

Olive Oil Storage: DAGs and PPPs

Extra Virgin Olive Oil Quality over time

Extra Virgin Olive Oil is the highest quality virgin olive oil. Maintaining the extra-virgin grade demands proper handling and storage, since natural olive oil deterioration is unavoidable. Best-by-Date is roughly estimated at between 18 and 24 months from harvest. Yet, to retain the extra-virgin grade the oil must be stored in containers with small headspace, or in tanks where air has been displaced by an inert gas, either argon, or nitrogen.

Besides air, light and heat exposure must also be avoided. Cool and dark storage is recommended. Dark glass bottles are preferred to clear glass, since oil is susceptible to photo-oxidation.

Agbiolab provides multiple tests to assess olive oil aging over time, which are useful to producers and retailers.



What analyses assess aging?

Diacylglycerol (DAGs)

measures the proportion of 1,2 diacylglycerols from the sum of 1,2 and 1,3 total content. Overtime, the percentage of 1,2 in an oil decreases due to the inherent oil chemistry. But the rate of decrease is faster if the starting value of free acidity after milling is high.

The decrease of DAGs accelerates in oils stored at high temperatures. Thus DAGs values are indicators of aging and improper storage conditions

Pyropheophytin a (PPP)

PPP arises from decomposition of chlorophyll, the natural green pigment of plants. Since PPP increases with time, light and temperature exposure, PPP is also a good indicator of proper handling and storage.

Ultraviolet Absorbency (UV) at 232 nm (K232)

It reflects secondary oxidation and aging but increases over time at an undefined rate. At some point values will reach the EVOO limit of 2.5 and by then the oil may already have been rancid for a while, no longer extra-virgin.

What analyses are required?

DAGs and PPPs are required for large producers by the **California Olive Oil Commission (OCC)**. The **California Olive Oil Council (COOC)** requires these tests for its Seal Certification.

The limit for DAGs is equal or greater than 35% and for PPP, lower or equal to 17 %.

UV absorbency is a test required by USDA, OCC and COOC.

Collectively, these parameters give indication of proper storage and handling after milling, and of the oil's current state of aging.

