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**ECONOMIC COMMISSION FOR EUROPE**

COMMITTEE FOR TRADE, INDUSTRY AND  
ENTERPRISE DEVELOPMENT

Working Party on Standardization of  
Perishable Produce and Quality Development

Specialized Section on Coordination of  
Standardization of Fresh Fruit and Vegetables  
Forty-seventh session, Geneva, 15 to 18 May 2001

Item 3 (b) of the Provisional Agenda

PROPOSALS TO REVISE UN/ECE STANDARDS

Apples and Pears

**Note by the Secretariat** : At the last session it was proposed to split the UN/ECE Standard for Apples and Pears into two separate standards. The following document is reproduced as received from New Zealand and contains a draft standard for Apples.

UN/ECE STANDARD FFV-01

concerning the marketing and commercial  
quality control of

**APPLES**

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. L.* to be supplied fresh to the consumer, apples for industrial processing being excluded.

**II. PROVISIONS CONCERNING QUALITY**

The purpose of the standard is to define the quality requirements of apples 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 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 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 characteristics<sup>1</sup>
- to withstand transport and handling, and
- to arrive in satisfactory condition at the place of destination.

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<sup>1</sup> Due 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 are classified in three classes defined below:

### **(i) "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.

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.

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

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

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 cm<sup>2</sup> of 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 bruising not exceeding 1 cm<sup>2</sup> in area and not discoloured.

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

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

This class includes apples which do not qualify for inclusion in the higher classes but satisfy the minimum requirements specified above.<sup>2</sup>

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.

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<sup>2</sup> *The criteria for colouring and russeting are given in the Annex of this standard.*

- 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 cm<sup>2</sup> 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 cm<sup>2</sup> cumulative in area.

### III. PROVISIONS CONCERNING SIZING

Size is determined by maximum diameter of the equatorial section or by weight. Fruit must meet one of the following minimum size requirements:

- i) A minimum size by diameter for each class as follows: <sup>3,4</sup>

	<b>Extra</b>	<b>Class I</b>	<b>Class II</b>
Large fruited varieties <sup>3</sup>	65 mm	60 mm	60 mm
Other varieties	60 mm	55 mm	50 mm

Or

- ii) A minimum fruit weight for each class as follows: <sup>6,7</sup>

	<b>Extra</b>	<b>Class I</b>	<b>Class II</b>
Large fruited varieties <sup>4</sup>	110 gm	90 gm	90 gm
Other varieties	90 gm	80 gm	75gm

To ensure there is uniformity of size within a package, the difference in diameter or individual fruit weights between fruit in the same package shall be limited to:<sup>5</sup>

- For fruit packed in rows and layers
  - 5 mm for “Extra” Class fruit and for Class I and II fruit
- or
- 20% of the average individual fruit weight in the package
- For fruit packed in bulk in the package or in pre-packages<sup>6</sup>

<sup>3</sup> The non-exhaustive list of large fruited varieties is given in the Annex of this standard.

<sup>4</sup> The non-exhaustive list of large fruited varieties is given in the Annex of this standard.

<sup>5</sup> Reservation from Chile concerning the Fuji variety.

- 10 mm for Class I fruit
- or
- 25% of the average individual fruit weight in the package
- There is no sizing uniformity limit for Class II fruit packed in bulk in the package or in pre-packages.

#### **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 / 10 gm 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 / 10 gm below the minimum size.

### **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 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 not satisfying the requirements of the class, but meeting those of Class II or, exceptionally, coming within the tolerances of that class.
- (iii) ***Class II***  
10 per cent by number or weight of apples 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

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

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

### A. Identification

Packer	)	Name and address or
and/or	)	officially issued or
Dispatcher	)	accepted code mark. <sup>8</sup>

### B. Nature of produce

- "Apples", 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)

Published 1960  
Revised 1996, 2000  
The UN/ECE Standard for Apples and Pears  
has led to an explanatory brochure published by the OECD Scheme

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<sup>7</sup> *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.*

<sup>8</sup> *The national legislation of a number of countries requires the explicit declaration of the name and address. However, in the case where a code mark is used, the reference "packer and/or dispatcher (or equivalent abbreviations)" has to be indicated in close connection with the code mark.*

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	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{3}$
Class I	$\frac{1}{2}$	$\frac{1}{3}$	$\frac{1}{10}$
Class II	$\frac{1}{4}$	$\frac{1}{10}$	–

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 Trademarks	Colour group	Russeting	Size
Abbondanza		C		
Akane	Prime Rouge, Tohoku 3	B		
Alice		B		
Alkmene	Early Windsor	C		
Altländer				L
Alwa		B		
Angold		C		
Apollo	Beauty of Blackmoor	C		L
Arlet		C		L
Ashmead's Kernel			R	
Baigent	Brookfield		A	
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
Blenheim				L
Boskoop rouge	Red Boskoop	B	R	L
Braeburn and mutations		C		L
Bramley's Seedling	Bramley, Triomphe de Kiel			L
Brettacher Sämpling				L
Calvilles, Groupe des				L
Cardinal		B		



Carola	Kalco	C		L
		C		
Caudle	Cameo™	B		
Charden				L
Charles Ross				L
Commercio		C		
Cortland		B		L
Coromandel Red	Corodel	A		L
Cox's Orange Pippin (Cox orange and mutations <sup>a)</sup> )		C	R	
Cox Pomona				L
Crimson Bramley				L
Cripps Pink	Pink Lady®	B		L
Cripps Red	Sundowner™	A		L
Delblush	Tentation™			
Delicious ordinaire	Ordinary Delicious	B		
Delicious Pilafa		B		L
Delikates		B		
Democrat		A		L
Discovery		B		
Dunn's Seedling			R	
Egremont Russet			R	
Elan				L
Ellison's orange	Ellison	C		L
Elstar		C		
Fiesta	Red Pippin	B		
Finkenwerder prinz				L
Fortuna Delicious		A		L
Fortune			R	
Fuji		C		L
Gala		C		
Garcia				L
Gelber Edelapfel	Golden Noble			L
Ginger Gold				L
Glorie van Holland	Glory of Holland	B		L
Gloster 69		B		L
Golden Delicious and mutations				L
			R	
Graham	Graham Royal Jubilé			L
Granny Smith				L
Gravenstein rouge	Red Gravenstein	B		L
Gravensteiner	Gravenstein	C		L
Greensleeves				L
Grossherzog Friedrich von Baden				L
Herma				L

Hidala	Hillwell	B		L
Honeygold				L
Horneburger				L
Howgate Wonder				L
Idared		B		L
Ingrid Marie		B	R	
Jacques Lebel				L
Jamba		C		L
James Grieve and mutations				L
James Grieve rouge	Red James Grieve	B		L
Jerseymac		B		
Jester				L
Joburn	Aurora <sup>TM</sup>	A		L
Jonagold <sup>b</sup>		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, Reines Sophie			L
Lady Williams		B		L
Lane's Prince Albert				L
Laxton's Superb		C	R	
Lemoen Apfel	Lemoenappel			L
Ligol		B		L
Lobo		B		
Lodel		A		
Lord Lambourne		C		
Maigold		C		L
Mantet rouge	Red Mantet	C		
Mariri Red	Eve <sup>TM</sup>	A		L
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
Orin				
Ortell		B		
Ozarkgold				L
Pater v.d. Elsen				L
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 Red Chief and Royal Red and others)		A		L
Red Rome		A		
Red York		A		
Redkroft		A		
Regala		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		
Rome Beauty		B		L
Rose de Berne		A		
Rose de Caldaro	Kalterer	C		
Royal Gala and mutations	Tenroy	A		
Royal Red		A		L
Saure Gamberse	Gamberse zure			L
Sciearly	Pacific Beauty™	A		
Sciglo	Southern Snap™	A		
Scired		A	R	
Sciros	Pacific Rose™	A		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
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
Tydemán's Early Worcester	Tydemán'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	Graue Renette von Zabergau			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. Russeting

For varieties not marked with an R in the list above, russeting is allowed within the following limits <sup>9</sup>

	<b>Extra</b>	<b>I</b>	<b>II</b>	<b>Tolerances for Class II</b>
(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	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

<sup>9</sup> For other varieties, the control services will operate by comparison