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## HARVEST *it*

(An Integrated Plantation Management Software)

### Product Features – Oil Palm

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## OVERVIEW

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iSmart Business Solutions (P) Limited is a software development and consultancy firm that provides integrated solutions for the food and agribusiness industry that enables customers to use information as a strategic planning tool. iSmart is on its way to becoming the World Leader in providing value added Business Solutions for food and Agri business.

The current flagship product of the Company, HARVEST *it*<sup>TM</sup> is the culmination of more than 1000 man-years of cumulative development effort over the past 18 years.

HARVEST *it*<sup>TM</sup> version 1.0 is an integrated multi-platform package that meets the needs of virtually every aspect of the plantation industry. HARVEST *it*<sup>TM</sup> 1.0 supports multi-crops and multi currency, thus facilitating usage in plantations all over the world. HARVEST *it*<sup>TM</sup> has an integrated, modular architecture design, is available on varied hardware platforms and operating systems, and is a user-friendly system designed for plantation environment. All the modules of HARVEST *it*<sup>TM</sup> 1.0 are Windows-based and developed using the client - server architecture. HARVEST *it*<sup>TM</sup> –is customized for different crops such as – Tea, Coffee, Rubber, Oil Palm, Vineyards, Tobacco, Sugar, Cardamom, Coconut and other minor crops.

Given below is a brief description of the modules offered by HARVEST *it*<sup>TM</sup> relevant to an Oil Palm Plantation Industry.

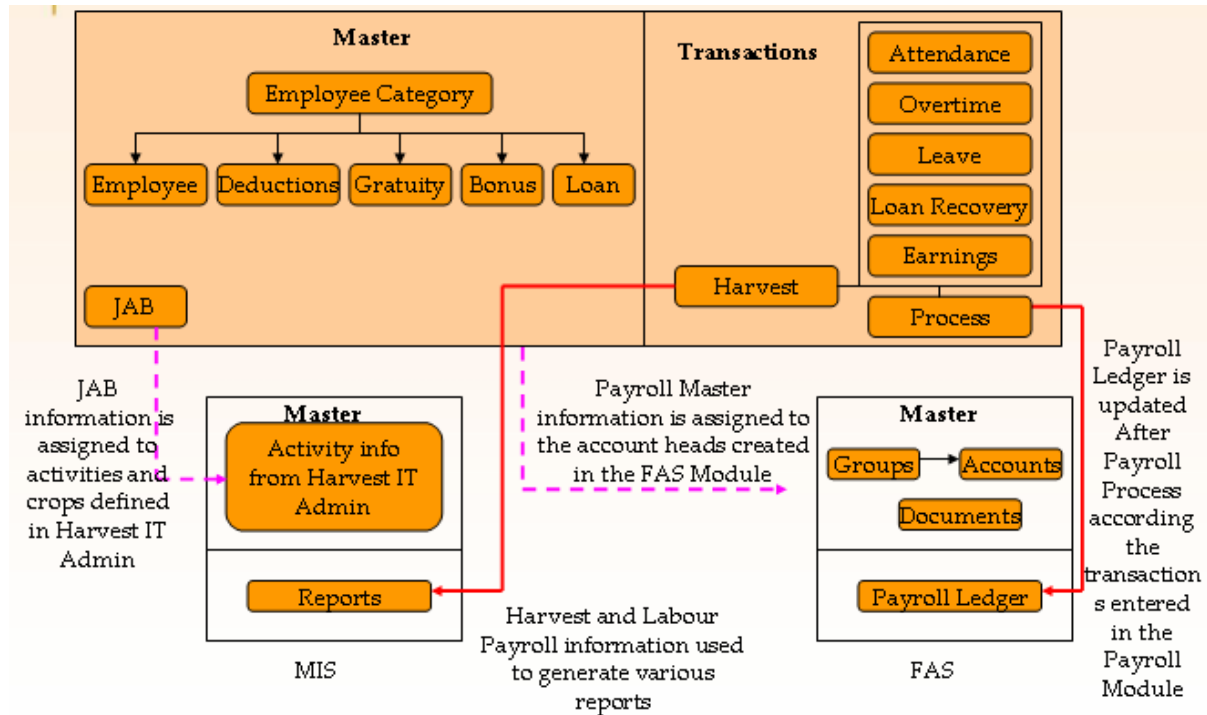
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## MODULES AVAILABLE AT THE ESTATE LEVEL

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### PAYROLL SYSTEM

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The Payroll module of HARVEST *it*<sup>TM</sup> is multifunctional. The System looks after the salaries and wages of the Upper Tier and Lower Tier employees at the Estate Level. It allows the data entry of fresh fruit bunches harvested, which is used to determine the productivity of both the Estate and the harvesters. It captures field-wise data so that the performance of individual blocks can be compared for a grass root analysis of the reason for low productivity or non-performance. For the Lower Tier, since remuneration may be slab/task based, the System is capable of executing complex calculations required to arrive at the wages to be disbursed.



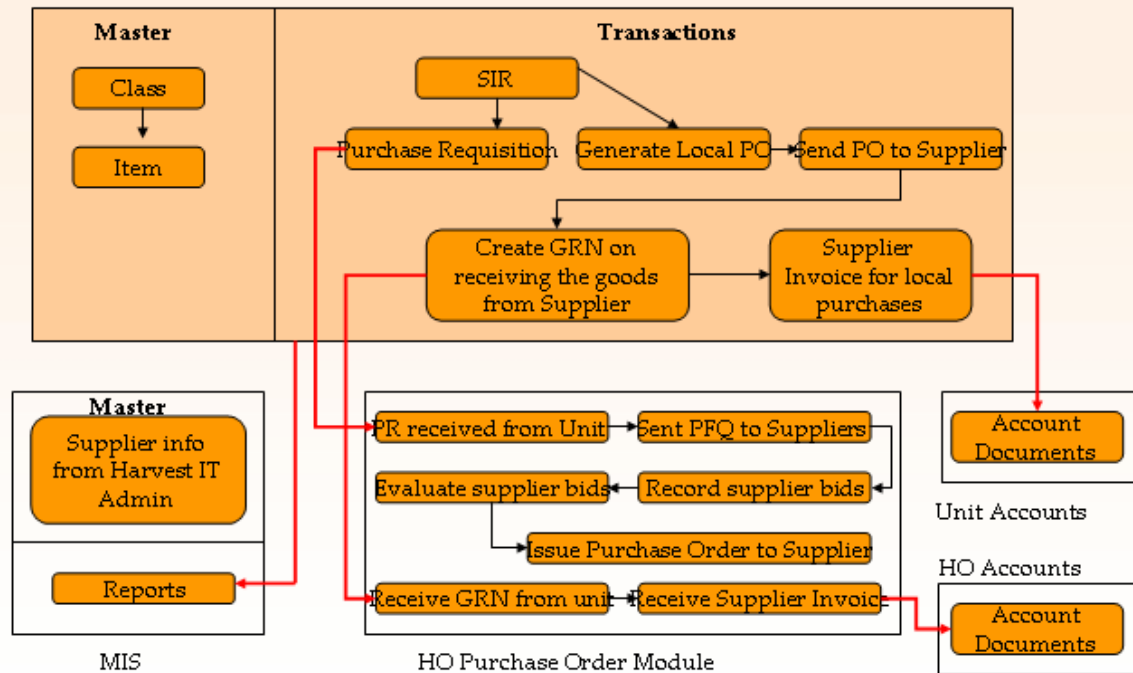
Besides handling Attendance, the Payroll System tracks and monitors all statutory and fringe benefits and other incentives. It generates pay slips as well as a plethora of productivity and statutory reports. It also keeps track of the employees' personal details and history.

## Payroll Reports

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- Payslip
- Singleline Payslip
- Pay Summary
- Payment Voucher
- Jurnal Voucher
- Job Expense
- Denomination
- Recovery Statement
- Earnings List
- Outstanding Statement
- Overtime
- Gratuity Reports
- Holiday Pay
- Attendance Bonus
- Cash Advance
- Loans
- Harvest Crop Register
- Harvest Analysis
- Productivity Profile
- Checkroll Book
- Attendance Summary
- Attendance Detail
- Nil Attendance
- Absenteeism

## Inventory Management System



The Stores module of HARVEST *it*<sup>TM</sup> maintains stock at the estates and divisions. The System permits any four types of stock valuation methods viz. – Monthly and Daily Weighted Averages, FIFO and Monthly General rate. The User can define as many additional charges as needed which can be posted either to stock or account. Allowance can be maintained either item- wise or account- wise. Both Local and Head Office purchases are possible. There is a provision for Sanctioning or Rejecting Issue and Purchase requisitions. An Automatic Stores Issue Requisition (SIR) closing is possible after a predefined number of days. The System allows both Scrap Sales and Differential Rate Issue.

Debit Notes and Credit notes can be generated by the System. Stock Adjustment can be done either for Value or for Quantity. It can produce Reorder warnings either at the start or through a report. It is capable of generating all the required reports that are needed for monitoring and



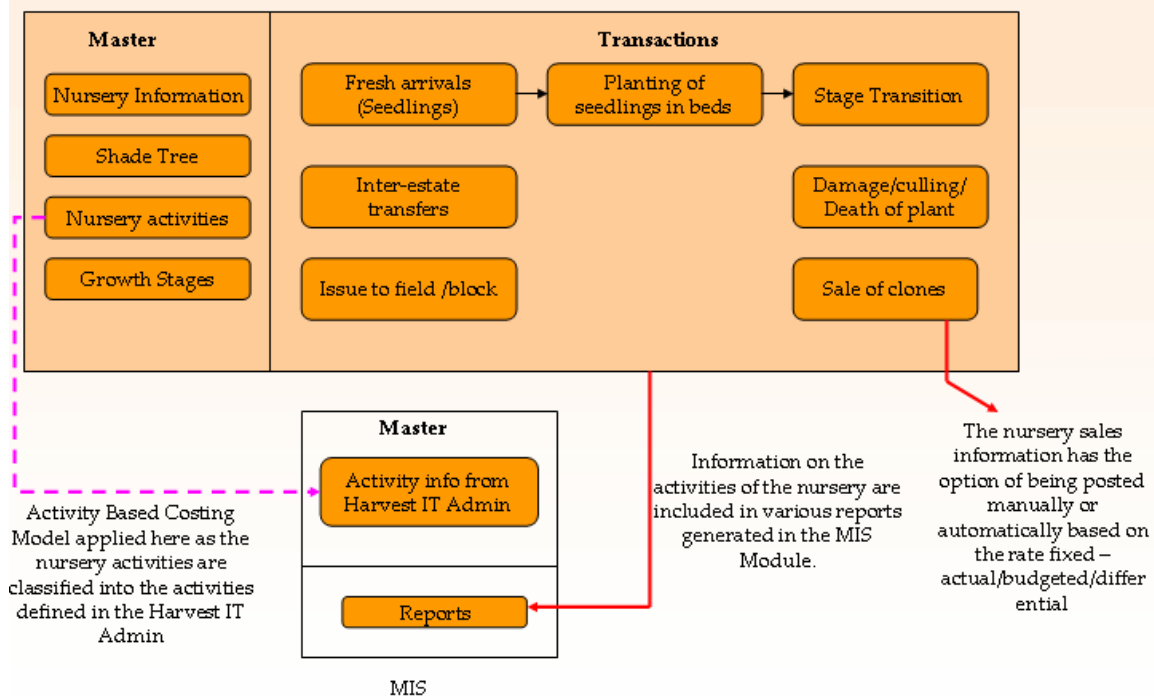
controlling the system. It can generate a Budget Variance report, Pending LPO and Purchase Requisition report, ABC Analysis, Ageing Analysis and SIR status among several others. This module is linked to the Central Stores module that coordinates procurement of items after validating the stock position at all estate stores.

## Inventory Reports

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- Stock Statement
- Class Summary Reports
- Issue of Items
- Closing Stock
- Stock Ledger
- Bin Card
- Consumption Register
- Ageing Analysis
- ABC Analysis
- SIR Status
- Purchase Register
- GRN Register
- Adjustment Register
- Reorder List
- Non Moving Items

## Nursery System



The Nursery module of HARVEST *it*<sup>TM</sup> helps to record and monitor the growth cycle of the plants in an Oil Palm nursery. In this System, the nursery area is divided into beds. Seedlings or clones are clubbed as batches and each batch is nursed through different growth stages before they attain maturity for planting. It captures all the nursery operations of planting, spraying, weeding, manuring, watering, restacking, culling, etc. It generates reports that can keep track of the history of each individual batch.

## Nursery Reports

Stock Statement

Bed wise Stock Statement:

Clone wise stock statement

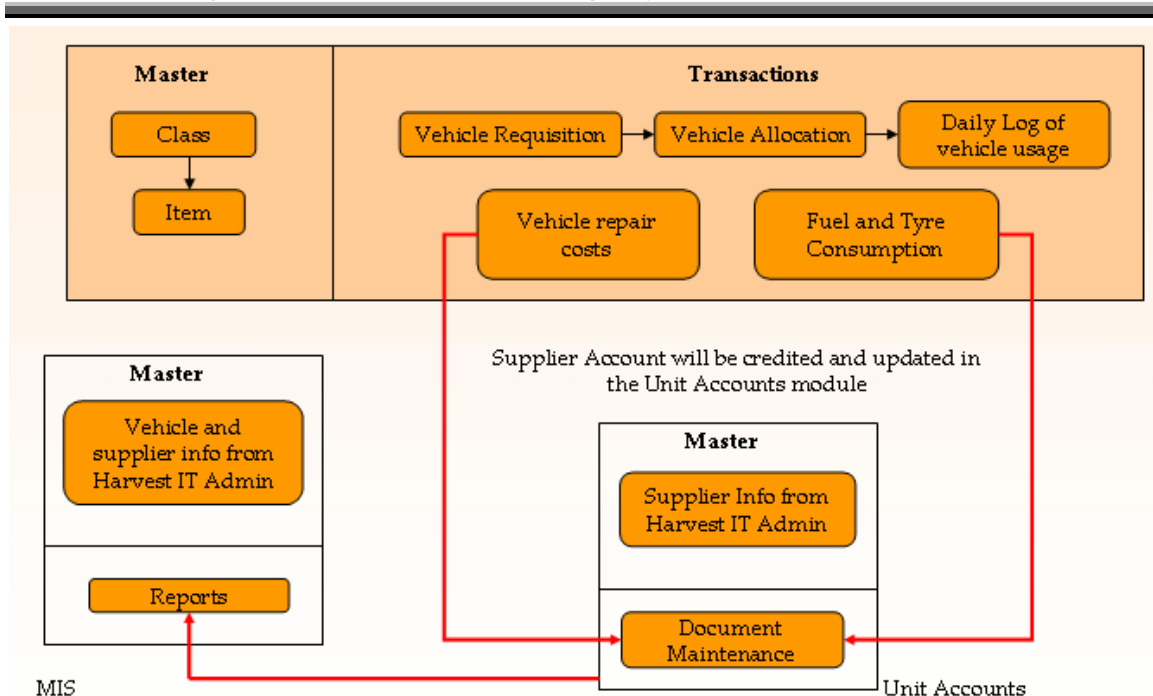
Season Detailed Statement:

Nursery Upkeep Statement:

Issue Register:

Transfer Report:

## Fleet Management and Workshop System

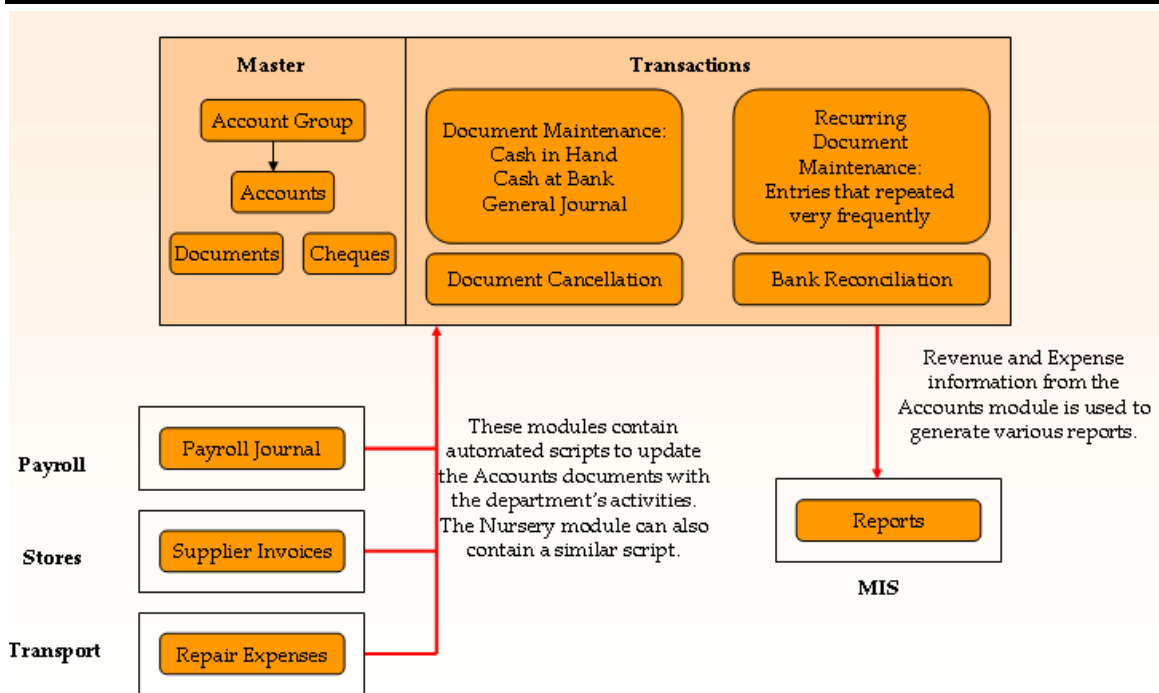


The Fleet Management module of HARVEST *it*<sup>TM</sup> keeps a track of the operational performance of all the vehicles on the estate. By recording the daily running, fuel consumption and cost of repairs and spares, the System can indicate the running cost per km or hour of each vehicle. It handles details such as Vehicle Requisition, Vehicle Allocation, Daily Log book, Fuel and Oil consumption, etc. The workshop function offers job order cards, work and delivery schedules and service costs.

## Fleet Management and Workshop Reports

Daily Log  
 Fuel and Consumption  
 History of Asset  
 Machinery Register  
 Machine Wise Expenditure  
 Labour Cost  
 Cost Analysis  
 Operational Cost  
 Service Schedule  
 Cost Distribution Statement  
 Performance Analysis  
 Section- Wise To Date Job Cost  
 Running Cost  
 To – Date Running Cost of vehicles

## Financial Accounting System





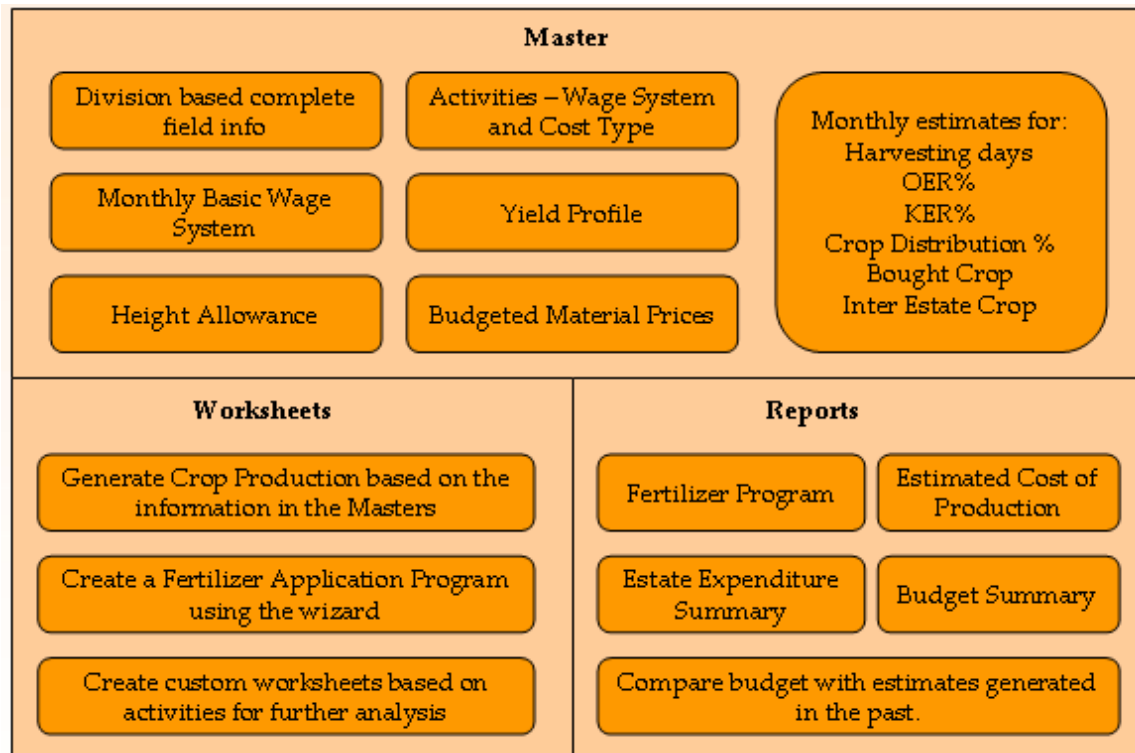
The Accounts module of HARVEST *it*<sup>TM</sup> takes care of every accounting need at the Estate. Besides regular accounting functions, the System offers features like accounts grouping in 10 levels, several documents like Petty Cash, Cash On Hand and different bankbooks. It allows for a provision for reconciliation of Bank, Debit/Credit note, Inter Location Documents. It allows a foolproof method against manipulation of accounts. Users can be defined under Sanctioning authorities with the authority to sanction predefined amounts. HARVEST *it*<sup>TM</sup> Accounts supports multi- location and multi currency requirements. It also provides a Mini Budget as part of the same module.

## Financial Accounting System Reports

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- Documents / Cash Book
- Documents / Bank Book
- Documents / Jurnal
- General Ledger
- Trial Balance / location Wise
- Sundry Debtors / Creditors Balance
- Cheque Register
- Document Balance Statement
- Bank Reconciliation Statement
- Document Printing
- Cheque Printing
- Final Accounts
  - Profit & Loss Statement
  - Balance Sheet

## Budget System



The Budget module of HARVEST *it*<sup>TM</sup> helps to prepare and maintain estimates of activities on the estate. The module considers the need for budgeting in four areas viz. Output Targets, Operation Expenditure Estimates, Sales Targets and Anticipation of Profitability.

HARVEST *it*<sup>TM</sup> allows the User to estimate all expenditure and income in terms of three elements - Man, Material and Money on an activity wise and field wise bases. Both annual and monthly budgeting is possible. The System classifies operating expenditures into Variable and Fixed expenditure based on their nature and frequency of recurrence. Budget revision can be done either half- yearly or as desired.



## Budget Reports

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Summary of Estimates

Crop Statement / Crop Distribution – Summary

Crop Statement / Crop Distribution – Field Wise

Hectarage Statement / Detail

Hectarage Statement / Summary

Hectarage Statement / Revenue

Hectarage Statement / Capital

Labour Statement

Analysis of Manufacture

Summary of Expenditure

Details of Expenditure

Expenditure / Manday Statement

Fertilizer Programme

Field Work Program

Cost of Production / Summary

Cost of Production / Detail

Budget Summary

Estate Expenditure Statement

Building & Vehicle Asset Details

Area Statement

Labour Strength

Grade Wise Production

Grade Wise Despatch

Other Worksheets

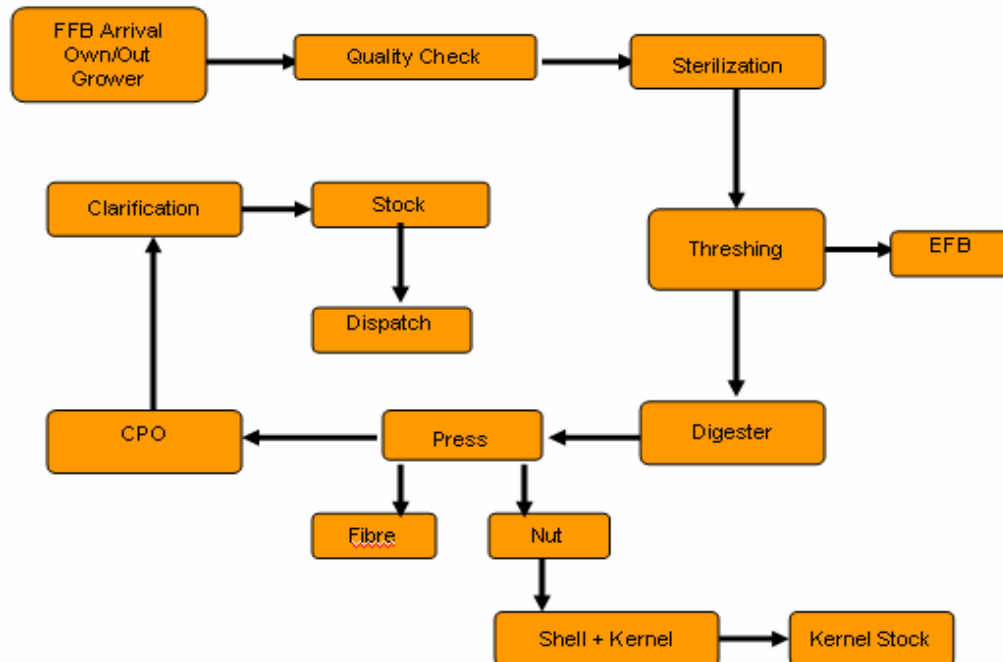
Budget Wise Comparison

Budget Month Wise Statement

Grade Wise Sale Statement

Immature Fields to Mature

## Mill Processing



HARVEST *it*<sup>TM</sup> captures the processes that take place in an Oil Palm Mill effectively. The System records the daily field wise FFB arrival from the weighing bridge. It records the outside purchase of FFB party wise. It records the daily water reading at various locations. It captures processed CPO & PKO with quality parameters like FFA, Dirt %, Moisture etc. It also captures the processing time. It maintains dipstick and temperature parameters and calculates the quantity of oil in stock automatically. It logs machinery stoppages, breakdowns and power consumption both from self-generation and grid. It captures and prepares Dispatch Advice of CPO, PK & PKC. It also stores the Lab Test results. It prepares party wise payment advices for out side purchase of FFB.



## Mill Processing Reports

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Daily Production Report  
Delivery Report  
FFB Arrival Report  
Monthly production Report  
Stock Summary  
Lab work sheet report

## Tank Farm Management

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Tank Farm Management system handles the definition of tanks, transfer of various products to the tanks, quality control checking, maintaining stock details of the different tanks and costing. The System will guide and control the quality measurements and registrations.

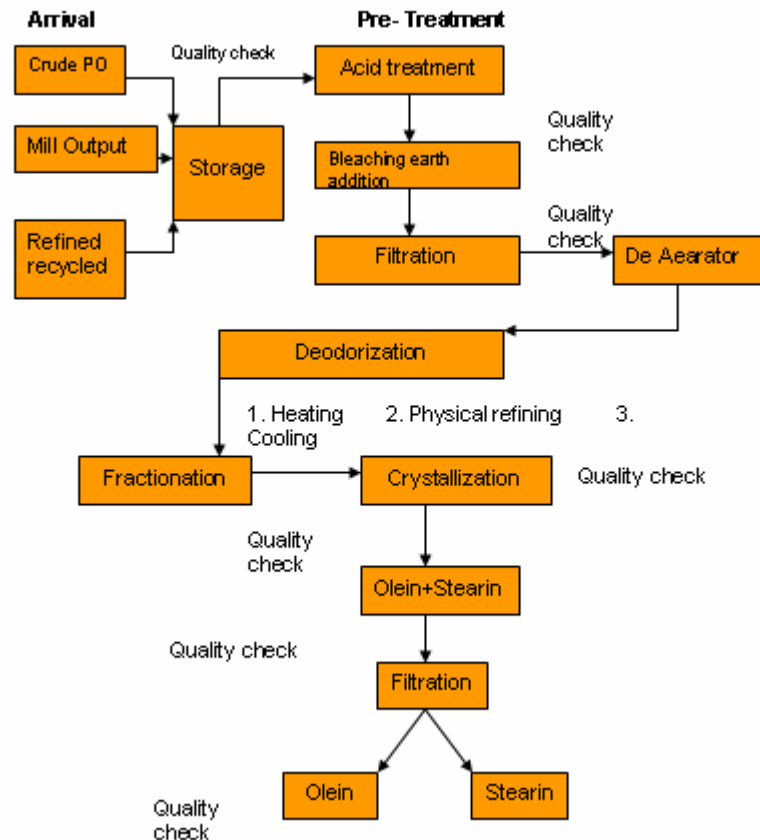
Samples are taken from the tanks and quality control checking is done to arrive at FFA%, Color, PV, IV, Clouding point, Melting point and Moisture content. Temperature readings of the tank are recorded only for the tanks that are being heated for production or for Shipment and processing tank. Oil level Vs Volume Data bank and Temperature Vs Specific gravity data bank are recorded.

Finished products are then transferred to the Tanks based on system allocation. From the tanks, the product can be recycled back to the production line. This will be in different batches and will be tracked.

Oil is received in the farm by reception process. Oil is shipped by shipment process. The actual cost incurred in the various operations carried out at mill, refinery and tank farm is arrived on a monthly basis. The various cost consists of manpower used, items from store used for maintenance and processing, machinery usage, fuel consumption, electricity consumption, etc.

## REFINERY

### PROCESS FLOW



Refining of edible oils involves the elimination of all undesirable components that are inherent to a natural product. This elimination is necessary to make the product as pure as possible. The elimination of all these components is carried out through several stages of *Refining*.

#### Arrival of Raw material

Provision is given in the system to record the arrival of raw materials such as CPO, CPKO, Shea and even crude or refined oils for further storage and processing. They are brought in trucks from multiple sources to a weighbridge, pumped directly from the Mill or even brought by ship.



## Quality Control

QC parameters are recorded at various stages through the system to determine their 'in spec' or 'out of spec' status.

## Storage Tank

Tank capacities are recognized by the System and on this basis, pumping into specific tanks is advised. The permutations and combinations of filling these tanks with different products can be tabulated in the System. The System will approve the storage tanks, as to where a specific material can be stored by their numbers and stock position.

## Refining

The process of Refining can be classified into 3 stages viz. (1) Storage of crude, neutral and refined oils (2) Pre – treatment (3) Deodorization.

Pre-treatment can be classified into 3 steps viz. (1) acid treatment as a start of the degumming operation. (2) Bleaching Earth addition as an adsorption operation (3) filtration operation.

The deodorization process consists of 3 steps viz. (1) heating up to the desired deodorization temperature. (2) physical refining (3) cooling down before storage

## Fractionation

Vegetable oils consist of a mixture of different kinds of triglycerides. Every kind of triglyceride has a different and specific crystallization behavior. It is possible to separate oil in different fractions based on a specific crystallization pattern.

The fractionation process consists of 2 parts viz.



- Crystallization - The crystallization process gives rise to the formation of 2 products called *Olein*, which is in a liquid form and *Stearin*, which is in a crystallized form
- Filtration – The above mixture is sent to a Membrane Filter Press. From here, Olein as a clear product is obtained. Subsequently, through a process of Core blowing and Squeezing, a concentration of Stearin crystals is obtained.

The module contains a methodical system of checks and balances at each stage to determine its process to the next. Given below are a list of reports that are generated for information and control.

## Refinery Reports

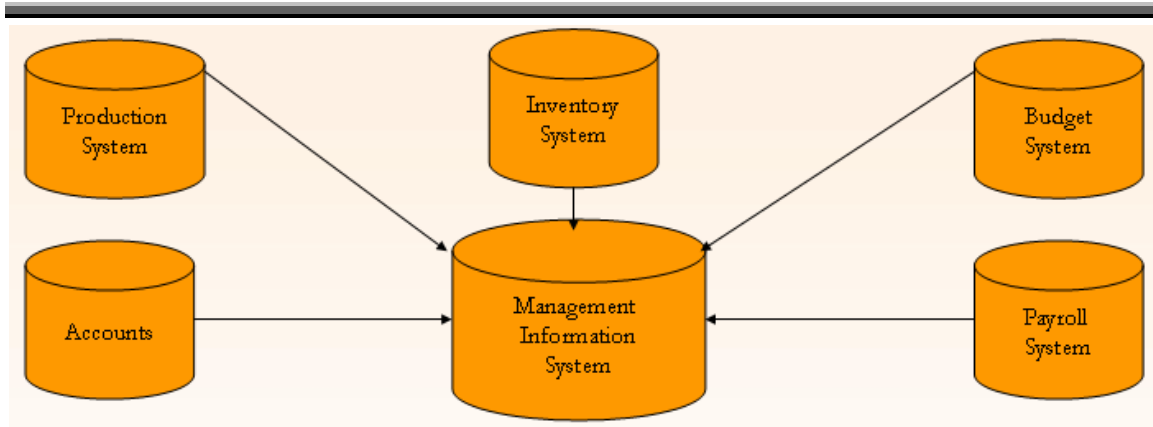
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The Quality Control Certificate (QCC)  
Material Receipt Advice (MRA)  
Daily Tank Farm Report  
Tank Farm Quality Control Report (TFQCR)  
Product Allocation/ Collection Advice  
Weighbridge Ticket  
WayBill/ Delivery Note and Invoice  
Weighbridge Daily Flash  
Sampling Report  
Sampling Program  
Quality Standards template  
Daily Processing Information  
Product Specifications Report – Arrival  
Product Specifications Report – In Storage  
Product Specifications Report – Loaded for Dispatch  
Refined Products Report – In process  
Refined Products Report – In Storage

Refined Products Report – Loaded for Dispatch  
Fully refined Palm Olein –Fractionation Report - In Process  
Fully refined Palm Olein –Fractionation Report - In Storage  
Fully refined Palm Olein –Fractionation Report - Loaded for Dispatch  
Fully refined Palm Stearin –Fractionation Report - In Process  
Fully refined Palm Stearin –Fractionation Report - under Storage  
Fully refined Palm Stearin –Fractionation Report - Loaded for Dispatch

## Management Information System

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The MIS module is installed at the Estate or Group level. The System integrates essential data from all the estate modules and provides essential information required by the Manager in the form of daily or monthly reports. These reports help the Estate Manager in taking right and timely decisions for better control of estate operations. The intention of the System is to give all the relevant information to the manager, in order to do away with wastage of resources in all forms. The Estate MIS helps in the comparison of performance in order to isolate the root cause for lack of productivity, eliminate it and enhance production and productivity. This helps significantly in bringing down the Cost of Production.



## Management Information System Reports

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### Progress Reports

Cost of Production / Estimate Vs Actual

Cost of Production / Estimate Vs Actual – Detail

Cost of Production / SMLY Vs Current Month

Cost of Production / Filed Wise COP

Cost of Production / COP at Anytime

Variance – Labour & Material / Estimate Vs Actual

Variance – Labour & Material / SMLY Vs Current Month

### Estate Performance

Immature Expenditure

Labour Utilization

Weight Comparison Statement

Crop Variance

Yield per Hectare (YPH)

Field Performance

Crop and Yield Statement

Crop Intake Statement

Immature Fields

Grade Wise Despatch

Grade Wise Production

Genset Efficiency

Harvester Deployment

Meteorological Analysis

Daily Temperature Statistics

Rain fall

Crop Reconciliation Statement

Factory Progress Report

Field Progress report

Overall Performance Report



## Detailed Daily COP

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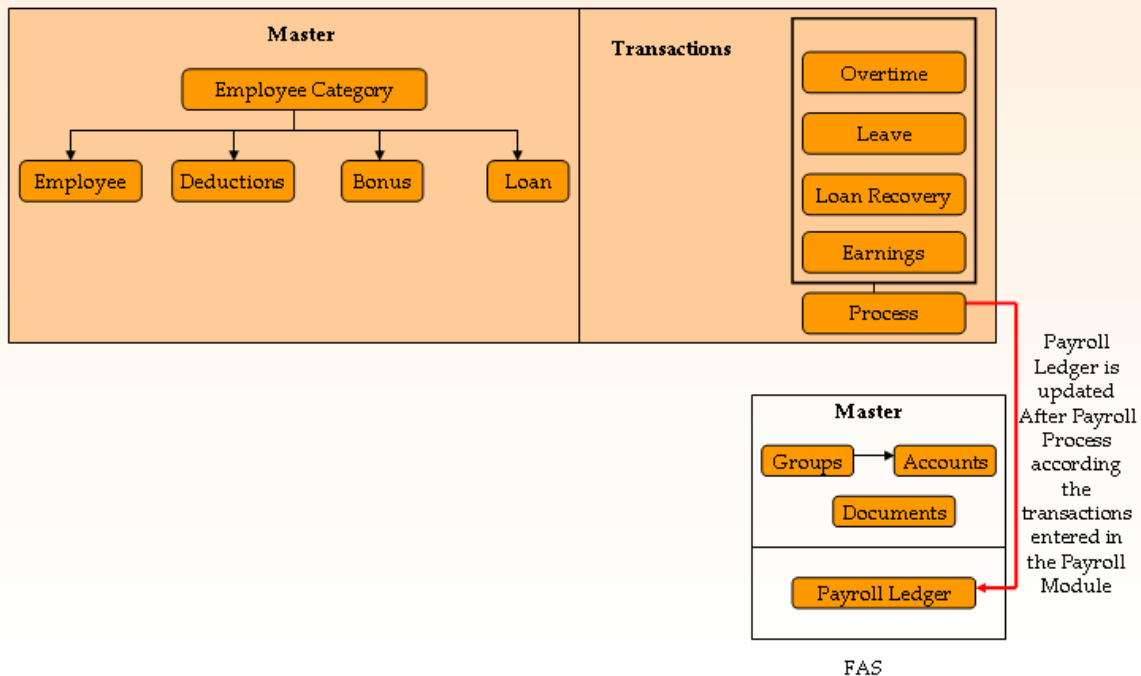
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## MODULES AVAILABLE AT THE HEAD OFFICE LEVEL

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### Executive Payroll System

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The Executive Payroll module of HARVEST *it*<sup>TM</sup> takes care of the Salaries and Allowances of the top management. The System also handles the Executive’s history besides recording promotions and transfers, allowances including vehicle, bungalow and other benefits, Provident Fund, fund transfer to personal accounts, cheque printing/ cash payment, remittance cheques, loans and leave details. It generates yearly statutory statements and enables bank transactions of the employee to be done through the Company’s accounting department. It can have ‘n’ numbers of allowances and deductions, Bank and Cash Payments, Benefit calculation, Income tax statement, Accounts updation, Leave maintenance, Loans and other Deductions.

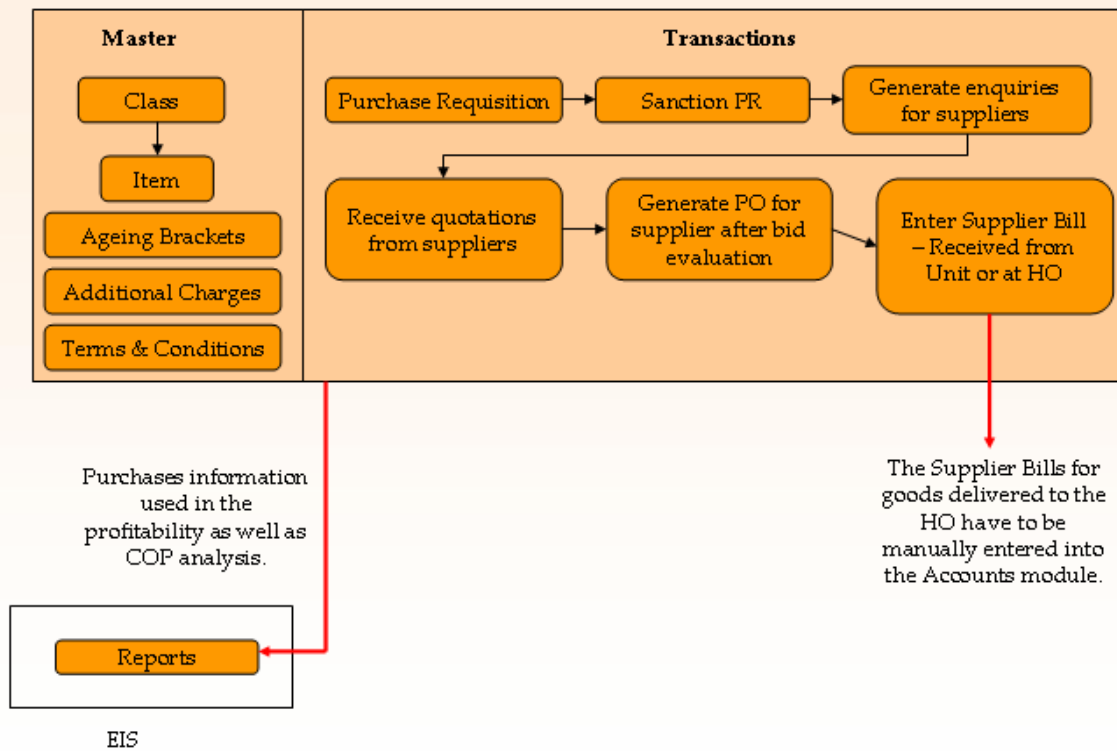


## Executive Payroll System Reports

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Pay Slip  
Pay Slip Summary  
Bank Device  
Deduction Report  
Deduction Summary  
Statutory Reports  
Recovery Report  
Recovery Summary  
Overtime Report  
Overtime Summary  
Loan Report  
Retirement  
Statutory Reports  
Gratuity Reports  
Non Taxable Allowances  
Employee Details  
Annual Medical Entry  
Medical Allowance

## Order Processing System



Order Processing module of HARVEST *it*<sup>TM</sup> facilitates the systematic processing of the Purchase Orders to the Suppliers from the Head Office. After Purchase Requisitions are received from the estates the System combines and sanctions them under the defined authority. After sanctioning the Purchase Requisition, tenders to Suppliers are requested using the Enquiry screen facility. It controls the purchase of items at various estates by scrutinizing the Purchase Requisitions and the tenders. It allows the User to define Ageing Brackets, against defined terms and conditions, different types of Purchase Orders, supplier wise, item price and set-up of sanctioning authority.

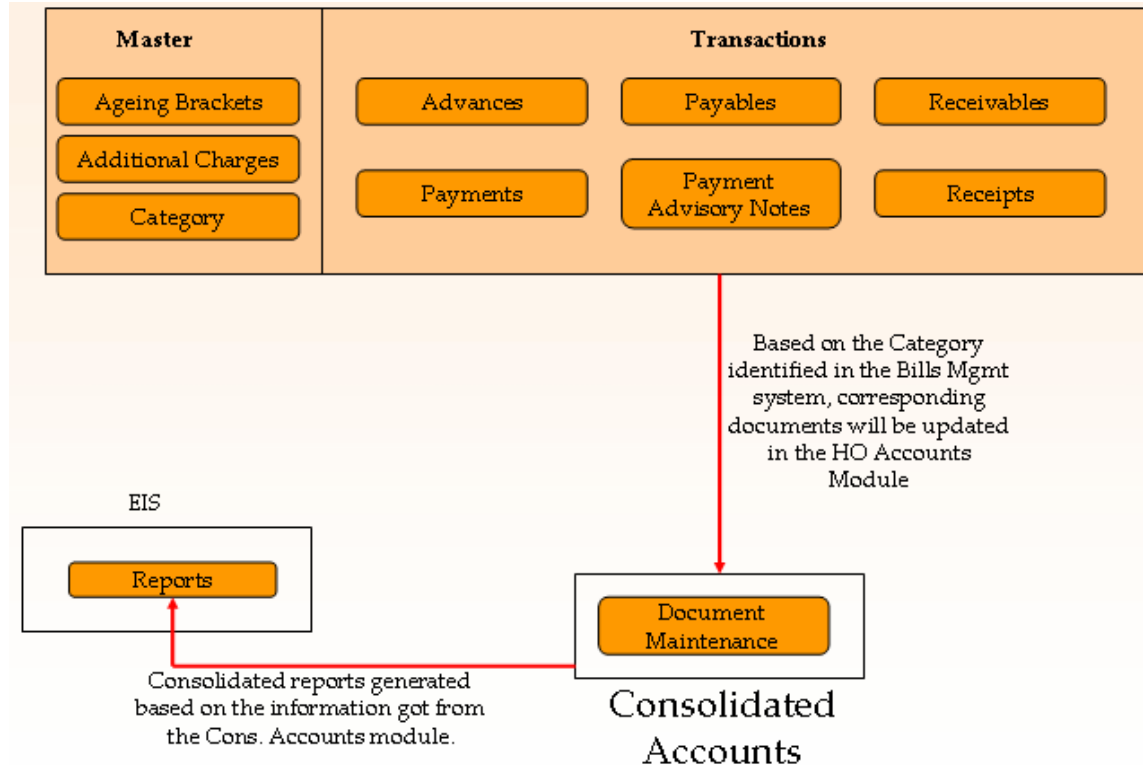


## Order Processing System Reports

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PR Register  
Pending PR  
Cancelled PR  
Ageing for PR  
Unsanctioned PR  
Pre Printed Purchase Order  
Purchase Order Register  
Pending Purchase Order  
Ageing for Purchase Order  
Purchase Order Amendment  
Major Purchase  
GRN Register  
PO Invoice  
Approved Vendor  
Lead Time Analysis  
Price Trend Analysis  
Purchase Order Specification

## Bills Management System



Bills Management module of HARVEST *it*<sup>TM</sup> is a system that is capable of automating all the tedious processes involved in the processing of payables and receivables. It keeps track of all the supplier invoices and related documents, creditors & debtors' balances right from their generation to the final payment or receipt. In general the bills could be broadly classified as Payables and Receivables. The System allows the flexibility for defining different Bill Categories, Ageing of Bills, General Payment Terms, supplier wise payment terms, additional charges and linking them to account heads.

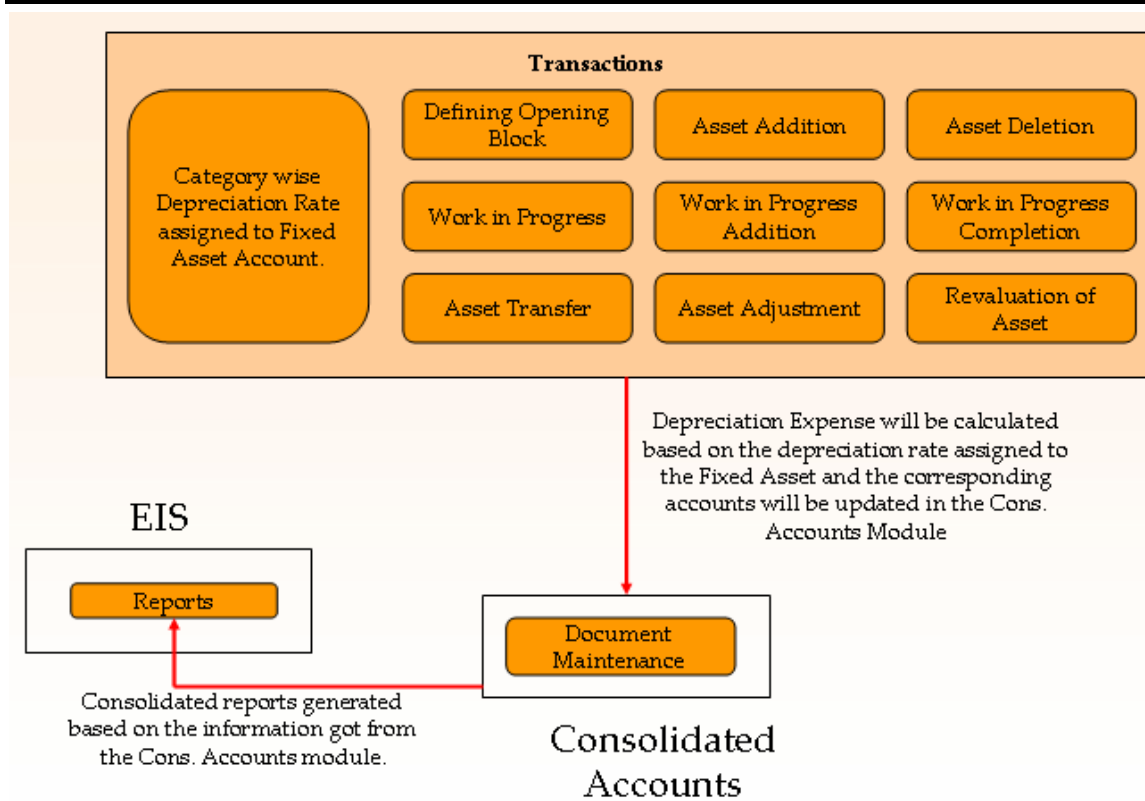


## Bills Management System Reports

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Payable  
Receivable  
Bill Register  
Advance Register  
PAN Report  
Payment Register  
Additional Charges Register  
Ageing Analysis / Aged Transactions  
Ageing Analysis / Ageing Bracket Wise  
Ageing Analysis / Supplier Wise  
Vendor Transactions  
Receipts  
Tax / Non Tax Invoice  
Cheque Printing  
Loan Status Report

## Fixed Assets



All capital items and projects are monitored and maintained by the System. In the case of projects, it tracks work in progress until completion and capitalization. It provides for asset addition, revaluation and invoice generation, taking care of any forex gain or loss through transaction. The System has provision for AMC status and renewal, wherever required. It takes care of asset maintenance, transfer of an asset to different locations and disposal. It calculates depreciation using Straight Line or Written Down Value methods along with rate setting and accounts posting.

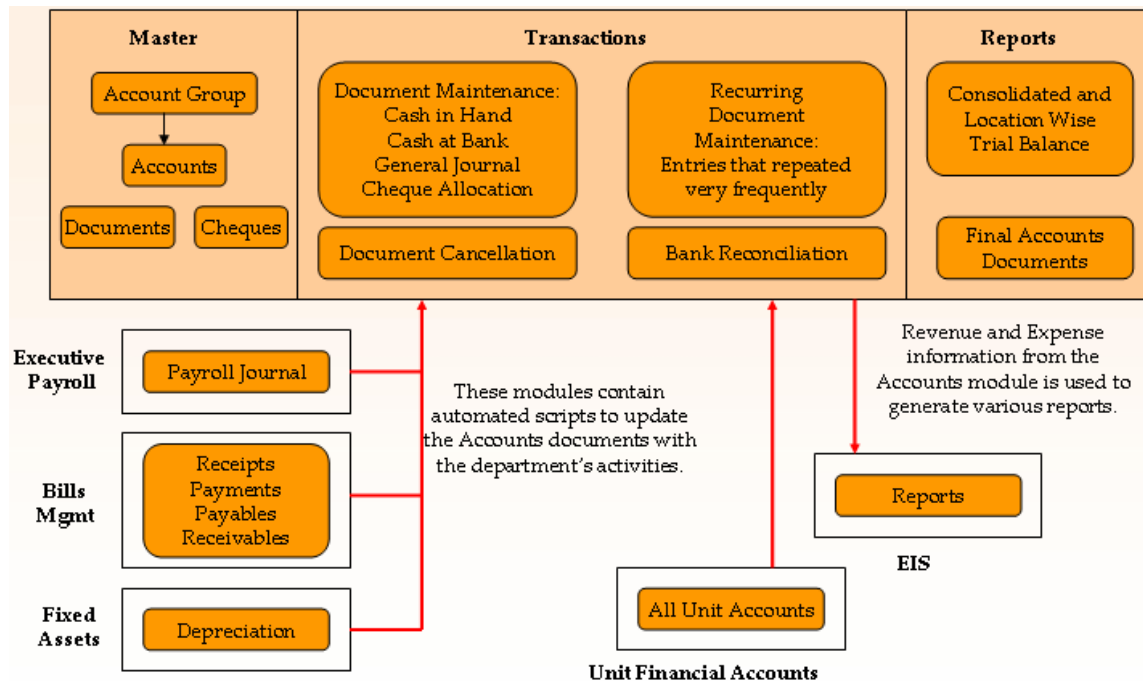


## Fixed Assets Reports

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Work In Progress / WIP  
Work In Progress / WIP Summary  
Work In Progress / WIP Addition Details  
Depreciation / Worksheet  
Depreciation / Depreciation Summary  
Tax Register  
Asset Register  
Asset Details Register  
Asset Schedule  
Asset Adjustment  
Asset Addition  
Asset Disposal  
Asset Transfer  
Asset Revaluation  
Item Register  
Tangible Asset  
Full Depreciated Items  
Location Wise Asset Register  
Location Wise WIP Register  
Location Wise Asset addition Register  
Location Wise Asset Cost Comparison  
Location Wise Amortization / Depreciation Charges

## Consolidated Accounts



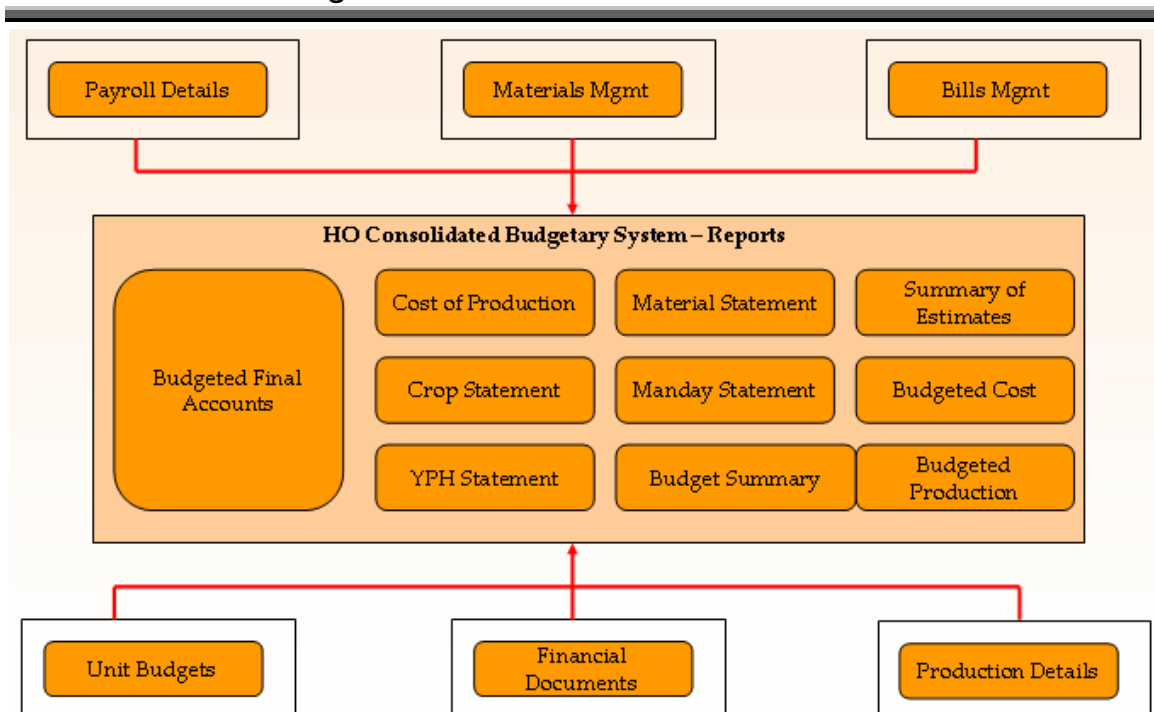
The Consolidated Accounts module of HARVEST *it*<sup>TM</sup> consolidates and provides the accounts of all the estates within the Company at the Head Office. This is done through the data transfer facility. No manual data entry is needed in this System. It is capable of generating several reports such as Consolidated Trial Balance, Consolidated Profit and Loss and Consolidated Balance Sheet. The Company's performance is measured by the outputs obtained from the Consolidated Accounts System.

## Consolidated Accounts Reports

- Documents / Cash Book
- Documents / Bank Book
- Documents / Jurnal
- Documents / Debit / Credit Note
- Documents / Multi Currency

- General Ledger
- Trail Balance / Consolidated
- Trail Balance / Location Wise
- Sundry Debtor / Creditor Balance
- Cheque Register
- Document Balance Statement
- Bank Reconciliation Statement
- Group Summary
- Document Printing
- Cheque Printing
- Final Accounts
- Consolidated Trial Balance
- Consolidated Balance sheet

## Consolidated Budget





The Consolidated Budget module of Harvest it consolidates and brings the budgets of all the estates to the Head Office through the data transfer facility.

## Consolidated Budget Reports

---

Crop / Estate

Crop / Bought

Crop / Combined

Expenditure / Estate

Expenditure / Bought

Expenditure / Combined

COP / Estate

COP / Bought

COP / Combined

Budgeted Activity Wise Mandays / Activity Wise Mandays Statement

Budgeted Activity Wise Expenditure / Activity Wise Expenditure Statement

Profit / Loss Summary // Estimated Profit / Loss Summary

Budget – Final / Budget Final

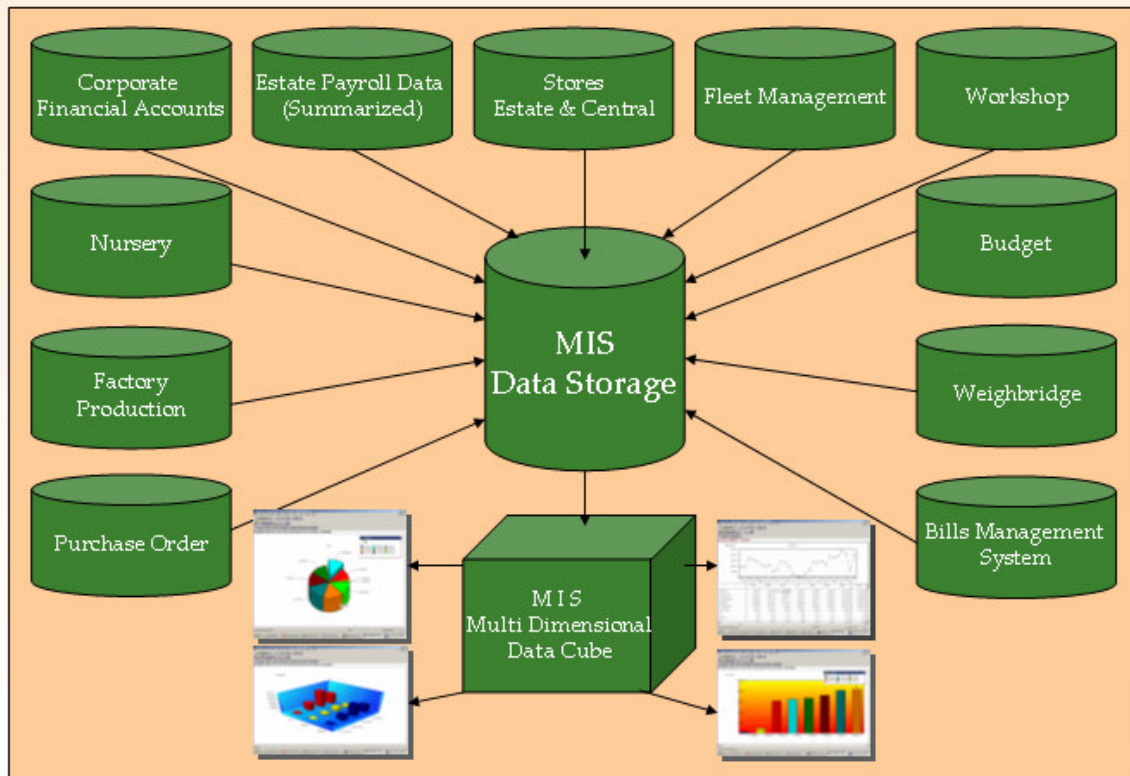
Expenditure, COP & Manday Statement

Crop & YPH Statement

Labour, Material & Other Cost Statement

Field Performance

## Executive Information System



The Executive Information System of the HARVEST *it*<sup>TM</sup> affords the top management all information about the establishment and the essential business output required. It consolidates the information from the estate MIS and brings it to the Head Office for scrutiny and analyses.

The module provides the Chief Executive, information at all levels that will help him in analyzing the individual and comparative performance of the various locations under his charge. The reason for productivity or lack of it is made evident by comparison. The exercise not only increases productivity and profitability, but also quality at every level in the organization.



## Executive Information System Reports

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Crop Statement / Estate  
Crop Statement / Bought  
Crop Statement / Combined  
Yield Statement  
Crop & Yield Statement  
Estate Expenditure Statement / Estate  
Estate Expenditure Statement / Company  
Class Wise Estate Stock Statement  
Class Wise Estate Closing Balance Statement / Stock Closing Balance  
Yield Comparison Statement / 3Year's Average Vs Current Year Actual  
Rainfall (in mm)  
Profit / Loss Statement  
Cost of Production / Estate Crop  
Cost of Production / Bought Crop  
Harvesting Mandays Analysis  
Harvesting Cost Analysis  
Nursery Stock Account  
Utilization of Mandays  
Analysis on Private Sales  
Top10 Buyers Analysis  
Historical Data Information / Expenditure, COP & Mandays  
Historical Data Information / Rainfall  
Variance Analysis Statement  
Profit / Loss Summary