

# **UNECE STANDARD FFV-50**

concerning the marketing and  
commercial quality control of

## **APPLES**

**2013 EDITION**



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## NOTE

### **Working Party on Agricultural Quality Standards**

The commercial quality standards developed by the Working Party on Agricultural Quality Standards of the United Nations Economic Commission for Europe (UNECE) help facilitate international trade, encourage high-quality production, improve profitability and protect consumer interests. UNECE standards are used by governments, producers, traders, importers and exporters, and other international organizations. They cover a wide range of agricultural products, including fresh fruit and vegetables, dry and dried produce, seed potatoes, meat, cut flowers, eggs and egg products.

Any member of the United Nations can participate, on an equal footing, in the activities of the Working Party. For more information on agricultural standards, please visit our website <[www.unece.org/trade/agr](http://www.unece.org/trade/agr)>.

The present revised Standard for Apples is based on document ECE/TRADE/C/WP.7/2013/14, reviewed and adopted by the Working Party at its sixty-ninth session.

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# UNECE Standard FFV-50 concerning the marketing and commercial quality control of apples

## I. Definition of produce

This standard applies to apples of varieties (cultivars) grown from *Malus domestica* Borkh. to be supplied fresh to the consumer, apples for industrial processing being excluded.

## II. Provisions concerning quality

The purpose of the standard is to define the quality requirements for apples at the export-control stage after preparation and packaging.

However, if applied at stages following export, products may show in relation to the requirements of the standard:

- a slight lack of freshness and turgidity
- for products graded in classes other than the “Extra” Class, a slight deterioration due to their development and their tendency to perish.

The holder/seller of products may not display such products or offer them for sale, or deliver or market them in any manner other than in conformity with this standard. The holder/seller shall be responsible for observing such conformity.

### A. Minimum requirements

In all classes, subject to the special provisions for each class and the tolerances allowed, the bulbs must be:

- intact
- sound; produce affected by rotting or deterioration such as to make it unfit for consumption is excluded
- clean, practically free of any visible foreign matter
- practically free from pests
- free from damage caused by pests affecting the flesh
- free from serious watercore, with the exception of Fuji and their mutants
- free of abnormal external moisture
- free of any foreign smell and/or taste.

The development and condition of the apples must be such as to enable them:

- to withstand transportation and handling
- to arrive in satisfactory condition at the place of destination.

## B. Maturity requirements

The apples must be sufficiently developed, and display satisfactory ripeness.

The development and state of maturity of the apples must be such as to enable them to continue their ripening process and to reach the degree of ripeness required in relation to the varietal characteristics.

In order to verify the minimum maturity requirements, several parameters can be considered (e.g. morphological aspect, taste, firmness and refractometric index).

## C. Classification

Apples are classified in three classes, as defined below:

### (i) “Extra” Class

Apples in this class must be of superior quality. They must be characteristic of the variety<sup>1</sup> and the stalk must be intact.

Apples must express the following minimum surface colour characteristic of the variety<sup>2</sup>:

- 3/4 of total surface red coloured in case of colour group A
- 1/2 of total surface mixed red coloured in case of colour group B
- 1/3 of total surface slightly red coloured, blushed or striped in case of colour group C.

The flesh must be perfectly sound.

They must be free from defects, with the exception of very slight superficial defects, provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package:

- very slight skin defects
- very slight russeting<sup>3</sup>, such as
  - brown patches that may not go outside the stem cavity and may not be rough and/or
  - slight isolated traces of russeting.

### (ii) Class I

Apples in this class must be of good quality. They must be characteristic of the variety<sup>1</sup>.

Apples must express the following minimum surface colour characteristic of the variety<sup>2</sup>:

- 1/2 of total surface red coloured in case of colour group A
- 1/3 of total surface mixed red coloured in case of colour group B

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<sup>1</sup> A non-exhaustive list of varieties providing a classification on colouring and russeting is set out in the annex to this standard.

<sup>2</sup> Reservation by the United States: For “Extra” Class and Class I, due to differences in its national legislation that allow different colour requirements.

<sup>3</sup> Varieties marked with “R” in the annex are exempt from the provisions on russeting.

- 1/10 of total surface slightly red coloured, blushed or striped in case of colour group C.

The flesh must be perfectly sound.

The following slight defects, however, may be allowed, provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package:

- a slight defect in shape
- a slight defect in development
- slight defects in colouring
- slight bruising not exceeding 1 cm<sup>2</sup> in area and not discoloured
- slight skin defects, which must not extend over more than:
  - 2 cm in length for defects of elongated shape
  - 1 cm<sup>2</sup> of the total surface area for other defects, with the exception of scab (*Venturia inaequalis*), which must not extend over more than 0.25 cm<sup>2</sup>, cumulative, in area
- slight russetting<sup>3</sup>, such as
  - brown patches that may go slightly beyond the stem or pistil cavities but may not be rough and/or
  - thin net-like russetting not exceeding 1/5 of the total fruit surface and not contrasting strongly with the general colouring of the fruit and/or
  - dense russetting not exceeding 1/20 of the total fruit surface, while
  - thin net-like russetting and dense russetting taken together may not exceed a maximum of 1/5 of the total surface of the fruit.

The stalk may be missing, provided the break is clean and the adjacent skin is not damaged.

**(iii) Class II**

This class includes apples that do not qualify for inclusion in the higher classes, but satisfy the minimum requirements specified above.

The flesh must be free from major defects.

The following defects may be allowed, provided the apples retain their essential characteristics as regards the quality, the keeping quality and presentation:

- defects in shape
- defects in development
- defects in colouring
- slight bruising not exceeding 1.5 cm<sup>2</sup> in area which may be slightly discoloured
- skin defects, which must not extend over more than:
  - 4 cm in length for defects of elongated shape
  - 2.5 cm<sup>2</sup> total surface area for other defects, with the exception of scab (*Venturia inaequalis*), which must not extend over more than 1 cm<sup>2</sup>, cumulative, in area.

- slight russeting<sup>3</sup>, such as
  - brown patches that may go beyond the stem or pistil cavities and may be slightly rough and/or
  - thin net-like russeting not exceeding 1/2 of the total fruit surface and not contrasting strongly with the general colouring of the fruit and/or
  - dense russeting not exceeding 1/3 of the total fruit surface while
  - thin net-like russeting and dense russeting taken together may not exceed a maximum of 1/2 of the total surface of the fruit.

### III. Provisions concerning sizing

Size is determined either by the maximum diameter of the equatorial section or by weight.

The minimum size shall be 60 mm, if measured by diameter, or 90 g, if measured by weight. Fruit of smaller sizes may be accepted if the Brix level of the produce is equal to or greater than 10.5° Brix and the size is not smaller than 50 mm or 70 g.

To ensure uniformity in size, the range in size between produce in the same package shall not exceed<sup>4</sup>:

- (a) For fruit sized by diameter:
- 5 mm for “Extra” Class fruit and for Classes I and II fruit packed in rows and layers<sup>5</sup>
  - 10 mm for Class I fruit packed in sales packages or loose in the package.<sup>6</sup>
- (b) For fruit sized by weight:
- For “Extra” Class and Class I and II fruit packed in rows and layers:

| <i>Range (g)</i> | <i>Weight difference (g)</i> |
|------------------|------------------------------|
| 70-90            | 15                           |
| 91-135           | 20                           |
| 136-200          | 30                           |
| 201-300          | 40                           |
| > 300            | 50                           |

- For Class I fruit packed in sales packages or loose in the package:

| <i>Range (g)</i> | <i>Weight difference (g)</i> |
|------------------|------------------------------|
| 70-135           | 35                           |

<sup>4</sup> Reservation by the United States: Due to differences in the national legislation that allows the uniformity by diameter up to 12.5 mm for all apples irrespective of their size and/or class.

<sup>5</sup> However, for apples of the varieties Bramley's Seedling (Bramley, Triomphe de Kiel) and Horneburger, the difference in diameter may amount to 10 mm.

<sup>6</sup> However, for apples of the varieties Bramley's Seedling (Bramley, Triomphe de Kiel) and Horneburger, the difference in diameter may amount to 20 mm.

| <i>Range (g)</i> | <i>Weight difference (g)</i> |
|------------------|------------------------------|
| 136-300          | 70                           |
| > 300            | 100                          |

There is no sizing uniformity requirement for Class II fruit packed loose in the package or in sales packages.

#### **IV. Provisions concerning tolerances**

At all marketing stages, tolerances in respect of quality and size shall be allowed in each lot for produce not satisfying the requirements of the class indicated.

##### **A. Quality tolerances**

###### *(i) “Extra” Class*

A total tolerance of 5 per cent, by number or weight, of apples not satisfying the requirements of the class but meeting those of Class I is allowed. Within this tolerance not more than 0.5 per cent in total may consist of produce satisfying neither the requirements of Class II quality.

###### *(ii) Class I*

A total tolerance of 10 per cent, by number or weight, of apples not satisfying the requirements of the class but meeting those of Class II is allowed. Within this tolerance not more than 1 per cent in total may consist of produce satisfying neither the requirements of Class II quality nor the minimum requirements, or of produce affected by decay.

###### *(iii) Class II*

A total tolerance of 10 per cent, by number or weight, of apples satisfying neither the requirements of the class nor the minimum requirements is allowed. Within this tolerance not more than 2 per cent in total may consist of produce affected by decay.

##### **B. Size tolerances**

For all classes: a total tolerance of 10 per cent, by number or weight, of apples not satisfying the requirements as regards sizing is allowed. This tolerance may not be extended to include produce with a size:

- 5 mm below the minimum diameter
- 10 g below the minimum weight.

#### **V. Provisions concerning presentation**

##### **A. Uniformity**

The contents of each package must be uniform and contain only apples of the same origin, variety, quality, and size (if sized) and the same degree of ripeness.

In the case of the “Extra” Class, uniformity also applies to colouring.

However, a mixture of apples of distinctly different varieties may be packed together in a sales package, provided they are uniform in quality and, for each variety concerned, in origin.

The visible part of the contents of the package must be representative of the entire contents.

## **B. Packaging**

The apples must be packed in such a way as to protect the produce properly. In particular, sales packages of a net weight exceeding 3 kg shall be sufficiently rigid to ensure proper protection of the produce.

The materials used inside the package must be clean and of a quality such as to avoid causing any external or internal damage to the produce. The use of materials, particularly of paper or stamps bearing trade specifications, is allowed, provided the printing or labelling has been done with non-toxic ink or glue.

Stickers individually affixed to the produce shall be such that, when removed, they neither leave visible traces of glue, nor lead to skin defects.

Packages must be free of all foreign matter.

## **VI. Provisions concerning marking**

Each package<sup>7</sup> must bear the following particulars, in letters grouped on the same side, legibly and indelibly marked, and visible from the outside.

### **A. Identification**

Packer and/or dispatcher/shipper:

Name and physical address (e.g. street/city/region/postal code and, if different from the country of origin, the country) or a code mark officially recognized by the national authority<sup>8</sup>.

### **B. Nature of produce**

- "Apples" if the contents are not visible from the outside.
- Name of the variety. In the case of a mixture of apples of distinctly different varieties, names of the different varieties.

The name of the variety can be replaced by a synonym. The name of the mutant or a trade name<sup>9</sup> can only be given in addition to the variety or the synonym.

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<sup>7</sup> These marking provisions do not apply to sales packages presented in packages.

<sup>8</sup> The national legislation of a number of countries requires the explicit declaration of the name and address. However, in the case where a code mark is used, the reference “packer and/or dispatcher (or equivalent abbreviations)” has to be indicated in close connection with the code mark, and the code mark should be preceded by the ISO 3166 (alpha) country/area code of the recognizing country, if not the country of origin.

**C. Origin of produce**

- Country of origin<sup>10</sup> and, optionally, district where grown, or national, regional or local place name. In the case of a mixture of distinctly different varieties of apples of different origins, the indication of each country of origin shall appear next to the name of the variety concerned.

**D. Commercial specifications**

- Class
- Size, or for fruit packed in rows and layers, number of units.

If identification is by the size, this should be expressed:

- (a) for produce subject to the uniformity rules, as minimum and maximum diameters or minimum and maximum weight;
- (b) for produce not subject to the uniformity rules, as the diameter or weight of the smallest fruit in the package followed by “and over” or equivalent denomination or, if appropriate, the diameter or weight of the largest fruit in the package.

**E. Official control mark (optional)**

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<sup>9</sup> A trade name can be a trademark for which protection has been sought or obtained or any other commercial denomination.

<sup>10</sup> The full or a commonly used name should be indicated.

## Annex

### Non-Exhaustive List of Apple Varieties Providing a Classification on Colouring and Russetting<sup>11</sup>

Some of the varieties listed in the following may be marketed under names for which trademark protection has been sought or obtained in one or more countries. Names believed by the United Nations to be varietal names are listed in the first column. Other names by which the United Nations believes the variety may be known are listed in the second and third columns. None of these three columns is intended to include trademarks. References to known trademarks have been included in the fourth column for information only. The presence of any trademarks in the fourth column does not constitute any licence or permission to use that trademark – such licence must come directly from the trademark owner. In addition, the absence of a trademark in the fourth column does not constitute any indication that there is no registered/pending trademark for such a variety. For labelling requirements please refer to section VI of the standard.<sup>12</sup>

| <i>Variety</i> | <i>Mutant</i> | <i>Synonyms</i>         | <i>Trademarks</i>    | <i>Colour group</i> | <i>Russetting</i> |
|----------------|---------------|-------------------------|----------------------|---------------------|-------------------|
| African Red    |               |                         | African Carmine<br>™ | B                   |                   |
| Akane          |               | Tohoku 3,<br>Primerouge |                      | B                   |                   |
| Alborz         |               |                         |                      | C                   |                   |

<sup>11</sup> Fruits of varieties that are not part of the list must be graded according to their varietal characteristics. Coloured varieties as well as those showing a characteristic russetting should be included in the list to provide information about the varietal characteristics. The update of the list may be requested through the Specialized Section for the Standardization of Fresh Fruit and Vegetables.

<sup>12</sup> Some of the varietal names listed in the first column may indicate varieties for which patent protection has been obtained in one or more countries. Such proprietary varieties may only be produced or traded by those authorized by the patent holder to do so under an appropriate licence. The United Nations takes no position as to the validity of any such patent or the rights of any such patent-holder or its licensee regarding the production or trading of any such variety.

The United Nations endeavoured to ensure that no trademark names are listed in columns 1, 2 and 3 of the table. However, it is the responsibility of any trademark owner to notify the United Nations promptly if a trademark name has been included in the table and to provide the United Nations (see address below) with an appropriate varietal, or generic name for the variety, as well as adequate evidence ownership of any applicable patent or trademark regarding such variety so that the list can be amended. Provided that no further information is needed from the trademark holder, the Working Party on Agricultural Quality Standards will change the list accordingly at the session following receipt of the information. The United Nations takes no position as to the validity of any such trademarks or the rights of any such trademark owners or their licensees.

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| <i>Variety</i>         | <i>Mutant</i>                     | <i>Synonyms</i>                                  | <i>Trademarks</i> | <i>Colour group</i> | <i>Russeting</i> |
|------------------------|-----------------------------------|--|-------------------|---------------------|------------------|
| Seedling               |                                   |  |                   |                     |                  |
| Aldas                  |                                   |  |                   | B                   |                  |
| Alice                  |                                   |  |                   | B                   |                  |
| Alkmene                |                                   | Early Windsor                                    |                   | C                   |                  |
| Alro                   |                                   |  |                   | B                   |                  |
| Alwa                   |                                   |  |                   | B                   |                  |
| Amasya                 |                                   |  |                   | B                   |                  |
| Angold                 |                                   |  |                   | C                   |                  |
| Antej                  |                                   | Antei  |                   | B                   |                  |
| Apollo                 |                                   | Beauty of Blackmoor                              |                   | C                   |                  |
| Arkcharm               |                                   | Arkansas No 18, A 18                             |                   | C                   |                  |
| Arlet                  |                                   |  |                   | B                   | R                |
| Aroma                  |                                   |  |                   | C                   |                  |
|                        | Mutants of Aroma, e.g.            |  |                   | C                   |                  |
|                        | Amorosa                           |  |                   | C                   |                  |
| Auksis                 |                                   |  |                   | B                   |                  |
| Beacon                 |                                   |  |                   | A                   |                  |
| Belfort                |                                   | Pella  |                   | B                   |                  |
| Belle de Boskoop       |                                   |  |                   |                     | R                |
|                        | Mutants of Belle de Boskoop, e.g. |  |                   |                     | R                |
|                        | Boskoop rouge                     | Red Boskoop<br>Roter Boskoop                     |                   |                     | R                |
| Belle fleur double     |                                   |  |                   |                     |                  |
| Belorusskoje Maĭnovoje |                                   | Belorusskoe Malinovie,<br>Byelorusskoe Malinovie |                   | B                   |                  |
| Berlepsch              |                                   | Freiherr von Berlepsch                           |                   | C                   |                  |
|                        | Mutants of                        |  |                   | C                   |                  |

| <i>Variety</i>        | <i>Mutant</i>             | <i>Synonyms</i>                | <i>Trademarks</i>                      | <i>Colour group</i> | <i>Russetting</i> |
|-----------------------|---------------------------|--------------------------------|--|---------------------|-------------------|
|                       | Berlepsch, e.g.           |                                |  |                     |                   |
|                       | Berlepsch rouge           | Red Berlepsch, Roter Berlepsch |  | C                   |                   |
| Blushed Golden        |                           |                                |  |                     |                   |
| Bogatir               |                           | Bogatyr                        |  |                     |                   |
| Bohemia               |                           |                                |  | B                   |                   |
| Braeburn              |                           |                                |  | B                   |                   |
|                       | Mutants of Braeburn, e.g. |                                |  | B                   |                   |
|                       | Hidala                    |                                | Hillwell ®                             | B                   |                   |
|                       | Joburn                    |                                | Aurora™, Red Braeburn™, Southern Rose™ | B                   |                   |
|                       | Lochbuie Red Braeburn     |                                |  | B                   |                   |
|                       | Mahana Red                |                                | Redfield ®                             | B                   |                   |
|                       | Mariri Red                |                                | Eve™, Red Braeburn™, Southern Rose™    | B                   |                   |
|                       | Redfield                  |                                | Red Braeburn™, Southern Rose™          | B                   |                   |
|                       | Royal Braeburn            |                                |  | B                   |                   |
| Bramley's Seedling    |                           | Bramley, Triomphe de Kiel      |  |                     |                   |
| Brettacher Sämling    |                           |                                |  |                     |                   |
| Calvilles, Groupe des |                           |                                |  |                     |                   |
| Cardinal              |                           |                                |  | B                   |                   |
| Carola                |                           | Kalco                          |  | C                   |                   |
| Caudle                |                           |                                | Cameo™, Camela™                        | B                   |                   |
| Charden               |                           |                                |  |                     |                   |
| Charles Ross          |                           |                                |  |                     |                   |
| Civni                 |                           |                                | Rubens ®                               | B                   |                   |

| <i>Variety</i>      | <i>Mutant</i>                        | <i>Synonyms</i>    | <i>Trademarks</i>       | <i>Colour group</i> | <i>Russeting</i> |
|---------------------|--------------------------------------|--------------------|-------------------------|---------------------|------------------|
| Coop 38             |                                      |                    | Goldrush®,<br>Delisdor® |                     |                  |
| Coromandel Red      |                                      | Corodel            |                         | A                   |                  |
| Cortland            |                                      |                    |                         | B                   |                  |
| Cox's Orange Pippin |                                      | Cox orange         |                         | C                   | R                |
|                     | Mutants of Cox's Orange Pippin, e.g. |                    |                         | C                   | R                |
|                     | Cherry Cox                           |                    |                         | C                   | R                |
| Crimson Bramley     |                                      |                    |                         |                     |                  |
| Cripps Pink         |                                      |                    | Pink Lady ®             | C                   |                  |
|                     | Mutants of Cripps Pink, e.g.         |                    |                         | C                   |                  |
|                     | Pink Rose                            |                    | Pink Kiss ®             | C                   |                  |
|                     | Rosy Glow                            |                    | Pink Lady ®             | C                   |                  |
|                     | Ruby Pink                            |                    |                         | C                   |                  |
| Cripps Red          |                                      |                    | Sundowner™              | C <sup>13</sup>     |                  |
| Dalibel             |                                      |                    | Antares ®               | B                   | R                |
| Delblush            |                                      |                    | Tentation ®             |                     |                  |
| Delcorf             |                                      |                    | Delbarestivale ®        | C                   |                  |
|                     | Mutants of Delcorf, e.g.             |                    |                         | C                   |                  |
|                     | Dalili                               |                    | Ambassy ®               | C                   |                  |
|                     | Monidel                              |                    |                         | C                   |                  |
| Delgollune          |                                      |                    | Delbard Jubilé®         | B                   |                  |
| Delicious ordinaire |                                      | Ordinary Delicious |                         | B                   |                  |
| Deljeni             |                                      |                    | Primgold ®              |                     |                  |
| Delikates           |                                      |                    |                         | B                   |                  |

<sup>13</sup> With minimum 20% for Class I.

| <i>Variety</i>   | <i>Mutant</i>           | <i>Synonyms</i> | <i>Trademarks</i> | <i>Colour group</i> | <i>Russeting</i> |
|------------------|-------------------------|-----------------|-------------------|---------------------|------------------|
| Delor            |                         |                 |                   | C                   |                  |
| Discovery        |                         |                 |                   | C                   |                  |
| Doč Melbi        |                         | Doch Melbi      |                   | C                   |                  |
| Dunn's Seedling  |                         |                 |                   |                     | R                |
| Dykman's Zoet    |                         |                 |                   | C                   |                  |
| Egremont Russet  |                         |                 |                   |                     | R                |
| Elan             |                         |                 |                   |                     |                  |
| Elise            |                         | Red Delight     | Roblos ®          | A                   |                  |
| Ellison's orange |                         | Ellison         |                   | C                   |                  |
| Elstar           |                         |                 |                   | C                   |                  |
|                  | Mutants of Elstar, e.g. |                 |                   | C                   |                  |
|                  | Bel-El                  |                 | Red Elswout™      | C                   |                  |
|                  | Daliest                 |                 | Elista™           | C                   |                  |
|                  | Daliter                 |                 | Elton™            | C                   |                  |
|                  | Elshof                  |                 |                   | C                   |                  |
|                  | Elstar Armhold          |                 |                   | C                   |                  |
|                  | Elstar Reinhardt        |                 |                   | C                   |                  |
|                  | Goedhof                 |                 | Elnica™           | C                   |                  |
|                  | Red Elstar              |                 |                   | C                   |                  |
|                  | Valstar                 |                 |                   | C                   |                  |
| Empire           |                         |                 |                   | A                   |                  |
| Falstaff         |                         |                 |                   | C                   |                  |
| Fiesta           |                         | Red Pippin      |                   | C                   |                  |
| Florina          |                         |                 | Querina ®         | B                   |                  |
| Forele           |                         |                 |                   | B                   |                  |
| Fortune          |                         |                 |                   |                     | R                |
| Fuji             |                         |                 |                   | B                   |                  |
|                  | Mutants of              |                 |                   | B                   |                  |

| <i>Variety</i>   | <i>Mutant</i>                  | <i>Synonyms</i>                         | <i>Trademarks</i>  | <i>Colour group</i> | <i>Russeting</i> |
|------------------|--------------------------------|---|--|---------------------|------------------|
|                  | Fuji, e.g.                     |   |  |                     |                  |
|                  | Fuji Brak                      |   | Kiku ®   | B                   |                  |
| Gala             |                                |   |  | C                   |                  |
|                  | Mutants of Gala, e.g.          |   |  | C                   |                  |
|                  | Annaglo                        |   |  | C                   |                  |
|                  | Baigent                        |   | Brookfield ®   | C                   |                  |
|                  | Galaxy                         |   |  | C                   |                  |
|                  | Mitchgla                       |   | Mondial Gala ®   | C                   |                  |
|                  | Obrogala                       |   |  | C                   |                  |
|                  | Regala                         |   |  | C                   |                  |
|                  | Regal Prince                   |   | Gala Must ®  | C                   |                  |
|                  | Royal Beaut                    |   |  | C                   |                  |
|                  | Tenroy                         |   | Royal Gala ®   | C                   |                  |
| Garcia           |                                |   |  |                     |                  |
| Gloster          |                                |   |  | B                   |                  |
| Goldbohemia      |                                |   |  |                     |                  |
| Golden Delicious |                                |   |  |                     |                  |
|                  | Mutants of Golden Delicious    |   |  |                     |                  |
| Golden Russet    |                                |   |  |                     | R                |
| Goldstar         |                                |   |  |                     |                  |
| Granny Smith     |                                |   |  |                     |                  |
| Gradigold        |                                |   | Golden Supreme <sup>TM</sup> ,<br>Golden Extreme <sup>TM</sup> |                     |                  |
| Gravensteiner    |                                | Gravenstein                             |  |                     |                  |
|                  | Mutants of Gravensteiner, e.g. |   |  |                     |                  |
|                  | Gravenstein rouge              | Red Gravenstein,<br>Roter Gravensteiner |  |                     |                  |

| <i>Variety</i> | <i>Mutant</i>                   | <i>Synonyms</i>                    | <i>Trademarks</i> | <i>Colour group</i> | <i>Russeting</i> |
|----------------|---------------------------------|------------------------------------|-------------------|---------------------|------------------|
| Greensleeves   |                                 |                                    |                   |                     |                  |
| Holsteiner Cox |                                 | Holstein                           |                   |                     | R                |
|                | Mutants of Holsteiner Cox, e.g. |                                    |                   |                     | R                |
|                | Holstein rouge                  | Red Holstein, Roter Holsteiner Cox |                   |                     | R                |
| Honeycrisp     |                                 |                                    | Honeycrunch ®     | C                   |                  |
| Honey gold     |                                 |                                    |                   |                     |                  |
| Horneburger    |                                 |                                    |                   |                     |                  |
| Howgate Wonder |                                 | Manga                              |                   |                     |                  |
| Idared         |                                 |                                    |                   | B                   |                  |
| Iedzēnu        |                                 |                                    |                   | B                   |                  |
| Ilga           |                                 |                                    |                   | B                   |                  |
| Ingrid Marie   |                                 |                                    |                   | B                   | R                |
| Iron           |                                 |                                    | Demir Apple       | C                   |                  |
| Isbranica      |                                 | Izbranica                          |                   | C                   |                  |
| Jacob Fisher   |                                 |                                    |                   |                     |                  |
| Jacques Lebel  |                                 |                                    |                   |                     |                  |
| Jamba          |                                 |                                    |                   | C                   |                  |
| James Grieve   |                                 |                                    |                   |                     |                  |
|                | Mutants of James Grieve, e.g.   |                                    |                   |                     |                  |
|                | James Grieve rouge              | Red James Grieve                   |                   |                     |                  |
| Jarka          |                                 |                                    |                   | C                   |                  |
| Jerseymac      |                                 |                                    |                   | B                   |                  |
| Jester         |                                 |                                    |                   |                     |                  |
| Jonagold       |                                 |                                    |                   | C                   |                  |
|                | Mutants of Jonagold, e.g.       |                                    |                   | C                   |                  |

| <i>Variety</i>          | <i>Mutant</i>         | <i>Synonyms</i> | <i>Trademarks</i>           | <i>Colour group</i> | <i>Russeting</i> |
|-------------------------|-----------------------|-----------------|-----------------------------|---------------------|------------------|
|                         | Crowngold             |                 |                             | C                   |                  |
|                         | Daligo                |                 |                             | C                   |                  |
|                         | Daliguy               | Jonasty         |                             | C                   |                  |
|                         | Dalijeau              | Jonamel         |                             | C                   |                  |
|                         | Decosta               |                 |                             | C                   |                  |
|                         | Jomar                 |                 | Marnica ®                   | C                   |                  |
|                         | Jomured               | Van de Poel     |                             | C                   |                  |
|                         | Jonabel               |                 |                             | C                   |                  |
|                         | Jonabres              |                 |                             | C                   |                  |
|                         | Jonagold<br>Boerekamp |                 | Early Queen ®               | C                   |                  |
|                         | Jonagold 2000         | Excel           |                             | C                   |                  |
|                         | Jonagored<br>Supra    |                 |                             | C                   |                  |
|                         | Jonaveld              |                 | First Red ®                 | C                   |                  |
|                         | King Jonagold         |                 |                             | C                   |                  |
|                         | New Jonagold          | Fukushima       |                             | C                   |                  |
|                         | Novajo                | Veulemanns      |                             | C                   |                  |
|                         | Primo                 |                 |                             | C                   |                  |
|                         | Red Jonaprince        |                 | Wilton's ®,<br>Red Prince ® | C                   |                  |
|                         | Romagold              | Surkijn         |                             | C                   |                  |
|                         | Rubinstar             |                 |                             | C                   |                  |
|                         | Schneica              | Jonica          |                             | C                   |                  |
|                         | Wilmuta               |                 |                             | C                   |                  |
| Jonalord                |                       |                 |                             | C                   |                  |
| Jonathan                |                       |                 |                             | B                   |                  |
| Julia                   |                       |                 |                             | B                   |                  |
| Jupiter                 |                       |                 |                             |                     |                  |
| Karmijn de<br>Sonnville |                       |                 |                             | C                   | R                |
| Katja                   |                       | Katy            |                             | B                   |                  |
| Kent                    |                       |                 |                             |                     | R                |

| <i>Variety</i>       | <i>Mutant</i> | <i>Synonyms</i>                          | <i>Trademarks</i>         | <i>Colour group</i> | <i>Russeting</i> |
|----------------------|---------------|--|---------------------------|---------------------|------------------|
| Kidd's Orange Red    |               |  |                           | C                   | R                |
| Kim                  |               |  |                           | B                   |                  |
| Koit                 |               |  |                           | C                   |                  |
| Koričnoje Novoje     |               | Korichnoe Novoe,<br>Korichnevoe<br>Novoe |                           | C                   |                  |
| Kovaļenkovsk oje     |               |  |                           | B                   |                  |
| Krameri Tuvion       |               |  |                           | B                   |                  |
| Kukikovskoje         |               |  |                           | B                   |                  |
| Lady Williams        |               |  |                           | B                   |                  |
| Lane's Prince Albert |               |  |                           |                     |                  |
| Laxton's Superb      |               |  |                           | C                   | R                |
| Ligol                |               |  |                           | B                   |                  |
| Lobo                 |               |  |                           | B                   |                  |
| Lodel                |               |  |                           | A                   |                  |
| Lord Lambourne       |               |  |                           | C                   |                  |
| Maigold              |               |  |                           | B                   |                  |
| McIntosh             |               |  |                           | B                   |                  |
| Meelis               |               |  |                           | B                   |                  |
| Melba                |               |  |                           | C                   |                  |
| Melodie              |               |  |                           | B                   |                  |
| Melrose              |               |  |                           | C                   |                  |
| Meridian             |               |  |                           | C                   |                  |
| Moonglo              |               |  |                           | C                   |                  |
| Morgenduft           |               | Imperatore                               |                           | B                   |                  |
| Mountain Cove        |               |  | Ginger Gold <sup>TM</sup> |                     |                  |
| Mutsu                |               | Crispin                                  |                           |                     |                  |
| Noris                |               |  |                           | B                   |                  |

| <i>Variety</i>        | <i>Mutant</i>             | <i>Synonyms</i> | <i>Trademarks</i> | <i>Colour group</i> | <i>Russeting</i> |
|-----------------------|---------------------------|-----------------|-------------------|---------------------|------------------|
| Normanda              |                           |                 |                   | C                   |                  |
| Nueva Europa          |                           |                 |                   | C                   |                  |
| Nueva Orleans         |                           |                 |                   | B                   |                  |
| Odin                  |                           |                 |                   | B                   |                  |
| Ontario               |                           |                 |                   | B                   |                  |
| Orlik                 |                           |                 |                   | B                   |                  |
| Orlovskoje polosatoje |                           |                 |                   | C                   |                  |
| Ozark Gold            |                           |                 |                   |                     |                  |
| Paula Red             |                           |                 |                   | B                   |                  |
| Pero de Cirio         |                           |                 |                   |                     |                  |
| Piglos                |                           |                 |                   | B                   |                  |
| Pikant                |                           |                 |                   | B                   |                  |
| Pikkolo               |                           |                 |                   | C                   |                  |
| Pilot                 |                           |                 |                   | C                   |                  |
| Pimona                |                           |                 |                   | C                   |                  |
| Pinova                |                           |                 | Corail ®          | C                   |                  |
| Pirella               |                           |                 | Pirol ®           | B                   |                  |
| Piros                 |                           |                 |                   | C                   |                  |
| Prima                 |                           |                 |                   | B                   |                  |
| Rafzubin              |                           |                 | RubINETTE ®       | C                   |                  |
|                       | Mutants of Rafzubin, e.g. |                 |                   | C                   |                  |
|                       | Rafzubex                  |                 | RubINETTE ® Rosso | C                   |                  |
| Rajka                 |                           |                 |                   | B                   |                  |
| Rambour d'hiver       |                           |                 |                   |                     |                  |
| Rambour Franc         |                           |                 |                   | B                   |                  |
| Reanda                |                           |                 |                   | B                   |                  |
| Rebella               |                           |                 |                   | C                   |                  |
| Red Delicious         |                           |                 |                   | A                   |                  |
|                       | Mutants of                |                 |                   | A                   |                  |

| <i>Variety</i>                   | <i>Mutant</i>          | <i>Synonyms</i>  | <i>Trademarks</i>          | <i>Colour group</i> | <i>Russeting</i> |
|----------------------------------|------------------------|--|----------------------------|---------------------|------------------|
|                                  | Red Delicious,<br>e.g. |  |                            |                     |                  |
|                                  | Campur                 |  | Red Chief ®                | A                   |                  |
|                                  | Erovan                 |  | Early Red One ®            | A                   |                  |
|                                  | Fortuna<br>Delicious   |  |                            | A                   |                  |
|                                  | Otago                  |  |                            | A                   |                  |
|                                  | Red King               |  |                            | A                   |                  |
|                                  | Red Spur               |  |                            | A                   |                  |
|                                  | Red York               |  |                            | A                   |                  |
|                                  | Richared               |  |                            | A                   |                  |
|                                  | Royal Red              |  |                            | A                   |                  |
|                                  | Shotwell<br>Delicious  |  |                            | A                   |                  |
|                                  | Stark Delicious        |  |                            | A                   |                  |
|                                  | Starking               |  |                            | A                   |                  |
|                                  | Starkrimson            |  |                            | A                   |                  |
|                                  | Starkspur              |  |                            | A                   |                  |
|                                  | Topred                 |  |                            | A                   |                  |
|                                  | Trumdor                |  | Oregon Spur<br>Delicious ® | A                   |                  |
|                                  | Well Spur              |  |                            | A                   |                  |
| Red<br>Dougherty                 |                        |  |                            | A                   |                  |
| Redkroft                         |                        |  |                            | A                   |                  |
| Regal                            |                        |  |                            | A                   |                  |
| Regina                           |                        |  |                            | B                   |                  |
| Reglindis                        |                        |  |                            | C                   |                  |
| Reine des<br>Reinettes           |                        | Gold Parmoné,<br>Goldparmäne                             |                            | C                   |                  |
| Reineta<br>Encarnada             |                        |  |                            | B                   |                  |
| Reinette<br>Blanche du<br>Canada |                        | Reinette du<br>Canada, Canada<br>Blanc,<br>Kanadarenette |                            |                     | R                |

| <i>Variety</i>              | <i>Mutant</i>                | <i>Synonyms</i>   | <i>Trademarks</i> | <i>Colour group</i> | <i>Russeting</i> |
|-----------------------------|------------------------------|---|-------------------|---------------------|------------------|
| Reinette de France          |                              |   |                   |                     |                  |
| Reinette de Landsberg       |                              |   |                   |                     |                  |
| Reinette d'Orléans          |                              |   |                   |                     |                  |
| Reinette Grise du Canada    |                              | Graue Kanadarenette   |                   |                     | R                |
| Reinette Rouge du Canada    |                              |   |                   | B                   |                  |
| Relinda                     |                              |   |                   | C                   |                  |
| Remo                        |                              |   |                   | B                   |                  |
| Renora                      |                              |   |                   | B                   |                  |
| Resi                        |                              |   |                   | B                   |                  |
| Resista                     |                              |   |                   |                     |                  |
| Retina                      |                              |   |                   | B                   |                  |
| Rewena                      |                              |   |                   | B                   |                  |
| Roja de Benejama            |                              | Verruga, Roja del Valle, Clavelina  |                   | A                   |                  |
| Rome Beauty                 |                              | Belle de Rome, Rome   |                   | B                   |                  |
|                             | Mutants of Rome Beauty, e.g. |   |                   | B                   |                  |
|                             | Red Rome                     |   |                   | B                   |                  |
| Rosana                      |                              |   |                   | B                   |                  |
| Rubin (Czech cultivar)      |                              |   |                   | C                   |                  |
| Rubin (Kazakhstan cultivar) |                              |   |                   | B                   |                  |
| Rubinola                    |                              |   |                   | B                   |                  |
| Rudens Svītrainais          |                              | Osennee Polosatoe, Rudeninis Dryzuotasis, Rudens Svitrotais, Streifling, Streifling Herbst, |                   | C                   |                  |

| <i>Variety</i>           | <i>Mutant</i> | <i>Synonyms</i>                                      | <i>Trademarks</i> | <i>Colour group</i> | <i>Russeting</i> |
|--------------------------|---------------|--|-------------------|---------------------|------------------|
|                          |               | Sügisjooknik,<br>Syysjuovikas and<br>numerous others |                   |                     |                  |
| Saltanat                 |               |  |                   | B                   |                  |
| Sciearly                 |               |  | Pacific Beauty™   | A                   |                  |
| Scifresh                 |               |  | Jazz™             | B                   |                  |
| Sciglo                   |               |  | Southern Snap™    | A                   |                  |
| Sciray                   |               | GS48   |                   | A                   |                  |
| Scired                   |               |  | Pacific Queen™    | A                   | R                |
| Sciros                   |               |  | Pacific Rose™     | A                   |                  |
| Selena                   |               |  |                   | B                   |                  |
| Shampion                 |               |  |                   | B                   |                  |
| Sidrunkollane<br>Talioun |               |  |                   |                     |                  |
| Sinap<br>Orlovskij       |               |  |                   |                     |                  |
| Snygold                  |               | Earlygold  |                   |                     |                  |
| Sommerregent             |               |  |                   | C                   |                  |
| Spartan                  |               |  |                   | A                   |                  |
| Splendour                |               |  |                   | A                   |                  |
| St. Edmunds<br>Pippin    |               |  |                   |                     | R                |
| Starks's<br>Earliest     |               |  |                   | C                   |                  |
| Štaris                   |               | Staris   |                   | A                   |                  |
| Sturmer<br>Pippin        |               |  |                   |                     | R                |
| Sügisdessert             |               |  |                   | C                   |                  |
| Summerred                |               |  |                   | B                   |                  |
| Sunrise                  |               |  |                   | A                   |                  |
| Sunset                   |               |  |                   |                     | R                |
| Suntan                   |               |  |                   |                     | R                |
| Sweet<br>Caroline        |               |  |                   | C                   |                  |
| Talvenauding             |               |  |                   | B                   | R                |

| <i>Variety</i>            | <i>Mutant</i> | <i>Synonyms</i> | <i>Trademarks</i> | <i>Colour group</i> | <i>Russeting</i> |
|---------------------------|---------------|-----------------|-------------------|---------------------|------------------|
| Tellisaare                |               |                 |                   | B                   |                  |
| Tiina                     |               | Tina            |                   | C                   |                  |
| Topaz                     |               |                 |                   | B                   |                  |
| Tydeman's Early Worcester |               | Tydeman's Early |                   | B                   |                  |
| Veteran                   |               |                 |                   | B                   |                  |
| Vista Bella               |               | Bellavista      |                   | B                   |                  |
| Wealthy                   |               |                 |                   | B                   |                  |
| Worcester Pearmain        |               |                 |                   | B                   |                  |
| York                      |               |                 |                   | B                   |                  |
| Zailijskoje               |               | Zailiyskoe      |                   | B                   |                  |
| Žigulovskoje              |               | Zhigulevskoe    |                   | C                   |                  |

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The OECD Scheme for the Application of International Standards for Fruit and Vegetables has published an explanatory illustrated brochure on the application of this standard. The publication may be obtained from the OECD bookshop at: [www.oecdbookshop.org](http://www.oecdbookshop.org).