

## OLIVE OIL PROCESSING COURSE

### Receival Area Fruit Classification & Sampling Washing – Storage



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### Processing Plant Manager

- Maximise oil yields.
- Minimise production costs.
- Obtain maximum quality oils.
- Make the most cost effective decisions at all times.
- Liaise with the grove manager/s.
- Liaise with marketing department.



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### Fruit receival



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### Fruit receival





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### Fruit receival





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### Fruit receival

Receival document

Owner:	
Date:	
Time:	
Harvest:	
Information	
Variety:	
Fruit Temperature:	
Box type:	
Box size:	
Weight:	
Notes:	
Others:	
Perk registration:	
I will store my oil in the Botton Olives facilities	
YES/NO	
I brought my own storage containers	
YES/NO	
I have observed all withholding particles	
YES/NO	
Owner signature: _____	
TO BE FILLED BY THE PROCESSING PLANT ASSISTANT	
Batch number: _____	





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### Visual inspection: Soft Nose

Acidity



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### Visual inspection: Frost damage

Acidity  
Peroxides



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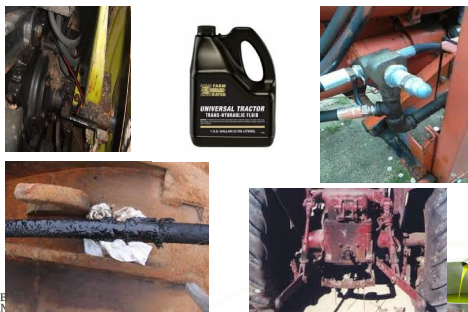
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### Visual inspection: Cross-contaminations



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### Presence of MOO

PHOTO CHART FOR MATERIALS OTHER THAN OLIVES (MOO)  
CLASSIFICATION AT FRUIT RECEIVAL

MOO: 0  
(<2.5% MOO)

MOO: 1  
(2.5% - 7.5% MOO)

MOO: 2  
(7.5% - 12.5% MOO)

MOO: 3  
(12.5% - 17.5% MOO)

Source: Boundary Bend Olives

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### Presence of MOO

Optimal:	< 5.0% (0-1)
Good:	5.0-15.0% (2-3)
Dangerous:	15.0-25.0% (4-5)
Not acceptable:	> 25.0%

- Feedback to grove manager about harvesters.
- Avoid astringent leaf flavours in the oil (More than 1% MOO).
- Avoid problems with washing equipment.

Leaves and branches should be removed at farm level!

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### Fruit temperature

**Fusty Musty**

**Acidity**

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### Fruit Temperature



Depth (cm/inches)	Temperature (°C/°F)
0	22/72
10/4	38/100
30/12	45/113
50/20	42/108
80/32	45/113
120/48	32/90
150/60	32/90



Source: Boundary Bend Olives

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### Fruit Temperature

Optimal  
Good  
Increasing risk  
Quality affected  
Not acceptable

< 5°C (9°F) above air T°  
5-10° (9-18°F) above air T°  
10-15° (18-27°F) above air T°  
15-20° (27-36°F) above air T°  
>20° (36°F) above air T°



Source: Boundary Bend Olives

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### Fruit sampling



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# Fruit analysis

Fruit Analysis Chart

Date:

Name of the Processing Plant Manager:

Batch N°	Grower	Variety	Oil %	Moisture %	Average fruit weight	Maturity Index



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## Fruit and moisture levels

**Flesh composition**

Component	Percentage
Water	58%
Oil	25%
Sugars	6%
Polyaccharides	4%
Proteins	3%
Phenols	2%
Pectines	2%
Others	2%

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# Oil and moisture content

## NEAR INFRA RED



The image shows a white, boxy NIR analyzer with a digital screen and a keypad. A small sample container is visible in the front-loading compartment. The device is sitting on a light-colored countertop.

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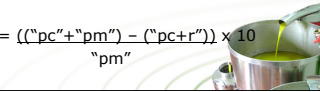
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## Oil and moisture content

### Fruit moisture measurement

- Weigh cup without sample ("pc")
- Weigh fruit sample, approx. 5 grams ("pm")
- Put cup and sample in oven at 130°C/266°F for 1 hour
- Take sample, turn it over and put it back in the oven for another 1 hour at the same temperature. Ensure no sample is lost during this step
- Take sample from oven and let it cool down in a dry place
- Weigh cup and dried sample ("pc+r")
- Fruit moisture % =  $\frac{((\text{"pc"} + \text{"pm"}) - (\text{"pc+r"}))}{\text{"pm"}} \times 10$




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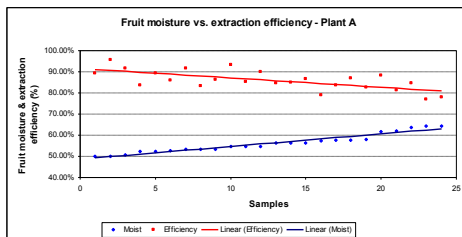
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## Fruit moisture impact




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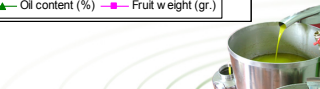
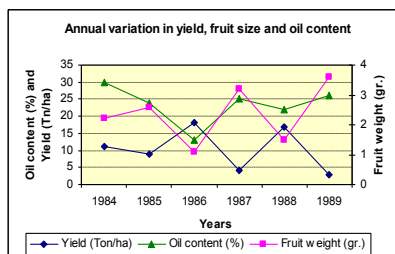
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## Fruit weight




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Flesh to pit ratio

Variety	Ratio
Arbequina	3.7
Barnea	4.3
Coratina	4.1
Koroneiki	3.2
Picual	5.3
Kalamata	5.9
Manzanilla	10.0
Leccino	3.5



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Maturity Index



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Maturity Index



If A, B, C, D, E, F, G and H are the numbers of fruits in the categories 0, 1, 2, 3, 4, 5, 6 and 7, respectively, the maturity index is calculated with the following formula:

M.I.= 
$$\frac{Ax0 + Bx1 + Cx2 + Dx3 + Ex4 + Fx5 + Gx6 + Hx7}{100}$$



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## Washing



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## Washing

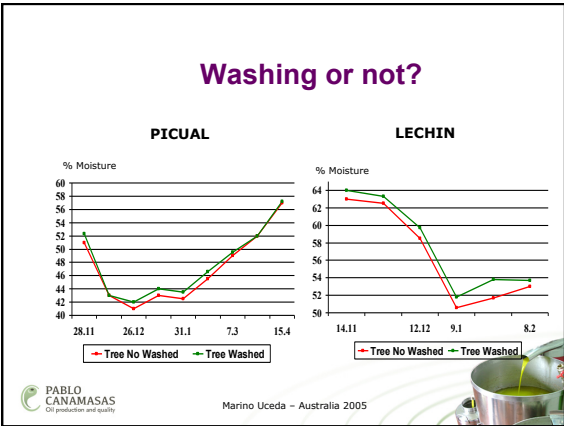


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## Washing



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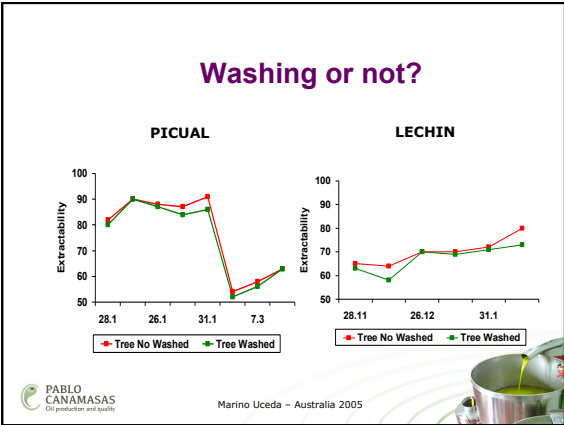
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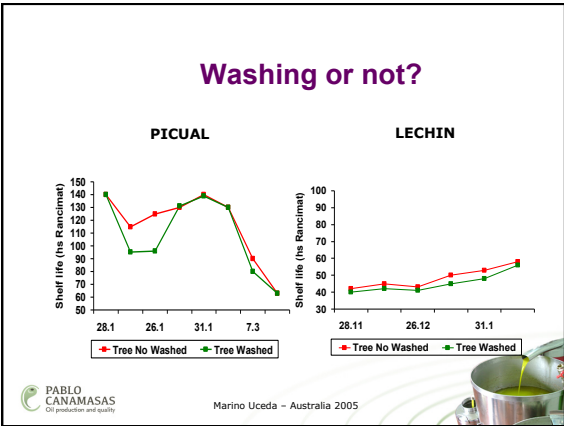
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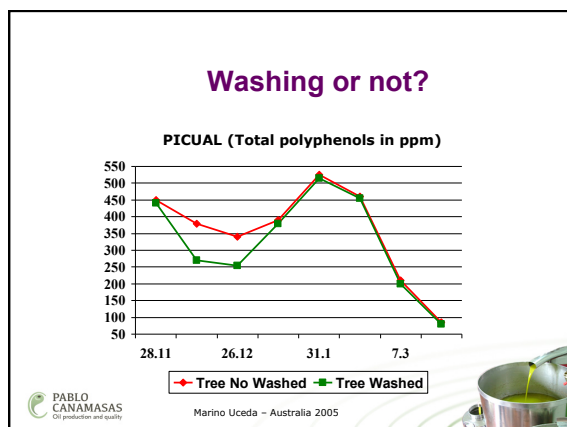
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### Washing or not?

No Changes	Changes
<b>Oil/Dry Matter</b> <b>Peroxides Value</b> <i>K<sub>270</sub></i> <i>K<sub>232</sub></i>	<b>Fruit Moisture</b> ↑ <b>Oil losses in pomace</b> ↑ <b>Extractability</b> ↓ <b>Total Polyphenols</b> ↓ <b>Shelf Life</b> ↓ <b>Fruitiness</b> ↓

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Oil production and quality  
Marino Uceda - Australia 2005

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### When should I change the water?

< 0.10% Oil  
 < 0.50% Solids

Usually every 5-10 x capacity of washer  
 e.g. 7 tonne/hr washer  
 Replace water every 35 - 70 tonnes

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## Fruit Storage



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## Fruit Storage



PABLO  
CANAM  
Oil production



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## Fruit storage

- High risk of ↑ ↑ **FFA** & "fusty" defect if not frequently inspected
- High risk of ↑ ↑ **FFA** if ripe, mashy fruit
- ↑ ↑ Chlorophylls content and greener oil if olives start fermenting
- Risk of increasing E+U



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## Receival area assistant

Before the season:

- Suggest improvements in the receival area.
- General cleaning and maintenance of the receival equipment.

During the season:

- General cleaning and maintenance of the equipment.
- Inspection of the fruit and directing lines or washing needs.
- Fruit sampling.
- Changing washing water.
- Evaluating MOO after washing.
- Rotating fruit in clean fruit hoppers.



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