



## Produce Traceability Pilot Report Using ASNs (Part 1) Participants Include: Oppenheimer, Safeway, iTradeNetwork

### Background

Oppenheimer, Safeway and iTradeNetwork began a pilot in May of 2011 to review the process for implementation of the Produce Traceability Initiative (PTI). This was one of several pilots initiated from the PTI Implementation Working Group charged with gathering pilot test results, identifying costs, challenges, opportunities, and testing Best Practice guidance documents. Meetings were held bi-weekly until July 2013 and included members from each company, each providing business and Electronic Data Interchange (EDI) technical staff. In the initial stages of the pilot we reviewed shipping and receiving processes and how we could best fit the PTI Best Practices into our operations. The primary objective of the pilot was to test the Advance Ship Notice (ASN) as an alternative to the Hybrid Pallet Label as a method of sharing the Global Trade Item Number (GTIN), Batch/Lot Number and other relevant data elements between trading partners.

### Goals of the Pilot

The initial pilot meetings established the main goals; most have been completed as indicated by the check marks.

- ✓ Define the process required to implement PTI into our shipping and receiving process
- ✓ Evaluate GTIN attributes, share and review GTINs and review synchronization
- ✓ Case Labeling
  - Printing direct to corrugate
  - Print and apply labels
- ✓ Test the ASN as a method of meeting milestone 6
  - Read and store information on inbound cases
  - Alternate solution is the Hybrid Pallet Label
- Scan cases outbound from Safeway Distribution Center to stores
- Reconciling and managing variances between inbound and outbound GTIN/Lots
  - GTIN Batch/Lot Numbers received into the DC via the ASN
  - GTIN Batch/Lot Numbers scanned and shipped out of the DC to stores
- ✓ Analyze costs, benefits and barriers

### Process defined to test implementing PTI during the pilot

The first goal of the pilot was to review the current supply chain from farm/orchard and through to the buyer stores. We then developed a plan on how to implement the PTI milestones into the current process. During this analysis we identified the ASN as the most efficient method for sharing GTIN and Batch/Lot Number between trading partners. Once setup, the ASN required less labor and provided additional information beyond that of the Hybrid Pallet Label. The following is a conceptual overview of

the process defined to test PTI in our pilot (receiving and outbound processes within the buyer operation were not piloted).

- 1) The supplier and buyer assign GTINs to their products based on PTI Best Practices.
- 2) The supplier and buyer share their GTINs with each other based on an agreed process, which could be one of the following: a standard item creation form; spreadsheet; iTradeNetwork's item catalogue or certified GS1 GDSN data pool.
- 3) The buyer sends an EDI Purchase Order to the supplier. The item could be the GTIN or the customer's internal item code.
- 4) The supplier sends an EDI Purchase Order Acknowledgement to the buyer confirming volume and price.
- 5) The supplier loads the truck.
  - a) Shipping staff track the Serial Shipping Container Code (SSCC), GTIN, Batch/Lot and volume that fulfill the purchase order. The SSCC is a globally unique GS1 System identification number used to track the movement of a single pallet.
  - b) The supplier system creates and sends an ASN to the buyer once the loading is complete and paperwork is printed. *Note: There may be multiple GTIN and Batch/Lot Number combinations to fill a single PO line from the buyer.*
- 6) The buyer will receive the ASN prior to the truck arriving at the buyer DC.
  - a) Their system would compare the ASN details against the original purchase order and note exceptions.
    - i) This process would provide an internal link between GTINs and the customer item codes.
    - ii) Their system would validate that the GTINs are valid and note exceptions.
    - iii) Unknown GTINs from substitutions will be processed and flagged as missing but will not affect the receiving process.
    - iv) *See the section "ITRADENETWORK ASN EDI 856 Validation Process" which details iTradeNetwork's item validation during ASN processing.*
- 7) The load arrives at the buyer DC.
  - a) The standard receiving processes remain the same; comparing the product received against the purchase order. *Note: The preprocessing of the ASN would allow the receiver to focus on exceptions.*
  - b) The receiver could scan the SSCC barcode on each pallet to verify the physically received pallets match the ASN. The case GTINs and Batch/Lot Numbers have already been received and stored in the receiver system from the ASN which are also linked to the SSCC and original PO line, no further processing required.
- 8) Store delivery loads are built and shipped.
  - a) Outbound cases are scanned as they are picked and the GTIN and Batch/Lot Numbers are recorded against the outbound load in the buyer system.
  - b) The buyer system would identify any inaccuracies between the inbound GTIN and Batch/Lot Numbers from the ASN and those scanned outbound to the store. Processes would be implemented to note and track these variances.

## Summary of Pilot Actions

- We held bi-weekly meetings including Oppenheimer, Safeway and iTradeNetwork. Business and technical representatives were included from each company.

- We developed the goals for the pilot; documented the current process of shipping and receiving product from Oppenheimer to Safeway and determined how PTI could be implemented into the current process.
- We reviewed the GTIN attributes, created an extract of production GTINs, shared the GTINs using the PTI template and reviewed. During this time the PTI working group was taking feedback and updating the Best Practices.
- Case labeling was implemented at pack houses using both direct to corrugate and print and apply labels. These labels were tested through different stages of the supply chain. A number of issues were identified and corrections were made.
  - The main corrections were to have a white background preprinted on the corrugate where the label was printed to corrugate to prevent the barcode from bleeding with any moisture.
  - The second was to ensure there is constant testing of the barcodes (both print and apply and corrugate) on the pack line and throughout our supply chain to ensure adjustments are made to the pack line where the quality of the barcode degrades over time.
- We developed four ASN test cases from the simplest case to the most complicated.
  - In parallel with our pilot, a PTI ASN sub-committee was created to develop an ASN best practice led by GS1 US. Our pilot members joined the PTI ASN sub-committee to assist in the development of the standards and to provide input based on our pilot findings.
  - Oppenheimer created each test ASN file based on the PTI specification; iTradeNetwork reviewed the file and made recommendations back to Oppy; Once approved, the file was sent to Safeway EDI staff to review and process, any recommendations were passed back to iTradeNetwork and then if required to Oppy. Any findings or variances from the specification were brought back to the ASN sub-committee for approval.
  - We found there are many ways to implement an EDI document from specification. There were multiple questions and formatting concerns were addressed, many within the specification. The easiest implementation of an EDI document is from a sample file by working backwards using the specification as a reference. These sample test cases and ASN files will be posted to the PTI website which will be helpful for trading partners looking to implement a PTI ASN.

## ASN Test Cases and Sample ASN Files

The pilot prepared four ASN test cases and created sample ASN files as summarized in the following grid. A sample ASN file for each test case was created by Oppenheimer and sent to iTradeNetwork to review and process. Once iTradeNetwork had completed their review the ASN file was passed to Safeway to review and process. The ASN files were created following the PTI ASN Best Practices and any variances or questions were brought back to the PTI ASN committee and GS1 US for review. See addendum 1 for actual test case description and sample EDI files.

Test Case	PO Lines	Pallets	GTINs/PO Line	Batch/Lot Numbers & Pallet
1.	1	1	1	1
2.	1	1	1	2
3.	2	2	2	2
4.	1	1	2 (same pallet)	2

## Oppenheimer PTI Cost Benefit Analysis

During the pilot Oppenheimer estimated the costs of implementing PTI and converted the costs to a per carton cost averaged over 5 years including both cost of implementation and ongoing costs.

Oppenheimer has in-house developed software; the costs are based on customization to implement PTI. EDI systems were already in place so the cost of the ASN was only for the implementation of the ASN, the cost of analysis during this pilot was not included. The overall cost of implementing PTI is 7.5 cents per carton, of this 1.5 cents is the cost to scan each carton prior to shipping. A recommendation has been made to eliminate this cost to scan each case in the section "Recommendation to reduce labor and increase accuracy".

The estimated cost of implementing the Hybrid Pallet Label is 0.3 cents per case for Oppenheimer which is not significant but does cause operational challenges, printing and applying labels prior to shipping; increased chance of lost or damaged labels; cost of labor to scan during receiving and does not provide the additional information and advance notice detailed in the section "Observations and Challenges". By implementing the ASN you eliminate the need to print and apply Hybrid Pallet Labels.

The primary benefit Oppenheimer has received through implementing PTI is assigning GTINs to products and standard case labels. As well, Batch/Lot Number codes are shared electronically and stored in a new field ensuring the Batch/Lot Number on the case matches the field stored electronically. Prior to PTI the attributes were stored in different fields, usually pack date, which was used to query the database during mock recalls. The PTI Best Practices allow for a more standard process to trace products internally and across the industry.

<b>PTI Cost Analysis based on 5 Year per carton average cost</b>	
<b>Corporate Software Customization</b>	<b>Average</b>
GTIN Management	0.00025
Case Labeling	0.00013
Repack GTIN and Batch/Lot Number Tracking	0.00025
Shipping and Advance Ship Notice (ASN)	0.00013
Hybrid Pallet Labels	0.00003
	<b>0.00078</b>
<b>Oppy Shipping Locations</b>	
Printers and Scanners	0.00056
Hybrid Pallet Labels	0.00100
Print and Apply Hybrid Pallet Labels	0.00200
Scanning cases to build gtin Batch/Lot Number on pallet	0.01500
	<b>0.01856</b>
<b>Repack Locations</b>	
Printers and Scanners	0.00094
Labor	0.01111
Labels	0.00444
	<b>0.01649</b>
<b>Grower Packhouse Locations</b>	
Systems	0.01513
Labels	0.02000
Labor	0.00500
	<b>0.04013</b>
<b>Total</b>	<b>0.07596</b>

## Observations and Challenges

Comparison of Hybrid Pallet Label and Advance Ship Notice:

Observation	Hybrid	ASN
Provides details on the GTIN and Batch/Lot Number for each pallet (SSCC)	X	X
Links the SSCC, GTIN and Batch/Lot Number to the purchase order product line		X
Increased labor for printing and applying labels plus the cost of labels	X	
Received and validated by the customer in advance of the shipment arrival		X
Increased labor for receivers to scan and link to the GTIN and Batch/Lot Number to the purchase order line during receiving	X	
Potential for labels to be missing or un-scanable at receiving	X	
Error correction for missing or damaged Hybrid Pallet Labels will require scanning each carton to recreate the GTIN and Batch/Lot Number summary for the pallet.	X	

## Recommendation to reduce labor and increase accuracy

Oppenheimer has over 240 grower “groups”, each with one or more pack houses and each packing house has one or more growers spread over 25 countries. Each grower “group” is run independently and manages their own Batch/Lot Number assignment strategy to ensure proper traceability. Some of the larger pack houses consolidate many Batch/Lot Numbers onto a single pallet due to efficiencies in the operational procedures. In addition, more than 50% of orders shipped to customers are less than full pallet orders. This creates a real challenge with tracking the GTIN and Batch/Lot Number codes that are shipping from a single pallet. Prior to PTI, most shippers track the pallets using their SSCC through the supply chain and are aware of the Batch/Lot Number code(s) on the pallet. When a partial pallet is shipped to a customer then all Batch/Lot Numbers on the pallet are assumed to have shipped to the customer, rather than being specific to which Batch/Lot Numbers shipped. With PTI the level of traceability has become more specific to the exact GTIN and Batch/Lot Numbers that have shipped. With a high percentage of pallets containing multiple Batch/Lot Numbers and more than 50% of these pallets shipping less than full pallet, 100% accuracy would require scanning each carton as it is being shipped. As an industry this would be a very time consuming, costly and prone to error.

One solution identified during our pilot was to share all the Batch/Lot Number codes that are contained on a pallet when sending the ASN. When the supplier shipped a pallet, they would indicate the SSCC, GTIN and number of cartons shipped, and then list all the Batch/Lot Number codes that are on the pallet whether the Batch/Lot was shipped or not. The receiver would know the pallet could contain any of the Batch/Lot Number codes listed in the ASN. Receivers that use the voice code for tracking Batch/Lot Number codes would build a list of all the voice codes that could be on the pallet allowing their system to retrieve the GTIN and Batch/Lot Number when processing a voice code. This process should eliminate a majority of inaccurate GTIN and Batch/Lot Number codes being sent to receivers preventing delays in processing voice code. This recommendation is being reviewed by the PTI working groups to determine if it should be included in the Best Practices.

## Summary

The ASN is the preferred solution for sharing PTI data between trading partners. It provides additional information to receivers by linking SSCC, GTIN and Batch/Lot Number to the purchase order line (and buyer SKU number) in advance of the shipment arriving, this allows for exception reporting allowing the receiver to focus on variances. The Hybrid Pallet Label although providing similar information requires additional labor and labels which are less reliable and require substantial labor for the receiver to scan upon receipt.

The ASN test cases and sample ASN files developed during the pilot have followed the PTI ASN best practice document and are available to assist trading partners to implement the ASN. The best practice defines the elements for an ASN but through the process of the pilot we found it is easier to have a sample file to reverse engineer ensuring the proper looping structures are in place. The test cases and example ASN files will be available on the PTI website [www.producetraceability.org](http://www.producetraceability.org).

During the pilot Oppenheimer evaluated their processes to implement PTI and accurately track GTIN and Batch/Lot Number during shipping. We found that a number of pallets with multiple Batch/Lot Number codes and a high percentage of pallets that shipped less than full pallet, would require having to scan each carton prior to shipping. The labor costs, delays in shipping and potential inaccuracy would be a potential barrier to implementing PTI successfully. An alternate solution has been developed to send the SSCC, GTIN and number of cartons shipped on a pallet and list all the Batch/Lot Number codes on the pallet whether they were shipped or not. This would eliminate the requirement to scan each carton and provide the receiver with all the potential GTIN and Batch/Lot Number combinations on the pallet to implement the voice code system without having missing data. This solution is being reviewed by the PTI working groups to determine if this should be implemented into the PTI Best Practices.

## ITRADENETWORK ASN EDI 856 Validation Process

### **PO Matching:**

When iTradeNetwork receives an ASN EDI 856 from a vendor, the processors check for the existence of a corresponding Purchase Order (PO) in ITRADENETWORK.

The initial step of the PO matching is performed using the ITRADENETWORK Internal Purchase Order number and if it doesn't match then the ASN fails.

If the ITRADENETWORK Internal Purchase Order Number is not included in ASN then system will attempt to match using the Sales Order Number.

### **Item Matching:**

On the ASN EDI 856, the vendor may provide the seller and/or buyer item info (SKU, U.P.C., GTIN) which is then validated against items on the confirmed PO.

The sequence in which the keys are used to find a matching item is:

1. Seller UPC/GTIN
2. Seller SKU
3. Buyer SKU

When a matching item is found using any of the keys as mentioned above, the item quantity on the ASN is updated in ITRADENETWORK.

### **Exception Notifications:**

If there is no match found in ITRADENETWORK for the PO, an exception notification e-mail is sent to the vendor indicating the failure to process an inbound ASN.

If the line item information does not match, then an exception notification is sent to the vendor.

If there are duplicate line items on a PO, then the line number reference must be included to correctly identify the line item otherwise the ASN EDI 856 will fail to get processed and an exception notification will be sent to the vendor.

### **Business Rules:**

The current palletized ASN process at ITRADENETWORK does not allow the vendor to add a new item to the ASN that did not previously exist on the PO.

The requirement of the Country of Origin Labeling (COOL) code at the line item level at the time of shipment is controlled by the configuration as set by the Buyer in.

For ASN test cases and sample ASN files, see "Oppenheimer, Safeway, iTradeNetwork Produce Traceability Pilot Report Part 2" available on the PTI website at [www.producetraceability.org](http://www.producetraceability.org).