GS1 in Europe

The Global Language of Business

Integrated Guideline Part 4a:

Labelling of Consumer Units

Supply Chain Management for Fresh Fruit and Vegetables

in collaboration with

FrugiCom

Foundation Platform Fresh Chain Information

GS1 in Europe

The Global Language of Business

Labelling of Consumer Units

Supply Chain Management for Fresh Fruit and Vegetables

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Partners involved in the development of this document

GS1 in Europe

GS1 in Europe is a collaboration of 47 GS1 member organisations and leads the creation and implementation of harmonised, user-driven solutions for improving the supply and demand chain of European companies. Further information on GS1 in Europe and the activities in the area of fruit and vegetables can be obtained from: *www.gs1.eu*

Frug I Com (Foundation Platform Fresh Chain Information)

Frug I Com is a unique collaboration of the Dutch Potato, Fruit and Vegetable Supply Chain. The ultimate goal is to establish electronic exchange of information between the participants in the Potato, Fruit and Vegetable Supply Chain by means of uniform labelling using electronic messages. Working with information standards allows Fruit and Vegetable Supply Chain companies to make optimum use of the information available in the supply chain and to apply it to order processing, tracing of products, optimising logistics and quality improvement. The result? A faster and more efficient supply chain which is less error-prone. Further information see: *www.frugicom.nl*

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1 Introduction

It is usual business for the global fruit and vegetable sector to provide fresh products every day. Consumers value the high quality and wide range of fruit and vegetables on the shelves of their retail stores; however, supply and demand can change easily in the short term based on factors such as: climate, season, weather and plant health issues. This makes it very important for fruit and vegetable retailers to be able to react rapidly to get the right produce in their stores.

Efficient order and delivery processes, flexibility and traceability: the demands of the fruit and vegetables business have constantly increased over the last years. By means of unique product identification, which can be achieved by using the GS1 standards, these demands can be fulfilled by small, medium and large size companies.

This guideline is based on the "GS1 Fresh Fruit & Vegetable Labelling Consumer Units Guideline" provided by GS1 Global Office. In addition to the global document the GS1 in Europe Fruit & Vegetable Group added target-market specific information for Europe as well as legal labelling requirements in the European Union.

1.1 Purpose and Scope of this Guide

Increasingly there is an expectation within industry to utilise common, global standards for product identification and marking combined with automated electronic data processing. For all sectors, this is the most efficient way to manage ordering, receiving, tracking and tracing and labelling of products easily and without problems.

Experts within the fruit and vegetable sector have created this guideline which includes an overview on the different label forms recommended for fruit and vegetable products and provides business examples explaining the right content and sizes to use.

Every effort was made to make this guideline relevant across all target markets however in some instances regional guidelines have been developed to assist the industry and to ensure regulatory or business compliance within those specific markets.

This document is focusing on legal and business requirements for Europe. Readers are urged to understand and apply regulatory and business requirements specific to a target market and encouraged to contact their local GS1 Member Organisation (MO) for assistance in the use of the GS1 standards.

1.1.1 Purpose

The purpose of this document is to provide companies with clear guidance on labelling fresh fruit and vegetables in the produce supply chain to support current and future market requirements

1.1.2 In Scope

In scope is the labelling of fresh fruit and vegetables at the consumer unit (each). Labelling of trade unit (case) and logistic unit (pallet) levels will be addressed in future versions. These terms are explained in Section 1.4 below and cross-referenced with GS1 terms and fruit and vegetable sector terms in the annex section of this guideline.

1.1.3 Out of Scope

Out of scope are labels with Restricted Circulation Numbers (RCN) that are only unique in a certain closed environment, geographic region or company.[1]

[1] Restricted Circulation Numbers can be used to identify variable measure units for Point-of-Sale (POS) but are subject to national GS1 specifications. For more details, contact your local GS1 organization.

1.2 Who can use this Document?

Any party that is requested to apply and process label data for fresh fruit and vegetables in the produce supply chain will benefit from this practical guideline. They should understand business opportunities and requirements needed to implement standardized labels using the GS1 standards for identification and data capture. This document is of special interest for packers as they are responsible for labelling and label contents.

1.3 General Guidance

The composition of a label is dependent upon the application, legal and regulatory requirements for the target market and desired optional information such as marketing information.

The content on the label will include GS1 barcode symbols and human readable interpretation (HRI) text, to permit the implementation of the GS1 standards for supply chain efficiencies. The content on the label will also include other human readable text (Non-HRI text) to permit compliance with target market legal requirements and regulations such as nutritional information. And the content may include other elements such as artwork and other Non-HRI text.

The primary purpose of the GS1 Implementation Guideline "Fresh Fruit and Vegetable Labelling Consumer Units" is to provide detailed guidance on how to implement the GS1 labelling standards for fresh fruit and vegetables. This guideline addresses labelling of consumer units (each) in Section 3.

The GS1 standards for labelling include:

- The barcode symbol for automatic identification and data capture (AIDC)
- Human Readable Interpretation (HRI) is the information below or beside a barcode which is encoded in the bar code and Non-HRI Text is all other text on package, label or item.

Below is an example of HRI:

- Quality requirements to assure proper reading of barcode symbols, such as label placement and print quality

Because this implementation guideline cannot address all target market legal and regulatory requirements, it is the responsibility of the party applying the labels to be knowledgeable of the requirements within their target markets. For the European Union as target market legal guidance is provided in the annex.

Within this implementation guideline there are notes identified using the Note icon shown below: **Note**	There are also remarks included as an aid to users in identifying where mandatory and/ or optional requirements for labelling might apply. These are identified using the Remark icon. **Remark**	Remarks for the European target market are marked as shown below: **Remark (GS1 in Europe)**

Users needing additional information or instruction should contact their local GS1 Member Organisation.

1.4 Key Terms

Some relevant terms used in this guideline are explained below in order to facilitate a better understanding of the guideline. A more extensive glossary can be found in the annex.

Terms	Explanation
GS1 Application Identifier	The field of two or more digits at the beginning of an Element String that uniquely defines its format and meaning.
Consumer Unit (Each)	This term is used in this guideline for the labelling of individual consumer level fresh fruit and vegetables items at retail where the customer selects their produce and takes the produce to the point of sale. This could be a loose produce item or packaged item. The following terms could also be used to identify produce and packaged produce at retail level: Each, Loose, Item, Trade Item, Unit, Consumer Unit, Bulk, Pre-packaged, and Pre-portioned.
Each	An individual fruit or vegetable (e.g. an apple, a pineapple or a pepper).
Fixed Measure Trade Item	A consumer unit (Each) always sold in the same pre-defined measure such as size, weight, contents (e. g. a punnet with 6 round tomatoes).
Global Trade Item Number (GTIN)	The GS1 Identification Key used to uniquely identify trade items. The GTIN includes a company prefix and the item identification which is encoded into the barcode for automatic identification and data capture when scanned.
Human Readable	Human readable text located below a barcode symbol representing the characters encoded in the barcode
Non-HRI Text	Human readable text on a label used for purposes other than representing the characters encoded in the barcode. (Examples: marketing information, nutritional information, country of origin, etc.).
IFPS PLU Rules	International Federation of Produce standards' rules on the use of the PLU.
Logistic Unit (Pallet)	This term is used in this guideline for the labelling of fresh fruit and vegetables for transportation and storage in the produce supply chain.
Loose	Fresh fruit and vegetables which are delivered to the store loose, in boxes or cases, and then put into a bag or selected individually by the customer for purchase.
IFPS PLU (Price Look Up)	An IFPS PLU number on the label in human readable text used to identify the consumer unit.
Restricted Circulation Number (RCN)	Signifies a GS1 identification number used for special applications in restricted environments, defined by the local GS1 Member Organization (e. g. restricted within a country, company, industry). They are allocated by GS1 for either internal use by companies or to GS1 Member Organisations for assignment based on business needs in their country (e. g. variable measure product identification).
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

Terms	Explanation
Trade Unit (Case)	This term is used in this guideline for case labelling of fresh fruit and vegetables. "Case" is a generic term which includes any item handled as a single unit in the transport and distribution process. This definition covers a wide variety of package types such as pallets, RPCs, cartons, cases, bins and totes. These items can be trade items and/or logistic units.
Variable Measure Trade Item	A Consumer Unit (Each) which may be traded without pre-defined measure, such as size or weight.

1.5 Legal and Regulatory Requirements

This guideline does not cater to all legal aspects in different countries and regions. Examples where legal and regulatory requirements might apply to the labelling of fresh fruit and vegetables are identified using the Remarks icon; however, the examples shown are not all inclusive.

Users should refer to GS1 country or regional guidelines for their local requirements. Where country or regional guidelines are not available users needing additional information or instruction regarding local or national legal and regulatory requirements should contact their local GS1 Member Organisation.

Remark (GS1 in Europe): Legal labelling requirements for the European Union are covered in the annex. However, it needs to be checked if the national implementation of the EU requirements is deviating.

2 Relevant GS1 Standards and Principles

GS1 standards and GS1 keys support the produce supply chain processes. The relevant standards for the identification of consumer items, trade units and logistic units are summarised below.

Note: If a company wants to implement GS1 standards the company has to be a member of a national GS1 Member Organization (MO). For a complete list of all GS1 Member Organisations please see the GS1 web site *https://www.gs1.org/contact*, then contact your local office. European guidelines and brochures are available at *www.gs1.eu*.

2.1 GS1 Standards for Item Identification (GTIN)

The Global Trade Item Number (GTIN) is the GS1 standard for the unique identification of all trade items (consumer units and trade units), including fresh fruit and vegetables. The GTIN supports trade item identification for Business to Business (B2B) and Business to Consumer (B2C) processes. The GTIN is a GS1 key with a specific structure and allocation rules to assure global uniqueness. The GS1 General Specification prescribes the specifications for the GTIN. The table below gives an overview of the GTINs that are used for labelling fruit and vegetables. All parties in the process should be able to process these variants of the GTIN.

GTIN	GTIN format
GTIN-8	N7 + C
GTIN-12	N11 + C
GTIN-13	N12 + C
GTIN-14	N13 + C

N – Numeric digit
C – Check digit

When any of these GTINs are encoded in a data carrier (i.e. barcode symbol) that encode a fixed-length data string of 14-digits, GTINs with less than 14-digits in length will add leading zeroes to create a 14-digit number. The leading zeroes simply act as filler characters. The presence or lack of these leading zeroes does not change the GTIN concerned. These series of GTINs may be stored with or without leading zeroes in the same database field, depending on the requirements of the particular application.

2.2 GS1 Barcodes

This section provides guidance for the selection and use of GS1 barcode symbols.

2.2.1 Point-Of-Sale

At the Point-Of-Sale (POS) the following barcode symbols are relevant:

Barcode Symbol	Identifier	Explanation
EAN-13 symbol 	GTIN-13	▪ Used for point-of-sale identification of pre-packaged, fixed weight/count, trade item

Barcode Symbol	Identifier	Explanation
EAN-8 symbol  	GTIN-8	▪ Used for point-of-sale identification of pre-packaged, fixed weight/count trade items
UPC-A symbol  	GTIN-12	▪ Used for point-of-sale identification of pre-packaged, fixed weight/count trade items ▪ Mostly used in US/Canada
GS1 DataBar Stacked Omnidirectional symbol  Usually HRI is required but due to spaces restrictions this label typically uses only the IFPS PLU.	Encodes a 14-digit data string with GTIN-12, GTIN-8, or GTIN-13	▪ Used for point-of-sale identification of ▪ loose trade items ▪ Data structure holds up to 14 digits ▪ The example shown is the most common related to the identification of loose fruit & vegetables such as apples, bananas, peppers, etc. ▪ Data encoded in a GS1 DataBar symbol is used in combination with GS1 application identifiers, to allow for their interpretation.
GS1 DataBar Expanded symbol (stacked omnidirectional)  The GTIN number is 9099999543217 Net Weight is 000456 = 0,456 kg Best Before Date is 160831 (YYMMDD)	Encodes a 14-digit data string with GTIN-8, GTIN-12, or GTIN-13	▪ GS1 DataBar Expanded and GS1 DataBar Expanded Stacked can encode additional information such as net weight and Best Before Date ▪ GS1 DataBar has been approved for bilateral use between trading partners. As of January 2014, GS1 DataBar became an open symbology and all scanning environments must be able to read these symbols. **Remark:** AI 13 Packaging Date or AI 15 Best Before Date may be used depending on target market requirements

Barcode Symbol	Identifier	Explanation
GS1 DataMatrix  (01)09512345678901 (3103)001015 (17)210115 (3922)1655 (10)ABC123	Encodes a 14-digit data string with GTIN-8, GTIN-12, or GTIN-13	▪ Allowed at PoS for variable measure fresh food items since 2019. It can encode additional information such as net weight and Best Before Date
GS1 QR Code  (01)09521071230093 (15)210115 (3102)000025 (10)DEF789012345	Encodes a 14-digit data string with GTIN-8, GTIN-12, or GTIN-13	▪ Allowed at PoS for variable measure fresh food items since 2019. It can encode additional information such as net weight and Best Before Date

Remark:

Please note

- Systems always need to cater for 14-digit GTINs.
- In practice, data content and data carrier are often not clearly differentiated from each other. This may lead to misunderstandings. It is particularly important to bear in mind that data content (e. g. the identification number plus attributes like weight) can be encoded in different data carriers according to the application.
- When GTINs are encoded in a data carrier that must encode a fixed-length data string of 14-digits, the GTINs less than 14-digits in length must be prefixed by leading zeroes that simply act as filler characters. The presence or lack of these leading zeroes does not change the GTIN concerned. These series of GTINs may be stored with or without leading zeroes in the same database field, depending on the particular application.
- GS1 DataMatrix and GS1 QR Codes (2D Codes) require image based scanners.

2.3 GS1 Application Identifiers

A GS1 Application Identifier (AI) is a numeric code of two or more characters that uniquely defines the format and meaning of the following information. The AI number preceding a piece of information supports its correct interpretation and processing. By means of AIs several pieces of information can be encoded in one barcode and correctly interpreted and processed.

The chart below describes the GS1 Application Identifiers relevant for consumer units in this implementation guideline. Refer to the *GS1 AIDC Fresh Foods Sold at Point-of-Sale Implementation Guideline*, section 1.5 for the list of commonly used AIs with Fresh Food. *For a complete list of GS1 Application Identifiers and their full specification refer to the GS1 General Specifications – section 3*

AI	Data Content	Format (*)	FNC1 Required	Data Title
01	Global Trade Item Number (GTIN)	N2+N14		GTIN
10	Batch or Lot Number	N2+X..20	(FNC1)	BATCH/LOT
310n (**)	Net weight, kilograms (Variable Measure Trade Item)	N4+N6		NET/WEIGHT (kg)
395n (**)	Amount payable per unit of measure single monetary area (variable measure trade item)	N4+N6	(FNC1)	PRICE/UoM

Notes:

(*): The first position indicates the length (number of digits) of the GS1 Application Identifier. The following value refers to the format of the data content. The following convention is applied:

- N numeric digit
- X any character in Figure 7.11-1 in GS1 General Specifications
- N3 3 numeric digits, fixed length
- N..3 up to 3 numeric digits
- X..3 up to 3 characters in Figure 7.11-1 in GS1 General Specifications

(**): The fourth digit of this GS1 Application Identifier indicates the implied decimal point position.
Example:

- 3100 Net weight in kg without a decimal point
- 3102 Net weight in kg with two decimal points

All GS1 Application Identifiers indicated with (FNC1) are defined as of variable length and SHALL be delimited unless this Element String is the last one to be encoded in the symbol. The delimiter SHALL be a Function 1 Symbol Character in GS1-128 Symbology, GS1 DataBar Expanded Versions and GS1 Composite Symbology and SHOULD be a Function 1 Symbol Character in GS1 DataMatrix and GS1 QR Code Symbology.

Remark (GS1 in Europe): The AIs listed above are the most relevant ones for consumer units. Other AIs may be used on a bilateral basis, e. g. price.

Label Example

AI (01) announces a "Global Trade Item Number". The format is clearly defined, i. e. numeric, 14 digits. As soon as the scanner reads AI (01) in a GS1 symbol (here from a GS1 DataBar Stacked Omnidirectional) it knows that a GTIN with 14 digits, purely numeric, follows.

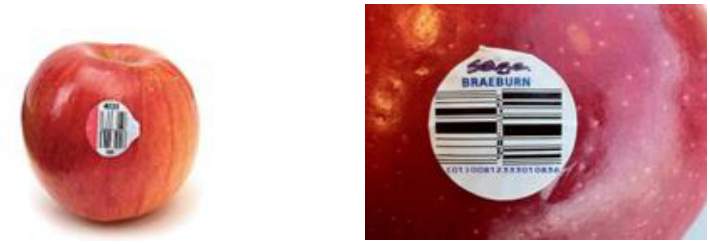


Figure 2 – 1: Example AI GTIN (01) 0401234567000014 Brackets are not encoded in the barcode, only visible in HRI

If a party does not need to process all data elements encoded in a barcode they can select the data elements by means of the application identifiers.

Note: Please note that there are certain rules to be observed. They can be taken from the GS1 General Specifications.

Note: For a complete list of AIs refer to the GS1 General Specification, Section 3.0

2.4 Label Placement Principles

Consistency of symbol placement is critical to successful scanning. With manual scanning (e. g. at POS), variation of symbol placement makes it difficult for the scanning operator to predict where the symbol is located, and this reduces efficiency.

With automated scanning (e. g. in warehouses on a conveyor belt), the symbol must be positioned so that it will pass through the field of vision of a fixed scanner as it travels past. Respecting the guidance in this section will result in the consistency and predictability required.

Avoiding Scanning Obstacles

Anything that will obscure or damage a barcode will reduce scanning performance and must be avoided. More placement guidelines will be shown in Section 3.0.

2.5 Barcode Quality

Barcode quality is of critical importance because only readable barcodes support efficient processes. If a barcode cannot be decoded additional cost and time resources are consumed. Therefore, all parties should see to it that their barcodes meet with GS1 General Specification requirements.

Verification is the technical process by which a barcode is measured to determine its conformance with the specification for that symbol. ISO/IEC 15416 is the international specification of the ISO barcode verification methodology for linear symbologies (e. g. EAN/UPC symbol, GS1-128 symbol), and the numeric grading system.

The International Standard ISO/IEC 15415 Information technology - Automatic identification and data capture techniques – Bar code symbol print quality test specification - Two-dimensional symbols methodology is the international specification of the ISO barcode verification methodology for 2D symbols (GS1 Data Matrix and GS1 QR Codes).

GS1's advice is to use these ISO/IEC standards as a tool to improve overall scanning performance. An ISO-based verifier is of enormous assistance in diagnosing the problem and providing a standard means of reporting among printing companies and their trading partners.

Many GS1 Member Organisations offer related services, so if quality problems arise or before implementing a new label please contact your local MO to make sure the label meets quality requirements.

3 Consumer Unit (Each)

The chapter Consumer Unit (Each) refers to trade item labelling for Point-of-Sale (POS) and includes several ways of presenting fruit and vegetables at POS. The labelling may vary with the presentation at POS. The trade items should be labelled according to existing standards and requirements at POS, regulatory requirements as well as possible additional scenarios. The identification key, design and content of the labels may vary depending on the situation.

Most loose fruit & vegetable trade items have a label/sticker on it with a price look up number (PLU). This PLU is key entered manually or a label/sticker with an EAN/UPC which encodes a GTIN can be scanned automatically. Both identification numbers support the billing process at the POS.

The way consumer units are packaged and presented at POS varies. Examples of different forms of consumer units are:

Pre-packed: ▪ A labelled product package that is intended for the consumer. For retail this item will be scanned at the point of sale.	
Loose (by weight or by piece): ▪ Fruit and vegetables which are presented to the consumer in a display such as boxes or cases, to be picked by the consumer and weighed or counted at the POS. Depending on the size and nature of the item they may carry a label.	
Pre-portioned: ▪ An unlabelled product package that protects the fruit article (e. g. strawberry, blackberry, etc.) and is sold and presented as a whole. ▪ Labelling of a pre-portioned consumer unit generally does not require a label by legal or regulatory requirements. However, it may be labelled (e. g. with a GTIN) by the supplier/packer for POS.	

According to legal requirements a closed pre-packed consumer product will always have a label. It should carry a GTIN encoded in a barcode to make it possible to scan at the point of sale.

Unpacked/loose fruit and vegetables are offered to the consumer from a crate or carton. According to legal requirements there is no obligation to put a label on single units. The consumer picks them in the wanted quantity. They are sold by each or by weight. The decision to label is at the discretion of the retailer, in some cases based on legal aspects. The supplier may assign a separate identification number (GTIN or PLU) to a loose product and label it (e. g. a melon). In most cases, they are not labelled and the retailer himself 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 it has been weighed. Items without labels are out of scope.

Remark (GS1 in Europe): According to EU 543/2011 European target markets require trade items to be labelled with Country of Origin Labelling.

Remark: Trade items with a protection package and no label are handled as retailer internal process. In terms of labelling there is a difference between pre-packed and loose articles on the European target market.

According to regulation EU 1169/2011 a pre-packed consumer product always has a label with clearly defined information. It should carry a GTIN identification number encoded in a barcode to make it possible to scan this article at the point of sale.

Loose fruit and vegetables and pre portioned consumer units with protection only are covered by regulation EU 1169/2011 and there is no legal obligation to label. An example would be a pumpkin; the consumer picks them in the wanted quantity. They are sold by each or by weight. The decision to label is at the discretion of the retailer.

Pre-portioned consumer units with no label are handled as retailer internal process and is out-of-scope. According to law there is no obligation to put a label on these trade items. The supplier may assign a separate identification number (GTIN or PLU) and label it.

The following diagrams provide guidance on determining the packaging levels and labelling. If additional guidance is required for a specific application, please contact your local Member Organisation.

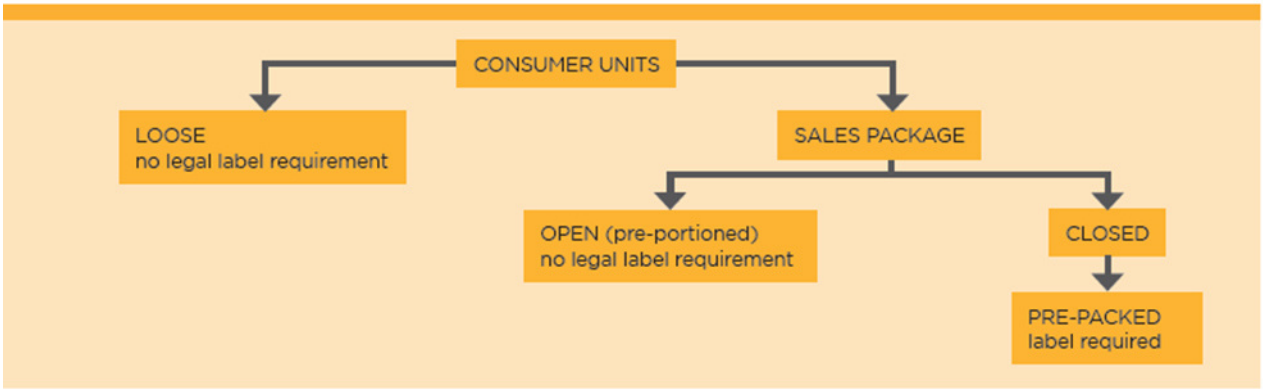


Figure 3 – 1: Commercial Perspective: relevant for handling processes

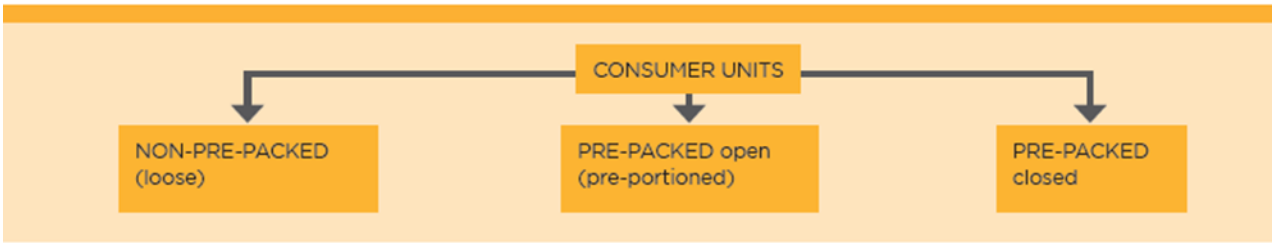


Figure 3 – 2: Legal Perspective: relevant for marking and labelling processes

Remark (GS1 in Europe): For legal labelling requirements in the European Union information is provided in the annex. For other target markets local/regional requirements need to be followed.

3.1 General Label Considerations for Consumer Items

Trade items are read at the POS. It is a general requirement to do this fast and efficiently to support smooth processes. The trade item needs a unique identification number. This can be a PLU number or a barcode with a GTIN or, where applicable, both. The GTIN is always encoded in an EAN/UPC or GS1 DataBar Omnidirectional barcode to allow for automatic scanning. Accurate data and barcode quality should be observed.

3.1.1 Using IFPS PLU Numbers

Price Look Up numbers (PLUs) are not used on any bagged product that is always sold as fixed weight (i. e. not weighed in the store for pricing).

- Example: It is not allowed to use both a GTIN in barcode and PLU code(s) together on 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/kilogram. It is always sold just as is: a 1 pound bag of carrots and should carry the appropriate barcode.

PLUs may be used with a corresponding GTIN in a barcode if the product can be sold either "by each/per unit" or weighed for pricing.

- Background: Countries using the PLU consider it the human readable equivalent of the GS1 DataBar Stacked Omnidirectional as the tiny sticker does not allow for the GTIN to be printed in HRI.

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.

Remark (GS1 in Europe): There are retailer-internal and standard PLUs. It is recommended to use the standard PLU = IFPS PLU. For full information, please consult the latest version of IFPS Produce PLU "A Users' Guide" (see section 4. Resources).

3.1.2 Using Barcodes

Which barcode do I use for fixed measure items?

Barcode	Encoding Capacity	Reader Requirements
EAN/UPC	GTIN only	Laser or imaged based scanner
GS1 DataBar	GTIN only	Laser or imaged based scanner
GS1 DataBar Stacked	GTIN only	Laser or imaged based scanner
GS1 DataBar Expanded	GTIN plus attributes	Laser or imaged based scanner
GS1 DataBar Expanded Stacked	GTIN plus attributes	Laser or imaged based scanner

Which barcode do I use for variable measure items?

- If a GTIN and additional data related to net dimensions such as net weight are to be encoded use GS1 DataBar Expanded or GS1 DataBar Expanded Stacked. A GS1 2D Code can be chosen subject to mutual agreement with your business partners.

Barcode	Encoding Capacity	Reader requirements
GS1 DataBar Expanded	GTIN plus attributes	Laser or image based scanner
GS1 DataBar Expanded Stacked	GTIN plus attributes	Laser or image based scanner
GS1 DataMatrix	GTIN plus attributes	Image based scanner
GS1 QR Code	GTIN plus attributes	Image based scanner

Examples:

GS1 DataBar Stacked **GS1 QR Code** **GS1 DataMatrix**

Note: These examples show GTIN plus net weight encoded in the barcode because the net weight is very often used in the context of variable fresh food items.

3.1.3 GS1 DataBar Symbology

Characteristics of the GS1 DataBar

The GS1 DataBar has the following characteristics:

- Fully compatible with currently installed scanner technology
- Linear symbology
- Omnidirectional scanning capability, except in conjunction with "stacked" or "limited" formats
- Space-saving symbology, therefore suitable for extremely small products
- Additional information can be encoded in GS1 DataBar Expanded and GS1 DataBar Expanded Stacked using the Application Identifier System
- Availability of a range of application-specific symbols provides optimal versatility
- Worldwide symbology protection (ISO/IEC 24724)

Note: GS1 DataBar symbols encode a 14-digit numeric string. When encoding GTIN-12 or GTIN-13 in GS1 DataBar symbols, zero-fill with two or one zeros to the left of the GTIN.

Note: For more information on GS1 DataBar please see Annex.

Examples Sizes of GS1 DataBar Symbols

Note: Indicated symbol dimensions are based on an X-dimension of 0,264 mm

The size of GS1 DataBar symbols depends on the number of stacked lines, the size of the X-dimension, and how much data is encoded. The minimum X-dimension is 0,264, maximum is 0,66. For more details on creation of GS1 DataBar refer to GS1 General Specifications, chapter 5.6 "Linear barcodes – GS1 DataBar".

3.1.4 GS1 DataMatrix and GS1 QR Code Symbols

Characteristics of GS1 Data Matrix and GS1 QR Codes

- Both are a two-dimensional matrix symbologies made up of square modules arranged within a perimeter finder pattern.
- Both symbols are technically based on existing regular 2D symbologies. By adding a Function 1 Symbol Character (FNC1) they become GS1 approved symbologies thus being allowed to use GS1 application identifiers.
  - For more detailed technical specifications of Data Matrix see the International Standard *ISO/IEC 16022*. Data Matrix ISO version ECC 200 is the only version that supports GS1 system data structures, including Function 1 Symbol Character (FNC1).
  - For more detailed technical specifications of QR Code see ISO/IEC 18004:2015 Information technology -- Automatic identification and data capture techniques -- QR Code bar code symbology specification.
- Both symbologies have error correction, and this feature helps correct for partially damaged symbols.
- Both symbologies are space-saving, therefore suitable for extremely small products or much data on a product. Their compact design and the existence of various production methods that accommodate placing the symbology onto various substrates offer certain advantages over other symbologies currently in the GS1 system
- Orientation independence: Yes (requires a two-dimensional imaging scanner).
- GS1 QR Code may be printed in square format. Its quiet zone is four modules wide on all four sides.

- GS1 DataMatrix may be printed in square or rectangular format. Its Quiet Zone is one module wide on all four sides

Note: GS1 2D barcodes are not yet universally scannable at retail POS, as they require camera based scanners. Before using GS1 DataMatrix or GS1 QR Code barcodes for this application, trading partners SHALL mutually agree to have the ability to scan and process the required data.

Note: GS1 2D symbols encode a 14-digit numeric string. When encoding GTIN-12 or GTIN-13 in GS1 DataBar symbols, zero-fill with two or one zeros to the left of the GTIN.

Note: To support new applications additional GS1 approved data carriers (encoding additional data with the GTIN) may be applied with mutual agreement between trading partners.

3.1.5 Structure of the label

While used on a private label (retailer brand) the requirements are provided by the retailer, while for regular brands and non-branded items the structure and placement of the label should be in the hands of the supplier/packer to avoid customer-specific requirements or to meet regulatory requirements for placement.

3.1.6 Label Size

The size of the label depends on the amount of data and the size of the consumer unit. It is important to observe the technical specifications. Barcodes must be readable. Minimum legal information must be readable!

Common label sizes for consumer units are:

- 40 mm x 47 mm
- 40 mm x 55 mm
- 60 mm x 60 mm
- 68 mm x 45 mm

Due to growing commercial and legal requirements also bigger sizes may apply.

3.1.7 Human Readable interpretation/Human Readable text

- Below each barcode a human readable interpretation (HRI) must show the content, this is often only a GTIN.
- Further human readable text (Non-HRI) may be added on the label according to business process and legal requirements. This may include country of origin, variety, nutritional information, IFPS PLU, etc.

HRI shall appear except in rare circumstances for specific applications where there are extreme space constraints. If the GS1 AIDC data carrier cannot be read or scanned and the HRI does not appear on the label, package or item, Non-HRI text should be used as backup information.

3.2 Specific Label Scenarios for Consumer Units

As consumer units may occur in different forms (fixed weight vs variable weight, pre-packed, loose, etc.) the layout and content of the labels vary accordingly. The paragraphs below provide label details of the most relevant label solutions for:

1. pre-packed consumer unit (fixed weight)
2. pre-packed consumer unit (variable weight)
3. unpacked/loose piece (sold at retailer´s discretion by each or by weight)

3.2.1 Label on Pre-packed Consumer Unit (Fixed Weight)

The left column shows 2 options depending on the size of the consumer unit and the business requirements

Identification/GS1 Data Carrier	Information on the label
GTIN in EAN/UPC Symbol GTIN in GS1 DataBar Symbol (especially for packages of small or round items. Example: mini peppers)	Human Readable interpretation below each barcode (HRI) **Remark:** In the EU regulatory requirements apply to labels used on item (e. g. country of origin). For target market EU, please refer to the annex for further information

Notes: If additional attributes such as lot number or expiry date are needed, GS1 DataBar Expanded or Expanded Stacked symbol can be used. This scenario also applies if a single piece is regarded as pre-packed from a legal perspective, although a single fruit has not a fixed weight.

3.2.2 Label on Pre-packed Consumer Unit (Variable Weight)

Identification/ GS1 Data Carrier	Information on the label
GTIN + net weight in GS1 DataBar Expanded or Expanded Stacked Or in a GS1 DataMatrix GS1 QR Code	Human Readable interpretation below each barcode (HRI) **Remark:** In the EU regulatory requirements apply to labels used on item (e. g. country of origin). For target market EU, please refer to the annex for further information. **Note:** In some target markets RCNs are still being used while being phased out. Please refer to your local MO for additional instructions.

Note: GS1 Switzerland offers an implementation guide for the GS1 DataMatrix at PoS. GS1 BelgiLux sees explicit support for GS1 DataMatrix in a national working group with the target to use GTIN plus net dimension on variable fresh food items.

3.2.3 Label on Non Pre-packed/Loose Piece

Labelling a non pre-packed/loose piece is not a general requirement, but is done based on business/customer requirements.

Identification/GS1 Data Carrier	Information on the label
GTIN in EAN/UPC Symbol GTIN in GS1 DataBar (typically Stacked Omnidirectional) GTIN plus net weight* in GS1 DataBar Expanded or GS1 DataMatrix or in a GS1 QR Code	Human Readable interpretation below each barcode (HRI) IFPS PLU-number can be added

Notes: If only an internal PLU is on the label it can only be used on the premises of this one retailer.

The retailer decides how to handle variable measure fresh food trade items sold at POS. It can be processed as fixed or *variable measure products.

If loose produce has been defined to be sold by the each, the trade item can be identified like a fixed measure item, i. e. with a GTIN only.

This proceeding fully complies with the GS1 AIDC Fresh Foods Sold at Point-of-Sale Implementation Guideline.

Additional Label Examples

GTIN in GS1 DataBar Stacked Omnidirectional with IFPS PLU / without HRI

GTIN in GS1 DataBar Stacked Omnidirectional with HRI

Note: HRI shall appear except in rare circumstances for specific applications where there are extreme space constraints. If the GS1 AIDC data carrier cannot be read or scanned and the HRI does not appear on the label, package, or item, Non-HRI text should be used as backup information.

GTIN in EAN-13 symbol with HRI below the symbol

Note: Label size compels the use of a heavily truncated under-sized symbol. Best practice would be to use GS1 DataBar in this situation.

3.2.4 Pre-portioned Consumer Unit

Although it is stated in the introduction of this chapter that pre-portioned consumer units do not have a label they may occur labelled. In this case the recommendation under 3.2.3 may be applied.

3.2.5 How to Manage Non-POS Product That May Go to POS

A brand owner is the responsible party for identification of their trade items using GS1 standards. They should identify and segment inventories with different GTINs according to GTIN Allocation Rules and commercial agreements. This does not mean that a trade item intended by the brand owner for use at POS or not at POS will never be used by a downstream trading partner in a manner not intended. This exception cannot be managed by GS1 standards compliance, but only by bilateral commercial agreements.

3.3 Label Design (How to design a label)

The supplier/packer decides how the label is structured and designed by taking into account marketing aspects, legal requirements and GS1 specifications and implementation guidelines. In case of private labels, the retailer provides the relevant requirements. The GS1 General Specification provides specifications for barcode size and quality.

3.4 Label Placement (Where to put the label)

When placing labels on fruit and vegetables, the following principles, practices and examples should be considered to assure the labels will be properly and efficiently scanned. The GS1 General Specifications provides specifications for label placement.

Principles:

- At least one barcode is needed on a trade item intended for the Point-of-Sale.
- Only one barcode should be on a label.
- More than one label on an item should be avoided
- If more than one label is placed every label should contain the same GTIN
- Anything that will obscure or damage a barcode will reduce scanning performance.
- If the barcode height is below the recommended height it is not omnidirectional readable and has an impact on reading performance

Practices:

- Never position the barcode on the item in an area with inadequate space. Do not let the other graphics encroach on the space for the barcode.
- Never place barcodes, including Quiet Zones, on perforations, die-cuts, seams, ridges, edges, tight curves, folds, flaps, overlaps, and rough textures.
- Never put staples through a barcode or its Quiet Zones.
- Never fold a symbol around a corner.
- Never place a symbol under a package flap.
- Barcodes used for production control purposes should be obstructed wherever possible before entering general distribution

Examples:

Example Scanning issue due to bad contrast
(see barcode located on side panel)

Example Scanning issue due to bad placement

Example Scanning issue due to lack of height

4 Resources

GS1 AIDC *Fresh Foods Sold at Point-of-Sale Implementation Guideline*

GS1 General Specifications

www.gs1.org/barcodes-epcrfid-id-keys/gs1-general-specifications

Information about structure and use of GS1 DataMatrix

GS1 DataMatrix Guideline

Information about structure and use of the GTIN:

www.gs1.org/barcodes/technical/idkeys/gtin

GS1 in Europe

www.gs1.eu

GTIN Allocation Rules for Fresh Foods

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

GS1 Global Office

www.gs1.org

UNECE Standards for Fresh Fruits and Vegetables (FFV)

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

UNECE Standards for Dry and Dried Produce (DDP)

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

Codex Alimentarius – International Food Standards

www.codexalimentarius.org

EU Regulation on Fruit & Vegetables EU 543/2011

http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:157:0001:0163:EN:PDF

IFPS Produce PLU "A Users' Guide"

www.ifpsglobal.com and/or *www.plucodes.com*

5 Annex

5.1 Cross Reference of Terms

Produce Sector Term	Guideline Term	GS1 Glossary Term	GS1 Defination
Each Base Unit Saleable Unit	Consumer Unit (Each) Unit Item Loose Pre packed Pre proportioned	Trade Item	Any item (product or service) upon which there is a need to retrieve pre-defined information and that may be priced, ordered or invoiced at any point in any supply chain.
Case Traded Unit Bin Tote Pallet RPC Tray	Trade Unit (Case)	Trade Item Grouping	A standard compo-sition of trade item(s) that are not intended for point-of-sale scanning.
Pallet Non-Standard Mixed Case	Logistic Unit (Pallet)	Logistic Unit	An item of any compo-sition established for transport and/or storage that needs to be managed through the supply chain.

5.2 Glossary – GS1 Terms & Definitions

Term	Definition
automatic identification and data capture (AIDC)	A technology used to automatically capture data. AIDC technologies include barcodes, smart cards, biometrics and RFID.
Barcode	A symbol that encodes data into a machine readable pattern of adjacent, varying width, parallel, rectangular dark bars and pale spaces.
barcode verification	The assessment of the printed quality of a barcode based on ISO/IEC standards using ISO/IEC compliant barcode verifiers.
batch/lot	The batch or lot number associates an item with information the manufacturer considers relevant for traceability of the trade item. The data may refer to the trade item itself or to items contained in it.
brand owner	The party that is responsible for allocating GS1 identification keys. The administrator of a GS1 Company Prefix.

Term	Definition
check digit	A final digit calculated from the other digits of some GS1 Identification Keys. This digit is used to check that the data has been correctly composed. (See GS1 Check Digit Calculation.)
customer	The party that receives, buys, or consumes an item or service.
data character	A letter, digit, or other symbol represented in the data field(s) of an element string
data field	A field that contains a GS1 Identification Key, an RCN, or attribute information
data titles	Data titles are the abbreviated descriptions of Element Strings which are used to support manual interpretation of barcodes.
EAN/UPC symbology	A family of barcodes including EAN-8, EAN-13, UPC-A, and UPC-E barcodes. Although UPC-E barcodes do not have a separate symbology identifier, they act like a separate symbology through the scanning application software. See also EAN-8 barcode, EAN-13 barcode, UPC-A barcode, and UPC-E barcode.
EAN-13 barcode	A barcode of the EAN/UPC symbology that encodes GTIN-13, Coupon-13, RCN-13, and VMN-13.
element	A single bar or space of a barcode.
extension digit	The first digit within the SSCC (Serial Shipping Container Code) which is allocated by the user and is designed to increase the capacity of the SSCC.
fixed measure trade item	An item always produced in the same pre-defined version (e.g., type, size, weight, contents, and design) that may be sold at any point in the supply chain.
Function 1 Symbol Character (FNC1)	A symbology character used in some GS1 data carriers for specific purposes.
fresh foods	Trade items in the following product categories: fruits, vegetables, meats, seafood, bakery and ready to serve food such as cheeses, cold cooked or cured meats, and salad, etc. Fresh Foods is defined as food that is not preserved by canning, dehydration, freezing or smoking.
general distribution scanning	Scanning environments that include barcoded trade items packaged for transport, logistic units, assets, and location tags.
Global Trade Item Number® (GTIN®)	The GS1 identification key used to identify trade items. The key comprises a GS1 Company Prefix, an item reference and check digit.
GS1 AIDC data carrier	A means to represent data in a machine readable form; used to enable automatic reading of the Element Strings as specified for use by GS1.
GS1 Application Identifier	The field of two or more digits at the beginning of an Element String that uniquely defines its format and meaning.

Term	Definition
GS1 Company Prefix	A unique string of four to twelve digits used to issue GS1 identification keys. The first digits are a valid GS1 Prefix and the length must be at least one longer than the length of the GS1 Prefix. The GS1 Company Prefix is issued by a GS1 Member Organisation. As the GS1 Company Prefix varies in length, the issuance of a GS1 Company Prefix excludes all longer strings that start with the same digits from being issued as GS1 Company Prefixes. See also U.P.C Company Prefix.
GS1 DataBar Expanded barcode	A barcode that encodes any GS1 Identification Key plus Attribute data, such as weight and "best before" date, in a linear symbol that can be scanned omnidirectionally by suitably programmed point-of-sale scanners.
GS1 DataBar Expanded Stacked barcode	A barcode that is a variation of the GS1 DataBar Expanded barcode that is stacked in multiple rows and is used when the normal symbol would be too wide for the application.
GS1 Data Bar Omnidirectional barcode	A barcode that encodes a GTIN. It is designed to be read by omnidirectional scanners.
GS1 DataBar®	A family of barcodes, including GS1 DataBar Omnidirectional; GS1 DataBar Stacked Omnidirectional; GS1 DataBar Expanded; GS1 DataBar Expanded Stacked GS1 DataBar Truncated, GS1 DataBar Limited, and GS1 DataBar Stacked symbols.
GS1 DataBar Retail POS family	The members of the GS1 DataBar symbology family designed to be read in segments by omnidirectional scanners at retail POS: GS1 DataBar Omnidirectional; GS1 DataBar Stacked Omnidirectional; GS1 DataBar Expanded; GS1 DataBar Expanded Stacked
GS1 DataBar Stacked barcode	A barcode that is a variation of the GS1 DataBar Truncated barcode that is stacked in two rows and is used when the GS1 DataBar Truncated barcode would be too wide for the application.
GS1 Global Data Dictionary	A repository tool used to record GS1 member standards agreements on business terms and definitions used by all business units.
GS1 DataMatrix	A subset of Data Matrix which uses the function that allows the encoding of element strings.
GS1®	Based in Brussels, Belgium, and Princeton, USA, it is the organisation that manages the GS1 System. Its members are GS1 Member Organisations.
GS1 identification key	A unique identifier for a class of objects (e. g. a trade item) or an instance of an object (e.g. a logistic unit).
GS1 Identification Keys	A globally managed system of numbering used by all GS1 Business Units to identify trade items, logistic units, locations, legal entities, assets, service relationships, consignment, shipments and more. Any identification number that combines GS1 member company identifiers (GS1 Company Prefix) with standards based rules for allocating reference numbers is a key.

Term	Definition
GS1 Member Organisation	A member of GS1 that is responsible for administering the GS1 System in its country (or assigned area). This task includes, but is not restricted to, ensuring brand owners make correct use of the GS1 System, have access to education, training, promotion and implementation support and have access to play an active role in GSMP.
GS1 Prefix	A unique string of two or more digits issued by GS1 Global Office and allocated to GS1 Member Organisations to issue GS1 Company Prefixes or allocated to other specific areas.
GS1 QR Code	A subset of QR Code which uses the function that allows the encoding of element strings.
GS1 system	The specifications, standards, and guidelines administered by GS1.
GTIN application format	A format for a GTIN-8, GTIN-12, or GTIN-13 used when a GTIN application uses a fixed field length, for example, when a GTIN-13 is encoded in symbology using Application Identifier (01).
GTIN-12	The 12-digit GS1 Identification Key composed of a U.P.C. Company Prefix, Item Reference, and Check Digit used to identify trade items.
GTIN-13	The 13-digit GS1 Identification Key composed of a GS1 Company Prefix, Item Reference, and Check Digit used to identify trade items.
GTIN-14	The 14-digit GS1 Identification Key composed of an Indicator digit (1–9), GS1 Company Prefix, Item Reference, and Check Digit used to identify trade items.
GTIN-8	The 8-digit GS1 Identification Key composed of a GS1-8 Prefix, Item Reference, and Check Digit used to identify trade items.
human readable interpretation (HRI)	Characters, such as letters and numbers, which can be read by persons and are encoded in GS1 AIDC data carriers confined to a GS1 standard structure and format. The Human Readable Interpretation is a one-to-one illustration of the encoded data. However start, stop, shift and function characters, as well as the symbol check character, are not shown in the human readable interpretation.
leading zero(s)	Digits (always zeroes) which must be placed in the leftmost position(s) of a data string when GTIN-8, GTIN-12, or GTIN-13 are encoded in an GS1 AIDC data carrier that requires 14-digits (see also GTIN Application Format) or when used for the same intent in other data structures such as GRAI.
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.
Loose produce	Fruits and vegetables which are delivered to the store loose, in boxes or cases, and then put into a bag or selected individually by the customer for purchase.
non-HRI text	Characters such as letters and numbers that can be read by persons and may or may not be encoded in GS1 AIDC data carriers and are not confined to a structure and format based on GS1 standards (e. g.,

Term	Definition
	a date code expressed in a national format and format based on GS1 standards (e. g., a date code expressed in a national format that could be used to encode a date field in a GS1 AIDC data carrier, brand owner name, consumer declarations).
point-of-sale (POS)	Refers to the retail checkout where omnidirectional barcodes must be used to enable very rapid scanning or low volume checkout where linear or 2D matrix barcodes are used with image-based scanners.
price check digit	A digit calculated from the price element of a variable measure number encoded using the EAN/UPC symbology. Used to check that the data has been correctly composed.
Restricted Circulation Number (RCN)	Signifies a GS1 identification number used for special applications in restricted environments, defined by the local GS1 Member Organisation (e. g., restricted within a country, company, industry). They are allocated by GS1 for either internal use by companies or to GS1 Member Organisations for assignment based on business needs in their country (e.g., variable measure product identification, couponing).
Serial Shipping Container Code	The GS1 identification key used to identify logistics units. The key comprises an extension digit, GS1 Company Prefix, serial reference, and check digit.
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).
symbol	The combination of symbol characters and features required by a particular symbology, including Quiet Zone, start and stop characters, data characters, and other auxiliary patterns, which together form a complete scannable entity; an instance of a symbology and a data structure.
symbol character	A group of bars and spaces in a symbol that is decoded as a single unit. It may represent an individual digit, letter, punctuation mark, control indicator, or multiple data characters.
symbology	A defined method of representing numeric or alphabetic characters in a barcode; a type of barcode.
symbology element	A character or characters in a barcode used to define the integrity and processing of the symbol itself (e. g., start and stop patterns). These elements are symbology overhead and are not part of the data conveyed by the barcode.
symbology identifier	A sequence of characters generated by the decoder (and prefixed to the decoded data transmitted by the decoder) that identifies the symbology from which the data has been decoded.
trade item grouping	A predefined composition of trade item(s) that is not intended for Point-of-Sale scanning. It is identified with a GTIN-14, GTIN-13, or GTIN-12.

Term	Definition
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.
variable measure trade item	A trade item which may be traded without a pre-defined measure, such as its weight or length
two-dimensional (2D) symbology	Optically readable symbols that must be examined both vertically and horizontally to read the entire message. Two-dimensional symbols may be one of two types: matrix symbols and multi-row symbols. Two-dimensional symbols have error detection and may include error correction features.

5.3 GS1 DataBar

The GS1 DataBar family consists of 7 different variants, only 4 of them are applicable for POS. Choose the right GS1 DataBar symbol and size:

1. Check the space dedicated to the barcode on the label and the data to be encoded. This will enable you to select the right GS1 DataBar type.
   - GTIN only: GS1 DataBar Omnidirectional. If less space GS1 DataBar Stacked Omnidirectional.
   - GTIN plus weight: GS1 DataBar Expanded. If less space GS1 DataBar Expanded Stacked
2. Choose the X-dimension. This should be between 0.264 mm and 0.660 mm, for loose produce it may be 0,203 mm and then lead to slower scanning performance. For more details, refer to the GS1 General Specification Chapter 5, Symbol Specification Table 1.

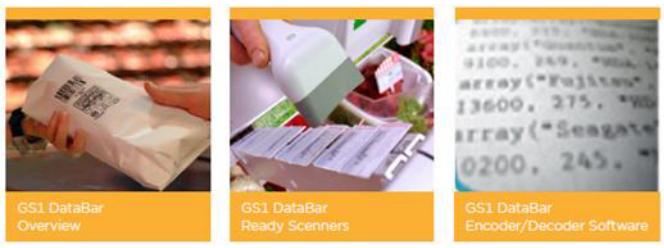
Data transmitted by the scanner

The GS1 DataBar family symbols are designed and intended to be used with symbology identifiers and also specified in the ISO standard. GS1 DataBar family symbols are normally transmitted using symbology identifier prefix "]e0". For example, a GS1 DataBar Symbol encoding AI (01) Element String produces the transmitted data string "]e00104012345000016".

GS1 DataBar Expanded Symbols encode the application identifiers. All Element Strings of variable length and those of fixed length not stated in the predefined table "3.2-1. GS1 Application Identifiers" shown in General Specifications, chapter 3.2, must be delimited when followed by another Element String in a single barcode. The delimiter is a Function 1 Symbol Character (FNC1). This is transmitted as a <GS> (ASCII 29) unless it is the last character in a symbol in which case it is not transmitted.

How to use GS1 DataBar

For more information please reference: *http://www.gs1.org/barcodes/databar*



For a readiness checklist for suppliers and retailers please refer to the GS1 AIDC Fresh Foods Sold at POS Implementation Guide.

http://www.gs1.org/fresh-foods/implementation-guidelines

For symbol specifications for GS1 DataBar Symbols for POS reference GS1 General Specifications, Section 5, Symbol Specification Table 1, The GS1 General Specifications is the core standards document of the GS1 System describing how GS1 barcodes and identification are to be implemented.

http://www.gs1.org/genspecs

5.4 GS1 2D Codes

5.4.1 GS1 Data Matrix Data transmitted by the scanner

The GS1 system requires the use of symbology identifiers. GS1 DataMatrix uses the symbology identifier of]d2 for GS1 system compliant symbols that have a leading FNC1 character. This indicates that GS1 Application Identifier (AI) data is used.

For example, a GS1 DataMatrix symbol encoding AI (01) element string 10012345678902 produces the transmitted data string "]d20110012345678902." Data transmission follows the same principles that apply to the concatenation of AI element strings in any GS1 barcode that encodes GS1 Application Identifiers.

All element strings of variable length and those of fixed length not stated in the predefined table "3.2-1. GS1 Application Identifiers" shown in General Specifications, chapter 3.2, must be delimited when followed by another element string in a single barcode. The delimiter (separator) is either the Function 1 Symbol Character (FNC1) or the control character <GS> (ASCII value 29).

Choose the right X-dimension: This should be between 0.375 mm and 0.990 mm

5.4.2 GS1 QR Code Data transmitted by the scanner

The GS1 system requires the use of symbology identifiers. GS1 QR Code uses the symbology identifier of]Q3 for GS1 system compliant symbols that have a leading FNC1 character. This indicates that GS1 Application Identifier (AI) data is used.

For example, a GS1 QR Code symbol encoding AI (01) element string 10012345678902 produces the transmitted data string "]Q30110012345678902." Data transmission follows the same principles that apply to the concatenation of AI element strings in any GS1 barcode that encodes GS1 Application Identifiers

All element strings of variable length and those of fixed length not stated in the predefined table "3.2-1. GS1 Application Identifiers" shown in General Specifications, chapter 3.2, must be delimited when followed by another element string in a single barcode. The delimitater (or separator) is either the control character <GS> (ASCII value 29) or the character '%' (ASCII value 37 (decimal). This is transmitted as a <GS> (ASCII 29).

Choose the right X-dimension: This should be between 0.375 mm and 0.990 mm.

For more details on GS1 2D Codes please see GS1 General Specifications

www.gs1.org/barcodes-epcrfid-id-keys/gs1-general-specifications

5.5 Scanners and data strings in barcodes

Scanners

Barcode scanners come in two general categories: linear (laser) scanners and optical (camera-based) scanners. Linear scanners can only scan linear or one-dimensional barcodes; these are the familiar barcodes with vertical bars and spaces.

Optical scanners take a picture of a 1D or 2D barcode and analyse it to apply the proper decoding algorithm. This type of scanner is needed to scan 2D barcodes. Various studies show rapid adoption of optical scanners by the retail industry.

Scanners (fixed bioptic, hand scanner, and presentation) must be capable and activated for the GS1 barcodes that your company and your trading partners have selected.

Many scanners are capable of reading these GS1 symbols, but could be currently installed at the retailer's location without this functionality enabled (i.e., not yet "turned on").

Camera-based scanners are necessary to read the data held within GS1 QR Code and GS1 DataMatrix symbols because laser-based scanners are not capable of reading them.

Data strings in barcodes

The GS1 system requires the use of symbology identifiers for GS1 symbologies. The symbology identifier is a three-character data string. It is not encoded in the barcode but is generated by the decoder after decoding as all scanning equipment has the ability to recognise the symbology that has been scanned. The symbology identifier is transmitted as a preamble to the data message.

]E0	EAN-13, UPC-A, or UPC-E
]e0	GS1 DataBar
]d2	GS1 DataMatrix
]Q3	GS1 QR Code

ISO/IEC 15424 symbology identifiers used for GS1 symbologies at PoS

GS1 2D symbols have a leading FNC1 character. How it is generated in the software depends on the respective software program, there is no general convention. It is automatically set as the start character by selecting the appropriate GS1 symbology in the barcode creation program. Otherwise it is up to the software programmer to define its creation.

The data interpreted and transmitted by the scanner is dependent on the manufacturer’s device settings. Human readable interpretation (HRI) is shown below the barcode to show what is encoded.

Each transmitted full string consists of a symbology identifier and one or more element strings as you can see in the two examples below.

GS1 Data Matrix

(01)09501101420069
(3922)995
(3202)000100
(17)210615
(422)123
(21)12345678

HRI: (01)09501101420069(3922)995(3202)000100(17)210615(422)123(21)12345678

data to be encoded in the symbol:
FNC101095011014200693922995FNC132020001001721061542212 3FNC12112345678

data interpreted and transmitted by the scanner:
]d201095011014200693922995<GS>3202000100172106154221 23<GS>2112345678

Colour Coding Key	
Red	Function Code 1 (FNC1), to be encoded according to the specifications of the symbology used.
green	GS1 Application Identifier (AI)
blue	ISO/IEC 15424 symbology identifier
purple	If the FNC1 is used as a separator character for GS1 AIs the FNC1 is interpreted as a group separator <GS1>

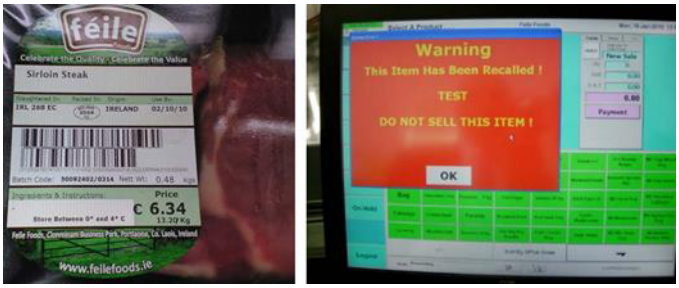
EAN/UPC

Human Interpretable Form (HRI): 9501101420014
data to be encoded in the symbol: 9501101420014
data interpreted and transmitted by the scanner:]E09501101420014

5.6 Static vs. dynamic data

The GTIN and most of the data typically associated with it are static; they contain consistent data points that remain the same across all individual units of a specific trade item. Additional static data such as the ingredient list can be printed on the package or stored in master data and shared via systems like the Global Data Synchronization Network™ (GDSN®).

The addition of attribute data onto packaging will increase the use of dynamic data (e.g., batch/lot number, expiration date, serial number). For example, a lot number on a package can be linked to the production date, grower location, and even a specific packaging line. This data can be used for B2B purposes, facilitating traceability or targeted product recalls.



Product recall and traceability at point-of-sale with GTIN and lot/batch number

5.7 Legal Requirements for Labels on Fruit & Vegetables in the EU

Apart from the requirements between the business partners, it is necessary to provide on labels for consumer units and trade units the right information according to a number of relevant EU directives like EU 1169/2011 or EU 543/2011 and their national implementations. Based on a business view, the following tables aim to help companies in the fruit & vegetable sector and their business partners to have the same understanding regarding the legal requirements and provide guidance about the needed information on a label from a legal point of view.

Unprocessed Fruit & Vegetables – Label Requirements for Consumer Items						
	Prepacked single commodity		**Prepacked variety pack (mixes of different species of fresh fruit & vegetables)**	**Non prepacked, loose**	**Additional remarks**	**Relevant Regulation (Source)**
	Open Pack A 	**Closed pack B** 	**C** 	**D** 		
Description	A prepacked open pack is a package for which the content can be altered without damaging the package.	A prepacked closed pack is a package for which the content cannot be altered without damaging the package.	A prepacked variety pack consists of components of different species of fruit and vegetables. Mix packages of different species are only allowed if their weight is ≤ 5 kg & they are properly labelled.	Protective films covering single produce are not considered as a pre-package according to EU 2011/543.	These definitions for processed and unprocessed fruit and vegetables are only applicable for the labelling process. There are other definitions of prepared for other purposes in other regulations. The distinction between prepared and processed produce is defined in EU 852/2004, EU 1169/2011 defines information requirements for processed products.	EU 852/2004; EU 543/2011 Annex VI contains the categories of processed products; EU 1169/2011.
General	There is no labelling requirement for consumer items in open packages in the trading phase. Labelling is done on the trading package (column E or F).	Regulations also apply for mixes with the same species (e.g. tricolor-bell-peppers, lettuce mixes, apple varieties etc.)r	For mix packages containing processed foodstuff the regulations for processed and prepared food apply (see column J).	There is no labelling require-ment for loose items in the trading phase nor in consumer phase. Labelling is done on the trading package (column E or F).	When mandatory information on a consumer item is not visible when packed in a case, then the same information must be displayed on the case as well.	EU 543/2011 art. 5 & 6; EU 1169/2011 art. 9 part 1, art. 12 & 13.
Nature of produce = Regulated product name	Not applicable for open packages. In case of data exchange the nature of the produce as men-tioned on the trading package should be used as regulated product name.	The nature of produce is mandatory. Depending on the product, the nature of produce contains the variety or commercial type.	The nature of produce is mandatory. Depending on the product, the nature of produce contains the variety or commercial type. The nature of produce for each product in the pack has to be declared.	Not applicable for loose items. In case of data exchange the nature of the produce as mentioned on the trading package should be used as regulated product name.	When a product is in a certain state, then that must be part of the product name to avoid misleading the end consumer. E.g. Dried figs, Peeled and diced mango's	EU 1169/2011 art. 17.
Language	Not applicable for open packages	The EU requires that the text on the label must be written in one of the official languages of an EU member state and be comprehensible for the consumer.	The EU requires that the text on the label must be written in one of the official languages of an EU member state and be comprehensible for the consumer.	Not applicable for loose items	In several countries such as Belgium, France, The Netherlands and Germany, there is a national requirement that the language on the label must be one of the official languages of that country.	EU 1169/2011 art. 15; EU 543/2011 (trading units).
Minimum Fontsize	Not Applicable for open packages	1,2 mm (if label <80 cm^2 then 0,9 mm).	1,2 mm (if label <80 cm^2 then 0,9 mm).	Not applicable on loose items		EU 1169/2011 art. 13 par. 2-3
Country of Origin	Not applicable for open packages. In the store the country of origin must be displayed in close proximity to the shelf	Mandatory, declared either by the full name or by a common name of the country of origin. If the package contains a mix of varieties of the same product, like a pepper mix originating from different countries, the origin of each item must be listed on the label.	Mandatory, declared either by the full name or by a common name of the country of origin. The declaration may be replaced with one of the following terms, as appropriate: a) mix of EU fruit and vegetables b) mix of non-EU fruit and vegetables c) mix of EU and non-EU fruit and vegetables or likewise denominations.	Not applicable for loose items. In the store the country of origin must be displayed in close proximity to the shelf.	Abbreviations or ISO codes such as UK for Great Britain or DE for Germany are NOT allowed.	EU 543/2011 art. 7. and Annex 1; EU 1169/2011 (art. 26); EU 1308/2013 art. 113/1..
Identification of packer or other rele-vant parties	Not applicable for open packages	Mandatory. Full name and address of Packer or Trader. Alternatively can be identified by name and address of a seller (retailer) established within the Union, indicated in close connection with the denomination 'Packed for:' or an equivalent denomination.	Mandatory. Full name and address of Packer or Trader. Alternatively can be identified by name and address of a seller (retailer) established within the Union, indicated in close connection with the denomination 'Packed for:' or an equivalent denomination.	Not applicable for loose items	In case the denomination "Packed for" is used, the labelling shall also include a code mark representing the packer and/or the dispatcher. The seller shall give all information deemed necessary by the inspection body as to the meaning of this code mark.	EU 543/2011 annex 1 part A; EU 1169/2011 art. 8
Quantity: Net content ex-pressed as count or net weight	Not applicable for open package. However, to inform the consumer, the quantity, expressed as net weight in grams or kilograms, must be given in the store in close proximity to the product.	The quantity in the prepacked package is expressed as net weight (in grams or kilograms). Net weight is not compulsory for products which are usually sold by number provided that the number of items is clearly	The quantity in the prepacked package is expressed as net weight (in grams or kilograms). Net weight is not compulsory for products which are usually sold by number provided that the number of items is clearly visible from outside or the number is mentioned on the label.	Not applicable for loose items	Some products loose a considerable amount of their weight or volume. Prepackages can be marketed either fixed or variable weight; In the first case, the weight must reflect the shrinkage (water loss) throughout the supply-chain. EU 543/2011 prevails above EU 1169/2011.	EU 1169/2011 – art. 23 + appendix X; EU 543/2011 art. 6.

Unprocessed Fruit & Vegetables – Label Requirements for Consumer Items						
	Prepacked single commodity		**Prepacked variety pack (mixes of different species of fresh fruit & vegetables)**	**Non prepacked, loose**	**Additional remarks**	**Relevant Regulation (Source)**
		visible from outside or the number is mentioned on the label.	The quantities of each product in a mix have to be declared on the label.			
Best Before Date/Expiry Date	Not applicable for fresh fruit & vegetables.	Not mandatory for fresh fruit & vegetables. Note that for sprouting vegetables (buds, sprouts and seedlings) declaration of the best before date is mandatory.	Not mandatory for fresh fruit & vegetables. Note that for sprouting vegetables (buds, sprouts and seedlings) declaration of the best before date is mandatory.	Not applicable for fresh fruit & vegetables.	Although it is not mandatory for fresh unprocessed fruit and vegetables the use of best-before-date is encouraged.	EU 1169/2011 – art. 24 + appendix X.
Production Lot number	Not applicable for open packages	A production batch identification or lot number is mandatory on the consumer package.	A production batch identification or lot number is mandatory on the consumer package.	Not applicable for loose items	A clearly defined Best-Before-Date or Production Date can be used as alternative for the lot number. The lot number shall be preceded by the letter 'L' except in cases where it is clearly distinguishable from the other indications on the label.	
List of Ingredients	Not applicable for open packages	Not applicable for fresh fruit & vegetables	Not applicable when only a Mix of F&V is packed. If F&V with additional foodstuff is packed then all ingredients have to be declared.	Not applicable for loose ite	A list of ingredients is not required for unprepared fresh fruit and vegetables nor for products that contain only 1 ingredient and have the name of that single ingredient in the product name. (Cherry tomato contains tomato)	EU 1169/2011 art. 18- par. 1 and 21. EU 1169/2011 Appendix VII art. 19 par. 1 a and e.
Allergenic declaration	In F&V only applicable for Celery (leaves, stems and roots). This is not compulsory when the name of the allergen is part of the regulated product name. As this always contains the nature of produce an allergenic declaration will never be mandatory in this case.	In F&V only applicable for Celery (leaves, stems and roots) This is not compulsory when the name of the allergen is part of the regulated product name. As this always contains the nature of produce an allergenic declaration will never be mandatory in this case.	When celery is one of the items in the mix it is mandatory to declare it as an allergen on the label. The label shall contain either – an allergenic declaration in the list of ingredients – or elsewhere on the label the literal "Contains" followed by the name of the allergen.	In F&V only applicable for Celery (leaves, stems and roots). This is not compulsory when the name of the allergen is part of the regulated product name. As this always contains the nature of produce an allergenic declaration will never be mandatory in this case.	An allergenic declaration in the list of ingredients must be highlighted (for example CAPITAL, bold or italic). Voluntary declaration of other allergens such as radish is encouraged	EU 1169/2011
Declaration of nutritional value	Not applicable for fresh fruit & vegetables.	Not applicable for fresh fruit & vegetables	Declaration of nutritional values is mandatory when the package contains different categories of foodstuff (e. g. lettuce with dressing). See processed.	Not applicable for fresh fruit & vegetables.	The distinction between prepared and processed produce is defined in EU 852/2004. EU 1169/2011 defines information requirements for processed products	EU 852/2004 art.2 par. 1: definition of processed and unprocessed products EU 1169/2011.
Additives including waxes	Not applicable for fresh fruit & vegetables.	Not applicable for fresh fruit & vegetables	Not applicable for fresh fruit & vegetables	Not applicable for fresh fruit & vegetables	EU 1169/2011 Annex VII part C contains all categories of additives. Waxes used on fruits are considered additives too. Aromas are a separate category for which the same applies. The EU has published a positive list of additives and waxes and the quantities that may be used. Note that additives must be declared in the list of ingredients which is not applicable for unprepared fruit and vegetables. A maximum of 10 mg/kg of sulfite can be administered to packages of fruit, e.g. blueberries, lychees and tablegrapes. Excession of this value must be declared as an allergen!	EU 1333-2008; EU 1169/2011 Annex VII part C.
Post Harvest Treatment	Not applicable for open packages	Anti-molding agents added in a post-harvest treatment on citrus fruits must be mentioned on the package.	Anti-molding agents added in a post-harvest treatment on citrus fruits must be mentioned on the package.	Not applicable for loose items		EU 543/2011 annex I
Protective Atmosphere	Not applicable for open packages	If a package contains gas to prolong the shelf life the term 'Packed in protective atmosphere' should be mentioned on the label.	If a package contains gas to prolong the shelf life the term 'Packed in protective atmosphere' should be mentioned on the label.	Not applicable for loose items	The type of gas used for the protective atmosphere should explicitly be allowed in EU 1333/2008	EU 1169/2011 Annex III EU 1333/2008
Product dependent information requirement	For products for which the specific marketing standards apply, additional information about Quality Class Size, Variety or Commercial Type and Post-harvest treatment has to be declared either on the product or in close proximity (on the shelf) in accordance with the specific UNECE product standard.				Products with specific marketing standards are: apples, citrus peaches and nectarines, pears, strawberries, sweet peppers, table fruit, kiwi fruit, lettuces, curled leaved and broadleaved endives, grapes, tomatoes. Providing this information is recommended for all other products covered by UNECE Standards.	EU 543/2011 annex I and art. 3; EU 1243/2007 art. 113/1.

Unprocessed Fruit & Vegetables – Label Requirements for Trade Packages						
	Open trading package (case) containing consumer items **E** 	**Closed trading package (case) containing consumer items** **F** 	**Trading package (case) containing bulk/loose commodity** **G** 	**Trading package (case) is sold in consumer phase as a consumer unit case, non prepacked** **H** 	**Additional remarks**	**Relevant Regulation (Source)**
Description	The label on prepacked consumer items is visible from the outside of the trading package.	The label on prepacked consumer items is not visible from the outside of the trading package.	Trading packages containing loose items may be covered by e. g. paper, carton or foil.	All regulations for consumer items and for trading packages apply.	These definitions for processed and unprocessed fruit and vegetables are only applicable for the labelling process. There are other definitions of prepared for other purposes in other regulations. The distinction between prepared and processed produce is defined in EU 852/2004, EU 1169/2011 defines information requirements for processed products.	EU 852/2004; EU 543/2011 Annex VI contains the categories of processed products; EU 1169/2011.
General	Labelling of a trading package is not required when it contains labelled consumer units which are visible from the outside.	All mandatory information applying to consumer items must also be declared or labelled on the trading package (Crate, Carton, Box).	Information on the trading package is obliged.	In the trading phase labelling on the package is required. The marketing of packages with mixes of different species of fruit and vegetables is allowed provided they contain a net weight of 5 kg or less.	When mandatory information on a consumer item is not visible when packed in a case, then the same information must be displayed on the case as well.	EU 543/2011 art. 5 & 6; EU 1169/2011 art. 9 part 1, art. 12 & 13.
Nature of produce = Regulated product name	Not applicable for open trade packages with clearly visible consumer package labels.	A common and general name must be used. The name describes the nature of the produce	A common and general name must be used. The name describes the nature of the produce	A common and general name must be used. The name describes the nature of the produce.	When a product is in a certain state, then that must be part of the product name to avoid misleading the end consumer. E. g. Dried figs, Peeled and diced mango's.	EU 1169/2011 art. 17.
Language	Not applicable for open trade packages with clearly visible consumer package labels.	The EU requires that the text on the label must be written in one of the official languages of an EU member state and be comprehensible for the consumer.	The EU requires that the text on the label must be written in one of the official languages of an EU member state and be comprehensible for the consumer.	The EU requires that the text on the label must be written in one of the official languages of an EU member state and be comprehensible for the consumer.	In several countries such as Belgium, France, The Netherlands and Germany, there is a national requirement that the language on the label must be one of the official languages of that country.	EU 1169/2011 art. 15; EU 543/2011 (trading units).
Minimum Font size	Not applicable	There is no regulation for minimum font size on trading packages.	There is no regulation for minimum font size on trading packages.	1,2 mm (if label <80 cm2 then 0,9 mm).		EU 1169/2011 art. 13 par. 2-3
Country of Origin	Not applicable for open trade packages with clearly visible consumer package labels.	The full name of the country of origin must be declared on the label. In case the article contains components coming from various countries, the label will contain a list of ingredients detailing the amount and countries of origin for each component.	The full name of the country of origin must be declared on the package label.	The full name of the country of origin must be declared on the label. In case the article contains components coming from various countries, the label will contain a list of ingredients detailing the amount and countries of origin for each component.	Abbreviations or ISO codes such as UK for Great Britain or DE for Germany are NOT allowed.	EU 543/2011 art. 7. and Annex 1; EU 1169/2011 (art. 26); EU 1308/2013 art. 113/1..
Identification of packer or other relevant parties	Not applicable for open trade packages with clearly visible consumer package labels.	The name and address of the packer must be declared. This may be replaced by the officially issued or accepted code mark representing the packer and/or the dispatcher, indicated in close connection with the reference 'Packer and/or Dispatcher' (or equivalent abbreviations).	The name and address of the packer must be declared. This may be replaced by the officially issued or accepted code mark representing the packer and/or the dispatcher, indicated in close connection with the reference 'Packer and/or Dispatcher' (or equivalent abbreviations).	Mandatory. Full name and address of packer or trader. Alternatively can be identified by the name and the address of a seller (retailer) established within the Union, indicated in close connection with the denomination 'Packed for:' or an equivalent denomination.	In case the denomination "Packed for" is used, the labelling shall also include a code mark representing the packer and/or the dispatcher. The seller shall give all information deemed necessary by the inspection body as to the meaning of this code mark.	EU 543/2011 annex 1 part A; EU 1169/2011 art. 8
Quantity: Net content expressed as	Not applicable for open trade packages with clearly visible consumer package labels.	The size (sorting) of products for which specific marketing standards apply must be identified in	The size (sorting) of products for which specific marketing standards apply must be identified in accordance to the standard concerned.	The quantity in the package is usually expressed as net weight (in grams or kilograms). Net weight is not compulsory for	Some products loose a considerable amount of their weight or volume. Prepackages can be marketed either fixed or variable weight; In the first case, the weight must reflect the shrinkage	EU 1169/2011 – art. 23 + appendix X; EU 543/2011 art. 6.

Unprocessed Fruit & Vegetables – Label Requirements for Trade Packages						
count or net weight		accordance to the standard concerned.		products which are usualy sold by number provided that the number of items is clearly visible from outside or the number is mentioned on the label.	(water loss) throughout the supply-chain. EU 543/2011 prevails above EU 1169/2011.	
Best Before Date/Expiry Date	Not applicable for fresh fruit & vegetables.	Not applicable for fresh fruit & vegetables	Not applicable for fresh fruit & vegetables.	Not applicable for fresh fruit & vegetables	Although it is not mandatory for fresh unprocessed fruit and vegetables the use of best-before-date is encouraged.	EU 1169/2011 – art. 24 + appendix X.
Production Lot number	Not applicable for open trade packages with clearly visible consumer package labels.	A production batch identification or lot number is mandatory on the trading package (Crate, Carton, Box).	A production batch identification or lot number is mandatory on the trading package (Crate, Carton, Box).	A production batch identification or lot number is mandatory on the trading package (Crate, Carton, Box).	A clearly defined Best-Before-Date or Production Date can be used as alternative for the lot number. The lot number shall be preceded by the letter 'L' except in cases where it is clearly distinguishable from the other indications on the label.	2011/91/EU art. 3
List of Ingredients	Not applicable for open trade packages with clearly visible consumer package labels.	Not applicable for trading packages	Not applicable for trading packages	Not applicable for trading packages	A list of ingredients is not required for unprepared fresh fruit and vegetables nor for products that contain only 1 ingredient and have the name of that single ingredient in the product name. (Cherry tomato contains tomato)	EU 1169/2011 art. 18- par. 1 and 21. EU 1169/2011 Appendix VII art. 19 par. 1 a and e.
Allergenic declaration	Not applicable for open trade packages with clearly visible consumer package labels.	Not applicable for trading packages	Not applicable for trading packages	In F&V only applicable for Celery (leaves, stems and roots). This is not compulsory when the name of the allergen is part of the regulated product name. As this always contains the nature of produce an allergenic declaration well never be mandatory in this case.	An allergenic declaration in the list of ingredients must be highlighted (for example CAPITAL, bold or italic). Voluntary declaration of other allergens such as radish is encouraged.	EU 1169/2011
Declaration of nutritional value	Not applicable for open trade packages with clearly visible consumer package labels.	Not applicable for fresh fruit & vegetables.	Not applicable for fresh fruit & vegetables.	Not applicable for fresh fruit & vegetables.	The distinction between prepared and processed produce is defined in EU 852/2004. EU 1169/2011 defines information requirements for processed products.	EU 852/2004 art.2 par. 1: defination of processed and unprocessed products EU 1169/2011.
Additives including waxes	Not applicable for trading packages with unprepared fruit and vege-tables.	Not applicable for trading packages with unprepared fruit and vegetables.	Not applicable for trading packages with unprepared fruit and vegetables.	Not applicable for trading packages with unprepared fruit and vegetables.	EU 1169/2011 Annex VII part C contains all categories of additives. Waxes used on fruits are considered additives too. Aromas are a seperate category for which the same applies. The EU has published a positive list of additives and waxes and the quantities that may be used. Note that additives must be declared in the list of ingredients which is not applicable for unprepared fruit and vegetables. A maximum of 10 mg/kg of sulfite can be administered to packages of fruit, e. g. blueberries, lychees and table grapes. Excession of this value must be declared as an allergen!	EU 1333-2008; EU 1169/2011 Annex VII part C.
Post Harvest Treatment	Not applicable for open trade packages with clearly visible consumer package labels.	Anti-molding agents added in a post-harvest treatment on citrus fruits must be mentioned on the trade package	Anti-molding agents added in a post-harvest treatment on citrus fruits must be mentioned on the trade package	Anti-molding agents added in a post- harvest treatment on citrus fruits must be mentioned on the package.		EU 543/2011 annex I
Protective Atmosphere	Not applicable for trading packages.	Not applicable for trading packages	Not applicable for trading packages	Not applicable for trading packages	The type of gas used for the protective atmosphere should explicitily be allowed in EU 1333/2008	EU 1169/2011 Annex III EU 1333/2008
Product dependent information requirement	For products for which the specific marketing standards apply, additional information about Quality Class Size, Variety or Commercial Type and Post-harvest treatment has to be declared either on the product or in close proximity (on the shelf) in accordance with the specific UNECE product standard.				Products with specific marketing standards are: apples, citrus peaches and nectarines, pears, strawberries, sweet peppers, table fruit, kiwi fruit, lettuces, curled leaved and broadleaved endives, grapes, tomatoes. Providing this information is recommended for all other products covered by UNECE Standards.	EU 543/2011 annex I and art. 3; EU 1243/2007 art. 113/1.

	Prepared or Processed Fruit & Vegetables – Label requirements for Consumer items and Trade Packages		**Prepacked or Processed – Trading packages**		
	Fresh Cut, Prepared/Not Processed: Cut, Cleaned, Diced, Halved, Peeled, Sliced  **I**	**Prepared and Processed: Cooked, Dried, Smoked. Transformed incl. addition of additives and mixes with other foodstuff**  **J**	**Trading package (case) Containing processed Consumer item**  **K**	**Additional remarks**	**Relevant Regulation (Source)**
Description	Unprocessed fruit and vegetables – Entire fresh fruit and vegetables; – Peeled, cut and shredded fruit and vegetables; – Frozen fruit and vegetables.	Processed fruit and vegetables – Dried fruit and vegetables; – Fruit and vegetables in vinegar, oil or brine; – Fruit and vegetable preparations; – Jam, jellies, marmalades and similar products; – Processed potato products; – Products smoked, cooked or otherwise transformed by heating; – Canned or bottled products.		These definitions for processed and unprocessed fruit and vegetables are only applicable for the labeling process. There are other definitions of prepared for other purposes in other regulations. The distinction between prepared and processed produce is defined in EU 852/2004, EU 1169/2011 defines information requirements for processed products.	EU 852/2004; EU 543/2011 Annex VI contains the categories of processed products; EU 1169/2011.
General	Each consumer item is clearly labelled with description of the item, net weight and either best before date or expiry date in one line of sight.	Each consumer item is clearly labelled with description of the item, net weight and either best before date or expiry date in one line of sight. All information requirement of 1169/2011 apply.	All mandatory information applying to the consumer item must also be displayed on the trading unit (Crate, Carton, Box).	When mandatory information on a consumer item is not visible when packed in a case then the same information must be displayed on the case as well.	EU 543/2011 art. 5 & 6; EU 1169/2011 art. 9 part 1, art. 12 & 13.
Nature of produce = Regulated product name	A common and general name must be used. The name describes the nature of the produce.	A common and general name must be used. The name describes the nature of the produce	A common and general name must be used. The name describes the nature of the produce.	When a product is in a certain state then that must be part of the product name to avoid misleading the end consumer. E.g. Dried figs, Peeled and diced mango's.	EU 1169/2011 art. 17.
Language	The EU requires that the text on the label must be written in one of the official languages of an EU member state and be comprehensible for the consumer.	The EU requires that the text on the label must be written in one of the official languages of an EU member state and be comprehensible for the consumer.	No requirements for the language	In several countries such as Belgium, France, The Netherlands and Germany, there is a national requirement that the language on the label must be one of the official languages of that country.	EU 1169/2011 art. 15; EU 543/2011 (trading units).
Minimum Font size	1,2 mm (if label <80 cm^2 then 0,9 mm)	1,2 mm (if label <80 cm^2 then 0,9 mm)	There is no regulation for minimum font size on trading packages.		EU 1169/2011 art. 13 par. 2-3
Country of Origin	The full name of the country of origin of the products must be declared if otherwise it would be misleading for the consumer. A voluntary statement of the origin of the product must be made in such a way that it cannot be confused with the name of the product (Italian tomato sauce made from Spanish tomatoes).	The full name of the country of origin of the products must be declared if otherwise it would be misleading for the consumer. A voluntary statement of the origin of the product must be made in such a way that it cannot be confused with the name of the product (Italian tomato sauce made from Spanish tomatoes).	The full name of the country of origin must be declared on the package label.	Abbreviations or ISO codes such as UK for Great Britain or DE for Germany are NOT allowed	EU 543/2011 art. 7. and Annex 1; EU 1169/2011 (art. 26); EU 1308/2013 art. 113/1..
Identification of packer or other relevant parties	Full name and address of the producer or the trade- name and address of either the brand owner or the seller who places the product on the market. When a product comes from a non EU country and the trading company is not established in the EU, the name and address of the importer.	Full name and address of the producer or the trade-name and address of either the brand owner or the seller who places the product on the market. When a product comes from a non EU country and the trading company is not established in the EU, the name and address of the importer.	Full name and address of the producer or the tradename and address of either the brand owner or the seller who places the product on the market. When a product comes from a non EU country and the trading company is not established in the EU, the name and address of the importer.	In case the denomination "Packed for" is used, the labelling shall also include a code mark representing the packer and/or the dispatcher. The seller shall give all information deemed necessary by the inspection body as to the meaning of this code mark.	EU 543/2011 annex 1 part A; EU 1169/2011 art. 8
Quantity: Net content expressed as count or net weight	Net content must be expressed in volume for fluid matter and in weight for solid matter.	Net content must be expressed in volume for fluid matter and in weight for solid matter.	When fresh products for which specific marketing standards apply are used the size must be identified in accordance to the standard concerned.	Some products loose a considerable amount of their weight or volume. Prepackages can be marketed either fixed or variable weight; In the first case, the weight must reflect the shrinkage (water loss) throughout the supply-chain. EU 543/2011 prevails above EU 1169/2011.	EU 1169/2011 – art. 23 + appendix X; EU 543/2011 art. 6.

	Prepared or Processed Fruit & Vegetables – Label requirements for Consumer items and Trade Packages		**Prepacked or Processed – Trading packages**		
Best Before Date/Expiry Date	A best-before-date is required on all processed products. Identification of the expiry date (ultimate consumption date) is compulsory for products that are very perishable from microbiological perspective.	A best-before-date is required on all processed products. Identification of the expiry date (ultimate consumption date) is compulsory for products that are very perishable from microbiological perspective	Declaration of best-before-date or an expiry date is not compulsory for fresh fruit & vegetables.	Although it is not mandatory for fresh unprocessed fruit and vegetables the use of best-before-date is encouraged	EU 1169/2011 – art. 24 + appendix X.
Production Lot number	A production batch identification or lot number is mandatory on the consumer package.	A production batch identification or lot number is mandatory on the consumer package.	A production batch identification or lot number is mandatory on the trading package (Crate, Carton, Box).	A clearly defined Best-Before-Date or Production Date can be used as alternative for the lot number. The lot number shall be preceded by the letter 'L' except in cases where it is clearly distinguishable from the other indications on the label. 2011	2011/91/EU art. 3
List of Ingredients	The label has to contain a list of ingredients and quantities in descending order. This list will start with the word: Ingredients. The list of ingredients includes additives.	The label has to contain a list of ingredients and quantities in descending order. This list will start with the word: Ingredients. The list of ingredients includes additives.	Not applicable for trading packages	A list of ingredients is not required for unprepared fresh fruit and vegetables nor for products that contain only 1 ingredient and have the name of that single ingredient in the product name. (Cherry tomato contains tomato)	EU 1169/2011 art. 18-par. 1 and 21. EU 1169/2011 Appendix VII art. 19 par. 1 a and e.
Allergenic declaratio	Whenever allergens are used in processed food the label shall contain either – an allergenic declaration in the list of ingredients – or elsewhere on the label the literal "Contains" followed by the name of the allergen.	Whenever allergens are used in processed food the label shall contain either – an allergenic declaration in the list of ingredients – or elsewhere on the label the literal "Contains" followed by the name of the allergen.	The allergenic declaration is not required for trading packages.	An allergenic declaration in the list of ingredients must be highlighted (for example CAPITAL, bold or italic). Voluntary declaration of other allergens such as radish is encouraged.	EU 1169/2011
Declaration of nutritional value	Declaration of nutritional values is mandatory when the package contains different types of food stuff (e. g. tomatoes with olive oil).	Nutritional values are mandatory.	Declaration of nutritional values is not applicable for trading packages.	The distinction between prepared and processed produce is defined in EU 852/2004. EU 1169/2011 defines information requirements for processed products.	EU 852/2004 art.2 par. 1: definition of processed and unprocessed products EU 1169/2011.
Additives including waxes	Food additives and food enzymes, belonging to a specified category must be designated in the list of ingredients by the name of that category, followed by their specific name or, if appropriate, E number.	Food additives and food enzymes, belonging to a specified category must be designated in the list of ingredients by the name of that category, followed by their specific name or, if appropriate, E number.	For trading packages containing prepared food the declaration of additives is mandatory.	EU 1169/2011 Annex VII part C contains all categories of additives. Waxes used on fruits are considered additives too. Aromas are a seperate category for which the same applies. The EU has published a positive list of additives and waxes and the quantities that may be used. Note that additives must be declared in the list of ingredients which is not applicable for unprepared fruit and vegetables. A maximum of 10 mg/kg of sulfite can be administered to packages of fruit, e. g. blueberries, lychees and table grapes. Excession of this value must be declared as an allergen!	EU 1333-2008; EU 1169/2011 Annex VII part C.
Post Harvest Treatment	See additives	See additives	See additives		EU 543/2011 annex I
Protective Atmosphere	If a package contains gas to prolong the shelf life the term 'Packed in. protective atmosphere' should be mentioned on the label.	If a package contains gas to prolong the shelf life the term 'Packed in. protective atmosphere' should be mentioned on the label.	Not Applicable.	The type of gas used for the protective atmosphere should explicitly be allowed in EU 1333/2008	EU 1169/2011 Annex III EU 1333/2008
Product dependent information requirement	For products for which the specific marketing standards apply, additional information about Quality Class Size, Variety or Commercial Type and Post-harvest treatment has to be declared either on the product or in close proximity (on the shelf) in accordance with the specific UNECE product standard.			Products with specific marketing standards are: apples, citrus, peaches and nectarines, pears, strawberries, sweet peppers, table fruit, kiwi fruit, lettuces, curled leaved and broad-leaved endives, grapes, tomatoes. Providing this information is recommended for all other products covered by UNECE Standards.	EU 543/2011 annex I and art. 3; EU 1243/2007 art. 113/1.

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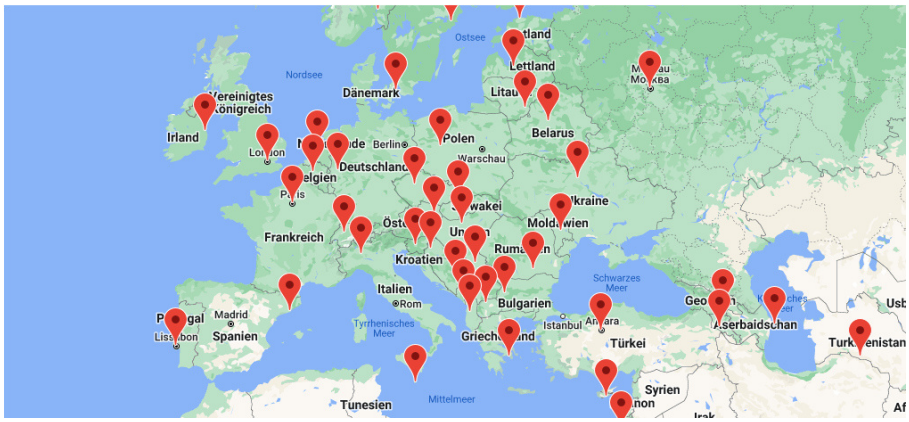
GS1 in Europe is a collaboration of 48 GS1 member organisations. We lead the creation and implementation of harmonised, user-driven solutions for improving the supply and demand chain of European companies.

GS1 in Europe Member Organisations



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