RFID Enables Supply Chain Optimization at Monsanto

Presented by:
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What we’ll cover today

• RFID’s importance throughout lifecycle of product
  – Supply chain efficiency
  – Inventory accuracy
  – Reverse logistics
• Approach and team structure
• Business case
• Solution sets leveraged throughout enterprise
Monsanto is an Agricultural Company

- We apply innovation and technology globally to help farmers to produce more while conserving more.

- We help farmers grow yield sustainably so they can be successful, produce healthier foods, better animal feeds and more fiber, while also reducing agriculture's impact on our environment.
Monsanto’s Products

- Agriculture Productivity
  - Roundup® agricultural herbicides
  - Selective herbicides

- Seeds & Traits
  - Corn
  - Soybean
  - Oil Seeds
  - Vegetable Seeds
Business Challenge

- **Challenges**
  - Significant growth in volume and SKUs
  - Increasing product tracking requirements

- **Opportunities for bag-level tagging**
  - Reduces labor, inventory and write-offs
  - Supply chain and replenishment efficiencies
  - Comply/exceed domestic and international tracking requirements
  - Make it easier to do business with Monsanto
Corn Production

- **Foundation Seed**
  - Production of male & female inbred lines.
  - Contract growers under Monsanto supervision
  - Output is the raw material for Hybrid Production

- **Hybrid Production**
  - Cross pollination of Foundation Seed
  - Contract growers under Monsanto supervision
  - Hybrid seed is the finished product sold to commercial growers
Supply Chain Analysis

- Divide Supply Chain into Three Segments
  - Manufacturing
  - Distribution
  - Dealers
- Supply Chain Assessment
  - Cross Functional Team
  - Subject Matter Experts
  - Experienced Assessors
  - DILO Approach
Business Case

- Opportunities for Savings:
  - Reducing seed mixtures: Automated re-bag operations
  - Managing exceptions: Inventory counts, stock transfer resolution and tracking off spec & returned product at MFG plants, DC’s and Dealers
  - Warehouse efficiencies: Automated put-away transactions, shipping and receiving
  - Reducing loss (seed discards): Individual bag tracking allows for improved segregation of off-spec bags within a batch
  - Improving Dealer processes: Incremental savings beyond bar-coding
Financial Analysis

• First closed loop project:
  • IRR 47%
  • ROI 230%
  (This Project is Complete)

• Manufacturing and DC Processes
  • IRR 30%
  • ROI 150%
  (This Project is Just Underway)
Implementation Plan

- Form a Dedicated Team
  - Project Management
  - IT
  - RFID/Engineering Expertise
  - Business Representation

- Pilot RFID technology on a focus use case

- RFID Feasibility Assessment to establish roadmap

- First complete a project in a closed loop system

- Include new functionality pilots in previous project

- Expand
  - Second complete closed loop manufacturing processes.
  - Third complete DC processes.
  - Fourth initiate dealer processes.
Project Roadmap

1. Pilot Line Technology
   Application of RFID tags and reader accuracy.

2. Feasibility Assessment
   Greater across enterprise

3. 1st Production Site
   Templatize and scale solutions

4. Pilot forklift solution

5. Rollout production lines

6. Rollout forklifts
Feasibility Assessment Conclusions

- Financial justification for wide scale deployment
- Tagging bag level has significant downstream benefits
- SKU proliferation and complex business models require significant labor to manage
- Leveraging forklifts for warehouse movements has strong ROI
- Numerous downstream opportunities possible but not yet quantifiable
Vendors & Partners

• Rush Tracking Systems – Integrator
• OATSystems – Software
• Alien – Readers & Tags
• Motorola – Handhelds
• RFID Lift Trucks – VisiblEdge (Rush Tracking)
Solution Sets

3PL Operations
Monsanto Operations
returns
outbound/transfer
Solution Sets

Corn Production

Dealer Transfers

Corn Growers

Monsanto Operations

returns outbound/transfers

Corn Production

Manufacturing

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How does it work?

RFID enabled pallets are tagged products, then products are delivered to shipping. Loading is systematically verified and recorded.

Monsanto Visibility illustration – Dealer

1. RFID pallet is unloaded, and stored
2. RFID enabled product picked for growers pallets are scanned and recorded then product is delivered to shipping. Loading is systematically verified and recorded
3. Mixed pallets at pulled from and final pallets are scanned and recorded

RFID enabled pallets are scanned to add to inventory system records location

Proprietary information – Rush Tracking Systems
Key Learning

- Build strong cross functional team
- Assess your supply chain
- Pilot the technology with your products
- First project: Closed loop
- Expand including pilots for new functionality in previous projects
THANK YOU

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