

# THE FRUITS AND VEGETABLES INDUSTRY SERIES

23 May 2022

## Session 3 – Technology innovations for fruit and vegetables quality control



## New techniques in barcodes and related challenges for the quality control of fruit and vegetable chain



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## **Case studies of current / actual implementation of 2D barcodes on consumer units of F&V at retail**

### **Implementation of GS1 2D barcodes around the globe**

- Retailers in Belgium, early adopter retailer Colruyt Group
- Retailer Woolworths in Australia and also
- Retailers Region South East Asia

### **Why implementation of GS1 2D DataMatrix at retailer Colruyt Group**

- Supply Chain optimization
- Started with variable weight products in Fresh Foods
- Global business need for int. standard instead of a local GS1 standard (RCN\*)

\* GS1 (Local) Standard RCN: Restricted Circulation Numbers for variable weight

# Case studies of current / actual implementation of 2D barcodes on consumer units of F&V at retail

## Variable weight Consumer Unit Colruyt Group Bell pepper mix packaging in flowpack



### Label Consumer Item contains

- 1) Human readable label information according to UNECE Marketing Standards
- 2) GS1 DataMatrix with GTIN and variable weight

### GS1 DataMatrix contains

- 1) Global Trade Item Number (GTIN-13 = EAN-13)
- 2) Net weight
- 3) Price per kg (optional)

Only GTIN under GS1 DataMatrix

# Case studies of current / actual implementation of 2D barcodes on consumer units of F&V at retail

## Variable weight Consumer Unit Colruyt Group Bell pepper mix packaging in flowpack



### GS1 2D barcodes could also contain

- Best Before Date (shelf life)
- Packaging date
- ID packer/sender (NL KCB-code or GLN)
- GLN grower
- Country of Origin

### Could contain in the near future

- Grade Code (e.g. Class I)
- Sizing by weight or diameter (Caliber)
- Variety (table grapes, citrus & pome fruits)
- Allergens
- Region within Country of Origin



## Other examples GS1 2D barcode (GS1 QR-code with GS1 Digital Link)

### Retailer Woolworths Australia

Fixed weight articles with GS1 QR codes



<https://freshchain.com.au/p/demo.php?d=1>

<https://www.youtube.com/watch?v=0comLxFacNU>



# Case studies of current / actual implementation of 2D barcodes on consumer units of F&V at retail

## Benefits for Quality Control of Fruits & Vegetables

- Scanning by mobile devices for Quality Control information
- Improving information exchange with Quality Inspection Information Systems (e.g. NL KCB)
- Improving labour efficiency by scanning Quality Control information
- Improving data quality by scanning
- Automatic search for GLN of packer/sender
- Supports trusted digital information exchange in Supply Chain

# **New techniques in barcodes and related challenges for the quality control of F&V chain**

## **International development in Retail**

- International implementation of GS1 2D barcodes
- All (inter)national Point of Sale (POS) systems will be ready by the end of 2027

## **New techniques support electronic information exchange about**

- ✓ Product & Food Safety
- ✓ Traceability / Transparency
- ✓ Sustainability
- ✓ New developments in packaging
- ✓ Efficiency
- ✓ Consumer engagement



# New techniques in barcodes and related challenges for the quality control of F&V chain

Actual situation in Europe

- 1-Dimensional GS1-13 barcode (in Europe a.k.a. EAN-13)

*Traditional barcode GS1-13*



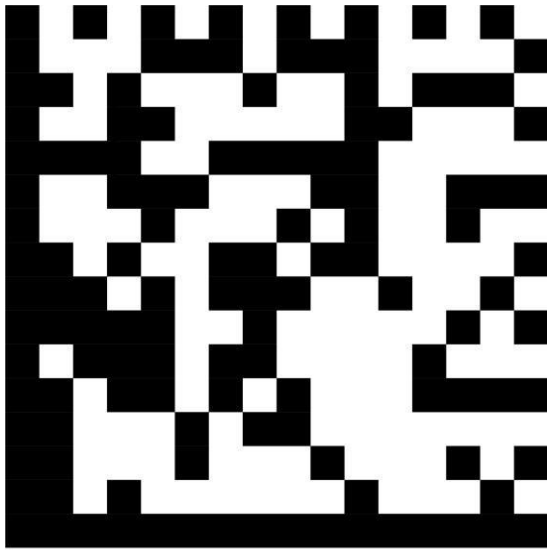
- European implementation of 2-Dimensional barcode GS1 Data Matrix in Belgium

*GS1 DataMatrix*



# New techniques in barcodes and related challenges for the quality control of F&V chain

## 2-Dimensional GS1 Data Matrix



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### Benefits

- Captures more information
- Small
- Excellent scanning
- Connection with GS1 Digital Link
- Verifiable credentials

### Disadvantage

Not yet suitable for all kind of mobile devices  
Traditional laser scanners not suitable  
Image-scanner needed

### Application Identifiers

01 - GTIN  
10 - Batch/Lotcode

# New techniques in barcodes and related challenges for the quality control of F&V chain

## 2-Dimensional GS1 QR Code



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- Suitable for all kinds of mobile devices

### Disadvantage

Traditional laser scanners not suitable  
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### Application Identifiers

01 - GTIN

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## New techniques in barcodes and related challenges for the quality control of F&V chain

Data elements	Application Identifier (AI)	Use cases
GTIN	01	Consumer engagement
Batch/Lot number	10	Traceability, Product Freshness
Best Before Date	15	Sustainability, Product Freshness and Food Waste
Serial number	21	Traceability, Product & Food Safety and Food Waste
Country of Origin	422	Traceability, Product & Food Safety (compliance EU regulation Agriculture)
Net weight	310n	Variable weight articles
Price	392n en 395n	Variable weight articles Automatic price down
GLN	414 (or others)	Physical Location GLN

# **New techniques in barcodes and related challenges for the quality control of F&V chain**

## **Statements**

1. It is allowed to put a GS1 2D barcode on a consumer unit label next to the human readable information according to UNECE Marketing Standards for Fresh F&V
2. For the FFV Industry it would be helpful to capture specific consumer unit label information for B2B, B2G and B2C in a GS1 2D barcode
3. About 10-15 years the major part of the human readable label information on consumer units will be replaced by GS1 2D barcodes or other new barcode techniques

## **Question**

Do we need a new paragraph in the UNECE Marketing Standards and/or Codex Alimentarius Standards for FFV to describe the usage of a GS1 2D barcode on a consumer unit label & trade unit label?



**Fresh Produce  
of the World**



*'Hylocereus undatus'*  
Brick Code: 10005957

**Questions?**

**Frug i Com**  
Foundation Platform Fresh Chain Information



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# THE FRUITS AND VEGETABLES INDUSTRY SERIES



*The OECD-COLEACP Fruits and Vegetables Industry Series focuses on market access conditions and opportunities for the fruit and vegetable sector, especially for fruit and vegetables producers and exporters from ACP-countries. This activity is supported by the Fit For Market SPS programme, implemented by COLEACP within the Framework of Development Cooperation between the Organisation of African, Caribbean and Pacific States (OACPS) and the European Union.*

## Thank you



FRUIT AND VEGETABLES SCHEME

