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Working Party on Agricultural Quality Standards

Specialized Section on Standardization of
Fresh Fruit and Vegetables

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REPORT OF THE FORTY-NINTH SESSION

Addendum 1

UNECE Standard for Apples

Note by the secretariat: This document contains in Part I the revised UNECE Standard for Apples as recommended by the specialized section for adoption.

Part II of this document contains changes, which are recommended for a two year trial period.

Changes to the previous version of the standard have been marked with strike-out for deleted text and new text has been underlined.

FFV-50: Apples

PART I: UNECE Standard for Apples

UNECE STANDARD FFV-50
concerning the marketing and commercial
quality control of

APPLES
moving in international trade between and to
UNECE member countries

I. DEFINITION OF PRODUCE

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

II. PROVISIONS CONCERNING QUALITY

The purpose of the standard is to define the quality requirements 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 ripening process and to reach the degree of ripeness required in relation to the varietal characteristics³
- to withstand transport and handling, and
- to arrive in satisfactory condition at the place of destination.

³*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.*

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 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.

(ii) Class I

Apples in this class must be of good quality. In shape, size and colouring they must be characteristic of the variety.⁴

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.

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

⁴The criteria for colouring and russeting as well as a non-exhaustive list of varieties are set out in the Annex of this standard.

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(iii) Class II

This class includes apples 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.
 - slight bruising not exceeding 1.5 cm² in area which may be slightly discoloured.

III. PROVISIONS CONCERNING SIZING

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

A minimum size⁵ by diameter is required⁶ for each class as follows:

	Extra	Class I	Class II
Apples			
Large fruited varieties ²	65 mm	60 mm	60 mm
Other varieties	60 mm	55 mm	50 mm

⁵The European Community and Slovakia have adopted larger minimum sizes for apples as follows:

Large fruited varieties: 70mm ~~for~~ "Extra" Class; 65mm for Classes I and II

Other varieties: 60mm for "Extra" Class; 55mm for Classes I and II

⁶ New Zealand, Chile and South Africa do not consider there to be an effective correlation between fruit sized by weight and the requirements for minimum diameter. New Zealand will propose that separate minimum requirements for weight sizing be included in the standard once further data has been obtained on this and the related issue of maturity requirements.

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

For fruit sized according to the diameter, the difference in diameter between fruit in the same package shall be limited to:

- 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 loose in the package or in consumer packages.⁸

For fruit sized according to weight, the difference in weight between fruit in the same package shall be limited to:

- 20% of the average individual fruit weight in the package for Class Extra and for Class I and II fruit packed in rows and layers
- 25% of the average individual fruit weight in the package for Class I fruit packed loose in the package or in consumer packages.

There is no sizing uniformity limit for Class II fruit packed loose in the package or in consumer 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 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:

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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- serious attacks of cork (bitter pit) or water-core
- slight damage or unhealed cracks
- 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 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 and origin are not required for apples in consumer packages of a net weight not exceeding 5 kg.

B. 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 3kg shall be sufficiently rigid to ensure proper protection of the produce.

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", 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.

C. 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.

D. Commercial specifications

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

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

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

E. Official control mark (optional)

⁹ Consumer packages 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.

¹⁰ 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.

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Published 2002*
Revised 2003

*This text was previously part of a combined standard for apples and pears (FFV-01), published 1960 with revisions 1996, 2000. An explanatory brochure for this standard was published by the OECD Scheme.

ANNEX

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 is 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
(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
	not rough	not rough	slightly rough	
(ii) <u>Russeting</u>		Maximum surface area of the fruit permitted		
<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

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3. Size Criteria for Apples

L = Large fruited variety

Non-Exhaustive List of Apple Varieties¹¹

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 are 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 license or permission to use that trademark – such license 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.¹²

¹¹ 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 russetting should be included in the list to provide information about the varietal characteristics. The update of the list may be requested through the Specialized Section for the Standardization of Fresh Fruit and Vegetables.

¹² Disclaimer:

(1) 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 license. 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.

(2) 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. Provided that no further information is needed from the trademark holder, the Working Party on Agricultural Quality Standards will change the list accordingly at the session following receipt of the information. The United Nations takes no position as to the validity of any such trademarks or the rights of any such trademark owners or their licensees.

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Trade Development and Timber Division, Agricultural Standards Unit
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Variety	Synonyms	Tradenames	Colour group	Russeting	Size
African Red		African Carmine TM	B		
Akane	Tohoku 3	Primerouge [®]	B		
Alborz Seedling			C		
Aldas			B		
Alice			B		
Alkmene	Early Windsor		C		
Alwa			B		
Angold			C		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. Amrosa			B B		
Auksis			B		
Belfort	Pella		B		
Belle de Boskoop and mutants				R	L
Belle fleur double					L
Berlepsch	Freiherr von Berlepsch		C		
Berlepsch rouge	Red Berlepsch, Roter Berlepsch		B		
Blushed Golden					L
Bohemia			B		L
Boskoop rouge	Red Boskoop, Roter Boskoop		B	R	L
Braeburn			B		L
Red coloured mutants of Braeburn e. g. Annagle			A A		L L

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Variety	Synonyms	Tradenames	Colour group	Russeting	Size
Hidala		Hillwell ®	A		L
Joburn		Aurora™, Red Braeburn™, Southern Rose™	A		L
Lochbuie Red Braeburn			A		L
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		L
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™	A C ¹³		
Dalili		Ambassy ®	C		L

¹³ With minimum 20% for Class I and Class II

Variety	Synonyms	Tradenames	Colour group	Russeting	Size
<u>Dalinbel</u>			<u>B</u>		
Delblush		Tentation ®			L
Delcorf and mutants e. g. Dalili Monidel		Delbarestivale ® Ambassy ®	C C C		L L L
Delgollune		Delbard Jubilé ®	B		L
Delicious ordinaire	Ordinary Delicious		B		
Deljeni		Primgold ®			L
Delikates			B		
Delor			C		L
Discovery			C		
Dunn's Seedling				R	
Dykman's Zoet			C		
Egremont Russet				R	
Elan					L
Elise	Red Delight	Roblos ®	A		L
Ellison's orange	Ellison		C		L
Elstar and mutants e. g. Daliter Elshof Elstar Armhold Elstar Reinhardt		Elton ™	C C C C		
Red coloured mutants of Elstar e. g. Bel-El Daliest Goedhof Red Elstar Valstar Empire		Red Elswout ™ Elista ™ Elnica ™	B B B B B A		
Falstaff			C		

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Variety	Synonyms	Tradenames	Colour group	Russeting	Size
Fiesta	Red Pippin		C		
Florina		Querina ®	B		L
Fortune				R	
Fuji and mutants			B		L
Gala			C		
Red coloured mutants of Gala e. g. <u>Annaglo</u> Baigent Galaxy Mitchgla Obrogala Regala Regal Prince Tenroy		Brookfield ® Mondial Gala ® Gala Must ® Royal Gala ®	A <u>A</u> A A A A A A		<u>L</u>
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
Greensleeves					L
Holsteiner Cox and mutants	Holstein			R	
Holstein rouge	Red Holstein,		C	R	

Variety	Synonyms	Tradenames	Colour group	Russeting	Size
	Roter Holsteiner Cox				
Honeycrisp		Honeycrunch ®	C		L
Honey gold					L
Horneburger					L
Howgate Wonder	Manga				L
Idared			B		L
Ingrid Marie			B	R	
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 ^{a)} and mutants e. g.			C		L
Crowngold			C		L
Daligo			C		L
Daliguy	Jonasty		C		L
Dali jean	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

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

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Variety	Synonyms	Tradenames	Colour group	Russeting	Size
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
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 Sonnaville			C	R	L
Katja	Katy		B		
Kent				R	
Kidd's Orange Red			C	R	
Kim			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		
Melodie			B		L

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Variety	Synonyms	Tradenames	Colour group	Russeting	Size
Melrose			C		L
Meridian			C		
Moonglo			C		
Morgenduft	Imperatore		B		L
Mutsu		Crispin ®			L
Normanda			C		L
Nueva Europa			C		
Nueva Orleans			B		L
Odin			B		
Ontario			B		L
Orlovskoje polosatoje			C		
Ozark Gold					L
Paula Red			B		
Pero de Cirio					L
Piglos			B		L
Pikant			B		L
Pikkolo			C		
Pilot			C		
Pimona			C		
Pinova		Corail ®	C		
Pirella		Pirol ®	B		L
Piros			C		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

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Variety	Synonyms	Tradenames	Colour group	Russeting	Size
Oregon	Oregon Spur Delicious		A		L
Otago			A		L
<u>Red Chief</u>			<u>A</u>		<u>L</u>
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 Landsberg					L

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Variety	Synonyms	Tradenames	Colour group	Russeting	Size
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 Beaut			A		L
Rubin			C		L
Rubinola			B		L
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
Sinap Orlovskij					L
Snygold	Earlygold				L
Sommerregent			C		
Spartan			A		
Splendour			A		
St. Edmunds Pippin				R	
Starks's Earliest			C		
Štaris	Staris		A		
Sturmer Pippin				R	
Summerred			B		

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Variety	Synonyms	Tradenames	Colour group	Russeting	Size
Sunrise			A		
Sunset				R	
Suntan				R	L
Sweet Caroline			C		L
Topaz			B		
Tydemán's Early Worcester	Tydemán's Early		B		L
Vista Bella	Bellavista		B		
Wealthy			B		
Worcester Pearmain			B		
York			B		

PART II: UNECE Recommendation for Apples for a two-year trial period

This text is in trial period until November 2005.

1. Replace the beginning of chapter III with the following:

“III. PROVISIONS CONCERNING SIZING

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

When size is determined by diameter the minimum diameter³ required for each class is as follows:

	Extra	Class I	Class II
Large fruited varieties ²	65 mm	60 mm	60 mm
Other varieties	60 mm	55 mm	50 mm

When size is determined by weight the minimum weight required for each class is as follows:

	Extra	Class I	Class II
Large fruited varieties	110g	90g	90g
Other varieties	90g	80g	70g

To ensure that there is.....(unchanged)”

2. Delete footnote 4 (Footnote 3 is unchanged)

3. Replace IV B. Size tolerances with the following:

“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 diameter when size is determined by diameter
- 10g below the minimum weight when size is determined by weight;

(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 diameter when size is determined by diameter
- 10 g below the minimum weight when size is determined by weight “