



The Global Language of Business

# GS1 Fresh Fruit & Vegetable Labelling Consumer Units Guideline

provides support to companies seeking to label fruit & vegetable product information at the consumer unit (each) level using GS1 standards

*Release 1.1, Ratified, Sep 2026*

---

## Document Summary

| Document Item        | Current Value                                                                                                                              |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Document Name        | GS1 Fresh Fruit & Vegetable Labelling Consumer Units Guideline                                                                             |
| Document Date        | Sep 2026                                                                                                                                   |
| Document Version     | 1.1                                                                                                                                        |
| Document Issue       |                                                                                                                                            |
| Document Status      | Ratified                                                                                                                                   |
| Document Description | provides support to companies seeking to label fruit & vegetable product information at the consumer unit (each) level using GS1 standards |

## Contributors

| First Name      | Last Name | Company                  | Role         |
|-----------------|-----------|--------------------------|--------------|
| Jean Christophe | Gilbert   | GS1 France               | Co chair     |
| Michel          | Ottiker   | GS1 Switzerland          | Co chair     |
| David           | Buckley   | GS1 Global Office        | Publication  |
| Steven          | Keddie    | GS1 Global Office        | Editor       |
| Dan             | Mullen    | GS1 Global Office        | Co-editor    |
| John            | Ryu       | GS1 Global Office        | Facilitator  |
| Tania           | Snioch    | GS1 Global Office        | WR Submitter |
| Sabine          | Kläser    | GS1 Germany              | Contributor  |
| John            | Pearce    | Axicon                   | Contributor  |
| Aruna           | Ravikumar | GS1 Australia            | Contributor  |
| Ethan           | Ward      | GS1 Australia            | Contributor  |
| Wilfried        | Weigelt   | REA Elektronik GmgH      | Contributor  |
| Sprague         | Ackley    | Napeequa Concepts LLC    | Participant  |
| Makoto          | Akutagawa | GS1 Japan                | Participant  |
| Cherise         | Allison   | Sam's Club               | Participant  |
| David           | Almroth   | GS1 Sweden               | Participant  |
| Patrick         | Arijs     | COLRUYT GROUP NV         | Participant  |
| Karen           | Arkesteyn | GS1 Belgium & Luxembourg | Participant  |
| Joachim         | Arnold    | BASF SE                  | Participant  |
| Koji            | Asano     | GS1 Japan                | Participant  |
| Paul            | Ashford   | ICCBBA                   | Participant  |
| Jennifer        | Ashlin    | Alcon                    | Participant  |
| Pascal          | Aulagnet  | Pfizer                   | Participant  |
| Bo              | Bäckström | Axfood Sverige AB        | Participant  |
| Jonas           | Batt      | GS1 Switzerland          | Participant  |
| Claude          | Baudry    | GS1 France               | Participant  |
| Jin             | Bei       | GS1 China                | Participant  |



| First Name | Last Name            | Company                              | Role        |
|------------|----------------------|--------------------------------------|-------------|
| Robert     | Beideman             | GS1 Global Office                    | Participant |
| Dieter     | Beitz                | CSB-System SE                        | Participant |
| Benjamin   | Bekritsky            | Zebra Technologies Corporation       | Participant |
| ZAID       | BEN HMAD             | DECATHLON                            | Participant |
| Dana       | Benson               | GS1 US                               | Participant |
| Andree     | Berg                 | GS1 Germany                          | Participant |
| yann       | berthy               | Roquette Frères                      | Participant |
| Eleanor    | Betton               | Domino UK Limited                    | Participant |
| Mats       | Bjorkqvist           | GS1 Sweden                           | Participant |
| Dennis     | Black                | BD                                   | Participant |
| Phillip    | Bocci                | Ecolab                               | Participant |
| Sven       | Böckelmann           | benelog GmbH & Co. KG                | Participant |
| Zsolt      | Bocsi                | GS1 Hungary                          | Participant |
| Guido      | Boscher              | PINTSCH GmbH                         | Participant |
| Laure      | Breduillieard Brunet | Nestlé                               | Participant |
| Megan      | Brewster             | Impinj, Inc                          | Participant |
| Chris      | Brown                | Printronic Auto ID                   | Participant |
| Heide      | Buhl                 | GS1 Germany                          | Participant |
| Margarita  | Bykova               | GS1 Russia                           | Participant |
| Emanuela   | Casalini             | GS1 Italy                            | Participant |
| Karolin    | Catela               | GS1 Sweden                           | Participant |
| Tony       | Ceder                | Charmingtrim                         | Participant |
| Anthony    | Chan                 | GS1 Hong Kong, China                 | Participant |
| Christine  | Chang                | Solventum (previously 3M Healthcare) | Participant |
| Jeffrey    | Chen                 | Printronic Auto ID                   | Participant |
| David      | Chen                 | TSC Auto ID                          | Participant |
| Raman      | Chhima               | GS1 New Zealand                      | Participant |
| Francesca  | Chiovenda            | GS1 Global Office                    | Participant |
| Marjolein  | Christiaanse         | GS1 Netherlands                      | Participant |
| James      | Chronowski           | GS1 US                               | Participant |
| Wladislaw  | Chudinovskykh        | GS1 Germany                          | Participant |
| Manuela    | Coroama              | Cosmetics Europe                     | Participant |
| Flavia     | Costa                | GS1 Brasil                           | Participant |
| Benjamin   | Couty                | GS1 France                           | Participant |
| Amanda     | Creane               | GS1 Ireland                          | Participant |
| Jeffrey    | Cree                 | Ahold (USA)                          | Participant |
| Jay        | Crowley              | US Data Management, LLC (USDM)       | Participant |
| Oscar      | Cruz                 | GS1 Mexico                           | Participant |
| Bence      | Csordás              | GS1 Hungary                          | Participant |
| Chase      | Cunningham           | Walmart Inc                          | Participant |
| Tarryn     | Daniels              | GS1 South Africa                     | Participant |

| First Name    | Last Name         | Company                            | Role        |
|---------------|-------------------|------------------------------------|-------------|
| Kevin         | Dean              | Dolphin Data Development Ltd.      | Participant |
| Sean          | Dennison          | GS1 Ireland                        | Participant |
| Eno           | Dhamo             | GS1 Canada                         | Participant |
| Peta          | Ding              | GS1 Global Office                  | Participant |
| Chris         | Diorio            | Impinj, Inc                        | Participant |
| Xiaowen       | Dong              | GS1 China                          | Participant |
| Vincent       | Dong              | Domino China Limited               | Participant |
| Camille       | Dreyfuss          | GS1 France                         | Participant |
| Han           | Du                | GS1 China                          | Participant |
| Marcel        | Ducceschi         | GS1 Switzerland                    | Participant |
| Linden        | Eagles            | GS1 New Zealand                    | Participant |
| Nordine       | Eddaoudi          | GS1 France                         | Participant |
| Alexis        | Elloso            | GS1 Australia                      | Participant |
| Fadi          | El-Turk           | GS1 UK                             | Participant |
| Tomas         | Eriksson          | Byggttrygg AB / XL-BYGG            | Participant |
| Juliet Andrea | Espinosa Martinez | GS1 Colombia                       | Participant |
| Dawn          | Fiorentino Izzi   | DoD Logistics AIT Standards Office | Participant |
| Piotr         | Frackowiak        | GS1 Poland                         | Participant |
| LENCI         | François          | ALSTOM Ltd                         | Participant |
| Guido         | Freijomil         | GS1 Argentina                      | Participant |
| Cameron       | Frith             | GS1 New Zealand                    | Participant |
| Nigel         | Fuller            | GS1 Australia                      | Participant |
| Andreas       | Füßler            | GS1 Germany                        | Participant |
| Stefan        | Gathmann          | GS1 Ireland                        | Participant |
| Haifa         | Gaza              | Auto-ID Labs at KAIST              | Participant |
| Alexander     | Gerasimenko       | Mars, Inc.                         | Participant |
| Vanessa       | Giulieri          | GS1 Italy                          | Participant |
| Chiang Fein   | Goh               | GS1 Malaysia                       | Participant |
| Nicole        | Golestani         | GS1 Canada                         | Participant |
| Heinz         | Graf              | GS1 Switzerland                    | Participant |
| Christer      | Green             | SBJF Service AB                    | Participant |
| JONATHAN      | GREGORY           | GS1 US                             | Participant |
| Kai           | Hachmann          | EDEKA ZENTRALE Stiftung & Co. KG   | Participant |
| David         | Hackbarth         | Procter & Gamble Co.               | Participant |
| Michaela      | Hähn              | GS1 Germany                        | Participant |
| Elzbieta      | Halas             | GS1 Poland                         | Participant |
| Dominik       | Halbeisen         | GS1 Switzerland                    | Participant |
| Eileen        | Harpell           | GS1 Global Office                  | Participant |
| Mark          | Harrison          | Milecastle Media Limited           | Participant |
| Dave          | Harty             | Adents                             | Participant |
| Andrew        | Hearn             | GS1 Global Office                  | Participant |

| First Name   | Last Name     | Company                              | Role        |
|--------------|---------------|--------------------------------------|-------------|
| Luca         | Heinen        | Movilizer GmbH - A Honeywell Company | Participant |
| Natasha      | Helleur       | GS1 New Zealand                      | Participant |
| Olle         | Hellman       | GS1 Sweden                           | Participant |
| Karolina     | Hentze        | GS1 Denmark                          | Participant |
| Lindsay      | Hillman       | GS1 US                               | Participant |
| Leane        | Hinds         | Alcon                                | Participant |
| Duy          | Hoang Cong    | GS1 Vietnam                          | Participant |
| Rob          | Hoffman       | Hershey Company (The)                | Participant |
| Frank        | Hogema        | GS1 Netherlands                      | Participant |
| Sandra       | Hohenecker    | GS1 Germany                          | Participant |
| Lars Kristen | Holst         | Moelven Wood AB                      | Participant |
| Martin       | Hörberg       | ICA Sverige AB                       | Participant |
| Christine    | Horvath-Hanko | GS1 Hungary                          | Participant |
| Agata        | Horzela       | GS1 Poland                           | Participant |
| Tomi         | Ihalainen     | GS1 Finland                          | Participant |
| Marc         | Inderbitzin   | Migros-Genossenschafts-Bund          | Participant |
| José Ramón   | Islas         | GS1 Mexico                           | Participant |
| Yoshihiko    | Iwasaki       | GS1 Japan                            | Participant |
| Caroline     | James         | GS1 New Zealand                      | Participant |
| Gilda        | Javaheri      | Golden State Foods                   | Participant |
| Ed           | Jesus         | Chep                                 | Participant |
| han          | jie           | GS1 China                            | Participant |
| Peter        | Johnson       | Procter & Gamble Co.                 | Participant |
| Peter        | Jönsson       | GS1 Sweden                           | Participant |
| Deborah      | Joplin        | GS1 New Zealand                      | Participant |
| Nora         | Kaci          | GS1 Global Office                    | Participant |
| Martin       | Kairu         | GS1 South Africa                     | Participant |
| Hitomi       | Kajita        | GS1 Japan                            | Participant |
| Nicole       | Kaller        | DuPont Healthcare                    | Participant |
| Iliada       | Karali        | GS1 Association Greece               | Participant |
| Katalin      | Kecskés       | GS1 Hungary                          | Participant |
| Audrey       | Kelly         | GS1 Global Office                    | Participant |
| John         | Keogh         | Shantalla Inc                        | Participant |
| Kimmo        | Keravuori     | GS1 Finland                          | Participant |
| Edmund       | Kienast       | Australian Digital Health Agency     | Participant |
| Kazuna       | Kimura        | GS1 Japan                            | Participant |
| Anna         | Klapper       | Videojet Technologies Suisse GmbH    | Participant |
| Kasia        | Koblak-Smith  | DHL                                  | Participant |
| Phyllis      | Koch          | The Schwan Food Company              | Participant |
| Kamila       | Kocia         | Avery Dennison RFID                  | Participant |
| Catherine    | Koetz         | Australian Digital Health Agency     | Participant |



| First Name | Last Name      | Company                                        | Role        |
|------------|----------------|------------------------------------------------|-------------|
| Bojan      | Kovacic        | GS1 Slovenia                                   | Participant |
| Zoltan     | Krazli         | GS1 Hungary                                    | Participant |
| Alexey     | Krotkov        | GS1 Russia                                     | Participant |
| Freddy     | Ladino Perdomo | GS1 Colombia                                   | Participant |
| Lyndon     | Lee            | Tesco Stores Ltd.                              | Participant |
| Kevin      | Lee            | GS1 Korea                                      | Participant |
| Zhimin     | Li             | GS1 China                                      | Participant |
| Tina       | Lin            | GS1 Chinese Taipei                             | Participant |
| Nicolas    | Liou           | GS1 Chinese Taipei                             | Participant |
| Johan      | Lisemark       | Vida Wood AB                                   | Participant |
| Yixuan     | Liu            | GS1 China                                      | Participant |
| Wei        | Liu            | GS1 China                                      | Participant |
| Xiaoyan    | Liu            | GS1 China                                      | Participant |
| Wendy      | Logan          | International Fresh Produce Association (IFPA) | Participant |
| Huiru      | LOU            | GS1 China                                      | Participant |
| Marisa     | Lu             | GS1 Chinese Taipei                             | Participant |
| wayne      | Luk            | GS1 Hong Kong, China                           | Participant |
| Yan        | Luo            | GS1 China                                      | Participant |
| Chatchanok | Lupakchee      | GS1 Thailand                                   | Participant |
| Xiaojiao   | Lv             | GS1 China                                      | Participant |
| Ning       | Ma             | GS1 China                                      | Participant |
| Ilka       | Machemer       | GS1 Germany                                    | Participant |
| Patrick    | Main           | Cook Medical Inc.                              | Participant |
| Ralph      | Maresco        | Procter & Gamble Co.                           | Participant |
| Timothy    | Marsh          | MCL                                            | Participant |
| Ryan       | Mavin          | ACT Health                                     | Participant |
| Mike       | Meakin         | DHL                                            | Participant |
| Ned        | Mears          | GS1 US                                         | Participant |
| Terje      | Menkerud       | GS1 Norway                                     | Participant |
| Edward C   | Merrill        | GS1 Global Office                              | Participant |
| Joanne     | Metcalf        | Essity North America Inc                       | Participant |
| Holly      | Mitchell       | Seagull Scientific                             | Participant |
| Federico   | Mittersteiner  | GS1 Italy                                      | Participant |
| Ephraim    | Mokheseng      | GS1 South Africa                               | Participant |
| Doug       | Moody          | PepsiCo, Inc.                                  | Participant |
| Julie      | Moore          | Mead Westvaco                                  | Participant |
| Andrew     | Morehead       | GS1 US                                         | Participant |
| Gena       | Morgan         | GS1 US                                         | Participant |
| Reiko      | Moritani       | GS1 Japan                                      | Participant |
| Robert     | Moss           | FIP HPS                                        | Participant |
| Nolwandle  | Mthiyane       | GS1 South Africa                               | Participant |

| First Name      | Last Name         | Company                                                   | Role        |
|-----------------|-------------------|-----------------------------------------------------------|-------------|
| Alice           | Mukaru            | GS1 Sweden                                                | Participant |
| Mori            | Naoko             | GS1 Japan                                                 | Participant |
| Nico            | Nardozi           | AbbVie S.r.l.                                             | Participant |
| Safae           | Nassih            | GS1 France                                                | Participant |
| Zubair          | Nazir             | GS1 Canada                                                | Participant |
| Giada           | Necci             | GS1 Italy                                                 | Participant |
| steven          | nelson            | Tyson                                                     | Participant |
| Denis           | O'Brien           | GS1 Ireland                                               | Participant |
| Marcelo         | Oliveira Sa       | GS1 Brasil                                                | Participant |
| hirra           | oppal             | GS1 UK                                                    | Participant |
| Luisa           | Ovalle            | GS1 Colombia                                              | Participant |
| Dimi            | Pachiyannis       | GS1 Australia                                             | Participant |
| Michele         | Padayachee        | GS1 South Africa                                          | Participant |
| Silverio        | Paixao            | GS1 Global Office                                         | Participant |
| Silverio        | Paixao            | GS1 Global Office                                         | Participant |
| Alexander       | Pakhomov          | LLC "Center for the Development of Advanced Technologies" | Participant |
| Chensheng       | Pan               | GS1 China                                                 | Participant |
| Kyle            | Parker            | Mitas Corporation                                         | Participant |
| Sergio          | Pastrana          | GS1 Mexico                                                | Participant |
| Leonel          | Pava              | GS1 Colombia                                              | Participant |
| James           | Perng             | GS1 Chinese Taipei                                        | Participant |
| Sarina          | Pielaat           | GS1 Netherlands                                           | Participant |
| Manfred         | Piller            | GS1 Austria                                               | Participant |
| Neil            | Piper             | GS1 Global Office                                         | Participant |
| ZhangLi         | Pollet            | GS1 Belgium & Luxembourg                                  | Participant |
| Josef           | Preishuber-Pflügl | innobir e.U.                                              | Participant |
| Bertus          | Pretorius         | Tonnjes ISI Patent Holding GmbH                           | Participant |
| Mathias         | Prost             | GS1 France                                                | Participant |
| Matheus         | Quadros           | GS1 Brasil                                                | Participant |
| Yuchen          | Ran               | GS1 China                                                 | Participant |
| Hajo            | Reissmann         | Hajo Reissmann Consulting                                 | Participant |
| Eduardo Alberto | Remigio Munguia   | GS1 Mexico                                                | Participant |
| Craig Alan      | Repec             | GS1 Global Office                                         | Participant |
| Nicolas         | Resier            | GS1 Belgium & Luxembourg                                  | Participant |
| William         | Reynolds          | Camcode Global                                            | Participant |
| Diane           | Riccardi          | Johnson & Johnson                                         | Participant |
| Pharapa         | Romphothong       | GS1 Thailand                                              | Participant |
| Pere            | Rosell Plajats    | GS1 Spain                                                 | Participant |
| Mats            | Rosén             | nShift                                                    | Participant |
| Don             | Roskowiak         | Target Corporation                                        | Participant |



| First Name | Last Name     | Company                   | Role        |
|------------|---------------|---------------------------|-------------|
| Greg       | Rowe          | GS1 Global Office         | Participant |
| Marco      | Ruberto       | GS1 Italy                 | Participant |
| Sylvia     | Rubio Alegren | Digularity AB             | Participant |
| Uwe        | Ruedel        | GS1 Switzerland           | Participant |
| Michiel    | Ruighaver     | GS1 Australia             | Participant |
| Liu        | Ruizhi        | GS1 China                 | Participant |
| Zbigniew   | Rusinek       | GS1 Poland                | Participant |
| Bonnie     | Ryan          | GS1 Australia             | Participant |
| Zbigniew   | SAGAN         | Advanced Track and Trace  | Participant |
| Sofia      | Salcedo       | Logyca                    | Participant |
| ALEXANDER  | SANCHEZ       | GS1 Mexico                | Participant |
| George     | Sarantavgas   | GS1 Association Greece    | Participant |
| Mayu       | Sasase        | GS1 Japan                 | Participant |
| Yuki       | Sato          | GS1 Japan                 | Participant |
| Sue        | Schmid        | GS1 Global Office         | Participant |
| Lori       | Schrop        | GS1 Global Office         | Participant |
| Eugen      | Sehorz        | GS1 Austria               | Participant |
| Yu         | Shi           | Multi-Color Corporation   | Participant |
| Xinyu      | Shi           | GS1 China                 | Participant |
| Yuko       | Shimizu       | GS1 Japan                 | Participant |
| Marcel     | Sieira        | GS1 Australia             | Participant |
| Fernando   | Silveira      | GS1 Brasil                | Participant |
| Steven     | Simske        | Colorado State University | Participant |
| Chumisa    | Sizathu       | GS1 South Africa          | Participant |
| Jens       | Slama         | GS1 Germany               | Participant |
| Brandi     | Smith         | GS1 US                    | Participant |
| Tania      | Snioch        | GS1 Global Office         | Participant |
| Olga       | Soboleva      | GS1 Russia                | Participant |
| Jim        | Springer      | EM Microelectronic        | Participant |
| Roko       | Stanicic      | GS1 Slovenia              | Participant |
| Andrew     | Steele        | GS1 Australia             | Participant |
| Sylvia     | Stein         | GS1 Netherlands           | Participant |
| Christa    | Suc           | GS1 UK                    | Participant |
| Diane      | Taillard      | GS1 Global Office         | Participant |
| Hiromitsu  | Takai         | GS1 Japan                 | Participant |
| Claude     | Tetelin       | GS1 Global Office         | Participant |
| Sonya      | Thomas        | Sam's Club                | Participant |
| Stefan     | Thomas        | GS1 Germany               | Participant |
| Gina       | Tomassi       | PepsiCo, Inc.             | Participant |
| Laurent    | TONNELIER     | mobiLead                  | Participant |
| Viet       | Tran          | GS1 Vietnam               | Participant |



| First Name       | Last Name         | Company                                     | Role        |
|------------------|-------------------|---------------------------------------------|-------------|
| Ralph            | Troeger           | GS1 Germany                                 | Participant |
| Jangchup         | Tsechung          | Migros-Genossenschafts-Bund                 | Participant |
| Alec             | Tubridy           | GS1 Australia                               | Participant |
| Jesse            | Tuominen          | Voyantic Ltd                                | Participant |
| Frits            | van den Bos       | GS1 Netherlands                             | Participant |
| Ray              | Vaughan           | Omron Microscan Systems Inc.                | Participant |
| Rodrigo          | Vaz               | CPA Wernher von Braun                       | Participant |
| Cindy            | Velázquez         | GS1 Mexico                                  | Participant |
| Andrew           | Verb              | Bar Code Graphics, Inc.                     | Participant |
| Charles-Francois | VERMEESCH         | SNCF Rolling Stock Department               | Participant |
| Ricardo          | Verza Amaral Melo | GS1 Brasil                                  | Participant |
| Linda            | Vezzani           | GS1 Italy                                   | Participant |
| Jaco             | Voorspuij         | CONAS BV                                    | Participant |
| Vishnu           | Vyas              | DuPont Healthcare                           | Participant |
| Hanna            | Walczak           | GS1 Poland                                  | Participant |
| Amber            | Walls             | Crimson Raft Consulting                     | Participant |
| Chunguang        | Wang              | GS1 China                                   | Participant |
| Lynn             | Wang              | GS1 China                                   | Participant |
| Lei              | Wang              | GS1 China                                   | Participant |
| Wenyu            | Wang              | GS1 China                                   | Participant |
| Dayou            | Wang              | Zebra Technologies Corporation              | Participant |
| JIAYI            | WANG              | GS1 China                                   | Participant |
| Di               | Wang              | GS1 China                                   | Participant |
| Metinee          | Wanlayangkoon     | GS1 Thailand                                | Participant |
| Baopheng         | Wei               | GS1 Laos                                    | Participant |
| Kathy            | Welch             | Wegmans Food Markets                        | Participant |
| Tasha            | Wiehe             | GS1 Global Office                           | Participant |
| Kumoro           | Wijanarko         | GS1 Indonesia                               | Participant |
| Roman            | Winter            | GS1 Germany                                 | Participant |
| Melanie          | Wishart           | GS1 Australia                               | Participant |
| George           | Wright IV         | Product Identification & Processing Systems | Participant |
| XinMin           | WU                | GS1 China                                   | Participant |
| Juan             | Wu                | GS1 China                                   | Participant |
| Huang            | Xin               | GS1 China                                   | Participant |
| Ruoyun           | Yan               | GS1 China                                   | Participant |
| Xie              | Yi                | GS1 China                                   | Participant |
| Charles          | Young             | Solidsoft Reply                             | Participant |
| Shi              | Yu                | Beijing REN JU ZHI HUI Technology Co. Ltd.  | Participant |
| Ying             | YU                | GS1 China                                   | Participant |
| Victor           | Zhang             | GS1 China                                   | Participant |
| yuan             | zhang             | GS1 China                                   | Participant |

| First Name | Last Name | Company       | Role        |
|------------|-----------|---------------|-------------|
| LI         | ZHENG     | GS1 China     | Participant |
| bo         | Zhou      | GS1 China     | Participant |
| Eric       | Zhuo      | GS1 Singapore | Participant |
| Sergio     | Zúñiga    | GS1 Mexico    | Participant |

## Log of Changes

| Release | Date of Change | Changed By            | Summary of Change                                                                                       |
|---------|----------------|-----------------------|---------------------------------------------------------------------------------------------------------|
| 1.0     | May 2015       | Tom Heist & Greg Rowe | This guideline was produced as result of Work Request WR 14-0209.                                       |
| 1.0.1   | Aug 2015       | Valerie Hoste         | Applied new GS1 branding prior to publication                                                           |
| 1.1     | Sep 2026       | Steven Keddie         | WR 26-188 Updated to reflect General Specification addition of 2D barcode use for trade items in retail |

## Disclaimer

GS1 seeks to minimise barriers to the adoption of its standards and guidelines by making the intellectual property required to implement them available, to the greatest extent possible, on a royalty-free basis, or when necessary, under a RAND licence. Such royalty-free and RAND licences are provided pursuant to the GS1 IP Policy (available here: <https://www.gs1.org/standards/ip>), which governs the work of work group participants who contribute to drafting standards and guidelines, including this document. In addition to licences, the GS1 IP Policy provides various benefits and obligations that apply to all implementers of GS1 standards and guidelines, and all implementations of GS1 standards are subject to those terms.

Nevertheless, please note the possibility that an implementation of one or more features of this standard or guideline may be the subject of a patent or other intellectual property right that is not covered by the licences granted pursuant to the IP Policy. In addition, the licences granted under the IP Policy do not include the IP rights or claims of third parties who were not participants in the corresponding standard development work group.

Accordingly, GS1 recommends that any person or organisation developing an implementation of this standard or guideline should determine whether any patents or other intellectual property may encompass such implementation, and whether a licence under a patent or other IP right is needed. The implementer should determine the potential need for licensing in view of the details of the specific implementation being designed in consultation with that party's patent counsel.

The official versions of all GS1 standards and guidelines are provided as PDF files on GS1's online reference directory (<https://ref.gs1.org>) (the "GS1 Reference"). Any other representations of standards or guidelines in any other format (e.g., web pages) are provided for convenience and descriptive purposes only, and in the event of a conflict, the GS1 Reference document shall govern.

THIS DOCUMENT IS PROVIDED "AS IS" WITH NO WARRANTIES WHATSOEVER, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY, NONINFRINGEMENT, FITNESS FOR PARTICULAR PURPOSE, ACCURACY OR COMPLETENESS, OR ANY WARRANTY OTHERWISE ARISING OUT OF THIS DOCUMENT. GS1 disclaims all liability for any damages arising from any use or misuse of this document, whether special, indirect, consequential, or compensatory damages, and including liability for infringement of any intellectual property rights, relating to use of information in or reliance upon this document.

GS1 makes no commitment to update the information contained herein, and retains the right to make changes to this document at any time, without notice. GS1® and the GS1 logo are registered trademarks of GS1 AISBL.

# Table of Contents

|          |                                                                                  |           |
|----------|----------------------------------------------------------------------------------|-----------|
| <b>1</b> | <b>Introduction .....</b>                                                        | <b>12</b> |
| 1.1      | Purpose and scope of this guideline .....                                        | 12        |
| 1.1.1    | Purpose .....                                                                    | 12        |
| 1.1.2    | In scope .....                                                                   | 12        |
| 1.1.3    | Out of scope .....                                                               | 12        |
| 1.2      | Who can use this document? .....                                                 | 12        |
| 1.3      | General guidance .....                                                           | 13        |
| 1.4      | Key terms .....                                                                  | 13        |
| 1.5      | Legal and regulatory requirements .....                                          | 15        |
| <b>2</b> | <b>Relevant GS1 standards and principles .....</b>                               | <b>16</b> |
| 2.1      | GS1 standards for item identification (GTIN) .....                               | 16        |
| 2.2      | GS1 barcodes .....                                                               | 16        |
| 2.2.1    | Point-of-Sale .....                                                              | 16        |
| 2.2.2    | General Distribution (trade items that are not intended for Point-of-Sale) ..... | 18        |
| 2.3      | GS1 Application Identifiers (AI).....                                            | 20        |
| 2.4      | Label placement principles .....                                                 | 22        |
| 2.4.1    | Avoiding scanning obstacles .....                                                | 22        |
| 2.5      | Barcode quality .....                                                            | 22        |
| <b>3</b> | <b>Consumer Unit (Each).....</b>                                                 | <b>24</b> |
| 3.1      | General label considerations for consumer items.....                             | 25        |
| 3.1.1    | Using PLU numbers .....                                                          | 26        |
| 3.1.2    | Using barcodes .....                                                             | 26        |
| 3.1.3    | Structure of the label .....                                                     | 29        |
| 3.1.4    | Label size .....                                                                 | 29        |
| 3.1.5    | Human Readable Interpretation/human readable text .....                          | 29        |
| 3.2      | Specific label scenarios for consumer units .....                                | 29        |
| 3.2.1    | Label on pre-packed consumer unit (fixed weight) .....                           | 30        |
| 3.2.2    | Label on pre-packed consumer unit (variable weight) .....                        | 30        |
| 3.2.3    | Label on non pre-packed/loose piece.....                                         | 31        |
| 3.2.4    | Additional loose produce label examples .....                                    | 33        |
| 3.2.5    | Additional price markdown produce label example .....                            | 33        |
| 3.2.6    | Pre-portioned consumer unit .....                                                | 35        |
| 3.2.7    | How to manage non-POS product that may go to POS .....                           | 35        |
| 3.3      | Label design (how to design a label).....                                        | 35        |
| 3.4      | Label placement (where to put the label) .....                                   | 35        |
| 3.4.1    | Examples of label placement issue .....                                          | 36        |
| <b>4</b> | <b>References.....</b>                                                           | <b>37</b> |
| <b>A</b> | <b>Annex .....</b>                                                               | <b>38</b> |
| A.1      | Cross reference of terms.....                                                    | 38        |

## 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.

### 1.1 Purpose and scope of this guideline

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.

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). 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.<sup>1</sup>

### 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 standardised 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.

---

<sup>1</sup> 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 organisation.

### 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 barcodes 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 but, as noted above, that is out of scope for this document. And the content may include other elements such as artwork.

The primary purpose of this document 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 for automatic identification and data capture (AIDC)
- Human Readable Interpretation (HRI) is the information below or beside a barcode which is encoded in the barcode and Non-HRI Text is all other text on package, label or item, see section GS1 General Specification 4.14 for HRI rules. Below is an example of HRI:



**Figure 1-1** Example of retail adjacent barcode with 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.

Within this implementation guideline there are notes identified using the note icon shown below.

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.

- ✓ **Note:** 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.

**Table 1-1** Key terms

| Term                 | Explanation                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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. |

| Term                                             | Explanation                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Each                                             | An individual fruit or vegetable (e.g. an apple, a pineapple or a pepper).                                                                                                                                                                                                                                                                                               |
| Fixed Measure Trade Item                         | An item always produced in the same predefined version (e.g., type, size, weight, contents, design) that may be sold at any point in the supply chain.                                                                                                                                                                                                                   |
| 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 Application Identifier                       | The field of two or more digits at the beginning of an element string that uniquely defines its format and meaning.                                                                                                                                                                                                                                                      |
| 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 the encoded data. Start, stop, shift and function characters, as well as the symbol check character, are not shown in the human readable interpretation.           |
| human readable text                              | Refers to HRI and/or non-HRI text collectively, when referencing data that is encoded into a data carrier.                                                                                                                                                                                                                                                               |
| IFPS PLU Rules                                   | International Federation of Produce Standards' rules on the use of the PLU.                                                                                                                                                                                                                                                                                              |
| Logistic Unit (Pallet)                           | An item of any composition established for transport and/or storage that needs to be managed through the supply chain. It is identified with a Serial Shipping Container Code (SSCC). 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.                                                                                                                                                                                                     |
| non-human readable interpretation text (non-HRI) | 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., 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).       |
| 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 an identification number used for special applications in restricted environments, either defined by local GS1 Member Organisations (for regional applications such as variable measure product identification and, couponing) or by a company (for internal applications).                                                                                    |
| Traded 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, cartons, cases, bins and totes. These items can be trade items and/or logistic units. |
| 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.                                                                                                                                                                                           |
| 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.                                                                                                                                                                                                                         |
| two-dimensional (2D) barcode symbology           | Optically readable symbols that must be examined both vertically and horizontally to read the entire message. 2D barcodes may be one of two types: matrix symbols and multi-row symbols. 2D barcodes have error detection and may include error correction features.                                                                                                     |
| Variable measure trade item                      | A trade item which may be traded without a predefined measure, such as its weight or length.                                                                                                                                                                                                                                                                             |

## **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.

## 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, traded 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 Organisation (MO). For a complete list of all GS1 Member Organisations please see the GS1 web site at [www.gs1.org](http://www.gs1.org) then contact your local office.

### 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 traded units), including fresh fruit and vegetables. The GTIN supports trade item identification for Business to Business (B2B), Business to Government (B2G) 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 Specifications* Standard 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.

**Table 2-1** Overview of the GTINs that are used for labelling fruit and vegetables

| GTIN    | GTIN Formats |    |    |    |    |    |    |    |    |     |     |     |     |   |
|---------|--------------|----|----|----|----|----|----|----|----|-----|-----|-----|-----|---|
|         | ←-----→      |    |    |    |    |    |    |    |    |     |     |     |     |   |
| GTIN-8  |              |    |    |    |    |    | N1 | N2 | N3 | N4  | N5  | N6  | N7  | C |
| GTIN-12 |              |    | N1 | N2 | N3 | N4 | N5 | N6 | N7 | N8  | N9  | N10 | N11 | C |
| GTIN-13 |              | N1 | N2 | N3 | N4 | N5 | N6 | N7 | N8 | N9  | N10 | N11 | N12 | C |
| GTIN-14 | N1           | N2 | N3 | N4 | N5 | N6 | N7 | N8 | N9 | N10 | N11 | N12 | N13 | C |

N – Numeric digit

C – Check digit

When any of these GTINs are encoded in a data carrier (i.e. barcode) 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:

**Table 2-2** GS1 barcode used for labelling fruit and vegetables

| GS1 barcode                                                                                          | GS1 key | Comments                                                                                                                                |
|------------------------------------------------------------------------------------------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------|
| EAN-8 barcode<br> | GTIN-8  | <ul style="list-style-type: none"> <li>Used for point-of-sale identification of pre-packaged, fixed weight/count trade items</li> </ul> |

| GS1 barcode                                                                                                                                                                                                                                                                                                   | GS1 key                                                         | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| UPC-A barcode<br><br>6 14141 00527 7                                                                                                                                                                                         | GTIN-12                                                         | <ul style="list-style-type: none"> <li>Used for point-of-sale identification of pre-packaged, fixed weight/count, trade item</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| EAN-13 barcode<br><br>9 312345 678907                                                                                                                                                                                        | GTIN-13                                                         | <ul style="list-style-type: none"> <li>Used for point-of-sale identification of pre-packaged, fixed weight/count, trade item</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| GS1 DataBar Stacked Omnidirectional barcode<br><br>Usually HRI is required but due to space restrictions this label typically displays the IFPS PLU.                                                                        | Encodes a 14-digit data string with GTIN-8, GTIN-12, or GTIN-13 | <ul style="list-style-type: none"> <li>Used for point-of-sale identification of loose trade items</li> <li>Data structure holds up to 14 digits</li> <li>The example shown is the most common related to the identification of loose fruit &amp; vegetables such as apples, bananas, peppers, etc.</li> <li>Data encoded in a GS1 DataBar barcode is used in combination with GS1 application identifiers, to allow for their interpretation.</li> </ul>                                                                                                                                                                          |
| GS1 DataBar Expanded barcode (stacked omnidirectional)<br><br>(01) 09099999543217 (3103) 000456 (15) 120521<br>The GTIN number is 90999999543217<br>Net Weight is 000456 = 0,456 kg<br>Best Before Date is 120521 (YYMMDD) | Encodes a 14-digit data string with GTIN-8, GTIN-12, or GTIN-13 | <ul style="list-style-type: none"> <li>The variations GS1 DataBar Expanded and GS1 DataBar Expanded Stacked can encode additional information such as net weight and best before date</li> <li>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 barcodes.</li> </ul> <p> <b>Remark:</b> AI (13) Packaging Date or AI (15) best before date may be used depending on target market requirements</p> |

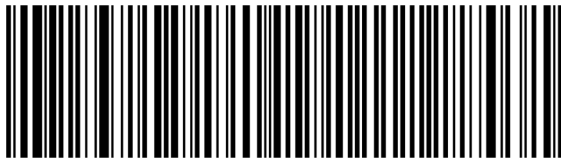
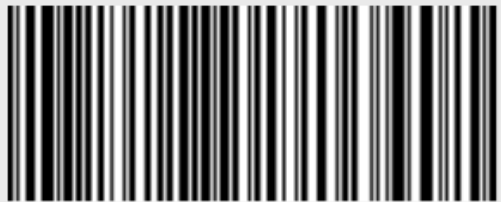
| GS1 barcode                                                                                                                                                                                                                                                                           | GS1 key                                                                | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>GS1 DataMatrix</p>  <p>(01)09529999543219<br/>(3103)000456<br/>(15)270521</p> <p>The GTIN number is 9529999543219<br/>Net weight is 000456 = 0,456 kg<br/>Best before date is 270521 (YYMMDD)</p> | <p>Encodes a 14-digit data string with GTIN-8, GTIN-12, or GTIN-13</p> | <ul style="list-style-type: none"> <li>During a transition period, 2D barcodes may be applied in addition to the linear (EAN/UPC) barcode. For information on how to manage multiple barcodes see GS1 General Specifications section 4.15. For a summary of all conformance requirements for this AIDC application standard, 2D barcodes, cross-application rules and related technical specifications, see GS1 General Specifications section 8</li> <li>For retailer private label and in-store labelled products see this <a href="#">position paper</a></li> </ul> |
| <p>Data Matrix with GS1 Digital Link URI syntax</p>  <p>(01)09529999543219</p> <p>The GTIN number is 9529999543219<br/>Net weight is 000456 = 0,456 kg<br/>Best before date is 270521 (YYMMDD)</p>   | <p>Encodes a 14-digit data string with GTIN-8, GTIN-12, or GTIN-13</p> | <ul style="list-style-type: none"> <li>During a transition period, 2D barcodes may be applied in addition to the linear (EAN/UPC) barcode. For information on how to manage multiple barcodes see GS1 General Specifications section 4.15. For a summary of all conformance requirements for this AIDC application standard, 2D barcodes, cross-application rules and related technical specifications, see GS1 General Specifications section 8</li> <li>For retailer private label and in-store labelled products see this <a href="#">position paper</a></li> </ul> |
| <p>QR Code with GS1 Digital Link URI syntax</p>  <p>(01)09529999543219</p> <p>The GTIN number is 9529999543219<br/>Net weight is 000456 = 0,456 kg<br/>Best before date is 270521 (YYMMDD)</p>     | <p>Encodes a 14-digit data string with GTIN-8, GTIN-12, or GTIN-13</p> | <ul style="list-style-type: none"> <li>During a transition period, 2D barcodes may be applied in addition to the linear (EAN/UPC) barcode. For information on how to manage multiple barcodes see GS1 General Specifications section 4.15. For a summary of all conformance requirements for this AIDC application standard, 2D barcodes, cross-application rules and related technical specifications, see GS1 General Specifications section 8</li> <li>For retailer private label and in-store labelled products see this <a href="#">position paper</a></li> </ul> |

## 2.2.2 General Distribution (trade items that are not intended for Point-of-Sale)

In general distribution, the business process for ordering, invoicing and transporting produce up to but not crossing the point of sale, the following barcode symbols are relevant:

**Table 2-3** GS1 barcodes use in General Distribution (trade items that are not intended for Point-of-Sale)

| GS1 barcode                                                                                                                     | GS1 key                  | Comments                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>UPC-A barcode</p>  <p>6 14141 00527 7</p> | <p>Encodes a GTIN-12</p> | <ul style="list-style-type: none"> <li>Used for general distribution identification of pre-packaged, fixed weight/count, trade item</li> </ul> |

| GS1 barcode                                                                                                                                                                                                                                                                                               | GS1 key                                                                                    | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>EAN-13 barcode</p>  <p>9 312345 678907</p>                                                                                                                                                                            | <p>Encodes a GTIN-13</p>                                                                   | <ul style="list-style-type: none"> <li>Used for general distribution identification of pre-packaged, fixed weight/count, trade item</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <p>GS1-128 barcode (fixed measure)</p>  <p>(01)30614141000013(17)050101(10)A1B2C3</p> <p>The GTIN number is 30614141000013<br/>The batch number is A1B2C3<br/>The expiry date is 050101 (YY/MM/DD)</p>                   | <p>Encodes a GTIN in a 14-digit format + batch number and expiry date</p>                  | <ul style="list-style-type: none"> <li>Used for trade item identification (fixed weight/count) throughout the supply chain but <b>NOT</b> at point-of-sale.</li> <li>Data encoded in GS1-128 is used in combination with GS1 application identifiers, which determine the data, its format and its structure.</li> </ul>                                                                                                                                                                                                                                          |
| <p>GS1-128 barcode (variable measure)</p>  <p>(01)94054321123459(15)271230(3102)000685</p> <p>The GTIN number is 94054321123459<br/>The best before date is 271230 (YY/MM/DD)<br/>The net weight is 000685 = 6,85 kg</p> | <p>Encodes a GTIN-14 starting with '9'; + best before date and net weight in kilograms</p> | <ul style="list-style-type: none"> <li>Used for trade item identification with variable weight throughout the supply chain but <b>NOT</b> at point-of-sale.</li> <li>Data encoded in GS1-128 is used in combination with GS1 application identifiers, which determine the data, its format and its structure.</li> </ul> <p> <b>Remark:</b> AI(13) Packaging Date or may be used in place of AI(15) Best Before Date may be used depending on target market requirements</p> |
|  <p>(00)340123451234567895</p> <p>The SSCC is 340123451234567895</p>                                                                                                                                                   | <p>GS1-128 barcode<br/>Encodes SSCC (18-digit data string)</p>                             | <ul style="list-style-type: none"> <li>Used for the identification of logistic units</li> <li>Data encoded in GS1-128 is used in combination with GS1 application identifiers, which determine the data, its format and its structure.</li> </ul>                                                                                                                                                                                                                                                                                                                 |

### Please Note:

- Systems always need to accommodate 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.
- GTIN-14 is a 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. Indicator digit 9 is reserved for variable measure trade items, see [GS1 General Specifications](#) section 2.1.10 for more information.

- Some scanning systems may be able to handle 2D barcodes as well as linear barcodes. In these environments, GS1 DataMatrix and GS1 QR Code may be used in addition to linear symbols. For information on how to manage multiple barcodes see [GS1 General Specifications](#) section 4.15.

## 2.3 GS1 Application Identifiers (AI)

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

The chart below describes the GS1 Application Identifiers used in this implementation guideline. For a complete list of GS1 Application Identifiers and their full specification refer to the [GS1 General Specifications](#) - section 3.

**Table 2-4** Example of GS1 Application Identifiers often used for fresh food

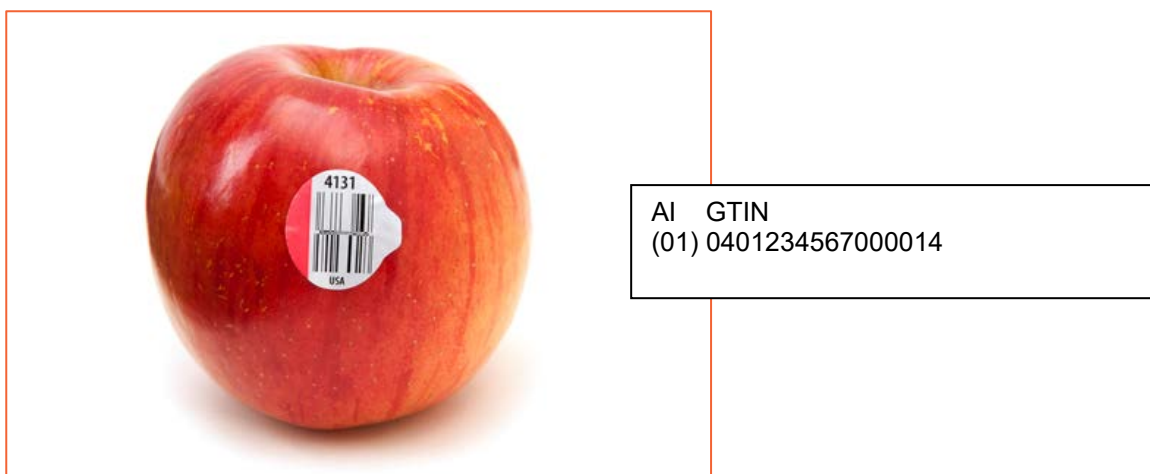
| GS1 AI                                                                                                                                                                                                 | Data Content                                        | Format (*)   | FNC1 Required (****) | Data Title             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|--------------|----------------------|------------------------|
| 00                                                                                                                                                                                                     | Serial Shipping Container Code (SSCC)               | N2+N18       |                      | SSCC                   |
| 01                                                                                                                                                                                                     | Global Trade Item Number (GTIN)                     | N2+N14       |                      | GTIN                   |
| 02                                                                                                                                                                                                     | GTIN of Contained Trade Items                       | N2+N14       |                      | CONTENT                |
| 10                                                                                                                                                                                                     | Batch or Lot Number                                 | N2+X..20     | (FNC1)               | BATCH/LOT              |
| 11 (**)                                                                                                                                                                                                | Production date (YYMMDD)                            | N2+N6        |                      | PROD DATE              |
| 12 (**)                                                                                                                                                                                                | Due date (YYMMDD)                                   | N2+N6        |                      | DUE DATE               |
| 13 (**)                                                                                                                                                                                                | Packaging Date (YYMMDD)                             | N2+N6        |                      | PACK DATE              |
| 15 (**)                                                                                                                                                                                                | Best Before Date (YYMMDD)                           | N2+N6        |                      | BEST BEFORE or BEST BY |
| 16 (**)                                                                                                                                                                                                | Sell By Date (YYMMDD)                               | N2+N6        |                      | SELL BY                |
| 17 (**)                                                                                                                                                                                                | Expiration Date (YYMMDD)                            | N2+N6        |                      | USE BY OR EXPIRY       |
| 310n (***)                                                                                                                                                                                             | Net weight, kilograms (Variable Measure Trade Item) | N4+N6        |                      | NET WEIGHT (kg)        |
| 392n (***)                                                                                                                                                                                             | Net weight, pounds (variable measure trade item)    | N4+N3+N..15  | (FNC1)               | PRICE                  |
| 8005                                                                                                                                                                                                   | Price per unit of measure                           | N4+N6        | (FNC1)               | PRICE PER UNIT         |
| 8008                                                                                                                                                                                                   | Date and time of production                         | N4+N8[+N..4] | (FNC1)               | PROD TIME              |
| 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                      |              |                      |                        |
| N3                                                                                                                                                                                                     | 3 numeric digits, fixed length                      |              |                      |                        |
| N..3                                                                                                                                                                                                   | up to 3 numeric digits                              |              |                      |                        |
| X..3                                                                                                                                                                                                   | up to 3 characters in Figure 7.11-1                 |              |                      |                        |
| (**): If only year and month are available, DD must be filled with two zeroes.                                                                                                                         |                                                     |              |                      |                        |

| GS1 AI                                                                                                                                                                                                                                                                                                                                                                                                                                  | Data Content | Format (*) | FNC1 Required (****) | Data Title |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------|----------------------|------------|
| (**): The fourth digit of this GS1 Application Identifier indicates the number of decimal places (and in that way the implied decimal point position).<br>Example: <ul style="list-style-type: none"> <li>■ 3100 Net weight in kg without a decimal point</li> <li>■ 3102 Net weight in kg with two decimal places</li> </ul> see GS1 General Specifications section <b>Error! Reference source not found.</b> for further information. |              |            |                      |            |

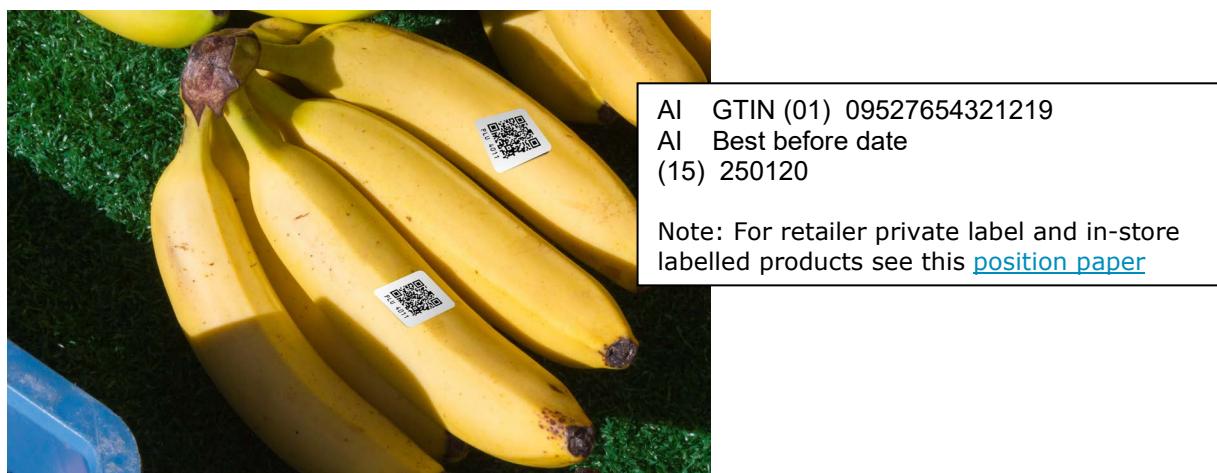
[Source: [GS1 General Specifications](#)]

### Label examples

AI (01) indicates 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 barcode (here from a GS1 DataBar Stacked Omnidirectional) it knows that a GTIN with 14 digits follows.



**Figure 2-1** Example of an apple with a GS1 DataBar barcode and PLU non-HRI text



**Figure 2-2** Example of bananas with an in store labelled QR Code (GS1 Digital Link URI) and PLU non-HRI text



AI GTIN  
(01) 09527654321219  
AI Production date  
(11) 241127  
AI Best before date  
(15) 250130  
AI Amount payable for a variable measure trade  
(3922) 266

The GTIN HRI is displayed directly below the GS1 DataMatrix, while all other GTIN attributes are presented in non-HRI text.

**Note:** For retailer private label and in-store labelled products see this [position paper](#)

**Figure 2-3** Example of a Watermelon slice with an in store GS1 DataMatrix

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:** The full details on use of GS1 AIs are detailed in the [GS1 General Specifications](#).

✓ **Note:** For a complete list of GS1 AIs refer to the [GS1 General Specification](#), Section 3.0.

## 2.4 Label placement principles

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

With automated scanning (e.g., in warehouses on a conveyor belt), the barcode 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.

### 2.4.1 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, see section 5.12 for the barcode production and quality assessment.

Verification is the technical process by which a barcode is measured to determine its conformance with the specification for that barcode. ISO/IEC 15416 is the international specification of the ISO barcode verification methodology for linear symbologies (e.g., EAN/UPC barcode, GS1-128 barcode), ISO/IEC 15415 is the international specification of the ISO barcode verification methodology for two-dimensional symbologies (e.g., GS1 DataMatrix, QR Code (GS1 Digital Link URI)) and the numeric grading system.

GS1's advice is to use the ISO/IEC 15416 and ISO/IEC 15415 methodology as a tool to improve overall scanning performance. An ISO-based verifier, an optical measurement instrument that conforms to ISO/IEC 15426-1 and/or ISO/IEC 15416-2, is enormously helpful in diagnosing

problems and providing a standardized means of reporting among printing companies and their trading partners.

Barcode verification should be performed using calibrated barcode verifiers that conform to the relevant ISO/IEC verification standards. While some inline scanners may implement the ISO/IEC verification algorithms, only verifiers conforming to ISO/IEC 15426-1 and/or ISO/IEC 15426-2, and calibrated in accordance with the applicable standards, provide accurate, repeatable and comparable verification results across organisations. Calibration records should be maintained to demonstrate measurement accuracy.

Many GS1 Member Organisations and solution providers 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)

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.

According to existing standards and requirements at POS as well as regulatory requirements and possible additional scenarios, trade items are labelled but the identification key, design and content of the labels may vary.

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:

**Table 3-1** Examples of different forms of fruit and vegetable consumer units

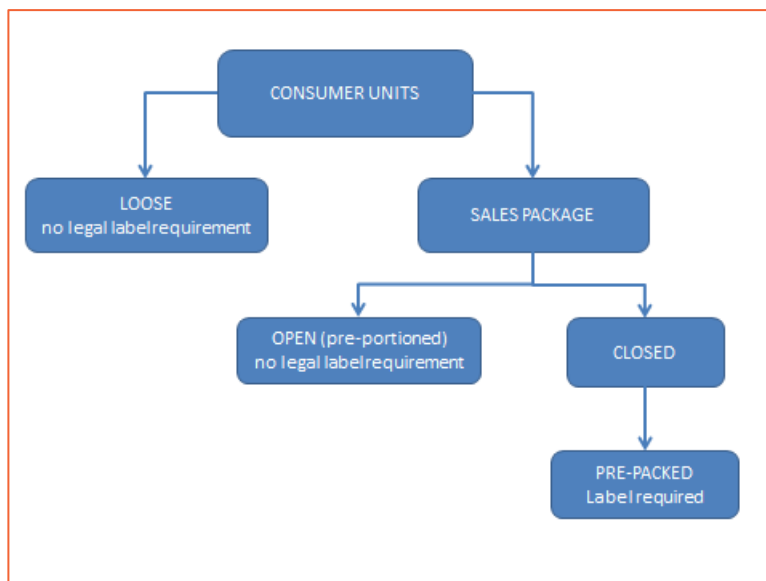
|                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <p><b>Pre-packed:</b></p> <p>A labelled product package that is intended for the consumer. For retail this item will be scanned at the point of sale.</p>                                                                                                                                                                                                                          |    |
| <p><b>Loose (by weight or by piece):</b></p> <p>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.</p>                                                                                             |   |
| <p><b>Pre-portioned:</b></p> <p>An <u>unlabelled</u> product package that protects the fruit article (e.g. strawberry, blackberry, etc.) and is sold as presented as a whole.</p> <p>Labelling of a pre-portioned consumer unit generally does not require a label by legal or regulatory requirements, but may be labelled (e.g. with a GTIN) by the supplier/packer for POS.</p> |  |



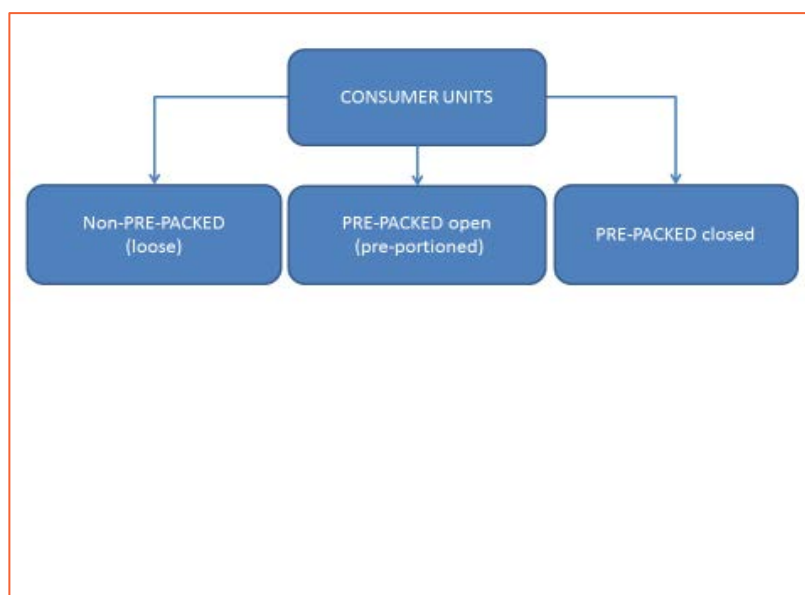
#### Remarks:

- Some target markets may require trade items to be labelled with country of origin labelling.
- Trade items with a protection package and no label are handled as retailer internal process and 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 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.
- Different variants of consumer units that may occur at the POS, two perspectives may be relevant in this context:

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



**Note:** Legal requirements may exist in specific markets (i.e., Canada has regulations around which commodities can be OPEN and how they are labelled)

### 3.1 General label considerations for consumer items

Trade items are read or scanned 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 a conformant GS1 barcode like an EAN/UPC, GS1 DataBar Stacked Omnidirectional or 2D barcode (provided the POS system supports retail 2D barcodes), enabling scanning at the POS. Accurate data and barcode quality should be observed.

### 3.1.1 Using 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.



Note: For full information, please consult the IFPS Produce [PLU Codes — IFPS](#) website.

### 3.1.2 Using barcodes

Choosing a GS1 barcode:

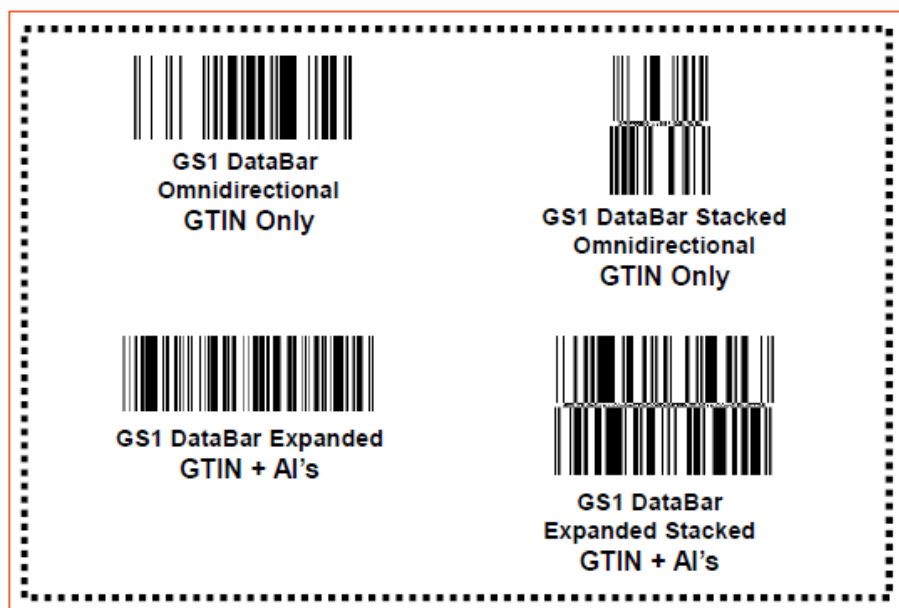
- If only a GTIN is to be encoded use an EAN/UPC barcode.
- In case of smaller items use a GS1 DataBar Stacked Omnidirectional.

If a GTIN and additional data such as net weight are to be encoded use GS1 DataBar Expanded or GS1 DataBar Expanded Stacked linear barcodes. If the POS system supports retail 2D barcodes the retailer could choose GS1 DataMatrix, Data Matrix with GS1 Digital Link syntax or QR Code with GS1 Digital Ink syntax.



**Note:** This guideline only uses weight in examples below because this information is crucial in some scenarios.

#### 3.1.2.1 GS1 DataBar barcode family



**Figure 3-3** Example of GS1 DataBar barcodes used at POS

Required Human Readable Interpretation (HRI) is not shown in the above examples.

### 3.1.2.2 Characteristics of the GS1 DataBar

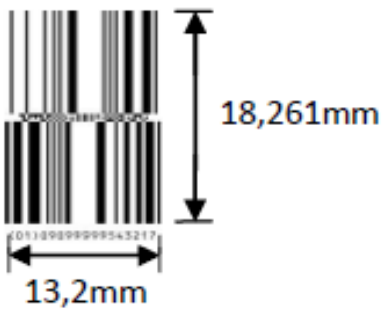
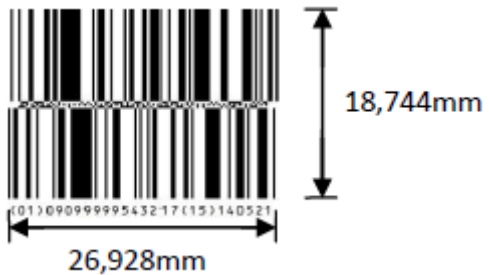
The GS1 DataBar has the following characteristics”

- 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 small products
- Additional information can be encoded in GS1 DataBar Expanded using GS1 Application Identifiers
- Availability of a range of application-specific barcodes provides optimal versatility
- Worldwide symbology protection (ISO/IEC 24724)

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

✓ **Note:** For more information on GS1 DataBar please see Annex

#### GS1 DataBar barcodes

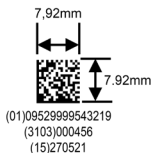
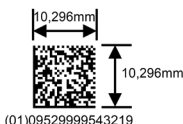
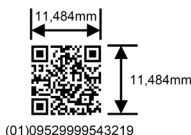
| GS1 DataBar Stacked Omnidirectional                                                                                                                                                                                        | GS1 DataBar Expanded Stacked                                                                                                                                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <ul style="list-style-type: none"> <li>■ AI (01) GTIN</li> </ul>                                                                       |  <ul style="list-style-type: none"> <li>■ AI (01) GTIN</li> <li>■ AI (15) Best Before Date (YYMMDD)</li> </ul> |
| <b>GS1 DataBar Expanded</b><br>38.35 width, 8.38 mm height<br><br>(01)04012345123456(3103)00340<br>AI (01) GTIN<br>AI (3103) net weight |                                                                                                                                                                                                    |
| Note: Indicated barcode dimensions are based on an X-dimension of 0,264 mm                                                                                                                                                 |                                                                                                                                                                                                    |

**Table 3-2** Examples of GS1 DataBar barcode with GTIN and GTIN attributes

The size of GS1 DataBar barcodes 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.

### 3.1.2.3 Retail 2D barcodes

**Table 3-3** Examples for retail 2D barcode for POS system that supports fruit and vegetable applications

| GS1 DataMatrix                                                                      |                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <ul style="list-style-type: none"> <li>■ GS1 element string syntax</li> <li>■ AI (01) GTIN</li> <li>■ AI (3103) net weight</li> <li>■ AI (15) Best before date</li> <li>■ Error Correction ~30%</li> </ul>                                                                                        |
| Data Matrix                                                                         |                                                                                                                                                                                                                                                                                                   |
|    | <ul style="list-style-type: none"> <li>■ GS1 Digital Link syntax</li> <li>■ Domain: Example.com</li> <li>■ AI (01) GTIN</li> <li>■ AI (3103) net weight</li> <li>■ AI (15) Best by date</li> <li>■ Error Correction ~30%</li> </ul>                                                               |
| QR Code                                                                             |                                                                                                                                                                                                                                                                                                   |
|  | <ul style="list-style-type: none"> <li>■ GS1 Digital Link syntax</li> <li>■ Domain: Example.com</li> <li>■ AI (01) GTIN</li> <li>■ AI (3103) net weight</li> <li>■ AI (15) Best by date</li> <li>■ Error Correction 7%</li> </ul> <p>Note: Error Correction is selectable (7%, 15%, 25%, 30%)</p> |
| <b>Note:</b> Indicated barcode dimensions are based on an X-dimension of 0,396 mm   |                                                                                                                                                                                                                                                                                                   |



**Note:** For retailer private label and in-store labelled products see this [position paper](#)

### 3.1.2.4 Characteristics of retail 2D barcodes

The GS1 retail 2D barcodes have the following characteristics:

- Compatible with currently installed imaging scanner technology that have been updated or shipped with software capable of the three retail 2D barcodes
- Error correction code (ECC)
  - GS1 DataMatrix and Data Matrix ECC is calculated using Reed–Solomon error correction and is approximately 30% recovery for typical GS1 applications of Data Matrix 2D barcodes
  - QR Code ECC is calculated using Reed–Solomon error correction and is selectable
    - Level L (Low) provides 7% data recovery, utilizing the smallest QR Code size. This option is ideal when the likelihood of damage is minimal.

- Level M (Medium): ~15% data recovery, often used for marketing materials.
- Level Q (Quartile): ~25% data recovery, often used in industrial or challenging environments.
- Level H (High): ~30% recovery, ideal for environment with high-damage risk
- Imaging (camera based) scanning required
- Space-saving symbology, therefore suitable for small products
- Additional information can be encoded in GS1 DataMatrix, Data Matrix with GS1 Digital syntax and QR Codes with GS1 Digital Link syntax using the GS1 Application Identifier
- Globally standardised symbologies Data Matrix (ISO/IEC 16022) and QR Code (ISO/IEC 18004)

### 3.1.3 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.

### 3.1.4 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

### 3.1.5 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. See General Specifications section 4.14 for HRI rules

## 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)



**Figure 3-4** Example of pre-packed fixed weight consumer unit.

The left column shows 5 options depending on the size of the consumer unit and the business requirements.

**Table 3-4** GS1 data carrier guide for pre-packed fixed weight consumer units

| Identification / GS1 Data Carrier                                                                                                                                                                                                                                           | Information on the label                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| GTIN in EAN/UPC Barcode<br>GTIN in GS1 DataBar Barcode (especially for packages of small or round items. Example: mini peppers).<br>GTIN in a GS1 DataMatrix or Data Matrix (GS1 Digital Link) or QR Code (GS1 Digital Link) if the POS system supports retail 2D barcodes. | Human Readable Interpretation (HRI) below each barcode<br><b>✓ Remark:</b><br>Regulatory requirements may apply to labels used on item (e.g. country of origin). Please refer to your local regulatory requirements. |

**✓ Note:** If additional attributes such as lot number or expiry date, GS1 DataBar Expanded, GS1 DataBar Expanded Stacked or one of the 2D barcode options can be used

### 3.2.2 Label on pre-packed consumer unit (variable weight)



**Figure 3-5** example of pre-packed variable weight consumer unit.

**Table 3-5** GS1 data carrier guide for pre-packed variable weight consumer units

| Identification / GS1 Data Carrier                                                                                                                                                                             | Information on the label                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| GTIN + weight in GS1 DataBar Expanded or Expanded Stacked<br>GTIN + weight in a GS1 DataMatrix or Data Matrix (GS1 Digital Link) or QR Code (GS1 Digital Link) if the POS system supports retail 2D barcodes. | Human Readable interpretation below each barcode (HRI)<br><b>✓ Remark:</b><br>Regulatory requirements may apply to labels used on item (e.g. country of origin). Please refer to your local regulatory requirements<br><b>✓ Note:</b><br>In some markets RCNs are still being used while being phased out. RCNs are not GTINs and therefore cannot be used in the GS1 DataBar family, GS1 DataMatrix, Data Matrix (GS1 Digital Link), or QR Code (GS1 Digital Link). Please refer to your local MO for additional instructions. |

### 3.2.3 Label on non pre-packed/loose piece

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


**Figure 3-6** examples of non pre-packed/loose pieces

**Table 3-6** GS1 data carrier guide for non pre-packed/loose pieces

| Identification / GS1 Data Carrier                                                                                                                                                                                                                                                             | Information on the label                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| GTIN in EAN or UPC Barcode<br>GTIN in GS1 DataBar (typically Stacked Omnidirectional)<br>GTIN plus net weight in GS1 DataBar Expanded<br>GTIN + net weight in a GS1 DataMatrix or Data Matrix (GS1 Digital Link) or QR Code (GS1 Digital Link) if the POS system supports retail 2D barcodes. | Human Readable interpretation below each barcode (HRI)<br>IFPS PLU-number can be added |
|  <b>Note:</b><br>At the retailer`s discretion loose fresh food items can be processed as fixed or variable measure products.                                                                                 |                                                                                        |


**Notes:**

- The retailer decides how to handle variable measure fresh food trade items sold at POS.
- If only an internal PLU is on the label it can only be used on the premises of this one retailer.
- 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.

**Extract From "GS1 AIDC Fresh Foods Sold at Point-of-Sale Implementation Guide" (2026)**

The figure below is an extract from the GS1 AIDC Fresh Foods Sold at Point-of-Sale Implementation Guide and provides additional guidance for loose items.

**5.4 Loose produce trade items**

Loose Produce trade items are trade items which are identified with a GTIN. At the retailer`s discretion, loose produce can be sold as fixed or variable measure products.

If this product is to be identified as variable measure, see variable measure section [5.2](#).

- When a loose produce item is further processed in-store and repackaged, it may be sold by the retailer as a fixed measure trade item, then it is treated as a Fixed Measure Trade Item and follows - Loose Produce Trade Items Scanned at point-of-sale of the GS1 General Specifications section 2.
- However, if loose produce is sold as a variable measure trade item, then it is treated as Variable Measure Trade Item and follows - Variable Measure Fresh Food Trade Items Scanned at point-of-sale Using GTIN of the GS1 General Specifications section 2.

For loose produce you can use GS1 DataBar Omnidirectional or GS1 DataBar Stacked Omnidirectional to encode GTIN only. To encode GTIN and additional attributes you can use GS1 DataBar Expanded, GS1 DataBar Expanded Stacked, GS1 DataMatrix, QR Code with GS1 Digital Link URI syntax or Data Matrix with GS1 Digital Link URI syntax.

**Figure 3-7** Extract from GS1 AIDC Fresh Foods Sold at Point-of-Sale Implementation Guide


**Note:** Refer to section 5.10 and section 7.1 of the [GS1 AIDC Fresh Foods Sold at Point-of-Sale Implementation Guide](#) for further guidance on how to allocate a GTIN for fresh foods.

### 3.2.4 Additional loose produce label examples



**Figure 3-8** Example of GTIN in GS1 DataBar Stacked Omnidirectional with HRI



**Figure 3-9** Example of GTIN in GS1 DataBar Stacked Omnidirectional with IFPS PLU and without 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.



**Figure 3-10** Example of GTIN in EAN-13 barcode with HRI below the barcode



**Note:** Label size compels the use of a heavily truncated under-sized barcode. Best practice would be to use GS1 DataBar or GS1 conformant retail 2D barcode in this situation.

### 3.2.5 Additional price markdown produce label example

Retailers' markdown loose produce as a strategic lever to manage highly perishable inventory, reduce shrink, and improve overall profitability—while also advancing sustainability goals. By lowering prices on items nearing the end of their optimal freshness, retailers can recover a portion of their investment rather than incurring a total loss through disposal.

More specifically, produce markdowns serve several critical functions:

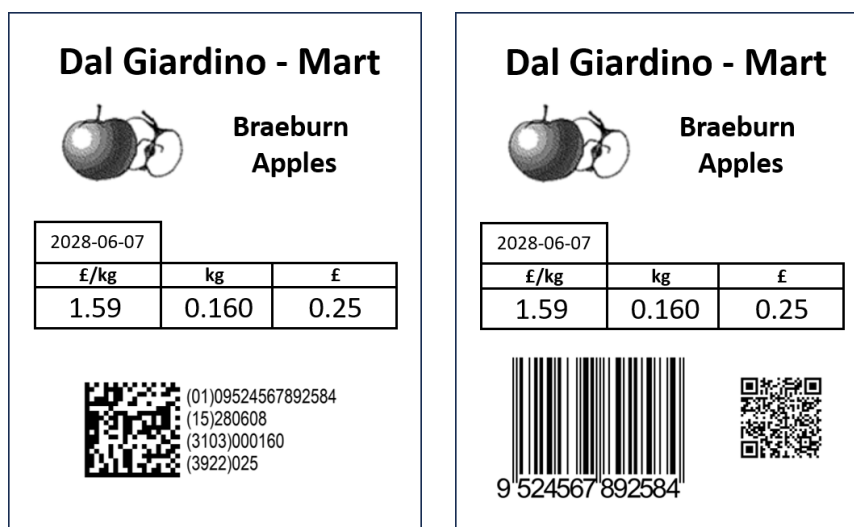
- Waste Reduction and Sustainability Impact: Fresh produce has a short shelf life, making it particularly vulnerable to spoilage. Markdowns help ensure more food is consumed rather than

discarded, directly reducing food waste, lowering landfill contributions, and supporting retailers' broader environmental and ESG commitments.

- **Inventory Optimization:** When demand is lower than forecasted or supply exceeds expectations, markdowns accelerate the sell-through of slow-moving items. This frees up shelf space for fresher, higher-margin inventory and maintains overall category quality.
- **Margin Recovery:** As produce ages, its perceived value declines. Strategic price reductions enable retailers to capture partial revenue, improving gross margin performance compared to full write-offs.
- **Customer Traffic and Value Perception:** Discounted produce appeals to price-sensitive shoppers and value seekers, increasing store traffic and basket size while reinforcing the retailer's reputation for affordability



**Figure 3-11** Example reduced-price label using a QR Code with GS1 Digital Link URI syntax



**Figure 3-12** Example labels with GS1 DataMatrix barcode and QR Code with GS1 Digital Link URI Syntax (with GTIN + additional data)

### 3.2.6 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.

### 3.2.7 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 conformance, 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 properly and efficiently scan. The GS1 General Specification 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 may not be omnidirectional readable and has an impact on reading performance see GS1 General Specification guidance on linear barcode truncation.

#### 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 barcode around a corner.
- Never place a barcode under a package flap.
- Barcodes used for production control purposes should be obstructed wherever possible before entering general distribution

### 3.4.1 Examples of label placement issue



**Figure 3-13** Example of scanning issue due to bad contrast (barcode is located on side panel)



**Figure 3-14** Example of scanning issue due to bad placement



**Figure 3-15** Example of scanning issue due to lack of height being greater than 60% truncation

## 4 References

### 4.1 External references

UNECE Standards for Fresh Fruits and Vegetables (FFV), latest version

[www.unece.org/trade/agr/standard/fresh/FFV-StandardsE.html](http://www.unece.org/trade/agr/standard/fresh/FFV-StandardsE.html)

UNECE Standards for Dry and Dried Produce (DDP), latest version

[www.unece.org/trade/agr/standard/dry/DDP-Standards.html](http://www.unece.org/trade/agr/standard/dry/DDP-Standards.html)

Codex Alimentarius – International Food Standards, latest version

[www.codexalimentarius.org](http://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”, latest version

[www.ifpsglobal.com](http://www.ifpsglobal.com)

### 4.2 GS1 references

GS1 General Specifications, 2026

<https://ref.gs1.org/standards/genspecs/>

Information about structure and use of the GTIN, latest version

[www.gs1.org/barcodes/technical/idkeys/gtin](http://www.gs1.org/barcodes/technical/idkeys/gtin)

GS1 2D in Retail Point-of-Sale Implementation Guideline, latest version

<https://ref.gs1.org/guidelines/2d-in-retail/>

Migration to a single GS1 conformant 2D barcode for retailer private label and in-store labelled products position paper, 2026

<https://ref.gs1.org/docs/2025/single-2D-barcode-for-private-label-products>

GS1 AIDC Fresh Foods Sold at Point-of-Sale Implementation Guideline, latest version

<https://ref.gs1.org/guidelines/fresh-foods/>

GS1 2D Barcode Colour & Quality Guide

<https://ref.gs1.org/docs/2025/GS1-2D-colour-guide>

GS1 in Europe

[www.gs1.eu](http://www.gs1.eu)

GTIN Allocation Rules for Fresh Foods, latest version

[www.gs1.org/1/gtinrules/index.php/tid=32](http://www.gs1.org/1/gtinrules/index.php/tid=32)

GS1 Global Office

[www.gs1.org](http://www.gs1.org)

## A Annex

### A.1 Cross reference of terms

| Produce Sector Term                                                            | Guideline Term                                                                  | GS1 Glossary Term   | GS1 Definition                                                                                                                                                              |
|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Each<br>Base Unit<br>Saleable Unit                                             | Consumer Unit (Each)<br>Unit<br>Item<br>Loose<br>Pre packed<br>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<br>Traded Unit<br>Bin<br>Tote<br>Pallet<br>Reusable Plastic ContainerTray | Traded Unit (Case)                                                              | Trade Item Grouping | A standard composition of trade item(s) that are not intended for point-of-sale scanning.                                                                                   |
| Pallet<br>Non-Standard Mixed Case                                              | Logistic Unit (Pallet)                                                          | Logistic Unit       | An item of any composition established for transport and/or storage that needs to be managed through the supply chain                                                       |