



Improving Traceability and Food  
Safety with GS1 Standards in  
**FRESH FOODS**



THE GLOBAL LANGUAGE  
OF BUSINESS



## GS1 STANDARDS IN FRESH FOODS

**Together**, we're making it possible to trace and track the food we eat, improve efficiency, and enhance safety for consumers.

## GS1 STANDARDS IN FRESH FOODS

### Challenges Facing the Industry Today

The fresh foods industry—including the produce, meat and poultry, seafood, deli, dairy, and bakery sectors—is approaching a new frontier in the use of standards and technology to support operations. Faced with increasing demands for efficiency and supply chain visibility, as well as the requirements set by the 2011 Food Safety Modernization Act, companies are utilizing GS1 Standards to ensure product traceability and food safety, while also streamlining business processes.

***“When the fruit gets packed, this is where the PTI-recommended barcode comes into play. The GTIN® combined with the lot number enables us to track back to the field and improves our ability to trace forward to the retailer or operator. If there is a recall, we can very quickly access this information to minimize the impact to customers and consumers.”***

Rick Burnes, Vice President of Supply Chain, Paramount Citrus



#### **THE PRODUCE TRACEABILITY INITIATIVE (PTI)**

GS1 US™, the Produce Marketing Association (PMA), the United Fresh Produce Association (UFPA), and the Canadian Produce Marketing Association (CPMA) recommend supply chain-wide adoption of electronic traceability for every case of produce by the year 2012 in this voluntary, wide-reaching industry initiative. The PTI is designed to help the industry maximize the effectiveness of current trace-back procedures, while developing a standardized approach to enhancing the speed and efficiency of traceability systems for the future. At the core of the initiative? GS1 Standards.

## GS1 STANDARDS IN FRESH FOODS

### Moving Forward Together in Fresh Foods

To improve traceability in the industry, companies are moving from commodity identification to product identification and linking Critical Tracking Events to Key Data Elements as recommended by the Institute of Food Technologists. Using GS1 Standards, the fresh foods industry is tackling consumer confidence and food safety with the use of:

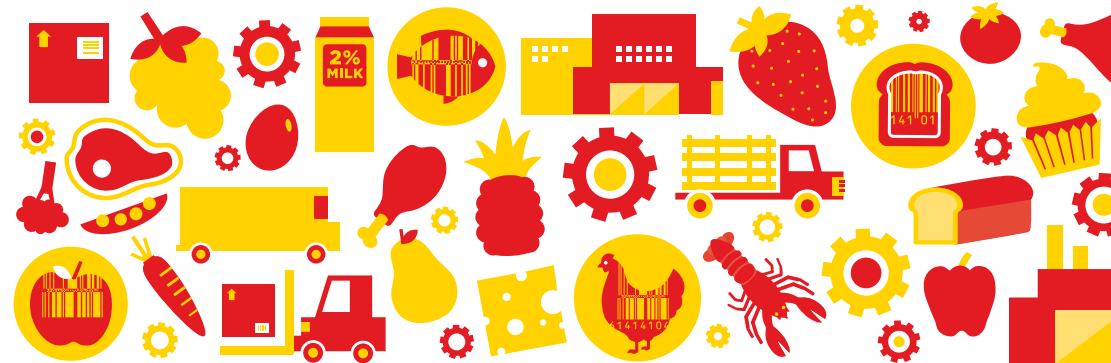
- **Location identification using GS1 Global Location Numbers (GLNs)**
- **Product identification using GS1 Global Trade Item Numbers (GTINs)**
- **Identification of logistics units using GS1 Serial Shipping Container Codes (SSCCs)**
- **Product master data through the electronic transfer of information in the Global Data Synchronization Network™ (GDSN®)**

Get involved! Go to [www.gs1us.org/freshfoods](http://www.gs1us.org/freshfoods)



#### KEY BENEFITS

- **Improving product traceability**
- **Enabling supply chain visibility**
- **Streamlining business processes**
- **Increasing efficiency**
- **Enhancing food safety**
- **Facilitating effective product recalls**





THE GLOBAL LANGUAGE  
OF BUSINESS



IDENTIFY



CAPTURE



SHARE

GS1 Standards for  
identifying, capturing,  
and sharing information —

*about products, business  
locations, and more —*

make it possible for  
companies to speak the  
same language, connect  
with each other, and move  
their business forward.



# IDENTIFY

## GS1 IDENTIFICATION NUMBERS

GS1 Standards begin with GS1 Identification Numbers used to uniquely distinguish all products (trade items), logistic units, locations, assets, and relationships across the supply chain from manufacturer to consumer.

These numbers provide the linkages between the product and the information pertaining to the product.

### GS1 STANDARDS IN FRESH FOODS

**COMPANY**

**Global GS1 Company Prefix**

**GLN** Global Location Number

**LOCATION**

**GLN** Global Location Number

**PRODUCT**

**GTIN** Global Trade Item Number

**EPC®** Serialized Global Trade Item Number

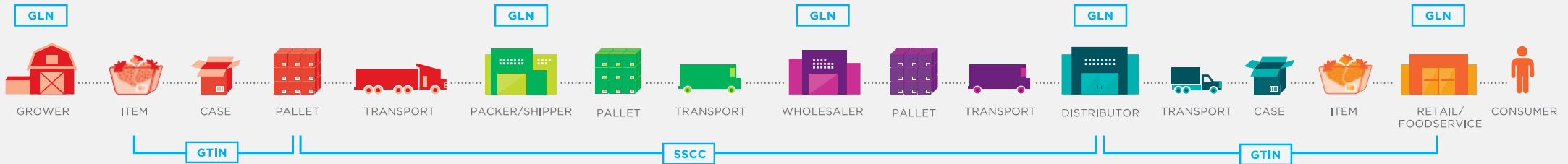
**LOGISTICS**

**SSCC** Serial Shipping Container Code

**ASSETS**

**GIAI** Global Individual Asset Identifier

**GRAI** Global Returnable Asset Identifier





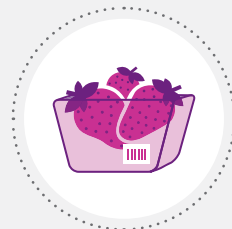
## CAPTURE

### GS1 SYSTEM DATA CARRIERS

GS1 System Data Carriers are capable of holding varying amounts of data to accommodate different supply chain process needs for different products.

EAN/UPC barcodes are examples of barcodes scanned at retail point of sale. ITF-14 and GS1-128 barcodes are used to uniquely identify units of product at the case and pallet level to help access product information and track movement of product in the supply chain. GS1 DataBar™ barcodes can carry the same, and in some cases more, information in less space than U.P.C. barcodes. They were created to identify small and hard-to-mark products, like fresh produce.

The data encoded in the GS1 System Data Carriers not only uniquely identifies products (and units of products), but also allows trading partners to share extended data, such as Batch/Lot Numbers, production date, packaging information, and more.



## GS1 STANDARDS IN FRESH FOODS

### ITEM

#### EAN/UPC

Carries a Global Trade Item Number (GTIN)



#### GS1 DATABAR STACKED OMNIDIRECTIONAL

Carries a GTIN



### CASE

#### ITF-14

Carries a GTIN



#### GS1-128

Carries a GTIN with extended data, such as Batch/Lot Number



### PALLET

#### ITF-14

Carries a GTIN



#### GS1-128

Carries a GTIN or a Serial Shipping Container Code (SSCC)





# SHARE

## GS1 INTERFACE STANDARDS FOR ELECTRONIC COMMERCE

### PRODUCT MASTER DATA

#### GDSN

Global Data Synchronization Network

The GDSN connects trading partners to the GS1 Global Registry® via GS1-certified Data Pools, enabling the immediate electronic sharing of standardized, up-to-date, accurate information.

### WHAT GOES INTO IT

- GTINs
- Brand Owner Identification
- Product Descriptions
- Product Classification

## GS1 STANDARDS IN FRESH FOODS

### TRANSACTIONAL DATA

#### EDI

Electronic Data Interchange

EDI enables the computer-to-computer exchange of business documents between companies using a standardized format.

### WHAT GOES INTO IT

- GTIN
- GLN
- SSCC
- Purchase Order
- Delivery Notification
- Invoice
- Payment

### PHYSICAL EVENT DATA

#### EPCIS

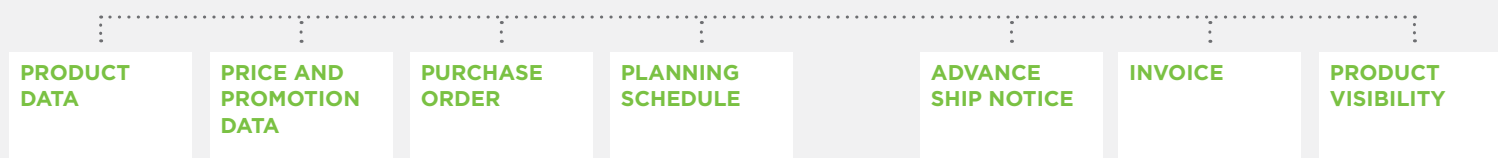
Electronic Product Code Information Services

EPCIS is the standard for sharing information about Critical Tracking Events in the physical world.

### WHAT GOES INTO IT

- GTIN
- GLN
- Date & Time Stamp
- Business Step

### INTEROPERABILITY







## GS1 STANDARDS IN FRESH FOODS

**Across the supply chain,** trading partners are connecting with each other and leveraging the power of information by using GS1 Standards as the foundation of their business processes.

### LOCATION IDENTIFICATION

**GLN** Global Location Number  
0614141004577



### CASE LEVEL IDENTIFICATION

**GTIN** Global Trade Item Number  
and Extended Data  
Batch/Lot Number



**ENTER YOUR  
PRODUCT DATA**

GTIN

Dimensions Weights

Nutritional Allergens

**SEND**

## Grower: Harvest

### IDENTIFY

- GTINs are created for each product and case
- SSCCs are created for each pallet packed in the field
- Product data is defined, created, and managed
- Grower GLNs are assigned and managed

### CAPTURE

- Batch/Lot Numbers are captured for each case of product packed
- GTINs and production data (Batch/Lot Number, Date, etc.) are printed on cases (barcode and human readable)
- Pallet tags are created and printed using the SSCC

### SHARE

- Product data is shared through the GDSN

### BENEFITS

*Enables consumer brand recognition*

*Establishes the foundation for product traceability and recall*

*Optimizes business processes based on accurate product identification for real-time harvest updates and efficient logistics operations*



## Grower: Receiving at Cooler

### IDENTIFY

- Validated customer GLNs are collected and stored

### CAPTURE

- Barcodes are used to track product as it moves from the field, to the cooler, to storage, to shipping
- GTINs and SSCCs are used to track contents of shipments

### SHARE

- Harvesting data is stored in Enterprise Resource Planning (ERP) system
- Inventory and delivery information is stored in ERP system
- Advance Ship Notices (ASNs) containing SSCCs, GTINs and their corresponding Batch/Lot Numbers, and GLNs are sent to customers

### BENEFITS

*Improves visibility into product movement*

*Provides operational efficiencies in receiving, inventory management, and shipping processes*



## Packer / Shipper

### IDENTIFY

- Validated customer GLNs are collected and stored
- GTINs and Batch/Lot Numbers are created for repacked and commingled products and cases
- SSCCs are created for new pallets

### CAPTURE

- GTINs and SSCCs are used for receipt verification
- GTINs are used to assure accuracy of picked products for re-packing and commingling
- GTINs and Batch/Lot Numbers are used to create and track shipments
- Shipping unit content is barcoded with SSCCs

### SHARE

- ASNs containing SSCCs, GTINs, and their corresponding Batch/Lot Numbers and GLNs are sent to customers
- Inventory and delivery information is stored in WMS system
- EDI processes are synchronized
- Orders are managed

### BENEFITS

*Reduces costs and time spent on manual processes*

*Enhances traceability to support safe handling processes*

*Improves order accuracy*



## Wholesaler

### IDENTIFY

- Validated customer GLNs are collected and stored

### CAPTURE

- GTINs and SSCCs are used for receipt verification
- GTINs and SSCCs are used to put products into inventory
- GTINs and SSCCs are used to pick products and create shipments
- GTINs and Batch/Lot Numbers are used to rotate inventory and for quality control processes

### SHARE

- ASNs containing SSCCs, GTINs and their corresponding Batch/Lot Numbers, and GLNs are sent to customers
- Inventory and delivery information is stored in WMS system
- EDI processes are synchronized
- Orders are managed
- Data is stored in WMS system

### BENEFITS

*Optimizes receiving productivity*

*Improves inventory management*

*Reduces errors in mispicks and shorts*

*Increases pick rates*



## Distribution Center

### IDENTIFY

- Validated customer GLNs are captured and shared

### CAPTURE

- GTINs and SSCCs are used for receipt verification
- GTINs and SSCCs are used to put products into inventory
- GTINs and Voice Pick Code are used to pick products and create shipments
- GTINs and their corresponding Batch/Lot Numbers and Voice Pick Codes are used to rotate inventory and for quality control processes

### SHARE

- Inventory and delivery information is stored in WMS system
- EDI processes are synchronized
- Orders are managed

### BENEFITS

*Optimizes receiving productivity*

*Improves inventory management*

*Reduces errors in mispicks and shorts*

*Increases pick rates*

#### LOCATION IDENTIFICATION

GLN Global Location Number  
0000456700004

GROCERY

RETAIL  
DISTRIBUTION

#### CASE LEVEL IDENTIFICATION

GTIN Global Trade Item Number  
and Extended Data  
Batch/Lot Number



#### PRODUCT DATA FROM GDSN

GTIN  
Dimensions Weights  
Nutritional Allergens

DOWNLOAD

## Point of Sale or Service

### IDENTIFY

- Validated customer GLNs are captured and stored

### CAPTURE

- Cases are identified during picking/shipping processes at the distribution channel and tracked to validate delivery to correct location with GLN completing transfer of ownership
- GTINs and corresponding Batch/Lot Numbers are used to drive inventory replenishment

### SHARE

- PO with GTINs and corresponding Batch/Lot Numbers for each case are sent by the distribution channel
- EDI processes are synchronized
- Orders are managed
- Inventory and delivery information is stored in ERP system
- In time, industry supported recall notifications for specific GTINs and associated production data could trigger automatic reports alerting store and restaurant operations of potential issues

### BENEFITS

*Increases operational efficiencies across various business processes*

*Provides additional product information to enhance operations for traceability*

*Improves preparedness for fast and precise recalls*

*Enables consumer protection*

## GS1 STANDARDS IN FRESH FOODS

### Find out how you can improve traceability and enhance food safety.

Visit [www.gs1us.org/freshfoods](http://www.gs1us.org/freshfoods) to access:

- Information on Fresh Foods programs and guidelines
- Information on relevant GS1 Standards
- Tools and Resources
  - Implementation Guides
  - “How To” Documents
  - White Papers
  - Case Studies
  - Data Driver®
  - Rapid Recall Exchange™
- Education
- Advocates and Partners

### Contact us

**Jeff Cowan**

[jcowan@gs1us.org](mailto:jcowan@gs1us.org)

**Angela Fernandez**

[afernandez@gs1us.org](mailto:afernandez@gs1us.org)

**Michael Potochar**

[mpotochar@gs1us.org](mailto:mpotochar@gs1us.org)

**Michele Southall**

[msouthall@gs1us.org](mailto:msouthall@gs1us.org)







**CONTACT US TO FIND OUT HOW GS1 US  
CAN HELP MOVE YOUR BUSINESS FORWARD.**



**THE GLOBAL LANGUAGE  
OF BUSINESS**

CORPORATE HEADQUARTERS  
Princeton Pike Corporate Center  
1009 Lenox Drive, Suite 202  
Lawrenceville, NJ 08648 USA  
T +1 937.435.3870 E [www.GS1US.org](http://www.GS1US.org)

[twitter](#) [LinkedIn](#) [YouTube](#)

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