



Product Specifications

October 2023

Visual Appearance

Colour	Dark red apple, solid foreground colour with lightly defined stripes and prominent lenticels.
Shape	Heterogenous, large and round.
Size	Large. Diameter 65-90 mm.
Harvest Timing	14 days before 'Fuji'
Sensory	Crisp, light, juicy flesh. Sweet with honey, floral and tropical notes.



Harvest Parameters

Pressure (Kg-f)	≥ 7.5
Minimum Pressure (Kg-f)	≥ 7.0 with no more than 10% below ≥ 7.0
Starch Pattern Index	2.0 – 5.0 (0-7 point scale) 4.0 – 7.0 (1-9 point scale)
Foreground Colour (TUTTI swatch)	B4 - B6 Refer to TUTTI Foreground Colour Chart
Background Colour (TUTTI swatch)	F5 - F7 Refer to TUTTI Background Colour Chart
Soluble Solids (% Brix)	≥ 12.0° Brix
Harvest Window (days)	1 – 21 days based on stop date sampling
Harvest Notes	Stem clipping is recommended to reduce stem punctures

Coolchain Requirements

Cooling: Cool to 0.5°C within 5 days of harvest. Ideally the fruit should be <3°C within 3 days of harvest. This rapid cooling rate is important for reducing bitter pit incidence in susceptible lines, as well as to ensure the fruit maintains a fresh appearance.

No work has been done on use of forced draft cooling. Caution is advised until trials are conducted.

Controlled Atmosphere Storage Criteria

Within 3 days of harvest	Fruit should be <3°C Standard atmosphere of 1.5% O ₂
Within 5 days of harvest	Fruit should be cooled to 0.5°C
At 7 days after harvest	1 .2% CO2 applied 7 days after harvest.
Long term storage	Temperature at 0.5°C-1°C max.

Post-Harvest Treatments

1-MCP: Application timing of 5-7 days after harvest.

1-MCP treatment has not been tested in combination with Controlled Atmosphere (CA).

Ultra-low or DCA treatments have also not been tested.

TUTTI ('HOT84A1') has shown no propensity for internal browning (either diffuse storage or cavity CO²), or scald to date.

Postharvest R&D will continue in this space.

Foreground Colour

1



2



3



4



5



6



7



8



Background Colour

1



2



3



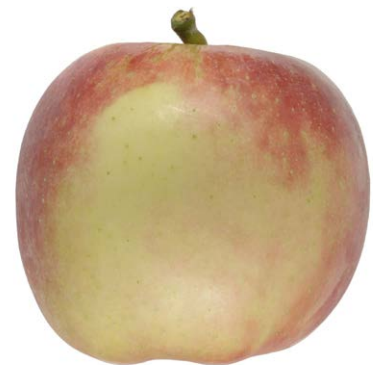
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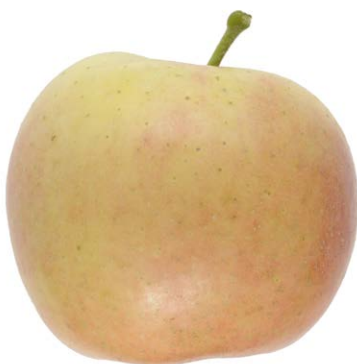
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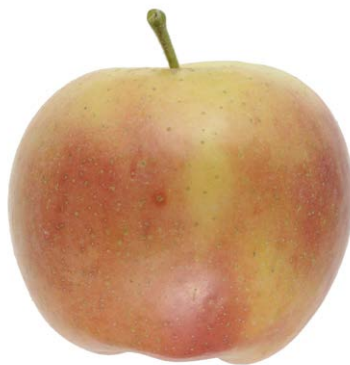
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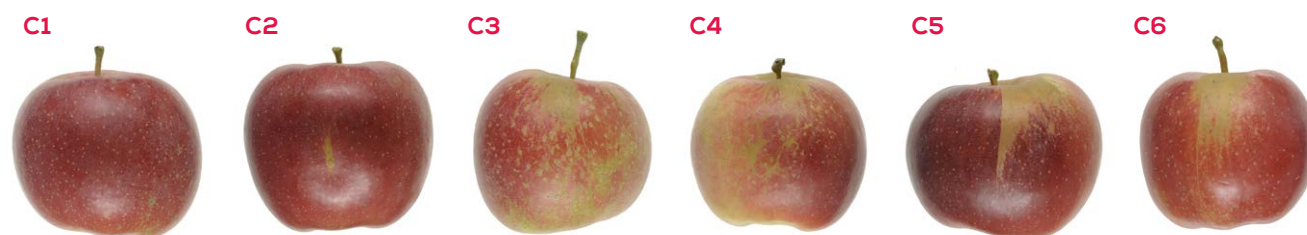
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Grade Standards

Grade	Class 1: High Grade	Class 1: Standard Grade	Class 2: All Grade
Colour Type	Dark red, solid foreground colour with lightly defined stripes and prominent lenticels		
Colour Area	> 75%	50 - 75%	> 50%
Cheek Russet	C1 - C3	C1 - C3	C1 - C4
Stem End Russet	S1 - S3	S1 - S3	S1 - S4
Tracey Russet	T1 - T3	T1 - T3	T1 - T4
Fob Specification	≥ 7.2 Ave Kg-f		
Outturn Specification	≥ 6.8 Ave Kg-f		
Size Range Count	40 - 180	40 - 180	40 - 180
Size Range mm	65mm-90mm	65mm-90mm	65mm-90mm

Cheek Russet



Stem End Russet



Tracery Russet



Defect Tolerances & Allowances

Class 1 and Class 2 OECD (Organization for Economic Co-operation and Development) adhered to for major and minor defects.

Class 1 Grade Standard Spoilt Defects

Total Tolerance: 2%

Spoilt Defect Allowances:

Blackspot	Nil
Cuts	Nil
Lenticel Blotch	Nil
Major Bruise	Nil
Pit	Nil
Punctures	Nil
Rots	Nil
Stem / Calyx Splits	Nil
Shrivel	Nil

Cosmetic Defect

Total Tolerance: 6%

Cosmetic Defect Allowances:

Blemish	$\leq 1 \text{ cm}^2$ / $\leq 2 \text{ cm}$ in length
Bruise	$\leq 1 \text{ cm}^2$
Colour	$\geq 50\%$
Smooth Russet	$\leq 1 \text{ cm}^2$
Stem End Russet	$\leq 10\%$ equates to an area of smooth russet covering the stem cavity and extending to the shoulder of the apple
Rough Russet	Nil
Tracery Russet	$\leq 20\%$ surface area
Hail spots	Maximum of 3 small spots (1-2 mm) or 1 large spot (4 mm) - Hail Russet $\leq 1 \text{ cm}^2$ - Hail Bruising $\leq 1 \text{ cm}^2$

Class 2 Grade Standard Spoilt Defects

Total Tolerance: 2%

Spoilt Defect Allowances: Refer Standard Fruit Specifications for all other grade standards

Cosmetic Defect

Total Tolerance: 6%

Cosmetic Defect Allowances:

Blackspot	$\leq 2 \text{ mm}^2$ in calyx
Blemish	$\leq 2 \text{ cm}^2$ / $\leq 3 \text{ cm}$ in length
Bruise	$\leq 1.5 \text{ cm}^2$
Smooth Russet	$\leq 2 \text{ cm}^2$
Stem End Russet	$\leq 10\%$ equates to an area of smooth russet covering the stem cavity and extending to the shoulder of the apple
Rough Russet	$\leq 1 \text{ cm}^2$
Tracery Russet	$\leq 25\%$ surface area
Shape	Slightly elongated flattening out at base/apex. No irregular curvature or distorted shapes
Hail spots	Hail spots maximum of 5 small spots (1-2 mm) or 2 large spots (4 mm) - Hail Russet $\leq 2 \text{ cm}^2$ - Hail Bruising $\leq 1.5 \text{ cm}^2$

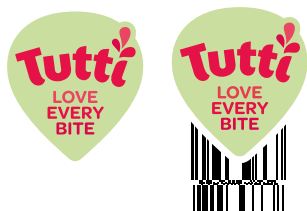
Brand guidelines

Refer to TUTTI™ Brand Book

Packaging Requirements

Example of packaging specifications - to be updated once TUTTI™ packaging is finalised.

Other packaging formats, brand usage and co-branding approved on application to VentureFruit.



TUTTI™ Fruit Sticker



TUTTI™ Z Carton Pack

Guideline For Determining Individual Fruit Weight & Size

Conversion table (mm to weight)

Fruit Count	Weight (G)				Diameter (mm)	
	Min	Ave	Max	Range		
60	281	303	346	65	84 ± 4.6	-
70	242	265	292	50	81 ± 4.8	-
80	208	227	248	40	78 ± 3.9	-
90	188	202	218	30	76 ± 4.1	-
100	170	182	195	25	74 ± 4.1	
110	157	166	177	20	69 ± 3.8	-
120	142	153	162	20	69 ± 4.7	-
135	128	137	148	20	66 ± 3.2	-
150	114	123	134	20	64 ± 3.3	-
165	106	113	121	15	63 ± 3.9	-

Specifications reviewable and communicated formally in writing by VentureFruit.

For example: to account for specific regional effects or adverse seasonal impacts on quality or early or late seasonal variances.

