UNECE STANDARD
APPLES FFV-50 (2010)

UNECE/ Codex Joint International workshop

Mexico City

1 May 2011
Presentation outline

- South African apple industry
- Apples standard:
  - Minimum requirements
  - Maturity requirements
  - Classification
- Standard provisions
- Codex standards comparison
<table>
<thead>
<tr>
<th>South African Cultivars</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>African Red (African Carmine™)</td>
<td>Joburn (Red Braeburn™)</td>
</tr>
<tr>
<td>Autumn Blush</td>
<td>Jonagold</td>
</tr>
<tr>
<td>Blushed Golden</td>
<td>Jonagored</td>
</tr>
<tr>
<td>Braeburn</td>
<td>Jonathan</td>
</tr>
<tr>
<td>Cripps' Pink (Pink Lady®)*</td>
<td>Lady Williams</td>
</tr>
<tr>
<td>Cripps' Red (Sundowner®)*</td>
<td>Spur (Red Spur)</td>
</tr>
<tr>
<td>Empire</td>
<td>Panorama Golden (Golden Delicious)</td>
</tr>
<tr>
<td>Fiesta</td>
<td>Royal Beaut</td>
</tr>
<tr>
<td>Gala</td>
<td>Splendour</td>
</tr>
<tr>
<td>Gingergold</td>
<td>Starking (Starking Delicious)</td>
</tr>
<tr>
<td>Golden Delicious</td>
<td>Starkrimson (Starkrimson Delicious)</td>
</tr>
<tr>
<td>Granny Smith</td>
<td>Tenroy (Royal Gala™)</td>
</tr>
<tr>
<td>Autumn Blush</td>
<td>Topred (Topred Delicious)</td>
</tr>
<tr>
<td>Imperial</td>
<td>Imperial</td>
</tr>
</tbody>
</table>
Cultivar production - South African apples

- Granny Smith: 27%
- Golden Delicious: 23%
- Royal Gala: 11%
- Starking: 7%
- Topred: 7%
- Pink Lady: 6%
- Fuji: 3%
- Other: 13%
- Braeburn: 3%

your passport to international trade
### Exports

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Percentage</th>
<th>Quantity (in tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Granny Smith</td>
<td>27</td>
<td>70 030</td>
</tr>
<tr>
<td>Golden Delicious</td>
<td>23</td>
<td>59 655</td>
</tr>
<tr>
<td>Royal Gala</td>
<td>11</td>
<td>28 531</td>
</tr>
<tr>
<td>Starking</td>
<td>7</td>
<td>18 156</td>
</tr>
<tr>
<td>Top Red</td>
<td>7</td>
<td>18 156</td>
</tr>
<tr>
<td>Pink Lady</td>
<td>6</td>
<td>15 562</td>
</tr>
<tr>
<td>Fuji</td>
<td>3</td>
<td>7 781</td>
</tr>
<tr>
<td>Braeburn</td>
<td>3</td>
<td>7 781</td>
</tr>
<tr>
<td>Other</td>
<td>13</td>
<td>33 718</td>
</tr>
</tbody>
</table>

- 37% (259 370 tons) of total apple production in South Africa is exported
- Remainder of apple production used for processing as derivative products; 32% bought by households.
Export countries 2006 - 2010

- Southern Europe: 4.1%
- Indian Ocean Island: 4.6%
- Middle East: 5.1%
- West Africa: 7.4%
- East Africa: 2.0%
- Russia: 0.4%
- Asia: 0.4%
- Mediterranean: 0.4%
- Canada: 0.7%
- United Kingdom: 36.8%
- Far East: 14.1%
- Northern Europe: 24.1%
UNECE STANDARD FFV-50 - MARKETING AND COMMERCIAL QUALITY CONTROL OF APPLES

I. Definition of produce

- standard applies to apples of varieties (cultivars) grown from *Malus domestica Borkh*
- to be supplied fresh to the consumer

- apples for industrial processing excluded
UNECE STANDARD FFV-50 - MARKETING AND COMMERCIAL QUALITY CONTROL OF APPLES

II. Provisions concerning quality

• purpose of the standard is to define the quality requirements for apples at the export control stage after preparation and packaging

if applied at stages following export, products may show:

• a slight lack of freshness and turgidity
• a slight deterioration-“Extra” Class due to their development and their tendency to perish
A. MINIMUM REQUIREMENTS

- intact
- sound
A. MINIMUM REQUIREMENTS

• rotting or deterioration excluded from “sound”

• clean, practically free of any visible foreign matter
A. MINIMUM REQUIREMENTS

• practically free from pests

• free from damage caused by pests affecting the flesh *
A. MINIMUM REQUIREMENTS

- free from serious water core, with the exception of Fuji and their mutants
- free of abnormal external moisture
- free of any foreign smell and/or taste
A. MINIMUM REQUIREMENTS…

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

• to withstand transportation and handling

• to arrive in satisfactory condition at the place of destination
B. MATURITY REQUIREMENTS...

- must be sufficiently developed and display satisfactory ripeness
- development and state of maturity must enable continuation of ripening process to reach degree of ripeness required in relation to varietal characteristics
- testing for maturity at inspections - by means of several parameters - taste, morphological aspect, firmness and refractometric index)
C. CLASSIFICATION

Apples are classified in three classes-

- Class 1
- Class 2
- Extra class
- Out of Grade
C. CLASSIFICATION

(i) “Extra” Class

• superior quality
• characteristic of the variety
• stalk must be intact
• flesh must be perfectly sound
• must be free from defects with exception of very slight superficial defects not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package:
  • very slight skin defects
  • very slight russeting, e.g. brown patches not going outside the stem cavity and may not be rough and/or slight isolated traces of russetting
C. CLASSIFICATION – EXTRA CLASS

Limit – very slight superficial defects

Limit allowed - Brown patches of russeting not exceeding stem cavity

Limit - Slight isolated traces of russetting

Limit - Russetting characteristic to variety (R)
(ii) Class I

- must be of good quality
- must be characteristic of the variety
- flesh must be perfectly sound
- slight defects allowed-
  - a slight defect in shape
  - a slight defect in development
  - slight defects in colouring
  - slight bruising not exceeding 1 cm² and not discoloured
  - slight skin defects not extending over more than:
    - 2 cm in length for defects of elongated shape
    - 1 cm² of the total surface area for other defects with the exception of scab not extending over more than 0.25 cm² cumulative in area
C. CLASSIFICATION…

(i) Class I…

• slight russetting such as brown patches that may go slightly beyond the stem or pistil cavities but may not be rough and/or -
  • thin net-like russetting not exceeding 1/5 of fruit surface and not contrasting strongly with general fruit colouring
  • dense russetting not exceeding 1/20 of fruit surface
  • thin net-like russetting and dense russetting collectively not exceeding 1/5 of the total surface of the fruit

• stalk may be missing provided the break is clean and the adjacent skin is not damaged
C. CLASSIFICATION…

(ii) Class I

• Exceptions/ Reservations

1. A non-exhaustive list of varieties providing a classification on colouring and russeting is set out in the annex to this standard.

2. Reservation by the United States: For “Extra” Class and Class I, due to differences in its national legislation that allow different colour requirements.

3. Varieties marked with “R” in the annex are exempt from the provisions on russetting.
C. CLASSIFICATION – CLASS 1

Limit - slight defect in shape

Slight defects in colouring due to sunburn

Slight bruising not exceeding 1 cm² in area and flesh not discoloured
Limit allowed
C. CLASSIFICATION – CLASS 1

Limit - Slight skin defects of elongated shape not exceeding 2 cm in length

Limit - Slight skin defects total surface area not exceeding 1 cm²
C. CLASSIFICATION – CLASS 1

Limit allowed - Slight skin defects due to Scab not exceeding 0.25 cm²

Limit allowed - Hailmarks
C. CLASSIFICATION - Russeting Class 1 limits
C. CLASSIFICATION - Exercise

Under which class will the below defects fall?
C. CLASSIFICATION...

(iii) Class II
Apples not qualifying for inclusion in the higher classes, but satisfy the minimum requirements specified. The flesh must be free from major defects.

Defects allowed:
- defects in shape
- defects in development
- defects in colouring
- slight bruising not exceeding 1.5 cm² in area, may be slightly discoloured
- skin defects not extending over more than:
  - 4 cm in length for defects of elongated shape
  - 2.5 cm² total surface area for other defects, with the exception of scab not extending over more than 1 cm² cumulative in area
C. CLASSIFICATION...

(iii) Class II...

• slight russetting such as -
  • brown patches that may go beyond the stem or pistil cavities and may be slightly rough and/or
  • thin net-like russetting not exceeding 1/2 of the total fruit surface and not contrasting strongly with the general colouring of the fruit and/or
  • dense russetting not exceeding 1/3 of the total fruit surface while
• thin net-like russetting and dense russetting taken together may not exceed a maximum of 1/2 of the total surface of the fruit
C. CLASSIFICATION – CLASS 2
C. CLASSIFICATION – CLASS 2
C. CLASSIFICATION – CLASS 2

Limit allowed - Dense russetting not exceeding 1/3 of the surface area of the fruit

Limit allowed - Thin net like and dense russetting not exceeding 1/3 of fruit surface area
C. CLASSIFICATION – Exercise

Under which class will the below defects fall?
C. CLASSIFICATION minimum color requirements

(i) “Extra” Class –

• 3/4 of total surface red coloured - colour group A
• 1/2 of total surface mixed red coloured - colour group B
• 1/3 of total surface slightly red coloured, blushed or striped - colour group C

(ii) Class I minimum color requirements –

• 1/2 of total surface red coloured - colour group A
• 1/3 of total surface mixed red coloured - colour group
• 1/10 of total surface slightly red coloured, blushed or striped - colour group C

Reservation by the United States:
“Extra” Class and Class I, due to differences in its national legislation that allow different colour requirements.
C. CLASSIFICATION - COLOR

Extra Class

Minimum surface colour for red coloured varieties:

Colour group A: 3/4
Colour group B: 1/2
Colour group C: 1/3
C. CLASSIFICATION – COLOR - Extra Class

Same fruit: front and back face

A

B

A

B
C. CLASSIFICATION - COLOR

Class 1

Minimum surface colour for red coloured varieties:

Colour group A: 1/2

Colour group B: 1/3

Colour group C: 1/10
C. CLASSIFICATION - COLOR – Class 1

Same fruit: front and back face

A

A

B

B
C. CLASSIFICATION…

- Example of varietal color requirement stipulations for different classes

<table>
<thead>
<tr>
<th>Variety</th>
<th>Mutant</th>
<th>Synonyms</th>
<th>Trade names</th>
<th>Colour group</th>
<th>Russetting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crimson Bramley</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cripps Pink</td>
<td></td>
<td></td>
<td>Pink Lady ®</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Mutants of Cripps Pink, e.g.</td>
<td></td>
<td></td>
<td></td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Pink Rose</td>
<td></td>
<td></td>
<td>Pink Kiss ®</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Rosy Glow</td>
<td></td>
<td></td>
<td>Pink Lady ®</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Ruby Pink</td>
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<td>C</td>
<td></td>
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<tr>
<td>Cripps Red</td>
<td></td>
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<td>Sundowner™</td>
<td>C12</td>
<td></td>
</tr>
<tr>
<td>Splendour</td>
<td></td>
<td></td>
<td></td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>St. Edmunds Pippin</td>
<td></td>
<td></td>
<td></td>
<td>R</td>
<td></td>
</tr>
</tbody>
</table>

Adopted 2002
Last revised 2010
The OECD Scheme for the Application of International Standards for Fruit and Vegetables has published an explanatory illustrated brochure on the application of this standard. The publication may be obtained from the OECD bookshop at: www.oecdbookshop.org.
III. Provisions concerning sizing

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

- minimum size 60 mm or 90 g

- fruit of smaller sizes may be accepted if the Brix level of the produce is equal to or greater than 10.5°Brix and size not smaller than 50 mm or 70 g
III. Provisions concerning sizing

- **uniformity in size** - range in size between produce in the same package shall not exceed:

(a) For fruit sized by diameter:
- 5 mm for “Extra” Class fruit and for Classes I and II fruit packed in rows and layers
- 10 mm for Class I fruit packed loose in the package or in sales packages
III. Provisions concerning sizing - uniformity in size

(b) For fruit sized by weight:

• “Extra” Class, Class I & II fruit packed in rows and layers:

<table>
<thead>
<tr>
<th>Range (g)</th>
<th>Weight difference (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-90</td>
<td>15</td>
</tr>
<tr>
<td>91-135</td>
<td>20</td>
</tr>
<tr>
<td>136-200</td>
<td>30</td>
</tr>
<tr>
<td>201-300</td>
<td>40</td>
</tr>
<tr>
<td>&gt; 300</td>
<td>50</td>
</tr>
</tbody>
</table>

• Class I fruit packed loose in packages/ sales packages:
Exceptions/ Reservations

- US Reservation: Due to differences in national legislation that allows uniformity by diameter up to 12.5 mm for all apples irrespective of their size and/or class.

- Apples of the varieties Bramley's Seedling (Bramley, Triomphe de Kiel) and Horneburger, the difference in diameter may amount to 10 mm.

- Apples of the varieties Bramley's Seedling (Bramley, Triomphe de Kiel) and Horneburger the difference in diameter may amount to 20 mm.

<table>
<thead>
<tr>
<th>Range (g)</th>
<th>Weight difference (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-135</td>
<td>35</td>
</tr>
<tr>
<td>136-300</td>
<td>70</td>
</tr>
<tr>
<td>&gt; 300</td>
<td>100</td>
</tr>
</tbody>
</table>

- No sizing uniformity requirement for Class II fruit.
IV. Provisions concerning tolerances

A. Quality tolerances

(i) “Extra” Class
• total tolerance of 5 per cent by number or weight
• within this tolerance maximum 0.5 per cent of produce of Class II quality

(ii) Class I
• total tolerance of 10 per cent by number or weight
• not more than 1 per cent in total may consist of produce satisfying neither the requirements of Class II quality nor the minimum requirements or produce affected by decay
IV. Provisions concerning tolerances

A. Quality tolerances...

(ii) Class II
• total tolerance of 10 per cent by number or weight
• not more than 2 per cent of produce affected by decay

B. Size tolerances

• All classes: a total tolerance of 10 per cent, by number or weight, of apples not satisfying sizing requirements
• tolerance may not be extended to include produce with a size:
• 5 mm below minimum diameter
• 10 g below minimum weight
V. Provisions concerning presentation
A. Uniformity

• 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

• uniformity also applies to colouring - Extra” Class

• a mixture of apples of distinctly different varieties may be packed together in a sales package, provided they are uniform in quality for each variety concerned

• visible part of package contents must be representative of entire contents
B. Packaging

• apples must be packed in such a way as to protect the produce properly

• sales packages of a net weight exceeding 3 kg shall be sufficiently rigid to ensure proper protection of produce

• materials used inside the package must be clean and not cause external or internal damage to produce

• use of materials, particularly of paper or stamps bearing trade specifications is allowed; also stickers

• packages must be free of all foreign matter
VI. Provisions concerning marking
• Each package (excluding sales packages) must bear the following particulars grouped on the same side legible and visible:

A. Identification
• Packer and/or dispatcher/shipper:
• Name and physical address (e.g. street/ city/ region/ postal code and if different from the country of origin the country) or a code mark officially recognized by the national authority
• 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
• code mark should be preceded by the ISO 3166 (alpha) country/area code of the recognizing country, if not the country of origin
VI. Provisions concerning marking...

B. Nature of produce
- "Apples" if the contents are not visible from the outside
- Name of the variety. In the case of a mixture of apples of distinctly different varieties, names of the different varieties
- name of variety can be replaced by a synonym
- the name of the mutant or a trade name can only be given in addition to the variety or the synonym

C. Origin of produce
- Country of origin and optionally district where grown, or national, regional or local place name
- mixture of distinctly different varieties of apples of different origins - indication of each country of origin next to name of the variety
VI. Provisions concerning marking...

D. Commercial specifications

• Class
• Size, or for fruit packed in rows/ layers - number of units
• If identification is by 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, as 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)
VI. Provisions concerning marking...
Codex standards comparison to UNECE standards

- no variety list with **color requirements** per variety and class, different percentage color requirements A, B, C, D
- condensation
- **new containers** required in addition to clean
- **russetting** percentages for extra class, class 1 and 2
- tolerances for bitterpit, unhealed broken cracks, pest damage
- **decay percentages** of extra class more lenient
- no reference to **tolerances exceeding standards by 2 consecutive classes**
- **uniformity in diameter** requirements more tolerable
- **difference by weight** of apples more lenient
- Codex stipulates **food hygiene requirements** including contaminants
- Codex standards makes reference to **food labelling requirements**
Thank you
Product quality and food safety:

YOUR PASSPORT TO INTERNATIONAL TRADE

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COMMITTED TO
QUALITY AND SERVICE
EXCELLENCE

OFFICIAL CERTIFICATION AGENCY

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