



Determining *Best if Used By* Date Extra Virgin Olive Oil California Olive Oil Council

The California Department of Food and Agriculture ([CDFA](#)) requires a “Best if Used By Date” on containers of olive oil. The [CDFA Grade and Labeling Standards for Olive Oil, Refined-Olive Oil and Olive-Pomace Oil](#) Sec. 5.36 defines Use By Date as

A date on the container that signifies the end of the period during which the intact package of oil, if stored in accordance with stated storage conditions, will retain any specified qualities for which express or implied claims have been made. Terminology used on packaging shall appear as “Best By” or “Best if Used By”.

This means that a properly stored unopened product labeled with an Olive Oil Grade is expected to retain that grade until the “Best if Used By” date”. The “Best if Used By” date is mandatory for handlers covered by the [Olive Oil Commission of California](#) (O OCC) and must be supported by technical evidence. The CDF A requires that the “Best if Used By” date be displayed as “Best By” or “Best if Used By”, and that the label include storage conditions necessary to ensure the validity of that date. (CDF A Grade and Labeling Standards for Olive Oil, Refined-Olive Oil and Olive-Pomace Oil [Sec.11.3.9](#)). Usually, this is simply a statement to store in a cool, dark place.

Technical evidence supporting a predicted “Best if Used By” date is information showing that the olive oil in question will likely retain its grade according to the CDF A quality parameters ([Table 1](#)) until its stated “Best if Used By” date. If an olive oil is tested during its stated shelf life and found to be below the grade stated on the label, a handler may be asked to show documentation of testing and the “Best if Used By” date calculation for that lot. [A UCD Olive Center literature review](#) (commissioned by the O OCC) evaluated methods for calculating “Best if Used By” dates. The most practical for O OCC members was [the Modern Olives method](#). Unlike the other methods this method primarily uses the results of tests that are already required by the O OCC—free fatty acid (FFA), 1,2 diacylglycerols (DAG), pyropheophytin (PPP), and Induction Time testing (also called a Rancimat test) to estimate the “Best if Used By” date. The O OCC has provided a [“Guidance Document for Determining Best By Date”](#).

Using that method, “Best if Used By” date is determined by the lowest of the following two estimations:

(i) PPPs are known to increase at a minimum rate of 0.6% per month when oils are stored under normal conditions. As the maximum limit for this parameter is 17.0%, the expected shelf life of an oil at the time of bottling (in months) could be reasonably estimated by the following formula:

$$(17.0\% - \text{PPPs}) / 0.6\% = \text{expected shelf-life (in months)}.$$

(ii) DAG values are correlated with FFA. The higher the FFA, the lower the initial value of DAGs and steeper the curve of degradation. For oils with FFA <0.4%, DAGs are known to decrease at a minimum rate of 1.7%; for oils with FFA > 0.4% and < 0.6%, DAGs are known to decrease at a minimum rate of 2.1%; and for oils with FFA >0.6%, and DAGs are known to decrease at a minimum rate of 2.5%. As the minimum limit for this parameter is 35.0%, the expected shelf life of an oil at the time of bottling (in months) could be reasonably estimated by the following formula:

$$(\text{DAGs} - 35.0\%) / \text{FFA factor} = \text{expected shelf-life (in months)}$$

$$\begin{aligned} \text{where FFA factor} &= 1.7\% \text{ (if FFA} < 0.4\%); \\ &= 2.1\% \text{ (if } 0.4\% < \text{FFA} < 0.6\%); \\ &= \text{or } 2.5\% \text{ (if FFA} > 0.6\%). \end{aligned}$$

SMALL PRODUCERS

Small producers (< 5000 gal olive oil) should not be prejudiced for not having the capabilities and/or financial resources to test for those chemical parameters. Data shows that all oils with FFA < 0.5 % also have PPPs < 1.0% and DAGs > 92.0 %. Based on that data, the calculated shelf life from time of production (**assuming that oils are stored under normal conditions**) is 24 months from production date. Thus, small producers with COOC certified EVOO could state that the Best if Used By date is 24 months from the date of oil production.