OLIVE OIL HANDLING AND STORAGE

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WHY IS OIL STORAGE IMPORTANT?

- Olive Oil does not get better with age, preserving the quality is critical for longevity and meeting best by
- Key 3 determents to Olive Oil
  - Temperature
  - Light
  - Oxygen
OIL HANDLING - IMMEDIATELY POST HARVEST

- Why and When to Rack?
  - Time for the oil to have solid particulates naturally settle out
  - Pull oil off the sediment layer to stop any sediment off flavors and oxidation from the water

- Why Filter?
  - Research shows pro’s and con’s to improve shelf life
  - Important to consider
    - Cost implications
    - Media type and extent of filtration:
      - Mild for sediment, intense for effect on flavor
    - Time between filter - Bottling
      - Effect of media residue by type of filter
Do I bottle right away or as orders come in?
- Depends on preference, sooner the oil goes into a bottle the shelf life starts
- With optimal storage in a tank shelf life can be used as date of bottle, not date from harvest

How do I clean all equipment, containers, etc. to ensure re-use does not have any rancid oil effect?
- Developing a proper cleaning plan with proper heat, chemicals, time, water, etc. to reduce oil residue
- Over time oil residue becomes rancid and contaminates your oil with defects
WHAT CAN YOU DO?

- Ensure you have best storage options when in your possession
  - **Light** Storage vessel preferably stainless steel
  - **Oxygen** Nitrogen purge regularly
    - Argon is a back up as alternative inert gas but depletes quicker
  - **Temperature control** rule of thumb 60-70°F would be the ideal range.
    - Everyone has their own preference, colder is not always great the oil will solidify
    - Chemical parameters Fatty Acid Profile and Wax Content affect the ideal temp to keep at
- Critical Chemistry to understand and test
# UNDERSTANDING THE CHEMISTRY

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Basics on the Test</th>
<th>Why is this Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free Fatty Acid</td>
<td>Degradation of the fat, indicator of the olive</td>
<td>• The higher the value at harvest cause concern for managing a long shelf life</td>
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<tr>
<td>(FFA)</td>
<td>quality at harvest</td>
<td>• doesn’t typically change with time critical at time of harvest, not over time.</td>
</tr>
<tr>
<td>Peroxide Value</td>
<td>Oxidation of the fat</td>
<td>• The higher the value at harvest the quicker the oil will degrade.</td>
</tr>
<tr>
<td>(PV)</td>
<td></td>
<td>• Optimal to start as low as possible and in good storage will minimize the change over time.</td>
</tr>
<tr>
<td>UV Coefficients</td>
<td>Oxidation of the fat</td>
<td>• The higher the value at harvest the quicker the oil will degrade.</td>
</tr>
<tr>
<td>232 and 270</td>
<td></td>
<td>• Optimal to start as low as possible and in good storage will minimize the change over time.</td>
</tr>
<tr>
<td>Pyropheophytin A</td>
<td>Degradation of the fat, should always starts</td>
<td>• Time always affects, even with great storage conditions.</td>
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<tr>
<td>(PPP)</td>
<td>low at harvest</td>
<td>• Less than ideal storage conditions compound issue and exponentially effect</td>
</tr>
<tr>
<td>1,2Diacylglycerol</td>
<td>Degradation of the fat, should always starts</td>
<td>• Time always affects, even with great storage conditions.</td>
</tr>
<tr>
<td>(DAG’s)</td>
<td>high at harvest</td>
<td>• Less than ideal storage conditions compound issue and exponentially effect</td>
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<tr>
<td>Polyphenols</td>
<td>No ideal range, however higher preserves quality</td>
<td>• Natural antioxidant of the oil helps oil have a longer shelf life</td>
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<td>Greener fruit and milling affect the uptake ofphenols in the oil</td>
<td>• Higher content provides more bitterness and pungency</td>
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</table>
SUPPLY CHAIN

- Effects to oil quality can occur at multiple stages once the oil has left your possession
- Your facility is currently the only point you can truly control
- Progress to be made to help transportation, warehouses, and even retailers to improve storage to protect the oil
  - Educating retailers and chefs
  - Industry evaluation and studies on warehouses and transport. Push to mimic products like chocolate
QUESTIONS