



Produce Traceability Initiative Best Practice for Use of Hybrid Pallet Labels by Receivers

(Revision 1.1)

About this Best Practice Guideline

Best practices are generally accepted, informally standardized techniques, methods or processes that have proven themselves over time to accomplish given tasks. The idea is that with proper processes, checks and testing, a desired outcome can be delivered more effectively with fewer problems and unforeseen complications. In addition, a "best" practice can evolve to become better as improvements are discovered. The Produce Traceability Initiative (PTI) is a voluntary U.S. produce initiative. The best practice documents are the recommendations created and agreed to by all facets of the produce industry supply chain and the PTI Leadership Council.

Consent between trading partners may replace specific recommendations as long as the minimum traceability information requirements are met in good faith.

Revision History

This section itemizes the changes from the last published Best Practice.

Version No.	Date of Change	Changed By	Summary of Change
1.0	November 2013	Created by Buyers Working Group	Original Best Practice
1.1	September 2014	Implementation Working Group	Updated Non-ASN Receiving Process and added Hybrid Pallet Label Options

Objectives

The goals of creating best practices for the use of the Hybrid Pallet Label (HPL) by receivers are to:

- identify and document optimal procedures utilizing the Hybrid Pallet Label in the receiving process
- identify when and how to use/require and when not to use/require the Hybrid Pallet Label
- document an efficient error correction procedure when the Hybrid Pallet Label will not scan or is not available and;
- document how to use the Hybrid Pallet Label in conjunction with an Electronic Data Interchange (EDI) Advance Ship Notice (ASN) transaction/message.

Introduction

The Produce Traceability Initiative (PTI) focuses on standardized, electronic tracking at the case level, rather than item level. The term “case” applies to the physical enclosure in which product is shipped and can be the form of a box, reusable plastic container (RPC), bin, bag, tote, etc. These cases are normally shipped on pallets.

While the preferred method to transmit PTI information is the EDI ASN transaction, the Hybrid Pallet Label was created as an interim option by which the produce industry could identify contents of a pallet until the electronic communications option could be implemented.

The HPL encompasses both the standard GS1 Serial Shipping Container Code (SSCC) and GS1-128 case barcodes that include:

- Global Trade Item Number[®] (GTIN[®]) of trade items contained in a logistic unit indicated by Application Identifier (AI) (02)
- Batch/Lot Number, AI (10); and
- Count of trade items (number of cases) contained in a logistic unit, AI (37) of each unique composition of cases on the pallet.

Usage of the Hybrid Pallet Label will require a scan for each GTIN having the same Batch/Lot Number combination on the pallet.

The SSCC provides every pallet with a unique identifier that can be linked to the contents of a pallet (Global Trade Item Number, Batch/Lot Number, and Count of each GTIN and Batch/Lot Number combination) and communicated electronically via an ASN. When the SSCC is utilized in conjunction with an ASN, all cases on the pallet can be identified by scanning the one GS1-128 barcode on the pallet label without breaking down the pallet and scanning each case label.

Table 1: Cross-Referenced Terms/Definitions

Listed below are terms used by the produce industry and their cross-references with the GS1 Glossary of Terms:

Sector Term	GS1 Glossary Term	Definition
	Application Identifier (AI)	The field of two or more digits at the beginning of an element string in an identifier that uniquely identifies the format and meaning of that element string within the GS1 System of Standards.
	AI (01)	For use on case labels, the Application Identifier (01) indicates that the data field following the AI contains Global Trade Item Numbers (GTINs).
	AI (02)	For use on Hybrid Pallet Labels, the Application Identifier (02) indicates that the data field following the AI contains Global Trade Item Numbers (GTINs) of trade items contained in a logistic unit.
	AI (10)	The Application Identifier (10) indicates that data field following the AI contains a Batch or Lot Number. The Batch or Lot Number associates an item with information the manufacturer considers relevant for traceability of the trade item to which the element string is applied. The AI is variable length and encodes a maximum of 20 characters.
	AI (37)	The Application Identifier (37) indicates that the data field following the AI contains the Count of trade items contained in the logistic unit.
	Advance Ship Notice (ASN)	An Advance Ship Notice (ASN) is a notification of pending deliveries, similar to a packing list. In electronic form, an ASN is an Electronic Data Interchange (EDI) transaction that provides the receiving company with advance data on shipments to better plan workloads and receipt processing.
	Flow-through Process	Flow-through is a two-step process in a distribution center where inbound product is received and then shipped with no storage process. Products are received then transported to a staging location for shipping.
	Global Trade Item Number (GTIN)	The globally unique GS1 System identification number for products and services. A Global Trade Item Number (GTIN) may be 8, 12, 13, or 14 digits in length. The GTIN-14 has been selected for use in the Produce Traceability Initiative (PTI) for case level identification.
	GS1	The not-for-profit, neutral organization dedicated to facilitating the adoption and implementation of global standards for the improvement of supply and demand chains. GS1 is dedicated to the design and implementation of global standards and solutions to improve the efficiency and visibility of supply and demand chains globally and across sectors. The GS1 System of Standards is the most widely used supply chain standards system in the world.
	GS1-128 Barcode	A subset of Code 128 that is utilized exclusively for GS1 System element strings. GS1-128 symbols have a special start code pattern (consisting of a Start Character in the first symbol character position followed by the Function Code 1

Sector Term	GS1 Glossary Term	Definition
		in the second character position) to designate the data that follows will comply with GS1 System of Standards.
	Hybrid Pallet Label	Encompasses both the standard Serial Shipping Container Code (SSCC) encoded in a GS1-128 barcode and the case-level GS1-128 barcodes, that include Global Trade Item Number (GTIN) of Contained Trade Items indicated by AI (02); Batch/Lot Number indicated by AI (10); and Count of each trade item (number of cases) indicated by AI (37) of each unique composition of cases on the pallet.
<ul style="list-style-type: none"> • Pallet • Non-Standard Mixed Case 	Logistics Unit	An item of any composition established for transport and/or storage that needs to be managed through the supply chain.
LPN		Acronym for License Plate Number. The term refers to proprietary code numbers used in Warehouse Management Systems to reference a collection of items generally contained in a logistics unit.
Pallet	Unit Load	One or more transport packages or other items contained on a platform making them suitable for transport, stacking, and storage as a unit.
RPC		Acronym for Reusable Plastic Container.
SSC	Serial Shipping Container Code (SSCC)	The globally unique GS1 System identification number used for logistics units, such as pallets, cases, and cartons. The SSCC, an 18-digit number, acts as a "license plate" to efficiently move products from one trading partner to another.
WMS		Acronym for Warehouse Management System. Term refers to a computerized system to manage the movement and activity of product in a warehouse or distribution center.
<p>NOTE: There are other GS1 Application Identifiers available within the GS1 System which can also be utilized within the GS1-128 barcode. For a full list of the GS1 Application Identifiers, please see Section 3.0 of the GS1 General Specifications available at the www.gs1.org. There are rules for concatenating any GS1 Application Identifier and they are covered in Section 4.11 of the GS1 General Specifications, highlighting mandatory associated AIs and invalid pairs of AIs.</p>		

Recommended Hybrid Pallet Label Design

At a minimum, the Hybrid Pallet Label should include:

- the GS1-128 standardized barcode with an SSCC encoded as well as the corresponding GS1-128 barcodes used to indicate GTIN, Batch/Lot Number and Count for each GTIN and Batch/Lot Number combination
- the SSCC for the pallet must be displayed horizontally on the bottom of the first label;

- all subsequent GS1-128 barcodes must be displayed horizontally (as in the examples in Figures 1, 2, 3);
- each horizontal barcode should contain three pieces of information:
 - 1) the GTIN for that case [using the Application Identifier AI (02)];
 - Note: AI (02) is used on a Hybrid Pallet Label to indicate GTINs of trade items contained in the pallet. AI (01) is used on a case label to indicate GTIN.
 - 2) the Batch/Lot Number, using AI (10); and
 - 3) the quantity or count of cases having the same GTIN and Batch/Lot Number using AI (37); and
- If multiple pallet labels are required due to the amount of GTIN and Batch/Lot Number combinations on the pallet, the quantity of pallet labels are to be included on the pallet (e.g. 1 of 3) with the SSCC only printed on the first label.

Hybrid Pallet Label Options

There are two recognized methods of Hybrid Pallet Label usage. The decision about which method should be used is a matter of agreement between the shipper and the receiver.

1. Hybrid Pallet Label (HPL) is applied to the pallet. When this method is used, it is recommended that two copies of the Hybrid Pallet Label be printed and applied on adjacent sides of the pallet. The placement of the HPL is detailed in Figure 1 of the Appendix.
2. Hybrid Pallet Labels are printed and attached to the driver's Bill of Lading and accompany the paperwork for the load. When this method is used, a GS1-128 barcode encoded with an SSCC is applied to the pallet. The label should ideally be placed between 16 and 32 inches from the bottom of the pallet and at least 2 inches from the outer edge of the pallet.

Note: This alternative method requires agreement from your trading partners before it can be adopted. The primary difference to the recommended best practice of applying the Hybrid Pallet Label to adjacent sides of the pallet is that the Hybrid Pallet Labels are printed and attached to the driver's Bill of Lading and accompany the paperwork for the load. (The HPL will look the same as those using the recommended best practice – i.e. they will still carry all the same barcodes and information.) This method requires the receiver to match the Hybrid Pallet Label to the correct pallet and therefore requires prior approval from the receiver.

When to Scan the Hybrid Pallet Label

1. Receiving Process:

The information from the Hybrid Pallet Label should be scanned as part of the receiving process. Capturing the Hybrid Pallet Label information during the receiving process will allow for a three-way match for quantity of cases for each pallet;

1. Physical quantity of cases counted.
2. System quantity of cases received.
3. Total quantity of cases with GTIN and Batch/Lot Number captured.

2. Put-away Process:

Scanning as part of the pallet put-away process is an alternative to scanning during the receiving process, and is not recommended due to the reduced amount of control over the process. It is recommended to capture the Hybrid Pallet Label information as part of the receiving process, prior to the pallets being put-away.

3. Flow-Through Process:

Recording information as part of the flow-through process may require different procedures for capturing Hybrid Pallet Label information. It is recommended to capture the Hybrid Pallet Label information as part of the receiving process, prior to the pallets being transported to the flow-through staging location.

Non-ASN Receiving Process

1. If the Hybrid Pallet Labels have been attached to the Bill Of Lading instead of being affixed to the pallets, affix the correct Hybrid Pallet Label to the correct pallet by matching the Serial Shipping Container Code (SSCC) number on the bottom of the Hybrid Pallet Label and the SSCC number on the GS1-128 barcode label on the pallet.
2. Select the correct Purchase Order (or Receiving Document) on the operator's terminal.
3. Apply an internally generated License Plate Number (LPN) to the pallet to be received and scan. Alternatively, if the procedure is to utilize the SSCC as the LPN, scan the SSCC on the Hybrid Pallet Label.
4. The LPN may be assigned to a receipt or for a specific product, dependent on the WMS functionality. Scan the barcode on the upper part of the Hybrid Pallet Label (HPL) to capture the GTIN(s), Batch/Lot Number(s) and Quantities on the pallet. The human readable GTINs below these barcodes will begin with Application Identifier (02).
5. After all barcodes starting with (02) have been scanned for that pallet, perform a physical count of cases on the pallet and compare to WMS records the total cases scanned for that LPN.
6. Stage pallet for put-away or quality inspection.

Scanning of Inbound Pallets with Multiple Items Requiring Re-stacking

1. The Hybrid Pallet Label may be scanned/read for each pallet received in order to reconcile what was ordered versus what was received. Receivers may choose to forgo this step if restacking onto multiple pallets is required.

2. Once this has been done, some companies may choose to restack product onto multiple pallets for put-away. In this scenario, the Hybrid Pallet Label cannot be used as the quantities in the HPL reflect a full pallet and would not account for partial quantities being restacked onto different pallets. Essentially, once a single case or more is added or taken away from an existing pallet, the Hybrid Pallet Label loses its integrity.
3. For pallets with multiple GTINs, if restacking is required, do not use the HPL from that point forward.
4. The Hybrid Pallet Label could be inspected to determine how many GTIN and Batch/Lot Number combinations are on the pallet for re-stacking purposes.
5. The individual cases should then be scanned once they are placed on their separate pallets.

What to Do When a Hybrid Pallet Label Will Not Scan

1. When the HPL will not scan, the pallet should be set aside and handled at the end of the receiving process.
2. Scan each PTI case label to ensure all GTIN and Batch/Lot Numbers have been received.
 - a. The operator should record the error indicating non-compliance and the nature of non-compliance (i.e. missing label, barcode unreadable due to shipping damage, barcode illegible etc.) of the pallet label.
3. The operator should record the error indicating non-compliant of the HPL.
4. The operator may need to manually select the PO and detail line and key in number of cases received to record receiving of product.
5. A new generic internal warehouse LPN may need to be applied.

ASN Receiving

1. The ASN must be received in sufficient time to allow the information to update the receiving record on the buyer's WMS.
2. The ASN contains all the SSCC, GTIN, Batch/Lot Numbers and Quantity data associated with that specific pallet.
3. The operator should scan the GS1-128 barcode with the SSCC encoded on the lower portion of the Hybrid Pallet Label to identify the Purchase Order or receiving document associated with that pallet.
4. If only one item is on the pallet, the pallet should be received with a single scan of the SSCC. The item detail should be displayed to confirm the correct item.
5. If multiple items are on the pallet or if any cases on the pallet need to be removed and placed on another pallet, the WMS should instruct the operator on what steps are required, such as scanning the individual cases on the restacked pallets to associate GTIN and corresponding Batch/Lot Numbers to the LPN.

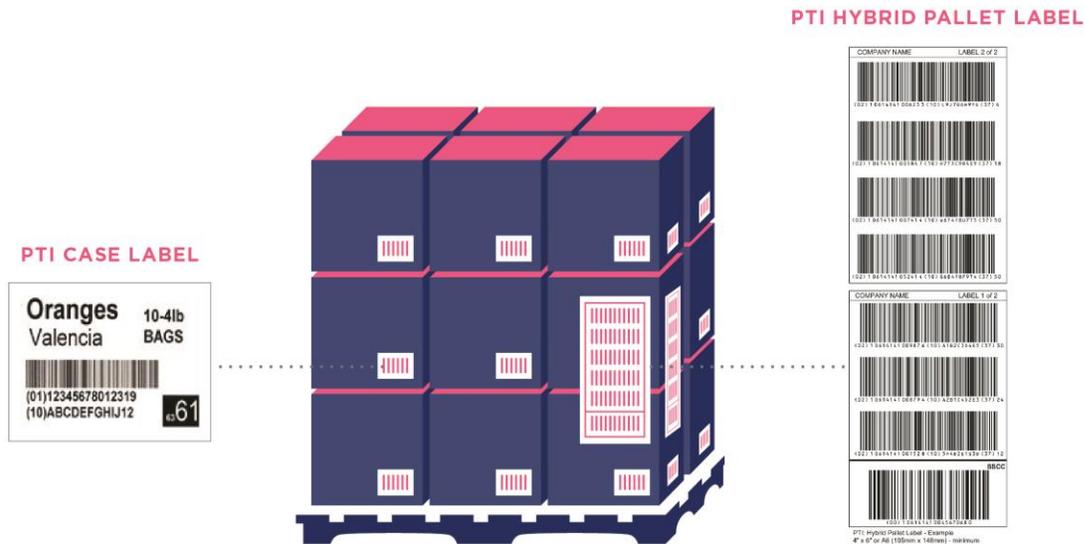
6. The operator should perform a physical count of cases on the pallet and compare to WMS record of total cases scanned for that SSCC.)
7. The WMS should verify the total number of GTIN and Batch/Lot Number case quantities recorded for each pallet equal the total cases being received.

How to use the Hybrid Pallet Label information with Warehouse Management Systems

1. Warehouse Management Systems (WMS) should capture and record GTIN and Batch/Lot Numbers as an attribute of the internal item number on each pallet License Plate Number (LPN).
2. WMS should have the ability to update a receiving document with pallet level information received via an ASN.
3. WMS should capture and record GTIN and Batch/Lot Numbers for pallets that are stored and staged for flow-through.
4. WMS should not use the SSCC as the LPN if any cases are removed from the pallet during the receiving process. A new LPN will have to be created and applied to the pallet.
5. WMS should verify that the total number of GTIN and Batch/Lot Number case quantities recorded for each pallet equal the total cases being received and require operator to verify.
6. Non-compliance issues should be tracked and summarized by supplier:
 - a. Missing labels
 - b. Labels containing barcodes that will not scan
 - c. Incorrect labels
7. The WMS could create a prompt or error message to the operator if the pallet quantity is over or under item T_i (number of cases per layer) x H_i (number of layers per pallet) quantity for that item.
8. If the WMS utilizes Voice Pick Code technology for picking, the WMS should contain the PTI Voice Pick algorithm to be able to calculate the correct PTI Voice Pick Code for each GTIN and Batch/Lot Number combination. If the WMS utilizes scanning technology for picking, each case picked will have the GS1-128 barcode scanned as the order is being built.

Appendix

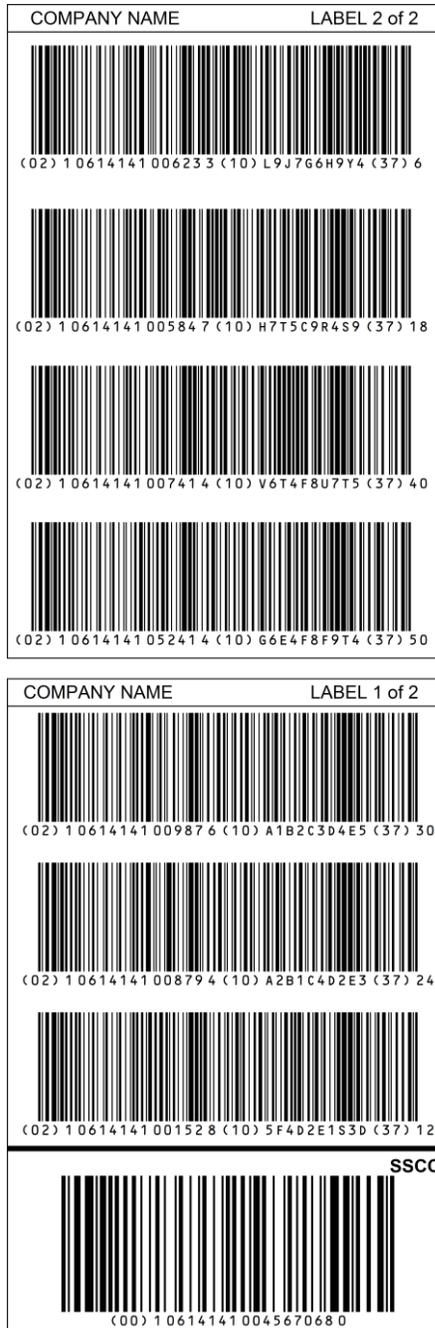
Figure 1: Hybrid Pallet Label on Cases



The barcode should be placed on the upper right half of the load, but the bottom edge of the symbol should not be higher than 60 inches from the bottom of the unit load. The barcode should be right of center and at least 2in (51 mm) from either edge. The placement refers to the shipping container barcode symbol itself, not the label.

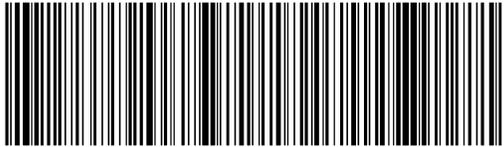
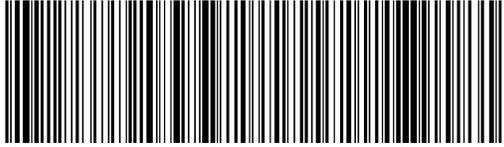
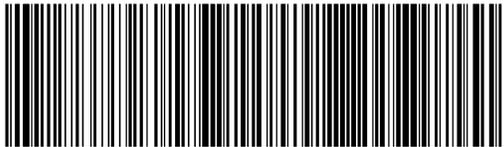
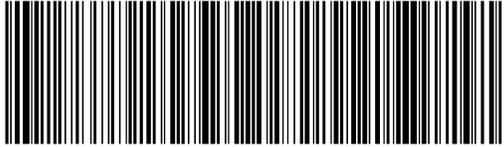
Note: PTI best practice recommendation is to include Hybrid Pallet Labels on two adjacent sides of the pallet. Actual pallet labeling requirements should be confirmed between trading partners.

Figure 2: Example 1 – 4in. x 6in. Hybrid Pallet Label Sample



PTI: Hybrid Pallet Label - Example
 4" x 6" or A6 (105mm x 148mm) - minimum

Figure 3: Example 2 – 8.5in. X 11in. Hybrid Pallet Label Sample

COMPANY NAME	LABEL 1 of 1
 (02) 1 0614141 00987 6 (10) A1B2C3D4E5 (37) 30	
 (02) 1 0614141 00879 4 (10) A2B1C4D2E3 (37) 24	
 (02) 1 0614141 00152 8 (10) 5F4D2E1S3D (37) 12	
 (02) 1 0614141 00741 4 (10) V6T4F8U7T5 (37) 20	
 (02) 1 0614141 00584 7 (10) H7T5C9R4S9 (37) 18	
 (02) 1 0614141 00623 3 (10) L9J7G6H9Y4 (37) 6	
PTI: Hybrid Pallet Label - Example 8.5" x 11" or A4 (210mm x 297mm)	SSCC  (00) 1 0614141 004567068 0