



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% CO ₂ 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.

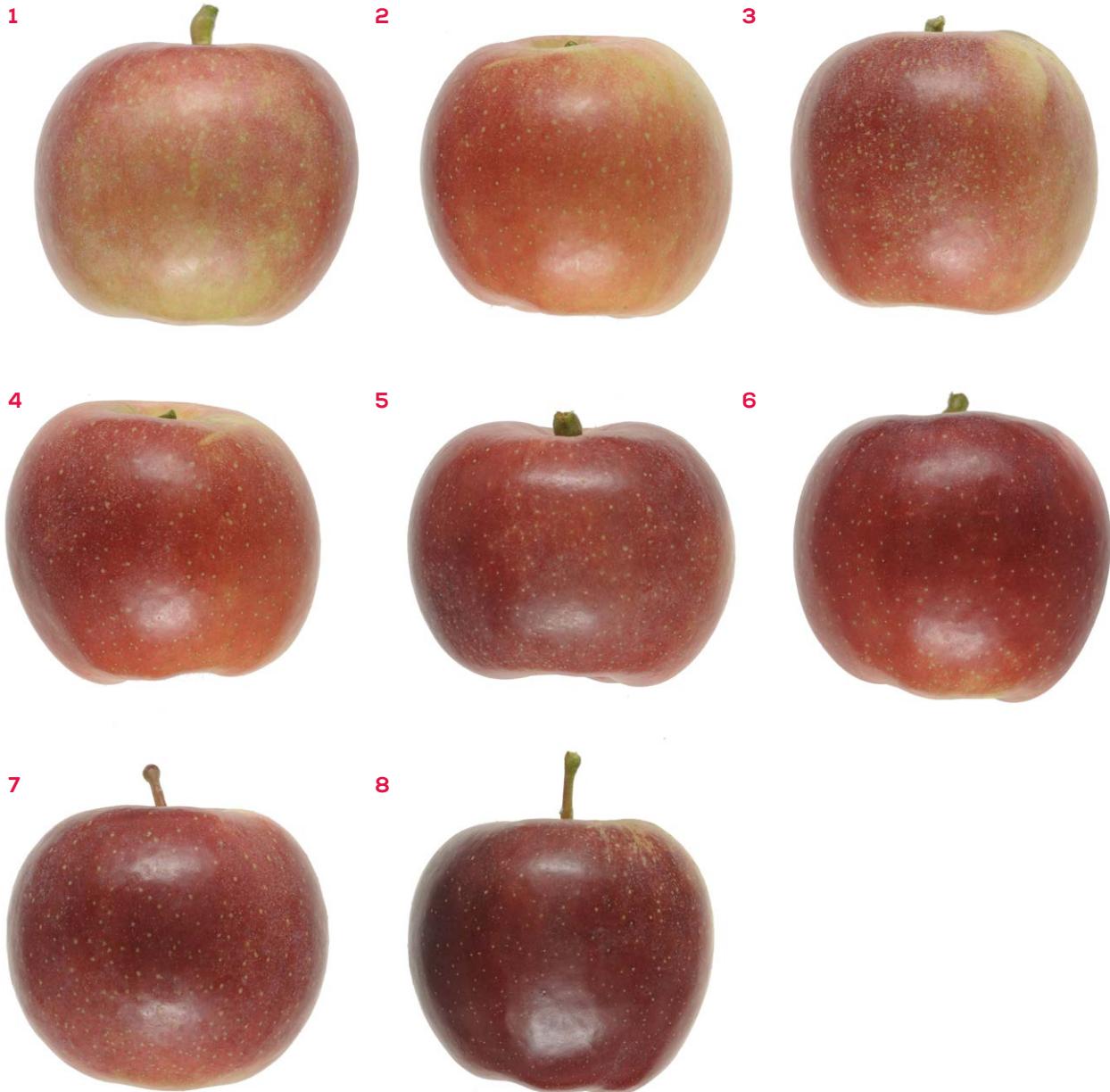
1-MCP treatment has not been tested in combination with Controlled Atmosphere (CA).

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



Background Colour

1



2



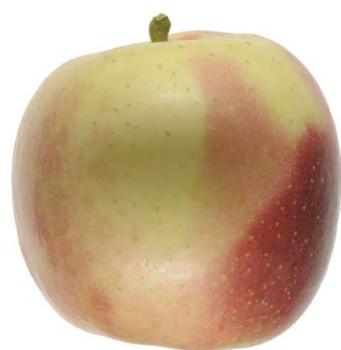
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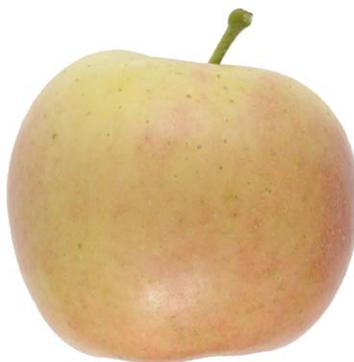
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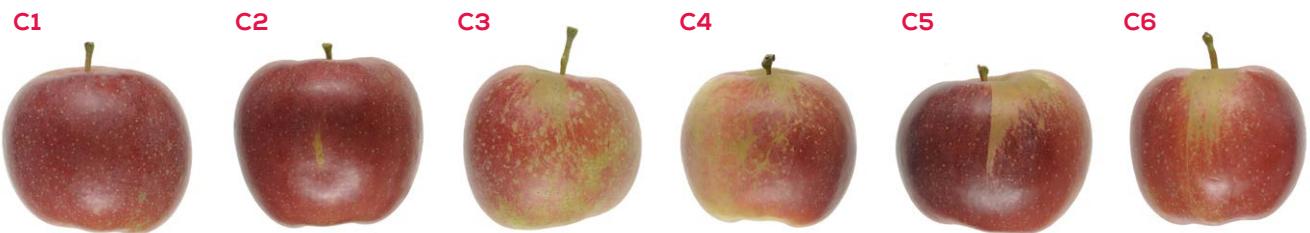
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Grade Standards

| 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 | ≤ 2 mm ² in calyx |
| Blemish | ≤ 2 cm ² / ≤ 3 cm in length |
| Bruise | ≤ 1.5 cm ² |
| Smooth Russet | ≤ 2 cm ² |
| Stem End Russet | ≤ 10% equates to an area of smooth russet covering the stem cavity and extending to the shoulder of the apple |
| Rough Russet | ≤ 1 cm ² |
| Tracery Russet | ≤ 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 ≤ 2 cm ² - Hail Bruising ≤ 1.5 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 | Diameter (mm) | |
|-----|-----|-----|-----|-------|---------------|---|
| 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.

