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RFID in Food Chain Virtual Event
QSCC RFID Pilot

Dan Bromberg
Senior Manager, Distribution Support and Traceability
Wendy’s Quality Supply Chain Co-op
What You Will Learn

• What is RFID and what is the business case?
• How we performed an RFID pilot in a restaurant
• Pilot Findings
• Benefits extend beyond traceability
About Quality Supply Chain Co-op

• QSCC is an independent, not-for-profit cooperative in Dublin, OH

• Third-largest cooperative in the quick-service restaurant industry with nearly $4 billion in buying power

• Part of the Wendy’s extended family

• Negotiate with suppliers in purchasing, distribution & logistics, equipment and services
Next-Gen Traceability Solutions

- QSCC continues to research and evaluate next generation technologies and solution platforms

- Key Technologies
  - RFID
  - Internet of Things (IoT) enabled scanners
  - Blockchain

- Restaurant-level RFID Pilot
  - In coordination with Avery Dennison (RFID providers) and Zebra Technologies (RFID scanners and reporting portal), QSCC conducted a restaurant-level RFID pilot at a franchise restaurant in Dover, OH
Restaurant-Level RFID Pilot Scope

- Pilot within the four walls of the restaurant
- Mid-November through early May
- Inclusive of all items delivered by foodservice distributor
  - Food, packaging, cleaning supplies, etc.
- Assumptions
  - Cases have barcode
  - If no barcode or unreadable barcode have a printed list of barcodes in restaurant
- Keep product in cases even if partially used
How does RFID work?

**RFID Labels**
Product data is linked to the RFID microchip and can be read by the RFID reader.

**RFID Readers**
RFID readers pick up the signal of hundreds of labels per second and transmit data to the software platform.

**Software**
Software processes the data to guide in-restaurant operations and feed accurate data to backend systems.
RFID Tags

Provided by Avery Dennison

- Integrated consumable label that can leverage current print process to drive item level identification and automate reading multiple items simultaneously
- Pre-serialized rolls of tags with barcode and human readable
- Adhesive for use for all purpose food service
- Integrated Label with AD-238 UHF RFID inlay
  - Average corrugate read range: 10 feet
  - Ability to read in a mixed environment without line of site
Handheld Reader

Provided by Zebra Technologies

• Integrated UHF RFID Android mobile terminal
• 1D and 2D barcode scanning
• Keypad and Large Touchscreen
• Cycle Count and Geiger counter functionality
Pilot Initial Preparation

Performed prior to receiving items at pilot onset

• Obtain RFID labels
  • Each RFID tag has a unique serial number
  • Keep unused labels in a metal container so reader won’t pick them up during cycle counts

• Tag and associate all inventory in restaurant
  • Provided baseline for subsequent cycle counts

• Training is critical for success
  • Receiving
  • Cycle counting
Process Overview

Receiving

- Receive items from distributor and apply RFID tag to cases
- Scan GTIN then scan barcode on RFID tag to associate to product
- Cycle count newly received cases using RFID reader
  - New Receipt Report can be used to compare to Invoice
- Put cases away in designated areas
Process Overview

Cycle Count

• Count inventory
  • Full cases
    • “Paint” the storage areas throughout the restaurant with the handheld reader
  • Partial cases
    • Barcode scan with handheld reader the RFID tag of a partial case
    • Enter quantity or percent to adjust appropriately
• Manually enter amounts into backoffice using dashboard report or if integrated leverage API to automatically feed data collected into back office system
Pilot Findings

Findings addressed

• Validate that you can read all barcodes on cases
  – Barcode present
  – Check for quality/scannability
  – Utilize audit report to identify unassociated RFID tags
• Have a process in place to manage partial cases if in scope
  – Keep RFID tag with box when removing flaps
• Utilize reports to compare receiving counts to distributor invoice and to facilitate cycle count data entry into backoffice

Pending Opportunities

• Validate need for 100% wi-fi coverage, including coolers and freezers, to associate product for key-drop deliveries
• Lack of backoffice integration
• Apply RFID tag at supplier
• Product expiration report
### Potential Labor Opportunity

<table>
<thead>
<tr>
<th>Receiving</th>
<th>Daily Cycle Count (2x’s)</th>
<th>Weekly Cycle Count</th>
<th>Monthly Cycle Count</th>
</tr>
</thead>
</table>
| • Attended delivery: 30 minutes  
• Manual RFID: 45 minutes  
(Tagging and associating in restaurant)  
• Future state RFID: 3 minutes  
(Source tagging)  
• Annual savings (with source tagging)  
3X delivery per week: 70 hours  
2X delivery per week: 47 hours | • Pre-RFID: 15 minutes manually  
• With RFID: 7 minutes  
• Annual savings: 97 hours | • Pre-RFID: 120 minutes manually  
• With RFID: 60 minutes  
• Annual savings: 40 hours | • Pre-RFID: 120 minutes manually  
• With RFID: 60 minutes  
• Annual savings: 12 hours |

**Observed:** Annual estimated restaurant labor opportunity: **110-123 hours**  
(Range for delivery frequency)

**Future State:** (tag at source) Annual estimated restaurant labor opportunity: **266-290 hours**  
(Range for delivery frequency; deducts manual key entry and scan/scan receiving)
## Key Take-Aways

### Food Safety / Brand Protection
- Traceability & increased legislation
- Social media
- Improved product handling and rotation
- Enhanced customer engagement

### Save Labor
- Wage increase, labor shortage and turnover
- Mitigate risk by removing mandatory labor activities
- Digitize manual labor tasks: receiving, cycle counts, replenishment
- Automate decisioning and reduce restaurant manager workload

### Sustainability
- Reduce inefficiencies and food waste
- Reduction in out-of-stocks and restaurant-to-restaurant transfers
- Opportunity for proactive replenishment
THANK YOU