



**UNECE Citrus Standard
Cape Town
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PPECB

professionalism · accountability · passion · integrity · confidence



Content...

- **Background to SA Citrus industry**
- **UNECE Citrus standard elaboration:**
 - **Varieties**
 - **Minimum requirements**
 - **Maturity requirements**
 - **Classification**
 - **Sizing**
 - **Tolerances**
 - **Presentation**
 - **Marking requirements**

Industry background...

First recorded exports 1907

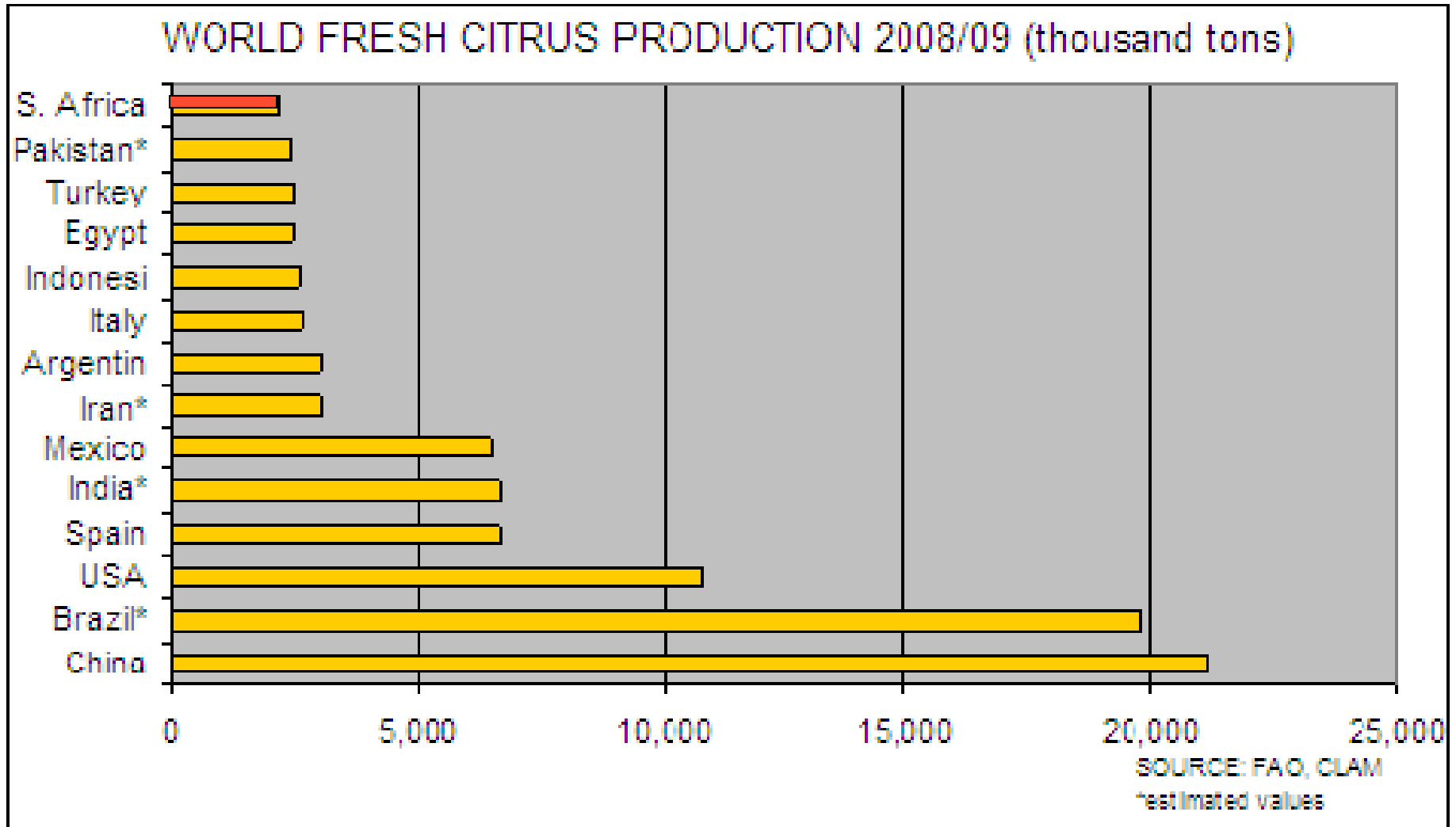
- 1998 – 754 000 pallets
- 2003 – 1 million pallets
- 2008 – 1,3 million pallets

Industry background cont...

- 1480 production units
- ± 57000 ha in total
- ± 185 pack houses
- Total production - 1,8 million metric tons
 - Exports - 64%
 - Processed - 19%
 - Local consumption - 17%

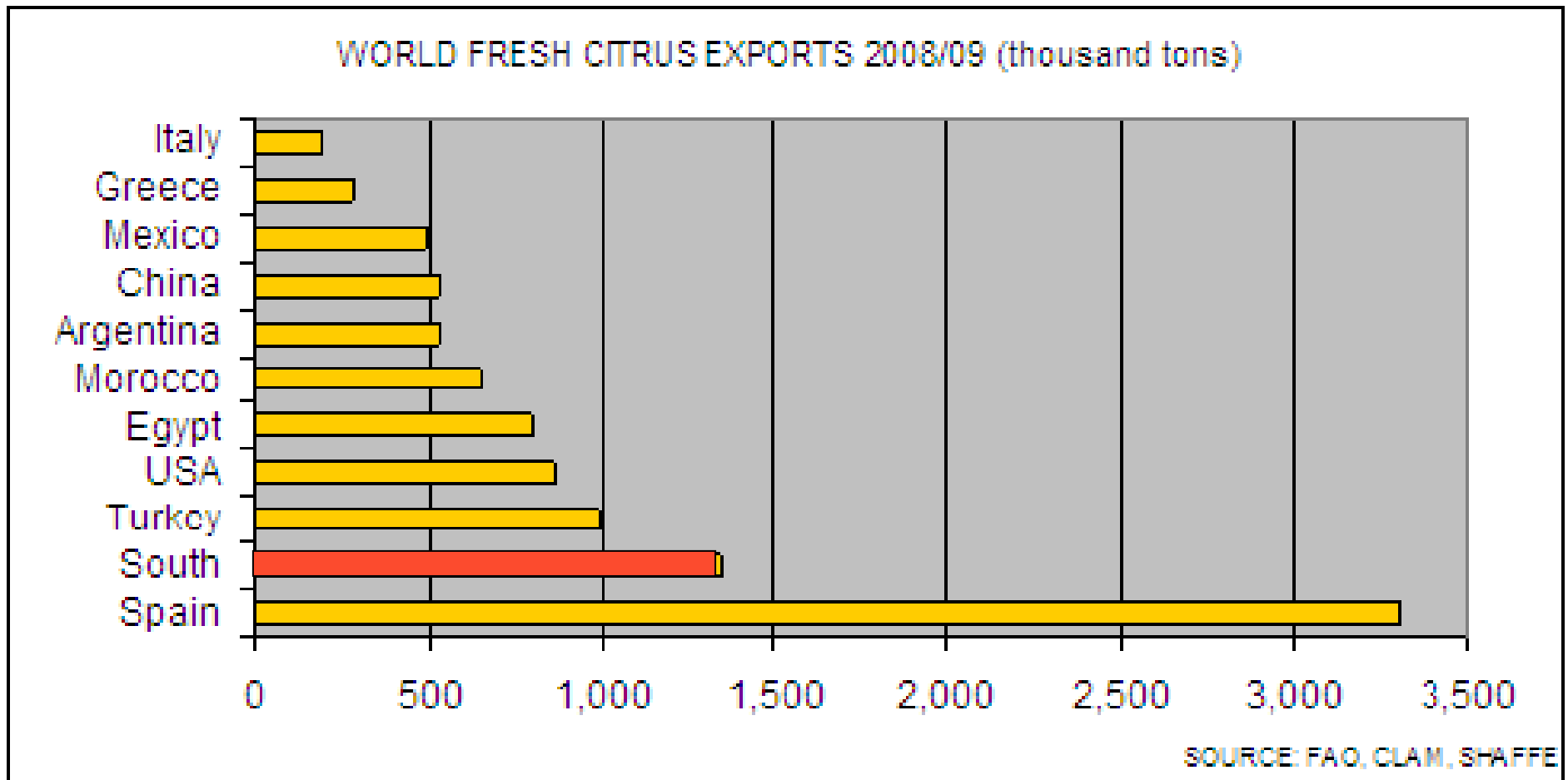
Statistics

- **SA Production world ranking – 14th**

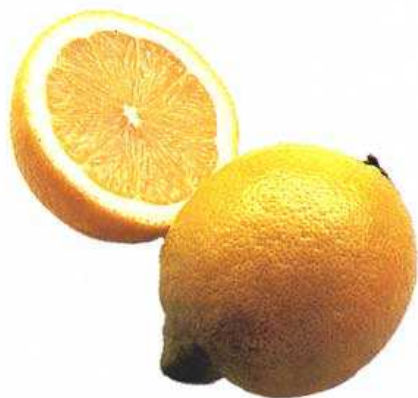
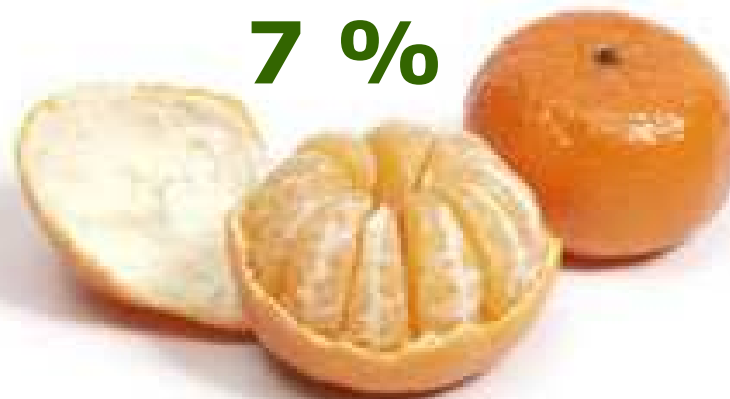


Statistics...

- **SA Export world ranking – 2nd**


















Citrus Big Five...

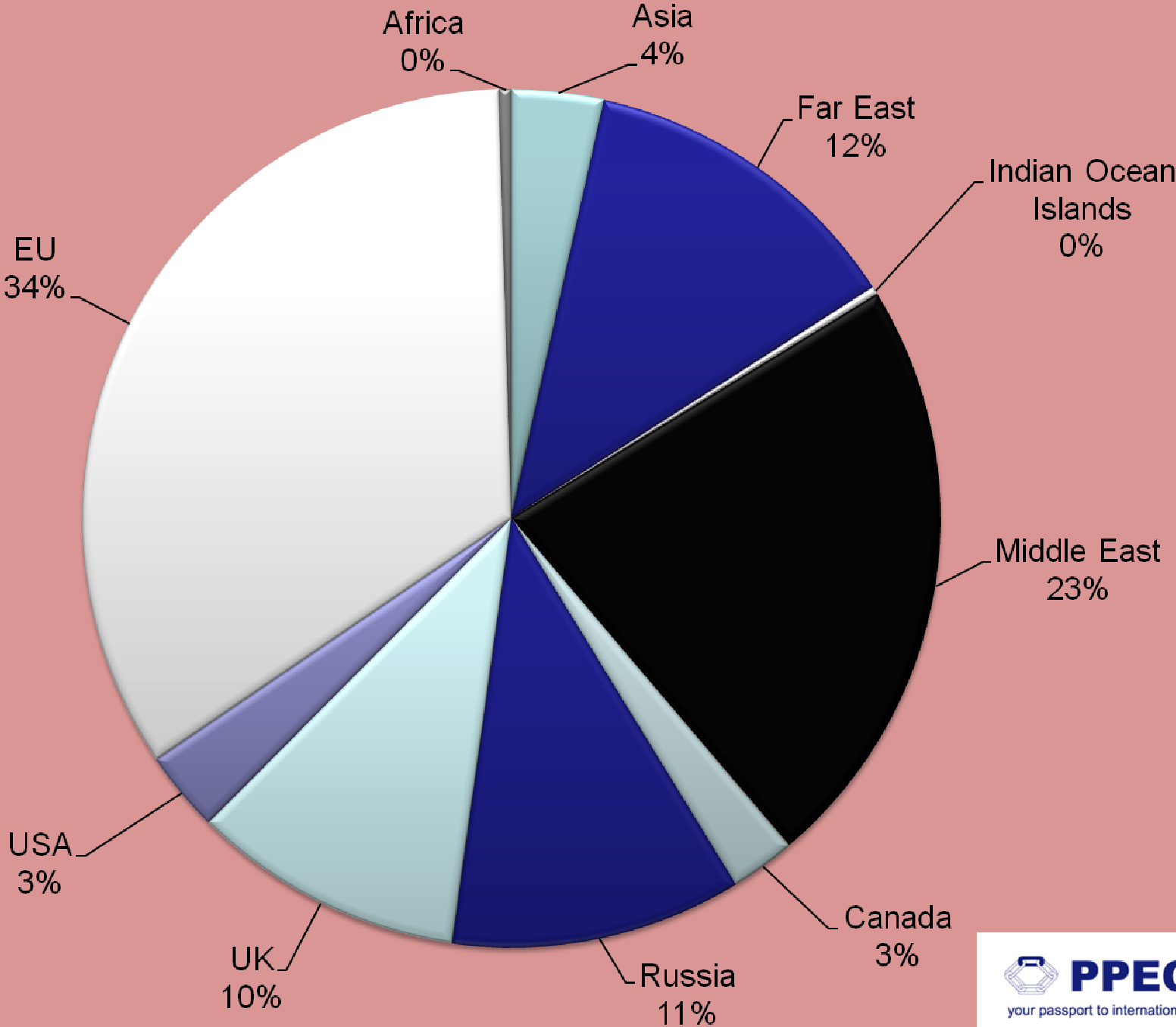


9 %

SA Citrus fruit availability...

SA Citrus fruit availability calendar												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Oranges												
Grapefruit												
Lemons												
Soft citrus												

Citrus Market Distribution



Citrus Fruit - UNECE Std FFV-14

concerning the
marketing and
commercial quality control
of citrus fruit.



Definition of produce...

This standard applies to citrus fruit, to be supplied **fresh** to the consumer



Citrus Varieties...



lemons - *Citrus limon*



Persian limes - *Citrus latifolia*
(Yu. Tanaka) Tanaka which is a large fruited acid lime known also as Bearss, Tahiti and hybrids thereof.

Citrus Varieties...



Mexican limes - *Citrus aurantiifolia* (Christ.) Swingle, also known as key limes and sour limes and hybrids thereof.



Indian sweet limes, Palestine sweet limes – *Citrus limettioides* Tanaka

Citrus Varieties...



mandarins (*Citrus reticulata* Blanco), including satsumas (*Citrus unshiu* Marcow.), clementines (*Citrus clementina* hort. ex Tanaka), common mandarins (*Citrus deliciosa* Ten.) and tangerines (*Citrus tangerina* hort. ex Tanaka) grown from these species and its hybrids

Citrus Varieties...



oranges of varieties (cultivars) grown from the species *Citrus sinensis* (L.) Osbeck

Citrus Varieties...



grapefruit of the varieties (cultivars) grown from the species *Citrus paradisi* Macfad. and its hybrids



pummelos or Shaddock of varieties (cultivars) grown from the species *Citrus maxima* (Burm.) Merr. and their hybrids.



citrus fruit for industrial processing is excluded...

Provisions concerning quality...

purpose of the standard is to define quality requirements at the **export control** stage after preparation and packaging...



Provisions concerning quality...

- however, if applied at stages following export products may show:
- a slight lack of freshness
- in Class 1 and 2 – slight deterioration due to their development (post harvest) and their tendency to perish



Minimum requirements...



- intact
- free of bruising and/or extensive healed over cuts

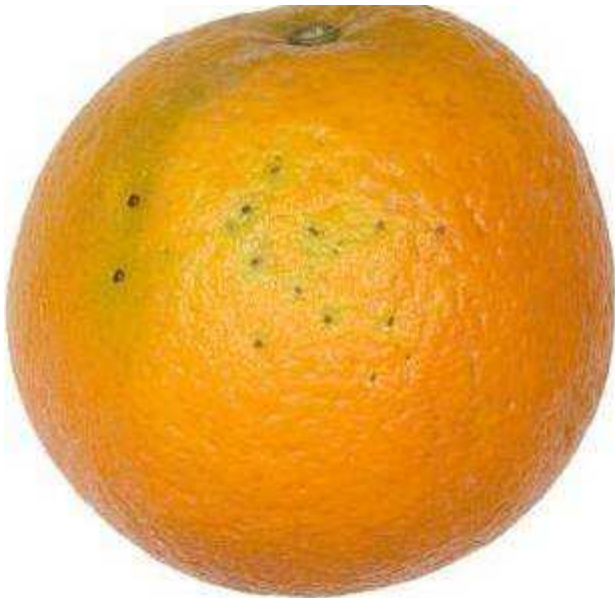


- sound; produce affected by rotting or deterioration such as to make it unfit for consumption is excluded

Minimum requirements...



- clean, practically free of any visible foreign matter



- practically free from pests

Minimum requirements...



free from damage caused by
pests affecting the flesh



Minimum requirements...



- free of signs of internal shrivelling



- free of damage caused by low temperature or frost

Minimum requirements...

- free of abnormal external moisture
- free of any foreign smell and/or taste
- the development & condition of the fruit must be such:
 - to withstand transportation and handling
 - arrive in satisfactory condition



Maturity requirements...

Fruit must have an appropriate degree of ripeness taking into account the variety, picking time & growing area

Maturity for the purpose of this std is defined by:

- Minimum juice content
- Minimum sugar content
- Minimum sugar/acid ratio



Colouring



Maturity requirements...

Citrus type	Min. Juice (%)	Min. Sugar	sugar:acid	Colouring
Lemons	20			Typical of variety, green coloured fruit allowed
Satsumas	33		6.5:1	Typical of variety on at 1/3 of the fruit
Clementines	40		7.0:1	
Other Mandarins & their hybrids	33		7.5:1	
Blood oranges	30		6.5:1	Typical of variety. Fruit with light green colour on < 1/5 of the fruit are allowed. Oranges produced in areas with high temp's and high relative humidity during the development period may have a green colour on > 1/5 of the fruit
Navels	33		6.5:1	
Other orange varieties	35		6.5:1	
Mosambi, Sathgudi & Pacitan > 1/5 green colour	33			
Other Orange varieties > 1/5 green colour	45			
Grapefruit and hybrids	35			Must be typical of variety. Greenish colour allowed, Oroblanco - green
Oroblanco Grapefruit		9		
Pummelos (Shaddocks) and hybrids		8		Typical on 2/3 of the fruit

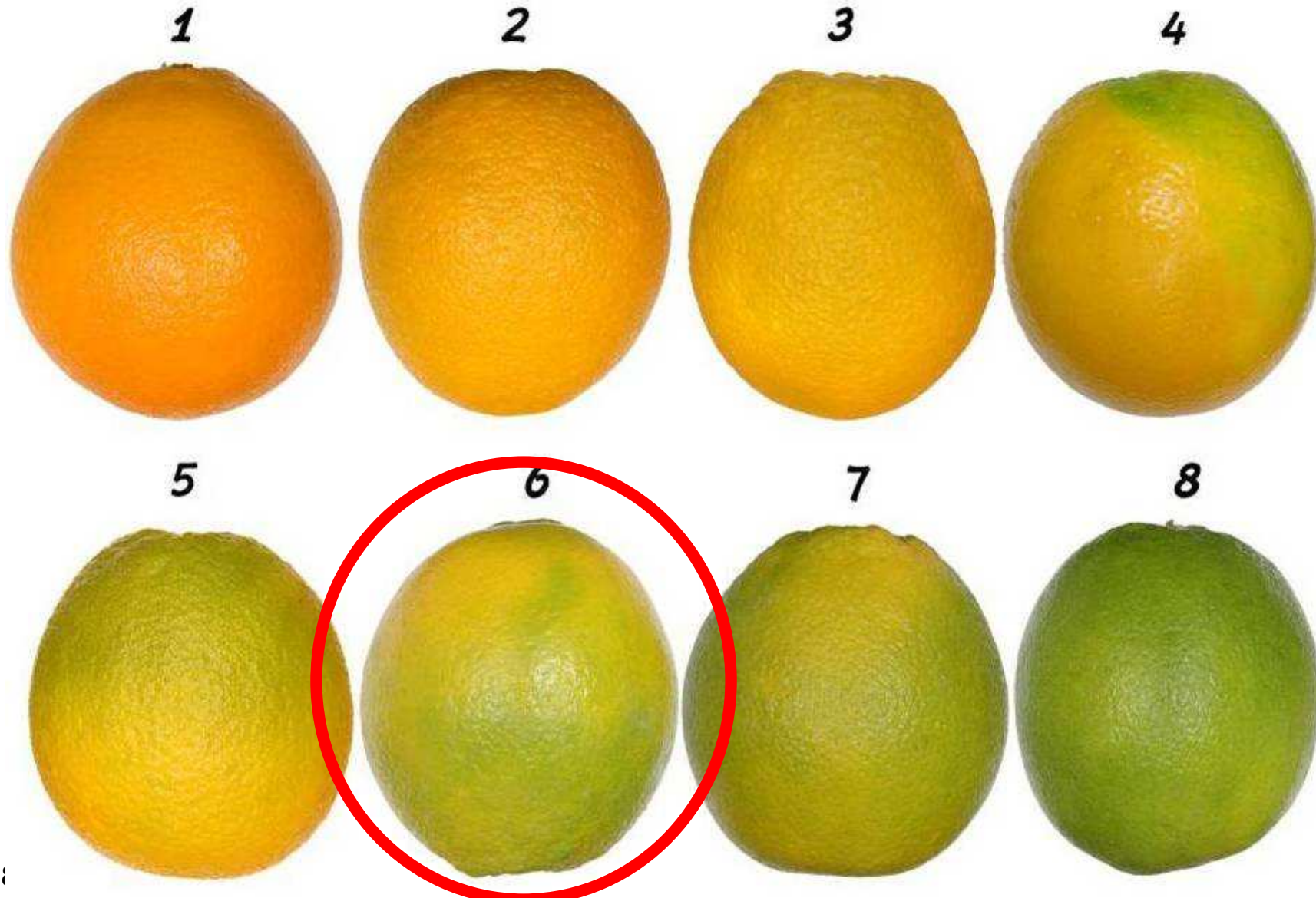
Maturity requirements...

Colour:



the degree of colouring shall be such that, following normal development the citrus fruit shall reach the colour typical of the variety at their destination point

Colour: one of the most important quality/marketing criteria...



Colour: Lemons...



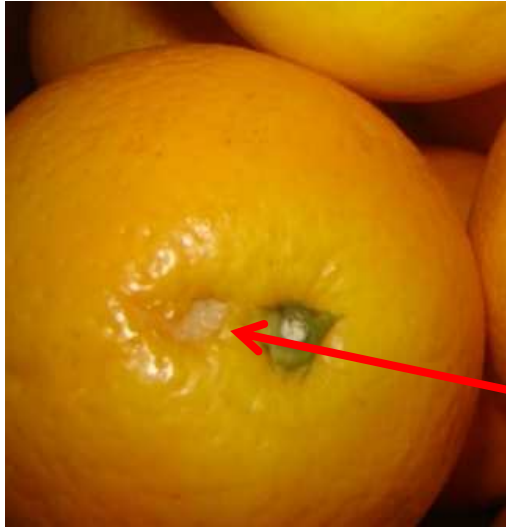
Allowed in Extra Class, Class 1, Class 2

Colour: Grapefruit...



Allowed in Extra Class, Class 1, Class 2

Minimum requirements...



- must have been carefully picked – unacceptable



- de-greening is allowed - unacceptable

Classification

Three classes:

- Extra Class
- Class 1
- Class 2

Out of Grade



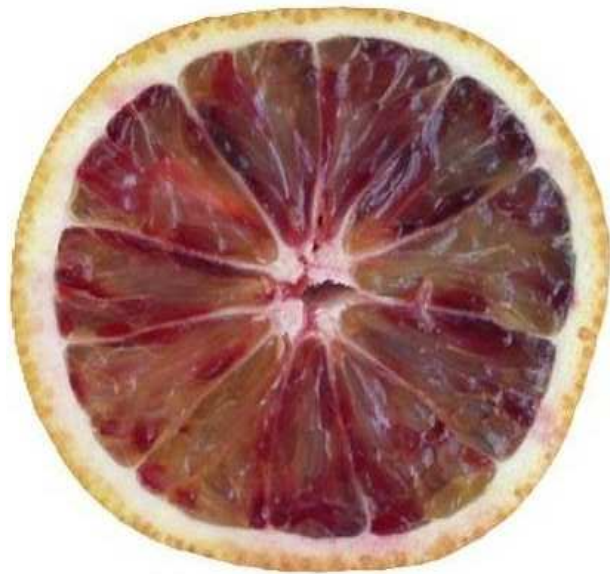


Limit allowed – Extra Class

Extra Class

superior quality
characteristic of the
variety/commercial
type

free from defects with
the exception of very
slight superficial
defects



Class 1
good quality
characteristic of the
variety/commercial type
slight defects are
allowed
must not affect the
general appearance,
quality, keeping quality
and presentation

Or Mandarin – stylar rings



Class 1

characteristic of the variety/commercial type



Class 1

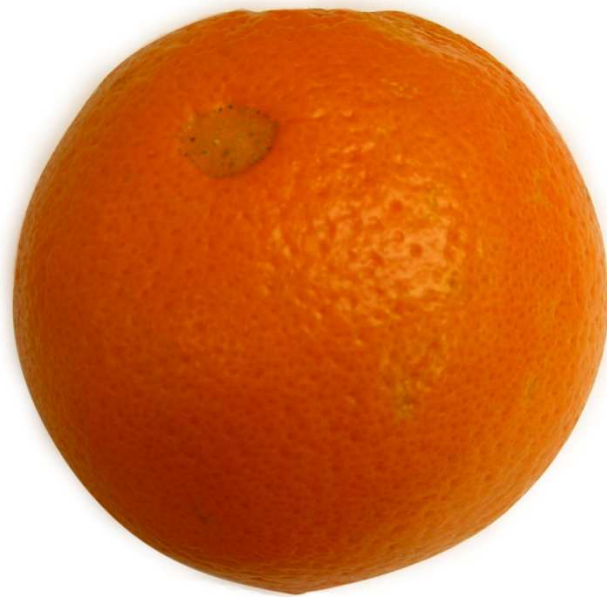
defects allowed:

a slight defect in shape

slight defects in
colouring

slight skin defects





Class 1
defects allowed:

slight skin defects



Class 1 defects allowed:

ridging



Limit allowed – Class 1

oleocellosis



Limit allowed – Class 1



Class 1
slight healed defects
due to a mechanical
cause including **hail**
damage, rubbing,
damage from handling



Class 1 defects allowed:

oleocellosis



stem-end breakdown

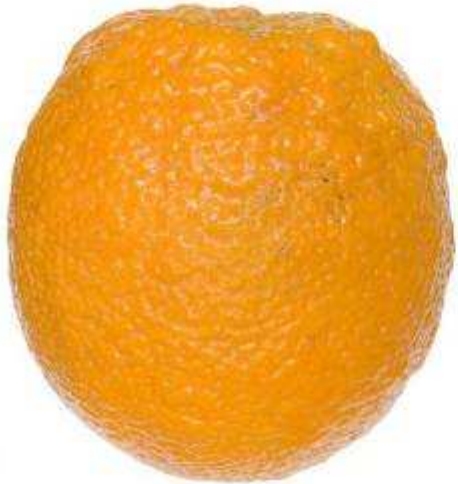
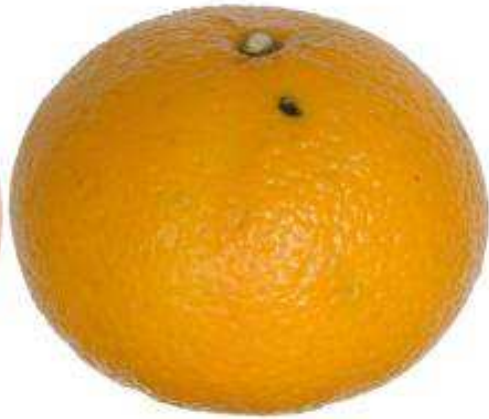
Class 2

fruit that do not qualify as Extra Class or Class 1 but satisfy the minimum requirements





Class 2
defects allowed:
defects in shape
defects in colouring
skin defects



Class 2

defects allowed:

healed defects due to a mechanical cause -hail damage, rubbing,

damage from handling

superficial healed skin

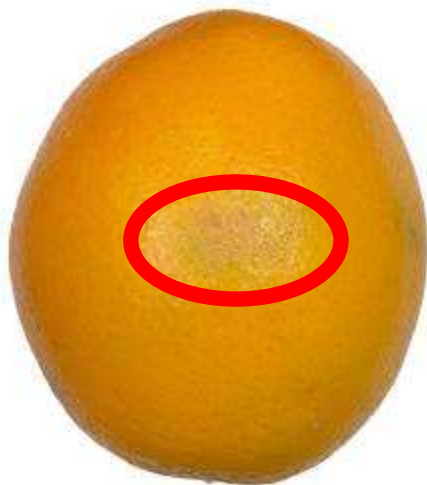
alterations

rough skin

slight pericarp

detachment

Class 2 defects allowed:

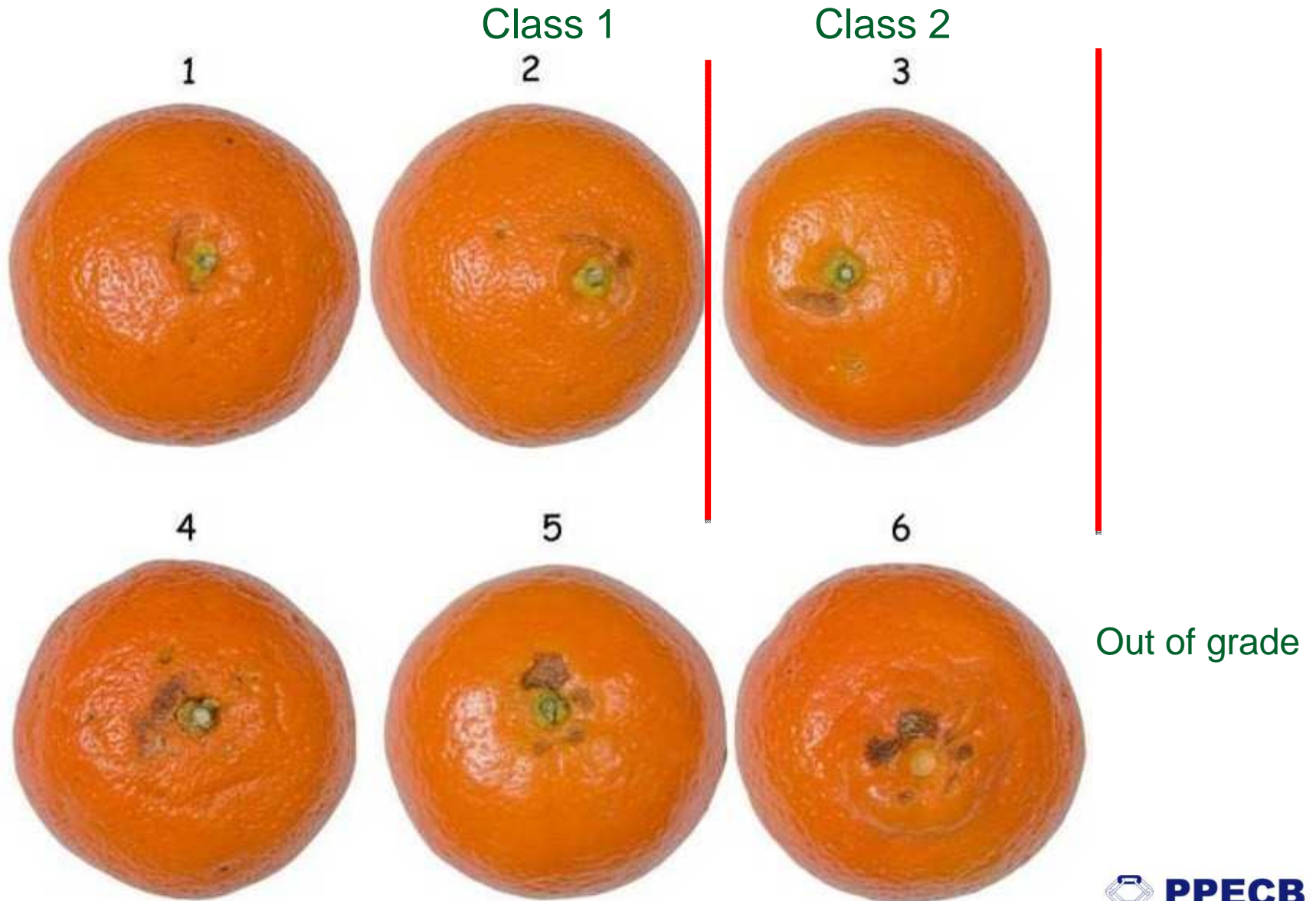


oleocellosis



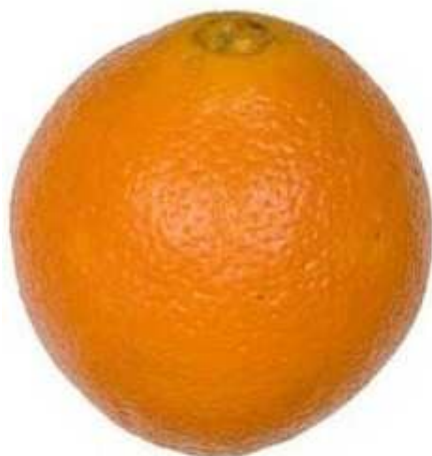
torn navel

stem end breakdown



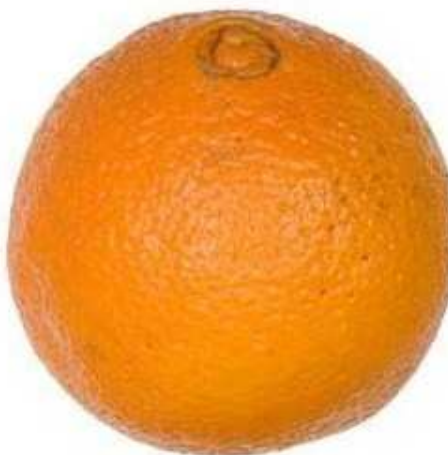
protruding navels

Extra Class **1**



4

Class 1
2

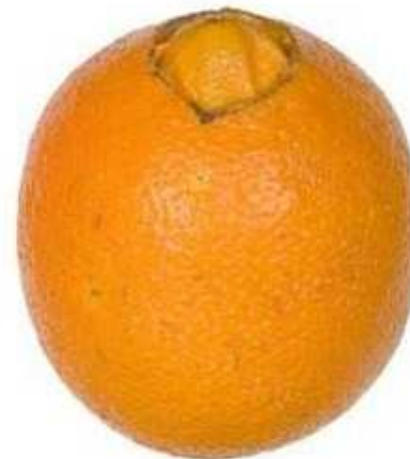
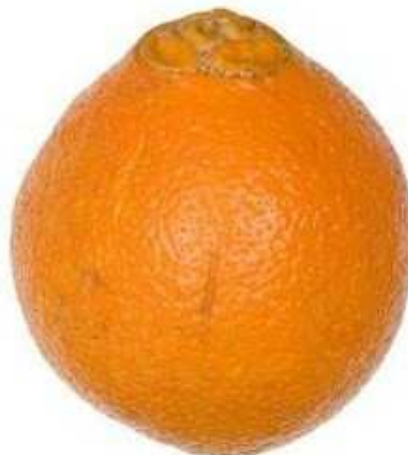


5

Class 2
3



6



Out of grade

superficial dark silver scurfs



Extra Class



Class 1



Class 2

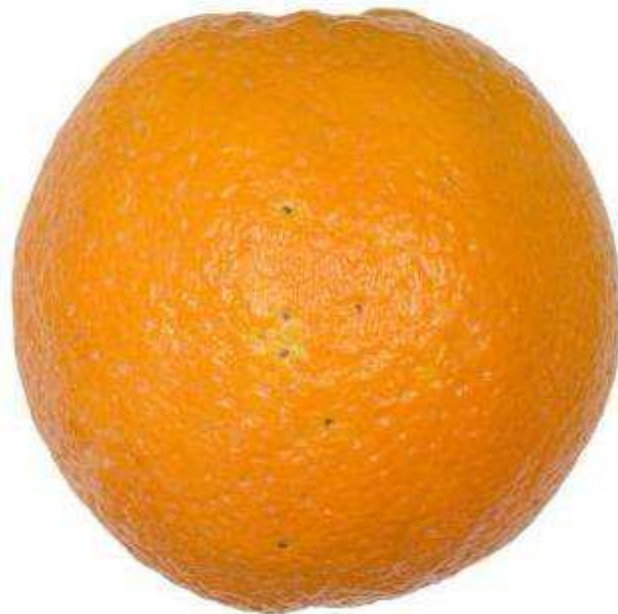


Out of grade

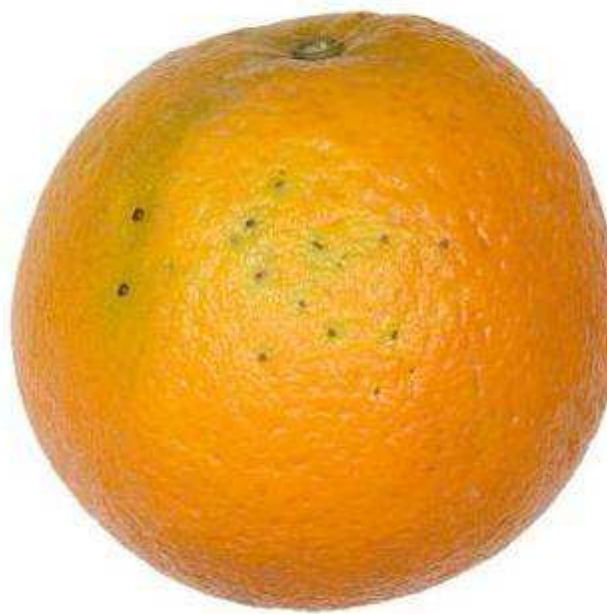
scale insects...

Presence of scale insects 2

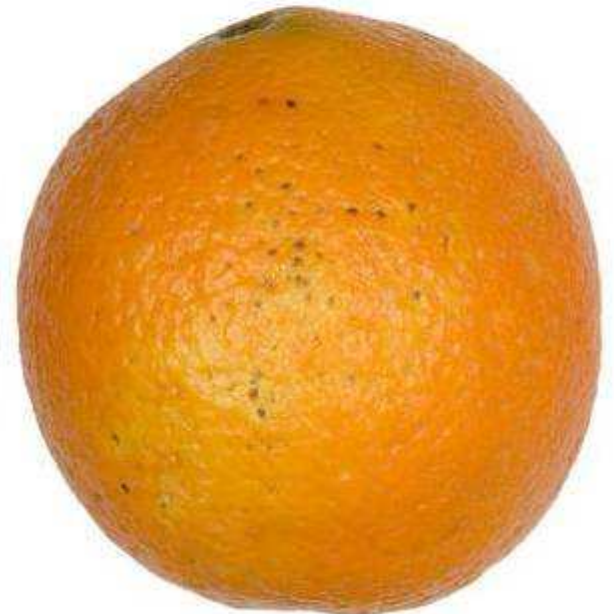
1



2



3



Out of Grade



Out of Grade



Size

determined by the maximum diameter of the equatorial section of the fruit

minimum sizes:

Lemons	45 mm
Limes	42 mm
Satsumas, other mandarin varieties and their hybrids	45 mm
Clementines	35 mm
Oranges	53 mm
Grapefruit and its hybrids	70 mm
Pummelos and their hybrids	100 mm

Uniformity in size

two options to ensure uniformity in size

option (a):

maximum difference in diameter between fruit in the same package shall be limited to:

10mm	if diameter of smallest fruit $< 60\text{mm}$
15mm	if diameter of smallest fruit $\geq 60\text{mm}$ but $< 80\text{mm}$
20mm	if diameter of smallest fruit $\geq 80\text{mm}$ but $< 110\text{mm}$
no limit	if diameter of fruit $\geq 110\text{mm}$



Option (b) use size codes & ranges

Oranges (example):

Size Code	Diameter in mm
0	92 - 110
1	87 - 100
2	84 - 96
3	81 - 92
4	77 - 88
5	73 - 84
6	70 - 80
7	67 - 76
8	64 - 73
9	62 - 70
10	60 - 68
11	58 - 66
12	56 - 63
13	53 - 60

uniformity in size is achieved by using size scales

or....

Uniformity in size – Option (b) continued...

Size Code	Diameter in mm
0	92 – 110
1	87 – 100
2	84 – 96
3	81 – 92
4	77 – 88
5	73 – 84
6	70 – 80
7	67 – 76
8	64 – 73
9	62 – 70
10	60 – 68
11	58 – 66
12	56 – 63
13	53 – 60

for fruit in **bulk bins** and **max. 5kg bags**, the difference between the smallest and the largest fruit in the same package must not exceed the range obtained by grouping **three** consecutive size codes in the size scale.



Non-uniform size

Tolerances...

At all marketing stages, tolerances in respect of quality and size shall be allowed in each lot for produce not satisfying the requirements of the class indicated.



Quality tolerances...

Extra Class:

5% of fruit not meeting Extra Class requirements but meeting Class 1 is allowed including max. 0.5% of Class 2

Class 1:

10% of fruit not meeting Class 1 requirements but meeting Class 2 is allowed incl. 1% of fruit outside Class 2 or the min. requirements or of fruit affected by decay

Class 2:

10% of fruit not meeting Class 2 requirements nor the minimum requirement is allowed incl. 2 % of fruit affected by decay

Size tolerances...

For all Classes, 10% tolerance to the size immediately below and/or above is allowed, but must comply to the following absolute minima, i.e. the tolerance does not apply below this threshold

Lemons	43 mm
Limes	40 mm
Satsumas, other mandarin varieties and their hybrids	43 mm
Clementines	34 mm
Oranges	50 mm
Grapefruit and its hybrids	67 mm
Pummelos and their hybrids	98 mm

Presentation uniformity requirements...

the contents of each package must be uniform and contain only citrus fruit of the same **origin, variety or commercial type, quality and size**, and appreciably of the same degree of **ripeness** and development

for "Extra" Class, uniformity in colouring is required

mixed citrus are allowed in sales units but must be uniform in quality, and for each type uniform in variety and origin

Non- uniform colour



Packaging...



must protect the fruit properly

materials used inside must be clean

individual stickers are allowed
but suitable glue must be used



for wrapping - thin, dry, new
and odourless paper

must be free of foreign matter,
short twigs are allowed

Presentation...



fruit may be presented:

arranged in layers in packages

not arranged in layers in packages or in bulk bins; only Classes 1 and 2

direct sales packages weighing less than 5kg

Marking requirements on each package...

Name and physical **address** of packer and/or
dispatcher/shipper

or

a **code mark** officially recognized by the national
authority

common name of the species if not visible from
outside

variety in the case of oranges



Marking requirements on each package...

For the Mandarins group:

Satsumas: “*Satsumas*” may be followed by the variety

Clementines: “*Clementines*” variety may be included

- for seedless Clems – “*Seedless*”

- for Clems with 1 to 10 seeds – “*Clementines*”

- for Clems with > 10 seeds – “*with seeds*”

Other Mandarins and their hybrids: name of the variety

For grapefruit, pummelos & their hybrids – “pink or red where appropriate



Marking requirements on each package...

country of origin, growing region is optional
in case of mixed citrus in sales unit – each country

class

size expressed as

- minimum and maximum size in mm; or
- size code(s)

count is optional

post harvest treatment (optional, based on legislation
of importing country)





Postharvest treatment

Thank you



PPECB
creating world-wide confidence in
South African perishable export
products