

# 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

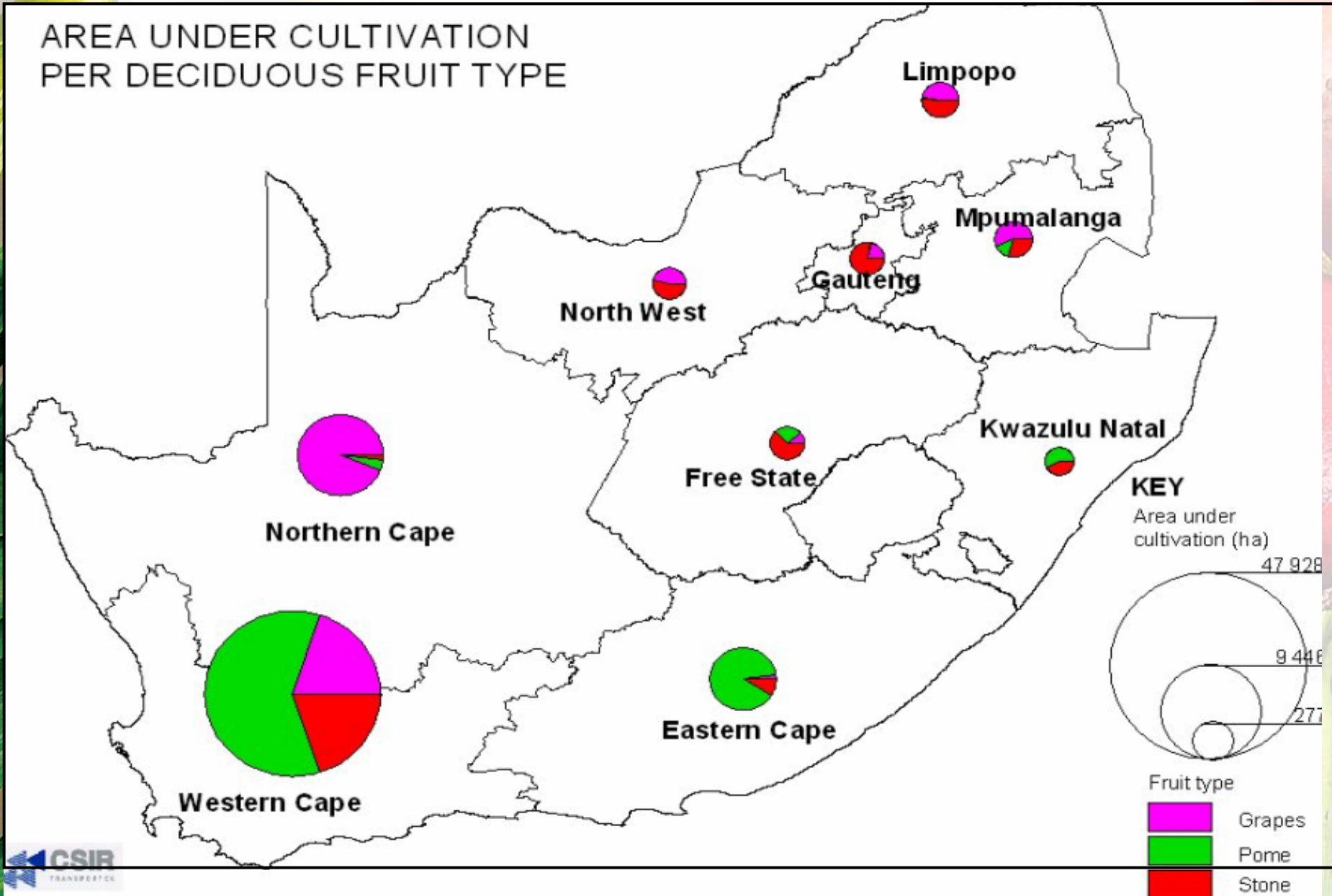


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# Production areas - South Africa

AREA UNDER CULTIVATION  
PER DECIDUOUS FRUIT TYPE



# South African Cultivars

African Red (African Carmine™)

Autumn Blush

Blushed Golden

Braeburn

Cripps' Pink (Pink Lady®)\*

Cripps' Red (Sundowner®)\*

Empire

Fiesta

Gala

Gingergold

Golden Delicious

Granny Smith

Autumn Blush

Joburn (Red Braeburn™)

Jonagold

Jonagored

Jonathan

Lady Williams

Spur ( Red Spur)

Panorama Golden (Golden Delicious)

Royal Beaut

Splendour

Starking (Starking Delicious)

Starkrimson (Starkrimson Delicious)

Tenroy (Royal Gala™)

Topred (Topred Delicious)

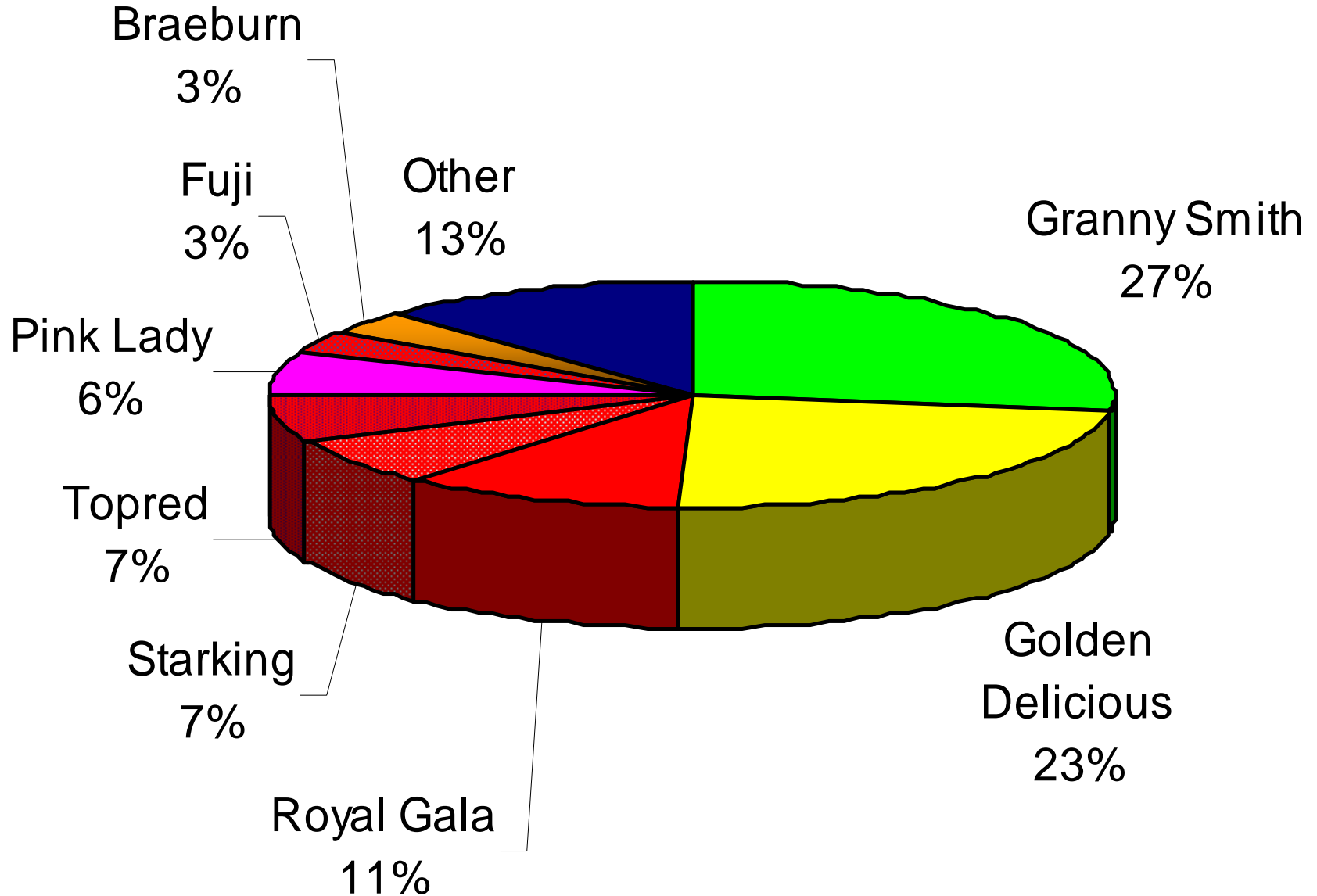
Imperial



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# Cultivar production - South African apples



# Exports

| Cultivar         | Percentage | Quantity (in tons) |
|------------------|------------|--------------------|
| Granny Smith     | 27         | 70 030             |
| Golden Delicious | 23         | 59 655             |
| Royal Gala       | 11         | 28 531             |
| Starking         | 7          | 18 156             |
| Top Red          | 7          | 18 156             |
| Pink Lady        | 6          | 15 562             |
| Fuji             | 3          | 7 781              |
| Braeburn         | 3          | 7 781              |
| Other            | 13         | 33 718             |

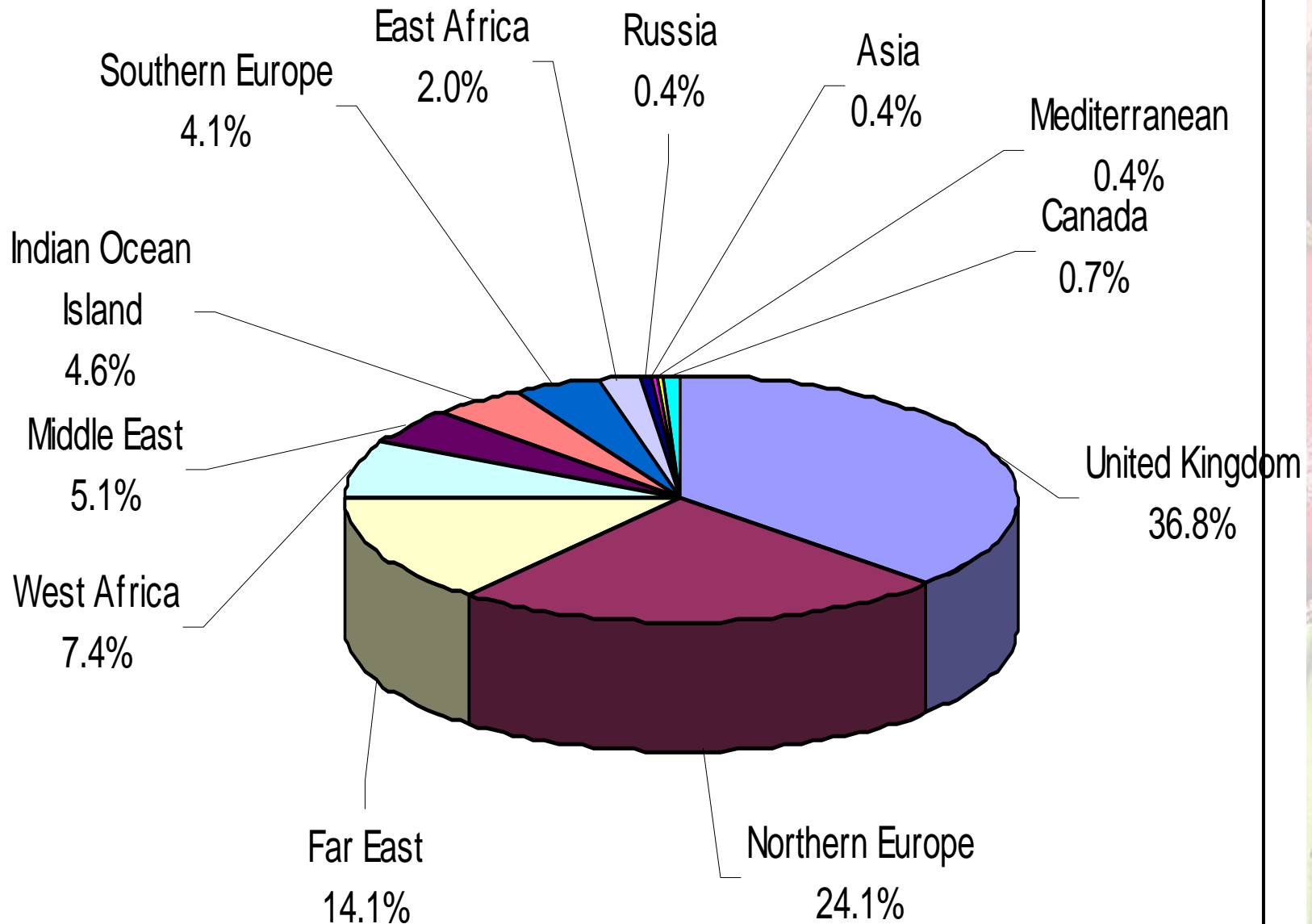
- 37% (259 370 tons) of total apple production in South Africa is exported
- Remainder of apple production used for processing as derivative products; 32% bought by households.



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# Export countries 2006 - 2010



# 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



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# 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



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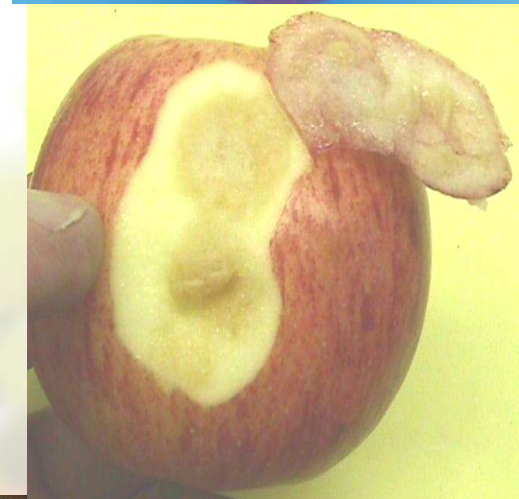
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## A. MINIMUM REQUIREMENTS

- intact

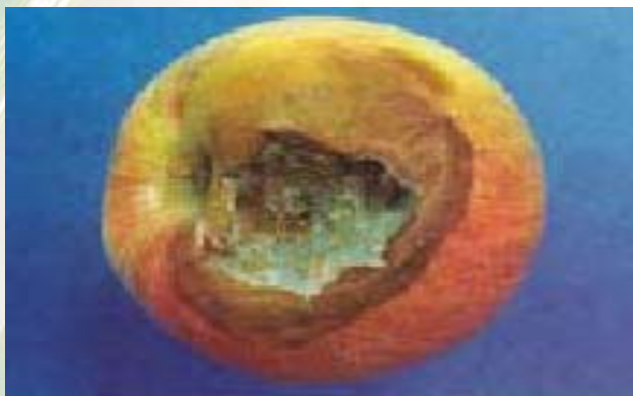


- sound;



## A. MINIMUM REQUIREMENTS

- rotting or deterioration excluded from “sound”

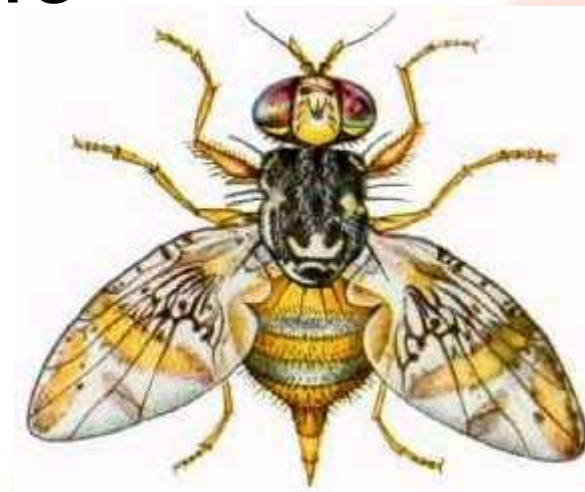


- clean, practically free of any visible foreign matter →



## 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



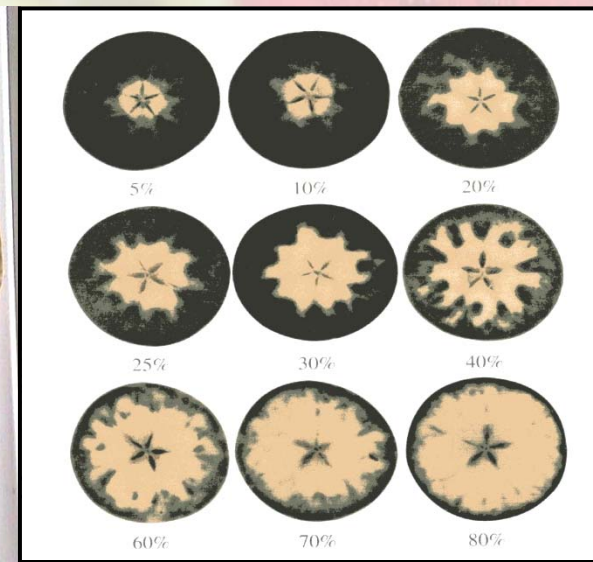
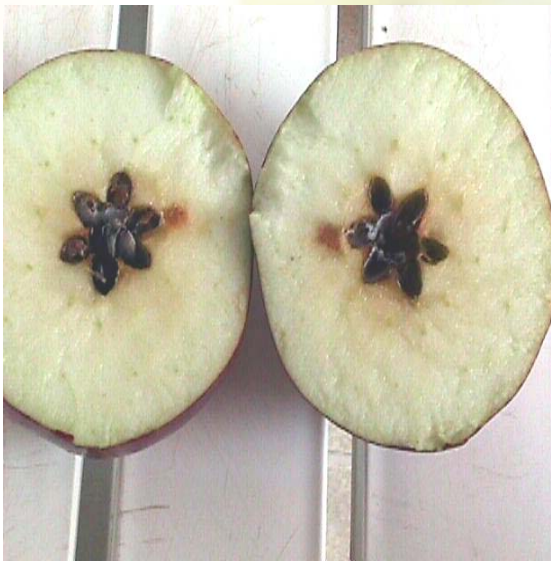
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## A. MINIMUM REQUIREMENTS...

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



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## 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 russeting



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## C. CLASSIFICATION – EXTRA CLASS



**Limit – very slight superficial defects**



**Limit allowed-Brown patches of russeting not exceeding stem cavity**



**Limit-Slight isolated traces of russeting**



**Limit-Russeting characteristic to variety ( R )**

## C. CLASSIFICATION...

### (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 cm<sup>2</sup> and not discoloured
- **slight skin defects** not extending over more than:
  - 2 cm in length for defects of elongated shape
  - 1 cm<sup>2</sup> of the total surface area for other defects with the exception of scab not extending over more than 0.25 cm<sup>2</sup> cumulative in area



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## C. CLASSIFICATION...

### (i) Class I...

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



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## 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 russeting.



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## C. CLASSIFICATION – CLASS 1



**Limit - slight defect in shape**



**Slight defects in colouring  
due to sunburn**



**Slight bruising not exceeding 1 cm<sup>2</sup>  
in area and flesh not discoloured  
Limit allowed**



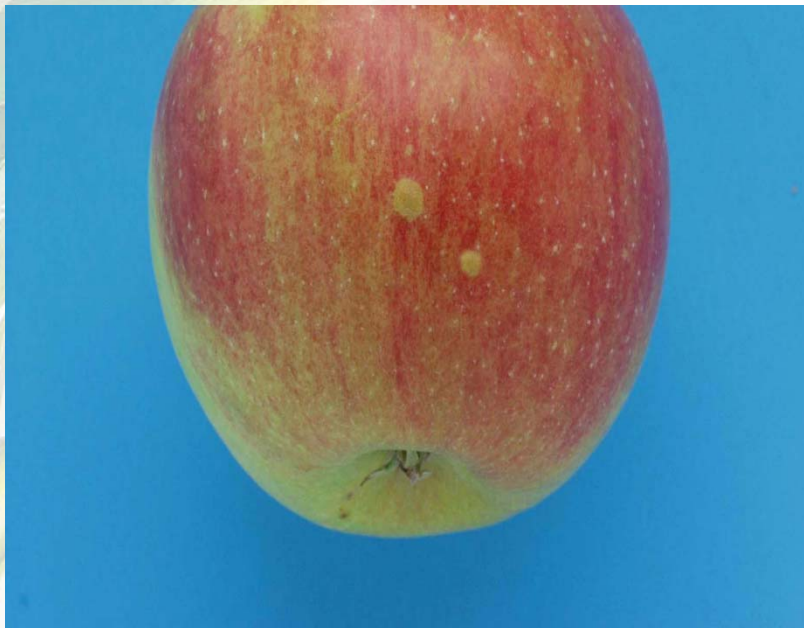
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## C. CLASSIFICATION – CLASS 1



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



**Limit -  
Slight skin defects total surface area not exceeding 1 cm<sup>2</sup>**



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# C. CLASSIFICATION – CLASS 1



Limit allowed hailmarks



Limit allowed -Slight skin defects due to Scab not exceeding 0.25 cm<sup>2</sup>



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## 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 cm<sup>2</sup> in area, may be slightly discoloured
- skin defects not extending over more than:
  - 4 cm in length for defects of elongated shape
  - 2.5 cm<sup>2</sup> total surface area for other defects, with the exception of scab not extending over more than 1 cm<sup>2</sup> cumulative in area



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## C. CLASSIFICATION...

### (iii) Class II...

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



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## C. CLASSIFICATION – CLASS 2



## C. CLASSIFICATION – CLASS 2



## C. CLASSIFICATION – CLASS 2



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



**Limit allowed - Thin net like and dense russeting not exceeding 1/3 of fruit surface area**



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## 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 B
- 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



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## C. CLASSIFICATION - COLOR

### Extra Class



C

**Minimum surface colour  
for red coloured varieties:**

**Colour group A: 3/4**

**Colour group B: 1/2**

**Colour group C: 1/3**



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## C. CLASSIFICATION – COLOR - **Extra Class**

Same fruit: front and back face



A



A



B



B

# C. CLASSIFICATION - COLOR

## Class 1

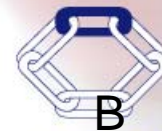


**Minimum surface colour  
for red coloured varieties:**

**Colour group A: 1/2**

**Colour group B: 1/3**

**Colour group C: 1/10**



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# 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

| Variety            | Mutant                       | Synonyms | Trade names | Colour group | Russeting |
|--------------------|------------------------------|----------|-------------|--------------|-----------|
| Crimson Bramley    |                              |          |             |              |           |
| Cripps Pink        |                              |          | Pink Lady®  | C            |           |
|                    | Mutants of Cripps Pink, e.g. |          |             | C            |           |
|                    | Pink Rose                    |          | Pink Kiss®  | C            |           |
|                    | Rosy Glow                    |          | Pink Lady®  | C            |           |
|                    | Ruby Pink                    |          |             | C            |           |
| Cripps Red         |                              |          | Sundowner™  | C12          |           |
| Splendour          |                              |          |             | A            |           |
| St. Edmunds Pippin |                              |          |             |              | R         |

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](http://www.oecdbookshop.org).

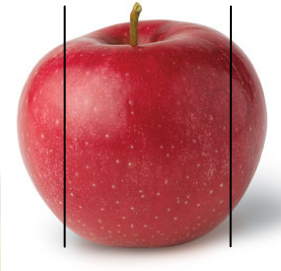


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### III. Provisions concerning sizing

- 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  $10.5^{\circ}\text{Brix}$  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<sub>5</sub>
- 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:

| <i>Range (g)</i> | <i>Weight difference (g)</i> |
|------------------|------------------------------|
| 70-90            | 15                           |
| 91-135           | 20                           |
| 136-200          | 30                           |
| 201-300          | 40                           |
| > 300            | 50                           |

- Class I fruit **packed loose in packages/ sales packages:**



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## 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

| Range (g) | Weight difference (g) |
|-----------|-----------------------|
| 70-135    | 35                    |
| 136-300   | 70                    |
| > 300     | 100                   |

- no sizing uniformity requirement for Class II fruit



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## 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



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## **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



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## 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



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## 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



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## **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



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## 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)



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## 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
- **russeting** 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**



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**Thank you**



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Product quality and food safety:

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