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Perishable Produce and Quality Development
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REPORT OF THE FIFTY-SIXTH SESSION

Addendum 1

Note by the secretariat

This document contains the revised UN/ECE Standard for Apples and Pears (FFV-01) as adopted by the Working Party.

UN/ECE STANDARD FFV-01
concerning the marketing and commercial
quality control of

APPLES AND PEARS
moving in international trade between and to
UN/ECE member countries

I. DEFINITION OF PRODUCE

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

II. PROVISIONS CONCERNING QUALITY

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

A. Minimum requirements

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

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

In addition, they must have been carefully picked.

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

- to continue their maturing process and to reach the degree of maturity required in relation to the varietal characteristics¹
- to withstand transport and handling, and
- to arrive in satisfactory condition at the place of destination.

¹Due to varietal characteristics of the Fuji variety concerning maturity at harvest, radial watercore is permitted providing it is contained within the vascular bundles of each fruit.

B. Classification

Apples and pears are classified in three classes defined below:

(i) **"Extra" Class**

Apples and pears in this class must be of superior quality. In shape, size and colouring they must be characteristic of the variety² and the stalk must be intact.

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 fruit, the quality, the keeping quality and presentation in the package.

Pears must not be gritty.

(ii) **Class I**

Apples and pears in this class must be of good quality. In shape, size and colouring they must be characteristic of the variety.²

The flesh must be perfectly sound.

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

- a slight defect in shape
- a slight defect in development
- a slight defect in colouring
- slight skin defects which must not extend over more than:
 - 2 cm in length for defects of elongated shape
 - 1 cm² of total surface area for other defects, with the exception of scab (*Venturia inaequalis*), which must not extend over more than 0.25 cm² cumulative in area.
 - slight bruising not exceeding 1 cm² in area and not discoloured.

For apples the stalk may be missing, provided the break is clean and the adjacent skin is not damaged. For pears the stalk may be slightly damaged.

Pears must not be gritty.

²The criteria for colouring and russetting are given in the Annex of this standard.

(iii) **Class II**

This class includes apples and pears which do not qualify for inclusion in the higher classes but satisfy the minimum requirements specified above.²

The flesh must be free from major defects.

The following defects are allowed provided the fruit retains its essential characteristics as regards the quality, the keeping quality and presentation.

- defects in shape
- defects in development
- defects in colouring
- skin defects which must not extend over more than:
 - 4 cm in length for defects of elongated shape
 - 2.5 cm² total surface area for other defects, including slightly discoloured bruising, with the exception of scab (*Venturia inaequalis*), which must not extend over more than 1 cm² cumulative in area.

III. PROVISIONS CONCERNING SIZING

Size is determined by maximum diameter of the equatorial section or by weight. However, when sizing by weight, the minimum weight must ensure all fruit, as appropriate, meet the minimum diameter sizes listed below:

A minimum size by diameter is required for all classes as follows:

	Extra	Class I	Class II
Apples ^{3 4}			
Large fruited varieties ⁵	65 mm	60 mm	60 mm
Other varieties	60 mm	55 mm	50 mm
Pears			
Large fruited varieties ⁵	60 mm	55 mm	55 mm
Other varieties	55 mm	50 mm	45 mm

²The criteria for colouring and russeting are given in the Annex of this standard.

³The European Community has adopted larger minimum sizes for apples as follows:
 Large fruit varieties: 70 mm for "Extra" Class; 65 mm for Classes I and II.
 Other varieties: 60 mm for Class "Extra"; 55 for Class I and II.

⁴Australia and New Zealand have placed reservations against changing the present minimum sizes.

⁵The non-exhaustive list of large fruited varieties is given in the Annex of this standard.

Exceptionally, and for summer pears included in the Annex of this standard, no minimum size will be laid down for consignments dispatched between 10 June and 31 July (inclusive) of any year.

To ensure there is uniformity of size within a package, the difference in diameter between fruit in the same package shall be limited to:⁶

- 5 mm for "Extra" Class fruit and for Class I and II fruit packed in rows and layers⁷
- 10 mm for Class I fruit packed in bulk in the package or in pre-packages.⁸

There is no sizing uniformity limit for Class II fruit packed in bulk in the package or in pre-packages.

IV. PROVISIONS CONCERNING TOLERANCES

Tolerances in respect of quality and size shall be allowed in each package for produce not satisfying the requirements of the class indicated.

A. Quality tolerances

- (i) **"Extra" Class**
5 per cent by number or weight of apples or pears not satisfying the requirements of the class, but meeting those of Class I or, exceptionally, coming within the tolerances of that class.
- (ii) **Class I**
10 per cent by number or weight of apples or pears not satisfying the requirements of the class, but meeting those of Class II or, exceptionally, coming within the tolerances of that class. However, pears without stalks are not included in this tolerance.
- (iii) **Class II**
10 per cent by number or weight of apples or pears satisfying neither the requirements of the class nor the minimum requirements, with the exception of produce affected by rotting or any other deterioration rendering it unfit for consumption.

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 water-core
- slight damage or unhealed cracks

⁶*Reservation from Chile concerning the Fuji variety.*

⁷*However, for apples of the varieties Bramley's Seedling (Bramley, Triomphe de Kiel) and Horneburger, the difference in diameter may amount to 10 mm.*

⁸*However, for apples of the varieties Bramley's Seedling (Bramley, Triomphe de Kiel) and Horneburger the difference in diameter may amount to 20 mm.*

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- very slight traces of rot
- presence of internal feeding pests and/or damage to the flesh caused by pests.

B. Size tolerances

For all classes:

- (a) for fruit which is subject to the rules of uniformity, 10 per cent by number or weight of fruit corresponding to the size immediately above or below that marked on the package, with, for fruit classified in the smallest grade allowed a maximum variation of 5 mm below the minimum;
- (b) for fruit which is not subject to the rules of uniformity, 10 per cent by number or weight of fruit below the minimum size laid down, with a maximum variation of 5 mm below the minimum size.

V. PROVISIONS CONCERNING PRESENTATION

A. Uniformity

The contents of each package must be uniform and contain only apples or pears 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.

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

Uniformity of variety is not required for apples in prepacked units of a net weight not exceeding 2 kg. If different varieties of apples are sold in the same package, uniformity of origin is not required.

B. Packaging

The apples and pears must be packed in such a way as to protect the produce properly.

The materials used inside the package must be new, 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.

Packages must be free of all foreign matter.

C. Presentation

For "Extra" Class fruit must be packed in layers.

VI. PROVISIONS CONCERNING MARKING

Each package⁹ must bear the following particulars, in letters grouped on the same side, legibly and indelibly marked, and visible from the outside:

A. Identification

Packer) Name and address or
and/or) officially issued or
Dispatcher) accepted code mark.¹⁰

B. Nature of produce

- "Apples" or "pears", if the contents are not visible from the outside
- Name of the variety or varieties (where appropriate)

C. Origin of produce

- Country or countries (where appropriate) of origin and, optionally, district where grown, or national, regional or local place name.

D. Commercial specifications

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

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

- (a) for produce subject to the uniformity rules, as minimum and maximum diameters;
- (b) for produce not subject to the uniformity rules, the diameter of the smallest fruit in the package.

E. Official control mark (optional)

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⁹Package 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.

¹⁰The 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.

Revised 1996, 2000
The UN/ECE Standard for Apples and Pears
has led to an explanatory brochure published by the OECD Scheme

ANNEX

1. Colouring, Russeting and Size Criteria for Apples

Colour Groups and Codes

Colour group	A	B	C
	varieties with red colouring	varieties with mixed red colouring	striped varieties, slightly coloured
Class Extra	3/4	1/2	1/3
Class I	1/2	1/3	1/10
Class II	1/4	1/10	–

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

L = Large fruit variety

Variety	Synonyms	Colour group	Russeting	Size
Abbondanza		C		
Akane	Prime Rouge, Tohoku 3	B		
Alkmene		C		
Altländer				L
Apollo		C		L
Arlet		C		L
Ashmead's Kernel			R	
Belfort	Pella	B		
Bellavista	Vista Bella	B		
Belle de Boskoop and mutations			R	L
Belle fleur double				L
Berlepsch		C		
Bismarck				L
Black Ben Davis		A		L
Black Stayman		A		L
Blenheim				L
Boskoop rouge	Red Boskoop	B	R	L
Braeburn		C		L
Bramley's Seedling	Bramley, Triomphe de Kiel			L

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Brettacher				L
Calvilles, Groupe des				L
Cardinal		B		
Carmio		A		
Carola	Kalco	C		L
Casanova de Alcobaça		C		
Charden				L
Charles Ross				L
Chata Encarnada		C		
Cherry Cox		B		
Commercio		C		
Cortland		B		L
Cox's Orange Pippin (Cox orange and mutations ^{a)})		C	R	
Cox Pomona				L
Crimson Bramley				L
Cunha	Riscadinha	C		
Delicious ordinaire	Ordinary Delicious	B		
Delicious Pilafa		B		L
Democrat		A		L
Discovery		B		
Dunn's Seedling			R	
Egremont Russet			R	
Elan				L
Ellison's orange	Ellison	C		L
Elstar		C		
Finkenwerder				L
Fortuna Delicious		A		L
Fortune			R	
Fuji		C		L
Gala		C		
Garcia				L
Gelber Edel				L
Glorie von Holland				L
Gloster 69		B		L
Golden Delicious and mutations				L
Golden Russet			R	
Graham	Graham Royal Jubilé			L
Granny Smith				L
Gravenstein rouge	Red Gravenstein	B		L
Gravensteiner	Gravenstein			L
Greensleeves				L
Grossherzog Friedrich von Baden				L
Herma				L
Honey gold				L

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Horneburger				L
Howgate Wonder				L
Idared		B		L
Imperatore	Emperor Alexander	C		L
Ingrid Marie		B	R	
Jacob Fisher				L
Jacques Lebel				L
Jamba		C		L
James Grieve and mutations				L
James Grieve rouge	Red James Grieve	B		L
Jerseymac		B		
Jester				L
Jonagold ^b		C		L
Jonagored		A		L
Jonathan		B		
Jupiter				L
Karmijn de Sonnaville		C	R	L
Katy	Katja	B		
Kent			R	
Kidd's Orange Red		C	R	
King David		A		
Königin	The Queen			L
Lane's Prince Albert				L
Laxton's Superb		C	R	
Lemoen Apfel	Lemoenappel			L
Lobo		B		
Lord Lambourne		C		
Maigold		C		L
Mantet rouge	Red Mantet	C		
McIntosh Red		B		
Melodie		C		
Melrose		C		L
Mingan	Peromingan, Mingana		R	
Morgenduft	Rome Beauty	B		L
Musch				L
Mutsu	Crispin			L
Normanda		C		L
Notarapfel	Notaris, Notarisappel			L
Nueva Europa		C		
Nueva Orleans		B		L
Odin		B		
Oldenburg		C		
Ontario		B		L
Oregon		A		L
Ortell		B		
Ozarkgold				L
Pater v.d. Elsen				L

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Paula Red		B		
Pero de Cirio				L
Pero Mingan				L
Piglos		B		L
Pimona		C		
Pinova		C		L
Piros		C		L
Pomme Raisin		C		
Rambour d'hiver				L
Rambour Franc		B		
Red Berlepsch		B		
Red Delicious and mutations (Richared, Starking, Starkrimson, Well Spur, Oregon, Fortuna Delicious, Top Red and Royal Red)		A		L
Red Rome		A		
Red York		A		
Reglindis		C		L
Reine des Reinettes	Gold Parmoné	C		
Reineta Encarnada		B		
Reineta Roja del Canada		B		L
Reinetta de Orléans				L
Reinette Blanche du Canada			R	L
Reinette de France				L
Reinette de Landsberg				L
Reinette étoilée		A		
Reinette grise			R	L
Reinette grise du Canada			R	L
Roja de Benjama	Verruga, Roja del Valle, Clavelina	A		
Rose de Berne		A		
Rose de Caldaro	Kalterer	C		
Royal Gala	Tenroy	A		
Royal Red		A		L
Saure Gamerse	Gamerse zure			L
Septer				L
Shampion		C		L
Signe Tillisch				L
Spartan		A		
St. Edmunds Pippin			R	
Stalapfel		B		
Stark Delicious		A		
Starking		A		L
Starkrimson		A		L
Starks's Earliest		C		
Stayman Winesap		B		L

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Staymared	Staymanred, Red Stayman	A		L
Sturmer Pippin			R	
Summerred		B		
Sunset			R	
Suntan			R	
Top Red		A		L
Toreno			R	
Transparente de Croncels	Croncels			L
Triomphe de Luxembourg				L
Tydeman's Early Worcester	Tydeman's Early	B		L
Wagener		B		
Wealthy		B		
Winesap	Winter Winesap	A		
Winston		C		
Winter Banana				L
Worcester Pearmain		B		
Yellow Newton	Albermarle Pippin		R	
York		B		
Zabergäu				L
Zigeunerin				L

a) Except Cherry Cox

b) However, for the variety Jonagold at least one-tenth of the surface of the fruit in Class II must be striped with red-colouring

2. Size Criteria for Pears

L = Large fruit variety

SP = Summer pear, for which no minimum size is required in respect of consignments sent between 10 June and 31 July of any year.

Variety	Synonyms	Size
Abbé Fétel		L
Abugo o Siete en Boca		SP
Alexandrine Douillard		L
André Desportes		
Azucar Verde	de confitar	SP
Bergamotten		SP
Beurré Alexandre Lucas	Lucas	L
Beurré Clairgeau		L
Beurré d' Aremberg		L
Beurré Diel		L
Beurré Giffard		SP
Beurré Gris		SP
Beurré Lebrun		L
Beurré précoce Morettini		SP
Blanca de Aranjuez	Agua de Aranjuez, Espadona,	SP
Buntrocks		SP
Carapineira		SP
Carusella		SP
Castell	Castell de Verano	SP
Catillac	Pondspear, Ronde Gratio, Grand Monarque, Charteuse	L
Claude Blanchet		SP
Colorée de Juillet	Bunte Juli	SP
Condoula		SP
Conférence		
Coscia	Ercolini	SP
Curé	Curato, Pastoren, Del cura de Ouro, Espadon de invierno, Bella de Berry, Lombardia de Rioja, Batall de Campana	L
D. Joaquina	Doyenné de Juillet	SP
Devoe		L
Don Guido		L
Doyenné d'hiver		L
Doyenné du Comice		L

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Duchesse d'Angoulême		L
Empereur Alexandre	Beurré Bosc, Beurré d'Apremont, Bosc	L
Flor de invierno		L
Général Leclerc		L
Gentile		SP
Gentile Bianca di Firenze		SP
Gentilona		SP
Giardina		SP
Gramshirtle		SP
Grand Champion		L
Hartleffs		SP
Jeanne d'Arc		L
Leonardeta	Mosqueruela, Margallon, Colorada de Alcanadre, Leonarda de Magallon	SP
Marguerite Marillat		L
Moscatella		SP
Oomskinderen		SP
Packham's Triumph	Williams d'Automne	L
Passe Crassane		L
Perita de San Juan		SP
Pérola		SP
Précoce de Trévoux		SP
Précoce di Altedo		SP
Président Drouart		L
Santa Maria	Santa Maria Morettini	SP
Souvenir du Congrès	Kongress, Congress	L
Spadoncina	Agua de Verano, Agua de Agosto	SP
Triomphe de Vienne		L
Wilder		SP
William's Duchess	Pitmaston	L
Witthöftsbirne		SP

3. Russeting

For varieties not marked with an R in the list above, russeting is allowed within the following limits ¹¹

	Extra	I	II	Tolerances for Class II
(i) <u>Brown patches</u>	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
(ii) <u>Russeting</u>	not rough	not rough	slightly rough	
<u>thin net-like russeting</u> (not contrasting strongly with the general colouring of the fruit)	slight and isolated traces of russeting not altering the general appearance of the fruit and of the package	Maximum surface area of the fruit permitted 1/5	 1/2	fruit not seriously detracting from the appearance and condition of the package
<u>heavy</u>	none	1/20	1/3	fruit not seriously detracting from the appearance and condition of the package
<u>Cumulative defects</u> (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	1/2	fruit not seriously detracting from the appearance and condition of the package

¹¹ For other varieties, the control services will operate by comparison