1000FARMS

TRICOT COSTING TEMPLATE

Guidelines

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I. INTRODUCTION

This guide helps you fill out the Tricot Cost Template developed by the 1000FARMS Platform team of the Alliance of Bioversity International and CIAT. The goal is to help users reliably estimate the full and component costs of running a tricot trial by public and private breeding programs with the support of associated implementing partners.

As a reminder, tricot, short for "Triadic Comparison of Technologies," is a participatory method used in agriculture to evaluate different crop varieties or farming practices. In this approach, each farmer tests three different options in their fields and ranks them based on performance. This method leverages the farmers' firsthand experience and observations, allowing for large-scale, decentralized data collection. The simplicity of comparing three options makes it easier for farmers to participate and provide valuable feedback. For more information about the tricot approach steps, visit https://hdl.handle.net/10568/109942.

II. PURPOSE OF THE TEMPLATE

This costing tool estimates the cost of implementing a tricot trial for a specific crop. It ensures cost transparency and consistency across projects, allowing for cross-country comparisons. It also helps in distributing resources, identifying high-cost centers, and noting unnecessary additional expenses. Breeding programs will employ the tool for calculating the cost of implementing tricot trials for specific crops, thereby providing estimates that enhance the planning and efficiency of future tricot trials.

III. OVERVIEW OF THE TEMPLATE

The Excel file contains 15 worksheets. Here's what each one is for:

Worksheet Name	**Purpose**
Introduction	Brief explanation of the exercise and how to use the template
Trial dimensions	Description of the trial (crop, location, # of farmers, period, etc.)
Seed requirement	Seed and area requirements for production seeds for tricot trials
Seed multiplication	Input costs for seed production in a tricot trial
Unit prices	Unit prices of materials
Material costs	Cost of all physical materials used (seeds, tools, printing, etc.)
Wages	Overview of wage rate (monthly, daily and hourly) per job role
Labor time	Time spent per task per person in hours
Labor costs	Labor costs based on labor time and hourly wage
Per diem allowance	Time spent travelling to the trial sites with associated per diem and daily allowances for travel budgeting
Travel costs	Fuel costs, total per diem cost and total travel costs
Call costs	Time spent on phone or virtual communication in monthly bundles
Overview	Auto-summary of total costs by category (auto-filled)

Worksheet Name	Purpose
Sensitivity analysis	Optional worksheet to test scaling and cost drivers
Scenario analysis	Optional worksheet to test scaling and cost-saving scenarios

IV. KEY DEFINITIONS

Term	Definition
Trial preparation	Steps 1 to 3 of the tricot approach. People meet to select test lines, select traits for evaluation, and discuss plans to establish trials. This includes trial design on ClimMob, test and deploy.
Training field agents	The research team will either travel to train field agents in trial regions or conduct centralised training sessions.
Seed distribution	Step 4 of the tricot approach. Farmers are trained in the tricot approach and in how to collect data. Each farmer receives a trial package of three technologies to be tested.
Monitoring	The research team will travel to collect agronomic evaluation data at different data collection moments from 30% of the trials. They get per diem.
Data collection	Extension/ Field agents collect data at specific crop-based moments (e.g., for beans, vegetative, reproductive, postharvest) and product evaluation from all blocks assigned in a particular administrative unit.
Yield measurement	The research team will travel to support harvesting, and yield estimation at harvest from 30% of the trials. They get per diem.
Food product evaluation	People will travel to organise consumer testing of crop products (e.g., fresh boiled cassava, flour-based cassava paste). They get per diem.
Data analysis	One person cleans and analyses data received from all blocks.
Feedback	Every farmer is informed about the results of the trial regarding their farm and shares their view on the experience.
Fixed Cost	Costs that stay the same regardless of how many farmers are involved in the process (E.g. coordinator time, training materials etc.).
Variable Cost	Costs that increase with scale (e.g. seeds, transport per farmer).
Avoidable Cost	A cost that might be reduced in future (e.g. travel if replaced by remote support).
Scenario Analysis	A way to test how much you could save by removing or reducing costs.

V. GENERAL INSTRUCTIONS

- Start by saving a new copy of the Excel workbook named after the country and crop, and keep this guide nearby.
- Complete the worksheets in the order listed, as later sheets depend on earlier inputs.
- Use real, traceable data (e.g., local labor rates from HR guidelines, material prices from markets or inflation-adjusted past data).
- Standardize units and currencies; clearly indicate the exchange rate.
- Use the comments column to explain any non-standard entries.
- Only enter data in white cells. Light green cells contain protected formulas, and dark green cells are for headings or totals.
- Worksheet colours indicate purpose: orange = general guidance, dark blue = main user input, light blue = minimal input, green = auto-filled.

VI. INSTRUCTIONS BY WORKSHEET

A. Introduction

The **"Introduction"** worksheet outlines the tricot implementation steps and identifies the cost components involved in on-farm trials using the tricot approach.

B. Trial dimensions

Input required

The participant should describe the basic parameters (design and scope) of the tricot trial within "**B. Trial dimensions**". General information such as country, crop tested (e.g., cassava, common bean), breeding institution name, product profile, start and end dates of the trials (to generate trial duration in days after planting), total number of farmers participating, seed production parameters (to estimate seed requirement), and others will be required.

> ***NOTE**: Ensure that the start and end date of the trial are in the correct date format (dd/mm/yyyy) to prevent receiving an error in cell **B8**.*
>
> *To convert days after planting (DAP) to months after planting (MAP) for roots, tubers, and bananas (RTB), divide the value in cell **B8** by **12**.*

Data sources

You can obtain information on trial dimensions from the project workplan, farmer registration forms, and trial calendars. Always cross-check the number of farmers with seed distribution records.

Example: If you are running a cassava tricot trial in Uganda with 300 farmers over 12 months, indicate the following in the trial dimensions:

Dimension	Value
Country	Uganda
Crop	Cassava
Breeding institution	NARO
Product profile	Dual-purpose cassava (fresh boiled and flour-based paste)
Trial start date	01/01/2025
Trial end date	30/12/2025
Trial duration (days after planting)	363
No. farmers (participants)	300
No. varieties	10
Units planting material per variety per plot	18
No. monitoring visits - research	4
No. monitoring visits - extension	12

Interlinkage with other worksheets

The **"B. Trial dimensions"** worksheet sets the context for all subsequent cost estimations and is used to calculate costs per trial and block. Ensure that all the inputs in this worksheet are accurate, as these will influence the variable costs of the tricot trial.

C. Seed required - Grain

Input required

The **"C. Seed required - grain"** worksheet assists in calculating the seed requirements for tricot trials and determining the production area. To accurately complete this sheet, follow the next steps:

i. Enter the 100-grain weight in grams in **cell C2**
   The required seed amount will be calculated using data from **cell B17** of **"B. Trial dimensions"** worksheet, multiplied by the value in **cell C2** of **"C. Seed required - grain"** worksheet, and then divided by 100.
ii. Enter the estimated seed yield in kilograms in **cell C4**
   This will assist with calculating the seed production area in **cell C5**. This is done by dividing the seed required (**cell C3**) by the estimated seed yield (**cell C4**) on this worksheet.

For roots, tubers, and banana (RTB), use the worksheet named "**Seed required – RTB**" and follow the next steps:

i. Enter the number of cuttings per bag in **cell C2**.
   The formulas will automatically compute the quantity of cuttings required per bag by dividing the "total units of planting material per trial" in **cell B17** of the **"Trial dimensions"** worksheet by the number of cuttings per bag indicated in **cell C2** of the **"C. Seed required - RTB"** worksheet.
ii. Enter the yield estimate for stem, vine, sucker, or tuber in Cell **C4**.
   This automatically calculates the seed production area for tricot trials in Cell **C5**.

***NOTE**: You can adjust the "Seed required - RTB" worksheet for banana and yam dimensions as needed.*

Interlinkage with other worksheets

The seed production area in **cell C5** serves as input for the land area in the **"C. Seed required - grain"** worksheet. In a similar manner, the seed rate in **cell C6** is used to calculate the seed quantity by multiplying it by the seed production area for tricot from **cell C5**.

D. Seed multiplication

Producing enough seeds or planting material is a key step in on-farm testing. Depending on the sample size, it may be necessary to multiply the seed separately rather than sourcing it from existing on-station trials. Multiplication costs should, therefore, be included in the planning costs.

The **'D. Seed multiplication - grain'** worksheet helps estimate seed multiplication costs based on tricot trial needs. It computes the total cost per kilogram for grains and legumes, per bag of 100kg for cassava (500 stem cuttings) and sweet potato (700 vine cuttings), per sucker or plantlet for bananas, and per tuber for yam, including required inputs, labor, and services.

Input required

While the worksheet item list may vary according to the crop, the differences between legumes and grains are likely to be minimal. The list can be adjusted with minor changes, except for roots, tubers, bananas and vegetables, which may require separate worksheets for their dimensions.

> ***NOTE**: Ensure consistency in units of use throughout the worksheet. Use the comments section (**Column F**), to clarify uncommon units like cassava cuttings, yam tubers, and/or banana suckers.*

To ensure accurate completion, please follow the steps below:

i. Column A - List cost items

List all cost items or activities involved in the seed multiplication cycle, from land preparation to final quality testing. Add rows for crop-specific tasks if needed. These may include:

- Inputs (E.g., basic seed, fertilizers, pesticides),
- Labor (E.g., planting, weeding, harvesting, shelling),
- Materials and equipment (E.g., tarpaulins, bags, moisture meter),
- Services (E.g., machine rentals, transportation),
- Optional activities (E.g., quality testing, irrigation, seed treatment).

> ***NOTE**: Double-check calculations to ensure accuracy. Verify for errors like unusually high costs and compare with records or benchmarks.*

ii. Column B - Specify unit

The units must reflect how the quantity is commonly procured or paid for. For example, square meter (m^2) for land, kilogram (kg) or bags for seed, person-day for labor, liter (l) for pesticide, kilogram (kg) for fertilizer, or kilometers (km) for transport.

iii. Column C - Enter quantity

Provide the number of units needed for each item throughout the entire seed multiplication cycle.

Example: 0.5 acres of land, 10 kg of basic seed, 3 person-days for planting labor, and 100 km of transport (costing $X per kilometer).

iv. Column D - Enter unit costs

Fill in the cost per unit in USD for:

- Inputs (E.g., market prices)
- Labor (E.g. prevailing wage rates from national wage schedules, field payrolls, or institutional guidelines)
- Transport (E.g. fuel-adjusted mileage rates).

> ***NOTE**: To estimate transport costs, including maintenance, fuel, operation, multiply the kilometers traveled by the UN travel reimbursement rate, (https://hr.un.org/node/53991). Adjust travel rates for inflation and include them in the cost per km to reflect local price differences.*

v. Column E - Check total costs

This field is automatically computed using the formula: ***Total Cost = Quantity × Unit Cost.***

vi. **Total seed cost**

This field sums all expenses incurred during seed multiplication in **cell E26** (reference may vary by item count). It shows the full economic cost of producing the entire seed batch.

vii. **Total seed produced (kg or bags)**

Cell E27 automatically calculates the total seed yield from the multiplication field for use in tricot trials. The unit of measurement can be in kg or bags, based on the crop.

viii. **Cost of seed per kg or bag**

Cell E28 automatically calculates the unit cost of seed by dividing the total cost of seed by the quantity produced.

Data sources

Use operational guidelines and seed production protocols or consult with agronomists and technical teams familiar with the specific crop.

Interlinkage with other worksheets

The cost of seed per kg or bag in the **'D. Seed multiplication - grain'** worksheet is fed into the gross price of seed in **cell D2** of the **'E. Unit -prices'** worksheet.

E. Unit price of materials

Input required

Use this section to list and cost all materials required for implementing the tricot trial. Include items related to planting, packaging, labeling, agronomic inputs, data collection, communication, and training. Accurate entry ensures reliable cost estimation and replicability.

i. **Column A - List materials**

Enter all materials or inputs needed to set up and run the tricot trial. Use the "[Add if needed]" rows to add more items. If not needed, leave them as they are.

ii. **Column B - Indicate material type**

Trial inputs or materials can be categorized as:

- Seeds or planting materials
- Packaging materials (E.g. small packets or bags, envelopes, zip lock bags, sealing tools such as staplers or sealing machines, etc.)
- Labelling materials (E.g. PVC-pipe pegs, bar codes, tags, ribbons, marker pens, etc.)
- Agronomic inputs (E.g. herbicides, fertilizers, and pesticides, etc.)
- Data collection tools (E.g. paper forms, phones, etc.)
- Communication tools and materials (E.g. phones, airtime, data, field guides, etc.)
- Training materials (E.g. farmer guides, enumerator field protocols, consent forms, etc.)

iii. Enter units and pricing

Column C: Unit of measure (e.g., number, bag)
Column D: Gross price (total cost for all units)
Column E: Quantity used (number of units)
Column F: Unit price (automatically calculated)

***NOTE**: If the unit price of a material or input is given in Column D, set the gross quantity in Column D to one to avoid double calculation in Column F for the unit price.*

iv. Column G - Add comments

Provide comments on the unit price calculation assumptions in **Column G** to help users replicate tricot costing for a similar crop.

v. Communication and travel reimbursement rate

The final two rows of the "**E. Unit prices**" worksheet cover communication expenses, including calls and data bundles, as well as travel rates. Standard rates will be used to minimize variations in country-specific prices for both items.

Communication rates are taken from the International Telecommunication Union's (ITU) ICT price baskets (https://www.itu.int/en/ITU-D/Statistics/Dashboards/Pages/IPB.aspx). **See Figure 1.**

To locate your country's rate:

- Go to the link above and click on TABLES in the menu bar.
- Select: "Mobile-data and voice low-consumption basket (70 min + 20 SMS + 500 MB)"
- Set Price Measure to USD and choose the current year.
- Scroll down to find the cost for your country.

***NOTE**: This bundle covers data for ODKCollect use and communication between trial implementers.*

Example: In Tanzania in 2024, the price was $2.68. Enter this value in **cell D24**. and set the gross quantity in **cell F24** as 1 as it is a flat monthly cost.

Figure 1: Snapshot of the ITU webpage for ICT price baskets

For travel reimbursement costs, use the United Nations (available at https://hr.un.org/node/53991) to estimate costs per kilometer for vehicles used during trial activities. We recommend using travel reimbursement costs set by to avoid overestimating fuel, operation, and maintenance costs. The UN estimates are calculated for 2019, so need to be adjusted for current conditions by following these steps:

- Multiply the UN rate by the country's inflation rate (see **Figure 2** for the inflation calculator). You can use the Inflation Calculator as shown in Figure 2.
- Enter the adjusted cost per kilometer in **cell D25**. The value in **cell D25** should represent the combined cost per kilometer plus the adjusted cost per kilometer rate.
- Set quantity in **cell E25** to 1 to avoid miscalculation

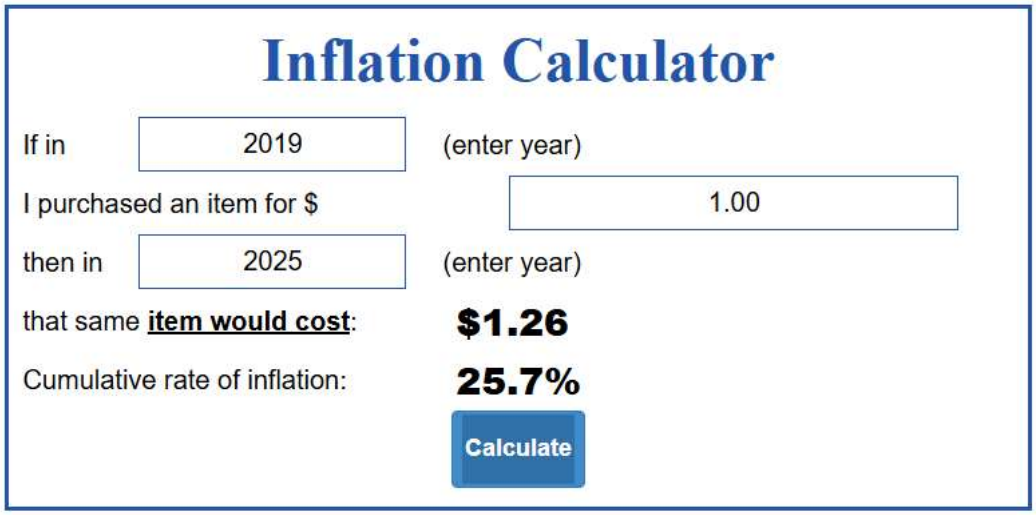

Figure 2. US Inflation calculator (https://www.usinflationcalculator.com/)

Data sources

Use local market prices, supplier quotations, historical purchase records, or price lists from the procurement department, making sure they are up-to-date and specific to the location. Seed cost estimates may also be sourced from breeding programs, national genebanks, or local seed companies. Remember to adjust general prices for inflation specific to each country, as shown above.

***NOTE**: Refer to the table footnotes for information costs of some materials.*

Interlinkage with other worksheets

The materials listed in the **"E. Unit prices"** worksheet are automatically populated into the **"F. Material costs"** worksheet. The unit prices in **Column F** are used to calculate the material costs per trial.

The value of the communication bundle is linked to the "**L. Call costs**" worksheet to calculate the total call cost per job role, while the travel reimbursement rate is linked to the "**K. Travel costs**" worksheet to calculate total fuel costs in **Column C**.

F. Material costs

The **"F. Material costs"** worksheet is automatically populated from the **"E. Unit prices"** worksheet, so there is no need to manually enter the material list.

***NOTE**: Column A, C and D are protected to prevent any editing*

i. **Column B – Units per block/farmer**

Enter the number of units used per block or farmer based on the materials used in the trial.

ii. **Column C – Total units per trial**

It is automatically calculated by multiplying the values in **column B** by number of farmers **cell B9** in the "**B. Trial dimensions**" worksheet.

iii. **Column D – Total material cost**

It automatically multiplies the result in **Column C** by the unit price in **Column F** in the "**E. Unit prices**" worksheet.

iv. **Cells D24 and D25 – Summary totals**

It will automatically show the total material cost per trial and per block or farmer.

G. Wages

This worksheet calculates the labour cost per job role converting monthly salaries into daily and hourly rates. It also includes per diems and travel allowances by job role during implementation. These costs are important for planning and budgeting on-farm trial activities.

Input required

i. **Column A – Job role**

Enter the relevant job title involved in the tricot trial (e.g., Scientist: Breeder, Scientist: Associate Breeder, Technician, or Extension Officer). Add more job roles by replacing **"[Add if needed]**" with the appropriate role. Use consistent role titles across the worksheets.

ii. **Column B – Monthly Salary**

Enter the gross monthly salary in USD for each role. Use verified payroll data or HR-provided salary scales.

iii. **Column C – Daily rate**

Automatically calculated as: Monthly Salary divided by Working Days per Month (default is 21, editable in **cell B18** of "**B. Trial dimensions**"). You can adjust the working days per month as needed, per country regulations.

iv. **Column D – Hourly rate**

Automatically calculated as: Daily Rate divided by Working Hours per Day (default is 8, editable in **cell B19** of "**B. Trial dimensions**").

> ***NOTE**: You can adjust the calculation by inputting the working hours per country regulations in Cell B19 of the "Trial-dimensions" worksheet .*

v. **Column E – Per diem**

Fill in the per diem rate (USD) for each role in **column E**, based internal guidelines or policies.

vi. **Column F – Travel allowance**

Enter travel allowances per job role for activities involving travel but not eligible for per diem.

Data sources

To determine appropriate salary figures, refer first to the human resources or payroll system for verified monthly salaries. For government-affiliated institutions, consult national salary scales or public sector rates to ensure consistency. Additionally, project budgets or donor guidelines may provide allowable rates or stipend categories that should be taken into account.

Interlinkage

This worksheet feeds into several worksheets. It provides data to the **"I. Labour costs"** worksheet to calculate the total cost per job role involved in the tricot trial activities and to **"J. Per diem allowance"** to estimate per diem costs. It also contributes to **"M. Overview"** worksheet, where all unit costs are aggregated and to **"N. Sensitivity analysis"** and "**O. Scenario analysis**" worksheets to estimate how changes in staff time affect total costs.

Tips for accuracy and comparability

- Convert local currency to USD using official or project-agreed exchange rates. Alternatively, use the most recent exchange rates to calculate costs.
- Keep documentation of each salary source for transparency and verification.
- Use a consistent salary period across countries (E.g., 21 working days/month).
- Add version control or a "last updated" note to help ensure data is current.

H. Labour time

This worksheet estimates labour hours and days per role across different tricot trial activities. These values are then used to calculate the total labour demand and convert it into cost figures based on daily wages from the **"G. Wages"** worksheet.

Input required

i. **Column A – Job role**

The job roles will be automatically populated with information provided in the **"G. Wages"** worksheet to ensure consistency across trial activities.

ii. Column B – Trial preparation

Enter total hours spent preparing trials, protocols, materials, and plans per job role. The number of hours entered in **column B** should reflect the total hours worked by the number of personnel in each staff category.

Example: if there are 2 Senior Scientists in cell A3 and each worked for 3 hours during trial preparation, the figure in Cell B3 should be 6 (2 × 3) hours.

iii. Column C – Training field agents

Enter total hours spent training field agents per job role. Multiply the number of staff by hours worked.

iv. Column D – Seed distribution

Enter seed delivery hours spent only by critical staff, like a driver and accompanying scientist or technician.

Distribution plan: The seeds will be delivered to a central location. Extension Officers/ Field Agents will then distribute them to the participating farmers at their respective locations or invite the farmers to collect planting materials for their tricot trials. The value should reflect the number of personnel per job role multiplied by the hours worked.

v. Column E – Total number of farm visits

Enter the total number of blocks/farms visited by each job role during the season. Multiply the percentage of farms/blocks visited × total farms × number of staff.

***NOTE**: Apply the same method for other job roles before filling in Column E.*

Example: If there are two Scientists (Breeders) and each visits 30% of 200 farms in different regions, the total number of farms visited is:

0.30 × 200 farms × 2 scientists = 120 farms.

You should enter 120 in **cell E3**.

vi. Column F – Number of hours per visit

Enter the estimated hours spent per monitoring visit. Calculate the average minutes per farm, convert the minutes to hours, and multiply by the number of farms visited. Input the obtained value for both scientists and non-scientists who visited the farms collectively.

vii. Column G – Monitoring

This column checks whether **column E** is less than or equal to the allowed number of visits, calculated as **cell B9** × **B12** (for researchers) or **cell B9** × **B13** (for extension staff) in the "**B. Trial dimensions**" worksheet. If this condition is met, it multiplies **Column E** by **F** (Number of farm visits × Number of hours per visit) to display total of monitoring hours.

***NOTE**: If limits are exceeded, an alert will appear, meaning it exceeded tricot protocol recommendations.*

viii. **Enter estimated hours**

Manually enter hours spent on:

Column H – Data collection
Column I – Yield measurement
Column J – Product evaluation
Column K – Farmer feedback

> ***NOTE**: Multiply the total hours spent for **data collection** during agronomic evaluation by **the number of collection moments**. For common beans, it includes registration, vegetative, reproductive, and socio-economic data collection, totaling four times.*

ix. **Columns L and M - Totals**

Both columns calculate automatically total hours (L) and total days (M) based on the data entered in Columns **B** to **K**, excluding **E** and **F**.

Data sources

Time estimates can be informed by past project records or staff time logs, while the number of visits should align with the trial design protocol or monitoring framework. The types of staff involved in tricot trial activities can be identified through project team records, and their specific tasks are often detailed in the field operation plans.

Interlinkage with other worksheets

This worksheet is linked to **"I. Labour costs"** which uses the number of work hours per activity per person from **"H. Labour time"** to calculate the total salary allocated to tricot trial activities.

I. Labour costs

Do not enter any data in this worksheet. All values are automatically populated using data from the **"G. Wages"** and **"H. Labour time"**. **Columns B** to **I** calculate labour costs by multiplying hours worked by the hourly rate. **Column J** sums these to give the total salary per role and row 17, highlighted in dark green, is calculated automatically.

J. Per diem allowance

This worksheet captures travel allowances for field activities during tricot trials, including short trips not eligible for full per diem. Only provide details for job roles involved in fieldwork, as listed in the "**G. Wages**" worksheet, following the below instructions

Input required

i. **Column A – Job role**

The job roles are automatically added with information provided in the "**G. Wages**" worksheet to ensure consistency across trial activities. Only include roles involved in fieldwork.

ii. **Columns B to D – Trial preparation, Training field agents and Seed distribution**

Enter the number of travel days per job role for each activity.

iii. **Column E – Total number of farm visits**

Enter the number of farms visited or planned to be visited, which must be at least 30% of the total trials.

iv. **Column F – Farms visited per day**

Enter how many farms each job role visits per day during monitoring.

v. **Column G – Monitoring**

This column checks whether **column E** is less than or equal to the allowed number of visits, calculated as **cell B9** × **B12** (for researchers) or **cell B9** × **B13** (for extension staff) in the "**B. Trial dimensions**" worksheet. If this condition is met, it multiplies **Column E** by **F** (Number of farm visits × Number of hours per visit) to display total of monitoring hours. If the condition is not satisfied, it returns the string "**O**" to indicate that the number of farms visited exceeds the recommendations outlined in the tricot protocols.

vi. **Columns H, I, and J – Yield measurement, Product evaluation, and Farmer feedback**

Enter the number of travel days for each respective activity.

vii. **Column K – Travel days (single day)**

Enter the number of single-day trips when the person returned to the home base or coordination centre on the same day.

viii. **Column L – Travel allowance costs**

Automatically calculates by **column K** × **travel allowances** from the **"G. Wages"** worksheet.

ix. **Column M – Total days**

Sums up travel days eligible for per diem from **columns B** to **J**, excluding **columns E**, **F,** and **G**.

x. **Column N – Per diem costs**

Auto calculates **column M** × per diem rates from **column E** of the **"G. Wages"** worksheet.

Data sources

Information can be found on travel policies and financial records. It is also recommended to document travel days clearly for future reference and comparison.

Interlinkage with other worksheets

Use row 18 to calculate **column D** (travel days) in the **"K. Travel costs**" worksheet. **Column N** in the same worksheet feeds into **column B** of the "**M. Overview**" to populate the total travel time cost.

K. Travel costs

The travel costs worksheet calculates the time and mileage expenses incurred by staff traveling to trial sites, offering valuable insights for optimizing on-farm testing efficiency, based on each step of the tricot approach

Input required

i. **Column A – Stage**

   All travel activities during tricot training will be automatically filled in **column A** based on data from the **"J. Per diem allowance"** worksheet.

ii. **Column B – Kilometers travelled**

   Enter the number of kilometers traveled associated with activities listed in **column A**.

iii. **Columns C to F – Total fuel costs, Number of travel days, Total per diem and travel costs**

   Column C is calculated by multiplying the travel cost per kilometer specified in the **"E. Unit prices"** worksheet × actual kilometers travelled as indicated in **column B** of "**K. Travel costs".**
   Column D pulls the number of travel days per activity from **row 16** in the **"J. Per diem allowance"** worksheet.
   Column E multiplies the aforementioned travel days by the per diem rate from the **"B. Trial dimensions"** worksheet.
   Column F sums the total fuel cost in **column C** and total per diem cost in **column E** to give the total travel cost.

iv. **Column G – Comments**

   Provide any assumptions or notes explaining how travel costs were estimated to justify the cost of items.

Data sources

Information may be sourced from travel logs, vehicle usage records, and travel policy documents.

Interlinkage with other worksheets

This worksheet links to the **"B. Trial dimensions"** and **"J. Per diem allowance"** worksheets.

Tips for accuracy and comparability

Provide detailed documentation to substantiate travel hours and cost claims.

L. Call costs

This sheet captures call costs for communication and coordination during trial implementation.

Input required

This worksheet calculates airtime and internet costs per job role based on the total minutes of phone calls or online meetings during tricot trial implementation. The unit cost used is based on the ITU mobile data and voice low-consumption basket (70 min + 20 SMS + 500 MB) and is listed in Row 24 of the "E. Unit prices" worksheet.

***NOTE**: Visit ITU ICT Price Basket, select TABLES, choose the relevant basket, set the currency to USD, and select the current year to find your country's rate, as illustrated in Figure 1*

i. **Column A – Job role**

The job roles are automatically added with information provided in the "**G. Wages**" worksheet to ensure consistency across trial activities. Only include roles involved in fieldwork.

ii. **Column B – Number of staff**

Record the number of personnel involved in each job role who made calls and spent on data bundles during implementation in **column B**.

iii. **Column C – Months of call bundles / staff**

Enter the number of months calls and data bundles were used by implementing partners, including calls made by the research team to extension officers and by extension officers to farmers.

iv. **Column D – Total costs**

This column will automatically calculate the total call cost per job role based on values in **cell F24** in Row 24 of the "**E. Unit prices**" worksheet, **column B (cell B7:B16),** and **column C (cell C3:C16)** of the "**L. Call costs**" worksheet.

v. **Column E – Comments**

Provide any assumptions or notes explaining how costs were estimated to justify the cost of items.

Data sources

Use International Telecommunication Union (ITU)'s ICT price baskets to standardize network operator prices across countries.

Interlinkage with other worksheets

This worksheet fetches the unit basket price for the communication bundle from the **"E. Unit prices"** worksheet and it is integrated with the **"M. Overview"** sheet, which computes the total cost associated with communication and coordination during the tricot trials.

M. Overview

This worksheet provides a summarized view of total costs, offering clarity on cost distribution. It automatically compiles totals from all previous worksheets of the costing template to present final costs per category, trial and per farmer/ block. Regularly check data from linked worksheets to ensure accuracy in the **"M. Overview"** summary.

N. Sensitivity analysis

Understanding the main cost drivers in on-farm testing is essential as expenses can vary with factors like fuel prices, activities, or number of enrolled farms. This worksheet clarifies this by adjusting one input at a time to see its impact on total cost. This supports risk assessment, budgeting decisions, and clearer communication of trade-offs. The **"N. Sensitivity analysis"** worksheet in the tricot costing template tests assumptions and protects the core model while offering actionable budgeting insights.

NOTE: The bar chart shows each cost driver's dollar impact, with the largest bar representing the biggest budget factor. You can include insights in your report by copying the chart or the headline numbers. For instance, a 15% increase in labour shifts the total cost of the trial by approximately $12,000.

Input required

i. **Column A – Cost driver**

Lists the key cost drivers, which can be adjusted by percentage to assess the impact of changes in these parameters on overall costs (e.g., Number of Farmers +50%) to guide users and reviewers. Stick to one direction change (+ or -) for all key drivers.

ii. **Column B – Baseline Value**

The baseline values in **Column B** are derived from the linked worksheet, including the **"B. Trial dimensions"** and **"M. Overview"** sheets.

iii. **Column C – Percentage adjusted**

Manually enter the percentage changes from the baseline values. The percentage should be informative and based on an informed perspective related to the tricot trial, not arbitrary numbers.

NOTE: Positive % indicates cost increase and negative % shows cost saving.

iv. **Column D to F – Adjusted value, Change (%) and Estimated cost impact**

These columns are automatically calculated based on the percentage adjusted input in **Column C**.

Data sources

When determining the adjustments for each driver in **column C** (Percentage adjusted), consider how much this cost center could realistically change in the next season. To address this, it is advisable to use data on key drivers from reliable sources.

For instance, the number of farmers can be drawn from the most recent enrolment list exported from ClimMob or based on a signed seed-package register. Adjustments to the number of monitoring visits may follow an approved field workplan or Gantt chart.

Changes in fuel costs can be based on the weekly pump-price bulletin from the national energy authority or a reputable business press.

To update labour costs, refer to payroll circular or government wage scale updates. Material cost adjustments can be adjusted with data from supplier quotes or tender price list for seeds, bags, and consumables.

Interlinkage with other worksheets

The **"N. Sensitivity analysis"** worksheet is connected to **"B. Trial dimensions"** and **"M. Overview"** to automatically pull in baseline values. It also uses data from the **"M. Overview"** sheet to estimate how changes in key drivers affect the trial's total cost in **column F**.

Tips for accuracy and comparability

Only input data in the white cells - other cells are auto-calculated and do not require manual adjustments.

For fuel, labour, and materials indices, use whole numbers (E.g., 110 for +10% and 85 for -15%). These will be internally converted into adjustment factors.

To accurately interpret cost impacts, change one driver at a time and observe the corresponding bar in the chart before testing combined changes.

***NOTE**: The chart visually ranks cost drivers, making it easier to justify decisions.*

Always document your assumptions in the comment column with dates for traceability. The bar chart visually ranks the most influential cost drivers, helping to support budgeting decisions.

O. Scenario analysis

To plan effectively, budgeting should go beyond current costs and explore how changes in key variables could affect overall expenses. This worksheet enables users to experiment with different budget scenarios such as best-case, base-case, and worst-case by adjusting factors like farmer enrollment, monitoring intensity, fuel, labour, and materials and how these changes will impact the total cost. This worksheet serves as a tool for users to simulate various scenarios: modify the inputs, analyze the resulting cost model, and present a data-driven narrative in meetings covering budgeting outcomes.

Input required

i. **Column A – Scenario**

This column displays the baseline and the names of the different scenarios applied to each cost driver listed in **column C**.

ii. **Column B – Change**

This column allows users to adjust the percentage change for each cost driver. Any value entered here will automatically update **columns D** to **H**. While the cells are formatted to display percentages, Excel requires that you start your entry with an apostrophe (') if you want a plus (+) or minus (–) sign to appear at the beginning of the number.

Example: If you enter '–15%, the cell will show as –15%.

iii. **Column C – Cost driver**

The key cost drivers are listed in this column and it sets the baseline values for the number of farmers and monitoring visits according to trial requirements, with the baseline index for fuel, labour, and material costs.

iv. **Columns D to H – Different baseline scenarios based on cost driver changes**

Only white cells for the number of farmers, monitoring visits, fuel, labour, and material can be modified. Light green cells will be automatically updated based on the percentage changes applied on **column B.**

v. **Columns N – Estimated total cost**

The Estimated Total Cost (USD) combines:

- Material × Farmer × Material index +
- Monitoring-labour × Farmer × Visit × Labour index +
- Fuel × Visit × Fuel index +
- Other variable × Farmer (e.g., call costs)

Data sources

> ***NOTE***: The best practice is triangulate from at least two price points. Ensure each source is time-stamped to allow future reviewers to determine the specific month or season the index represents.

The number of farmers can be sourced from the ClimMob farmer registry or signed seed-package distribution sheets, while the number of monitoring visits can be derived from the work plan, Gantt chart, field logbooks, or monthly reports from extension officers. Fuel indices should be based on weekly pump-price bulletins issued by the national fuel authority, as well as the fleet manager's mileage allowance records or official government statistics. Labour indices can be taken from payroll data, HR circulars on salary scales, or published government per diem rates. Material indices should be informed by up-to-date supplier quotations or the most recent tender price lists for the season.

Interlinkage with other worksheets

This worksheet is linked to the "**M. Overview**" sheet, meaning any updates in the "**M. Overview**" sheet will automatically adjust the estimated total costs (USD) and the percentage changes in the "**O. Scenario analysis**" sheet.

NOTE: Changes made in the white cells of the "**O. Scenario analysis**" sheet do not impact the "**M. Overview**" sheet and other linked sheets

Tips for accuracy and comparability

Start from a correct baseline: Before making any "what-if" changes, confirm that the "**M. Overview**" sheet shows the correct totals. Any baseline error will affect all scenario outcomes.

Use proper input format and sequence: Enter index values as whole numbers (e.g., 110 for +10%, 75 for -25%) rather than decimals (e.g., 1.10 or 0.75). Adjust one cost driver at a time to observe its specific impact, then combine drivers for full scenarios. This helps maintain clarity on what causes each cost variation.

Ensure unit consistency and verify factors: Use the same time unit (e.g., "per season") across all scenarios to avoid skewed comparisons. Check that factors in **columns G to K** are correct (expected factor = 1.00 at baseline), and review entries if they aren't.

Support reproducibility and review: Add brief assumptions in **column N** (e.g., "Fuel subsidy ends"). Perform quick checks by comparing new estimated costs to expected changes. Before sharing, save a copy with values only (Ctrl + C → Paste Values) so others see consistent numbers.

VII. CONCLUSION

This manual serves as a comprehensive guide for conducting accurate and transparent costing exercises for tricot trials using the accompanying Excel worksheets. By adhering to the structured, clear and detailed instructions provided in this manual, users can ensure the reflection of true operational costs, maintain comparability across various regions and trials, and ultimately enhance the robustness and transparency of tricot trial budgeting processes.