



Data Stewardship For Cotton Traits In India

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ABSTRACT

Bollgard Technology in India is sub-licensed to 44 seed companies through technology partner Mahyco Monsanto Biotech (MMB). Entomology Stewardship and Molecular Breeding team tests the new hybrids developed by sub-licences for season long protein expression analysis, event ID confirmation and insect bioefficacy to enable regulatory approvals for commercial launch. To effectively manage, track the hybrid samples and ensure seamless documentation of associated data, team adopted an enterprise level database: Laboratory Information Management System (LIMS) under Product development and stewardship (PDS) workflow. Team is constantly involved in implementing enhancements in existing PDS workflows to improve lab productivity. Additionally new workflows are being developed to capture pre-launch data generated under contained facility and open field regulatory trials for BGIII. Implementation of LIMS has enabled automation of workflows, barcode handling, integration of instruments, electronic data exchange, and management of samples and associated information. Additionally, LIMS enables audit management and chain of custody, compliance (ISO and regulatory compliance) and document management

Cotton Stewardship @ MRC

Number of Sublicensee: >40
Number of Hybrids: >300
Zones: North, South and Central

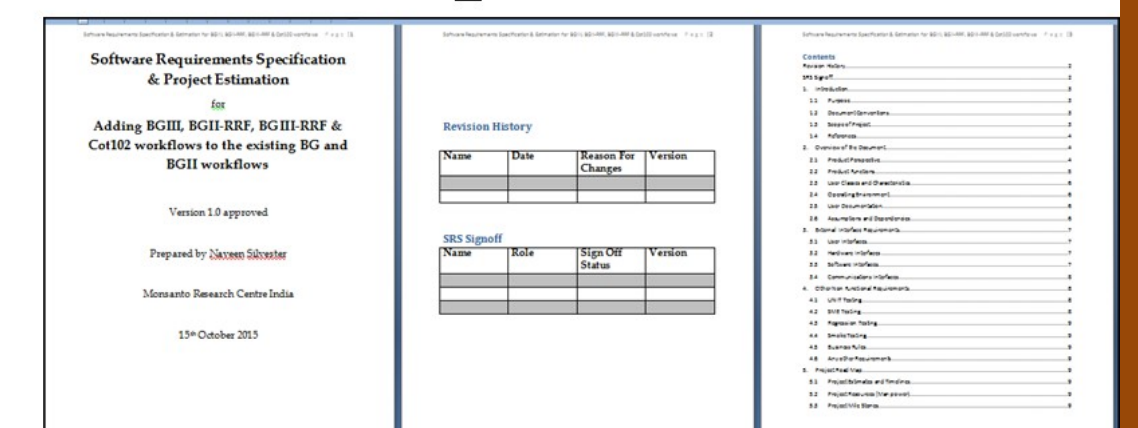
Sampling Points	Days after Sowing			
S1	30-40	✓		
S2	50-55	✓	✓	
S3	80-90	✓	✓	✓
S4	110-115	✓	✓	✓
S5	135-140	✓	✓	✓
S6*	150-165	✓	✓	✓

* Crop maturity in North is earlier than other two zones and hence S6 is not relevant to North

Letter of Confirmation (LOC): Presence of Monsanto Approved Event
No Objection Certificate (NOC): Consent to use Monsanto Technology

LIMS Best Practices @ MRC

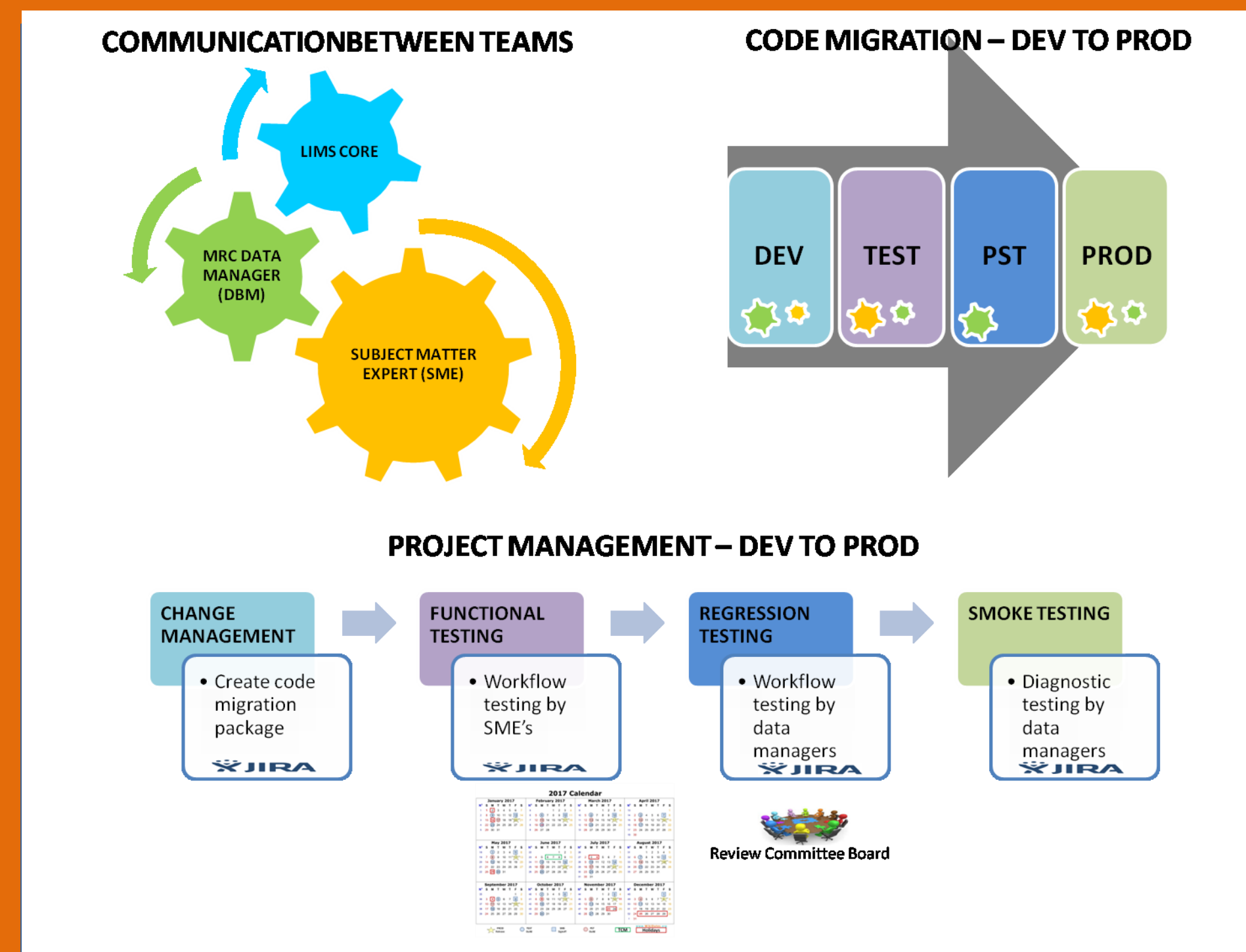
- Scope Document
 - Software requirements
 - Design
 - Timelines with milestones
- Developer Unit Testing
 - Negative testing
 - Module testing
- SME's End to End Testing
 - Checklist
 - Gap identification
 - Project tracking through JIRA
- Developer Regression Testing
 - Bug fix (if any)
 - End to end testing in PST environment
 - JIRA
- Smoke Testing
 - Pre launch testing in PROD environment
 - JIRA



PDS LAB ACTIVITIES



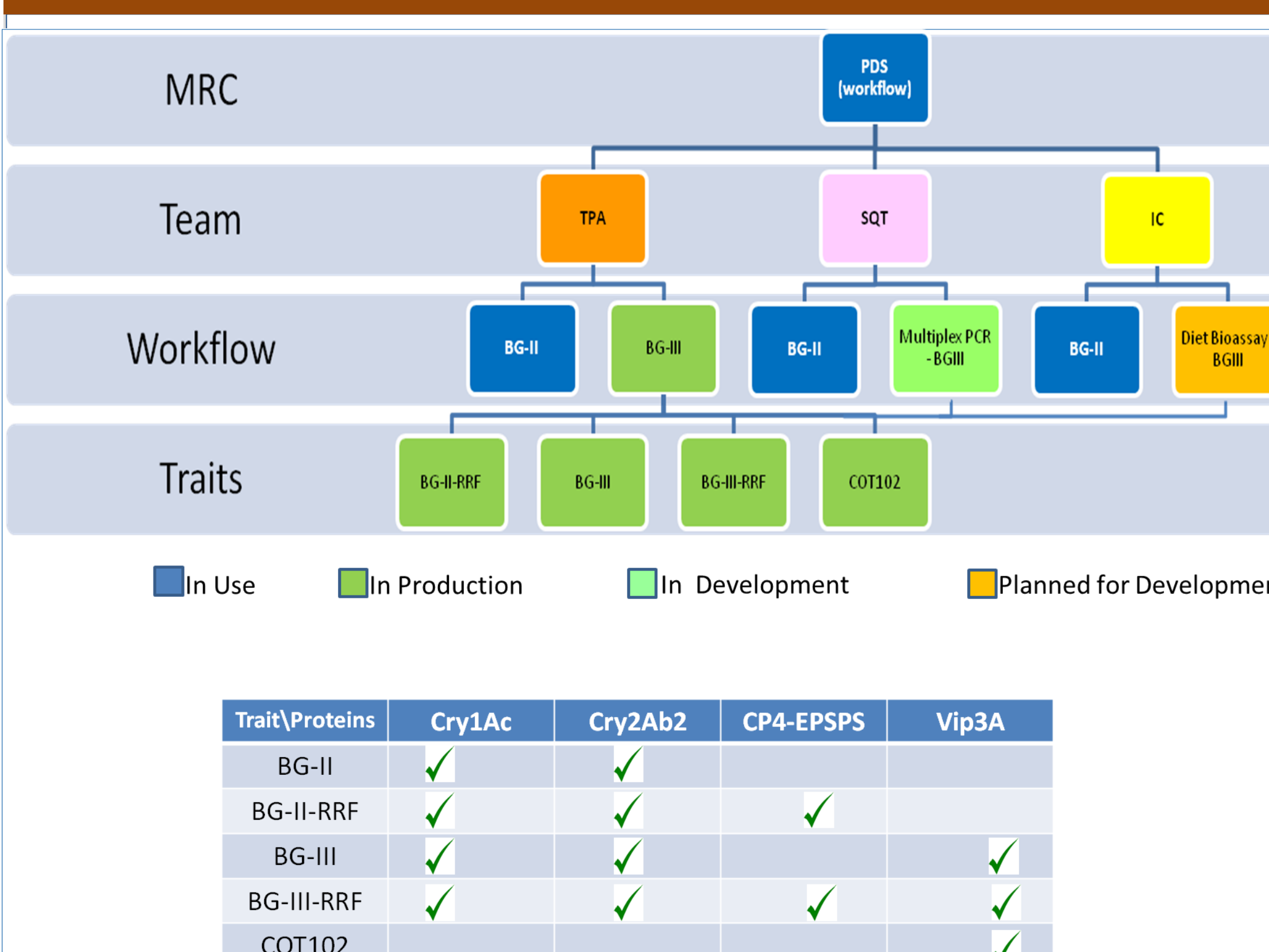
LIMS



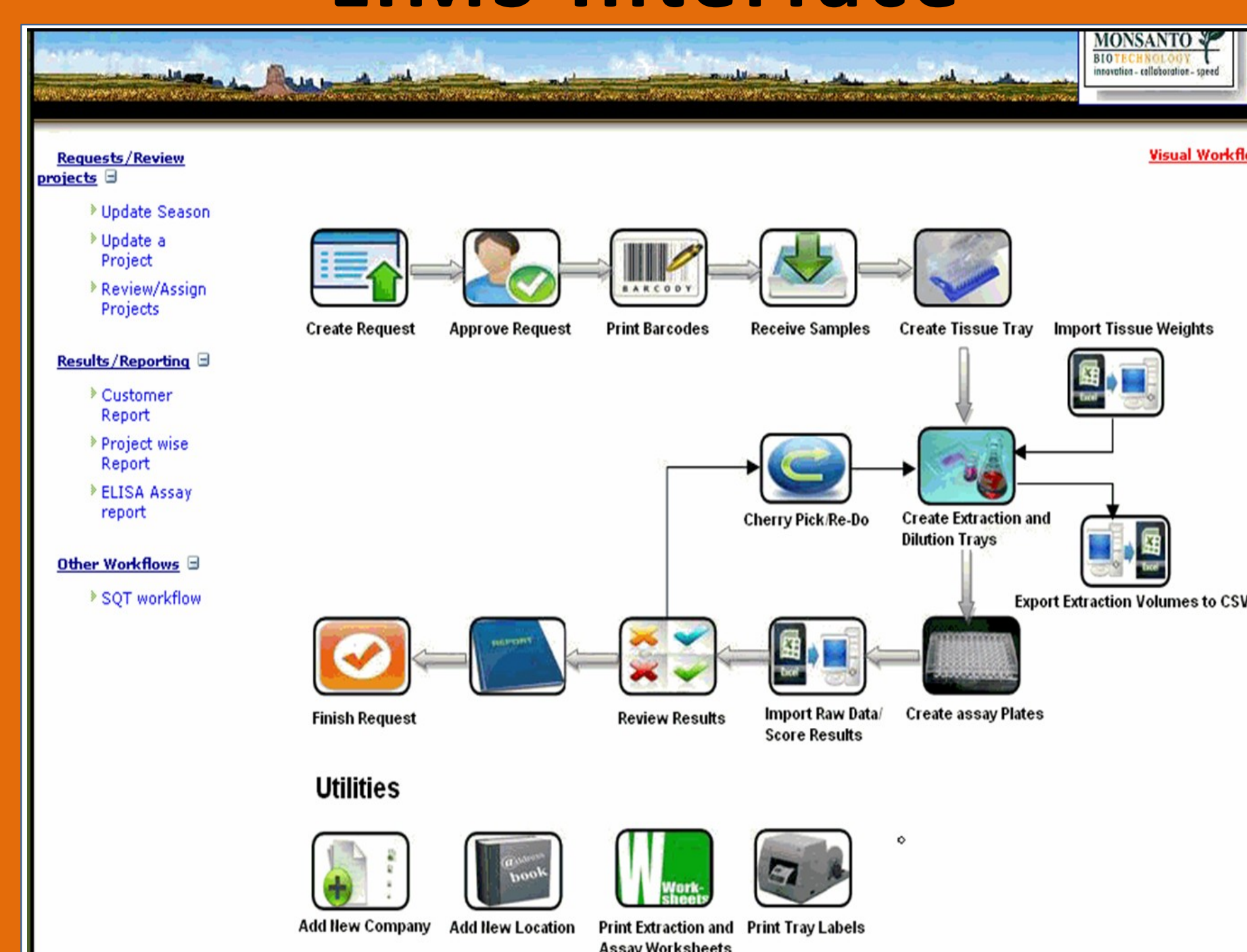
GOING FORWARD

- Development of workflow for BGIII traits to PDS and IC workflow.
 - Ensure business continuity with greater than 95% production downtime.
 - Integrate regional data with global data.
 - Identify opportunities for automation.
 - Enhance current functionalities to provide better user experience.
- Introducing LIMS workflow to Australia.
 - Extension of MRC IC diet bio-assay workflow to Australia.
 - Align Australia data with global data to enable decision making.

PDS LIMS WORKFLOWS



LIMS Interface



Acknowledgement: Core LIMS Team & E.S.M.B.T. Team