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## EAST AFRICAN STANDARD

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Fresh apples — Specification and grading



EAST AFRICAN COMMUNITY

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HS 0808.10.0000

## Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in East Africa. It is envisaged that through harmonized standardization, trade barriers which are encountered when goods and services are exchanged within the Community will be removed.

In order to meet the above objectives, the EAC Partner States have enacted an East African Standardization, Quality Assurance, Metrology and Test Act, 2006 (EAC SQMT Act, 2006) to make provisions for ensuring standardization, quality assurance, metrology and testing of products produced or originating in a third country and traded in the Community in order to facilitate industrial development and trade as well as helping to protect the health and safety of society and the environment in the Community.

East African Standards are formulated in accordance with the procedures established by the East African Standards Committee. The East African Standards Committee is established under the provisions of Article 4 of the EAC SQMT Act, 2006. The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the private sectors and consumer organizations. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the procedures of the Community.

Article 15(1) of the EAC SQMT Act, 2006 provides that "Within six months of the declaration of an East African Standard, the Partner States shall adopt, without deviation from the approved text of the standard, the East African Standard as a national standard and withdraw any existing national standard with similar scope and purpose".

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

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## Introduction

In the preparation of this East African Standard, the following sources were consulted extensively:

*United States Standards for Grades of Apples*, Effective December 19, 2002

UNECE STANDARD FFV-50:2009, *Marketing and commercial quality control of apples*

ISO 1212:1995, *Apples — Cold storage*

CODEX STAN 193:1995 (Rev.5:2009), *General Standard for Contaminants and Toxins in Foods*

CODEX STAN 228:2001 (Rev.1:2004), *General methods of analysis for contaminants*

Codex Alimentarius website: [http://www.codexalimentarius.net/mrls/pestdes/jsp/pest\\_q-e.jsp](http://www.codexalimentarius.net/mrls/pestdes/jsp/pest_q-e.jsp)

USDA Foreign Agricultural Service website: <http://www.mrldatabase.com>

USDA Agricultural Marketing Service website: <http://www.ams.usda.gov/AMSV1.0/Standards>

USDA Plant Inspectorate Service website: [http://www.aphis.usda.gov/import\\_export/plants](http://www.aphis.usda.gov/import_export/plants)

European Union: [http://ec.europa.eu/sanco\\_pesticides/public](http://ec.europa.eu/sanco_pesticides/public)

Assistance derived from these sources and others inadvertently not mentioned is hereby acknowledged.

This standard has been developed to take into account:

- the needs of the market for the product;
- the need to facilitate fair domestic, regional and international trade and prevent technical barriers to trade by establishing a common trading language for buyers and sellers.
- the structure of the CODEX, UNECE, USA, ISO and other internationally significant standards;
- the needs of the producers in gaining knowledge of market standards, conformity assessment, commercial cultivars and crop production process;
- the need to transport the product in a manner that ensures keeping of quality until it reaches the consumer;
- the need for the plant protection authority to certify, through a simplified form, that the product is fit for crossborder and international trade without carrying plant disease vectors;
- the need to promote good agricultural practices that will enhance wider market access, involvement of small-scale traders and hence making fruit and vegetable production a viable means of wealth creation; and
- the need to keep unsatisfactory produce from the market by allowing the removal of unsatisfactory produce from the markets and to discourage unfair trade practices e.g. trying to sell immature produce at the beginning of the season when high profits can be made. Immature produce leads to dissatisfaction of customers and influences their choices negatively, which disadvantages those traders who have waited until the produce is mature.

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Draft for comments only — Not to be cited as East African Standard

## Fresh apples — Specification and grading

### 1 Scope

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.

Annex B of this standard provides guidance to cold storage to ensure that the fruits are delivered fresh to consumers.

### 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

CAC/GL 21, *Principles for the Establishment and Application of Microbiological Criteria for Foods*

CAC/RCP 1, *Recommended International Code of Practice — General Principles of Food Hygiene*

CAC/RCP 44, *Recommended International Code of Practice for the Packaging and Transport of Tropical Fresh Fruit and Vegetables*

CAC/RCP 53, *Code of Hygienic Practice for Fresh Fruits and Vegetables*

EAS 38, *Labelling of prepackaged foods — Specification*

CD/K/378:2010, *Horticultural industry — Code of practice*

### 3 Definitions

For the purpose of this standard the following definition shall apply:

#### 3.1

##### **mature**

the apples have reached the stage of development which will insure the proper completion of the ripening process. Before a mature apple becomes overripe it will show varying degrees of firmness, depending upon the stage of the ripening process. The following terms are used for describing different stages of firmness of apples:

- (a) “*Hard*” means apples with a tenacious flesh and starchy flavour.
- (b) “*Firm*” means apples with a tenacious flesh but which are becoming crisp with a slightly starchy flavour, except the Delicious variety.
- (c) “*Firm ripe*” means apples with crisp flesh except that the flesh of the Gano, Ben Davis, and Rome Beauty varieties may be slightly mealy.
- (d) “*Ripe*” means apples with mealy flesh and soon to become soft for the variety.

#### 3.2

##### **overripe**

apples which have progressed beyond the stage of ripe, with flesh very mealy or soft, and past commercial utility

**3.3**

**clean**

the apples are free from excessive dirt, dust, spray residue, and other foreign material

**3.4**

**fairly well formed**

the apple may be slightly abnormal in shape but not to an extent which detracts materially from its appearance

**3.5**

**injury**

any specific defect defined in this Clause or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which more than slightly detract from the appearance or the edible or shipping quality of the apple. In addition, specific defect measurements are based on an apple three inches in diameter. Corresponding smaller or larger areas would be allowed on smaller or larger fruit. Any reference to "inch" or "inches in diameter" refers to that of a circle of the specified diameter. Any reference to "aggregate area," "total area," or "aggregate affected area" means the gathering together of separate areas into one mass for the purpose of comparison to determine the extent affected. The following specific defects shall be considered as injury:

- (a) Russeting in the stem cavity or calyx basin which cannot be seen when the apple is placed stem end or calyx end down on a flat surface shall not be considered in determining whether an apple is injured by russeting. Smooth net-like russeting outside of the stem cavity or calyx basin shall be considered as injury when an aggregate area of more than 10 percent of the surface is covered, and the colour of the russeting shows no very pronounced contrast with the background colour of the apple, or lesser amounts of more conspicuous net-like russeting when the appearance is affected to a greater extent than the amount permitted above.
- (b) Sunburn or sprayburn, when the discoloured area does not blend into the normal colour of the fruit.
- (c) Dark brown or black limb rubs which affect a total area of more than one-fourth inch in diameter, except that light brown limb rubs of a russet character shall be considered under the definition of injury by russeting.
- (d) Hail marks, drought spots, other similar depressions or scars:
  - (1) When the skin is broken, whether healed or unhealed;
  - (2) When there is appreciable discoloration of the surface;
  - (3) When any surface indentation exceeds 1.6 mm in depth;
  - (4) When any surface indentation exceeds 3.2 mm in diameter; or
  - (5) When the aggregate affected area of such spots exceeds 12.7 mm in diameter.
- (e) Bruises which are not slight and incident to proper handling and packing, and which are greater than:
  - (1) 3.2 mm in depth;
  - (2) 15.9 mm in diameter;
  - (3) any combination of lesser bruises which detract from the appearance or edible quality of the apple to an extent greater than any one bruise described in (1) or (2) above.
- (f) Brown surface discoloration when caused by delayed sunburn, surface scald, or any other means and affects an area greater than 6.4 mm in diameter.

- (g) Disease:
- (1) Cedar rust infection which affects a total area of more than 4.8 mm in diameter.
  - (2) Sooty blotch or fly speck which is thinly scattered over more than 5 % of the surface, or dark, heavily concentrated spots which affect an area of more than 6.4 mm in diameter.
  - (3) Red skin spots which are thinly scattered over more than one-tenth of the surface, or dark, heavily concentrated spots which affect an area of more than 6.4 mm in diameter.
- (h) Insects:
- (1) Any healed sting or healed stings which affect a total area of more than 3.2 mm in diameter including any encircling discoloured rings.
  - (2) Worm holes.

### 3.6 damage

any specific defect defined in this section or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which materially detract from the appearance, or the edible or shipping quality of the apple. In addition, specific defect measurements are based on an apple three inches in diameter. Corresponding smaller or larger areas would be allowed on smaller or larger fruit. Any reference to "inch" or "inches in diameter" refers to that of a circle of the specified diameter. Any reference to "aggregate area," "total area," or "aggregate affected area" means the gathering together of separate areas into one mass for the purpose of comparison to determine the extent affected. The following specific defects shall be considered as damage:

- (a) Russetting in the stem cavity or calyx basin which cannot be seen when the apple is placed stem end or calyx end down on a flat surface shall not be considered in determining whether an apple is damaged by russetting, except that excessively rough or bark-like russetting in the stem cavity or calyx basin shall be considered as damage when the appearance of the apple is materially affected. The following types and amounts of russetting outside of the stem cavity or calyx basin shall be considered as damage:
- (1) Russetting which is excessively rough on Roxbury Russet and other similar varieties.
  - (2) Smooth net-like russetting, when an aggregate area of more than 15 % of the surface is covered, and the colour of the russetting shows no very pronounced contrast with the background colour of the apple, or lesser amounts of more conspicuous net-like russetting when the appearance is affected to a greater extent than the amount permitted above.
  - (3) Smooth solid russetting, when an aggregate area of more than 5 % of the surface is covered, and the pattern and colour of the russetting shows no very pronounced contrast with the background colour of the apple, or lesser amounts of more conspicuous solid russetting when the appearance is affected to a greater extent than the above amount permitted.
  - (4) Slightly rough russetting which covers an aggregate area of more than 12.7 mm in diameter.
  - (5) Rough russetting which covers an aggregate area of more than 6.4 mm in diameter.
- (b) Sunburn or sprayburn which has caused blistering or cracking of the skin, or when the discolored area does not blend into the normal color of the fruit unless the injury can be classed as russetting.
- (c) Limb rubs which affect a total area of more than 12.7 mm in diameter, except that light brown limb rubs of a russet character shall be considered under the definition of damage by russetting.

- (d) Hail marks, drought spots, other similar depressions, or scars:
- (1) When any unhealed mark is present;
  - (2) When any surface indentation exceeds 3.2 mm in depth;
  - (3) When the skin has not been broken and the aggregate affected area exceeds 12.7 mm in diameter; or
  - (4) When the skin has been broken and well healed, and the aggregate affected area exceeds 6.4 mm in diameter.
- (e) Stem or calyx cracks which are not well healed, or well healed stem or calyx cracks which exceed an aggregate length of 6.4 mm.
- (f) Invisible water core existing around the core and extending to water core in the vascular bundles, or surrounding the vascular bundles when the affected areas surrounding three or more vascular bundles meet or coalesce, or existing in more than a slight degree outside the circular area formed by the vascular bundles. *Provided*, That invisible water core shall not be scored as damage against the Fuji variety of apples under any circumstances.
- (g) Bruises which are not slight and incident to proper handling and packing, and which are greater than:
- (1) 4.8 mm in depth;
  - (2) 22.2 in diameter;
  - (3) any combination of lesser bruises which detract from the appearance or edible quality of the apple to an extent greater than any one bruise described in (1) or (2) above.
- (h) Brown surface discoloration when caused by delayed sunburn, surface scald, or any other means and affects an area greater than 12.7 mm in diameter.
- (i) Disease:
- (1) Scab spots which affect a total area of more than one-fourth inch in diameter.
  - (2) Cedar rust infection which affects a total area of more than one-fourth inch in diameter.
  - (3) Sooty blotch or fly speck which is thinly scattered over more than one-tenth of the surface, or dark, heavily concentrated spots which affect an area of more than 12.7 mm in diameter.
  - (4) Red skin spots which are thinly scattered over more than one-tenth of the surface, or dark, heavily concentrated spots which affect an area of more than 12.7 mm in diameter.
  - (5) Bitter pit or Jonathan spot when one or more spots affects the surface of the apple.
- (j) Insects:
- (1) Any healed sting or healed stings which affect a total area of more than 4.8 mm in diameter including any encircling discoloured rings.
  - (2) Worm holes.

**3.7  
serious damage**

any specific defect defined in this section; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects which seriously detract from the appearance, or the edible or shipping quality of the apple. In addition, specific defect measurements are based on an apple three inches in diameter. Corresponding smaller or larger areas would be allowed on smaller

or larger fruit. Any reference to “*aggregate area*,” “*total area*,” or “*aggregate affected area*” means the gathering together of separate areas into one mass for the purpose of comparison to determine the extent affected. The following specific defects shall be considered as serious damage:

- (a) The following types and amounts of russetting shall be considered as serious damage:
- (1) Smooth solid russetting, when more than one-half of the surface in the aggregate is covered, including any russetting in the stem cavity or calyx basin, or slightly rough, or excessively rough or bark-like russetting, which detracts from the appearance of the fruit to a greater extent than the amount of smooth solid russetting permitted: *Provided*, That any amount of russetting shall be permitted on Roxbury Russet and other similar varieties.
- (b) Sunburn or sprayburn which seriously detracts from the appearance of the fruit.
- (c) Limb rubs which affect more than one-tenth of the surface in the aggregate.
- (d) Hail marks, drought spots, or scars, if they materially deform or disfigure the fruit, or if such defects affect more than one-tenth of the surface in the aggregate: *Provided*, That no hail marks which are unhealed shall be permitted and not more than an aggregate area of one-half inch shall be allowed for well healed hail marks where the skin has been broken.
- (e) Stem or calyx cracks which are not well healed, or well healed stem or calyx cracks which exceed an aggregate length of one-half inch.
- (f) Visible water core which affects an area of more than one-half inch in diameter.
- (g) Disease:
- (1) Scab spots which affect a total area of more than 19.1 mm in diameter.
  - (2) Cedar rust infection which affects a total area of more than 19.1 mm in diameter.
  - (3) Sooty blotch or fly speck which affects more than one-third of the surface.
  - (4) Red skin spots which affect more than one-third of the surface.
  - (5) Bitter pit or Jonathan spot which is thinly scattered over more than one-tenth of the surface.
- (h) Insects:
- (1) Healed stings which affect a total area of more than 6.4 mm in diameter including any encircling discolored rings.
  - (2) Worm holes.
- (i) Bruises which are not slight and incident to proper handling and packing, and which are greater than:
- (1) 9.5 mm in depth;
  - (2) 28.6 mm in diameter;
  - (3) any combination of lesser bruises which detract from the appearance or edible quality of the apple to an extent greater than any one bruise described in (i)(1) or (2) above.
- (j) Brown surface discoloration when caused by delayed sunburn, surface scald, or any other means and affects an area greater than 19.1 mm in diameter.

**3.8**

**seriously deformed**

the apple is so badly misshapen that its appearance is seriously affected

**3.9**

**diameter**

When measuring for minimum size, "diameter" means the greatest dimension of the apple measured at right angles to a line from stem to blossom end. When measuring for maximum size, "diameter" means the smallest dimension of the apple determined by passing the apple through a round opening in any position.

**3.10**

**export conditions**

- (a) Not more than 5 % of the apples in any lot shall be further advanced in maturity than firm ripe.
- (b) Not more than 5 percent of the apples in any lot shall be damaged by storage scab.
- (c) Not more than a total of 5 percent of the apples in any lot shall be affected by scald, internal breakdown, freezing injury, or decay; or damaged by bitter pit, Jonathan spot, water core except that invisible water core shall not be scored as damage when these condition standards are applied to the Fuji variety of apples, or other condition factors: *Provided*, That:
  - (1) Not more than a total of 2 % shall be allowed for apples affected by decay and soft scald;
  - (2) Not more than 2 % shall be allowed for apples affected by internal breakdown;
- (d) Container packs shall comply with packing requirements specified in Clause 7.

**4 Provisions concerning quality**

**4.1 General**

The purpose of the standard is to define the quality requirements of apples at the market 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 shall be responsible for observing such conformity.

**4.2 Minimum requirements**

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

- (a) intact
- (b) sound; produce affected by rotting or deterioration such as to make it unfit for consumption is excluded
- (c) clean, practically free of any visible foreign matter
- (d) practically free from pests

- (e) free from damage caused by pests affecting the flesh
- (f) free from serious watercore, with the exception of Fuji and their mutants
- (g) free of abnormal external moisture
- (h) free of any foreign smell and/or taste.

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

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

### **4.3 Minimum 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.<sup>1</sup>

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

### **4.4 Classification**

Apples are classified in three classes, as defined below:

#### **4.4.1 "Extra" Class**

Apples in this class must be of superior quality. In shape, size and colouring they must be characteristic of the variety<sup>2</sup> and the stalk must be intact.

Apples must express the following minimum surface colour characteristic of the variety:

- 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 russetting<sup>3</sup>, such as
  - brown patches that may not go outside the stem cavity and may not be rough and/or

<sup>1</sup> Due to varietal characteristics of the Fuji variety and its mutants concerning maturity at harvest, radial watercore is permitted providing it is contained within the vascular bundles of each fruit.

<sup>2</sup> A non-exhaustive list of varieties providing a classification on colouring and russetting is set out in the annex to this standard.

- slight isolated traces of russeting.

#### 4.4.2 Class I

Apples in this class must be of good quality. In shape, size and colouring they must be characteristic of the variety<sup>1</sup>.

Apples must express the following minimum surface colour characteristic of the variety:

- 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
- 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
- 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 russeting, such as
  - brown patches that may go slightly beyond the stem or pistil cavities but may not be rough and/or
  - thin net-like russeting not exceeding 1/5 of the total fruit surface and not contrasting strongly with the general colouring of the fruit and/or
  - dense russeting not exceeding 1/20 of the total fruit surface, while
  - thin net-like russeting and dense russeting 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.

#### 4.4.3 Class II

This class includes apples that do not qualify for inclusion in the higher classes but satisfy the minimum requirements specified in 4.2. The apples must be of marketable quality and fit for human consumption

The flesh shall be free from major defects.

Defects in shape, development and colouring are allowed provided that the fruit retains its essential characteristics as regards quality, the keeping quality and presentation. The stalk may be missing, provided that the skin is not damaged.

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 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, such as
  - brown patches that may go slightly beyond the stem or pistil cavities but may not be 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.

NOTE 1 This class is not suitable for cold storage.

## 5 Provisions concerning sizing

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

For all varieties and for all classes the minimum size is 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 greater than or equal to 10.5° Brix and the size is not smaller than 50 mm or 70 g.

To ensure uniformity in size:

- (a) For fruit sized by diameter, the difference in diameter between fruit in the same package shall be limited to:
  - 5 mm for "Extra" Class fruit and for Classes I and II fruit packed in rows and layers<sup>3</sup>
  - 10 mm for Class I fruit packed loose in the package or in consumer packages.<sup>4</sup>
- (b) For fruit sized by weight:
  - For "Extra" Class and Class I apples packed in rows and layers, the difference in weight between the lightest and the heaviest fruit in the same package shall be limited to:

<sup>3</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.

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

Range (g)	Weight difference (g)
70-90	15 g
91-135	20 g
136-200	30 g
201-300	40 g
> 301	50 g

- For Class I fruit packed loose in the package or in consumer packages, the difference in weight between the heaviest and the lightest fruit shall be limited to:

Range (g)	Uniformity (g)
70-135	35
136-300	70
> 301	100

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

## 6 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.

### 6.1 Quality tolerances

#### 6.1.1 "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 the requirements of Class II quality.

#### 6.1.2 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 neither satisfying the requirements of Class II quality nor the minimum requirements. Produce affected by rotting or any other deterioration rendering it unfit for consumption is excluded.

#### 6.1.3 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. Produce affected by rotting or any other deterioration rendering it unfit for consumption is excluded.

Within this tolerance, a maximum of 2 per cent, by number or weight, of fruit is allowed which shows the following defects:

- serious attacks of cork (bitter pit) or watercore
- slight damage or unhealed cracks
- very slight traces of rot
- presence of internal feeding pests and/or damage to the flesh caused by pests.

## 6.2 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, when size is determined by diameter
- 10 g below the minimum weight, when size is determined by weight.

## 7 Provisions concerning presentation

### 7.1 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 unit<sup>5</sup>, 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.

Uniformity of variety and origin are not required for apples in consumer packages of a net weight not exceeding 5 kg.

### 7.2 Packaging

The apples must be packed in such a way as to protect the produce properly. In particular, consumer 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.

Apples shall be packed in each container in compliance with CAC/RCP 44.

## 8 Labelling or marking

### 8.1 Consumer packages

In addition to the requirements of EAS 38, the following specific provisions apply:

#### 8.1.1 Nature of produce

- “Apples”, if the contents are not visible from the outside
- Name of the variety. In the case of consumer packages containing a mixture of apples of different varieties, names of the different varieties.

<sup>5</sup> The sales unit should be designed to be purchased in its entirety.

## 8.2 Non-retail containers

Each package<sup>6</sup> must bear the following particulars, in letters grouped on the same side, legibly and indelibly marked, and visible from the outside:

### 8.2.1 Identification

The exporter, packer and/or dispatcher shall be identified by 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>7</sup>

### 8.2.2 Nature of produce

- “Apples”, if the contents are not visible from the outside
- Name of the variety. In the case of consumer packages containing a mixture of apples of different varieties, names of the different varieties.

### 8.2.3 Origin of produce

Country of origin and, optionally, district where grown, or national, regional or local place name. In the case of consumer packages containing a mixture of varieties of apples of different origins, the indication of each country of origin shall appear next to the name of the variety concerned.

### 8.2.4 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, 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.

### 8.2.5 Official control mark (optional)

## 9 Contaminants

### 9.1 Heavy metals

Apples shall comply with those maximum levels for heavy metals established by the Codex Alimentarius Commission for this commodity. The current limits are as indicated below:

Metal	Unit of measurement	Maximum limit	Test method
Lead (Pb)	mg/kg wet weight	0.10	ISO 6633 (AAS)
Cadmium (Cd)	mg/kg wet weight	0.050	ISO 6561-1 or 6561-2

<sup>6</sup> According to the Geneva Protocol, footnote 2, “Package units of produce prepacked for direct sale to the consumer shall not be subject to these marking provisions but shall conform to the national requirements. However, the markings referred to shall in any event be shown on the transport packaging containing such package units”.

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.

## 9.2 Pesticide residues

Apples shall comply with those maximum pesticide residue limits established by the Codex Alimentarius Commission for this commodity. The limits listed below were current as of the dates indicated. The table below provides current MRLs while Annex E provides current MRLs for the USA, EU and Codex markets.

### Maximum pesticide residue limits and extraneous maximum residue limits in apples (current as at 2009-06-07)

Type	Unit symbol	Limit	Method of test	Notes
ABAMECTIN	MRL (mg/kg)	0.02		Used also as veterinary drug
AZINPHOS-METHYL	MRL (mg/kg)	2		
AZOCYCLOTIN	MRL (mg/kg)	0.2		
BOSCALID	MRL (mg/kg)	2		
CAPTAN	MRL (undef) T	25		
CHLORPYRIFOS-METHYL	MRL (mg/kg)	0.5		
CYFLUTHRIN	MRL (mg/kg)	0.1		Used also as veterinary drug
CYHEXATIN	MRL (mg/kg)	2		
CYPRODINIL	MRL (undef)*	0.05		
DELTAMETHRIN	MRL (mg/kg)	0.2		Used also as veterinary drug
DICHLLOFLUANID	MRL (mg/kg)	5		
DIFLUBENZURON	MRL (mg/kg)	5		
DINOCAP	MRL (mg/kg)	0.2		
DIPHENYLAMINE	MRL (mg/kg)	10		
DITHIOCARBAMATES	MRL (undef)	2		Source of data: propineb
ETHEPHON	MRL (mg/kg)	5		
FENAMIPHOS	MRL (mg/kg)	0.05		
FENITROTHION	MRL (undef)	0.5		
FENPYROXIMATE	MRL (undef)	0.3		
FOLPET	MRL (undef)	10		
HEXYTHIAZOX	MRL (mg/kg)	0.5		
IMIDACLOPRID	MRL (mg/kg)	0.5		
INDOXACARB	MRL (undef)	0.5		
MALATHION	MRL (undef)	0.5		
METHIDATHION	MRL (mg/kg)	0.5		
PARATHION-METHYL	MRL (mg/kg)	0.2		
PHOSMET	MRL (undef)	10		
PROPARGITE	MRL (mg/kg)	3		
PYRACLOSTROBIN	MRL (undef)	0.5		
SPINOSAD	MRL (undef)	0.1		
TRIADIMEFON	MRL (undef)	3		Based on triadimenol use only
TRIADIMENOL	MRL (undef)	0.3		Based on triadimenol use only
TRIFORINE	MRL (mg/kg)	2		

## 10 Hygiene

**10.1** It is recommended that the produce covered by the provisions of this Standard be prepared and handled in accordance with the appropriate sections of CAC/RCP 1, CAC/RCP 53, and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice.

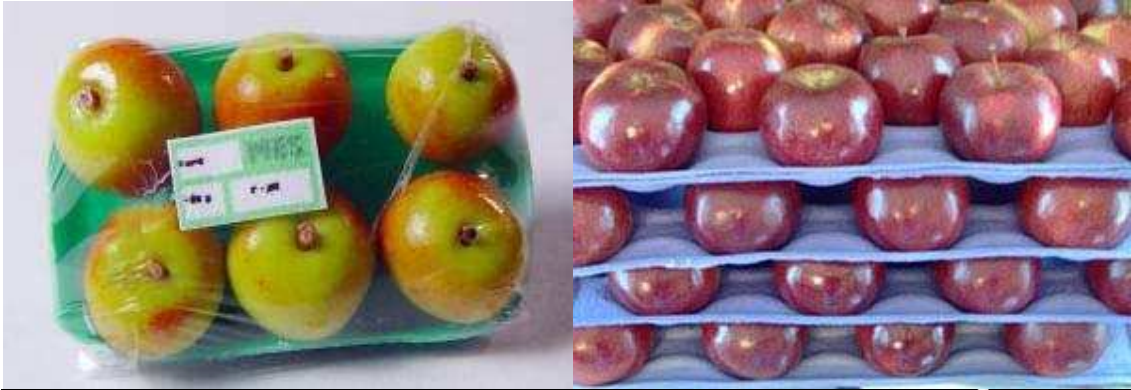
**10.2** The produce should comply with any microbiological criteria established in accordance with CAC/GL 21.

ward



Prepacked apples

Draft for comment

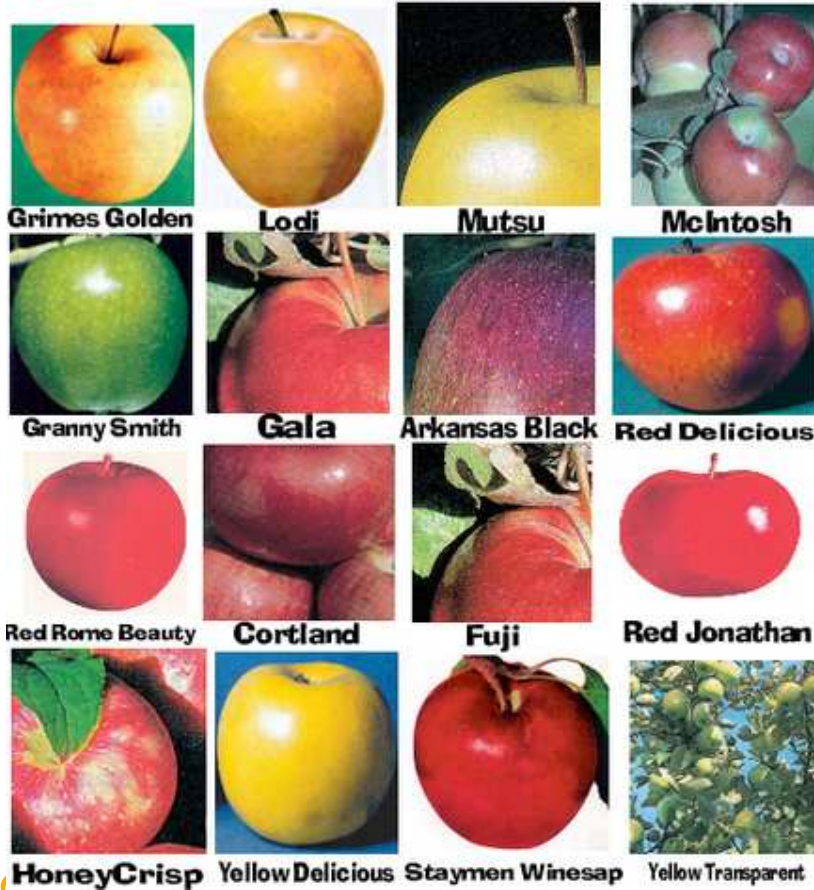


Prepacked apples

Draft for comments



Sales units



Draft for com.

Standard  
Ear



Varieties of apples

Draft for comments only — Not to be cited as EAC Standard

## Annex A

Non-exhaustive list of apple varieties<sup>8</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 column. Neither of these two lists is intended to include trademarks. References to known trademarks have been included in the third column for information only. The presence of any trademarks in the third 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 third column does not constitute any indication that there is no registered/pending trademark for such a variety.<sup>9</sup>

<sup>8</sup> Fruits of varieties that are not part of the list must be graded according to their varietal characteristics. Coloured and/or large fruited varieties as well as those showing a characteristic russeting 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>9</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 and 2 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.

Variety/ Variété/ Разновидность	Synonyms/ Synonymes/ Синонимы	Trade names/ Marque commerciale/ Товарное наименование	Colour group/ Groupe de coloration/ Группа окраски	Russeting/ Roussissement/ Степень буроватости	Size/ Calibre/ Размер
African Red		African Carmine <sup>TM</sup>	B		
Akane	Tohoku 3	Primerouge <sup>®</sup>	B		
Alborz Seedling			C		
Aldas			B		
Alice			B		
Alkmene	Early Windsor		C		
*Alro			B		
Alwa			B		
*Amasya			B		
Angold			C		L
*Antej	Antei		B		L
Apollo	Beauty of Blackmoor		C		L
Arkcharm	Arkansas No 18, A 18		C		L
Arlet			B	R	
Aroma			C		
Red coloured mutants of Aroma e. g.			B		
Amorosa			B		
Auksis			B		
*Beacon			A		L
Belfort	Pella		B		
Belle de Boskoop and mutants				R	L
Belle fleur double					L
*Belorusskoje Maljinovoje	Belorusskoe Malinovie, Byelorusskoe Malinovie		B		
Berlepsch	Freiherr von Berlepsch		C		
Berlepsch rouge	Red Berlepsch, Roter Berlepsch		B		
Blushed Golden					L
*Bogatir	Bogatyr				L
Bohemia			B		L
Boskoop rouge	Red Boskoop, Roter Boskoop		B	R	L
Braeburn			B		L
Red coloured mutants of Braeburn e. g.				A	L
Hidala		Hillwell <sup>®</sup>		A	L
Joburn		Aurora <sup>TM</sup> , Red Braeburn <sup>TM</sup> , Southern Rose <sup>TM</sup>		A	L
Lochbuie Red Braeburn				A	L

Variety/ Variété/ Разновидность	Synonyms/ Synonymes/ Синонимы	Trade names/ Marque commerciale/ Товарное наименование	Colour group/ Groupe de coloration/ Группа окраски	Russeting/ Roussissement/ Степень буроватости	Size/ Calibre/ Размер
Mahana Red		Redfield ®	A		L
Mariri Red		Eve™, Red Braeburn™, Southern Rose™	A		L
Redfield		Red Braeburn™, Southern Rose™	A		L
Royal Braeburn			A		L
Bramley's Seedling	Bramley, Triomphe de Kiel				L
Brettacher Sämling					L
Calvilles, Groupe des					L
Cardinal			B		
Carola	Kalco		C		L
Caudle		Cameo™	B		
Charden					L
Charles Ross					L
Civni		Rubens ®	B		
Coromandel Red	Corodel		A		
Cortland			B		L
Cox's Orange Pippin and mutants	Cox orange		C	R	
Red coloured mutants of Cox's Orange Pippin e. g.			B	R	
Cherry Cox			B	R	
Crimson Bramley					L
Cripps Pink		Pink Lady ®	C		
Cripps Red		Sundowner™	C <sup>10</sup>		
Dalibel			B		
Delblush		Tentation ®			L
Delcorf and mutants e. g.		Delbarestivale ®	C		L
Dalili		Ambassy ®	C		L
Monidel			C		L
Delgollune		DELBARD JUBILÉ ®	B		L
Delicious ordinaire	Ordinary Delicious		B		
Deljeni		Primgold ®			L
Delikates			B		
Delor			C		L
Discovery			C		
*Doč Melbi	Doch Melbi		C		L
Dunn's Seedling				R	
Dykmanns Zoet			C		

<sup>10</sup> With minimum 20% for Class I and Class II.

Variety/ Variété/ Разновидность	Synonyms/ Synonymes/ Синонимы	Trade names/ Marque commerciale/ Товарное наименование	Colour group/ Groupe de coloration/ Группа окраски	Russeting/ Roussissement/ Степень буроватости	Size/ Calibre/ Размер
Egremont Russet				R	
Elan					L
Elise	Red Delight	Roblos ®	A		L
Ellison's orange	Ellison		C		L
Elstar and mutants e. g.			C		
Daliter		Elton™		C	
Elshof				C	
Elstar Armhold				C	
Elstar Reinhardt				C	
Red coloured mutants of Elstar e.g.				B	
Bel-El		Red Elswout™		B	
Daliest		Elista™		B	
Goedhof		Elnica™		B	
Red Elstar				B	
Valstar				B	
Empire			A		
Falstaff			C		
Fiesta	Red Pippin		C		
Florina		Querina ®	B		L
*Forele			B		
Fortune				R	
Fuji and mutants			B		L
Gala			C		
Red coloured mutants of Gala e. g.				A	
Annaglo				A	
Baigent		Brookfield ®		A	
Galaxy			A		
Mitchgla		Mondial Gala ®	A		
Obrogala			A		
Regala			A		
Regal Prince		Gala Must ®	A		
Tenroy		Royal Gala ®	A		
Garcia					L
Ginger Gold					L
Gloster			B		L
Goldbohemia					L
Golden Delicious and mutants					L
Golden Russet				R	
Golden Supreme	Gradigold, Golden Extreme				L
Goldrush	Coop 38				L
Goldstar					L
Granny Smith					L
Gravenstein rouge	Red Gravenstein, Roter Gravensteiner		B		L
Gravensteiner	Gravenstein				L

Variety/ Variété/ Разновидность	Synonyms/ Synonymes/ Синонимы	Trade names/ Marque commerciale/ Товарное наименование	Colour group/ Groupe de coloration/ Группа окраски	Russeting/ Roussissement/ Степень буроватости	Size/ Calibre/ Размер
Greensleeves					L
Holsteiner Cox and mutants	Holstein			R	
Holstein rouge	Red Holstein, Roter Holsteiner Cox		C	R	
Honeycrisp		Honeycrunch ®	C		L
Honey gold					L
Horneburger					L
Howgate Wonder	Manga				L
Idared			B		L
*ledzēnu			B		L
*Ilga			B		L
Ingrid Marie			B	R	
*Iron		Demir Apple	C	R	L
Isbranica			C		
Jacob Fisher					L
Jacques Lebel					L
Jamba			C		L
James Grieve and mutants					L
James Grieve rouge		Red James Grieve	B		L
Jarka			C		L
Jerseymac			B		
Jester					L
Jonagold <sup>11</sup> and mutants e. g.			C		L
Crowngold			C		L
Daligo			C		L
Daliguy	Jonasty		C		L
Dalijean	Jonamel		C		L
Jonagold 2000	Excel		C		L
Jonabel			C		L
Jonabres			C		L
King Jonagold			C		L
New Jonagold	Fukushima		C		L
Novajo	Veulemanns		C		L
Schneica	Jonica		C		L
Wilmuta			C		L
Jonagored and similar			A		L
coloured mutants of Jonagold e. g.			A		L
Decosta			A		L
Jomured	Van de Poel		A		L
Jonagold Boerekamp		Early Queen ®	A		L
Jomar		Marnica ®	A		L
Jonagored Supra			A		L
Jonaveld		First Red ®	A		L

<sup>11</sup> However, for the variety Jonagold at least one-tenth of the surface of the fruit in Class II must be striped with red colouring.

Variety/ Variété/ Разновидность	Synonyms/ Synonymes/ Синонимы	Trade names/ Marque commerciale/ Товарное наименование	Colour group/ Groupe de coloration/ Группа окраски	Russeting/ Roussissement/ Степень буроватости	Size/ Calibre/ Размер
Primo			A		L
Romagold	Surkijn		A		L
Rubinstar			A		L
Red Jonaprince		Wilton's ®, Red Prince ®	A		L
Jonalord			C		
Jonathan			B		
Julia			B		
Jupiter					L
Karmijn de Sonnville			C	R	L
Katja	Katy		B		
Kent				R	
Kidd's Orange Red			C	R	
Kim			B		
*Koit			C		
*Koričnoje Novoje	Korichnoe Novoe, Korichnevoe Novoe		C		L
*Kovalenkovskoje			B		
*Krameri Tuvioun			B		
*Kukikovskoje			B		
Lady Williams			B		L
Lane's Prince Albert					L
Laxton's Superb			C	R	
Ligol			B		L
Lobo			B		
Lodel			A		
Lord Lambourne			C		
Maigold			B		
McIntosh			B		
*Meelis			B		L
*Melba			C		
Melodie			B		L
Melrose			C		L
Meridian			C		
Moonglo			C		
Morgenduft	Imperatore		B		L
Mutsu		Crispin ®			L
*Noris			B		
Normanda			C		L
Nueva Europa			C		
Nueva Orleans			B		L
Odin			B		
Ontario			B		L
*Orlik			B		
Orlovskoje polosatoje			C		
Ozark Gold					L
Paula Red			B		
Pero de Cirio					L
Piglos			B		L
Pikant			B		L

Variety/ Variété/ Разновидность	Synonyms/ Synonymes/ Синонимы	Trade names/ Marque commerciale/ Товарное наименование	Colour group/ Groupe de coloration/ Группа окраски	Russeting/ Roussissement/ Степень буроватости	Size/ Calibre/ Размер
Pikkolo			C		
Pilot			C		
Pimona			C		
Pinova		Corail ®	C		
Pirella		Pirol ®	B		L
Piros			C		L
*Prima			B		L
Rafzubex		RubINETTE ® Rosso	A		
Rafzubin		RubINETTE ®	C		
Rajka			B		
Rambour d'hiver					L
Rambour Franc			B		
Reanda			B		L
Rebella			C		L
Red Delicious and mutants e. g.			A		L
Erovan	Early Red One		A		L
Fortuna Delicious			A		L
Oregon	Oregon Spur Delicious		A		L
Otago			A		L
Red Chief			A		L
Red King			A		L
Red Spur			A		L
Red York			A		L
Richared			A		L
Royal Red			A		L
Shotwell Delicious			A		L
Stark Delicious			A		L
Starking			A		L
Starkrimson			A		L
Starkspur			A		L
Topred			A		L
Well Spur			A		L
Red Dougherty			A		
Red Rome			A		
Redkroft			A		
Regal			A		
Regina			B		L
Reglindis			C		L
Reine des Reinettes	Gold Parmoné, Goldparmäne		C		
Reineta Encarnada			B		
Reinette Rouge du Canada			B		L
Reinette de Orléans					L
Reinette Blanche du Canada	Reinette du Canada, Canada Blanc, Kanadarenette			R	L
Reinette de France					L
Reinette de					L

Variety/ Variété/ Разновидность	Synonyms/ Synonymes/ Синонимы	Trade names/ Marque commerciale/ Товарное наименование	Colour group/ Groupe de coloration/ Группа окраски	Russeting/ Roussissement/ Степень буроватости	Size/ Calibre/ Размер
Landsberg					
Reinette grise du Canada	Graue Kanadarenette			R	L
Relinda			C		
Remo			B		
Renora			B		L
Resi			B		
Resista					L
Retina			B		L
Rewena			B		L
Roja de Benejama	Verruga, Roja del Valle, Clavelina		A		
Rome Beauty	Belle de Rome, Rome		B		
Rosana			B		L
Royal Beauty			A		L
Rubin (Czech cultivar)			C		L
*Rubin (Kazakhstan cultivar)			B		L
Rubinola			B		L
*Rudens Svĭtrainais	Osennee Polosatoe, Rudeninis Dryzuotasis, Rudens Svitrotais, Streifling, Streifling Herbst, Sŭgisjoonik, Syysjuovikas and numerous others		C		L
*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		L
Selena			B		L
Shampion			B		L
*Sidrunkollane Talioun					L
Sinap Orlovskij					L
Snygold	Earlygold				L
Sommerregent			C		
Spartan			A		
Splendour			A		
St. Edmunds Pippin				R	
Starks's Earliest			C		
Staris	Staris		A		
Sturmer Pippin				R	
Summerred			B		
*Sŭgisdessert			C		L

Variety/ Variété/ Разновидность	Synonyms/ Synonymes/ Синонимы	Trade names/ Marque commerciale/ Товарное наименование	Colour group/ Groupe de coloration/ Группа окраски	Russeting/ Roussissement/ Степень буроватости	Size/ Calibre/ Размер
Sunrise			A		
Sunset				R	
Suntan				R	L
Sweet Caroline			C		L
*Talvenauding			B	R	
*Tellisaare			B		
*Tiina	Tina		C		L
Topaz			B		
Tydeman's Early Worcester	Tydeman's Early		B		L
*Veteran			B		
Vista Bella	Bellavista		B		
Wealthy			B		
Worcester Pearmain			B		
York			B		
*Zailijskoje	Zailiyskoe		B		
*Žigulovskoje	Zhigulevskoe		C		L

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## Definitions

## 1. Colouring, criteria for apples, colour groups and codes

Colour group	A	B	C
	total surface area of red colouring characteristic of the variety	total surface area of mixed red colouring characteristic of the variety	total surface area of slightly red coloured, blushed or striped characteristic of the variety
Class Extra	3/4	1/2	1/3
Class I	1/2	1/3	1/10
Class II	1/4	1/10	–

## 2. Russeting criteria for apples

R = Variety for which russeting is a characteristic of the skin and not a defect if it corresponds to the typical appearance of the variety.

For varieties not marked with an “R” in the list below, russeting is allowed within the following limits

	Extra	I	II	Tolerances for Class II
<b>(i) Brown patches</b>	not outside the stem cavity	may go slightly beyond the stem or pistil cavities	may go beyond the stem or pistil cavities	fruit not seriously detracting from the appearance and condition of the package
	not rough	not rough	slightly rough	
<b>(ii) Russeting</b>		Maximum surface area of the fruit permitted		
<b>thin net-like russeting</b> (not contrasting strongly with the general colouring of the fruit)	slight and isolated traces of russeting not altering the general appearance of the fruit or of the package	1/5	½	fruit not seriously detracting from the appearance and condition of the package
<b>Heavy</b>	None	1/20	1/3	fruit not seriously detracting from the appearance and condition of the package
<b>Cumulative defects</b> (with the exception of brown patches which are excluded from these cumulative defects) In no case may thin russeting and heavy russeting taken together exceed a maximum of:		1/5	½	fruit not seriously detracting from the appearance and condition of the package

## 3. Size criteria for apples

L = Large fruited variety

## Annex B

### Cold storage

#### B.1 Introduction

This annex provides guidance of a very general nature only. Because of the variability of the product according to the time and place of cultivation, local conditions may make it necessary to define other conditions for harvesting or other physical conditions in the store.

The provisions of this annex do not apply unreservedly, therefore, to all varieties (cultivars) in all climates, and it will remain for each specialist to be the judge of any modifications to be made.

Subject to all restrictions arising from the fact that apples are living material, application of the guidance contained in this annex should enable much wastage in storage to be avoided and long-term storage to be achieved in most cases.

#### B.2 Scope

This annex gives guidance on conditions for the successful cold storage of apples.

#### B.3 Conditions for harvesting and storage

##### B.3.1 Harvesting

The principal criteria used to determine the optimal state of maturity for harvesting are as follows:

- a) ease of picking (the fruit is picked when it is easily separated from its spur; this is not, however, an objective criterion);
- b) total soluble solids content of the juice (TSS);
- c) the ground colour of the outer skin (period of change from green to yellow) which is judged with the aid of standard tables;
- d) the age of the fruit, expressed as the number of days from full bloom to harvest;
- e) firmness of the flesh;
- f) presence of starch in the flesh;
- g) fruit should be placed in storage immediately before or at the preclimacteric respiratory minimum for best storage performance.

These criteria are not universally valid; for a given cultivar they vary from one region to another and it is for the grower to decide on his own criteria for picking, on the basis of experience.

##### B.3.2 Characteristics for storage

Fruits put into storage should be of quality "Extra Class" or "Class I", the characteristics of which are defined in 4.4.

##### B.3.3 Precooling

Fruits should be cooled as quickly as possible after harvest. Apples are not injured by rapid cooling. Rapid removal of field heat and precooling of harvested apples are essential for long storage.

### B.3.4 Packing

The fruit should be handled with care. The packages should allow the free circulation of air. Storage densities of 200 kg to 250 kg per cubic metre of usable space are considered as the maxima for apples.

The use of box pallets makes possible an increase of 10 % to 20 % in storage capacity.

### B.4 Optimum storage conditions

For definition and measurement of the physical quantities affecting storage, see CD/K/378:2010.

#### B.4.1 Temperature

The storage temperature of apples depends upon the variety. The Optimum storage temperature is between  $-1\text{ }^{\circ}\text{C}$  and  $0\text{ }^{\circ}\text{C}$ . Cultivars which are not susceptible to chilling should be stored nearly at the freezing point. The highest freezing point for apples is about  $-1.5\text{ }^{\circ}\text{C}$ . Chill-sensitive cultivars should be stored between  $2\text{ }^{\circ}\text{C}$  and  $4\text{ }^{\circ}\text{C}$ .

Table B.1 gives the recommended storage temperatures in air for different cultivars marketed internationally.

#### B.4.2 Relative humidity

The optimum relative humidity for storage of apples is between 90 % and 95 %. The high relative humidity is needed in long-term storage to control excessive fruit shrivel of cultivars (such as Golden Delicious) that are prone to shrivel.

#### B.4.3 Air circulation

There should be a uniform distribution of air within the cold store, the rate of mixing being sufficient to keep the spatial differences in temperature and humidity within reasonable limits. Devices such as carbon filters and air washers to remove volatile organic products of metabolism are of doubtful value. Scrubbers do not maintain the necessary low level of volatiles (particularly ethylene).

Some ventilation should be provided. The circulation system should be designed to provide 0.25 m/s to 0.35 m/s air-flow around the stacked containers. This can be obtained with a circulation system which provides at least 7.5 air changes per hour based on the volume of the empty storage room.

### B.5 Other methods of storage

#### B.5.1 Controlled-atmosphere storage

Recommended atmospheres are 1.5 % to 3 % oxygen and 1 % to 3 % carbon dioxide. Apple cultivars sensitive to chilling benefit the most from controlled atmosphere storage.

General recommendations for levels of oxygen, carbon dioxide, storage temperatures and expected storage lives are given in Table B.2 for different cultivars.

These recommendations provide a range of gas composition, and experts in each country may specify specific levels of carbon dioxide and oxygen, and recommend temperatures for cultivars according to local requirements.

#### B.5.2 Storage in plastic packages

The use of certain types of plastic films known to be suitable for contact with food products has been found to reduce considerably loss in mass during storage. Interesting results have been obtained in this way by lining boxes of apples with plastic film or by covering a certain quantity of cases with a plastic tarpaulin.

## B.6 Storage life

Tables B.1 and B.2 give the expected storage life for different cultivars marketed internationally for storage in air or in a controlled atmosphere, respectively.

It is necessary in every case that the storage is not prolonged beyond the limits compatible with the maintenance of good quality.

It is also essential to draw samples of the fruit periodically so as to detect immediately the appearance of wastage during storage. Table B.1 also shows the susceptibility of varieties to such wastage.

Table B.1 — Storage in air

Cultivar	Recommended temperature °C	Expected storage life months	Susceptibility to wastage during storage
Abbondanza	+2 to +4	4 to 6	Internal low-temperature browning
Belle de Boskoop	+3 to +4	5 to 6	Scald Internal low-temperature browning below
Blenheim Orange	+3 to +4	2 to 3	
Bramley's Seedling	+3 to +4	3 to 4	
Calville Blanc	+4	5	Bitter pit
Canada Reinette	+4	4 to 5 <sup>1)</sup>	Bitter pit
	+7	4	Internal low-temperature browning Browning due to ageing
Clochard's Reinette	+2	7 to 8	
	+5	5 to 6	Insufficient colour at temperatures below + 5 °C
Cox's Orange Pippin	+3 to +4	3	Bitter pit Internal low-temperature browning below +3 °C
Golden Delicious	-1 to 0	7	Only for fruits coloured at harvesting
	+2 to +4	5	Soft scald Lenticel rot
Granny Smith	0	5 to 6	Scald Core browning
Jonathan	+2 for one month, +1 for the succeeding month and thereafter at 0	4 to 5	Internal low-temperature browning Jonathan spots
	+3 to +4	3	Internal browning due to ageing
Laxton's Superb	+3	3 to 4	
Mans Reinette	0 to +1	7	Late scald
	+3 to +5	5 to 6	Lenticel rot
McIntosh	0 to +1	4 to 5	Susceptible to senescent breakdown
Morgenduft = Imperatore	0 to +2	5 to 7	Ccald Lenticel rot
Ontario	+4	5 to 6	Very susceptible to scald Internal browning at temperatures below +2 °C
Red Delicious	0 to +2	6	Disagreeable flavour after 6 month's storage
Reine des Reinettes	+4	3	Susceptible to internal low-temperature browning below +2 °C
Reinette Champagne	0 to +2	7 to 8	Spots
Richared	0	6	
Rose de Caldarò	+2	5 to 6	Internal low-temperature browning
Starking (Delicious Red)	0 to +2	5 to 6	
Stayman Winesap	0 to +2	4 to 5	Very susceptible to scald and disorders due to fungi
Sturmer Pippin	+2 to +3	6	Scald Internal browning
Winesap	0 to +2	5 to 6	Senescent breakdown
Winter Banana	+2 to +3	4 to 5	

<sup>1)</sup> The storage life of apples grown at altitude might be 6 or 7 months.

Table B.2 — Controlled-atmosphere storage

Cultivar	Recommended temperature °C	Recommended mixture		Expected storage life months
		Carbon dioxide %	Oxygen %	
Belle de Boskoop	+4	5	2	6 to 8
Cox's Orange Pippin	+3 to +4	5	2.5	4 to 5
Golden Delicious	-1 to 0	1 to 3	2 to 3	7 to 8
Granny Smith	+0,6	0 to 1	1.5 to 3	5 to 6
Jonathan	0 to +2	3 to 5	2.5 to 3	6
McIntosh	+3,5	2 to 5	3	6 to 8
Richared	0	5	2	6 to 8
Rome Beauty	-1 to 0	0 to 1	1.5 to 3	7
Starking (Delicious Red)	0	5	3	6 to 8
	+3	0 to 3	3	
Stayman Winesa	-1 to 0	2 to 5	2 to 3	6 to 8
Sturmer Pippi	+2 to +3	2 to 5	3 to 4	8
Winesap	0	1 to 2	2 to 3	6 to 8
Winston	+2 to +3	7	13	8 to 9
Yellow Newton	+3.3 to +4.4	7 to 8	2 to 3	6 to 8

## B.7 Role of the grower and wastage during storage

### B.7.1 Role of the grower (Influence of ecology and method of cultivation)

Since it is necessary to supply the market from the first weeks after harvesting, it may be desirable not to store, or to store for only a short time, fruit which because of poor cultural conditions may not store well.

This applies especially to

- large size fruit;
- fruit from young trees;
- fruit from trees which are lightly loaded or severely pruned;
- fruit from trees which have been too heavily manured or treated with unbalanced fertilizer, particularly if the nitrogen content is high;
- fruit harvested during a rainy period.

It should also be noted that after a cold, damp summer, fruit may not store well, keeping is delicately balanced, and irrigation should be carried out with care since excess may reduce storage life.

### B.7.2 Wastage in storage

In general, distinction is made between damage of cryptogamic origin and damage of physiological origin.

**B.7.2.1 Post-harvest diseases**

Disorders originating from microorganisms (parasites entering through wounds or latent parasites) are numerous.

Losses from post-harvest diseases can be reduced by:

- care in all handling operations;
- sorting of sound from unsound fruit immediately before putting them into cold storage
- preliminary disinfection of the cold store and packages;
- frequent disinfection of sorting rooms;
- systematic removal of sources of contamination in the orchard (cankers, rotten fruit, etc);
- use of packages impregnated with antiseptics, if not prohibited.

The use of fungicidal aerosols has been recommended. Certain countries have, however, prohibited these.

**B.7.2.2 Physiological disorders**

Table A.3 classifies the most important data relating to the most frequent disorders.

The data are very general and may not apply to particular local conditions.

Specialists can amplify this table by investigations, in particular of the Jonathan spot, withering, brown heart and internal browning in the form of small spots between the seed cavities.

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Table A.3 — Storage of apples — Physiological disorders

Designation and description of disorder	Horticultural factors (ecology, date of harvesting) and factors relating to conditions in cold store provoking or revealing the disorder	Remedies, preventive measures	Cultivars
<b>Freezing</b> — glassy appearance of flesh and epidermis; general softening	Lowering of temperature below the freezing temperature	Prevent lowering of temperature	
<b>Internal low-temperature browning:</b> — the flesh acquires a brown colour, and finally the epidermis goes brown	Excess of nitrogenous fertilizer  Large fruit and fruit from poor harvest  Long duration of storage at critical temperature (apples at 0 °C instead of + 4 °C )	Raise storage temperature for susceptible varieties	Ontario Belle de Boskoop Cox's Orange Pippin Reine des Reinettes Jonathan Canada Reinette Sturmer Pippin
<b>Internal browning due to ageing</b> (senescent breakdown): — the flesh becomes brown, more or less dark; it is dry and mealy	Late harvest  Delay in placing in cold store  Large fruit and fruit from poor crops  Glassiness during harvesting  Too long duration of storage	Storage should not be continued when risks of internal browning are considerable	Jonathan Canada Reinette
<b>Storage scald:</b> — browning of epidermis, in bad cases over whole area	Premature harvesting  Large fruit  Insufficient changing of the atmosphere  Relative humidity is too high	Thorough and frequent ventilation of cold store  Use of controlled atmosphere (use of chemical products or of oiled paper may also be useful)	Ontario Stayman Winesap Mans Reinette Richard Belle de Boskoop Starking (Delicious Red) Granny Smith Sturmer Pippin
<b>Bitter pit:</b> — small depressed spots of irregular shape, dark green in colour changing to brown	Mineral imbalance in soil and tree  Large fruit and fruit from lightly loaded trees  Premature harvesting	Spraying of orchard with calcium nitrate or calcium chloride (r-ed varieties). First treatment: 2 weeks after fall of petals (0.5 % Solution), then every 2 weeks	Cox's Orange Pippin Canada Reinette Calville
<b>Internal cork:</b> — small brown spots below epidermis; small brown spot may occur anywhere in the flesh and in core zone; when the deficiency is acute, the fruit is markedly distorted	Lack of boron	Application of borax to the orchard (30 kg per hectare) or spraying with sodium pentaborate in preflowering Stage and at setting of young fruit (0,02 % solution)	Canada Reinette Belle de Boskoop Granny Smith Jonathan Sturmer Pippin McIntosh
<b>Water core:</b> — translucent appearance of the flesh, starting at medium depth, continuing towards the periphery and then towards the heart	Hot period accompanied by heavy rains or irrigation	Suspend cold storage  Do not continue storage too long	Golden Delicious Stayman Winesap Mans Reinette Jonathan
<b>Soft scald:</b> — light chestnut depressed spots forming a nearly continuous band around the fruit	Excess of nitrogen  Influence of cold and damp weather  Delay in placing in cold store Keeping at too low a temperature	Use a higher storage temperature	Golden Delicious Jonathan Winter Banana



Fresh apples



Ripening apples on tree



Yellow/Golden apples

Draft for comments only

Standard



Golden yellow apples



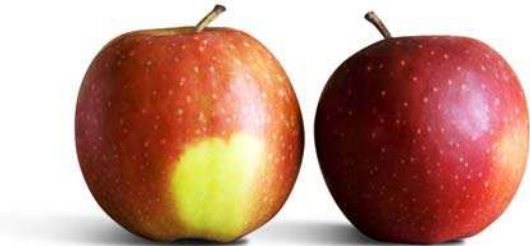
Green apples



Golden yellow apples




Red apples



Draft for comment

**Annex C**  
(informative)

**Model certificate of conformity with standards for fresh fruits and vegetables**

1. Trader:	Certificate of conformity with the Community marketing standards applicable to fresh fruits and vegetables  No. ....  (This certificate is exclusively for the use of inspection bodies)		
2. Packer identified on packaging (if other than trader)	3. Inspection body		
	4. Place of inspection/country of origin <sup>(1)</sup>	5. Region or country of destination	
6. Identifier of means of transport	7. <input type="checkbox"/> Internal <input type="checkbox"/> Import <input type="checkbox"/> Export		
8. Packages (number and type)	9. Type of product (variety if the standards specifies)	10. Quality Class	11. Total net weight in kg
12. The consignment referred to above conforms, at the time of issue, with the Community standards in force, vide:  <u>CD/K/007:2010, Fresh apples — Specification and grading</u>  <hr/> Customs office foreseen ..... Place and date of issue ..... Valid until (date): ..... Signatory (name in block letters): .....  <div style="display: flex; justify-content: space-around;"> <span>Signature</span> <span>Seal of competent authority</span> </div>			
13. Observations:			
(1) Where the goods are being re-exported, indicate the origin in box 9.			

**Annex D**  
(informative)

**Apples — Fact sheet**

***Malus domestica***



<b>Authority</b>	Borkh.
<b>Family</b>	Magnoliopsida:Rosidae:Rosales:Rosaceae
<b>Synonyms</b>	<i>Malus sylvestris</i> Miller, <i>M. pumila</i> , <i>M. communis</i> , <i>Pyrus malus</i> .
<b>Common names</b>	Apple, Mela, Appel, Pommier, Mansanas, Appoen, Pom
<b>Editor</b>	
<b>Ecocrop code</b>	1407

**Description**

A small deciduous tree often trained to a central lead or a delayed open center form reaching a height of 5-10 m. Fruit a pome, globose, ellipsoid to obovoid, usually more than 5 cm in diameter.

**Uses**

The fruit can be eaten fresh, or used to make cider, soft drinks, juice, and vinegars. Pectine is a valuable by-product of cider. The wood is hard and strong and used for quality tool handles and firewood.

**Killing temperature**

The tree may tolerate -26 to -37.5°C in the winter when fully dormant and -4 to -8°C in late spring, while fruits will be damaged by -2 to -4°C.

**Growing period**

Perennial. Begins to fruit in the 3rd year and come into full production from the 11th to 20th year. It may continue to fruit for about 100 years although the fruits may become commercially unprofitable. Growing 180-320 days per year.

**Further information**

Apple cultivars grown today apparently originated as hybrids of several wild species e.g. *M. sylvestris*, *M. dasyphylla* and *M. pumila* native to western Asia and the Mediterranean region. In the tropics apple does not do well below 1200 m in elevation and should preferably be grown between 1400-1800 m, depending on variety. In the tropical highland it can be grown in areas with a prominent change in seasons and a mild growing season with no extremes of sunlight, temperature or humidity. It requires a period of winter dormancy, in general 900-1000 hours or more at less than 7°C, but low chilling varieties only needs 200-300 hours below 7.5°C. It perform best in areas with medium to low humidity, with long daylight hours, high light intensity and relatively warm days and cool nights. Windbreaks are needed for exposed sites. Apples are susceptible to root lesion nematodes. Fruit Yields may be up to 25 t/ha or higher.

## Annex E (informative)

### Apples (*Malus domestica*) — Codex, EU and USA pesticide residue limits

Users are advised that international regulations and permissible Maximum Residue Levels (MRL) frequently change. Although this International MRL Database is updated frequently, the information in it may not be completely up-to-date or error free. Additionally, commodity nomenclature and residue definitions vary between countries, and country policies regarding deferral to international standards are not always transparent. This database is intended to be an initial reference source only, and users must verify any information obtained from it with knowledgeable parties in the market of interest prior to the sale or shipment of any products. The developers of this database are not liable for any damages, in whole or in part, caused by or arising in any way from user's use of the database.

#### Results Key

MRL values in *{Italics}* are more restrictive than US

--- indicates no MRL value is established.

Cod, EU, etc. indicates the source of the MRL and EXP means the market defers to the exporting market.

All numeric values listed are in parts per million (ppm), unless otherwise noted

	US	Cod	EU
<b>1-Naphthaleneacetic acid</b>	1	---	1
	<b>US 1</b>	<b>Cod 2</b>	<b>EU 3</b>
<b>2,4-D</b>	0.05	<i>{0.01}</i>	0.05
	<p>1. United States does not maintain a specific MRL for the 2,4-D/Apple combination, but does maintain an MRL of 0.05 PPM for its "Fruit, Pome, Group 11" group.</p> <p>2. Codex does not maintain a specific MRL for the 2,4-D/Apple combination, but does maintain an MRL of 0.01 PPM for its "Pome fruits" group.</p> <p>3. European Union does not maintain a specific MRL for the 2,4-D/Apple combination, but does maintain an MRL of 0.05 PPM for its "Pome fruit" group.</p>		
	<b>US</b>	<b>Cod</b>	<b>EU 4</b>
<b>Abamectin</b>	0.02	0.02	<i>{0.01}</i>
	<p>4. European Union does not maintain a specific MRL for the Abamectin/Apple combination, but does maintain an MRL of 0.01 PPM for its "Pome fruit" group.</p>		
	<b>US 5</b>	<b>Cod</b>	<b>EU 6</b>
<b>Acequinocyl</b>	0.4	---	<i>{0.1}</i>
	<p>5. United States does not maintain a specific MRL for the Acequinocyl/Apple combination, but does maintain an MRL of 0.4 PPM for its "Fruit, Pome, Group 11" group.</p> <p>6. European Union does not maintain a specific MRL for the Acequinocyl/Apple combination, but does maintain an MRL of 0.1 PPM for its "Pome fruit" group.</p>		
	<b>US 7</b>	<b>Cod</b>	<b>EU 8</b>
<b>Acetamiprid</b>	1	---	<i>{0.1}</i>
	<p>7. United States does not maintain a specific MRL for the Acetamiprid/Apple combination, but does maintain an MRL of 1 PPM for its "Fruit, Pome, Group 11" group.</p> <p>8. European Union does not maintain a specific MRL for the Acetamiprid/Apple combination, but does maintain an MRL of 0.1 PPM for its "Pome fruit" group.</p>		
	<b>US</b>	<b>Cod</b>	<b>EU</b>
<b>Aviglycine</b>	0.08	---	---
	<b>US</b>	<b>Cod</b>	<b>EU</b>
<b>Azinphos-methyl</b>	1.5	2	<i>{0.05}</i>
	<b>US 9</b>	<b>Cod</b>	<b>EU</b>
<b>Beta-cyfluthrin</b>	0.5	<i>{0.1}</i>	---
	<p>9. United States does not maintain a specific MRL for the Beta-cyfluthrin/Apple combination, but does maintain an MRL of 0.5 PPM for its "Fruit, Pome, Group 11" group.</p>		
	<b>US</b>	<b>Cod 10</b>	<b>EU 11</b>
<b>Bifenazate</b>	0.75	<i>{0.7}</i>	<i>{0.01}</i>
	<p>10. Codex does not maintain a specific MRL for the Bifenazate/Apple combination, but does maintain an MRL of 0.7 PPM for its "Pome fruits" group.</p> <p>11. European Union does not maintain a specific MRL for the Bifenazate/Apple combination, but does maintain an MRL of 0.01 PPM for its "Pome fruit" group.</p>		

	<b>US 12</b>	<b>Cod</b>	<b>EU 13</b>
<b>Boscalid</b>	3	{2}	{2}
	12. United States does not maintain a specific MRL for the Boscalid/Apple combination, but does maintain an MRL of 3 PPM for its "Fruit, Pome, Group 11" group.		
	13. European Union does not maintain a specific MRL for the Boscalid/Apple combination, but does maintain an MRL of 2 PPM for its "Pome fruit" group.		
	<b>US 14</b>	<b>Cod</b>	<b>EU 15</b>
<b>Buprofezin</b>	4	---	{0.5}
	14. United States does not maintain a specific MRL for the Buprofezin/Apple combination, but does maintain an MRL of 4 PPM for its "Fruit, Pome, Group 11" group.		
	15. European Union does not maintain a specific MRL for the Buprofezin/Apple combination, but does maintain an MRL of 0.5 PPM for its "Pome fruit" group.		
	<b>US</b>	<b>Cod</b>	<b>EU 16</b>
<b>Captan</b>	25	25	{3}
	16. European Union does not maintain a specific MRL for the Captan/Apple combination, but does maintain an MRL of 3 PPM for its "Pome fruit" group.		
	<b>US 17</b>	<b>Cod</b>	<b>EU</b>
<b>Carbaryl</b>	12	---	{0.05}
	17. United States does not maintain a specific MRL for the Carbaryl/Apple combination, but does maintain an MRL of 12 PPM for its "Fruit, Pome, Group 11" group.		
	<b>US 18</b>	<b>Cod</b>	<b>EU 19</b>
<b>Carfentrazone-ethyl</b>	0.1	---	{0.01}
	18. United States does not maintain a specific MRL for the Carfentrazone-ethyl/Apple combination, but does maintain an MRL of 0.1 PPM for its "Fruit, Pome, Group 11" group.		
	19. European Union does not maintain a specific MRL for the Carfentrazone-ethyl/Apple combination, but does maintain an MRL of 0.01 PPM for its "Fruit Fresh or Frozen; Nuts" group.		
	<b>US 20</b>	<b>Cod</b>	<b>EU 21</b>
<b>Chlorantraniliprole</b>	0.3	---	0.5
	20. United States does not maintain a specific MRL for the Chlorantraniliprole/Apple combination, but does maintain an MRL of 0.3 PPM for its "Fruit, Pome, Group 11" group.		
	21. European Union does not maintain a specific MRL for the Chlorantraniliprole/Apple combination, but does maintain an MRL of 0.5 PPM for its "Pome fruit" group.		
	<b>US</b>	<b>Cod 22</b>	<b>EU 23</b>
<b>Chlorpyrifos</b>	0.01	1	0.5
	22. Codex does not maintain a specific MRL for the Chlorpyrifos/Apple combination, but does maintain an MRL of 1 PPM for its "Pome fruits" group.		
	23. European Union does not maintain a specific MRL for the Chlorpyrifos/Apple combination, but does maintain an MRL of 0.5 PPM for its "Pome fruit" group.		
	<b>US</b>	<b>Cod 24</b>	<b>EU 25</b>
<b>Clofentezine</b>	0.5	0.5	0.5
	24. Codex does not maintain a specific MRL for the Clofentezine/Apple combination, but does maintain an MRL of 0.5 PPM for its "Pome fruits" group.		
	25. European Union does not maintain a specific MRL for the Clofentezine/Apple combination, but does maintain an MRL of 0.5 PPM for its "Pome fruit" group.		
	<b>US 26</b>	<b>Cod</b>	<b>EU 27</b>
<b>Clothianidin</b>	1	---	{0.05}
	26. United States does not maintain a specific MRL for the Clothianidin/Apple combination, but does maintain an MRL of 1 PPM for its "Pome Fruits" group.		
	27. European Union does not maintain a specific MRL for the Clothianidin/Apple combination, but does maintain an MRL of 0.05 PPM for its "Pome fruit" group.		
	<b>US 28</b>	<b>Cod</b>	<b>EU 29</b>
<b>Cyfluthrin</b>	0.5	{0.1}	{0.2}
	28. United States does not maintain a specific MRL for the Cyfluthrin/Apple combination, but does maintain an MRL of 0.5 PPM for its "Fruit, Pome, Group 11" group.		
	29. European Union does not maintain a specific MRL for the Cyfluthrin/Apple combination, but does maintain an MRL of 0.2 PPM for its "Pome fruit" group.		

	<b>US 30</b>	<b>Cod</b>	<b>EU 31</b>
<b>Cyprodinil</b>	0.1	{0.05}	1
	30. United States does not maintain a specific MRL for the Cyprodinil/Apple combination, but does maintain an MRL of 0.1 PPM for its "Pome Fruits" group.		
	31. European Union does not maintain a specific MRL for the Cyprodinil/Apple combination, but does maintain an MRL of 1 PPM for its "Pome fruit" group.		
<b>Deltamethrin</b>	<b>US</b> 0.2	<b>Cod</b> 0.2	<b>EU</b> 0.2
<b>Diazinon</b>	<b>US</b> 0.5	<b>Cod 32</b> {0.3}	<b>EU 33</b> {0.01}
	32. Codex does not maintain a specific MRL for the Diazinon/Apple combination, but does maintain an MRL of 0.3 PPM for its "Pome fruits" group.		
	33. European Union does not maintain a specific MRL for the Diazinon/Apple combination, but does maintain an MRL of 0.01 PPM for its "Pome fruit" group.		
<b>Dichlobenil</b>	<b>US</b> 0.5	<b>Cod</b> ---	<b>EU 34</b> {0.2}
	34. European Union does not maintain a specific MRL for the Dichlobenil/Apple combination, but does maintain an MRL of 0.2 PPM for its "Pome fruit" group.		
<b>Dicofol</b>	<b>US 35</b> 10	<b>Cod</b> ---	<b>EU 36</b> {0.02}
	35. United States does not maintain a specific MRL for the Dicofol/Apple combination, but does maintain an MRL of 10 PPM for its "Fruit, Pome, Group 11" group.		
	36. European Union does not maintain a specific MRL for the Dicofol/Apple combination, but does maintain an MRL of 0.02 PPM for its "Pome fruit" group.		
<b>Difenoconazole</b>	<b>US</b> 1	<b>Cod 37</b> {0.5}	<b>EU</b> {0.5}
	37. Codex does not maintain a specific MRL for the Difenoconazole/Apple combination, but does maintain an MRL of 0.5 PPM for its "Pome fruits" group.		
<b>Diphenylamine</b>	<b>US</b> 10	<b>Cod 38</b> 10	<b>EU</b> {5}
	38. The MRL accommodates post-harvest treatment of the commodity.		
<b>Diuron</b>	<b>US</b> 0.1	<b>Cod</b> ---	<b>EU 39</b> {0.05}
	39. European Union does not maintain a specific MRL for the Diuron/Apple combination, but does maintain an MRL of 0.05 PPM for its "Pome fruit" group.		
<b>Dodine</b>	<b>US</b> 5	<b>Cod 40</b> 5	<b>EU 41</b> 5
	40. Codex does not maintain a specific MRL for the Dodine/Apple combination, but does maintain an MRL of 5 PPM for its "Pome fruits" group.		
	41. European Union does not maintain a specific MRL for the Dodine/Apple combination, but does maintain an MRL of 5 PPM for its "Pome fruit" group.		
<b>Emamectin</b>	<b>US</b> 0.025	<b>Cod</b> ---	<b>EU</b> ---
<b>Endosulfan</b>	<b>US</b> 1	<b>Cod</b> ---	<b>EU</b> {0.05}
<b>Ethephon</b>	<b>US</b> 5	<b>Cod</b> 5	<b>EU</b> {0.5}
<b>Etoxazole</b>	<b>US 42</b> 0.2	<b>Cod</b> ---	<b>EU 43</b> {0.02}
	42. United States does not maintain a specific MRL for the Etoxazole/Apple combination, but does maintain an MRL of 0.2 PPM for its "Fruit, Pome, Group 11" group.		
	43. European Union does not maintain a specific MRL for the Etoxazole/Apple combination, but does maintain an MRL of 0.02 PPM for its "Pome fruit" group.		

	US	Cod 44	EU 45
<b>Fenarimol</b>	0.1	0.3	0.3
	44. Codex does not maintain a specific MRL for the Fenarimol/Apple combination, but does maintain an MRL of 0.3 PPM for its "Pome fruits" group.		
	45. European Union does not maintain a specific MRL for the Fenarimol/Apple combination, but does maintain an MRL of 0.3 PPM for its "Pome fruit" group.		
	US	Cod 46	EU
<b>Fenbuconazole</b>	0.4	{0.1}	0.4
	46. Codex does not maintain a specific MRL for the Fenbuconazole/Apple combination, but does maintain an MRL of 0.1 PPM for its "Pome fruits" group.		
	US	Cod 47	EU 48
<b>Fenbutatin-oxide</b>	15	{5}	{2}
	47. Codex does not maintain a specific MRL for the Fenbutatin-oxide/Apple combination, but does maintain an MRL of 5 PPM for its "Pome fruits" group.		
	48. European Union does not maintain a specific MRL for the Fenbutatin-oxide/Apple combination, but does maintain an MRL of 2 PPM for its "Pome fruit" group.		
	US 49	Cod 50	EU 51
<b>Fenpropathrin</b>	5	5	{0.01}
	49. United States does not maintain a specific MRL for the Fenpropathrin/Apple combination, but does maintain an MRL of 5 PPM for its "Fruit, Pome, Group 11" group.		
	50. Codex does not maintain a specific MRL for the Fenpropathrin/Apple combination, but does maintain an MRL of 5 PPM for its "Pome fruits" group.		
	51. European Union does not maintain a specific MRL for the Fenpropathrin/Apple combination, but does maintain an MRL of 0.01 PPM for its "Pome fruit" group.		
	US 52	Cod	EU
<b>Fenpyroximate</b>	0.4	{0.3}	{0.2}
	52. United States does not maintain a specific MRL for the Fenpyroximate/Apple combination, but does maintain an MRL of 0.4 PPM for its "Fruit, Pome, Group 11" group.		
	US	Cod 53	EU 54
<b>Fenvalerate</b>	2	2	{0.02}
	53. Codex does not maintain a specific MRL for the Fenvalerate/Apple combination, but does maintain an MRL of 2 PPM for its "Pome fruits" group.		
	54. European Union does not maintain a specific MRL for the Fenvalerate/Apple combination, but does maintain an MRL of 0.02 PPM for its "Fruit Fresh or Frozen; Nuts" group.		
	US	Cod 55	EU
<b>Ferbam</b>	4	{2}	---
	55. The MRL is established for the sum of dithiocarbamates.		
	US 56	Cod	EU 57
<b>Flonicamid</b>	0.2	---	0.2
	56. United States does not maintain a specific MRL for the Flonicamid/Apple combination, but does maintain an MRL of 0.2 PPM for its "Fruit, Pome, Group 11" group.		
	57. European Union does not maintain a specific MRL for the Flonicamid/Apple combination, but does maintain an MRL of 0.2 PPM for its "Pome fruit" group.		
	US 58	Cod	EU 59
<b>Flubendiamide</b>	0.7	---	{0.01}
	58. United States does not maintain a specific MRL for the Flubendiamide/Apple combination, but does maintain an MRL of 0.7 PPM for its "Fruit, Pome, Group 11" group.		
	59. European Union does not maintain a specific MRL for the Flubendiamide/Apple combination, but does maintain an MRL of 0.01 PPM for its "Fruit Fresh or Frozen; Nuts" group.		
	US 60	Cod 61	EU 62
<b>Fludioxonil</b>	5	5	5
	60. United States does not maintain a specific MRL for the Fludioxonil/Apple combination, but does maintain an MRL of 5 PPM for its "Fruit, Pome, Group 11" group.		
	61. Codex does not maintain a specific MRL for the Fludioxonil/Apple combination, but does maintain an MRL of 5 PPM for its "Pome fruits" group.		
	62. European Union does not maintain a specific MRL for the Fludioxonil/Apple combination, but does maintain an MRL of 5 PPM for its "Pome fruit" group.		

	US	Cod	EU 63
<b>Flumioxazin</b>	0.02	---	0.05
	63. European Union does not maintain a specific MRL for the Flumioxazin/Apple combination, but does maintain an MRL of 0.05 PPM for its "Fruit Fresh or Frozen; Nuts" group.		
	US 64	Cod	EU 65
<b>Fluroxypyr</b>	0.02	---	0.05
	64. United States does not maintain a specific MRL for the Fluroxypyr/Apple combination, but does maintain an MRL of 0.02 PPM for its "Fruit, Pome, Group 11" group.		
	65. European Union does not maintain a specific MRL for the Fluroxypyr/Apple combination, but does maintain an MRL of 0.05 PPM for its "Fruit Fresh or Frozen; Nuts" group.		
	US	Cod	EU 66
<b>Formetanate hydrochloride</b>	0.5	---	{0.05}
	66. European Union does not maintain a specific MRL for the Formetanate hydrochloride/Apple combination, but does maintain an MRL of 0.05 PPM for its "Pome fruit" group.		
	US 67	Cod	EU 68
<b>Fosetyl-AI</b>	10	---	75
	67. United States does not maintain a specific MRL for the Fosetyl-AI/Apple combination, but does maintain an MRL of 10 PPM for its "Pome Fruits" group.		
	68. European Union does not maintain a specific MRL for the Fosetyl-AI/Apple combination, but does maintain an MRL of 75 PPM for its "Pome fruit" group.		
	US	Cod 69	EU
<b>Gamma Cyhalothrin</b>	0.3	{0.2}	---
	69. Codex does not maintain a specific MRL for the Gamma Cyhalothrin/Apple combination, but does maintain an MRL of 0.2 PPM for its "Pome fruits" group.		
	US	Cod 70	EU
<b>Glufosinate-ammonium</b>	0.05	0.05	0.1
	70. Codex does not maintain a specific MRL for the Glufosinate-ammonium/Apple combination, but does maintain an MRL of 0.05 PPM for its "Pome fruits" group.		
	US 71	Cod	EU 72
<b>Glyphosate</b>	0.2	---	{0.1}
	71. United States does not maintain a specific MRL for the Glyphosate/Apple combination, but does maintain an MRL of 0.2 PPM for its "Fruit, Pome, Group 11" group.		
	72. European Union does not maintain a specific MRL for the Glyphosate/Apple combination, but does maintain an MRL of 0.1 PPM for its "Pome fruit" group.		
	US 73	Cod	EU
<b>Hexythiazox</b>	0.25	0.5	1
	73. United States does not maintain a specific MRL for the Hexythiazox/Apple combination, but does maintain an MRL of 0.25 PPM for its "Fruit, Pome, Group 11" group.		
	US	Cod	EU 74
<b>Imidacloprid</b>	0.5	0.5	0.5
	74. European Union does not maintain a specific MRL for the Imidacloprid/Apple combination, but does maintain an MRL of 0.5 PPM for its "Pome fruit" group.		
	US	Cod	EU 75
<b>Indoxacarb</b>	1	{0.5}	{0.5}
	75. This MRL is provisional.		
	US	Cod 76	EU 77
<b>Inorganic bromide resulting from fumigation</b>	5	20	20
	76. Codex does not maintain a specific MRL for the Inorganic bromide resulting from fumigation/Apple combination, but does maintain an MRL of 20 PPM for its "Fruits (except as otherwise listed)" group.		
	77. European Union does not maintain a specific MRL for the Inorganic bromide resulting from fumigation/Apple combination, but does maintain an MRL of 20 PPM for its "Pome fruit" group.		
	US 78	Cod 79	EU 80
<b>Kresoxim-methyl</b>	0.5	{0.2}	{0.2}
	78. United States does not maintain a specific MRL for the Kresoxim-methyl/Apple combination, but does maintain an MRL of 0.5 PPM for its "Pome Fruits" group.		
	79. Codex does not maintain a specific MRL for the Kresoxim-methyl/Apple combination, but does maintain an MRL of 0.2 PPM for its "Pome fruits" group.		
	80. European Union does not maintain a specific MRL for the Kresoxim-methyl/Apple combination, but does maintain an MRL of 0.2 PPM for its "Pome fruit" group.		

	<b>US 81</b>	<b>Cod 82</b>	<b>EU 83</b>
<b>Lambda Cyhalothrin</b>	0.3	{0.2}	{0.1}
	81. United States does not maintain a specific MRL for the Lambda Cyhalothrin/Apple combination, but does maintain an MRL of 0.3 PPM for its "Fruit, Pome, Group 11" group.		
	82. Codex does not maintain a specific MRL for the Lambda Cyhalothrin/Apple combination, but does maintain an MRL of 0.2 PPM for its "Pome fruits" group.		
	83. European Union does not maintain a specific MRL for the Lambda Cyhalothrin/Apple combination, but does maintain an MRL of 0.1 PPM for its "Pome fruit" group.		
	<b>US</b>	<b>Cod</b>	<b>EU 84</b>
<b>Malathion</b>	8	{0.5}	{0.02}
	84. European Union does not maintain a specific MRL for the Malathion/Apple combination, but does maintain an MRL of 0.02 PPM for its "Pome fruit" group.		
	<b>US</b>	<b>Cod 85</b>	<b>EU 86</b>
<b>Mancozeb</b>	7	{2}	{5}
	85. The MRL is established for the sum of dithiocarbamates.		
	86. European Union does not maintain a specific MRL for the Mancozeb/Apple combination, but does maintain an MRL of 5 PPM for its "Pome fruit" group.		
	<b>US</b>	<b>Cod 87</b>	<b>EU 88</b>
<b>Maneb</b>	2	2	5
	87. The MRL is established for the sum of dithiocarbamates.		
	88. European Union does not maintain a specific MRL for the Maneb/Apple combination, but does maintain an MRL of 5 PPM for its "Pome fruit" group.		
	<b>US</b>	<b>Cod 89</b>	<b>EU 90</b>
<b>Metalaxyl</b>	0.2	1	1
	89. Codex does not maintain a specific MRL for the Metalaxyl/Apple combination, but does maintain an MRL of 1 PPM for its "Pome fruits" group.		
	90. European Union does not maintain a specific MRL for the Metalaxyl/Apple combination, but does maintain an MRL of 1 PPM for its "Pome fruit" group.		
	<b>US 91</b>	<b>Cod</b>	<b>EU 92</b>
<b>Methidathion</b>	0.05	0.5	0.05
	91. United States does not maintain a specific MRL for the Methidathion/Apple combination, but does maintain an MRL of 0.05 PPM for its "Fruit, Pome, Group 11" group.		
	92. European Union does not maintain a specific MRL for the Methidathion/Apple combination, but does maintain an MRL of 0.05 PPM for its "Pome fruit" group.		
	<b>US</b>	<b>Cod</b>	<b>EU 93</b>
<b>Methomyl</b>	1	---	{0.2}
	93. Methomyl and Thiodicarb (sum of methomyl and thiodicarb expressed as methomyl) European Union does not maintain a specific MRL for the Methomyl/Apple combination, but does maintain an MRL of 0.2 PPM for its "Pome fruit" group.		
	<b>US 94</b>	<b>Cod 95</b>	<b>EU 96</b>
<b>Methoxyfenozide</b>	1.5	2	2
	94. United States does not maintain a specific MRL for the Methoxyfenozide/Apple combination, but does maintain an MRL of 1.5 PPM for its "Fruit, Pome, Group 11" group.		
	95. Codex does not maintain a specific MRL for the Methoxyfenozide/Apple combination, but does maintain an MRL of 2 PPM for its "Pome fruits" group.		
	96. European Union does not maintain a specific MRL for the Methoxyfenozide/Apple combination, but does maintain an MRL of 2 PPM for its "Pome fruit" group.		
	<b>US</b>	<b>Cod 97</b>	<b>EU 98</b>
<b>Metiram</b>	2	2	5
	97. The MRL is established for the sum of dithiocarbamates.		
	98. European Union does not maintain a specific MRL for the Metiram/Apple combination, but does maintain an MRL of 5 PPM for its "Pome fruit" group.		
	<b>US</b>	<b>Cod 99</b>	<b>EU 100</b>
<b>Myclobutanil</b>	0.5	0.5	0.5
	99. Codex does not maintain a specific MRL for the Myclobutanil/Apple combination, but does maintain an MRL of 0.5 PPM for its "Pome fruits" group.		
	100. European Union does not maintain a specific MRL for the Myclobutanil/Apple combination, but does maintain an MRL of 0.5 PPM for its "Pome fruit" group.		

	<b>US</b>	<b>Cod</b>	<b>EU</b>
<b>Norflurazon</b>	0.1	---	---
	<b>US</b>	<b>Cod 101</b>	<b>EU</b>
<b>Novaluron</b>	2	3	2
	101. Codex does not maintain a specific MRL for the Novaluron/Apple combination, but does maintain an MRL of 3 PPM for its "Pome fruits" group.		
	<b>US</b>	<b>Cod</b>	<b>EU</b>
<b>O-phenylphenol</b>	25	---	---
	<b>US 102</b>	<b>Cod</b>	<b>EU 103</b>
<b>Oryzalin</b>	0.05	---	{0.01}
	102. United States does not maintain a specific MRL for the Oryzalin/Apple combination, but does maintain an MRL of 0.05 PPM for its "Fruit, Pome, Group 11" group.		
	103. European Union does not maintain a specific MRL for the Oryzalin/Apple combination, but does maintain an MRL of 0.01 PPM for its "Pome fruit" group.		
	<b>US</b>	<b>Cod</b>	<b>EU 104</b>
<b>Oxamyl</b>	2	---	{0.01}
	104. European Union does not maintain a specific MRL for the Oxamyl/Apple combination, but does maintain an MRL of 0.01 PPM for its "Pome fruit" group.		
	<b>US</b>	<b>Cod</b>	<b>EU 105</b>
<b>Oxyfluorfen</b>	0.05	---	0.1
	105. European Union does not maintain a specific MRL for the Oxyfluorfen/Apple combination, but does maintain an MRL of 0.1 PPM for its "Pome fruit" group.		
	<b>US</b>	<b>Cod</b>	<b>EU</b>
<b>Oxytetracycline</b>	0.35	---	---
	<b>US 106</b>	<b>Cod 107</b>	<b>EU 108</b>
<b>Paraquat dichloride</b>	0.05	{0.01}	{0.02}
	106. United States does not maintain a specific MRL for the Paraquat dichloride/Apple combination, but does maintain an MRL of 0.05 PPM for its "Fruit, Pome, Group 11" group.		
	107. Codex does not maintain a specific MRL for the Paraquat dichloride/Apple combination, but does maintain an MRL of 0.01 PPM for its "Pome fruits" group.		
	108. European Union does not maintain a specific MRL for the Paraquat dichloride/Apple combination, but does maintain an MRL of 0.02 PPM for its "Fruit Fresh or Frozen; Nuts" group.		
	<b>US</b>	<b>Cod</b>	<b>EU 109</b>
<b>Pendimethalin</b>	0.1	---	{0.05}
	109. European Union does not maintain a specific MRL for the Pendimethalin/Apple combination, but does maintain an MRL of 0.05 PPM for its "Fruit Fresh or Frozen; Nuts" group.		
	<b>US 110</b>	<b>Cod 111</b>	<b>EU 112</b>
<b>Permethrin</b>	0.05	2	0.05
	110. United States does not maintain a specific MRL for the Permethrin/Apple combination, but does maintain an MRL of 0.05 PPM for its "Fruit, Pome, Group 11" group.		
	111. Codex does not maintain a specific MRL for the Permethrin/Apple combination, but does maintain an MRL of 2 PPM for its "Pome fruits" group.		
	112. European Union does not maintain a specific MRL for the Permethrin/Apple combination, but does maintain an MRL of 0.05 PPM for its "Fruit Fresh or Frozen; Nuts" group.		
	<b>US</b>	<b>Cod 113</b>	<b>EU 114</b>
<b>Phosalone</b>	10	{2}	{0.05}
	113. Codex does not maintain a specific MRL for the Phosalone/Apple combination, but does maintain an MRL of 2 PPM for its "Pome fruits" group.		
	114. European Union does not maintain a specific MRL for the Phosalone/Apple combination, but does maintain an MRL of 0.05 PPM for its "Pome fruit" group.		
	<b>US</b>	<b>Cod</b>	<b>EU 115</b>
<b>Phosmet</b>	10	10	{0.2}
	115. European Union does not maintain a specific MRL for the Phosmet/Apple combination,		

	but does maintain an MRL of 0.2 PPM for its "Pome fruit" group.		
	<b>US</b>	<b>Cod</b>	<b>EU</b>
<b>Piperonyl Butoxide</b>	8	---	---
	<b>US</b>	<b>Cod</b>	<b>EU 116</b>
<b>Prohexadione calcium</b>	3	---	{0.05}
	116. European Union does not maintain a specific MRL for the Prohexadione calcium/Apple combination, but does maintain an MRL of 0.05 PPM for its "Fruit Fresh or Frozen; Nuts" group.		
	<b>US</b>	<b>Cod</b>	<b>EU 117</b>
<b>Propyzamide</b>	0.1	---	{0.02}
	117. European Union does not maintain a specific MRL for the Propyzamide/Apple combination, but does maintain an MRL of 0.02 PPM for its "Fruit Fresh or Frozen; Nuts" group.		
	<b>US 118</b>	<b>Cod</b>	<b>EU 119</b>
<b>Pyraclostrobin</b>	1.5	{0.5}	{0.3}
	118. United States does not maintain a specific MRL for the Pyraclostrobin/Apple combination, but does maintain an MRL of 1.5 PPM for its "Fruit, Pome, Group 11" group.		
	119. European Union does not maintain a specific MRL for the Pyraclostrobin/Apple combination, but does maintain an MRL of 0.3 PPM for its "Pome fruit" group.		
	<b>US</b>	<b>Cod</b>	<b>EU 120</b>
<b>Pyrethrins</b>	1	---	1
	120. European Union does not maintain a specific MRL for the Pyrethrins/Apple combination, but does maintain an MRL of 1 PPM for its "Fruit Fresh or Frozen; Nuts" group.		
	<b>US</b>	<b>Cod</b>	<b>EU 121</b>
<b>Pyridaben</b>	0.5	---	0.5
	121. European Union does not maintain a specific MRL for the Pyridaben/Apple combination, but does maintain an MRL of 0.5 PPM for its "Pome fruit" group.		
	<b>US 122</b>	<b>Cod 123</b>	<b>EU 124</b>
<b>Pyrimethanil</b>	14	{7}	{5}
	122. United States does not maintain a specific MRL for the Pyrimethanil/Apple combination, but does maintain an MRL of 14 PPM for its "Fruit, Pome, Group 11" group.		
	123. Codex does not maintain a specific MRL for the Pyrimethanil/Apple combination, but does maintain an MRL of 7 PPM for its "Pome fruits" group.		
	124. European Union does not maintain a specific MRL for the Pyrimethanil/Apple combination, but does maintain an MRL of 5 PPM for its "Pome fruit" group.		
	<b>US 125</b>	<b>Cod</b>	<b>EU 126</b>
<b>Pyriproxyfen</b>	0.2	---	0.2
	125. United States does not maintain a specific MRL for the Pyriproxyfen/Apple combination, but does maintain an MRL of 0.2 PPM for its "Pome Fruits" group.		
	126. European Union does not maintain a specific MRL for the Pyriproxyfen/Apple combination, but does maintain an MRL of 0.2 PPM for its "Pome fruit" group.		
	<b>US 127</b>	<b>Cod</b>	<b>EU 128</b>
<b>Rimsulfuron</b>	0.01	---	0.05
	127. United States does not maintain a specific MRL for the Rimsulfuron/Apple combination, but does maintain an MRL of 0.01 PPM for its "Fruit, Pome, Group 11" group.		
	128. European Union does not maintain a specific MRL for the Rimsulfuron/Apple combination, but does maintain an MRL of 0.05 PPM for its "Fruit Fresh or Frozen; Nuts" group.		
	<b>US 129</b>	<b>Cod</b>	<b>EU 130</b>
<b>Sethoxydim</b>	0.2	---	{0.1}
	129. United States does not maintain a specific MRL for the Sethoxydim/Apple combination, but does maintain an MRL of 0.2 PPM for its "Fruit, Pome, Group 11" group.		
	130. European Union does not maintain a specific MRL for the Sethoxydim/Apple combination, but does maintain an MRL of 0.1 PPM for its "Pome fruit" group.		
	<b>US</b>	<b>Cod</b>	<b>EU 131</b>
<b>Simazine</b>	0.2	---	{0.1}
	131. European Union does not maintain a specific MRL for the Simazine/Apple combination, but does maintain an MRL of 0.1 PPM for its "Fruit Fresh or Frozen; Nuts" group.		

	US 132	Cod	EU 133
<b>Spinetoram</b>	0.2	---	0.2
	132. United States does not maintain a specific MRL for the Spinetoram/Apple combination, but does maintain an MRL of 0.2 PPM for its "Fruit, Pome, Group 11" group.		
	133. European Union does not maintain a specific MRL for the Spinetoram/Apple combination, but does maintain an MRL of 0.2 PPM for its "Pome fruit" group.		
	US 134	Cod	EU
<b>Spinosad</b>	0.2	{0.1}	1
	134. United States does not maintain a specific MRL for the Spinosad/Apple combination, but does maintain an MRL of 0.2 PPM for its "Fruit, Pome, Group 11" group.		
	US	Cod	EU
<b>Spirodiclofen</b>	0.8	---	0.8
	US 135	Cod	EU 136
<b>Spirotetramat</b>	0.7	---	{0.1}
	135. United States does not maintain a specific MRL for the Spirotetramat/Apple combination, but does maintain an MRL of 0.7 PPM for its "Fruit, Pome, Group 11" group.		
	136. European Union does not maintain a specific MRL for the Spirotetramat/Apple combination, but does maintain an MRL of 0.1 PPM for its "Fruit Fresh or Frozen; Nuts" group.		
	US 137	Cod	EU
<b>Streptomycin</b>	0.25	---	---
	137. United States does not maintain a specific MRL for the Streptomycin/Apple combination, but does maintain an MRL of 0.25 PPM for its "Fruit, Pome, Group 11" group.		
	US 138	Cod 139	EU
<b>Tebuconazole</b>	0.05	0.5	1
	138. United States does not maintain a specific MRL for the Tebuconazole/Apple combination, but does maintain an MRL of 0.05 PPM for its "Fruit, Pome, Group 11" group.		
	139. Codex does not maintain a specific MRL for the Tebuconazole/Apple combination, but does maintain an MRL of 0.5 PPM for its "Pome fruits" group.		
	US	Cod 140	EU 141
<b>Tebufenozide</b>	1	1	1
	140. Codex does not maintain a specific MRL for the Tebufenozide/Apple combination, but does maintain an MRL of 1 PPM for its "Pome fruits" group.		
	141. European Union does not maintain a specific MRL for the Tebufenozide/Apple combination, but does maintain an MRL of 1 PPM for its "Pome fruit" group.		
	US	Cod	EU
<b>Terbacil</b>	0.3	---	---
	US 142	Cod 143	EU
<b>Thiabendazole</b>	5	{3}	5
	142. United States does not maintain a specific MRL for the Thiabendazole/Apple combination, but does maintain an MRL of 5 PPM for its "Fruit, Pome, Group 11" group.		
	143. Codex does not maintain a specific MRL for the Thiabendazole/Apple combination, but does maintain an MRL of 3 PPM for its "Pome fruits" group.		
	US	Cod 144	EU 145
<b>Thiacloprid</b>	0.3	0.7	0.3
	144. Codex does not maintain a specific MRL for the Thiacloprid/Apple combination, but does maintain an MRL of 0.7 PPM for its "Pome fruits" group.		
	145. European Union does not maintain a specific MRL for the Thiacloprid/Apple combination, but does maintain an MRL of 0.3 PPM for its "Pome fruit" group.		
	US 146	Cod	EU
<b>Thiamethoxam</b>	0.2	---	0.2
	146. United States does not maintain a specific MRL for the Thiamethoxam/Apple combination, but does maintain an MRL of 0.2 PPM for its "Fruit, Pome, Group 11" group.		
	US	Cod	EU
<b>Thiophanate-methyl</b>	2	---	{0.5}

	<b>US</b>	<b>Cod 147</b>	<b>EU</b>
<b>Thiram</b>	7	{2}	{5}
	147. The MRL is established for the sum of dithiocarbamates.		
	<b>US 148</b>	<b>Cod 149</b>	<b>EU 150</b>
<b>Trifloxystrobin</b>	0.5	0.7	0.5
	148. United States does not maintain a specific MRL for the Trifloxystrobin/Apple combination, but does maintain an MRL of 0.5 PPM for its "Pome Fruits" group.		
	149. Codex does not maintain a specific MRL for the Trifloxystrobin/Apple combination, but does maintain an MRL of 0.7 PPM for its "Pome fruits" group.		
	150. European Union does not maintain a specific MRL for the Trifloxystrobin/Apple combination, but does maintain an MRL of 0.5 PPM for its "Pome fruit" group.		
	<b>US</b>	<b>Cod</b>	<b>EU</b>
<b>Triflumizole</b>	0.5	---	0.5
	<b>US 151</b>	<b>Cod 152</b>	<b>EU 153</b>
<b>Zeta-Cypermethrin</b>	2	2	{1}
	151. United States does not maintain a specific MRL for the Zeta-Cypermethrin/Apple combination, but does maintain an MRL of 2 PPM for its "Fruit, Pome, Group 11" group.		
	152. The MRL is established for the sum of cypermethrin and zeta-cypermethrin. Codex does not maintain a specific MRL for the Zeta-Cypermethrin/Apple combination, but does maintain an MRL of 2 PPM for its "Pome fruits" group.		
	153. European Union does not maintain a specific MRL for the Zeta-Cypermethrin/Apple combination, but does maintain an MRL of 1 PPM for its "Pome fruit" group.		
	<b>US</b>	<b>Cod 154</b>	<b>EU</b>
<b>Ziram</b>	7	{2}	{0.1}
	154. The MRL is established for the sum of dithiocarbamates.		

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