

GREENLEAF360 OPERATIONAL MANUAL

Standard Operating Procedure (SOP) & System Guide v2.0

1. Purpose & Scope

This document establishes the Standard Operating Procedure (SOP) for the deployment and daily use of **GreenLeaf360** at **Sathia Tea Factory**. The platform provides end-to-end visibility and digital auditability across green leaf procurement, factory floor manufacturing, inventory control, and financial payables. It is designed to prevent operational leakage, eliminate mathematical errors in payment settlements, and protect grower/agent financial records via localized encryption.

2. Key Roles and Access Control

- **Factory Admin (Factory Owner):** Full operational oversight, Master Data setup, ledger approval, and encrypted payment file generation.
- **Weighbridge Operator:** Executes green leaf weigh-ins, log deductions (water, stalk, black leaf), and generates automated WhatsApp slips.
- **Shift Supervisor:** Logs daily shift details, worker attendance, fuel/energy metrics, and grade-wise tea output yield.
- **Accountant / Payables Specialist:** Reviews weekly supplier bills, advances, and initiates bulk payment runs.

CRITICAL SECURITY POLICY: System access credentials (e.g., *dnmsathia@gmail.com* / *Sathia@2026*) are single-tenant and cryptographically tied to factory workstations. Operators must never share passwords or leave active weighbridge terminals unattended.

3. Leaf to Stock: The Factory Floor Operational Flow

The transformation from raw green leaf to graded tea is divided into strict checkpoints to ensure total inventory control and eliminate material loss.

3.1 Green Leaf Intake (The Weighbridge)

1. **Identity & Land Record Check:** Identify the grower or registered broker on the screen (as indexed in Master Data).
2. **Weight Verification:** Read weights via direct Bluetooth/serial integration with the weighbridge scale (gross, tare, and net calculations). If signal is lost, the platform's *Offline Mode* will cache entries locally and sync automatically when internet returns.
3. **Quality Deductions:** Log standard deductions for water content, black leaf, and stalk. The system computes a net payable weight.
4. **Grower Receipt:** Click the **Notify bill** button to trigger an automated green-branded receipt sent directly to the grower's registered phone via WhatsApp.

3.2 Manufacturing & Processing

The transformation is logged via a 4-step wizard interface:

1. **Workers & Shift:** Assign factory workers to specific stations (Leaf Feeding, Dryer, Sifting, Packing) and log active hours.
2. **Manufacturing Details:** Record active wither runs and starting raw weights.
3. **Fuel & Energy:** Log consumption metrics of firewood (kg), electricity units (kWh), charcoal, or briquettes.
4. **Grading:** Record the final batch yield in kilograms across specific grades (SRD, GD, FD, SFD, BOP, BOPSM, BP, OF, PF, PD, RD, DUST). The system auto-calculates the **Outturn %** (standard outturn benchmark is 22.5%).

OPERATIONAL TIP: Shift operators must consistently document power cuts, brownouts, or mechanical outages using the **Downtime Batch Card (DBC)**. Accurate downtime logging feeds the AI optimization engine to generate reliable fuel-efficiency reports.

4. Sales & Outbound Logistics

Once bulk packages are packed, they are logged in the **Stock Ledger** and prepared for dispatch to auction houses, agents, or direct buyers.

- **Dispatch & Invoice:** Handles line items including tea grade, net weight (kg), and contract rate. The system automatically decrements stock upon invoice generation.
- **Excise & Gate Pass:** Automatically compiles printable Form E excise dispatches with mandatory chest markings, duty calculations, and PLA debit bookkeeping.
- **Sale Note Settlement:** Once the broker sells the tea, record the realized prices, brokerage deductions, net proceeds, and payments received to clear the outstanding broker ledger.

5. Financials, Payables, & Encrypted Bank Vaults

Managing payment reconciliation in tea factories is complex due to weekly billing schedules, cash advances, and sensitive banking data. GreenLeaf360 simplifies this with an isolated bank-grade privacy layer.

5.1 Automated Supplier Bills & Advances

The system compiles green leaf intake logs dynamically. Any raw leaf collections are converted into supplier bills based on agreed weekly rates. If an agent or supplier has taken cash advances, the payables engine automatically processes advance recoveries, deducting outstanding balances from the weekly net payable amount.

5.2 Secure Local Bank Vault (Dual-Key Architecture)

To comply with strict data privacy requirements, GreenLeaf360 uses a dual-key database architecture:

1. **Cloud Synchronization:** Net payable amounts, total kilograms, and invoice references are safely calculated and synchronized via the cloud.
2. **On-Premise Local Bank Vault:** Actual bank details (IFSC, Bank Name, and Supplier/Agent Account Numbers) are kept strictly local. They are encrypted using **AES-256 standards** and are never uploaded, stored, or processed on cloud servers.
3. **Vault Passphrase:** Access to the local vault requires a local passphrase. The passphrase is held on-premise and is required to unlock accounts for a transaction run.

BANK-GRADE SECURITY STANDARD: Supplier bank account numbers and IFSC identifiers exist exclusively on the local workstation memory. If the local vault file is deleted or the local passphrase is lost, bank records cannot be retrieved or decrypted. System administrators must perform weekly backups of the local vault file onto an air-gapped, encrypted USB drive.

Table 5.1: Financial Dashboard Interface References

Operational View	Primary Screenshot	Core Actions & Data Handled
Bills & Advances	16_bills___advances.png	Logs weekly consignments, recoveries, and tracks outstanding advances.
Bill & Payments	17_bill___payments.png	Displays All Payees, Current Bills, Pending Bills, and Net Payables.
Bulk Payments	28_billing.png	A three-step wizard: 1. Who & When -> 2. Amounts -> 3. Pay & Close.
Local Bank Vault	31_billing.png	Unlocks the secure on-premise vault using the passphrase to link accounts.
Timesheets	38_timesheet.png	Records worker daily/monthly attendance, wage rates, and LOP adjustments.

5.3 Step-by-Step Bulk Payment Processing Flow

Processing payouts for hundreds of suppliers, agents, and laborers is managed through an optimized 3-step checkout wizard in the **Bill & Payments** interface:

Step 1: Segment & Select (Who & When)

1. Navigate to **Bill & Payments** in the left-hand sidebar.
2. Select the payee segment tab: **Agents, Workers, Packing Staff, or Brokers**.
3. Set the active **Payment period** (From/To dates) using the calendar selector.
4. Choose the **Payee Bank Account** from the debit-from dropdown (e.g., *Sathiamurthia Canara Bank* account). Enter the *Ordering Customer Name* and an optional batch descriptor name.

Step 2: Balance Reconciliation & Bank File Generation

1. Select the processing mode: **Online - Bank upload file** (for commercial bank runs) or **Offline - Cash / Manual** (for physical payments).
2. The system dynamically pulls net outstanding payment totals calculated from raw crop weigh-ins minus any cash advances.
3. Prompt the **Local Bank Vault Passphrase**. This decrypts the localized database in the terminal's memory and merges the cloud billing totals with the verified IFSC/UPI/Account identifiers.
4. Click **Generate Bank File**. The system compiles a standard Canara Bank 14-column comma-separated values (.csv) layout, ready for direct upload into your commercial internet banking portal.

Step 3: Pay & Close Settlement

1. Upload the generated bank file into your online bank terminal and authorize the transaction.
2. Once processed, return to the GreenLeaf360 Bulk Payment tab and click **Close & Settlement**.
3. The system locks the records for the selected period, archives the invoices, and logs a permanent ledger entry in **Payment History**.
4. Outstanding grower accounts are automatically reset to zero, and the platform issues automated transaction slip receipts to suppliers.

6. Operational Analysis & Insights

GreenLeaf360 compiles daily raw figures into visual analytics. The chart below illustrates the historical tea grade production mix for Sathia Tea Factory across a standard operating cycle.

Sathia Tea Factory - Tea Grade Output Distribution

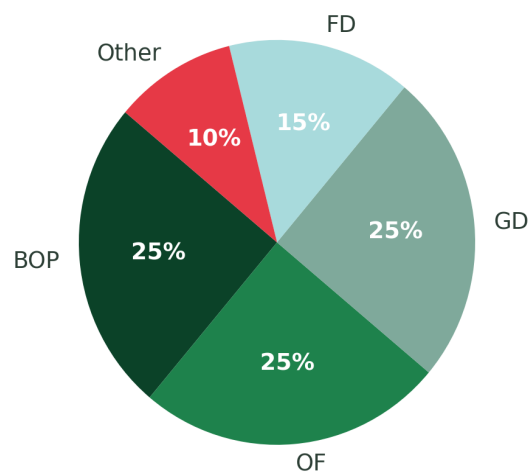


Figure 6.1: Standard Grade-wise Leaf Distribution compiled from production stock entries.

7. Oversight, Audits, & AI Assistant Recommendations

To ensure operational integrity and accurate cost-tracking, managers must conduct a standardized month-end physical-vs-record reconciliation audit.

7.1 Monthly Stock Reconciliation Audit

At the end of every calendar month, the factory owner or direct supervisor must execute the following procedures under the **Monthly Audit** module:

1. Navigate to **Inventory & Audit** -> **Monthly Audit**.
2. The system auto-calculates the *Record Stock* (calculated as: Intake Green Leaf - Processed Leaf + Beginning Stock - Dispatched Made Tea) across fuel types and 14 distinct tea grades.
3. Perform a physical inventory count of packaged bags in the warehouse and log the **Physical Stock** weights on screen.
4. The audit engine dynamically computes the **Variance**. Any deviation greater than 1.5% requires a mandatory explanatory comment before the system locks the period.

7.2 AI-Powered Cost Optimization

The platform integrates a local, natural-language **AI Assistant** that cross-references operations to deliver cost savings:

- **Pricing Optimization:** The AI tracks raw green leaf prices against auction trends to recommend daily crop purchase rates.
- **Fuel & Utility Audit:** Cross-references dryer run hours, firewood kg consumed, and outturn percentages to flag heat-loss anomalies or boiler inefficiency.
- **Operational Downtime Reports:** Analyzes DBC cards to quantify exact monetary losses per hour of electrical downtime, optimizing generator schedules.

SOP COMPLIANCE AND VERIFICATION: This Standard Operating Procedure has been reviewed and authorized for immediate use. All shift logs, scale readings, and bulk payment transactions are subject to bi-weekly audits by the Factory Board. Non-compliance with encrypted local vault backup standards will trigger system access revocations.