

# Evaluation of California Olive Oil Samples from Retail Sites



*The Olive Oil Commission of California contracted with the UC Davis Olive Center to analyze 50 California olive oil samples purchased from retail outlets that were approximately one year or more from the sample harvest dates. This report summarizes the data, evaluates the results and provides recommendations.*

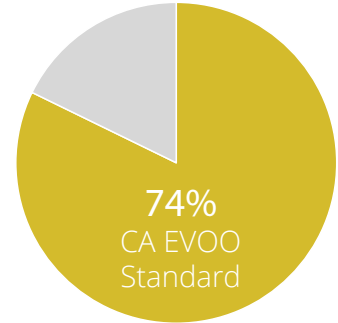
## EXECUTIVE SUMMARY

- ▶ The study, funded by the Olive Oil Commission of California, is part of an ongoing effort to improve the quality of California olive oils.
- ▶ Testing parameters were those required under the new California Department of Food and Agriculture standard for Extra Virgin Olive Oil, which is the most stringent in the United States.
- ▶ The study's findings present an opportunity to provide actionable information to help improve and maintain the quality of California olive oil, as similar studies have done in other countries.
- ▶ Test results are being shared individually with all producers whose products were sampled through this project to better inform the internal quality control systems for both OOC-member and non-member producers of olive oil.
- ▶ The information gathered from this study also shows the importance of best practice guidelines for purchasing, transporting, storing and displaying olive oil to help preserve product quality for as long as possible.



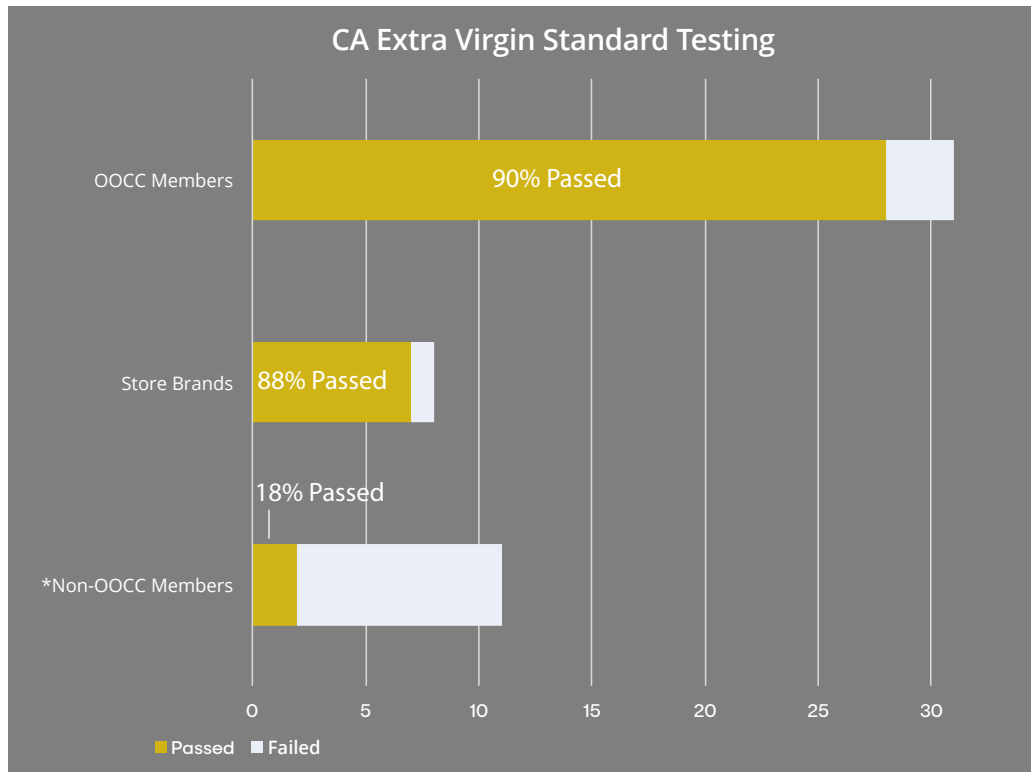
# Summary of Report Findings

1. Seventy-four percent of the samples of California olive oils collected from various retail outlets met the California Extra Virgin Olive Oil standard.



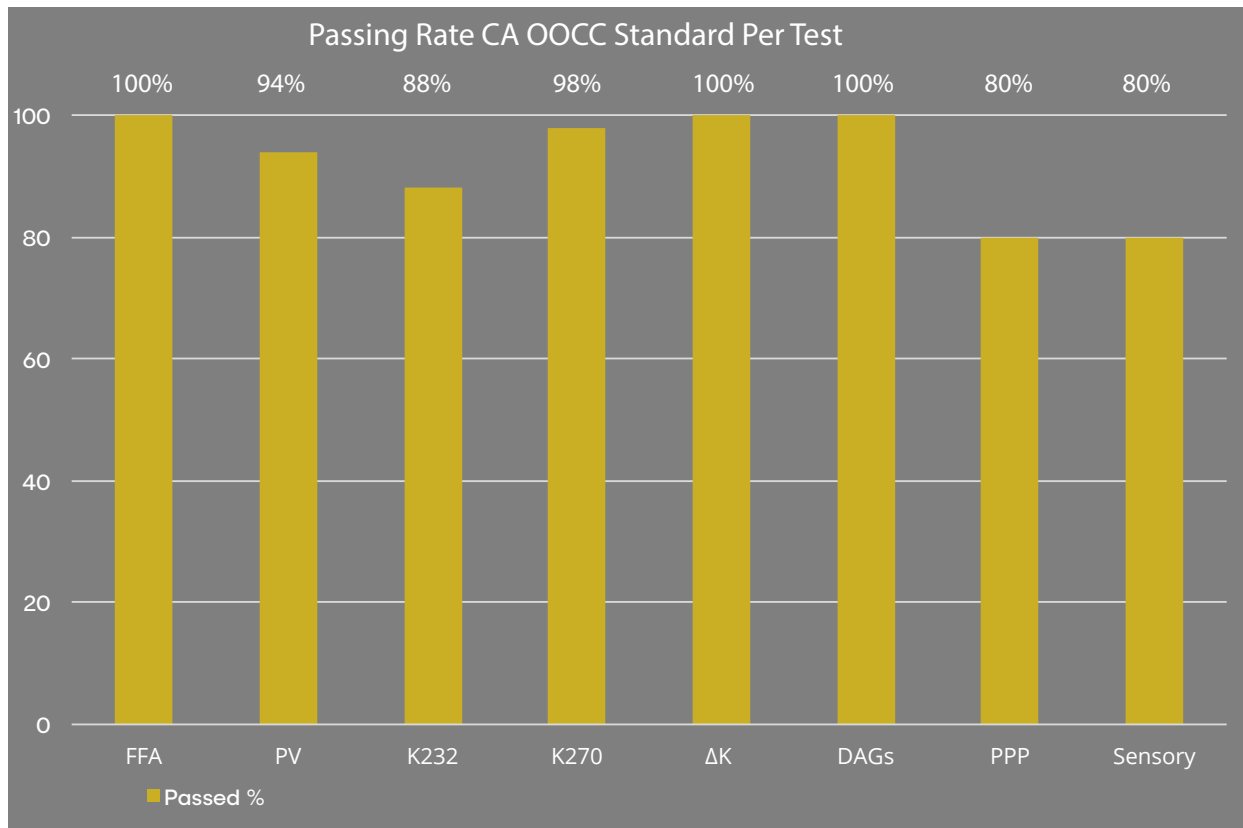
2. The study's results indicate that olive oils produced by OOCC members are generally achieving better results than non-OOCC member when it comes to maintaining the quality of California olive oil available for sale to consumers. As a reminder the tests conducted were from samples collected at retail on olive oil that was approximately one year old or more.

*Of the 31 samples collected from OOCC members, 28 samples, (90 percent) passed California Extra Virgin standards, while of the 8 samples that were store brands, 7 samples (88 percent) passed. The 11 samples collected and identified as being from non-OOCC members had a pass rate of 18 percent.*



\*Participation in the OOCC is mandatory for producers of 5,000 gallons or more per year. Olive oil brands in the non-OOCC category were from producers with less than 5,000 gallons per year who are not required to meet the OOCC standard.

3. Overall, 37 of the 50 samples collected passed the CA EVOO Standard, while 13 failed at least one California standard for the grade. The percentage of samples passing or failing each test for the grade is summarized below.



4. OOC efforts to improve the quality of California olive oil appear to be working.

- ▶ At the heart of the OOC is a mandatory government sampling and testing program to verify that the quality of California olive oil matches labeling claims.
- ▶ Under this program, California Department of Food and Agriculture officials collect samples of olive oil from all California producers who process 5,000 gallons or more.
- ▶ Samples are tested by accredited independent laboratories to assess quality using eight chemical and sensory parameters, which include important PPP and DAGs to quantify olive oil aging and quality along with tests for purity to detect adulteration.
- ▶ The grade verified through the OOC program must be accurately reflected on product labels. If the grade listed on the package does not match the CDFA-verified grade of the olive oil, the producer must correct the label. The grades are Extra Virgin, Virgin and Crude.
- ▶ OOC members produce approximately 90% of the olive oils from California.

# Background

The quality of Extra Virgin olive oils naturally declines due to oxidation. Producers have the challenge of minimizing the oxidation rate to ensure that Extra Virgin olive oils meet grade standards one year or more after the harvest date. This study provides a first look at the performance of California olive oils approximately one year after harvest sold through common retail channels.

For this study, the UC Davis Olive Center study team purchased a total of 50 extra virgin olive oil samples. Forty samples (80 percent) were from seven traditional food stores; six samples (12 percent) were from three warehouse clubs/supercenters; three samples (6 percent) were from Amazon; and one sample (2 percent) was from the tasting room of an olive oil producer.

Thirty-one samples (62 percent) came from OOC members, 11 samples (22 percent) came from producers that were not OOC members during the year when the oils were produced and eight samples (16 percent) came from store brands that presumably were sourced from OOC members.

All samples were purchased between November 4, 2016 and November 12, 2016. The study team minimized the impact of heat and light during the collection process.

All samples were analyzed based on California olive oil standards. The UC Davis Olive Center Laboratory provided chemistry analysis of the samples. If a sample failed chemistry analysis, the study team sent it to the Eurofins Central Analytical Laboratories in New Orleans for retesting. Eurofins' results agreed with UC Davis' results for all re-tested samples.

Sensory analysis was performed by the panel managed by Applied Sensory, LLC. If a sample failed the sensory standard for Extra Virgin grade, the panel re-evaluated the sample. The study team also sent a sample that failed the first panel test for sensory analysis by the Australian Oils Research Laboratory.

The study team considered a sample to have failed California extra virgin standards if it failed any chemistry standard and/or failed at least two of three sensory panel tests.

The data produced in this report can serve as baseline data for the commission to compare the performance of California olive oils in future years and to consider the data in assessing shelf-life prediction models.

The OOC plans to replicate this study during the 2017/18 season.

► A complete copy of the study is available at <http://www.oliveoilcommission.org/research/#tab-id-2>

## ▶ Actionable Information

- ▶ The primary purpose of this study is to improve the quality of California olive oil available for sale at retail outlets so that consumers can have confidence when purchasing Extra Virgin olive oil from California.
- ▶ As an initial action to provide useful information back to industry, whenever the producer could be identified, test results from samples of olive oil collected in this study were shared with the producer.
- ▶ The OOCC recommends that producers trace lot numbers provided with these samples to compare off-the-shelf test results with testing conducted at time of production. Eventually, this kind of data will be very helpful in accurately predicting olive oil shelf life.
- ▶ This initial study is valuable as a snapshot of California olive oil available for sale at retail outlets. Many factors impact olive oil quality from bottling through the distribution channels and on retail store shelves. This study looked at “real world” circumstances and did not attempt to control conditions during handling, shipping, storage or at display.
- ▶ This initial study is the start of a longer-term project initiated by the OOCC to assess and predict shelf life of California olive oil. This effort will be critical in helping the California olive oil industry establish ‘best practice’ guidelines for both producers and retailers.