

Product Identification and Supply Chain Management for Fresh Fruit and Vegetables Implementation Guide



Document Summary

Document Item	Current Value
Document Title	Product Identification and Supply Chain Management for Fresh Fruit and Vegetables Implementation Guide
Date Last Modified	December 2012
Current Document Issue	Issue 1
Status	Initial issue, final
Document Description	This document serves as a guide to implementing GS1 Standards in the fresh fruit and vegetable industry supply chain.

Contributors

Name	Organization
Mr. Landwehr	Cobana Fruchtring GmbH & Co. KG
Mr. Röhl	EDEKA Zentrale AG & Co. KG
Mr. P. Schreurs	Frankort & Koning B.V.
Mr. Jörg	Fruchtimport van Wylick GmbH
Mr. J. den Engelse	Frug I Com
Mr. Norbert Roehl	Edeka Zentrale AG and Co. KG
Mr. Spicker	Gartenbauzentrale eG
Mr. H. Geelen	The Greenery; Chair of Standards Development Group of Frug I Com
Mr. Habermann	Gutberlet Stiftung & Co
Mr. Dobusch	Kaiser's Tengemann GmbH
Mr. Wittmann	Landgard Service GmbH
Mr. H. Lerch	METRO Systems GmbH
Ms. Friedrich	Pfalzmarkt für Obst und Gemüse eG
Ms. Kranepuhl	REWE Informations-Systeme GmbH
Mr. Werner	Rijk Zwaan Welter GmbH
Mr. Bolduan	UNIVeG Deutschland GmbH
Mr. Schernau	UNIVeG Deutschland GmbH
Mr. Schierloh	INTER Weichert GmbH & Co. KG
Mr. K. Förderer	GS1 Germany GmbH
Ms. T. Thomsen	GS1 Germany GmbH
Mr. G. Sobrino	GS1 Nederland B.V.
Mr. G. Lamers	GLS Global Logistics Standards advice

Log of Changes in Issue 1

Issue No.	Date of Change	Changed By	Summary of Change
0.1	December 2011	Gerard Lamers	Initial issue, draft
0.2	January 2012	Gerard Lamers	Initial issue, draft
0.3	March 2012	Gerard Lamers	Initial issue, draft
0.4	April 2012	Gerard Lamers	Initial issue, draft
0.5	May 2012	Gerard Lamers	Initial issue, draft
1.1.	August 2012	Klaus Förderer	Initial Issue, final draft
1.2	October 2012	Klaus Förderer	Initial Issue, final draft, first revision
1.3	November 2012	Klaus Förderer	Initial Issue, final draft, second revision
1.4	December 2012	Klaus Förderer	Initial Issue, final

Consulted Literature

Version	Document	Release Date
GS1 Europe 2005	Fruits & Vegetables Harmonisation Project GTIN Allocation Rules	December 2005
Final	Traceability Implementation for Fresh Fruits and Vegetables	July 2009
Issue 11	Global User Manual	March 2010
Release 2.8	Business Message Standard Food and Beverage	August 2011

Disclaimer

Whilst every effort has been made to ensure that the guidelines to use the GS1 standards contained in the document are correct, GS1, GS1 Germany and any other party involved in the creation of the document HEREBY STATE that the document is provided without warranty, either expressed or implied, of accuracy or fitness for purpose, AND HEREBY DISCLAIM any liability, direct or indirect, for damages or loss relating to the use of the document. The document may be modified, subject to developments in technology, changes to the standards, or new legal requirements. Several products and company names mentioned herein may be trademarks and/or registered trademarks of their respective companies.

Table of Contents

1. Introduction.....	6
1.1. Purpose and Scope of this Document	6
1.2. Roadmap.....	7
1.2.1. Organising the Work	8
1.2.2. Time Work Packages	9
1.3. Why an Implementation Guide?.....	10
1.4. The Approach to the Implementation Guide	10
1.5. How do I Use the Document?	10
1.6. Who can use this Document?	11
2. Information Flow and Roles in the Supply Chain.....	12
2.1. The Fruit & Vegetable Supply Chain.....	12
2.2. Actors and Roles in the Supply Chain	13
2.3. Information Flow.....	14
2.4. Scenarios	16
2.5. Benefits	16
3. Product Identification and GTIN Allocation.....	17
3.1. Key Definitions and Basic Principles.....	17
3.1.1. Consumer Packages	17
3.1.2. Trade Packages	18
3.1.3. The Different Manifestations of an Article	19
3.1.4. GS1 Identification System	19
3.1.5. The IFPS Identification System	20
3.1.6. Overview on the different scenarios	20
3.2. Who Has To Assign the GTIN?.....	22
3.2.1. Introduction and General Rules	22
3.2.2. Packages Pre-Packed by the Supplier.....	23
3.2.3. Packages Pre-Packed by the Retailer at the Point of Sale	23
3.2.4. Generic Products (non-branded packages)	24
3.2.5. Articles Sold as Loose Product	24
3.3. Rules for GTIN Allocation for Fresh Fruits and Vegetables.....	25
3.3.1. When a new GTIN needs to be allocated?	25
3.3.2. Check List When to Assign a New Identification Number (GTIN).....	27
3.3.3. Examples for GTIN allocation.....	38
3.3.4. Internet Resources	41

4.	Appendix and Reference Documents	42
4.1.	Rules how to use the identification keys	42
4.1.1.	The GTIN Allocation Rules	42
4.1.2.	The IFPS PLU Rules	43
4.2.	Getting Started	44
4.2.1.	GS1 Global Location Number (GLN) Further Explained	44
4.2.2.	GS1 Further Explained	45
4.2.3.	GS1 Global Trade Item Number (GTIN) Assignment Further Explained	46
4.2.4.	How to Create a Quality GS1-Compliant Bar Code	49
4.2.5.	GS1 Serial Shipping Container Code (SSCC) Further Explained	52
4.3.	GS1 GDSN	53
4.3.1.	What Is Data Synchronisation	53
4.3.2.	How GDSN Works	54
4.3.3.	GPC	55
4.4.	GS1 eCom	56
4.4.1.	Quotation	56
4.4.2.	Purchase Order	56
4.4.3.	Transport and Logistics	56
4.4.4.	Invoice and Remittance Advice	56
4.5.	Enabling Technology Explained	57
4.6.	Other Useful Resources	57
4.7.	Frequently Asked Questions	58
5.	Glossary	60

1. Introduction

1.1. Purpose and Scope of this Document

Within the framework of the deployment of the European Fresh Food relationships (Fruit and Vegetables), traders and retailers have encountered divergences in identifying Fruit and Vegetable products as a result of the use of different product identification and the use of different information exchange approaches from one country to another and equally diverging business practices. These companies have asked GS1 Germany to improve the integration of the GS1 Fresh Food Solutions and to develop a comprehensive integrated Implementation Guide including GS1-Standards for Identification, Barcoding, Master Data Management and Electronic Communication to harmonise the way of dealing with Fruit and Vegetable products.

Supply chain management (SCM) is the management of a network of interconnected business involved in the ultimate provision of product and service packages required by end customers. Supply Chain Management spans all movement and storage of raw materials, work-in-process inventory, and finished goods from point of origin to point of consumption. SCM is a business process that enables trading partners to follow products as they move from field through to retail store or food service operator. Each trade partner must be able to identify the direct source (supplier) and direct recipient (customer) of the product.

Each organization in the Fruit and Vegetable chain – in his role as a provoker of product information - is responsible to inform their trade partners as transparent as possible.

The first priority of SCM is to protect the consumer through faster and more precise identification and product information. This is especially critical if the product must be withdrawn from the supply chain.

This document serves as a best practice guide to implementing product identification and digital information exchange based on GS1 global standards for supply chain management. These standards were developed by industry to optimize business practices across supply chains world-wide. More information about GS1 appears in Appendix Section [4.2.1](#).

The current edition of this implementation guideline is focusing on Product Identification as this is crucial for all subsequent steps in the supply chain. The guideline will expand in the future according to the roadmap developed by the Dutch/German expert group for fruit and vegetables in order to give guidance on the implementation of GS1 standards in this sector including master data management, Ordering/Tendering Processes, Labelling and Tracking & Tracing.

What is the scope of this guideline?

- Applies to Fresh Fruit and Vegetables for human consumption.
- The supply in the Fruit and Vegetable sector is considered as a whole.
- The process scenarios in the Fresh Fruit and Vegetables supply chain:
 - Normal Business (Business Weeks)
 - Call off order
 - Auction Business
 - Seasonal events

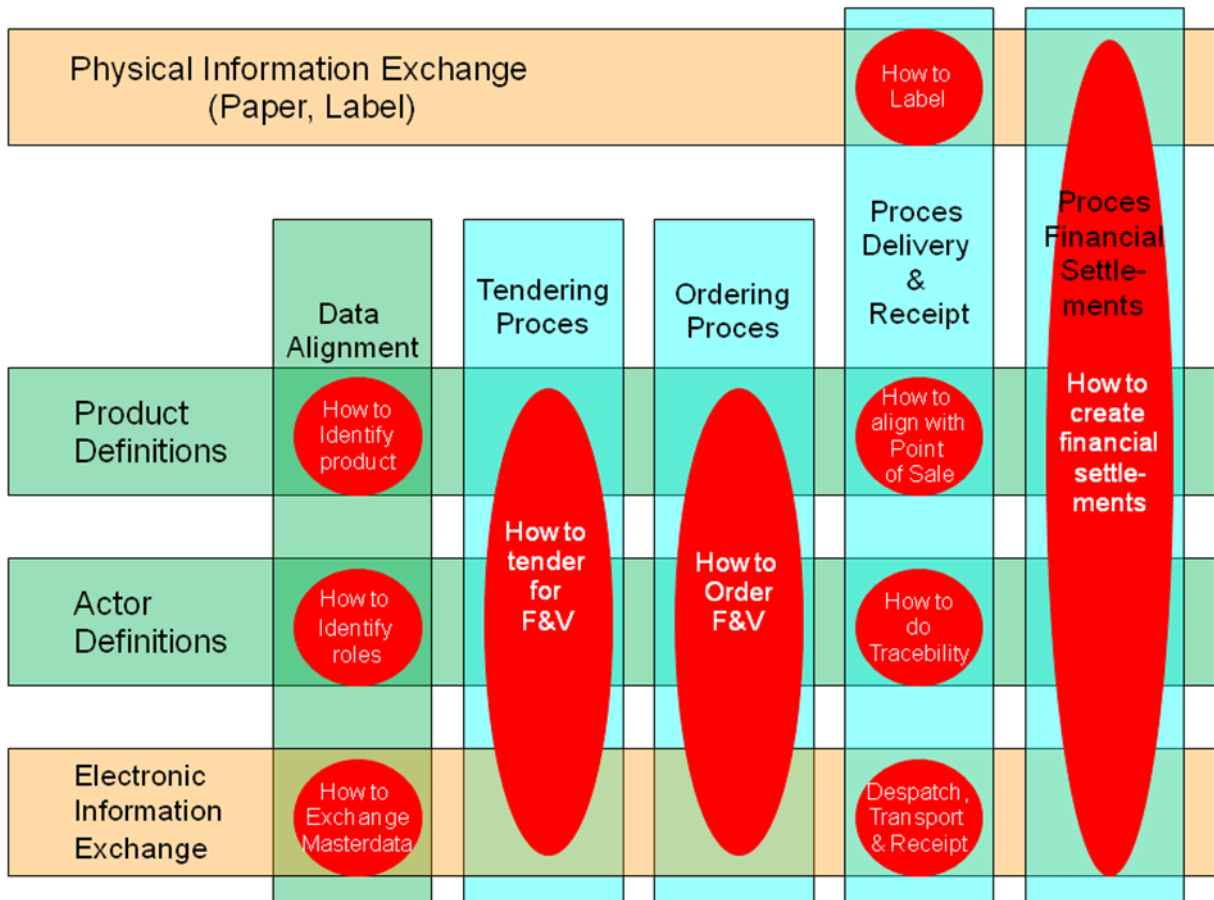
1.2. Roadmap

As trade of fresh fruit and vegetables is a global business, the intention is to build recommendations that are globally applicable and are built on global GS1 standards. Additionally in Europe the same legislation applies in a large number of countries that need to be taken into account.

The roadmap was developed in order to cover the relevant areas to be addressed in the upcoming years. These topics are aligned with the activities on global level and the aim is to realise a number of separate “how-to” brochures per subject which collectively form the basis for an integrated implementation guideline for the use of GS1 standards in the fruit and vegetable sector. The rationale is that the “how to” brochures will address each topic in isolation.

Each of these topics will also be addressed in a separate chapter in the integrated implementation guideline. Here the topic is treated more profound and put into relation to the integrated way of working. The various roles that parties can adopt will be addressed as well as the consequences. This document is aimed to the how and the why question as well as the benefits of the GS1 approach. The development of these implementation guidelines follows a stepwise approach.

The roadmap below shows the approach to achieve full coverage of all relevant topics in the fruit & vegetable supply chain. The themes in red refer to topics addressed by subgroups and lead towards recommendations reflected in “How to” brochures and chapters in the overall implementation guideline.



1.2.1. Organising the Work

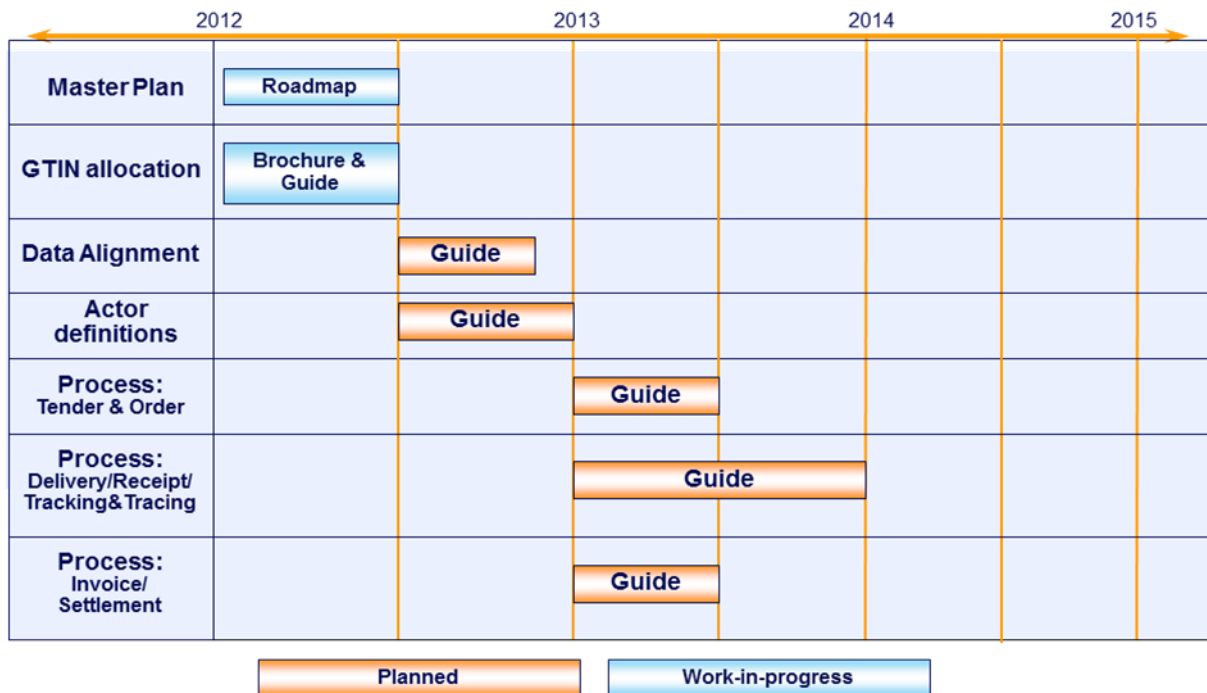
For the next steps in the roadmap the different work packages will be addressed by subgroups in order to ensure that the right experts are involved and the timing can be optimised through simultaneous development. The subgroups will each deliver two documents: the “How to” brochure and the chapter for the integrated implementation guideline i.e. this document. Some of the topics are so much key to the total process that they may require a broad participation during development. It is therefore suggested that these topics, marked with an asterisk in the table below, are addressed by a larger audience.

Topic, Subject	“How to” brochure	Chapter in the Implementation Guideline
Masterplan *	Leaflet and-or brochure on integration, purpose	Integrated Way of Working, Summary
Product identification *	The right GTIN for fruits and vegetables	GTIN Allocation
Actor identification *	How to identify trade roles	Roles in the Fresh Fruits and Vegetables supply chain and the use of GLN’s
Data Alignment	How to exchange master data with your trading partner	Synchronising master data
Tendering Process	How to acquire quotes	Tendering process and tendering information flow
Ordering Process	How and when to order for fruits and vegetables	Ordering process and order information flow
Delivery and Receipt: Logistic Concepts *	How to inform on deliveries for despatches, receipt and replenishment	Logistic concepts and information flows
Delivery and Receipt: Physical Information Exchange	How to label fruit and vegetables	Logistic labels and barcodes
Delivery and Receipt: Electronic Information Exchange	How to use EDI messages for transport, delivery and receipt	EDI Messages
Delivery and Receipt: Alignment of information flows	How to do traceability	Tracking and tracing using the GS1 standards
Delivery and Receipt: Point of Sale	How to identify consumer packs of fruits	Techniques for labelling and

alignment	and vegetables	scanning consumer packages
Returnable Asset management	How to handle empty crates	Returnable Asset management
Financial Settlement	How to create electronic invoices and payment information	Financial Settlements

1.2.2. Time Work Packages

The following table shows the timing of the work packages, having the Roadmap and GTIN allocation covered already. The timelines will be precised and adjusted according to working group progress and demands from international alignments.



1.3. Why an Implementation Guide?

Regarding the set-up of this guideline the following points were taken into account as a need is seen for guiding business partners.

- Pre-defined characteristics of an item vary strongly from product to product.
- Different parts of the supply chain have different requirements.
 - Producer
 - Packer, Fruit Trade Industry
 - Wholesale
 - Point of Sale
- Differing knowledge of market participants

1.4. The Approach to the Implementation Guide

While developing the current guideline the expert group based the recommendations on

- EC Commission Regulations (legal requirements) and
- UNECE Standards FFV (Fresh Fruits Vegetables / DDP (Dry and Dried Produce))

in order to take into account the relevant legal framework and current business practices.

Regarding the covered products (fresh fruit and vegetables the implementation guide focuses on:

- Pre-packaged produce
- Loose produce / produce in protective packaging
- Trade Packages

1.5. How do I Use the Document?

After the introduction and explaining the basic process, the document is focused on the relevant processes e.g. GTIN allocation. If GS1 standards are new to your company, further details can be Appendix Section [4.1](#).

1.6. Who can use this Document?

This is a practical guide that is intended for those responsible for implementing traceability in their company's operations and supply chain. The document provides a guide for fresh produce growers, packers, exporters/importers, and distributors as well as their customers and suppliers. Individual organisations may perform any combinations of these roles.

Table 1-1
Typical Roles in the Produce Supply Chain

Role	Activities	Alias / Examples
Primary Role (in scope)		
Grower	Grow, Harvest, Store, Sell, Ship	Producer
Packer	Aggregate, Pack, Sell, Ship	Agricultural Cooperative / Pack House/ Producer/ Source / Re-packer
Trader	Store, Sell, Ship	Distributor/ Trader / Retail or Foodservice / Distribution Centre / Supplier/ Import and Export Warehouses / Wholesale / Terminal Markets / Auction / Wholesaler/ Broker or Dealer / Agricultural Cooperative
Retail Store	Store, Sell to Consumer	Retailer
Food Service Operator	Store, Prepare, Sell to Consumer	
Secondary (outside of scope)		
Third Party Logistics Service Provider	Transport, Store	Truck / Rail / Ship / Air
Supplier of Packing Material		Suppliers of packing material (crates, bags, boxes, labels, bins, clamshells, etc.)
Supplier of farm inputs		Suppliers of crop protection means, artificial manure, energy, etc.
Supplier of seed / plants		Suppliers of seeds and plants
Regulatory Organisations		Customs, Inspection Agencies, etc.

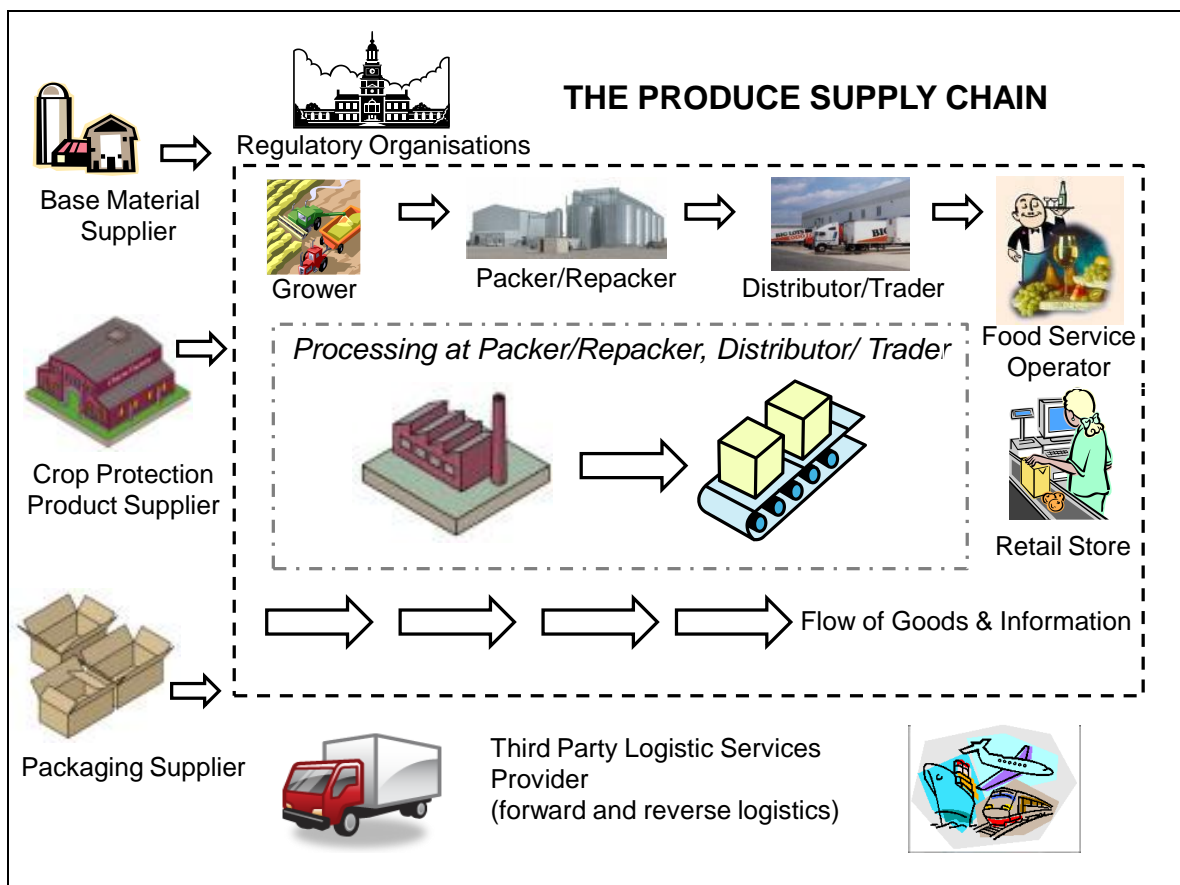
2. Information Flow and Roles in the Supply Chain

Within this chapter the basic scenarios in the fruit and vegetable supply chain as well as the roles and the information flows are introduced. This basic scenarios are the reference for the subsequent chapters of this guideline.

2.1. The Fruit & Vegetable Supply Chain

The figure below shows the supply chain for fresh produce and in the dashed box the processes to be covered by this guideline.

Figure 2-1 The Produce Supply Chain



2.2. Actors and Roles in the Supply Chain

The different actors in the supply chain fulfil different roles, the explanations below show the different roles that are relevant in the fresh fruit and vegetable supply chain:

Grower

The grower is responsible for the production, harvesting and despatch, as well as record keeping of appropriate information about the field and products sent to the packing station, to an importer or to the Agricultural Cooperative.

Packer/Re-packer

The packer receives the merchandise from the grower, an importer or another packer, packs them into boxes and may palletise them. After that, the packer despatches the merchandise to a third party: the wholesaler or the retailer.

Agricultural Cooperative

A co-operative is an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise. Agricultural Cooperatives receive the merchandise coming from all associated growers and prepare it to be sent to the next step in the supply chain: an importer, a wholesaler, a packer or a retailer.

Trader, Broker, Dealer

A trader, broker or dealer for fruits & vegetables is a person or company that buys and sells products without handling them.

Wholesaler

A wholesaler buys goods in large quantities from their manufacturers or importers, and then sells smaller quantities to retailers, who in turn sell to the general public.

Importer

The importer is a person or company that imports products into a country and sells them there. The importer may receive merchandise from an agricultural cooperative or a packer and send it to a packer, wholesaler or retailer.

Retailer

A retailer buys goods or products in large quantities from manufacturers or importers, either directly or through a wholesaler, and then sells individual items or small quantities to the general public or end user customers, usually in a shop, also called store. Retailers are at the end of the supply chain



Comment:

When defining roles in the supply chain, you may find the same person/company to play different roles; for instance, an Agricultural Cooperative to be also a Packer or a Logistic Service Provider as a party in charge of logistic activities (e.g. transport, storage) on behalf of a supplier or retailer.



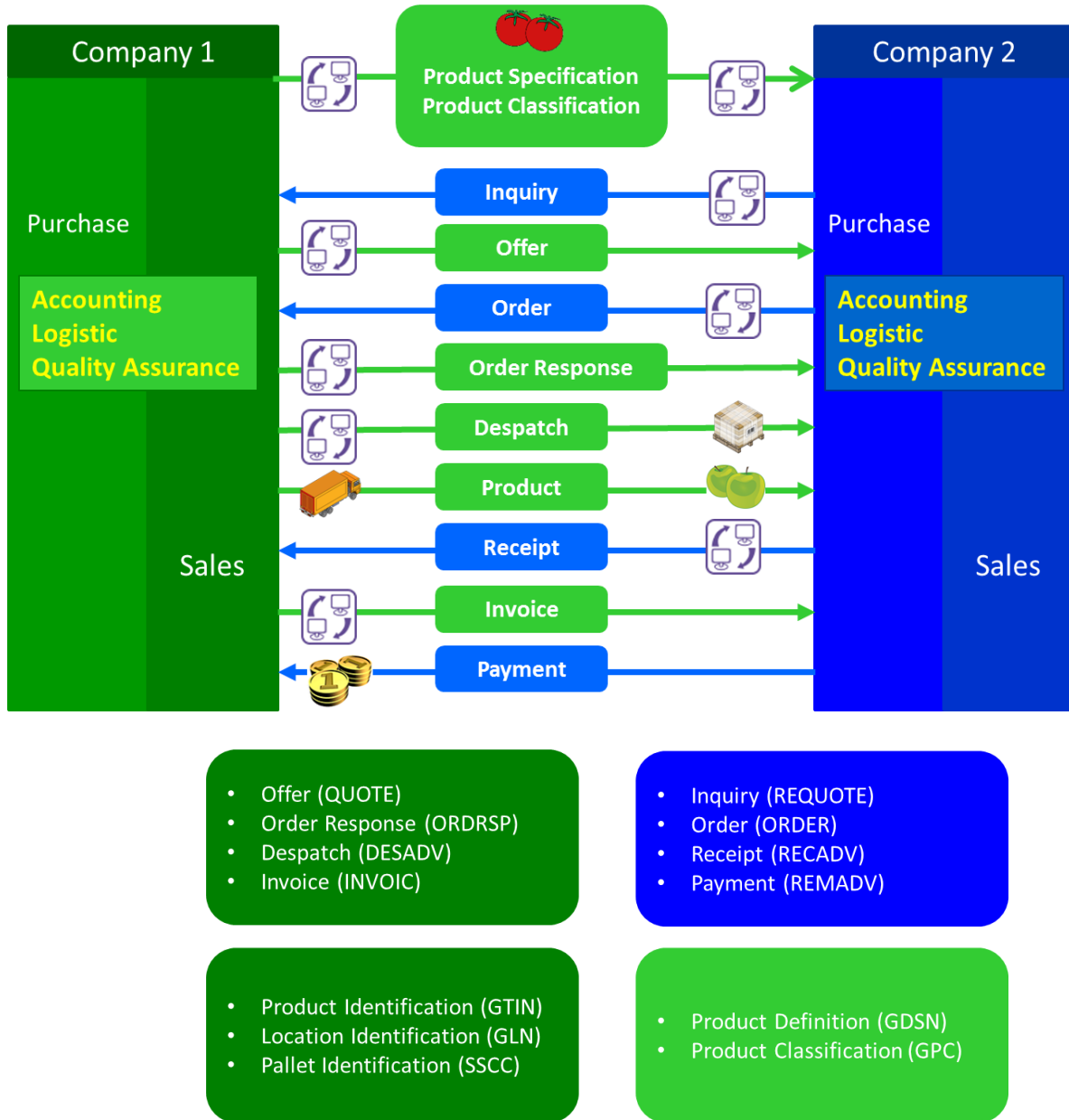
Comment:

Future additional requirements that lead to additional information requirements will lead to changes in this document.

2.3. Information Flow

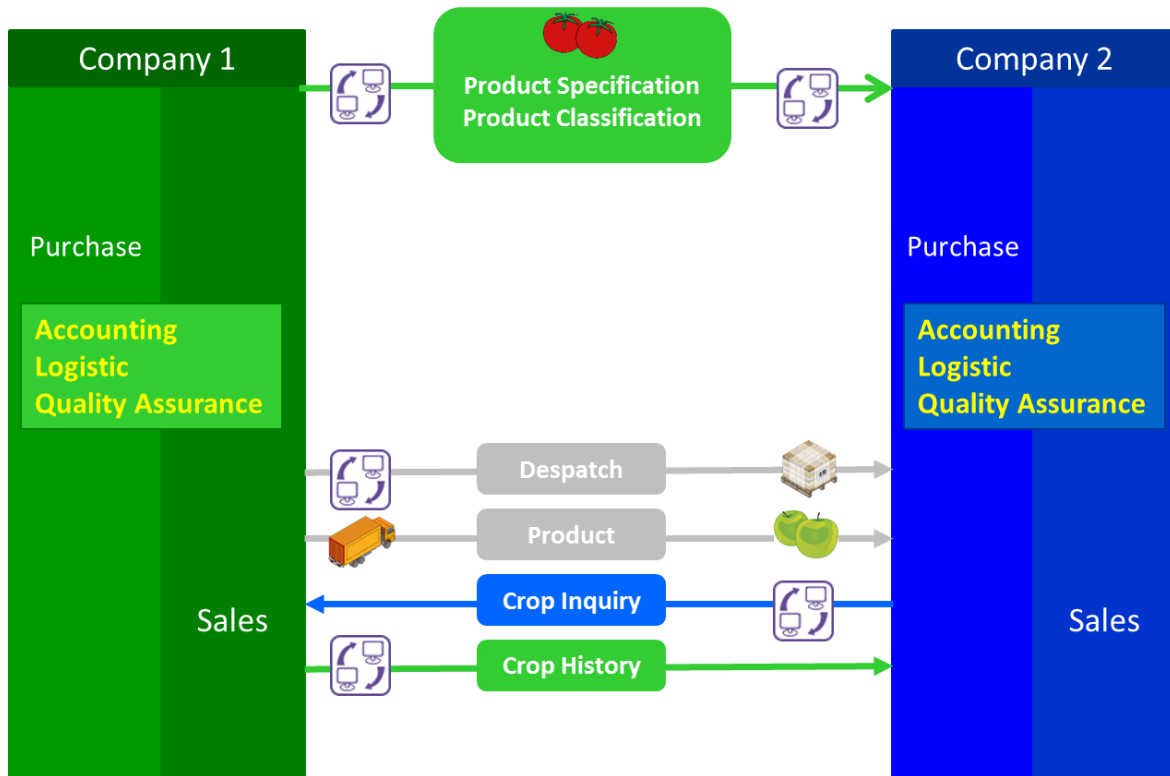
Within the scope of this guideline, the whole supply in the Fruit and Vegetable sector is considered. The table below shows as a whole. The figure below shows the information exchanged by trading partners for supply chain processes.

Figure 2-2a The Information Flow
(source: Frug I Com)



Additionally it may be necessary to exchange further information in the process e.g. crop information. The figure below shows the relevant scenario.

Figure 2-2b The Crop Information Flow
(source: Frug I Com)



- Crop History (CTM-2)

- Crop Inquiry (CTM-3)

- Product Identification (GTIN)
- Location Identification (GLN)
- Pallet Identification (SSCC)

- Product Definition (GDSN)
- Product Classification (GPC)

It is desirable to more efficiently cope with the exchange of crop data of fruit and vegetable products, and thereby better facilitate the commercial process. Differences in the information requested by chain parties lead to additional costs in the chain, which could be avoided with a standardised process. Furthermore, provision of this information often involves manual work that is performed twice because information is needed at various stages of the supply chain processes. A standardised process can provide a solution here too.

2.4. Scenarios

The following business scenarios are in scope of this guideline:

- Normal Order (Business Weeks)
- Call off order
- Auction order
- Seasonal events
- Identification at the Point Of Sale
- Identification / Classification during the Inquiry and Offer process

2.5. Benefits

The following benefits apply, when efficient supply chain management based on GS1 Standards is implemented:

- Optimizing logistics processes
- Enabling electronic reading at point of sale, when being received at warehouses, or at any other point where it is required in business processes
- Provides migration towards GTIN and removes need for supplier and customer bilateral agreements for product identification
- Brand identification via unique identification to support improved Category Management e.g. improved inventory management / reduced shrinkage)
- Enabling traceability along the whole supply chain (from grower to Point-of-Sale)
- Usage the new labelling technologies
- Automatic Markdown at POS**
- Improved Quality Control at shelf (e.g. best-before-date / sell-by-date encoded and checked at Point-of-Sale)
- Improved Product Replenishment and Reduced out of stocks
- Improved Pricing Accuracy at Point-of-Sale (e.g. organic vs. non-organic)
- Enables standard manufactured issued coupon use for Fresh Foods at POS
- Usage of electronic communication and replacing manual processes
- Usage of existing standards for master data management and GDSN

** Subject to local regulations.

3. Product Identification and GTIN Allocation

Efficient order and delivery processes, flexibility and traceability: the demands of the fruit and vegetables business have increased constantly in the last years. By means of an unique product identification - which can be achieved in using the GS1 standards - these demands can be fulfilled by large, medium sized and small companies. The enormous range of items and trading units requires a very detailed description of product specifications – and the correct product identification with the GS1 Global Trade Item Number (GTIN).

In this chapter the principles of product identification for the different types and representations of products are explained and guidance is given when GTINs are assigned to the products by the supplier.

3.1. Key Definitions and Basic Principles

3.1.1. Consumer Packages

The identification number for consumer products are often used for identification of the item at the POS. If an identification number is a PLU (means manual typing) or of the consumer package has GTIN which is translated into a barcode, the consumer package can be scanned at the POS and be billed.

In the fresh one knows the difference between packed and unpacked articles. Pre-packed consumer articles are sold individually in the store. A pre-packed consumer product has always a GTIN identification number, and usually a sticker with the barcode of that identification number to make it possible to scan this article at the point of sale. Apart from this, an unlabelled consumer package only has a package protecting the product, they can be sold by each or by weight

Unpacked consumer products are sold to consumers by each or by weight. Although the supplier may have assigned a separate identification number to a loose product it is not common to communicate this number and to use this number for scanning at the point of sale. The retailer itself arranges the sale to the consumer; e.g. a PLU is assigned by the retailer or the consumer sticks a retailer internal label on the article after he has weighed the article.

- **Consumer Pre-package:** a labelled product package that is intended for an ultimate consumption. For retail this item will be scanned at the point of sale

- **Consumer Package** an unlabelled product package that protects the fruit article (e.g. strawberry, blackberry, etc.)



Loose produce: are fruit and vegetables which are delivered to the store in boxes or cases, without consumer packages; which can be weighted or counted at the Point of Sale



3.1.2. Trade Packages

Trade products consist of one or more outer packaging of consumer products. If an item can be ordered either per pallet, per pallet layer, per package or by each there are as many as different GTINs assigned to each ordered item. The Fruit and Vegetable trade in Europe is only ordering in packages, kilograms and cases.

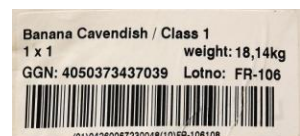
- **Trade Package:** an article that contains one or more consumer packages and served as a unit in order and delivery processes; this is the ordered item

- **Logistic Package** a transport package of any composition established for transport and/or storage that needs to be managed through the supply chain

- **Variable measure trade package:** a product package which is priced based on his weight

- **Label:** info regarding the article id and/or other product related information (product or producer) it is not a pure brand label

- **Brand:** a name, term, design, symbol, or any other feature that identifies one seller's good or service as distinct from those of other sellers.



3.1.3. The Different Manifestations of an Article

An article has different manifestations, they depend on the position in the chain. Each position in the chain has its own requirements regarding identification.

When synchronizing item data between supplier and customer the hierarchical relationship between the basic article, the consumer product and trade item (secondary packaging) should be indicated.

3.1.4. GS1 Identification System

The GS1 identification system provides the world a globally unique and unambiguous identification system through the GS1 Identification Keys. All GS1 standards shall incorporate at least one of the GS1 Identification Keys as mandatory identifiers.

The most important and widely used GS1 Identification Keys are:

- Global Trade Item Number (GTIN)
Individually distinguishable packaging based on their characteristics can be unique coded and identified with this number
- Global Location Number (GLN)
This number gives you the possibility to identify the location or address of any trade partner: e.g. a Grower, a Greenhouse the Package Station, a Supplier, a Retailer, a Warehouse, etc
- Serial Shipping Container Code (SSCC)
This number gives you the possibility to identify a transport unit e.g. a pallet, a container, etc.

Additionally, GS1 uses the Global Product Classification (GPC) to ensure products are classified correctly and uniformly a system that gives buyers and sellers a common language for grouping products in the same way, everywhere in the world. GPC structures also apply in the (pre-)ordering process for fruit and vegetables.

The GTIN (Global Trade Identification Number, formerly EAN) helps to identify uniquely products, selling units, trading units and services. The GTIN enables companies to capture product data automatically for example by barcode scan – from harvest to point-of-sale.

Furthermore it provides the basis for electronic data interchange (EDI) between suppliers and retailers. From product ordering by electronic systems to reliable identification in warehouse and availability on the shelves of the retail store: trading partners can optimize their bilateral trading processes regardless of restrictions of sector or country.

The GTIN identifies loose or pre-packed trade items at any stage of the supply chain up to the end consumer. Depending on the used barcode symbology the GTIN is accompanied e.g. by batch or lot number on the trade or logistic unit for example crate, carton or pallet. On the GS1 transport label the GTIN identifies the trade unit / logistic unit. For this usage GS1 provides guidelines for labelling based on their standards. In electronic messages as order, despatch advice and invoice the GTIN identifies consumer units as well as sales units / trade units.

3.1.5. The IFPS Identification System

The International Federation for Produce Coding (IFPC), IFPS is a coalition of fruit and vegetable associations from the around the globe that joined together in 2001 as equal partners to pursue the task of introducing a global standard for the use of international Price Look-Up (PLU) numbers

PLU codes have been used by supermarkets since 1990 to make check-out and inventory control easier, faster and more accurate. PLU codes are used to identify bulk produce (and related items such as nuts and herbs).

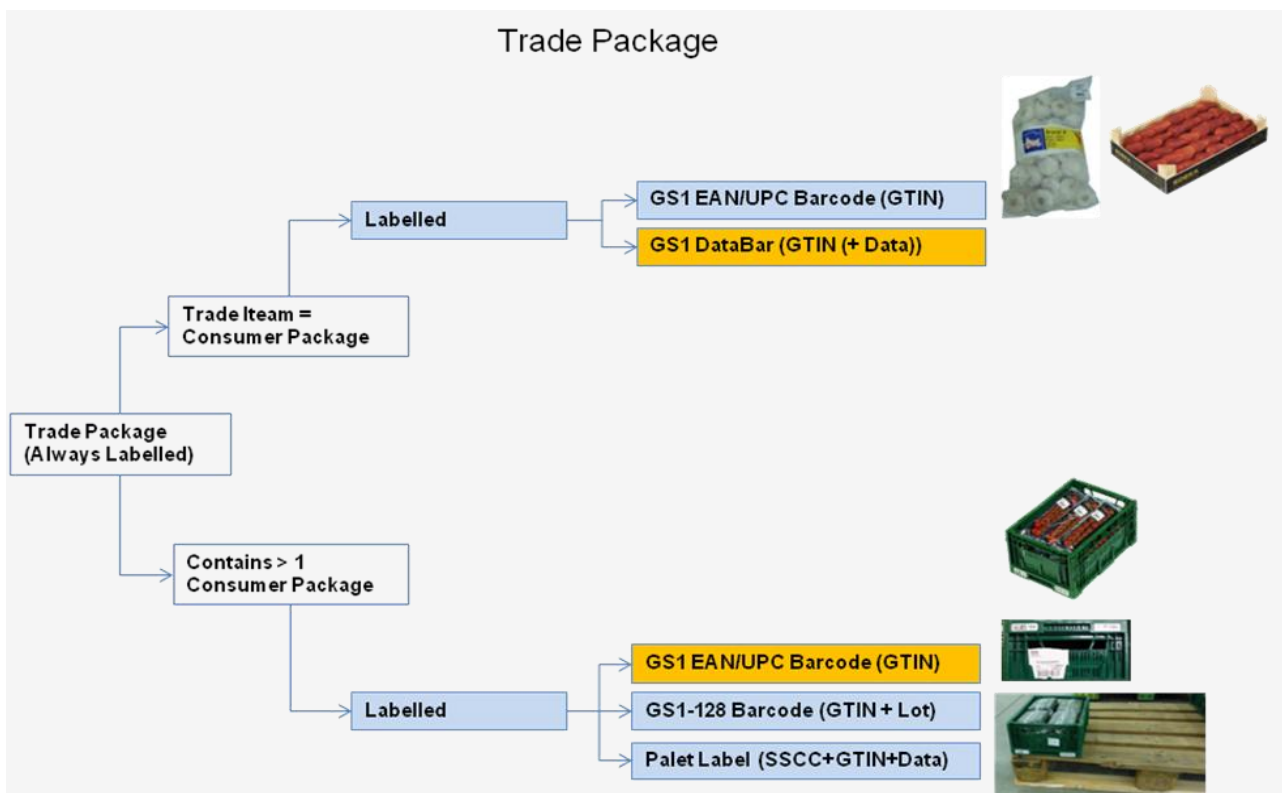
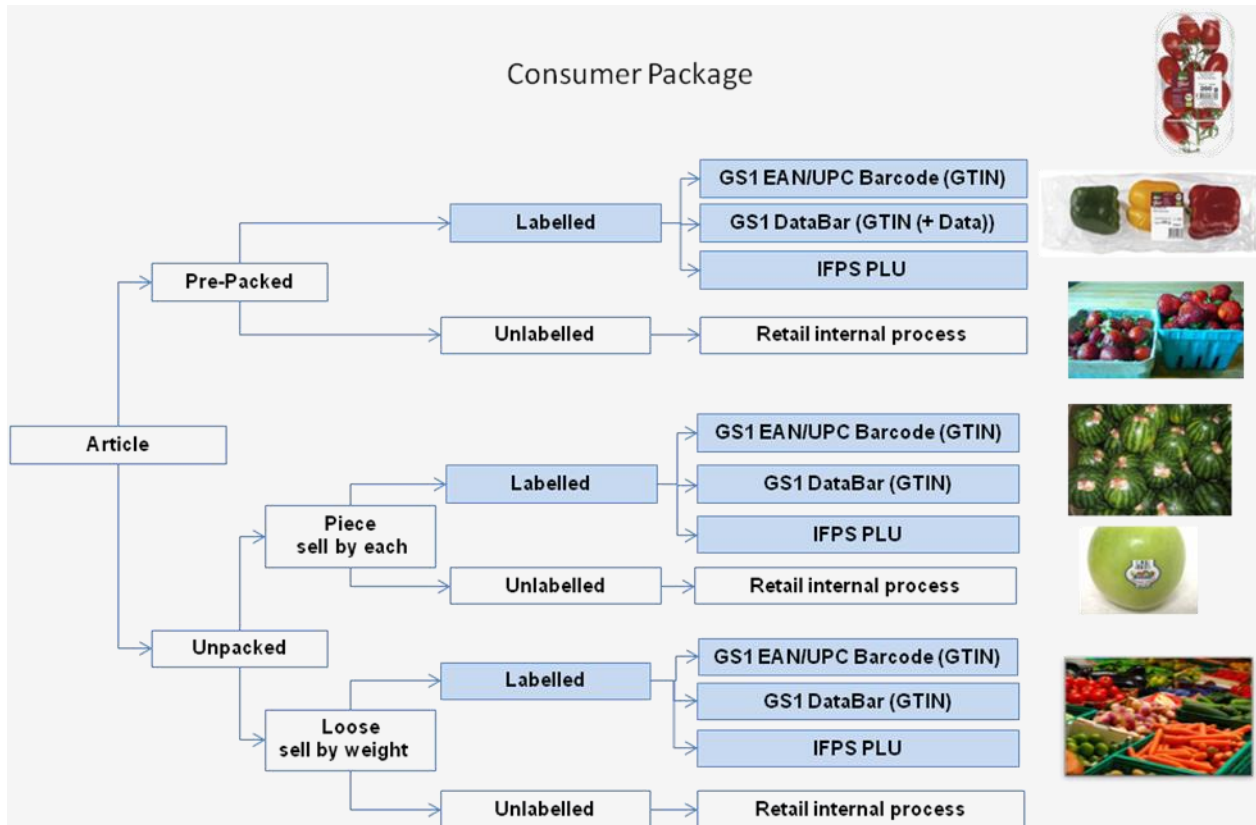
The most widely used and known IFPS PLU's are:

- **Global PLU Code**
A code approved and assigned by the IFPS Board for use in any country utilizing the IFPS PLU
- **Restricted Use PLU codes**
A code approved and assigned by the IFPS Board for produce either
 - a) restricted FOR use only in one country or group of countries
 - b) restricted FROM use in one specific country or group of countries
- **Retailer Assigned PLU codes**
A code approved and assigned by an individual retailer for use in their retail outlets only. Retailer Assigned codes are part of the master list of PLU codes which can be utilized in the IFPS PLU scheme

3.1.6. Overview on the different scenarios

Figure 1-3 shows the different scenarios for consumer packages and trade packages in order to provide guidance on GTIN allocation and labelling of products.

Figure 1-3



3.2. Who Has To Assign the GTIN?

3.2.1. Introduction and General Rules

Identification numbers can be awarded by various parties in the supply chain. The main rule is that always a GTIN should be assigned if it is important to follow through the supply chain and one should be able to identify that article, whether for exchanging product information or for paying at the checkout or the inclusion of the stock. In order to ensure the use of the GTIN along the entire supply chain, the GTIN should be allocated as early as possible.

According to GS1 specifications the GTIN must be assigned by the brand owner, he is responsible for assigning the item code to the product. In the fruit and vegetable sector it is the party who brings the product into the market, this can be the grower, but also the packer, despatcher or shipper. In the case of retailer brands, the retailer is responsible for GTIN allocation and suppliers receive all needed information and item numbers from the retailer. More information regarding the composition and the allocation of GTINs can be found in the annex and on the relevant websites of GS1 or GS1 member organisations.

To determine which supply chain partner has to assign the identification number (GTIN or PLU) should grant the following rules:

Rule 1

If the Packer/Despatcher/Shipper is responsible for marking the article he should ensure that an article has a GTIN

Rule 2

If Trade or consumer item is a private label the retailer is responsible for assigning (inner and outer packages = consumer and trade items)

Rule 3

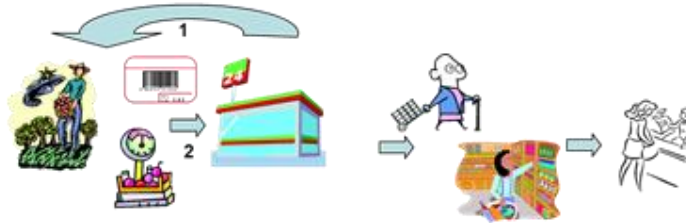
If a party is assigning the GTIN for the consumer item, the party is also responsible for the GTIN of the trade item(s); this can be his own GTIN, or the GTIN is given by the Retailer or Brand owner.

Rule 4

The GTIN identifies each brand owner / assigner of the GTIN uniquely rather than generically, which allows a clear identification of the responsible party. In order to create a GTIN, a GS1 Company Prefix is required.

Additionally growers must maintain records of essential information related to the production of the product (e.g. crop protection materials including date of application, seed information, fertilizers, packaging material, harvesting crew, and water source). This information is critical to your company's body of internal traceability information.

3.2.2. Packages Pre-Packed by the Supplier



The producers/traders/importers/packers pre-pack the merchandise for the retailer and it is delivered to the retailer labelled according to regular GS1 GTIN or IFPS PLU data structure. The final consumer will normally find the products weighed at the point-of-sale with price clearly marked.

Producer/Supplier Brand

The supplier/producer is the party responsible to assign the GTIN to the item. The supplier/producer will use its GS1 company prefix and a unique number to create the GTIN for the trade item. The final consumer will normally find the products weighed at the point-of-sale with price clearly marked.

3.2.3. Packages Pre-Packed by the Retailer at the Point of Sale



The producers/traders deliver the merchandise to the retailer as previously agreed. The retailer will manipulate the merchandise to turn it into the final item for the consumer and label it according regular GS1 GTIN or IFPS PLU data structure. The final consumer will normally find the products weighed at the point-of-sale with price clearly marked.

Retailer Brand

The Retailer is the party responsible to assign the GTIN to the item. The retailer will use its GS1 company prefix and a unique number to create the GTIN for the trade item. The final consumer will normally find the products weighed at the point-of-sale with price clearly marked.

3.2.4. Generic Products (non-branded packages)

For generic products, the supplier should be the party responsible to assign the GTIN to the item. This principle is very important if we want to have full traceability through all the supply chain, since items coming from different suppliers have different GTINs.

The supplier will use its GS1 company prefix and a unique number to create the GTIN for the trade item.

- ✓ **Example:** Pack of 6 apples sold by unit with Supplier Brand with GTIN 84567800996.
The price for the Pack of 6 apples is not related to its weight.



3.2.5. Articles Sold as Loose Product



For items sold in bulk to the final consumer the brand of item is not important. The producers; traders; importers; packers deliver the merchandise to the retailer as previously agreed. Products are presented at the point of sale without any specific packaging. The final consumer takes the Fruits or Vegetables; he puts them in a plastic bag and weighs it. The scale will automatically print a label with all the necessary information to determine the price of the article at the point of sale. The code to identify the product is normally assigned by the retailer.

- ✓ **Example:** Oranges are sold loose. The final consumer of a retailer takes 1.073 kilograms of Oranges from a Box in the Fruit section of a supermarket.
The total weight is 1.073 Kilograms and the price per kilogram is € 1.23.

The alternative scenario is that the produce is marked with a GTIN (EAN/UPC or GS1 DataBar) or an IFPS PLU Number and the article will be scanned and weighed at the point of sale.

- ✓ **Example:** Oranges are sold loose and are marked with a GTIN encoded with an EAN/UPC or GS1 DataBar Barcode. At the point of sale it is scanned and registered that is variable weight product and it is weighed at the point of sale.

3.3. Rules for GTIN Allocation for Fresh Fruits and Vegetables

3.3.1. When a new GTIN needs to be allocated?

Produce and trade of most fruits and vegetables in the European Union is in most cases subject to the regulation EU 543/2011, which has to be applied on every trade level. Fresh fruit and vegetables not regulated by this standard of commercialization have to comply with the general marketing standard of the European Union or the respective UN/ECE standard. In order to fulfil all demands of the supply chain for fruits and vegetables the present recommendation is based on the UN/ECE standards.

A separate, unique GTIN is required whenever any of the **pre-defined characteristics of an item** are different in **relevance to the trading process**. The defined product characteristics clearly explain the conditions when a new GTIN has to be allocated and used. If a basic characteristic or a packaging characteristic is different, always a new GTIN needs to be allocated. Also in the case of different product specific characteristics a new GTIN is needed if this characteristic applies to the product. The differentiation of apples can be used as an example: Apart from different basic and packaging characteristics also each size, sort and quality and, under special circumstances, also post harvest treatment, lead to a new GTIN.

A new identification number (GTIN) should be assigned to each article separate to a product if one of these properties (if applicable for product specific characteristics) differs:

Table 1-2 Characteristics

Basic Characteristics	Explanation	Example
Commodity name	Name of the produce (Botanic Name/ descendant from)	Apple (Malus Domestica)
Growing method	Organic; Transitional; Conventional	Organic
Country of origin/region	Country of origin (optional also region of origin or national, regional or local name of product)	Netherlands Germany-Lake Contance
Brand Name (incl. No Name)		Chiquita
Premium Attribute / Commercial Claim (includes Maturity Method)	Premium attributes are used to distinguish from regular products, e.g. air-transport, ready-to-eat, citrus fruit with leaves.	Clementines with leaves (Premium Attribute) Ready-to-Eat (Maturity)

Product Specific Characteristics	Explanation	Example
Size	Size of the product according to relevant standards	Apples 75/85 mm Oranges 2/3s
Class (Grade)	Class (Grade) of the product according to relevant standards	Extra, Class I, Class II
Colour	Colour of the fruit/vegetable (not colour of flesh)	Gooseberries: white
Shape	Shape of the fruit/vegetable	Cucumbers: crooked
Variety	Variety of the fruit or vegetable	Apple: Elstar Avocado: Hass
Commercial type	Commercial type of fruit or vegetable used in trade	Citrus: Primofiore
Colour of Flesh	Colour of the inner flesh of fruit or vegetable	Peaches: white; Grapefruit: rose
Post Harvest Treatment	Post-harvest treatment: chemical treatment or waxed.	Clementines: treated
Post Harvest Processing	Physical treatment e.g. washed or trimmed	Brussels Sprouts: trimmed
Cooking type	Waxiness of Potatoes: waxy, predominantly waxy; floury	Potatoes: floury
Seed Properties	Characteristic based on the amount of seeds.	Grapes: seedless

Packaging Characteristics	Explanation	Example
Content/Quantity in trade package	Content of the trade package (Package, Box, Crate, Pallet)	11 kg package; 150 kg big box
Package type and method for trade unit	Type of trade unit package, includes different returnable assets (deposits etc.)	EPS returnable asset; Carton
Content/Quantity in consumer unit	Pre-packed units for consumer, marked and unmarked	120 g; 250 g
Composition of Assortment (trade unit)	Items and/or Quantity	Crate with different potted herbs
Package type and method for consumer unit	Pre-packed units for consumer, marked and unmarked	Bag; Basket, Net
Composition of Assortment (consumer unit)	Items and/or Quantity	Tomato assortment pack Bicolor

3.3.2. Check List When to Assign a New Identification Number (GTIN)

The following table lists the different Fruits and Vegetables alphabetically. Based on the individual product features, it is possible to check when the assignment of a separate GTIN is required.

M = Different properties always lead to a new GTIN

C = Different properties can lead to a new GTIN
(e.g. whenever a particular mark, optional sort specification)

R = It is recommended that different properties result in a new GTIN



Comment: This list will be updated according to new products added. For the latest version please contact Klaus Förderer, foerderer@gs1-germany.de or go to www.gs1.eu

Version 1.1, 13.11.2012

Commodity Name	Descendant from	Growing Method	Country of Origin	Brand Name	Premium Attributes	Size	Class (Grade)	Colour and/or Shape	Variety	Commercial Type	Colour of Flesh	Post-Harvest Treatment	Post-Harvest Processing	Cooking Type	Seed Characteristics	Content/Quantity of Pre-Packed Unit	Content/Quantity of Trade Unit	Packaging Type of Pre-Packed Unit	Packaging Type of Trade Unit	RTI-Type	Composition of Pre-Packed Unit	Composition of mixed Trade Units	Relevant Regulation or Standard
Almonds	Prunus amygdalus fragilis	M	M	M	M	-	-	M	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE DDP-18
American Persimmon	Diospyros virginiana	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Ananas d'Amérique	Cucumis melo	M	M	M	M	M	M	-	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-23
Apples	Malus domestica	M	M	M	M	M	M	-	M	-	-	C	-	-	-	M	M	M	M	M	M	M	EU 543/2011 B/1
Apricots	Prunus armeniaca	M	M	M	M	C	M	-	C	-	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-02
Asparagus	Asparagus officinalis	M	M	M	M	M	M	M	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-04
Aubergines	Solanum melongena	M	M	M	M	C	M	C	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-05
Babacos	Carica pentagona	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Bananas (ripe)	Musa	M	M	M	M	-	-	-	-	R	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Bananas (unripe)	Musa	M	M	M	M	-	M	-	-	R	-	-	-	-	-	M	M	M	M	M	M	M	EU 2898/1995
Baskavas	Cucumis melo	M	M	M	M	M	M	-	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-23
Beans	Phaseolus vulgaris	M	M	M	M	C	M	-	C	-	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-06
Beetroot	Beta vulgaris	M	M	M	M	-	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-59
Bilberries	Vaccinium myrtillus L.	M	M	M	M	-	M	-	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-57
Bird's Eye Chili or Thai Chili	Capsicum annuum (Capsicum indicum)	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Bitter Melon	Momordica charantia	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Black Radish, Beer Radish, Daikon	Raphanus sativus L. var. niger	M	M	M	M	-	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-59
Black Salsify	Scorzonera	M	M	M	M	-	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-59
Blackberries	Rubus sect. Rubus	M	M	M	M	-	M	-	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-57
Branco	Cucumis melo	M	M	M	M	M	M	-	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-23
Broccoli	Brassica oleracea L. var. italica	M	M	M	M	C	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-48

Commodity Name	Descendant from	Growing Method	Country of Origin	Brand Name	Premium Attributes	Size	Class (Grade)	Colour and/or Shape	Variety	Commercial Type	Colour of Flesh	Post-Harvest Treatment	Post-Harvest Processing	Cooking Type	Seed Characteristics	Content/Quantity of Pre-Packed Unit	Content/Quantity of Trade Unit	Packaging Type of Pre-Packed Unit	Packaging Type of Trade Unit	RTI-Type	Composition of Pre-Packed Unit	Composition of mixed Trade Units	Relevant Regulation or Standard
Broccoli (stem)	Brassica oleracea L. var. italica x Bras	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Brussels Sprouts	Brassica oleracea L. var. gemmifera	M	M	M	M	C	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-08
Calabash	Lagenaria siceraria	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Cantaloupe, Western Shipper	Cucumis melo	M	M	M	M	M	M	-	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-23
Cape Gooseberries	Physalis peruviana	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Carambola	Averrhoa carambola	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Carobs	Ceratonia siliqua	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Carrots	Daucus carota	M	M	M	M	C	M	C	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-10
Cassia	Cassia fistula	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Cauliflower	Brassica oleracea L. conv. botrytis	M	M	M	M	M	M	C	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-11
Celeriac	Apium graveolens var. rapaceum	M	M	M	M	-	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-59
Celery	Apium graveolens L. var. dulce Mill.	M	M	M	M	C	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-12
Cep or Penny Bun	Boletus edulis	M	M	M	M	-	M	-	C	-	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-54
Chanterelles	Cantharellus cibarius	M	M	M	M	C	M	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-55
Chard (leaf)	Beta vulgaris var. flavescens	M	M	M	M	-	-	flavescens	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Chard (stem)	Beta vulgaris var. flavescens	M	M	M	M	-	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-58
Chayote, Pear Squash, Chouchoute	Sechium edule	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Cherimoya	Annona cherimola	M	M	M	M	M	M	-	C	-	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-47
Chestnuts or Sweet Chestnuts	Castanea sativa	M	M	M	M	-	M	-	C	-	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-39

Commodity Name	Descendant from	Growing Method	Country of Origin	Brand Name	Premium Attributes	Size	Class (Grade)	Colour and/or Shape	Variety	Commercial Type	Colour of Flesh	Post-Harvest Treatment	Post-Harvest Processing	Cooking Type	Seed Characteristics	Content/Quantity of Pre-Packed Unit	Content/Quantity of Trade Unit	Packaging Type of Pre-Packed Unit	Packaging Type of Trade Unit	RTI-Type	Composition of Pre-Packed Unit	Composition of mixed Trade Units	Relevant Regulation or Standard
Chicorée, Witloof	Cichorium intybus var. Foliosum	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Chilli Peppers	Capsicum frutescens	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Chinese Cabbages	Brassica pekinensis	M	M	M	M	-	M	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-44
Choy Sum, Flowering Chinese Cabbage	Brassica parachinensis	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Clementines	Citrus clementina	M	M	M	M	M	M	-	M	C	-	M	-	-	-	M	M	M	M	M	M	M	EU 543/2011 B/2
Coconut	Cocos nucifera	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Common Chicory	Cichorium intybus L. Sativum	M	M	M	M	-	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-59
Common Dandelion	Taraxacum officinale	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Common Medlar	Mespilus germanica	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Courgette, Zucchini Squash	Cucurbita pepo L.	M	M	M	M	C	M	C	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-41
Cranberries (American)	Vaccinium macrocarpon	M	M	M	M	-	M	-	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-57
Cranberries	Vaccinium subgenus Oxycoccus	M	M	M	M	-	M	-	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-57
Curuba, Banana Passionfruit	Passiflora mollissima	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Damsons	Prunus domestica L. ssp. domestica	M	M	M	M	C	M	-	M	-	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-29
Dates	Phoenix dactylifera	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Durian	Durio zibethinus	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Elderberries	Sambucus nigra	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Elephant Garlic, Wild Leaf	Allium ampeloprasum	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Endive (Curled)	Cichorium endivia L. var. crispum Lam	M	M	M	M	M	M	C	C	C	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 B/4
Escarole	Cichorium endivia L. var. latifolium Lam	M	M	M	M	M	M	C	C	C	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 B/4

Commodity Name	Descendant from	Growing Method	Country of Origin	Brand Name	Premium Attributes	Size	Class (Grade)	Colour and/or Shape	Variety	Commercial Type	Colour of Flesh	Post-Harvest Treatment	Post-Harvest Processing	Cooking Type	Seed Characteristics	Content/Quantity of Pre-Packed Unit	Content/Quantity of Trade Unit	Packaging Type of Pre-Packed Unit	Packaging Type of Trade Unit	RTI-Type	Composition of Pre-Packed Unit	Composition of mixed Trade Units	Relevant Regulation or Standard
Feijoas	Acca sellowiana	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Fennel	Foeniculum vulgare	M	M	M	M	M	M	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-16
Figs	Ficus carica	M	M	M	M	M	M	-	C	-	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-17
Finger Avocados	Persea americana	M	M	M	M	M	M	-	M	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-42
Galia	Cucumis melo	M	M	M	M	M	M	-	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-23
Garlic	Allium sativum	M	M	M	M	M	M	-	-	M	-	-	C	-	-	M	M	M	M	M	M	M	UNECE FFFV-18
Ginger	Zingiber officinale	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Globe Artichokes	Cynara scolymus	M	M	M	M	C	M	-	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-03
Gooseberries	Ribes uva-crispa L.	M	M	M	M	-	M	M	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-57
Grapefruit	Citrus paradisi	M	M	M	M	M	M	C	C	C	M	M	-	-	C	M	M	M	M	M	M	M	UNECE FFFV-14
Green Charentais	Cucumis melo	M	M	M	M	M	M	-	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-23
Green Eastern Shipper	Cucumis melo	M	M	M	M	M	M	-	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-23
Greengages	Prunus domestica L. ssp. Italica	M	M	M	M	C	M	-	M	-	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-29
Guavas	Psidium guajava	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Hazelnuts	Corylus avellana, Corylus maxima	M	M	M	M	M	M	-	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE DDP-03
Head Lettuce	Lactuca sativa L. var. capitata L.	M	M	M	M	M	M	C	C	C	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 B/4
Honey Dew	Cucumis melo	M	M	M	M	M	M	-	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-23
Honeydew	Cucumis melo	M	M	M	M	M	M	-	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-23
Horned Melon	Cucumis metuliferus	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Horseradish	Cochlearia armoracia L. syn. Armoracia l	M	M	M	M	-	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-59
Hot Peppers	Capsicum annuum var. longum Solanaceae	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A

Commodity Name	Descendant from	Growing Method	Country of Origin	Brand Name	Premium Attributes	Size	Class (Grade)	Colour and/or Shape	Variety	Commercial Type	Colour of Flesh	Post-Harvest Treatment	Post-Harvest Processing	Cooking Type	Seed Characteristics	Content/Quantity of Pre-Packed Unit	Content/Quantity of Trade Unit	Packaging Type of Pre-Packed Unit	Packaging Type of Trade Unit	RTI-Type	Composition of Pre-Packed Unit	Composition of mixed Trade Units	Relevant Regulation or Standard
Indian Date	Tamarindus indica	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Jackfruit	Artocarpus heterophyllus	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Jalapeño	Capsicum annum	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Japanese Greens	Brassica rapa var. japonica	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Jerusalem Artichokes	Helianthus tuberosus	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Kaki/Sharon Fruit	Diospyros kaki	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Kale	Brassica oleracea convar. acephala var.	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Kirkagac	Cucumis melo	M	M	M	M	M	M	-	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-23
Kiwifruits	Actinidia deliciosa, Actinidia chinensis	M	M	M	M	M	M	C	C	-	C	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 B/3
Kohlrabi (stem cabbage)	Brassica oleracea var. gongylodes L.	M	M	M	M	-	M	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-59
Kumquat	Fortunella	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	-
Lambs Lettuce	Valerianella locusta	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Leaf Lettuce	Lactuca sativa L. var. crispa L.	M	M	M	M	M	M	C	C	C	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 B/4
Leaf Lettuce (other)		M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Leek	Allium porrum	M	M	M	M	C	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-21
Lemon Grass	Cymbopogon citratus	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Lemons	Citrus limon	M	M	M	M	M	M	-	M	C	-	M	-	-	C	M	M	M	M	M	M	M	EU 543/2011 B/2
Limequats	Citrus aurantifolia x Fortunella	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	-
Limes	Citrus aurantiifolia	M	M	M	M	M	M	-	-	-	-	M	-	-	C	M	M	M	M	M	M	M	UNECE FFFV-15
Limes (Persian)	Citrus latifolia	M	M	M	M	M	M	-	-	-	-	M	-	-	C	M	M	M	M	M	M	M	UNECE FFFV-15
Lingonberries	Vaccinium vitis-idaea	M	M	M	M	-	M	-	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-57
Longan	Dimocarpus longan	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A

Commodity Name	Descendant from	Growing Method	Country of Origin	Brand Name	Premium Attributes	Size	Class (Grade)	Colour and/or Shape	Variety	Commercial Type	Colour of Flesh	Post-Harvest Treatment	Post-Harvest Processing	Cooking Type	Seed Characteristics	Content/Quantity of Pre-Packed Unit	Content/Quantity of Trade Unit	Packaging Type of Pre-Packed Unit	Packaging Type of Trade Unit	RTI-Type	Composition of Pre-Packed Unit	Composition of mixed Trade Units	Relevant Regulation or Standard
Lychees	Litchi chinensis	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Mangos	Mangifera indica	M	M	M	M	M	M	-	M	-	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-45
Manioc, Cassava	Manihot esculenta Crantz	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
May Turnips	Brassica rapa var. rapifera subvar. Maja	M	M	M	M	-	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-59
Minneolas (Tangelos)	Citrus Tangelo	M	M	M	M	M	M	-	M	C	-	M	-	-	-	M	M	M	M	M	M	M	EU 543/2011 B/2
Mirabelle, Yellow Plum	Prunus domestica L. ssp. syriaca	M	M	M	M	C	M	-	M	-	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-29
Mung Bean	Vigna radiata	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Mushrooms (except cultivated champignon mushrooms, ceps, chanterelles and truffles)	e.g. Pleurotus nebrodensis	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	-
Mustard Greens	Brassica juncea (L.) Czern.	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Mustard Greens, Chinese Mustard	Brassica juncea	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Nashi	Pyrus pyrifolia	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Nectarines	Prunus persica var. nucipersica	M	M	M	M	C	M	-	C	-	M	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 B/5
Ogen	Cucumis melo	M	M	M	M	M	M	-	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-23
Okra	Abelmoschus esculentus	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Onion	Allium cepa	M	M	M	M	M	M	C	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-25
Oranges	Citrus sinensis	M	M	M	M	M	M	-	M	C	-	M	-	-	-	M	M	M	M	M	M	M	EU 543/2011 B/2
Pak Choi	Brassica rapa ssp. Chinensis	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Palestine lime or Sweet Indian lime	Citrus limettioides	M	M	M	M	M	M	-	-	-	-	M	-	-	C	M	M	M	M	M	M	M	UNECE FFFV-15
Papayas	Carica papaya	M	M	M	M	M	M	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	CODEX STAN 183
Parsnips	Pastinaca	M	M	M	M	-	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-59

Commodity Name	Descendant from	Growing Method	Country of Origin	Brand Name	Premium Attributes	Size	Class (Grade)	Colour and/or Shape	Variety	Commercial Type	Colour of Flesh	Post-Harvest Treatment	Post-Harvest Processing	Cooking Type	Seed Characteristics	Content/Quantity of Pre-Packed Unit	Content/Quantity of Trade Unit	Packaging Type of Pre-Packed Unit	Packaging Type of Trade Unit	RTI-Type	Composition of Pre-Packed Unit	Composition of mixed Trade Units	Relevant Regulation or Standard
Peaches	Prunus persica	M	M	M	M	C	M	-	C	-	M	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 B/5
Pears	Pyrus communis	M	M	M	M	M	M	-	M	-	-	C	-	-	-	M	M	M	M	M	M	M	EU 543/2011 B/6
Peas	Pisum sativum	M	M	M	M	-	M	-	-	M	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-27
Pepino	Solanum muricatum	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Pickling Cucumbers	Cucumis sativus	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Piel de Sapo	Cucumis melo	M	M	M	M	M	M	-	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-23
Pineapples	Ananas comosus	M	M	M	M	C	M	C	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-49
Pistachio	Pistacia vera	M	M	M	M	C	M	-	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE DDP-09
Plantain Bananas	Musa	M	M	M	M	-	-	R	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Plumcots and Pluots	Prunus armeniaca x Prunus salicina	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Plums	Prunus domestica L. ssp. domestica	M	M	M	M	C	M	-	M	-	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-29
Pomegranates	Punica granatum	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Potatoes	Solanum tuberosum	M	M	M	M	C	-	C	M	C	C	-	-	C	-	M	M	M	M	M	M	M	UNECE FFV-52
Potted Herbs		M	M	M	M	M	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Potted Lettuce		M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Prickly Pear, Barbary Fig	Opuntia ficus-indica	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Pummelos	Citrus maxima	M	M	M	M	M	M	C	C	C	M	M	-	-	C	M	M	M	M	M	M	M	UNECE FFV-15
Pumpkins/Winter Squash	Cucurbita	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Puntarelle or Cichoria di Catalogna	Cichorium intybus var. Foliosum	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Purple Mangosteen	Garcinia mangostana	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Purple Maracuja	Passiflora edulis edulis	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A

Commodity Name	Descendant from	Growing Method	Country of Origin	Brand Name	Premium Attributes	Size	Class (Grade)	Colour and/or Shape	Variety	Commercial Type	Colour of Flesh	Post-Harvest Treatment	Post-Harvest Processing	Cooking Type	Seed Characteristics	Content/Quantity of Pre-Packed Unit	Content/Quantity of Trade Unit	Packaging Type of Pre-Packed Unit	Packaging Type of Trade Unit	RTI-Type	Composition of Pre-Packed Unit	Composition of mixed Trade Units	Relevant Regulation or Standard
Purple Salsify	Tragopogon porrifolius ssp. porrifolius	M	M	M	M	-	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-59
Purslane	Portulaca oleracea	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Quinces	Cydonia oblonga	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Raab or Rapini	Brassica rapa var. rapa var. cymosa	M	M	M	M	-	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-59
Radicchio	Cichorium intybus var. Foliosum	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Rambutan	Nephelium lappaceum	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Raspberries	Rubus idaeus	M	M	M	M	-	M	-	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-57
Red Currant, Black Currant	Ribes	M	M	M	M	-	M	M	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-57
Redfleshed Sweet Pitayas	Hylocereus polyrhizus	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Rhubarb	Rheum rhaponticum L.	M	M	M	M	-	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-40
Rochet	Cucumis melo	M	M	M	M	M	M	-	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-23
Rocket	Eruca sativa	M	M	M	M	-	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-58
Romaine Lettuce	Lactuca sativa var. longifolia	M	M	M	M	M	M	C	C	C	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 B/4
Romanesco	Brassica oleracea L. convar. botrytis	M	M	M	M	M	M	C	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-11
Root Parsley	Petroselinum crispum subsp. tuberosum	M	M	M	M	-	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-59
Salak Fruit or Snake Fruit	Salacca zalacca	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Satsuma Mandarins	Citrus unshiu	M	M	M	M	M	M	-	M	C	-	M	-	-	C	M	M	M	M	M	M	M	EU 543/2011 B/2
Scotch Bonnet, Habanero	Capsicum chinense	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Shallots	Allium ascalonicum	M	M	M	M	M	M	-	-	M	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-56
Siberian Kale	Brassica napus pabularia	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A

Commodity Name	Descendant from	Growing Method	Country of Origin	Brand Name	Premium Attributes	Size	Class (Grade)	Colour and/or Shape	Variety	Commercial Type	Colour of Flesh	Post-Harvest Treatment	Post-Harvest Processing	Cooking Type	Seed Characteristics	Content/Quantity of Pre-Packed Unit	Content/Quantity of Trade Unit	Packaging Type of Pre-Packed Unit	Packaging Type of Trade Unit	RTI-Type	Composition of Pre-Packed Unit	Composition of mixed Trade Units	Relevant Regulation or Standard
Siberian Pear, Manchurian Pear, Ussurian Pear	<i>Pyrus ussuriensis</i> var. <i>viridis</i>	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Slicing Cucumbers	<i>Cucumis sativus</i>	M	M	M	M	C	M	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-15
Slicing Cucumbers (bended)	<i>Cucumis sativus</i>	M	M	M	M	C	M	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-15
Small Radish, Radishes	<i>Raphanus sativus</i> var. <i>sativus</i>	M	M	M	M	-	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-59
Sorrel	<i>Rumex acetosa</i>	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Soup Greens		M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Spinach	<i>Spinacia oleracea</i>	M	M	M	M	-	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-58
Strawberries	<i>Fragaria</i>	M	M	M	M	-	M	-	C	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 B/7
Sugarcane	<i>Saccharum officinarum</i> L.	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Swedish Turnips, Rutabagas	<i>Brassica napus</i> var. <i>napobrassica</i> , Brassi	M	M	M	M	-	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-59
Sweet Cherries	<i>Prunus avium</i> L.	M	M	M	M	-	M	-	C	M	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-13
Sweet Corn	<i>Zea mays</i> var. <i>saccharata</i>	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Sweet Granadilla	<i>Passiflora ligularis</i>	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Sweet Peppers	<i>Capsicum annuum</i> var. <i>annuum</i>	M	M	M	M	C	M	M	-	M	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 B/8
Sweet Potatoe	<i>Ipomoea batatas</i> L.	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Table Grapes	<i>Vitis vinifera</i>	M	M	M	M	-	M	-	M	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 B/9
Tamarillo	<i>Cyphomandra betacea</i>	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Tangerines/ Other Mandarins	<i>Citrus reticulata</i> , <i>Citrus deliciosa</i> , <i>Citrus tangerina</i>	M	M	M	M	M	M	-	M	C	-	M	-	-	C	M	M	M	M	M	M	M	EU 543/2011 B/2
Tatsoi	<i>Brassica rapa</i> var. <i>rosularis</i>	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Teltow Turnips	<i>Brassica rapa</i> var. <i>rapifera</i> subvar. <i>Pygm</i>	M	M	M	M	-	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFFV-59

Commodity Name	Descendant from	Growing Method	Country of Origin	Brand Name	Premium Attributes	Size	Class (Grade)	Colour and/or Shape	Variety	Commercial Type	Colour of Flesh	Post-Harvest Treatment	Post-Harvest Processing	Cooking Type	Seed Characteristics	Content/Quantity of Pre-Packed Unit	Content/Quantity of Trade Unit	Packaging Type of Pre-Packed Unit	Packaging Type of Trade Unit	RTI-Type	Composition of Pre-Packed Unit	Composition of mixed Trade Units	Relevant Regulation or Standard
Tendral	Cucumis melo	M	M	M	M	M	M	-	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-23
Tomatillo	Physalis philadelphica	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Tomatoes	Lycopersicon esculentum	M	M	M	M	C	M	C	C	M	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 B/10
Truffles	Tuber	M	M	M	M	-	M	-	M	M	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-53
Turnip greens	Brassica rapa var. Rapifera ssp. Pabular	M	M	M	M	-	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-58
Turnip Rooted Chervil	Chaerophyllum bulbosum	M	M	M	M	-	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-59
Turnips	Brassica rapa ssp. rapa	M	M	M	M	-	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-59
Turnips	Brassica rapa var. rapa subvar. Esculent	M	M	M	M	-	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-59
Walnuts	Juglans regia	M	M	M	M	M	M	-	C	M	-	-	-	-	-	M	M	M	M	M	M	M	UNECE DDP-01
Watercress	Nasturtium officinale	M	M	M	M	-	M	-	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-58
Watermelons	Citrullus lanatus	M	M	M	M	C	M	-	C	C	C	-	-	-	C	M	M	M	M	M	M	M	UNECE FFV-37
White Cabbages	Brassica oleracea var. capitata	M	M	M	M	-	M	C	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-09
White Mushroom, Cultivated Mushroom	Agaricus bisporus	M	M	M	M	C	M	C	-	C	-	-	C	-	-	M	M	M	M	M	M	M	UNECE FFV-24
Whitefleshed Sweet Pitayas	Hylocereus undatus	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Witloof	Cichorium intybus L. var. foliosum Hegi	M	M	M	M	M	M	C	-	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-38
Yam	Dioscorea L	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Yellow Charentais	Cucumis melo	M	M	M	M	M	M	-	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-23
Yellow Eastern Shipper	Cucumis melo	M	M	M	M	M	M	-	C	C	-	-	-	-	-	M	M	M	M	M	M	M	UNECE FFV-23
Yellow Maracujas	Passiflora edulis flavicarpa	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A
Yellow Pitaya	Selenicereus megalanthus	M	M	M	M	-	-	-	-	-	-	-	-	-	-	M	M	M	M	M	M	M	EU 543/2011 A

3.3.3. Examples for GTIN allocation

Example 1: Pre-packed units, Differentiation

False: GTIN 4311501991008 for "Iceberg Lettuce"	Correct:
<p>Why:</p> <ul style="list-style-type: none"> >> Lettuce has to be differentiated by country of origin, size, class (grade) (EU 543/2011 B 4) >> Their packaging (a protective packaging in this instance) is for the target market Germany liable to licence fees according the „Verpackungsverordnung“. 	<ul style="list-style-type: none"> >> GTIN 4311501991015 for "Iceberg Spain class I 9er foiled" >> GTIN 4311501991022 for "Iceberg Spain class I 10 foiled" >> GTIN 4311501991039 for "Iceberg Germany class II 8er foiled"




Example 2: Pre-packed units, Variety Packs/Mixes

False: GTIN 4311501991046 for "Tomato Mix"	Correct:
<p>Why:</p> <ul style="list-style-type: none"> >> Tomatoes are differentiated by country of origin and class (grade) (EU 543/2011 B 10), for class II the size is optional. Further there must be made a difference in growing method between conventional and organic (EG 889/2008). There are different brands and different packagings. 	<ul style="list-style-type: none"> >> GTIN 4311502112846 for „Merida Cherry Tomatoes Trimix Netherlands extra class 200 g dish with cap“ >> GTIN 4311527003167 for „Cozumel Bio Wild Wonders Tomatoes Mix Netherlands class II 200 g beaker with cap“





Example 3: Pre-packed units, content information

False: GTIN 4311501991053 for "Trusses of cocktail tomatoes 300 g or 400 g"	Correct:
Why: >> Trusses of cocktail tomatoes are differentiated by commercial type, country of origin and class (grade) (EU 543/2011 B 10). The packaging is for the target market Germany liable to licence fees according the „Verpackungsverordnung“. The base price is different.	>> GTIN 4311502991069 for "Trusses of cocktail tomatoes Netherlands extra class 300g dish with cap" >> GTIN 4311502991076 for "Trusses of cocktail tomatoes Netherlands extra class 400 g dish with cap"



Example 4: Trade units, Differentiation

False: GTIN 4311502991083 for "Tomatoes"	Correct:
Why: >> Tomatoes are differentiated by commercial type, country of origin, size and class (grade) (EU 543/2011 B 10). >> The packaging is for transportation purpose and has to be treated according to relevant recycling regulations.	>> GTIN 4311502991106 for "Tomatoes Italy class I 48 to 57 mm carton 5 kg" >> GTIN 4311502991113 for "Tomatoes yellow Italy class I 48 to 57 mm carton 5 kg"



Example 5: Trade units, Variety Packs/Mixes

False: GTIN 4311502991120 for "Mix of herbs in pot including pots"	Correct:
<p>Why:</p> <ul style="list-style-type: none"> >> Most herbs in pots have to be differentiated by country of origin (EU 543/2011 A). Furthermore the pots need to be differentiated by size. >> For each composition of a mix a new GTIN has to be allocated and additionally a separate GTIN is needed for each herb in pot product. 	<ul style="list-style-type: none"> >> GTIN 4311502991137 for "Chives in pot Germany pot diameter 13 cm" >> GTIN 4311502991144 for "Parsley curly in pot Germany pot diameter 13 cm" >> GTIN 4311502991151 for "mixed herbs in pot Germany pot diameter 13 cm (6 pots chives, 6 pots parsley curly)"



Example 6: Trade units, returnable empties

False: GTIN 4311502991168 for "oranges Spain class I 10 kg"	Correct:
<p>Why:</p> <ul style="list-style-type: none"> >> Oranges are differentiated by variety, country of origin, size and class (grade) (EU 543/2011 B2). Packaging has to be differentiated because it is a returnable transport packaging, for ex. a returnable crate of type EPS 186. 	<ul style="list-style-type: none"> >> GTIN 4311502991175 for "Oranges Cara- Cara Spain class I 1 10 kg carton" >> GTIN 4311502991182 for "Oranges Cara- Cara Spain class I 1 10 kg carton of type EPS 186"



3.3.4. Internet Resources

The following links provide additional resources regarding GTIN allocation as well detailed information on the referenced food marketing standards.

Information about structure and use of the GTIN (german)

www.gs1-germany.de > GS1 Standards > Identifikation > Artikel (GTIN)

GS1 Germany (german)

www.gs1-germany.de

GTIN-Allocation Rules for Fresh Foods (english)

www.gs1.org/1/gtinrules/index.php/tid=32

GS1 Global Office (english)

www.gs1.org

UNECE Standards for Fresh Fruits and Vegetables (FFV) (english)

www.unece.org/trade/agr/standard/fresh/FFV-StandardsE.html

UNECE Standards for Dry and Dried Produce (DDP) (english)

www.unece.org/trade/agr/standard/dry/DDP-Standards.html

Codex Alimentarius – International Food Standards (english)

www.codexalimentarius.org

Bundesanstalt für Landwirtschaft und Ernährung (German Federal Office for Agriculture and Food) (german, partly english)

www.ble.de > Kontrolle > Qualitätskontrolle > Vermarktungsnormen

4. Appendix and Reference Documents

4.1. Rules how to use the identification keys

4.1.1. The GTIN Allocation Rules

GTIN is the name for a Global Trade Item Number. This is a unique number assigned to trade and/or consumer items.

A GTIN is a 14 digit code. The GTIN code is composed of a corporate code, an article section and a check digit.

The requirement of article identification in Fruit and Vegetables focuses on how to identify bulk or loose products and the question of what is and what is not to be considered as a separate article.


GTIN identifies each brand owner uniquely rather than generically. In order to create a GTIN, a GS1 Company Prefix is required. Contact your local GS1 Member Organization at www.gs1.org/contact for further information.

This chapter describes the Business Process Changes needed to encode and decode an article with an globally unique identification number (GTIN=Global Trade Item Number). Also ref to 128 (batchnr) Additional data can be coded in the GS1 DataBar e.g. Variable Measure, Fixed Measure.

It outlines what retailers, suppliers, producers and other parties need to do in order to identify fresh food items at the retail Point-of-Sale (POS) and apply the corresponding GS1 BarCodes.

Specifically it will cover what is required to:

- Move from the use of traditional Restricted Circulation Numbers (RCNs) such as Prefix 02, 20-29, to Global Trade Item Number (GTIN) and attribute information using GS1 Application Identifiers (AI's) for Variable Measure Trade Items.
- Apply GS1 Application Identifiers (AI's) to existing Fresh Food Fixed Measure Trade Items.
- Identify and barcode loose produce items when possible.

 **Note:** If the supplier chooses to provide extra information about a fixed measure product sold at POS, such as its expiry date or batch number, GS1 DataBar Expanded or GS1 DataBar Expanded Stacked symbols will be used. This process will require some form of on-demand or in-line printing.

In order to migrate to GTIN identification, or to apply additional information to products at the retail POS, implementation of GS1 DataBar will be required.

The GS1 system provides globally unique code identifier article. Using this coding, translated into a barcode or stored in RFID chips supports a range of processes such as scanning at the checkout, inventory, receiving goods, automatic ordering and invoicing.

Premise of the code system is that the code only identifies an article. The code does not contain information about the article itself.

If the item is of variable measure, the respective measure or price information will often be of critical importance to business applications. Attributes relating to trade items (e.g., dates, lot number) are also available as standardized Element Strings.

Each trade item that is different from another in design and/or content is allocated a unique identification number, which remains the same as long as it is traded. The same identification number is given to all trade items sharing key characteristics. Such numbers must be treated in their entirety throughout the supply chain.

Basic principles for the identification of trade items include:

- Each trade item that has different characteristics from another must be allocated with a separate, unique GTIN.
- The GTIN does not carry any information related to the trade item. The brand owner is the responsible for assigning the GTIN and should communicate this information to his business partners.
- An assigned GTIN must never be changed as long as the item is not modified so that it needs to be discriminated from the initial trade item for ordering, stocking, or billing. Exceptions to this rule may occur only when regulatory or legal requirements mandate a change

When additional data is used, it becomes possible to prevent out-of date products being sold at the Point-of-Sale automatically. The use of GTINs also makes possible the providing of master data about these product lines using the GS1 Global Data Synchronisation standards and the GDS Network. This change means that suppliers will change the numbers they use to identify their trade items sold at retail.

Suppliers need to be ready to change from current RCNs to GTIN, additional data and GS1 DataBar for their trading partners. This is different than the current Prefix 02 / 20-29 RCN data today. You will need to have your scale labeling and product management ready. These new processes will enable validation of product information throughout the supply chain up to the Point-of-Sale (POS), for example, the expiry date has passed.

Retailers need to be ready to process GTINs and additional data at POS. This is a major change from the present use of RCNs. Retailers will need to ensure their front-end systems can handle the additional data and process their desired data at POS appropriately. For example, you will be able to use this extra data, such as best-before- date or expiry date, automatically to prevent out-of-date products being sold to your customers. It is recommended to have the scanner pass all data encoded in the GS1 DataBar to your POS Application software. When processing the encoded AIs, remember they may come in any order.

For full information on all the GS1 Identification Keys, please consult the GS1 General Specifications

4.1.2. The IFPS PLU Rules

Don't use a PLU on any bagged product always sold at that weight and not weighed in the store for pricing. You may use a PLU with a corresponding barcode (EAN/UCC-13, UCC-12 or EAN/UCC-8) if the product can be sold either "by each/per unit" or weighed for pricing.

It is incorrect to use both a barcode and PLU code(s) together on an item that can only be sold in a fixed weight form, such as a 1-pound bag of carrots. That bag of carrots is never sold in variable weight form: the cashier would never weigh it on the scale and determine its price based on a price per pound/kg. It is always sold just as is: a 1 pound bag of carrots and should carry the appropriate bar code.

Some retailers have indicated their preference for a barcode whenever possible on variable weight produce. This may vary from retailer to retailer and should be considered when preparing coding for product..

For full information, please consult the IFPS Produce PLU "A Users' Guide" at www.ifpsglobal.com

4.2. Getting Started

This section will provide further information about the GS1 Global system of Standards.

You are encouraged to follow-up by contacting your local member organization. A listing of local Member Organisations can be found at www.gs1.org.

In this section you will find:

- Introduction to GS1
- GS1 Global Trade Item Number (GTIN) Assignment Further Explained
- GS1 Global Location Number (GLN) Further Explained
- GS1 Serial Shipping Container Code (SSCC) Further Explained
- GS1 Global Data Synchronisation Network (GDSN)
- GS1 Global Product Classification (GPC)
- GS1 electronic Communication (eCom)
- Enabling Technology Explained
- Other Useful Resources

4.2.1. GS1 Global Location Number (GLN) Further Explained

The GS1 Global Location Number (GLN) makes possible the unique identification of physical locations or legal entities.

A trade relationship may involve several companies; suppliers, customers and possibly a logistic service provider. In each company, several departments may be involved.

- **Structure of a GLN:** A GLN includes 3 components; prefix, location reference and check digit. GLNs can also be obtained by contacting your local GS1 Member Organisation.
- **GS1 Company Prefix** is the globally unique number assigned to a company by a national GS1 Member Organisation.
- **Location Reference** is a number assigned by the holder of the GS1 Company Prefix. The Location Reference varies in length as a function of the GS1 Company Prefix Length. The combined length of the Company Prefix and Location Reference is always 12 digits.
- **Check Digit** is a calculated one digit number used to ensure data integrity.

The GLN is always stored in its entirety. All 13 digits

Figure 4-1 Example of a GLN in a GS1-128 bar code





The Application Identifier (414) indicates that the GS1 Application Identifier data field contains the Global Location Number (GLN) of a physical location.

- **The GS1 Company Prefix** may be of variable length.
- **The Serial Reference** varies in length as a function of the GS1 Company Prefix length.
- **The Check Digit** is a calculated one digit number used to ensure data integrity.

4.2.2. GS1 Further Explained

GS1 is a global standards organization active in over 100 countries. GS1 is dedicated to the design and implementation of global standards for use in the supply chain. These standards provide a framework that allows products, services and information about them to move efficiently and securely for the benefit of businesses and the improvement of people's lives, everyday, everywhere.

GS1 standards bring together companies representing all parts of the supply chain – manufacturers, growers, distributors, retailers, hospitals, transporters, customs organizations, software developers, local and international regulatory authorities and more. GS1 standards are used by huge multinational chains and by small corner shops; by world famous brands and by individual craftsmen.

GS1 standards make traceability systems possible on a global scale – no matter how many companies are involved or how many borders are crossed as food and food ingredients travel from one end of the supply chain all the way to the consumer.

GS1 standards can play a vital role in product recalls. Because they are global, reaching from one end of the supply chain to the other, they ensure immediate access to accurate product information, which enables swift, comprehensive recalls.

The GS1 Global Traceability Conformance Program (GTC) will enable companies to have their traceability capabilities recognized by leading companies around the world. Traceability assessments are conducted by GS1 to ensure that the companies implement correctly the GS1 standards. This can help determine if the company complies with the defined GS1 Global Traceability Standard and/or industry extensions.

Companies could use GS1 GTC program to:

- Measure their traceability level.
- Provide management with actionable reports.
- Attain ultimate quality assurance and business optimization.
- Have traceability capabilities recognized globally.
- Provide compliance with ISO-22005.
- Provides compliance with HACCP, BRC and IFS.
- Allows to full traceability requirements of international food regulations such as EC 178-2000, 2002 Bio-Terrorism Act, FDA Food/Sanitation Law of Japan.

Contact your GS1 Member Organisation to determine whether this program is offered in your country.

4.2.3. GS1 Global Trade Item Number (GTIN) Assignment Further Explained

To implement truly effective traceability that is global in scope requires the ability to uniquely identify products and locations with a global standard. GS1 provides you with this ability through the use of GS1 keys such as a GTIN, GLN and SSCC. This document provides a brief introduction to those keys.

4.2.3.1. What is the Global Trade Item Number (GTIN)?

The Global Trade Item Number (GTIN) is the foundation of the GS1 System for uniquely identifying trade items, which includes both products and services that are sold, delivered, and invoiced at any point in the supply chain. GTINs provide unique identification worldwide. The GTIN is encountered most frequently at point-of-sale and on cases and pallets of products in a distribution/warehouse environment.

Companies can be confident that a GTIN will uniquely identify their products as they move through the global supply chain to the ultimate end user. This global identification system of GS1 ensures that the GTIN placed in a bar code is the same information contained in the corresponding electronic documents processed between trading partners.

4.2.3.2. What are the Key Benefits of the GTIN?

- Facilitates the global flow of trade items (products and services) and associated information used in electronic commerce
- Uniquely identifies trade items at all levels of packaging (item, case, and pallet)
- Delivers trade item data in a consistent format and structure
- Simplifies supply chain management
- Employs the globally accepted GS1 System whose language is standardized, understood and used by multiple industries

4.2.3.3. Why is the GTIN Useful?

- **Uniqueness:** The GTIN identifies an item uniquely. The rules for assigning GTINs ensure that every variation of an item (product or service) is allocated a single reference number that is globally unique.
- **Non-significance:** The GTIN numbering structure does not contain any meaningful information in itself. A GTIN is a simple pointer to database information that can be directly used in any company and in any country.
- **Multi-sector:** GTINs are unique across all business sectors. This means that a healthcare product, a grocery product, or an apparel product are all identified in a compatible manner.
- **International:** GTINs are unique worldwide. A GTIN can be assigned anywhere in the world and can be used anywhere in the world.
- **Data Integrity:** The Check Digit ensures the integrity of data passing through the system.
- **Source Numbering:** The GTIN is assigned by the brand owner of the product. Once assigned, all trading partners and internal users can use the GTIN. The same GTIN can be used to identify a series of identical items.
- **Automatic Data Capture:** One of the key benefits of the GTIN is that it can be encoded in many automatic data capture technologies (such as a bar code or electronic product code used in Radio Frequency Identification (RFID) tags. Machine reading allows the information flow to be linked to the physical flow of trade items through the supply chain

GTINs are typically 8 digits, 12 digits, 13 digits, or 14 digits in length. It is recommended that a GTIN be represented in software applications as 14 digits by right justifying and zero filling left, as appropriate. These GTINs can be represented in a bar code and each provides unique numbers when right justified and used in a 14-digit database field:

GTIN-8

- Seven digits containing a GS1 Company Prefix and the Item Reference Digits assigned by your local GS1 Member Organisation.
- One digit representing the Check Digit

If you require an individual GTIN-8, contact your local GS1 Member Organisation to see if your product meets the GTIN-8 allocation criteria.

GTIN-12

- Eleven digits containing a U.P.C. Company Prefix and the Item Reference assigned by your company
- One digit representing the Check Digit

GTIN-13

- Twelve digits containing a GS1 Company Prefix and the Item Reference assigned by your company
- One digit representing the Check Digit

GTIN-14

- When constructing a GTIN 14 for the identification of packaging, such as cases for fixed weight product, the first digit (with a value of 1 through 8) is an indicator digit. The next 12 digits reflect the GTIN on the consumer item in the case. The last digit is a recalculated check digit.
- Twelve digits the GS1 Company Prefix and the Item Reference assigned by your company
- One digit representing the Check Digit

GS1 Company Prefix

The globally unique number assigned to a company by a GS1 Member Organization. GS1 Company Prefixes are assigned to companies in varying lengths.






Item Reference

The number assigned by a holder of the GS1 Company Prefix to uniquely identify a trade item. The Item Reference varies in length as a function of the Company Prefix length.

Check Digit

A calculated one-digit number used to ensure data integrity.


The following illustrates the uses of a GTIN in a bar code

	GTIN-8 symbology GTIN-8 data structure	<ul style="list-style-type: none"> ■ Used for point-of-sale identification of pre-packaged, fixed weight/count consumer product ■ Only assigned by GS1 MO's for use on space restricted products Not a zero-suppressed number
	UPC-A symbology GTIN-12 data structure	<ul style="list-style-type: none"> ■ Used for point-of-sale identification of pre-packaged, fixed weight/count, consumer product
	EAN-13 symbology GTIN-13 data structure	<ul style="list-style-type: none"> ■ Used for point-of-sale identification of pre-packaged, fixed weight/count, consumer product
	GS1 DataBar symbology (stacked omnidirectional) GTIN -14 Data structure	<ul style="list-style-type: none"> ■ Used for point-of-sale identification of loose, variable weight, consumer product ■ Data Structure holds up to 14 digits. (GS1 has restricted the use of of GS1 DataBar at point-of-sale to only include GTIN-12 or GTIN-13). GS1 DataBar is a new barcode symbology that has been introduced for bilateral use between trading partners beginning in 2010. The global sunrise date for retailers to be able to scan GS1 DataBar is 2014. <p>There are seven variations of the DataBar symbology. The example shown is the most common related to the identification of loose produce such as apples, bananas, etc. The variations GS1 DataBar Expanded and GS1 DataBar Expanded Stacked can encode additional information such as net weight or price.</p>
 <p>(01) 3 0614141 000013 (17) 050101 (10) A1B2C3 The GTIN number is 30614141000013 The batch number is A1B2C3 The expiry date is 050101 (YY/MM/DD)</p>	GS1-128 symbology Data Structure	Used for trade item identification throughout the supply chain but NOT at point-of-sale.

4.2.4. How to Create a Quality GS1-Compliant Bar Code

Use of Application Identifiers (AI's):

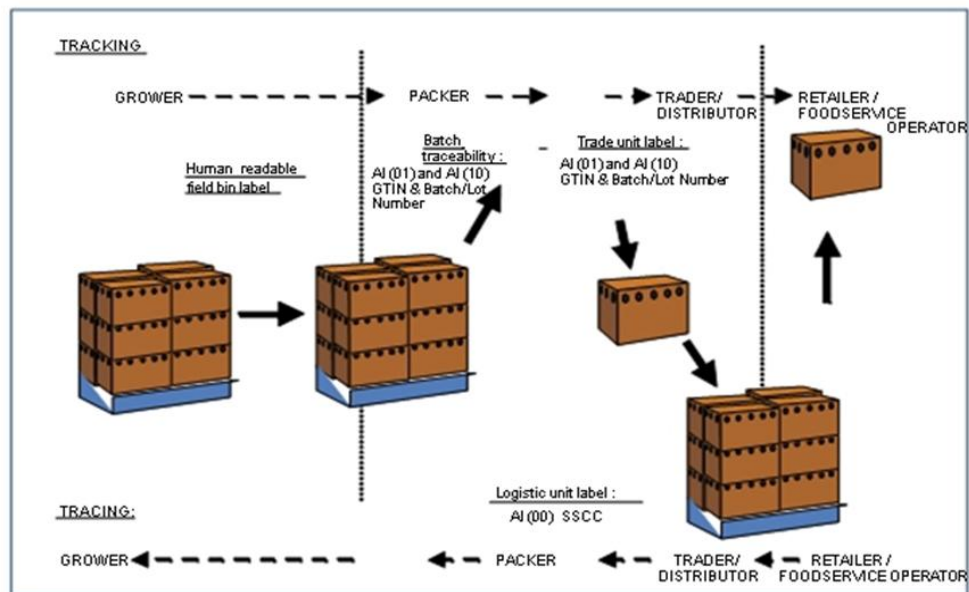
The GS1-128 symbology allows for the encoding of secondary information. This is done through the use of application identifiers. In the example below the application identifier is encased in parentheses. The identifier (01) indicates that what follows is a GTIN. The identifier (17) indicates that what follows is the expiry date expressed in the format YYMMDD. The identifier (10) indicates the batch/lot number.

 <p>(01) 3 0614141 000013 (17) 050101 (10) A1B2C3 (01) 306141410013 where (01) = AI 01 (GTIN) (17) 050101 where (17) = AI 17 (Expiry Date) (10) A1B2C3 where (10) = Batch/Lot Number</p>	<p>GS1-128 symbology</p> <p>Data Structure</p>	<p>Used for trade item identification throughout the supply chain but NOT at point-of-sale.</p>
--	--	---

- ✔ **Note:** The parentheses are not encoded in the bar code.
- ✔ **Note:** For complete technical specifications on the use of GS1 bar code symbologies consult the GS1 General Specifications or contact your local GS1 Member Organisation.

Figure 4-2 illustrates how the use of GS1 Application Identifiers (AI's) can be applied to product and logistics unit labels across the supply chain.

Figure 4-2 Use of Application Identifiers through the produce supply chain



4.2.4.1. Ten Steps to Bar Code Implementation:

The following provides a 10 step model to ensuring that your Company produces quality bar codes. Additional assistance can be found by contacting your package/printer supplier or your local GS1 Member Organisation.

- Step 1: Obtain a GS1 Company Prefix
- Step 2: Assign Numbers
- Step 3: Select a Bar Code printing Method
- Step 4: Select a "Primary" Scanning Environment
- Step 5: Select a Data Carrier
- Step 6: Pick a Bar Code Size
- Step 7: Format the Bar Code Text
- Step 8: Pick a Bar Code Colour
- Step 9: Pick the Bar Code Placement
- Step 10: Build a Bar Code Quality Plan

Step 1: Obtain a GS1 Company Prefix

Before a company can begin using bar codes, they must create the numbers that go inside the bar code. These numbers are called GS1 Identification Keys. The first step in building a GS1 Key is to obtain a GS1 Company Prefix from a GS1 Member Organisation. GS1 Company Prefixes are used to identify over 1 million companies today and form the foundation of uniquely identifying everything in the supply chain. To obtain a GS1 Company Prefix contact the GS1 Member Organisation in your country.

Step 2: Assign Numbers

After receiving a GS1 Company Prefix, a company is ready to begin assigning identification numbers to their trade items (products or services), themselves (as a legal entity), locations, logistic units, individual company assets, returnable assets (returnable pallets, kegs, tubs), and service relationships.

The process is fairly simple. Your local GS1 Member Organisation can provide you with specific information about how many numbers you can assign based on the length of your GS1 Company Prefix.

Step 3: Select a Bar Code Printing Company

To begin, you should decide what you are bar coding and if the bar code will carry static or dynamic information inside it. An example of static information would be simply a product identification number (GTIN) on a box of pre-packaged salad. An example of dynamic information would be printing serial numbers on product labels.

If your bar code has static information and you need a large volume of labels then you will likely ask a printing company to print your labels. If you need a small volume of labels or need to print labels with dynamic information you will likely need an on-demand printer like a laser printer in your office or thermal transfer printer in your warehouse. Knowing how you will print your bar code is an important question to answer in developing a good bar code implementation plan. Again, your local GS1 Member Organisation is there to assist you in making the right selection and many Member Organisations can also help you find a printer in your local area.

Step 4: Select a "Primary" Scanning Environment

The specifications for bar code type, size, placement, and quality all depend on where the bar code will be scanned. There are three basic scanner environment scenarios for trade items:

1. Product package scanned at the retail point-of-sale (POS)
2. Product package scanned in a general distribution
3. Product package scanned at POS but also scanned in distribution

By knowing where your bar code will be scanned you can establish the right specifications for its production. You can find more information in the GS1 General Specifications; available from your local GS1 Member Organisation.

Step 5: Select a Bar Code

Selecting the right bar code is critical to the success of your bar code implementation plan, but here are some high level tips:

- If you bar code a trade item that will be scanned at the retail point-of-sale (POS), you must use a GS1 data carrier. Label loose produce with appropriate GS1 bar code symbol intended for point-of-sale.
- If you are printing a bar code with variable information like batch/lot number, you will use a symbol called GS1-128.

Step 6: Pick a Bar Code Size

After the correct bar code symbol is specified together with the information to encode in it, the design stage begins. The size of the symbol within the design will depend on the symbol specified, where the symbol will be used, and how the symbol will be printed.

Step 7: Format the Bar Code Text

The text beneath a bar code is important because if the bar code is damaged or of poor quality to begin with, then the text is used as a back-up.

Step 8: Pick a Bar Code Colour

The optimum colour combination for a bar code symbol is black bars with a white background. If you want to use other colours, the following may help you in choosing satisfactory ones:

- GS1 Bar Code Symbols require dark colours for bars (e.g., black, dark blue, dark brown, or dark green).
- The bars should always consist of a single line colour and should never be printed by multiple imaging tools (e.g., plate, screen, and cylinder).
- GS1 Bar Code Symbols require light backgrounds (e.g., white) which are to the left and right of the bar code
- In addition to light backgrounds, "reddish" colours may also be used. If you have ever been in a darkroom with red lighting and tried to read red copy, you know it can virtually disappear. This is also true of similar colours such as orange, pink, peach, and light yellows. Given the fact that most bar code scanners use a red light source, you can quickly see why these colours may be suitable for backgrounds, but should be avoided for bars.
- In many cases the symbol background is not printed. It is the colour of the substrate that is being printed. If the symbol background is printed beneath the bars, the background should be printed as solid line colours.

- If you use multiple layers of ink to increase the background opacity, each layer should be printed as a solid.
- If you use a fine screen to deliver more ink to the substrate, be sure there are no voids in the print caused by the screen not adequately filling in.

Again, by staying with black bars and white spaces, you have selected the optimal combination, but other colour combinations can be used. Consult an experienced printer or your GS1 Member Organisation for additional guidance.

Step 9: Pick the Bar Code Placement

When discussing symbol location we are referring to the symbol placement on the design. For symbol replacement guidelines refer to GS1 numbering and bar coding guidelines. In addition the packaging process should be considered. You should consult the packaging engineer to make sure the symbol will not be obscured or damaged (e.g., over a carton edge, beneath a carton fold, beneath a package flap, or covered by another packaging layer).

Step 10: Build a Bar Code Quality Plan

GS1 members may choose to perform their own quality control of bar code production but today many GS1 Member Organisation offer bar code quality verification services.

4.2.5. GS1 Serial Shipping Container Code (SSCC) Further Explained

There are many reasons to use the Serial Shipping Container Code (SSCC) but the most compelling would be the primary benefit of speeding up your products through the process of shipping and receiving. When used in conjunction with the Despatch Advice, the SSCC allows entire cases or pallets of produce to be scanned and quickly processed through distribution centres and other receiving locations.

The SSCC's a critical element when electronically exchanging information about the movement and location of logistics units. A logistic unit is defined as any composition established for transport and/or storage, which needs to be tracked through the supply chain (cartons or pallets). Data exchange and the tracking of logistics units is an application of the GS1 System. This can be accomplished through the use of the SSCC.

The SSCC is the "license plate" to identify specific information about cartons, pallets or even trailer loads of products. The SSCC moves products from one trading partner to another quickly and efficiently. More importantly, the costs associated with moving and receiving products are greatly reduced.

Key Benefits of the SSCC

- Identifies logistics units with a number that is unique worldwide.
- Links bar coded information on a logistics unit and the information that is communicated between trading partners via electronic business transactions such as EDI.
- Employs the globally accepted GS1 System whose language is standardized, understood, and used by multiple industries.
- Applies to the entire supply chain, from raw materials, growers, packers, repackers, distributors and retailers.
- Applies to both intra and inter-company transactions.
- Encompasses a common vendor numbering schema that uses the GS1 Company Prefix so that the number cannot be duplicated.

Structure of the SSCC

An SSCC includes 4 components; Extension Digit, GS1 Company Prefix, Serial Reference and Check Digit.

- **The GS1 Company Prefix** may be of variable length.
- **The Serial Reference** varies in length as a function of the GS1 Company Prefix length.
- **The Check Digit** is a calculated one digit number used to ensure data integrity.

The SSCC should be stored or encoded in its entirety - all 18 digits.

Figure 4-3 Example of a SSCC in a GS1-128 bar code



4.3. GS1 GDSN

Also approaching is the acceptance, development and implementation of data synchronization in the produce industry. The GS1 Global Data Synchronization Network or GDSN® enables companies who do business with each other to always have the same information in their systems. Any changes made by one company are automatically and immediately available to all of the other companies who do business with them. Accurate, detailed and up-to-date product information helps both companies and consumers. Brand owners can get new products out to the market faster and more smoothly. Retailers have less administrative work and fewer mistakes in orders and shipments and supermarket shoppers will be able to buy the products they want, instead of seeing an empty shelf. GS1's Global Data Synchronization Network enables supply chain partners to continuously synchronize information improving efficiency in their supply chains, and to provide better service to the consumer

4.3.1. What Is Data Synchronisation

Every company in the world has a database filled with information about the products they make, or sell, or buy. These databases act very much like a catalogue that customers can use to place orders and manage vendors. Difficulties happen when one company needs to change information in their database or add a new item or location to it: suddenly their "catalogue" isn't up to date anymore.

That's where synchronising data through the GDSN comes in.

GDSN is the GS1 Global Data Synchronisation Network, built around the GS1 Global Registry®, GDSN-certified data pools, the GS1 Data Quality Framework and GS1 Global Product Classification,

which when combined provide a powerful environment for secure and continuous synchronisation of accurate data.

Synchronising accurate, properly classified data results in:

Smoother and quicker business processes

Improved accuracy of orders

Fewer forms to fill out

Fewer duplicate systems and processes

A proven way to drive unnecessary costs out of the supply chain

Many suppliers and their customers around the world, both large corporations and small manufacturers and producers, have already discovered how synchronising qualitative, properly classified data using GDSN can bring both benefits and opportunities.

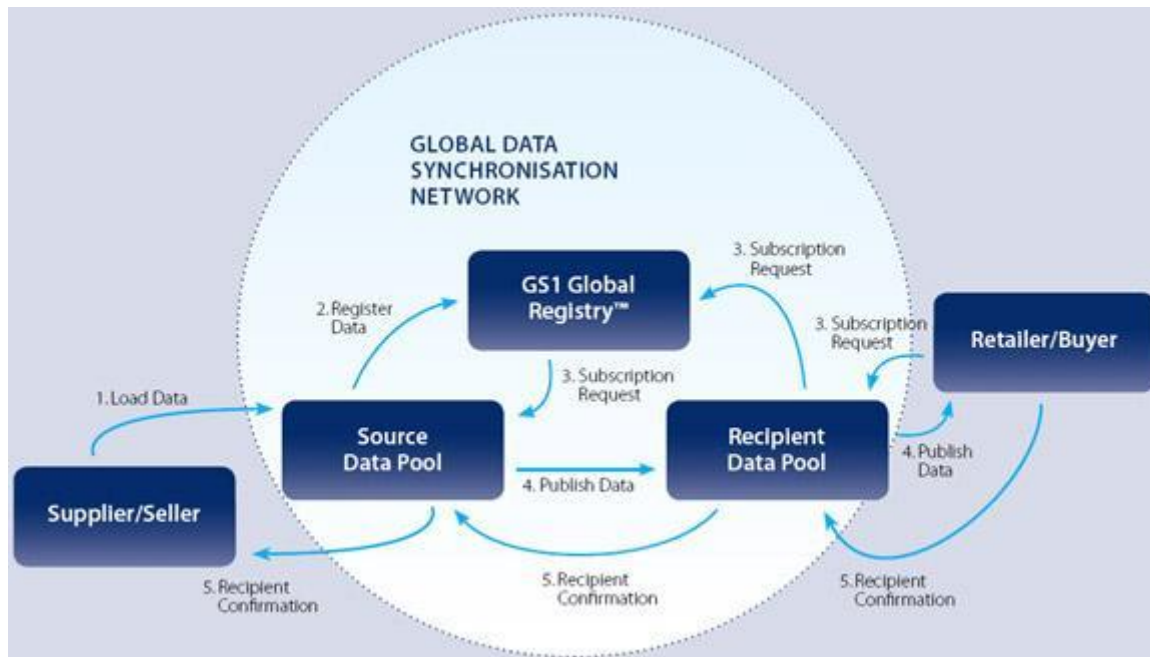
4.3.2. How GDSN Works

The GS1 Global Data Synchronisation Network connects trading partners to the GS1 Global Registry via a network of interoperable GDSN-certified data pools

Within this Network, trade items are identified using a unique combination of the GS1 Identification Keys called Global Trade Item Numbers (GTIN) and Global Location Numbers (GLN)

There are five simple steps that allow trading partners to synchronise item, location and price data with each other:

1. Load Data: The seller registers product and company information in its data pool.
2. Register Data: A small subset of this data is sent to the GS1 Global Registry.
3. Request Subscription: The buyer, through its own data pool, subscribes to receive a seller's information.
4. Publish Data: The seller's data pool publishes the requested information to the buyer's data pool.
5. Confirm & Inform: The buyer sends a confirmation to the seller via each company's data pool, which informs the supplier of the action taken by the retailer using the information.



The GS1 Global Registry is the GDSN's "information directory" that details who has subscribed to trade item or party data, guarantees the uniqueness of the registered items and parties, and ensures that all data pools in the network are complying with a standards-based set of validation rules.

GS1-Certified Data Pools are electronic catalogues of standardised item data. They serve as a source and/or a recipient of master data. Data pools can be run by a GS1 Member Organisation or by a solution provider.

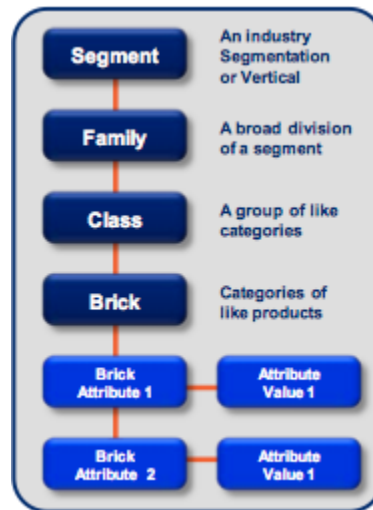
4.3.3. GPC

To ensure products are classified correctly and uniformly, GDSN uses GS1 Global Product Classification (GPC), a system that gives buyers and sellers a common language for grouping products in the same way, everywhere in the world.

This improves the Global Data Synchronisation Network's data accuracy and integrity, speeds up the supply chain's ability to react to consumer needs, and contributes to breaking down language barriers. It also facilitates the reporting process across product silos.

The official (normative) GPC schema and GPC Browser information is published in Oxford English. Both the schema and the browser information are translated to other languages.

The foundation of GPC is called a "Brick;" GPC bricks define categories of similar products. Using the GPC brick as part of GDSN ensures the correct recognition of the product category across the extended supply chain, from seller to buyer. Bricks can be further characterised by Brick Attributes.



4.4. GS1 eCom

See Roadmap

The electronic exchange of information is an accepted practice in business and while the produce industry and other fresh food industries may not use it as frequently as other consumer goods industries, its usage and acceptance in produce is expected to increase. GS1 has two official electronic commerce standards. The most established with regards to geographic spread and number of implementations is EANCOM. GS1 XML is a more recent technology that is increasing in popularity.

4.4.1. Quotation

messages contain all details relevant to the supply of the goods or services requested by the potential buyer (terms of delivery, payment terms, price, allowances and charges, etc).

4.4.2. Purchase Order

set of messages related to the ordering process, from a requested order, subsequent changes to the eventual order confirmation.

4.4.3. Transport and Logistics

messages provide information related to the despatch of transport and receipt of previously ordered products.

4.4.4. Invoice and Remittance Advice

messages relate to the payment of the goods supplied. The buyer can automatically reconcile the suppliers invoice using the product receipt information.

4.5. Enabling Technology Explained

GTIN information is conveniently represented by bar codes. The following describes another carrier technology that is being increasingly used to communicate identity information.

Radio-Frequency Identification (RFID) is an automated identification method using RFID tags. RFID tags can be passive, active, or semi-passive. Passive tags have no internal power supply but can be read from a few meters away by another powered device. Active tags have an internal power supply allowing the tag to generate a message to other devices. The range of active tags is hundreds of meters as opposed to a few meters and may include temperature sensors. Semi-passive tags (also called semi-active tags) are similar to active tags in that they have their own power source, but the battery only powers the microchip and does not power the broadcasting of a signal. Semi-passive tags are more sensitive than passive tags, have a longer battery powered life cycle than active tags, and can perform some 'active' functions (such as temperature logging) under its own power. A key strength of RFID is that these tags can be read without requiring line of sight reading. RFID can provide instantaneous invalidation of incorrect code and is capable of polling large numbers simultaneously. RFID is not human-readable and can ultimately be read and counterfeited without contact.

4.6. Other Useful Resources

Document or Resource	Purpose	Contact
GS1 Traceability Standard – What you need to know	A summary of the GS1 Global Traceability Standard.	GS1: www.gs1.org
GS1 Global Traceability Conformance Programme	An overview of the GS1 global conformance program and how User companies can participate.	GS1: www.gs1.org
GS1 General Specifications	Detailed instruction on how to apply the GS1 system of identification keys and Application Identifiers for bar coding.	GS1: www.gs1.org

Regional and Local Resources

Additional implementation resources may be available to your company. Please contact your local GS1 Member Organization or trade association.

4.7. Frequently Asked Questions

Why is a company's internal traceability system not enough?

Most companies have their own proprietary internal traceability system that enables them to track product while inside their own four walls. However, most companies do not collect, record or share the traceability information their trading partners require and, therefore, the process breaks down once it leaves their four walls. The other reality is that not every company will use the same traceability system. In order for trading partners to track product up and down the supply chain, companies need to augment (not replace) their internal traceability systems with standardized key information that serves as a link between trading partners' internal traceability systems. The GTIN and batch/lot number, at minimum, serve as key pieces of data on each case of produce and are also needed to be stored in each trading partner's databases in order for tracking and tracing to occur quickly.

Why is it important to have the GTIN and batch/lot number shown on each case?

The GTIN and its associated batch/lot number are, at minimum, the information needed by the packer, re-packer, or shipper to trace the product back to the source. The more information contained in the batch/lot number, the more specific the trace back will be and therefore the minimal amount of product implicated. GTIN and batch/lot number should be provided in human-readable and machine-readable (bar code) form. In the event of a recall, the human-readable will allow people to physically identify the case in question and remove it from their operation.

Why is it important to have the SSCC and Batch/Lot number on each logistics unit?

The SSCC number and associated batch/lot information are needed by the packer, re-packer, grower or shipper to trace the product back to the source. The more production information represented by the batch/lot number, the more specific a trace back will be and therefore will minimize product implicated.

Why is it important to have the GTIN and batch/lot number encoded in a GS1-128 bar code?

This allows for the automated capture of this information and eliminates the need for trading partners to manually enter the shipping/receiving data for each case.

The GS1-128 bar code is the most widely accepted bar code in today's food supply chain, one that most retailers/foodservice organizations already have the capability to read and one that has plenty of storage capacity for including both the GTIN and the batch/lot number.

Why is it important to record this information?

If a recall occurs citing a specific GTIN and its associated batch/lot number, you can now use these two fields to look into your internal traceability system and find the date that specific GTIN combination came into your facility and left your facility. You can then investigate further into your internal traceability system to research what happened in the associated time frame.

Having this information in databases, rather than on paper, allows you to isolate the product in question within minutes. This enables you to quickly determine each handler of the product, when the product was in the possession of each handler and what happened to that product while in each handler's possession.

What is the advantage of one-step-up, one-step-down traceability?

It is critical that each company be able to track where they got product from and where it was shipped. Basic traceability practices are already imbedded in common business processes such as

procurement, receiving, storage, manufacturer and distribution. This makes the one-step-up, one-step-down model easy to implement with your company's suppliers and your customers.

What is the advantage of using the Electronic Despatch Advice?

As companies scan and record inbound case information (example, the GTIN and batch/lot number) the use of the Electronic Despatch Advice provides a means to expedite the receiving process. The enhanced shipping/receiving process leverages the use of the GS1 Serial Shipping Container Code (SSCC) to identify each pallet uniquely. Information about this pallet can now be communicated both on the pallet (using a GS1-128 bar code) and through an electronic message (using EDI EANCOM®). As the electronic message can be exchanged in advance of the physical receiving of goods, the receiver is able to understand the association of each case to a specific pallet. This process is further described below.

STEP 1:

- Assign a unique SSCC number to each pallet
- Encode the SSCC number into a GS1-128 bar code
- Print the bar code on to a pallet label

STEP 2:

- Scan GTIN's from every case belonging to that pallet and link to the pallet SSCC number

STEP 3:

- Apply pallet label to pallet

STEP 4:

- Send Despatch Advice to trading partner using an electronic message (EANCOM®)
- Transmit Despatch Advice to receiver as soon as shipment is ready for transport

STEP 5:

- Receiver receives Despatch Advice and records SSCC number and it's corresponding information

STEP 6:

- Receiver unloads shipment
- Receiver scans pallet tag and retrieves SSCC number
- Receiver searches internal system for record of inbound SSCC number
- Once SSCC number is found, contents of pallet automatically linked to the shipment (GTIN's, batch/lot numbers, quantities)

5. Glossary

Term	Definition
Actor	An actor is a role that a user plays with respect to a system.
Application Identifier (AI)	The field of two or more digits at the beginning of an Element String that uniquely defines its format and meaning.
Batch/Lot Number	The batch or lot number associates a trade item with information the manufacturer considers relevant for traceability of the item. The data may refer to the trade item itself or to items contained in it.
Consumer Unit	The package size of a product or products agreed by trading partners as the size sold at the retail point of sale.
Data Carrier	A means to represent data in a machine readable form; used to enable automatic reading of the Element Strings.
Event	Is an occurrence of a process in a specific time or a period of time?
External Traceability	External Traceability takes place when instances of a Traceable Item are physically handed over from one Traceability partner (Traceable Item source) to another Traceability partner (Traceable Item recipient).
GLN (Global Location Number)	The GS1 Identification Key used to identify physical locations or legal entities. The key comprises a GS1 Company Prefix, Location Reference, and Check Digit.
GTIN (Global Trade Item Number)	The GS1 Identification Key used to identify trade items. The key comprises a GS1 Company Prefix followed by an Item Reference Number and a Check Digit.
GRAI	Global Returnable Asset Identifier.
GS1 System	The specifications, standards, and guidelines administered by GS1.
Identification	Refer to GLN and GTIN
Identification Carrier	Mark / tag / label / accompanying document sometimes called "passport" or "identity card" or "Pedigree" in some industry sectors
Internal Process	A series of actions, changes or function(s) within an organisation or an organisation that brings about a result.
Internal Traceability	Internal Traceability takes place when a Traceability partner receives one or several instances of traceable items as inputs that are subjected to internal processes, before one or several instances of traceable items are output.
Location	A place where a traceable item is or could be located [ISO/CD 22519]. A place of production, handling, storage and/or sale.
Logistic Unit	An item of any composition established for transport and/or storage that needs to be managed through the supply chain. It is identified with an SSCC.
Master Data	Within the context of Data Synchronisation, any data that is applicable across multiple business transactions. Master Data describes each Item or Party involved in Supply Chain Processes. A Global Trade Item Number (GTIN) or a Global Location Number (GLN) uniquely identifies each data set. Master Data can be divided into neutral and relationship dependent data.

Term	Definition
Party	A Party (or) Location is any legal or physical entity involved at any point in any supply chain and upon which there is a need to retrieve pre-defined information. A Party is uniquely identified by a Global Location Number (GLN).
Process	In a GS1 context this refers to a business process. This is a series of actions, or functions that transform an input into an output to assist in meeting an organisation's objectives. Inputs and outputs may be data, physical entities or a mixture of both, examples being order to cash, collaborative planning, warehouse management and cross-docking.
Product Description	GS1 Global definition: A piece of information reflecting a characteristic related to an identification number [e.g., an expiration date or a product description related to a GTIN.
Quantity	A precise number of articles, pieces or units. Used in conjunction with Unit of Measure.
Receipt Date	GS1 Global definition: Date/time upon which the goods were received by a given party.
Record	Act of creating a permanent piece of information constituting an account of something that has occurred.
Serial Shipping Container Code (SSCC)	The GS1 Identification Key used to identify logistics units. The key comprises an Extension digit, GS1 Company Prefix, Serial Reference, and Check Digit.
SGTIN (Serialized Global Trade Identification Number)	SGTIN is a method of identifying items at the unit or retail level as well as at the case and carton levels. It is composed of a GS1 assigned Company Prefix & Item Reference (GTIN), combined with a Serial Number. Where GS1 bar codes have traditionally been used, the SGTIN specification combined with an EPC tag can give visibility beyond the Item Reference right down to the exact serial number of the item.
Share	Act of exchanging information about an entity or traceable item with another Trading Partner.
Ship Date	Date on which goods should be shipped or despatched by the Supplier.
Ship from Location	Identification of the party from where goods will be or have been shipped.
Ship to Location	Identification of the party to where goods will be or have been shipped.
Shipment	A grouping of logistics and transport units assembled and identified by the seller (sender) of the goods travelling under one despatch advice and/or Bill of Lading to one customer (recipient).
Shipment Reference Number	The reference number assigned to a shipment.
Traceability	[ISO 9001: 2000] Traceability is the ability to trace the history, application or location of that which is under consideration.
Traceability Data	Any information about the history, application or location of a traceable item, either Master Data or Transactional Data.

Term	Definition
Traceable Item	A physical object that may or may not be a trade item, where there may be a need to retrieve information about its history, application, or location. The level at which the traceable item is defined is dependent on the industry and degree of control required (for example within a product packaging or logistical hierarchy). It could be tracked, traced, recalled or withdrawn. It could exist in multiple locations at the same time (for example, if identified at the trade item and batch level). A traceable item may be related to another traceable item. It is the choice of the Traceability Partner which identification level (e.g. GTIN or Lot/Batch or serial level) to use for the traceable item. See also definition for process.
Trace Request	A formal inquiry about the history, application, or location of a traceable item. A request can trigger subsequent trace requests up or down the supply chain in order to fulfil the original request.
Tracing (Tracing Back)	The ability to identify the origin, attributes, or history of a particular traceable item located within the supply chain by reference to records held. "Tracking back" and "tracking forward" are the preferred terms used in this document.
Tracking (Tracking Forward)	The ability to follow the path of a traceable item through the supply chain as it moves between parties.
Trade Item	Any item (product or service) upon which there is a need to retrieve pre-defined information and that may be priced, or ordered, or invoiced at any point in any supply chain.
Trading Partner	Any Supply Chain Partner that has a direct impact on the flow of goods through the supply chain. Examples include Third Party Logistics Provider, Manufacturer, Retailer, and Grower.
Transformation	A change to the nature of a traceable item that changes the identity and/or the characteristics of the traceable item. The act of changing the item such as combining ingredients to make a finished product or case picking to create a new pallet. Transformation can be production, aggregation, grouping, splitting, mixing, compounding, packing and repacking traceable items.
Transporter	The Traceability Partner that receives, carries, and delivers one or more traceable items from one point to another without transforming the traceable item(s). Typically only has possession, custody, or control of a traceable item, but may have ownership.
Unit of Measure	The unit of measure relating to a specific quantity. Reference to a unit of measure code that optionally applies to the quantities value. Example of units of measure include pound, metre, kilogram.