The Results Indicator templates contain a list of commonly used trade names and their active ingredients. For each, the common concentration of active ingredient is provided.

If a pesticide of the same active ingredient is used but with another concentration, this is added into one of the modifiable columns in the compilation report.

- Where a pesticide applied is a mixture of at least two active ingredients, the pesticide is considered as a mixed pesticide and the concentrations of all active ingredients are recorded.
- Where home-made botanical pesticides are used with an unknown concentration, a concentration of '1000' should be used.

Based on the total volume of pesticide applied and the concentration of active ingredient, BCI calculates the amount of active ingredient applied for commercial and organic pesticides. Farmers do not have to make this calculation. The calculation used is as follows:

1. To convert from volume of pesticide applied to weight of active ingredient applied, the total volume or weight applied (in litres or kilograms) is multiplied by the product concentration (in grams of active ingredient per litre or kilogram) and divided by 1,000 to give a result in kilograms of active ingredient applied.
2. The total weight of active ingredient applied (in kilograms) is then calculated by summing the individual results for each of the different pesticides applied.
3. The total weight of each pesticide applied is then divided by the total number of hectares of cotton grown by the farmers from whom the data on pesticide application was collected, so that an average of kilograms of active ingredient applied per hectare for each different active ingredient can be reported.

For the purposes of calculating the average use of active ingredient per hectare, the total area harvested by all farmers in the Producer Unit is used, irrespective of the actual use (or non-use) of a particular pesticide by an individual farmer.

### 3. Data Cleaning and Feedback

#### 3.1 Data Cleaning

Data from each farm as presented in the Results Indicators Reports are uploaded by BCI into a statistics programme to be analysed. The first step consists of data cleaning. Dubious values, or outliers, are statistically identified. BCI will send a list of values to be verified.

Every dataset contains errors that can come from data entry or from measurement errors. Dubious values (outliers) may indicate errors. It is important to keep in mind that some correct values may be extreme and that the doubtful values identified by the data cleaning are not necessarily erroneous. This is why data cleaning does not rely on statistics alone. BCI will send a list of dubious data and request they are double-checked. Given that it may be too difficult to go all the way back to farmers to verify the data, this process is particularly aimed at correcting data entry errors. It is also expected to put some more light on specific situations that may explain differences observed.

#### 3.2 Feedback

Results indicators are not automatically calculated based on the data entered into the templates. Rather, once the data have been imported into the database and cleaned, BCI will share with Producer Units summary information on results for their Producer Unit.