FINDINGS OF THE CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE REGARDING PROPOSED OLIVE OIL GRADE AND LABELING STANDARDS AS CONSIDERED AT A PUBLIC HEARING HELD ON JULY 15, 2014 IN SACRAMENTO

Introduction

On June 3, 2014, at a duly noticed meeting, the Olive Oil Commission of California (commission) passed a motion by unanimous vote to recommend to the California Department of Food and Agriculture (department) adoption of proposed grade and labeling standards for olive oil, refined-olive oil and olive-pomace oil (standards). In response, the department held a public hearing on July 15, 2014 to receive testimony and evidence from interested parties on whether the proposed standards should be implemented.

Section 59171 of the California Marketing Act (Chapter 1 of Part 2, Division 21 of the California Food and Agricultural Code (FAC) provides for the issuance of seasonal marketing regulations (e.g., the proposed standards) without prior notice or public hearing under certain conditions. In order to ensure consideration of all facts relevant to the proposed standards referenced above, the department determined it should hold a public hearing to receive testimony and evidence from those directly affected and the public at large.

Due notice of the public hearing was issued by the department on June 6, 2014. The notice was mailed to California olive oil producers and handlers in addition to other interested parties. The notice was also posted on the department's website. The notice included sample questions to assist interested parties in preparing testimony relevant to the purpose of the hearing. Additionally, the notice encouraged interested parties to submit written testimony if they could not attend the hearing in person.

Pursuant to Section 58813 of the FAC, in order for the proposed standards to be implemented, the department must find, based on its analysis of relevant and available facts and evidence presented at the public hearing, that the standards:

- Are reasonably calculated to attain the objectives which are sought in Section 2.0 of the proposed standards,
- Will tend to effectuate the declared purposes of the California Marketing Act as stated in Section 58654 of the FAC, and
- Will further the interest of consumers of olive oil.

However, if the department finds, based on its analysis of the hearing record, that a substantial question exists as to whether the standards, as proposed, should be implemented, the department may determine to return all or part of the proposal to the commission for further study and revisions prior to being made effective.

These findings have been prepared to fulfill the aforementioned requirements in determining if the proposed standards recommended by the commission to the department shall be implemented.

Background

Overview of Olive Oil Commission of California

The Olive Oil Commission of California law was enacted on January 1, 2014 via the passage of SB 250 and made fully operative on March 24, 2014 following a favorable implementation referendum among affected olive oil producers in California. The commission law establishes a ten-member board of directors (board) consisting of six elected producers, three elected handlers, and one public member that is appointed by the department based on a recommendation by the board. This board guides the administration of the commission's funding and program activities. Additionally, an advisory committee consisting of seven persons who produce olives that are processed into less than 5,000 gallons of olive oil annually is appointed by the department to advise the board of directors on commission activities.

The commission is authorized to recommend olive oil grade and labeling standards, subject to the review and approval of the department, and to conduct research relating to olive oil. The day to day operations of the commission are carried out by a staff retained by the commission.

The commission is funded by a mandatory assessment levied on California producers of olives that are processed into olive oil in the amount of 5,000 gallons or more annually. The rate of this assessment is set annually by the commission's board of directors at any level at or below the maximum allowable rate, which is twenty-five cents ($0.25) per gallon of olive oil handled. The assessment rate in effect for the 2014-2015 fiscal year, which is from July 1, 2014 through June 30, 2015, is sixteen ($0.16) per gallon. The department has general oversight responsibilities and concurs in the commission's annual budget and contemplated activities. An audit of the commission's financial records is required to be conducted annually by an independent CPA firm. The department must concur in the audit firm selected by the commission. Every fifth year of operations, the department is required to conduct a public hearing to determine if the commission should continue to remain in operation.

During the commission's initial meeting on May 8, 2014, the board appointed a Grade and Labeling Standards Committee (committee) to develop standards for recommendation to the Secretary of Food and Agriculture. The committee met several times during May and early June 2014 and presented its proposed standards to the full board at a commission meeting held on June 3, 2014. As mentioned above, the board approved by unanimous vote the standards developed by the committee.

It is important to point out that prior to creating the commission, the California legislature established olive oil standards in the California Health and Safety Code (CHSC). These standards are similar to, and make frequent references to, the USDA standards. The CHSC standards were established before data regarding the chemical composition of the specific varieties of olives planted in high-density groves across various growing regions in the state was readily available.

As the California olive oil industry began to rapidly expand and such data became available, the legislature recognized the need for standards that reflected the natural chemistry of California-produced olive oil and the desire of California producers to establish higher quality standards for their products. Thus, SB 250 was enacted into law in 2014 to provide the industry with a vehicle to conduct research on olive oil and to recommend olive oil grade and labeling standards for implementation.

By providing authority under the California Marketing Act for the commission to recommend grade and labeling standards to the secretary, the legislature provided a means by which such standards can be amended as necessary to reflect changes in production and/or milling technology or the varieties of olives grown in the state for olive oil. Given the expressed objective of the growers and millers in the state to produce high-quality extra virgin olive oils, the minimum standards for those oils should reflect advances made in this young and growing industry.

Overview of the Global and California Olive Oil Industries

While production of olive oil has existed in California for over 150 years, the California olive oil industry did not begin to grow substantially until the mid-20th century when consumers began to focus on healthy unsaturated and mono-saturated oils. Since 1980, annual per capita consumption of olive oil in the U.S. increased over 650% with imported Mediterranean oil supplying almost all of the increased domestic market.[1]

Through the late 20th century, most olive oil produced in California came from surplus or culled table olives resulting in relatively low prices compared to canned and table olives.

Starting in the late 1990s, small-scale producers in the state began to grow olives for milling and marketing their olive oil as a high-quality specialty product that commanded much higher prices than oil produced from culled olives. Some of these smaller scale producers invested in their own milling equipment while many used a contract miller.

Demand for olive oil in the U.S. continues to grow, although not as rapidly as in the last decade. Recent research on olive oil further supports the health benefits from making olive oil part of a consumer's daily diet. As shown in the table below, olive oil is one of the richest sources of monounsaturated fats of all the common cooking oils, and is low in saturated fats. Olive oil also contains no trans-fat and has antioxidants, such as vitamin E, adding to its health benefits.

[1] An Economic Assessment of California's Olive Oil Labeling Law, Gustafson and Lybbert, University of California Giannini Foundation

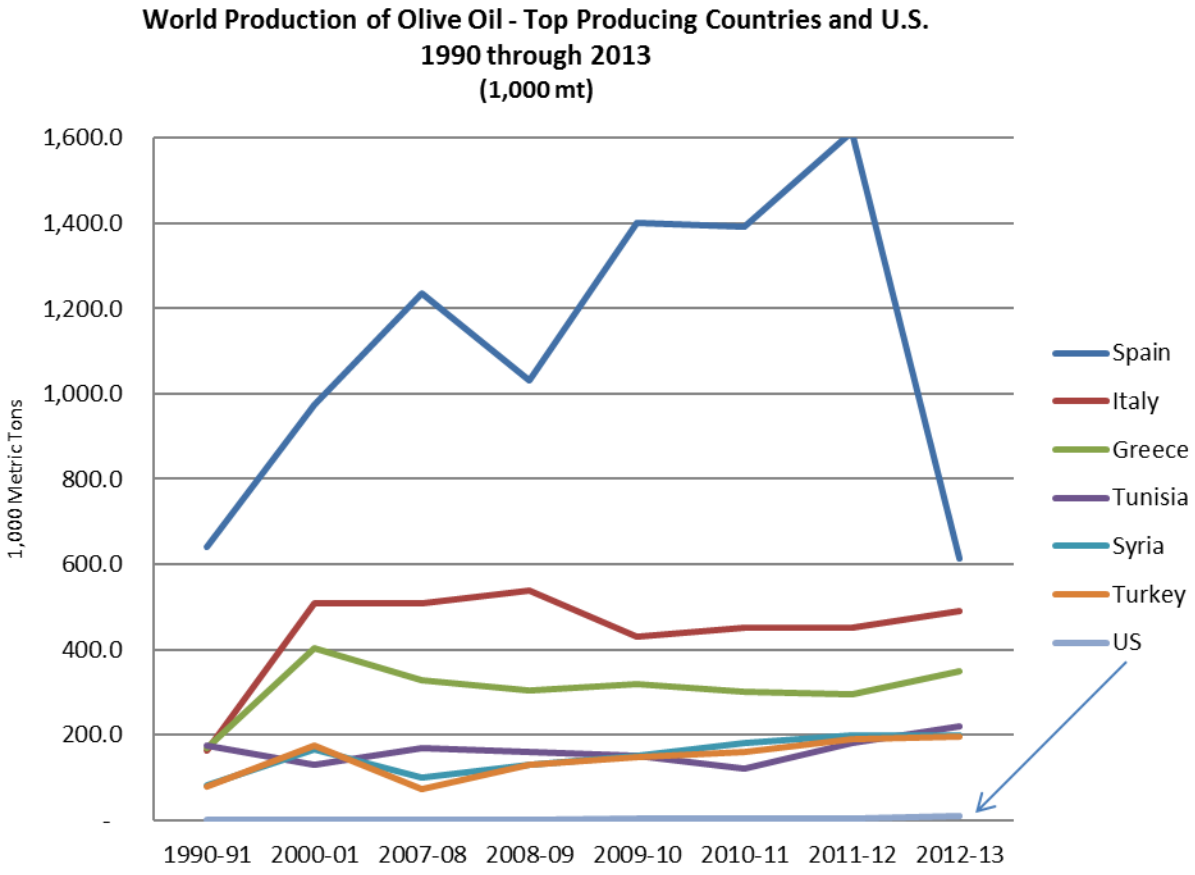
Oil Comparisons[1]

Product[2]	Calories	Total Fats (g)	Monounsaturated Fats (g)	Saturated Fats (g)
Olive Oil	119	13.5	9.9	1.9
Canola Oil	124	14.0	8.9	1.0
Corn Oil	120	13.6	3.8	1.8
Soybean Oil	120	13.6	3.1	2.0
Butter (with salt)	102	12.0	1.0	12.6
Margarine (regular, tub with salt)	101	11.4	5.2	2.0

[1]North American Olive Oil Association Website, "About Olive Oil", August 28, 2014
[2]Per Tablespoon

Yet, California producers of olive oil still supply a minuscule portion of the total U.S. market. Specifically, less than three percent of all olive oil products consumed by Americans were milled in California. Even though production is increasing dramatically in California, it is growing from a very small base and remains a fraction of European production. The chart below provides a visual of global olive oil production by country. As seen in the chart, Spain dominates global production, followed by Italy and Greece. The U.S., which almost entirely consists of production from California, is not currently a major global supplier. Between 2007-2008 and 2011-2012, approximately 45 percent of the world's olive oil production came from Spain, 16 percent from Italy, 10 percent from Greece, and less than 0.2 percent from the U.S. [2]

[2] Source: U.S. I.T.C. Report on Olive Oil, August 2013, Pg. 2-1

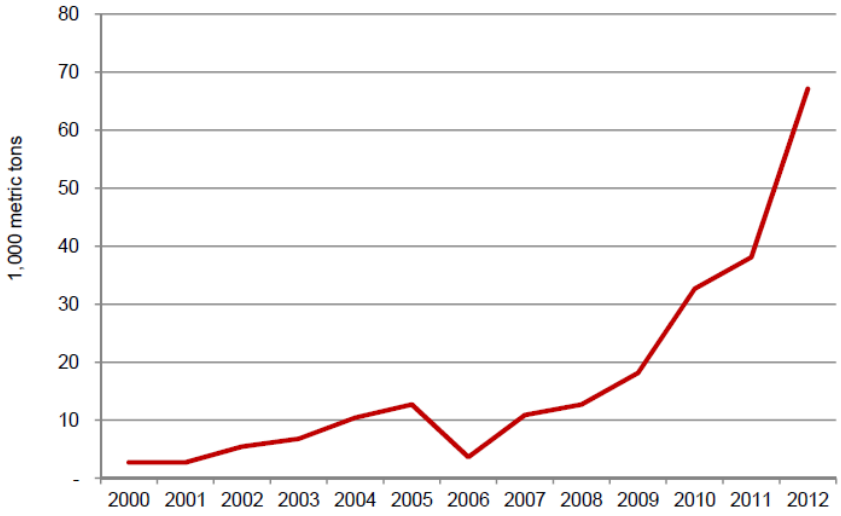


Source: U.S. ITC Report – Olive Oil: Conditions of Competition between U.S. and Major Foreign Supplier Industries, Table 2.1, Pg. 2-5

Note: The drop in Spanish production in 2012-2013 was due to drought condition across olive growing regions in the country.

Although the total olive oil production in California is small on a global level, the growth rate of the state's production is remarkable. The chart below shows U.S. production of olives for processing into olive oil from 2000 to 2012. Since 2007, production of olives delivered for milling in California has grown from 1,400 metric tons to 8,300 metric tons in 2013. With the introduction of medium and high-density orchards in the state, combined with mechanical harvesting, California large-scale producers now market high-quality, extra virgin olive oil products that compete with imported extra virgin olive oil products.

U.S. Olive Fruit Crushed for Oil, 2000-2012



Source: USITC Report on Olive Oil, August 2013, Figure 5.1, USITC staff calculations based on USDA, NASS, Fruit and Tree Nut Annual, 2000-2012

California olive oil producers can mostly be categorized as using one of two business models:

(1) Smaller scale operations that grow their own olives for milling and who either have their own milling facilities or make use of a contract miller. These operations primarily market their products directly to consumers at on-site shops, farmers markets or through specialty stores in local markets. They feature oils from a particular variety, or that feature a particular character. Traditional producers tend to have lower production cost due to smaller capital investment and produce a specialized product unique to their operation. These operations have a long tradition in California and across Europe.

(2) Compared to the business model described above, larger scale operations source fruit from multiple producers, have their own milling facilities and may blend oils from different lots to achieve a desired characteristic. These operations market their oils into wholesale and retail markets at the regional and national levels. Larger scale operations tend to be newer entries into the market, employing modern technologies including higher density production, mechanical harvesting of fruit earlier in the maturation process in order to maximize quality oil and milling within 12 to 24 hours from harvest to ensure minimal degradation of the fruit. California operations tend to have high production costs (discussed below) but produce a consistently high-quality, extra virgin olive oil that can be differentiated in the marketplace thereby commanding a higher price.

In California, new high-density and super high-density (SHD), well-managed operations are the dominant production model. There are newer plantings of both Spanish and Italian varieties coming into

production that better accommodate high density orchards and mechanical harvesting that will improve the economics of oil production.[3]

A high percentage of new plantings in the Mediterranean are higher density however this acreage is dwarfed by more traditional operations. Much of the crop continues to be grown on "dry land" and harvested by hand after the fruit has fully ripened. Fully ripened fruit maximizes yields of olive oil but at the cost of oil quality.

However, while more efficient than traditional production, newer SHD operations have higher cost relative to competitors in Europe due to:

- Higher capital costs (see Exhibit "A" - *UCCE Cost to Produce-Sacramento Valley*)
- Yields per acre are not optimized due to earlier harvesting for higher quality oil
- Higher marketing costs as relatively new entrants to the domestic market
- Smaller scale operations than their entrenched European competitors

The table below compares California's production costs of olives for olive oil to selected countries and various production methods.

Olive oil: Farm-level cost of production by country and production method[4]

Country and production method	Production cost (€/kg)
Spain (SHD)	1.32
Spain (intensive)	1.29 (irrigated)–1.66 (non-irrigated)
California (SHD)	1.43–2.02[a]
Morocco	1.61–2.24
Spain (traditional)	1.97 (semi-mechanized)– 3.06 (hand harvested)
Italy	3.53– 5.80[b]

Source: Industry representative, telephone interview by USITC staff, May 6, 2013; industry representative, interview by USITC staff, California, November 15, 2012; UCCE, *Sample Costs: Sacramento Valley*, 2007, 19; AEMO, "Aproximación a los Costes del Cultivo del Olivo" [Approximating the costs of olive growing], June 2010; Bungaro, "Olio: le novità introdotte dalla nuova legge anti contraffazione" [Oil: new law combating counterfeiting], n.d. (accessed May 9, 2013); IOC, *Morocco 2012*, 8.

Note: Californian and Italian costs are reported grower costs, while Spanish costs are constructed based on the average costs per hectare for each production method in 2009 and oil yields of between 18 and 19 percent per kilogram of olives. The Californian costs reflect the range of typical olive yields reported by industry representatives using a 16 percent oil content. However, the time of harvest and the corresponding oil content of the olives, which is an important determinant of per unit production costs, vary by year, country, and individual grower.

[a]U.S. costs were reported as $6.38 to $9.00 per gallon of oil produced. The 2012 U.S. Federal Reserve annual average exchange rate of 1.29 U.S. dollars per euro was used for currency conversions.

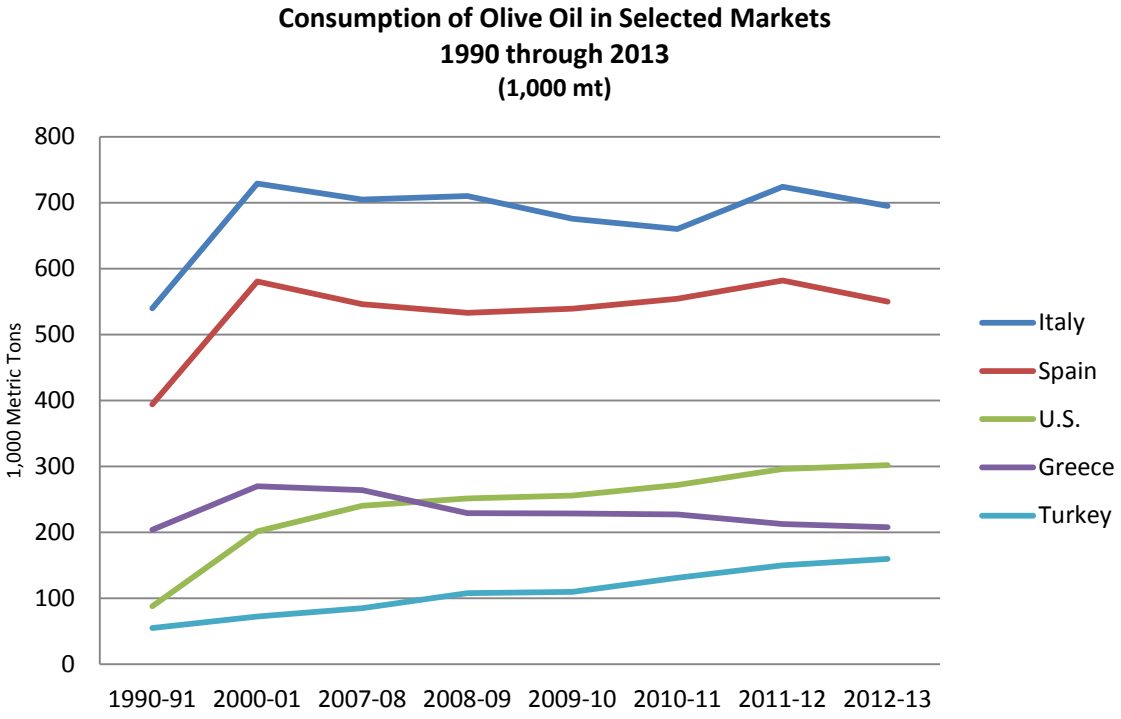
[b]The Italian costs are average costs from two olive oil-producing regions, specifically Puglia and Tuscany, that represent the range of costs in Italy. In Puglia, production is more intensive and represents the lower end of the range. Production in Tuscany, which represents the upper end of the range, relies heavily on traditional methods and tends to be much more expensive.

[3] Olive Oil: A "Rediscovered" California Crop, Barrio and Carman, University of California Giannini Foundation June 2005

[4] Source: U.S. I.T.C. Report on Olive Oil, August 2013, Pg. 2-7

With large volumes of extra virgin olive oil exported to the U.S. from low cost foreign suppliers, a wide range of prices exist in the U.S. marketplace, particularly on the West Coast where higher costs domestic products are also sold. Globally, the olive oil product category is in a "lowest cost-leader" mature mode. U.S. consumers tend to be price sensitive and unfamiliar with the differing qualities of olive oils on the retail shelf. Therefore, they tend to select lower price products unless they have a preference for locally produced oil.

While consumption of olive oil in the U.S. continues to grow slightly, consumption in the Mediterranean region has leveled off with consumption beginning to decrease in Spain and Italy – the two markets with the highest consumption. The chart below shows olive oil consumption in select countries over the last several years.



Source: U.S. ITC Report – Olive Oil: Conditions of Competition between U.S. and Major Foreign Supplier Industries, Table 2.3, Pg. 2-8

Extra virgin olive oil is relatively high in value compared to most oils commonly used throughout the world. It is one of the few oils made from fruit that does not involve refining by the addition of heat or chemicals. As a natural oil, there is significant variation in the character of the oil depending on region, variety of olive milled, and stage of maturity when the olives are harvested. In April of 2012, the Journal of Food Science published an article that reports olive oil to be the food ingredient most commonly implicated in fraudulent activities (see table below).

Top 5 ingredients in the scholarly records dataset

Ingredient	Number of Records	Percentage of Total Records
Olive oil (all)[a]	167	16
Milk (all)	143	14
Honey	71	7
Saffron (Crocus sativus L.)	57	5
Orange juice	43	4

[a]All indicates that multiple ingredient subtypes were combined. For example, different types of olive oil (virgin and extra virgin) were combined into Olive oil (all) for this table.
Source: Journal of Food Science, April 4, 2012, *Development and application of a Database of Food Ingredient Fraud and Economically Motivated Adulteration from 1980 to 2010*, Moore, Spink, and Lipp

In another report, USDA's Foreign Agricultural Service released an update in 2010 on Italian olive oil trade that reported the following:

> *Olive oil is one of the largest sources of agricultural fraud in the European Union, and The New Yorker estimated in 2007 that only 40 percent of Italian olive oil sold in the United States as "extra virgin" meets the necessary specifications. There are two primary types of fraud for olive oil: fraud related to the type of oil and fraud related to the country of origin. The first concerns the characteristics of the olive oil itself. Because some olive oils are cheaper to produce, some processors may mix lower grade olive oil with higher grade olive oil and label the final product as a higher grade olive oil. For example, it is illegal to mix olive oil and extra virgin olive oil to sell as extra virgin olive oil. Other fraudulent mixtures may include oil from nuts or sunflower seeds. It is hard to detect levels of lower-quality oils that are less than 5 percent of the total volume, and the hardest to detect is the presence of nut oil. It is illegal to produce seed oil in Italy, because it is a major EU producer of olive oil, but it is legal to sell imported seed oil in Italy.*
>
> *The second type of fraud concerns country of origin labeling. It is fraudulent for a producer to mislabel the olive oil's origin to capitalize on consumer preference for certain countries of origin. According to Unaprol, Italian olive oil commands the highest market price, followed by Spain, Greece, and North Africa.*
>
> *Ten years ago, Italy, Spain, and Greece produced 80 percent and consumed 90 percent of olive oil globally. Today, those leading Mediterranean countries consume about 60 percent of total olive oil, with consumption increasing the most in the United States, Japan, South America, and Eastern Europe. As new markets increase demand for olive oil, the risk for fraud increases, as new consumers may have less knowledge of quality and less ability to detect fraudulent products. To combat this type of fraud, Unaprol will collaborate with Gambero Rosso to publish a guide in 2011 for the highest quality Italian extra virgin olive oils.*
>
> *Source: USDA, FAS, Italy: Olive Oil Update, July 6, 2010*

As reported above, it can be difficult to detect blending of oils for sale in the market place, particularly when the product is being sold to food manufacturers as an ingredient. In an effort to combat fraudulent activities, many countries and regions have adopted grade and labeling standards for olive oil products. However, the degree of enforcement of these standards varies significantly.

Overview of Proposed Grade and Labeling Standards

The proposed standards recommend by the commission to the department consist of product descriptions for olive oil, refined-olive oil, and olive-pomace oil, grades defined for each product, definitions of terms, quality and purity parameters specified for each product grade, methods of analysis to determine product characteristics, packaging and labeling requirements, requirements regarding product traceability, and an appendix outlining sampling, testing, and grading methodology. Sections addressing food additives, contaminants, and hygiene are also included in the proposed standard. A complete copy of the proposed standards being considered for implementation is attached to this document as Exhibit "B".

The expressed objectives of the standards are to ensure the quality of oil produced from olives in California, enhance the continued growth of olive oil production through greater consumer and trade confidence in the consistent, high quality of California olive oils, and provide producers, handlers, buyers and consumers of California oil with reliable and trustworthy information concerning the quality and grade of the product.

The scope of the standards is limited to California handlers of olives that are processed into olive oils, refined-olive oils and olive-pomace oils in the amount of 5,000 gallons or more during the period beginning July 1 through June 30 of any year and who sell their oils into the commercial channels of trade. Moreover, the standards require all lots of olive oil milled by the universe of handlers defined above to be sampled, tested, and graded.

Overview of Existing Olive Oil Standards

A myriad of olive oil standards exist throughout the world. While the details of each standard differ to various degrees, they are all designed to provide a framework for classifying olive oil products into distinct grades. Specific grades are defined within each standard based on quantitative limits (minimum, maximum, or a range of levels) along multiple quality and purity components. Methods for testing olive oil products to determine grades are also defined in olive oil standards, and typically include both chemical analysis, conducted in a laboratory setting, and sensory evaluation, conducted by a panel of human experts. Collectively, olive oil standards are used to facilitate global, domestic, and regional trade of olive oil products.

The International Olive Council (IOC) standard is the most commonly used olive oil standard throughout the global market. The IOC is an intergovernmental organization created in 1959 under the auspices of the United Nations. Membership of the IOC consists of 16 countries and the European Union, which represents its 28 member countries. The United States is not a member of the IOC. While the IOC does

not act as an enforcement body, its member countries are required to adhere to IOC standards. Other international bodies, such as the Codex Alimentarius Commission and the European Commission, have established standards that closely mirror the IOC standard to guide olive oil trade. Likewise, IOC standards have served as the basis for the establishment of many other standards adopted by national governments, including the United States.

In 2010, the United States Department of Agriculture (USDA) revised its olive oil standards, which were originally implemented in 1948, to create consistent grades and terminology with IOC standards. While the USDA standard closely resembles the IOC standard, some modifications have been made to account for natural variations within products produced in the country. Although the USDA provides inspection services to certify olive oils on a fee-for-service basis, compliance with USDA standards is voluntary.

In addition to the voluntary USDA standard, some state governments have adopted olive oil standards into law. In California, olive oil standards are established in California Health and Safety Code (reference Division 104, Part 6, Chapter 9, Section 112875 et seq.). Grades defined in this standard, which reference the voluntary USDA standard, apply to all olive oils sold in the state. These standards were amended in 2008 via SB 634 to be consistent with IOC standards, and were further revised in 2011 via SB 818 to be similar to recently amended USDA standards.

Industry organizations have also played a role in creating standards and providing certification for their members' olive oils that meet their standards. For example, members of the California Olive Oil Council (COOC), a trade association consisting of California producers of olives for olive oil and California olive oil handlers, can achieve the "COOC Certified Extra Virgin" seal if their products meet defined quality parameters based on a chemical analysis and sensory evaluation. Similarly, the North American Olive Oil Association (NAOOA), a trade association consisting of marketers, packagers, and importers of olive oil in the US, Canada, and their respective suppliers abroad, administers a quality seal program for its members. Although the NAOOA does not create standards, its members can place the "NAOOA Certified Quality" seal on their products if the products are tested and determined to meet IOC standards.

In addition to the various bodies that establish olive oil standards, several others are involved in developing scientific methods embedded in the standards and accrediting olive oil chemistry laboratories and sensory panels. The American Oil Chemists' Society (AOCS), the International organization for Standardization (ISO), and the IOC all contribute to the development of methods of analysis used in olive oil testing. Moreover, the IOC provides recognition to chemical testing and sensory testing laboratories who can demonstrate proper application of methods of analysis recommended by the IOC. Currently, there is only one IOC-accredited chemistry laboratory is the US, however, it is owned by a private olive oil importer and is not available for public use. Additionally, no sensory panels in the US currently have IOC-accreditation.

Hearing Record and Analysis

At the conclusion of the July 15, 2014 hearing, a 14 day post-hearing brief filing period was granted to provide witnesses adequate time to amplify and/or clarify their testimony presented at the hearing. Due to an unanticipated delay in making the transcript from the hearing available to the public, the deadline to file a post-hearing brief was subsequently extended by the department for an additional 10 days. The hearing record was closed at 4:30 p.m. PT on August 8, 2014.

A total of 83 witnesses, representing various sectors of the olive oil industry in California and abroad, provided oral and/or written testimony and evidence for this hearing. In all, 48 witnesses presented oral comments at the public hearing and 63 witnesses submitted written letters to be included in the hearing record. Additional testimony and evidence was entered into the hearing record by the Olive Oil Commission of California via its manager Spenser Halsey and its legal counsel Kahn, Soares & Conway, LLP.

The tables below present the name of each witness and his or her respective business or organization affiliation:

Testimony received in *support* of implementing the proposed standards:

Witness Name and Affiliation	Witness Name and Affiliation
Matt Anchordoguy, Anchordoguy & Co.	Michael Kley, KK&R Orchards, LLC
Nancy Ash, Strictly Olive Oil	Sue Langstaff, Applied Sensory, LLC
Josh Barton, Barton Ranch	Jim Lipman, California Olive Ranch
Rick Benson, CalEVOO, LLC & Desert Milling, Inc.	Dewey Lucero, Lucero Olive Oil, LLC
Tom Berryhill, California State Senate	Rodney Mailer, Australian Oils Research Laboratory
Claire Black, Consumer	Richard Mathews, Sadeg Ranch Organic Olives LLC
Susan Boyd, California State Senate - Lois Wolk	Larry Maben, Maben Family LLC
Richard Cantrill, American Oil Chemists' Society	Lee McCorkle, McCorkle Land Company
Nicholas Coleman, Eataly, NY	Trevor Meyers, Meyer Farms
Jeff Colombini, Lodi Farming Inc.	Brian Mori, California Olive Ranch
Patricia Darragh, California Olive Oil Council	Paul Miller, Australian Olive Association
Mary Earl, Consumer	Ann Naggaro, California State Senate - Cathleen Galgiani
Adam Englehardt, Kbar Farming & Boundary Bend USA	Rob Neenan, California League of Food Processors
Sara Feinberg, Market Hall Foods	Dick Nielsen, McEvoy Ranch
Dan Flynn, UC Davis Olive Center	Bruce Peacock, Producer
Mary Flynn, Miriam Hospital, Brown University	Maria Reyes, KeHE Distributors
Dillon Gibbons, California State Senate - Anthony Cannella	Pat Ricchiuti, PR Farms & ENZO Olive Oil Company
Chris Gilmore, The Olive Press	Vincent Ricchiuti, ENZO Olive Oil Company
Bruce Golino, Santa Cruz Olive Tree Nursery	Mark Salwasser, California State University, Fresno
Jack Hamm, Farm Bureau - San Joaquin County	Kyle Sawatzky, Bari Olive Oil Company
Gregory Henny, Bella Vista Ranch & First Texas Olive Oil Co.	Liliana Scarafia, Agbiolab, Inc
Kimberly Houlding, American Olive Oil Producers Association	Mark & Ann Sievers, Il Fiorello Olive Oil Company
Trudy Hughes, California League of Food Processors	Steve Tarke, Producer
Jamie Johannson, California Farm Bureau Federation	Kathryn Tomajan, Eat Retreat
Gregory Kelley, California Olive Ranch	David Tony, Farm Bureau - Glenn County
Adam Kennedy, CA Harvesting	Selina Wang, UC Davis Olive Center
Dan Kennedy, Kennedy Ranch Partnership	Brady Whitlow, Corto Olive Company
Jason Kilmer, Reimann Properties	John Williams, Big W Ranch Corporation

Testimony received in *opposition* of implementing the proposed standards:

Witness Name and Affiliation	Witness Name and Affiliation
John Akeson, Deoleo USA	Dario Frommer, North American Olive Oil Association
Patti Andrade, Borges USA	Donald Griego, AMD Oil Sales LLC
Eduard Badia, Borges USA	Kathy Griset, Cibaria International, Inc.
Eryn Balch, North America Olive Oil Association	Georgette Guerra, ItalFoods, Inc.
Sebastian Bariani, Bariani Olive Oil	Holly Kennedy, American Roland Food Corp.
Jean-Louis Barjol, International Olive Council	Arnold Kaufman, Olive Oil Pantry & 24/7 Food Brokerage
Mauro Battocchi, European Union Delegation	Rafael Pico Lapuente, ASOLIVA
Robert Bauer, Association of Food Industries	Wencescao Moreda, North American Olive Oil Association
Tony Beaver, Australian Olive Oil Association	Dean Polik, Acme Food Sales, Inc.
Luisito Cercaci, Pompeian Inc. & Sunset Olive Oil LLC	David Rockwood, Rema Foods, Inc.
Ana Cuartero, Embassy of Spain	Luciano Sclafani, Jr., Gus Sclafani Corp.
Helena Dane, Food Specialties Trading LLC	Joao Vale de Almeida, European Union Delegation
John Eagan, Costco	Nanci Nicole Wong
Gabriel Estevez, Sovena USA Inc.	

Implementation of the proposed standards was primarily favored by large-scale California producers of olives for olive oil (those subject to the assessment levied by the commission), large-scale California handlers of olives for olive oil (those who would be subject to the grade and labeling standards proposed by the commission), and trade associations representing entities in one or both of these sectors. Additionally, multiple consumers, specialty retailers, academic/research institutions, and members of the California Senate supported implementation of the proposed standards. On the contrary, implementation of the proposed standards was primarily opposed by importers, distributors, and retail bottlers of top selling brands of foreign olive oil, and trade associations representing entities in these sectors. Additionally, multiple international organizations representing countries that produce the vast majority of foreign olive oil opposed implementation of the proposed standards. Implementation of the proposed standards was also opposed by one California producer and handler of olives for olive oil.

The comments provided in the hearing record can be summarized into one of the following categories: scope of proposed standard, costs and benefits to consumers, costs and benefits to industry and global market, proposed quality parameters, proposed purity parameters, compatibility with existing standards, inclusivity of products and grades, sampling, testing and grading methodology, and technical revisions. The sections below present arguments from both proponents and opponents of the proposed standards along each category. The department's analysis of the hearing record as it relates to each category is also included in the sections below.

Scope of Proposed Standard

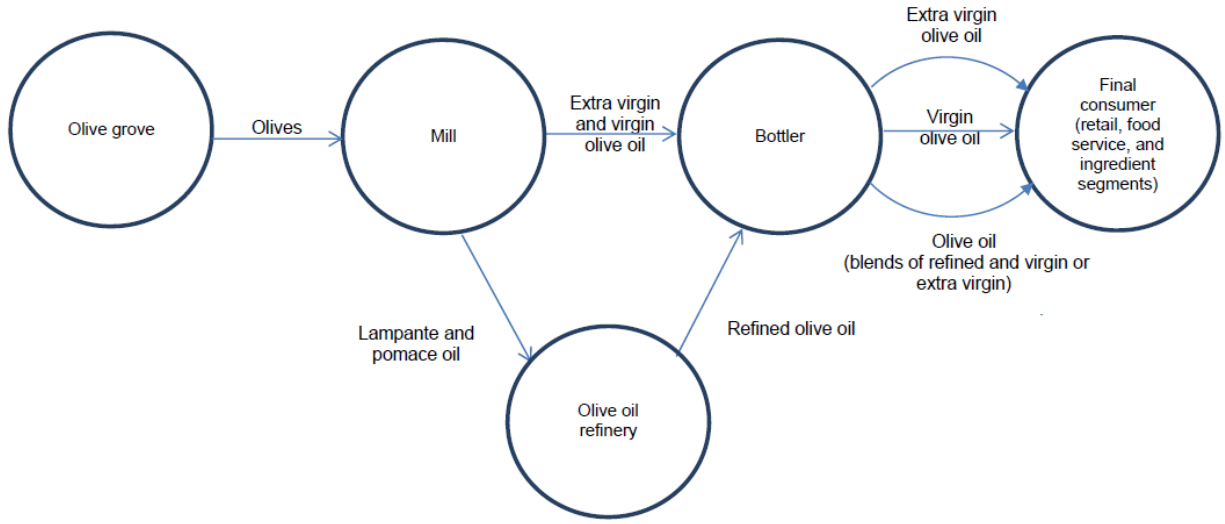
Section 1.0 of the proposed standard defines the scope as follows:

> Pursuant to Chapter 29, Part 2, Division 22 of the California Food and Agricultural Code (section 79800 et seq.) these standards apply to California handlers of olives that are processed into olive oils, refined-olive oils and olive-pomace oils in the amount of 5,000 gallons or more during the period beginning July 1 through June 30 of any year and who sell their oils into the commercial channels of trade. Handlers who process and/or market less than 5,000 gallons of olive oil during any year defined above are deemed to be engaged in casual sales of olive oil and are not subject to these standards.

As defined above, the application of the proposed standards is limited. If implemented, the proposed standards, would only affect handlers in the state of California who process olives grown in the state into a minimum of 5,000 gallons of olive oil products annually and who sell these products into commercial trade. The proposed standards, if implemented would not affect out of state handlers and in state handlers who process olives grown in the state into less than 5,000 gallons of olive oil products annually.

A recent study of the global olive oil industry conducted by the United States International Trade Commission depicts the supply chain for olive oil as follows:

Production and Marketing System for Olive Oil



Source: USITC Report on Olive Oil, August 2013, Figure 1.1, Compiled by USITC staff

Considering this visual, the node labeled as "Mill" would be subject to the proposed standards, if the operation was located in California and it processed 5,000 gallons or more of olive oil products in a season. In this example, the "Mill" would be affected by the proposed standard, because it is the entity who receives olives and transforms them into olive oil. All secondary-handlers who receive bulk olive oil that has previously been transformed, regardless of whether it operates as a refinery, bottler, importer, distributor, or otherwise, would be exempt from the proposed standards.

Although the definition of handler in the commission law is broader in scope and does not include a minimum volume threshold, the proposed standards, if implemented, would only apply to a subset of this universe as described above. According to information received during the commission's implementation process, the department identified 46 first-handlers of olive oil in the state during the 2012-2013 season. Of these handlers, approximately 15 would be affected by the proposed standards, if implemented. The department is aware of at least one additional entity who provides custom crush services to olive producers on a large-scale level. According to the commission law, providers of custom milling services are not considered handlers, and would therefore not be subject to the proposed standards, because they do not acquire the olives they are processing (title of the fruit remains with the producer). In such cases, each producer who is having his or her olives processed under a custom milling arrangement is also considered the handler of his or her olives, and would only be subject to the proposed standards if his or her annual volume exceeds the 5,000 gallon threshold.

Proponents of the proposed standards argue that the scope of the proposed standards is reasonable as written, because it explicitly exempts out of state handlers and small-scale (boutique) in-state handlers, and therefore does not impose additional costs or requirements on such entities. Proponents suggest that the proposed standards are designed to enhance California's olive oil industry as a whole, without mandating others in the global olive oil industry to change their current practices. Since the proposed

standards would only apply to a defined segment of California's olive oil industry, proponents question why non-affected parties outside of the state oppose the proposed standards.

On the other hand, opponents of the proposed standards argue that the scope of the standards and definition of handler are unclear and need further clarification. Opponents are specifically concerned about the application of Section 58748 of the California Marketing Act (Chapter 1 of Part 2, Division 21 of the FAC), which prohibits in-state handling of a commodity, regardless of origin, if it does not meet minimum grade and quality regulations issued for the commodity. Opponents state that the proposed standards would be overly burdensome on out of state handlers and in-state distributors of olive oil who sell a portion of their products in California, if the standards affect such entities, because they would be forced to package and label their products according to two separate and unique standards. Opponents further suggest that the price of food in the state would increase if olive oil importers, distributors, and retail packagers are required to adhere to the proposed standards.

In addition to the clarification provided earlier regarding who would be subject to the proposed standards, if implemented, the department offers its interpretation of Section 58748 of the Act, which in part is presented below (with emphasis added):

> 58748. If producers or handlers of any commodity which is regulated by a marketing order or marketing agreement that is issued by the director pursuant to the provisions of this chapter are required to comply with minimum quality, condition, size, or maturity regulations, no person may, *except as otherwise provided* in such order or agreement, process, distribute, or otherwise handle any of such commodity from any source, whether produced within or without this state, which commodity does not meet such minimum requirements applicable upon producers or handlers of such commodity in this state.

Although there is authority, under Section 58748 of the Act, for an agricultural marketing program to regulate product produced outside of California, but handled in the state, the commission has chosen to recommend grade and labeling standards for olive oils that are limited in scope. Specifically, the proposed standards, if implemented, would only apply to California handlers of olives that are processed into olive oils, refined-olive oils and olive-pomace oils in the amount of 5,000 gallons or more during the period beginning July 1 through June 30 of a given year and who sell their oils into the commercial channels of trade. This limited application fits within this section of the Act, because it allows for the exemption of persons being regulated. Namely, the scope of the proposed standards exempts all other persons who are not California handlers of olives that are processed into a minimum of 5,000 gallons of olive oil products annually.

While the department believes approximately 15 handlers in the state would initially be subject to the proposed standards, if implemented, it anticipates the number of affected parties to vary from year to year, as hander volumes fluctuate and entities enter and exit the industry.

Finally, given the preceding discussion regarding the scope of the proposed standards, manufacturers of food products containing olive oils would not be affected by the proposed standards. Therefore, the department has determined that Section 11.3.7 of the proposed standards, which would require olive oils used as an ingredient in food products to be labeled according to the nomenclature set forth in the standards, cannot be implemented. Such broad application of this labeling standard to food manufacturers would also go beyond the reach of the California Marketing Act.

Costs and Benefits to Consumers

In addition to defining various grades of olive oil products, the proposed standards set forth olive oil labeling requirements that affected handlers would have to comply with, if implemented. These labeling requirements designate eight product names that can be used on product labels, prohibit specific terminology from being used on product labels, and provide guidelines for including additional information on product labels regarding where the olives used in the product were grown, the variety(ies) of olives used in the product, the year the olives used in the product were harvested, and the shelf life ("best before" date) of the product.

Proponents of the proposed standards argue that the current terminology used for labeling olive oil products is misleading and confusing to US consumers and professionals in the food trade. Proponents cite research conducted by the UC Davis Olive Center and the Australian Olive Association to demonstrate common misperceptions consumers have with current olive oil labeling names. For example, consumers often incorrectly associate olive oil products labeled as "light" with being low in calories and olive oil products labeled as "pure" with not being blended or refined. Proponents believe the proposed standards will benefit consumers because affected handlers would be required to label their products with a clear, accurate, and descriptive naming convention. Proponents further believe that this more meaningful naming convention will increase consumer confidence in the marketplace and provide assurance to consumers that the product they are purchasing is exactly as described on the product's label.

In addition to building consumer trust, proponents state that the proposed standards will provide a greater level of assurance to consumers about the quality of the olive oil products they are purchasing. Proponents suggest that current unenforced olive oil standards permit lower quality products to be labeled with a high quality name ("extra virgin"). As a result, consumers who want to purchase premium olive oil products frequently buy lower quality products and are often left unsatisfied. Proponents believe the proposed standards will improve customer satisfaction and experience because only products that meet the highest quality measures will be permitted to be labeled as "extra virgin". Proponents further suggest that it is particularly important for health-conscious consumers to have better assurance about the quality of the products they purchase, because beneficial components associated with olive oils in, such as monounsaturated fats, are only found in olive oils that have not undergone refinement.

Lastly, proponents believe the proposed standards provide a foundation for educating consumers about olive oil grades. In turn, proponents believe the proposed standards will ease consumer apprehensiveness toward olive oil products and help consumers make more informed purchasing decisions.

Conversely, opponents of the proposed standards argue that the proposed labeling requirements diverge from the long-standing terminology used by the global olive oil trade, which in turn, would create confusion among consumers who are accustomed to commonly used olive oil product naming convention. Opponents suggest that the proposed standards, if implemented, could create a situation where identical olive oil products on a retail shelf would have to be labeled differently, which could be frustrating for consumers and discourage olive oil purchases. Instead of creating new product labeling terminology, opponents suggest consumers would be better served by targeted educational programs about olive oil products.

Additionally, opponents believe the proposed standards would add unnecessary costs to producing olive oil, which could decrease the availability of olive oil products and increase the prices of the products for consumers. In turn, opponents suggest consumers may be forced to purchase other edible oil products as substitutes to olive oil products.

Lastly, opponents argue that there is no scientific evidence to support using a "best before" date on an olive oil product label.

The department agrees that it is in the best interest of the general public to require product labeling names for olive oils that are accurate, descriptive, and not misleading for consumers. While the department believes the proposed standards accomplish this objective, the department also believes that the proposed standards, on their own, do not sufficiently educate consumers about the meaning of the proposed olive oil grades and product names. Accordingly, the department believes the proposed standards would be more effective at correcting consumer misconceptions if they were accompanied by a consumer education program. Since the commission does not have the authority to conduct consumer education activities, the department encourages the commission and the legislature to explore adding educational authority to provide greater public benefit.

Furthermore, the department does not believe that the supply of olive oil products offered to consumers would be restricted due to implementation of the proposed standards, because the standards provide for a wide spectrum of product grades (see discussion on inclusivity of products and grades).

Finally, the department agrees that the technical evidence regarding shelf life and "best before" dates regarding olive oil products is incomplete. However, the proposed standards, if implemented, would not mandate the use of a "best before" date on olive oil product labels. Rather, the use of a "best before" date would be optional and at the discretion of each affected handler. The department encourages the commission to fund research in the future regarding the appropriate shelf life of olive oils milled in California and recommend amendments to section 11.3.9 of the proposed standard, as necessary.

Costs and Benefits to Industry and Global Market

The proposed standards being considered for implementation were recommended by the commission, which membership consists of California handlers of olives for olive oil and California producers of olives that are processed into a minimum of 5,000 gallons of olive oil during a season. Proponents of the

proposed standards offer numerous benefits that the standards, if implemented, would have on California's olive oil industry, while opponents provide various reasons why implementation of the standards would hinder the global olive oil market.

Although standards regulating all olive oil products sold in California exist, proponents of the proposed standards argue that the state's rapidly growing olive oil industry is in need of standards that are uniformly applied across the industry and are enforceable. Proponents point out that the proposed standards are self-imposed and are designed to raise the bar on the quality of olive oil produced in the state. Without effective standards in place, proponents suggest that the viability and future growth of the California's olive oil industry is at risk.

Proponents believe the proposed standards will provide fair and consistent grading of olive oils produced in California and sold through commercial channels of trade, assist the state's olive oil industry in differentiating its products from other products in the marketplace, and increase demand for California olive oils. Proponents suggest that the state's olive oil industry is currently plagued by employing inconsistent measures of product quality. Proponents support implementation of the proposed standards because they would require all handlers who mill 5,000 gallons or more in a season to be held to the same measures of product quality. In turn, proponents believe the proposed standards will create, among those affected, a level playing field to compete. Since the proposed standards would be mandatory for affected handlers to adhere to, if implemented, proponents believe the state as a whole would produce more uniform and consistent olive oil products and the overall quality level of these products would improve. Proponents further point out that the proposed standards would prevent lower quality olive oil products from being labeled and marketed as a premium product ("extra virgin"), which in turn, provides a safeguard for the remainder of the high quality olive oil products supplied by industry.

Proponents strongly believe that the quality of olive oil products produced in the state is important and state that the proposed standards, if implemented, would provide an effect means for the industry to differentiate California olive oils from internationally produced olive oils. Proponents further mention that consumers, both domestically and abroad, associate agricultural products produced in California as having superior quality. Proponents believe that that proposed standards will help the state maintain its reputation for quality and create a meaningful brand for California olive oil that signals high quality to consumers and food service customers.

In addition to creating a high quality brand for olive oils produced in California, proponents believe implementation of the proposed standards will help the industry establish value with its customers. Proponents suggest that once customers understand the strict quality guidelines that California olive oil products are subject to and have positive experiences with the products, consumption of the state's olive oil products will increase and buyers will be more willing to pay premium prices for products. As a result, proponents believe the proposed standards will foster future investment and growth in California's olive oil industry. Proponents cite history and success stories from other agricultural industries in California, including those of almonds, pistachios, and walnut, who have benefited over the long run from establishing strict quality standards for their respective commodities.

Finally, proponents of the proposed standards, including many representing producers and/or handlers of olives for olive oil in the state, suggest that compliance with the standards, if implemented, would not be overly burdensome and would not add significant costs to their businesses. In fact, many handlers state their olive oil products already exceed the highest quality standards being proposed, and many producers state that they are required, under current contractual arrangements with their handlers, to deliver olives that when milled will exceed the highest quality standards being proposed. Both producers and handlers further state that they are willing to pay for the costs associated with administering the proposed sampling, testing, and grading protocols.

In contrast, opponents of the proposed standards argue that the standards, if implemented, would create confusion among the olive oil trade and add unnecessary burden on entities that sell both California and imported olive oil products. Since the proposed standards vastly differ from other commonly used existing olive oil standards, opponents believe that commercial olive oil transaction could become more complicated, if two unique standards had to be referenced. In turn, opponents suggest that certain businesses would be disadvantaged if they were required to adhere to conflicting standards.

Additionally, opponents suggest the implementation of the proposed standards could cause unintended implications on global olive oil markets and trade. Opponents believe that the underlying intent of the proposed standards is to disrupt current supply channels and prohibit imported olive oil product from being sold in the US. As a result, opponents view the proposed standards as an attempt to create an artificial barrier to trade against olive oil products produced abroad.

Since the proposed standards, if implemented, would be applied consistently across all affected handlers in the state, the standards would contribute to the uniform grading olive oil products milled in California in preparation for market. To date, the California olive oil industry has not been subject to an enforceable standard, even though mandatory olive oil standards exist in the CHSC. The proposed standards, if implemented, would provide the industry with regulations that are desired to highlight the superior quality of the olive oil products it produces. Lastly, given that the proposed standards are limited in scope and only apply to a subset of California handlers of olives for olive oil (see discussion on scope of proposed standard), the opponent's assumptions regarding possible trade impacts are inaccurate.

Proposed Quality Parameters

Quality parameters are designed to measure characteristics in a lot of olive oil that indicate the product's quality. Certain quality characteristics in olive oil, such as free fatty acid content and peroxide value, are determined using chemical analysis, while others, such as flavor and aroma defects, are determined using organoleptic (sensory) analysis. Tables 1 through 11 compare the proposed quality parameters and their associated limits, by grade, to the equivalent standards set forth in the California Health and Safety Code (see Exhibit "C"). All limits of the proposed quality parameters along each grade are either the same, more stringent, or additional to the limits of the required quality parameters defined in the CHSC standards. In one instance, the proposed limits of insoluble impurities for refined olive oil blend, refined olive oil, refined olive pomace oil blend and refined olive pomace oil are less stringent than those set forth in the CHSC

standards. However, the measurement of insoluble impurities is identified as an optional quality parameter in the CHCS standards.

Unlike the IOC standards, the proposed standards include quality parameters for measuring pyropheophytin a (PPPs) and 1,2 diacylglycerols (DAGs) for extra virgin olive oil. The levels of PPPs and DAGs in olive oils indicate the freshness of the oil and the presence of refined olive oil. Both PPPs and DAGs are also included as quality criteria in the Australian standard and the proposed limits for the parameters are identical. Furthermore, unlike the IOC standards, the proposed standards do not include a quality parameter for measuring levels ethyl esters in olive oils. The CHSC standard does not include this parameter either.

Proponents of the proposed standards point out that the proposed limits for quality parameters for virgin and extra virgin olive oil are more stringent than those of other standards commonly used in olive oil trade. In turn, proponents believe the tightened limits will result in better defined product grades and ensure that only the highest quality products can be labeled as "extra virgin" olive oil. This is particularly important to consumers who purchase extra virgin olive oil for its nutritional benefits, which proponents suggest do not exist to the same degree in lower quality or adulterated olive oils.

Proponents further argue that the inclusion of PPPs and DAGs quality parameters helps strengthen the proposed standard. Proponents suggest that these quality parameters have been widely used by the Australian olive oil industry and have been proven to be reliable measures of olive oil quality.

Although limits on many of the proposed quality parameters for virgin and extra virgin olive oil are more stringent than other olive oil standards, multiple proponents representing olive oil handler entities in the state indicated that most, if not all, of their olive oil products would be able to meet these stricter limits.

Opponents of the proposed standards agree that the proposed limits along quality parameters are more stringent than other existing standards. However, opponents believe quality parameters for measuring PPPs and DAGs should not be included in the proposed standards because the values of these components change over time during the shelf life of the olive oil. Opponents further state the quality parameters have been rejected by the IOC because there is insufficient science to justify their effectiveness at determining the quality of an olive oil product.

Opponents further expressed concern over the proposed quality parameters to measure organoleptic components of olive oils (median of defects and median of fruity). Opponents point out that there are no IOC-accredited sensory panels in the United States, and suggest that score for these parameters may be biased depending on where the olive oils are evaluated.

The department recognizes that members of the California olive oil industry desire to impose olive oil standards with more stringent measures of quality upon themselves. The department further recognizes that consumers equally desire to have higher quality olive oil products available in the marketplace. The department concludes that the proposed quality parameters incorporated in the standards accomplish

both objectives without limiting choices available to consumers. Thus, the parameters serve the best interests of both the olive oil industry in California and the general public.

Additionally, the inclusion of quality parameters for measuring PPPs and DAGs is reasonable given that the proposed standards would require all bulk lots of olive oil to be sampled prior to being bottled and tested prior to March 31st of each year, which is approximately six months after the state's olive harvest begins. As such, concern about the values of these parameters changing over time during a product's shelf life is not applicable under the proposed sampling and testing methodology.

Lastly, the quality parameters included in the proposed standards to measure organoleptic components of olive oils are appropriate and closely mirror those of other commonly used standards. Expert testimony pointed out that sensory evaluation is an objective scientific discipline and panels test oils in a blind environment. The department encourages accreditation of sensory panels in California.

Proposed Purity Parameters

Purity parameters are designed to measure characteristics in a lot of olive oil that indicate the product's authenticity (whether the oil is composed entirely of olive oil or has been blended with another edible oil). All purity characteristics of olive oil are determined using chemical analysis. Tables 12 through 21 compare the proposed purity parameters and their associated limits, by grade, to the equivalent standards set forth in the California Health and Safety Code (see Exhibit "D"). As shown in the tables, there are several instances where the limits of the proposed purity parameters are less stringent than the limits of the purity criteria defined in the CHSC standards. Other limits of the proposed purity parameters are more stringent, equal to, or in addition to the limits of the purity criteria defined in the CHSC standards.

In some instances where the limits of the proposed purity parameters are less stringent than the limits of the purity criteria defined in the CHSC standards, the proposed standards define a range of values that would require traceability documentation to be provided for review. For some of the proposed purity parameters that include a traceability component, the range of values defined only partially bridges the difference between the proposed limits and the limits of the same purity parameter defined in the CHSC standards. For example, the CHSC standards require olive oils sold in the state to have an apparent β-sitosterol value of at least 93.0 percent. However, the proposed standard would require olive oils to have an apparent β-sitosterol value of at least 91.5 percent, and for lots of olive oils with values for this purity parameter between 91.5 percent and 92.5 percent, traceability records would also be required to be submitted. Under the proposed standard, a lot of olive oil that is tested to have an apparent β-sitosterol value of 92.7 percent would pass purity testing for this component and not be subject to the additional traceability requirement, but would fail purity testing under the CHSC standards.

Proponents of the proposed standards argue that the proposed standards correctly widen the limits for certain purity parameters to better account for the natural chemistry of various varieties of olives that are commonly grown across diverse environmental conditions in California, including coastal and desert regions. Experts suggest that the fatty acid profile of an olive oil is correlated with the climate at which the olives used to create the olive oil were produced, and the sterol content of an olive oil is correlated

with to the cultivar of olives used to create the olive oil. Proponents believe the proposed standards will be more inclusive of all authentic olive oils milled in the state, which were shown in a recent study conducted by the UC Davis Olive Center and to routinely fail purity testing under limits defined in existing standards.

Data from the same UC Davis study and other relevant research were used to set limits for the purity parameters defined in the proposed standards. Proponents characterize the data and research used to define the limits for the proposed purity parameters as being scientifically sound. Additionally, proponents believe the proposed standards will help facilitate the collection of additional data regarding purity measures of olive oils milled in the state.

Although the limits for certain purity parameters in the proposed standards are less stringent than the limits set in other olive oil standards, proponents believe the proposed standards will still be effective at preventing olive oils from being blended with other edible oils. In fact, many proponents believe the traceability component of the proposed standards will provide additional protection for the market and be a stronger deterrent against product adulteration. Multiple proponents representing olive oil handler entities in the state indicated that the traceability requirements would be easy to comply with, if necessary, because they already adhere to similar practices in their operations.

On the contrary, opponents of the proposed standards believe that less restrictive limits along certain purity parameters increase the risk of fraud and adulteration of olive oils milled in the state. For example, opponents suggest than less stringent limits on total sterol content increases the opportunity for blending olive oils with vegetable oils, and less stringent limits on fatty acid composition increases the opportunity for blending olive oils with seed oils. Opponents further suggest that the amount of available data and research is insufficient to justify widening certain purity parameters in the proposed standards to better accommodate authentic olive oils milled in California. Opponents believe that the commission should conduct more comprehensive research regarding appropriate limits for purity standards and collaborate with international experts before recommending the implementation of an olive oil standard.

Opponents believe the concept of a decision tree (widening limits on a given purity parameter, but subsequently tightening the limits on a separate associated purity parameter or requiring further testing along additional purity parameters) is a better method for adapting an olive oil standard to a unique production region. Opponents cite precedent in adopting this type of concept in the IOC and USDA standards. For example, the USDA standard sets the maximum campesterol limit at 4.5 percent. However, if an olive oil was measured to contain a campesterol value between 4.0 and 4.5 percent, it would be subject to confirmatory tests along four additional purity parameters.

The department agrees that it is important to have purity parameters in an olive oil standard that have been adapted to encompass the natural chemical components of authentic olive oils processed from various cultivars of olives grown across the state's diverse geography and production conditions. At the same time, however, it is important not to weaken purity parameters to a level where adulterated olive oils go undetected. The traceability requirements included in the proposed standards are a meaningful

approach for preventing adulteration in the state's olive oil industry, and a good compromise for handlers whose authentic olive oil products fall outside of the defined limits for specific purity parameters.

Although data is somewhat limited regarding the chemical characteristics of olive oils milled in the state along key purity measurements, the limits for the proposed purity parameters are based on best available science. As more data is collected in the future, the limits for the proposed purity parameters should be refined as appropriate.

The department's concerns regarding how the proposed purity parameters comply with those of existing standards are discussed in the following section.

Compatibility with Existing Standards

As depicted in the background section, a plethora of standards exist around the world for olive oil. Although many standards are voluntary, do not mandate testing or are otherwise unenforced, this standard, if implemented, would require testing of all lots of olive oil milled by handlers in California who process olives grown in the state into at least 5,000 gallons of olive oil annually. Additionally, all olive oil labeled for sale in California would still need to comply with existing standards in the California Health and Safety Code (this includes both imported olive oils and olive oils milled by the subset of handlers defined in the proposed standards).

Proponents of the proposed standards argue that the standards being considered are stronger than existing standards, more enforceable than existing standards, and more inclusive of domestic production than existing standards. When comparing the proposed standards with the IOC standards, proponents point out that proposed standards narrow the broadly defined grades that exist in the IOC standards. In turn, proponents believe that the proposed standards would raise the bar on the entire California olive oil industry and create a marketplace where only the highest quality olive oil products milled in the state will be permitted to be labeled as "extra virgin".

While it has been well documented that the potential for adulteration of olive oil products is high, proponents felt that the proposed standards would be easier to enforce than other existing standards. Proponents suggest that potential fraud will be significantly reduced under the proposed standards, because unlike most other existing standards, all handlers subject to the proposed standards would be mandated to have each lot of olive oil sampled, tested, and graded.

Lastly, proponents favored the proposed standards over current standards because they recognize environmental factors and cultural practices that are unique to the California olive oil industry. In fact, proponents suggest that the IOC's unwillingness to accept changes to its European-centric standard has forced the California olive oil industry to develop its own standard. Proponents suggest that authentic olive oils milled in California could be considered vegetable oil under existing IOC standards, simply due to the variety of olives grown, the climate in which the olives were grown, and/or the timing in which the fruit was harvested. Proponents cite existing data and research conducted by the University of

California, Davis Olive Center, the California Olive Oil Council and the Australian Oils Research Laboratory to support modifying certain purity parameters from levels set in other standards.

On the contrary, opponents of the proposed standards argue that all olive oil standards should be harmonized with the IOC standards, which are long standing, based on decades of research, and facilitate the vast majority of the global olive oil trade. When comparing the proposed standards to the IOC standards, opponents suggest that the two standards are inconsistent, incompatible, and conflicting with one another. Of specific concern, opponents point out that the proposed standards drastically diverge from the existing CHSC standards, which reference the voluntary USDA standards and are closely aligned with the IOC standards.

Additionally, opponents state that the proposed standards are based on the voluntary Australian standards, which they argue have not been effective. Opponents further suggest the California industry should participate in the IOC and seek changes to the international standard through this body.

As mentioned earlier, the department agrees that it is appropriate for the California olive oil industry to have a standard that is unique to the state's diverse environmental conditions and cultural practices. In order to do this, the limits of certain purity parameters are proposed to be widened from existing standards to encompass all authentic olive oils milled in the state (reference previous section). However, from a legal stand point, new standards placed on California's olive oil industry cannot be less stringent than mandatory standards in statute. Specifically, in California, standards for all olive oils sold in the state are established in the California Health and Safety Code. The CHSC standards mandate all provisions specified in the voluntary USDA standard and set forth criminal penalties for persons violating the standards. Thus, if less stringent parameters are adopted as proposed for some purity criteria, it could create a problematic situation where an olive oil product adheres to the new standard, but violates the existing standard. For example, if a lot of olive oil milled in California was tested and measured to have a cholesterol value of 0.7 percent (percentage of total sterols), the lot would not be in compliance with the CHSC standards if sold in the state, but would be subject to the traceability requirements under the proposed standards. Assuming the traceability requirements were satisfied for this lot of olive oil, the handler could bottle and label this product appropriately and sell it into a commercial channel of trade under the proposed standards, and be charged with a misdemeanor crime for violating the existing standards in the CHSC.

In order to implement a California-centric standard for olive oil, as proposed, the existing standards in the CHSC need to be modified to be aligned with the proposed standards or repealed all together. Each of these options would require future legislation.

Inclusivity of Products and Grades

The proposed standards define a complete spectrum of grades for olive oil, refined-olive oil, and olive-pomace oil products. In other words, a category for all possible types of oils produced from the fruit of an olive tree (Olea europea L.) is included in these standards. Olive oil is obtained solely from processing olive fruit; refined-olive oil is obtained by further processing lower-grade olive oils; olive-pomace oil is obtained

by further processing olive waste. Unlike other primary olive oil production regions, the California olive oil industry currently only produces virgin and extra virgin olive oils.

Proponents of the proposed standards argue that the standards are not designed to restrict supply or prevent product from entering the market, and thus, need to define grades for every possible type of olive oil product that could be produced. Proponents cite uncontrollable weather events, such as a frost, that could significantly damage the quality of olive fruit before it is harvested, and consequently have a negative effect on the final olive oil products produced from the fruit. As a result, proponents believe it is equally important to have grade standards defined for lower-quality products, so the entire olive crop, regardless of quality, can be sold to handlers each year. Lastly, proponents point out that although the California olive oil industry does not currently produce refined-olive oil or olive-pomace oil products, it could in the future, and therefore, standards for these products need to be in place.

On the other hand, opponents of the proposed standards argue that the standards attach negative attributes to the names of lower-grade products and suggest that the commission should only be recommending standards for the grades of olive oil that are produced in California. Opponents further point out that lengthy product identity statements, particularly those proposed for refined-olive oil blend and refined olive pomace-oil blend, are not practical for labeling and marketing products of any kind.

The department agrees that it is reasonable to include grades in the proposed standards for products not currently produced in the state. In fact, other existing olive oil standards, including those established in the CHSC, set forth an inclusive range of grades for all products that could be produced, even if some products have not been produced to date by the region for which the standards apply. The department further believes that the proposed product names for each grade designation are appropriate, because they accurately describe the content of the products. Although certain product names and associated identifying statements could be problematic for marketing, as opponents suggest, truthful and descriptive naming of olive oil products is in the best interest of the public.

Sampling, Testing, and Grading Methodology

The methodology for sampling, testing, and grading lots of olive oil that would be followed if the proposed standards are implemented are provided in Appendix A of the standards document. It is the intent of the commission to mandate third-party sampling of all lots of olive oil milled by large-scale handlers in the state and testing of samples by an accredited laboratory and sensory panel prior to the sale of the olive oil products. However, there are currently no local laboratories with proper accreditations available to provide the services needed to carry out the proposed testing procedure. Given the infrastructure limitations, the commission has recommended a three-year phase-in period before the complete sampling, testing, and grading protocols can be implemented. The commission anticipates that as the testing volume increases during the transition period, certified laboratories will become established in the state.

Proponents of the proposed standards indicate that the proposed sampling, testing, and grading methodology are practical and would be the least burdensome for handlers to follow, while maintaining the integrity of the grade and labeling standards. Proponents further suggest that it is necessary to phase these procedures in over time in order for the commission to begin collecting information regarding grade results, and to provide an opportunity for future testing to be conducted locally.

The department agrees that the proposed sampling, testing, and grading methodology are fair and reasonable considering the constraints that exist in the industry. Given these limitations, the department also agrees that a period of transition is necessary in order to minimize the potential burden on affected handlers that the long term sampling, testing, and grading protocols, recommended by the commission, would create if fully implemented at present time. Since there are currently no public olive oil testing laboratories with proper certification in California or the U.S., samples collected under the proposed procedures would need to be sent abroad for testing. This could add several weeks to the time a sample is collected and its associated test results are returned, and could place affected handlers at a competitive disadvantage if they are unable to market their products prior to receiving test results.

The department encourages the development of accredited olive oil testing laboratories and sensory panels in California. Additionally, the department suggests that the commission to revisit the proposed sampling, testing, and grading methodology during the phase-in period and recommend appropriate amendments, as infrastructure develops and experience is garnered to improve the procedures.

Technical Revisions

During the open commenting period, written correspondence suggesting technical revision to the proposed standards were submitted to the department by six witnesses representing the following organizations: Agbiolab, Inc., ASOLIVA (Spanish Olive Oil Exporters Association), Bariani Olive Oil, the European Union Delegation, Il Fiorello Olive Oil Company, the International Olive Council, and Pompeian Inc. & Sunset Olive Oil LLC. For example, multiple comments were received regarding the appropriate duration of time the test results from a laboratory sample should be considered valid. The department notes the suggested technical revisions offered by these witnesses and will present them to the commission for future consideration and recommendations of amendments to the proposed standards as appropriate.

Additionally, during the hearing, an exhibit was submitted by the commission pointing out three minor typographical errors in the proposed standards document that require correction. The department notes these comments and will correct them in the final version of the proposed standards that is being considered of implementation.

Findings and Recommendation

In evaluating proposed seasonal regulations, including grade and labeling standards, issued pursuant to the California Marketing Act, the department is required to consider whether such regulations will tend to effectuate the declared purposes and policies of the Act with respect to the affected commodity.

It is understood that the declared purposes of the California Marketing Act are broad and diverse in scope so as to encompass the numerous types of challenges that an agricultural commodity sector may face. Therefore, it is also understood that the establishment of quality standards will not necessarily effectuate each stated purpose, but rather effectuate the purposes relevant to the specific activity.

Mandatory grade and labeling standards, if properly crafted and administered, address the following purposes set forth in the Marketing Act:

1. Enable producers of this state, with the aid of the state, to correlate more effectively the marketing of their commodities with market demands for that commodity.
2. Establish orderly marketing of the commodity.
3. Provide uniform grading and proper preparation of the commodity for market.
4. Eliminate or reduce economic waste in the marketing of the commodity.
5. Restore and maintain adequate purchasing power for the producers of the commodity.

Furthermore, the proposed standards state three additional objectives:

6. To ensure the quality of oil produced from olives in California.
7. Enhance the continued growth of olive oil production through greater consumer and trade confidence in the consistent, high quality of California olive oils.
8. Provide producers, handlers, buyers and consumers of California olive oil with reliable and trustworthy information concerning the quality and grade of the product.

Enable olive oil producers of this state, with the aid of the state, to correlate more effectively the marketing of olive oil with market demands for olive oil

California olive oil production supplies a tiny fraction (three percent) of the domestic consumption of olive oil. The opportunity for California producers to capture a larger share of this market depends on their ability differentiate their product from that exported by Mediterranean countries to the U.S.

These exporters have large-scale operations milling olives from predominantly traditional olive orchards where producers harvest olives to get the highest yield possible. This oil is produced in vast quantities far exceeding market demands in their own country. A high percentage of this oil is destined for export markets but not before being blended with other oils. In particular, for the U.S. market the oils are blended to be mild flavored with a mild aroma. This is what the American consumer is used to after a long history of consuming imported oils.

The challenge for California producers is to inform American consumers about the diversity of extra virgin olive oils produced in California and to provide opportunities for consumers to taste oils produced from different varieties of olives, different growing regions in the state and different climates throughout the state's diverse landscape.

As consumers become familiar with the different oils available in California, opportunities for an increasing share of the domestic market and particularly the high end of the market will be realized. The establishment of grade standards that are higher than existing standards and that will be enforced through mandatory testing will help these producers to ensure a consistently high-quality, extra virgin olive oil that consumers will come to value.

California extra virgin olive oil producers must currently compete with large-scale operations that can sell extra virgin olive oil at a price as low as $2.00 per gallon. California operations have significantly higher production costs because they are producing for quality, not quantity. Some California extra virgin olive oil is sold in retail stores for as much as $20.00 per gallon.

To engage in price competition with importers is a race to the bottom and is not sustainable. If California producers can successfully educate consumers about the difference between high-volume olive oil from foreign operations and the diverse specialty olive oils from California, then consumers will gladly pay a higher price for quality, flavorful and nutritious extra virgin olive oil.

Establish Orderly Marketing of Olive Oil

The California olive oil industry is relatively new in a global industry that has been operating for several centuries. The disadvantage of a nascent industry is the high startup cost and the challenge of winning a share of the marketplace. For boutique operations, there is less of a challenge because most already have established trees and they can market all of their production either on site or at local markets. For larger scale operations that have been established in the past 15 years, they are still paying down the high capital cost to acquire land, trees, mechanized harvesting equipment, and in some cases, milling facilities.

In order to ensure the highest quality olive oil possible, harvest of olives must occur at the right stage and must be pressed and stored as quickly as possible. In most cases this occurs within 12 to 24 hours after harvest.

In order to convince consumers to value California olive oils, the industry must ensure that negative experiences are rare. By having grade standards that are enforced, producers and consumers benefit by the consistently high quality oil offered for sale. Uniformity in labeling for California olive oils helps consumers to more easily become familiar with domestic produced products. They can compare different products from different millers and different regions with the confidence that the quality of the product is similar, while differences in the character of the oil result from different varieties and growing regions and different blends of extra virgin oils.

With consistency in quality, prices will be similar as compared with mass produced product blended to minimize flavors and aromas. Consumers looking for a bargain price will still be able to purchase the imported product, while the consumer looking for high-end quality product will have multiple choices on the retail shelf.

Provide for Uniform Grading and Proper Preparation of Olive Oil for Market

Under the proposed grade standards, producers will be required to meet higher quality standards than those that exist currently. Additionally, olive oil standards do not exist in the world, where adequate resources are available to enforce the standards. Existing standards are either voluntary or the standards are the responsibility of government agencies responsible for the general health and welfare of citizens. These agencies are always challenged for resources and are forced to prioritize their regulatory activity. Regulations that are vital for ensuring the health and safety of the public will always take precedence over economic regulations.

Non-governmental organizations do not generate sufficient funds from their members to enforce standards. The cost of lawsuits and the liability risk to organization officials, should their enforcement action fail, discourages action from being taken. Some associations will file civil complaints on rare occasion, but given the high incidence of fraud in the marketplace and the minimal enforcement, relaxed standards are not effective.

The commission will generate sufficient funds through assessment of olive oil producers statewide, exercising the police powers of the state, to carry out mandatory testing and, if need be, enforcement action. The standards require that multiple samples will be drawn from each lot of olive oil. The commission will ensure appropriate samples are shipped to a common and accredited lab for testing to ensure consistent testing for all handlers. Initially, the commission will pay for the vast majority of the testing so that smaller handlers are not overburdened by the cost.

Labeling standards will ensure that olive oils entering the market place have common product names so that consumers purchasing California produced oil will have certainty regarding what they are buying and that the quality will be good.

With the rapid growth of the California olive oil industry, the University of California at Davis received funding to gather data on the quality and purity of extra virgin olive oils in markets around the state. The research found many oils that did not meet existing standards, including some California extra virgin olive oils. While the California samples were authentic extra virgin olive oil, they fell short along some of the USDA purity standards, which are required by the California Health and Safety Code (CHSC).

The commission recommended purity standards that mostly were the same as or more strict than the existing standards in statute. However, for those purity standards that some authentic California oils could not meet, the commission recommended a less stringent standard. For some purity parameters, the commission recommended adding a traceability component, which would require handlers of oils not in compliance with the CHSC purity standards, but within a defined tolerance, to submit traceability

documentation to verify that the oil tested was 100 percent authentic olive oil. Even though the traceability requirement would demonstrate the purity of the product, the more relaxed standard is not in compliance with the CHSC. Therefore, those purity standards that are less stringent than those existing in statute cannot be implemented. All purity standards that are the same or more stringent than existing statute can be implemented.

Eliminate or Reduce Economic Waste in the Marketing of Olive Oil

As stated above, there are no standards in existence that are enforced sufficiently to ensure compliance. This unenforced marketplace results in wide variations of what is called extra virgin and/or virgin olive oil. Retail prices charged do not ensure that the oil is high quality, due to fraud in the labeling of the oil. Without regulations with the clout of government enforcement, the incentive to cheat exists. The result, as presented earlier in this document, is that olive oil is the most common food to be adulterated or mislabeled.

With fraudulent activity in the marketplace, an equitable playing field for competition does not exist. Honest competitors wishing to maintain the integrity of their name and the goodwill of their customers have their product on the same shelf with product that is not what it says it is, or was bottled too far in the past to ensure quality. Such an unlevel playing field creates economic waste in the marketing of olive oil because reputable producers cannot realize proper value for their product when there are other brands claiming to be the same product, but selling for one-tenth the price. Grade standards that are enforced on any product produced by a California miller from olives grown in California will at least ensure the consumer of the quality of the domestic product they are purchasing and that the product name on the label is accurate.

Restore and Maintain Adequate Purchasing Power for Olive Oil Producers in the State

As long as California producers operated traditional, small-scale olive operations and marketed their olive oil either directly to consumers or to small specialty shops near their operation, the olive oil business was often supplemented by producing and selling other commodities or by outside employment. However, with the advent of large scale SHD business models, came very high capital costs including acquisition of land, harvesting equipment, cost of trees and higher operating cost, including labor needed for proper management of the trees (reference Exhibit “A”). If the operation is vertically-integrated, then capital costs include a milling facility and equipment.

Grade and labeling standards that establish more orderly markets will aid producers in capturing the value of their product through the price consumers are willing to pay for consistent and high quality extra virgin olive oil. Higher revenues help facilitate a business model that produces high quality olives harvested at the optimal time and milled in 12 to 24 hours. As the operations build a loyal customer base, the business model becomes sustainable.

Furthermore, the proposed standards do not restrict any producer or miller from marketing their olive oil. By establishing a comprehensive hierarchy of olive oil categories, producers and millers can market all of their product by meeting the grade and labeling standards for the given quality of the oil.

Collectively, the California olive oil industry will likely expand its share of the domestic market as its reputation for high quality and good value grows.

California agriculture has a long history of producing high quality food and fiber. Consumers around the world prefer agricultural commodities coming from California. Time and time again, farmers, distributors and processors enter a commodity market, and over time become the leading producer and supplier of that commodity, whether its almonds, milk and dairy products, strawberries, grapes or dozens of other crops.

Olive oil is one of the newest agricultural industries in the state and, through its early efforts to establish standards of quality and proper labeling of its oils, it is positioned to carry on the California tradition and further strengthen the California "brand".

Finally, there is a pressing need for consumer education, given the unregulated marketplace they shop in. Many consumers are uninformed by the olive oil products they are purchasing. We encourage the Olive Oil Commission and the California Legislature to amend the commission law to authorize consumer education activities. Until an education effort reaches consumers, the benefits of the grade and labeling standards will not be fully realized.

Conclusions

In view of the foregoing information, we hereby find that the Olive Oil Grade and Labeling Standards recommended by the Olive Oil Commission of California:

- Are reasonably calculated to attain the objectives which are sought in Section 2.0 of the proposed standards,
- Will tend to effectuate the declared purposes of the California Marketing Act as stated in Section 58654 of the California Food and Agricultural Code, and
- That the interests of consumers of olive oil are protected in that the powers of the California Marketing Act are being exercised only to the extent which is necessary to attain such objectives.

Having considered the facts, testimony and evidence received for the public hearing on July 15, 2014, we hereby find that:

All of the Grade and Labeling Standards for Olive Oil produced in California from olives grown in California should be implemented as considered at the July 15, 2014 hearing, with the following exceptions:

1. Section 11.3.7 – Food Ingredients – This section would regulate persons beyond the scope of the Grade and Labeling Standards as defined in Section 1.0.

2. Those purity parameters grayed out on Table 2, Table 3 and Table 4.

Based on these conclusions, the authors recommend that the proposed Grade and Labeling Standards for Olive Oil, Refined-Olive Oil and Olive-Pomace Oil as considered at the public hearing held on July 15, 2014 be made effective except for those provisions stated above.

Date: September 15, 2014

Robert Maxie, Chief
CDFA Marketing Branch

Date: September 15, 2014

Joe Monson, Senior Agricultural Economist
CDFA Marketing Branch

EXHIBIT "A"

Table 2. UC COOPERATIVE EXTENSION
COSTS to PRODUCE SUPER-HIGH DENSITY OLIVES for OIL
SACRAMENTO VALLEY – 2007
ARBEQUINA VARIETY

Labor Rate: $14.14/hr. machine labor
$10.96/hr. non-machine labor

Trees Per Acre: 670
Long Term Interest Rate: 7.25%

Operation	Operation Time (Hrs/A)	Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
		---------- Cash and Labor Costs per Acre ----------					
Cultural:							
Irrigate	0.80	9	0	152	0	161	
Fertilizer - Nitrogen	0.80	9	0	37	0	46	
Fertilizer - Potassium	0.80	9	0	13	0	22	
Spring Pruning	20.00	219	0	0	0	219	
Weed Control - Strip Spray 4X	1.09	18	14	37	0	69	
Weed Control - Mow Middles 4X	0.79	13	13	0	0	26	
Disease Control - Olive Knot & Peacock Spray	0.35	6	6	36	0	48	
Weed Control - Spot Spray	0.22	4	3	1	0	7	
Skirt Prune Trees (Every Year Starting 4th Year)	0.00	0	0	0	45	45	
Top Prune Trees (Every Year Starting 4th Year)	0.00	0	0	0	20	20	
Pickup Truck Use	2.59	44	19	0	0	63	
ATV Use	2.59	44	7	0	0	51	
TOTAL CULTURAL COSTS	30.03	375	61	276	65	777	
Harvest:							
Harvest - Over-The-Row Machine	0.00	0	0	0	300	300	
Haul Fruit to Processor	0.00	0	0	0	98	98	
TOTAL HARVEST COSTS	0.00	0	0	0	397	397	
Postharvest:							
Disease Control - Olive Knot & Peacock Spray	0.35	6	6	36	0	48	
Weed Control - Residual Weed Spray	0.22	4	3	65	0	71	
TOTAL POSTHARVEST COSTS	0.57	10	8	101	0	119	
Interest on Operating Capital @ 10.00%						47	
TOTAL OPERATING COSTS/ACRE		385	70	377	463	1,340	
CASH OVERHEAD:							
Liability Insurance						6	
Office Expense						59	
Sanitation Fee						4	
Property Taxes						94	
Property Insurance						67	
Investment Repairs						53	
TOTAL CASH OVERHEAD COSTS						283	
TOTAL CASH COSTS/ACRE						1,623	
NON-CASH OVERHEAD:							
Investment		Per producing Acre		-- Annual Cost -- Capital Recovery			
Shop Building - 1,800 SqFt		403		35		35	
SHD Olive Orchard Establishment Cost		5,680		524		524	
Fuel Tanks: 1-100 & 1-250 Gallon		44		4		4	
Land @ $5,000 Per Acre		5,000		363		363	
Drip Irrigation System		1,645		142		142	
Shop Tools		32		3		3	
Equipment		639		74		74	
TOTAL NON-CASH OVERHEAD COSTS		13,443		1,140		1,150	
TOTAL COSTS/ACRE						2,773	

EXHIBIT "B"

STATE OF CALIFORNIA

DEPARTMENT OF FOOD AND AGRICULTURE

Proposed Grade and Labeling Standards for Olive Oil, Refined-Olive Oil and Olive-Pomace Oil

For consideration at a public hearing

to be held on July 15, 2014 in Sacramento

CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

Proposed Grade and Labeling Standards for Olive Oil, Refined-Olive Oil and Olive-Pomace Oil

Table of Contents

1.0 SCOPE

Pursuant to Chapter 29, Part 2, Division 22 of the California Food and Agricultural Code (section 79800 et seq.) these standards apply to California handlers of olives that are processed into olive oils, refined-olive oils and olive-pomace oils in the amount of 5,000 gallons or more during the period beginning July 1 through June 30 of any year and who sell their oils into the commercial channels of trade. Handlers who process and/or market less than 5,000 gallons of olive oil during any year defined above are deemed to be engaged in casual sales of olive oil and are not subject to these standards.

These standards:

(a) define grades of olive oils, refined-olive oils and olive-pomace oils;
(b) specify purity parameters and quality parameters for these grades;
(c) establishes requirements for labeling and packaging; and
(d) list acceptable methods of analysis.

2.0 OBJECTIVE

The purpose of these standards are to:

(a) ensure the quality of oil produced from olives in California,
(b) enhance the continued growth of olive oil production through greater consumer and trade confidence in the consistent, high quality of California olive oils, and
(c) provide the producers, handlers, buyers and consumers of California oil with reliable and trustworthy information concerning the quality and grade of the product.

3 .0 PRODUCT DESCRIPTION AND DEFINITIONS

3.1 OLIVE OIL

Olive oil is the oil obtained solely from the fruit of the olive tree (*Olea europaea L.*), solely by mechanical or other physical means under conditions, including thermal conditions, that do not lead to alterations in the oil, and which has not undergone any treatment other than washing, crushing, malaxing, decantation, pressing, centrifugation, and filtration and to the exclusion of oils obtained using solvents or re-esterification processes and of any mixture with oils of other kinds.

3.2 REFINED-OLIVE OIL

Refined-olive oil is oil obtained from olive oil by refining methods including but not limited to; degumming, neutralization, bleaching, and/or deodorization that do not lead to alterations in the initial glyceridic structure (basic glycerin-fatty acid structure) and to the exclusion of oils obtained using solvents or re-esterification processes and of any mixture with oils of other kinds.

3.3 OLIVE-POMACE OIL

Olive-pomace oil is the oil obtained by treating olive pomace (the product remaining after the mechanical extraction of olive oil) with solvents or other physical treatments, to the exclusion of oils obtained by synthetic processes or by re-esterification processes and mixture with oils of other kinds.

3.4 REFINED OLIVE-POMACE OIL

Refined olive-pomace oil is the oil obtained from crude olive-pomace oil by refining methods including but not limited to; degumming, neutralization, bleaching, and/or deodorization that do not lead to alterations in the initial glyceridic structure (basic glycerin-fatty structure) and to the exclusion of oils obtained by synthetic processes or by re-esterification processes any mixture with oils of other kinds.

4.0 GRADES OF OLIVE OIL, REFINED-OLIVE OIL, AND OLIVE-POMACE OIL

4.1 GRADES OF OLIVE OIL

Olive oils are graded based on the criteria outlined in these standards, as appropriate. The hierarchy for grades of olive oil is extra virgin olive oil, virgin olive oil, and crude olive oil.

4.1.1 Extra Virgin Olive Oil is olive oil that has a free acidity, expressed as free oleic acid, of not more than 0.5 grams per 100 grams, a median of defects equal to 0, and the other characteristics which correspond to the limits fixed for this grade in these standards. Extra Virgin olive oil is fit for consumption without further processing.

4.1.2 Virgin Olive Oil is olive oil that has a free acidity, expressed as free oleic acid, of not more than 1.0 grams per 100 grams, a median of defects equal to or less than 2.5, and the other characteristics which correspond to the limits fixed for this grade in these standards. Virgin olive oil is fit for consumption without further processing.

4.1.3 Crude Olive Oil is olive oil that has a free acidity, expressed as free oleic acid, of more than 1.0 grams per 100 grams or a median of defects greater than 2.5 and other characteristics which correspond to those fixed for this grade in these standards. Crude olive oil is not fit for human consumption without further processing and is intended to be used for refining or for technical use. **NOTE: These criteria are not required to be concurrent for crude olive oil, one is sufficient.**

4.2 GRADES OF REFINED-OLIVE OIL

Refined-olive oils are graded based on the criteria outlined in these standards as appropriate. The hierarchy of grades from highest to lowest is refined-olive oil blend and refined-olive oil. Refined-olive oil blend and refined-olive oil fall below the olive oil category but above the olive-pomace category in terms of hierarchy.

4.2.1 Refined-Olive Oil Blend Composed of refined-olive oil and virgin (or extra virgin) olive oil is composed of refined-olive oil and olive oil fit for consumption without further processing. It has a free acidity, expressed as free oleic acid, of not more than 0.8 grams per 100 grams, a median of defects equal to or less than 2.5, and its other characteristics correspond to those fixed for this grade in these standards. Refined-olive oil blend shall not be labeled as "olive oil". The addition of alpha-tocopherol is permitted.

4.2.2 Refined-Olive Oil is oil obtained from olive oil by refining methods including deodorization that do not lead to alterations in the initial glyceridic structure. Refined-olive oils have a free acidity, expressed as free oleic acid, of not more than 0.3 grams per 100 grams, and other characteristics that correspond to those fixed for this grade in these standards.

4.3 GRADES OF OLIVE-POMACE OIL

Olive-pomace oils are graded below the quality of olive oil and refined-olive oil. Olive-pomace oils are graded based on the minimum criteria outlined in table 1, as appropriate. The hierarchy for grades from highest to lowest is refined olive-pomace oil blend, refined olive-pomace oil, and crude olive-pomace oil. Crude olive-pomace oil must be refined before consumption. Olive-pomace oils shall not be labeled as "olive oil". Olive-pomace oils fall below both olive oil and refined olive oil in terms of hierarchy.

4.3.1 Refined Olive-Pomace Oil Blend Composed of refined olive-pomace oil and virgin (or extra virgin) olive oils is the oil composed of a blend of refined olive-pomace oil and olive oils fit for consumption without further processing. It has a free acidity, expressed as oleic acid of not more than 0.8 grams per 100 grams, a median of defects equal to or less than 2.5, and its other characteristics correspond to those fixed for this grade in these standards.

4.3.2 Refined Olive-Pomace Oil is the oil obtained from crude olive-pomace oil by refining methods that do not lead to alterations in the initial glyceridic structure. It has a free acidity expressed as oleic acid, of not more than 0.3 grams per 100 grams and its other characteristics correspond to those fixed for this grade in these standards.

4.3.3 Crude Olive-Pomace Oil is the olive-pomace oil whose characteristics correspond to those fixed in these standards. Olive pomace-oil that falls into this classification shall not be graded above "Crude Olive-Pomace Oil" (this is a limiting rule). It is intended for refining for use for human consumption or for purposes other than food use.

5.0 DEFINITIONS OF TERMS

For the purpose of these standards the following definitions apply.

5.1 **Absorbency in Ultraviolet (UV).** Spectrophotometric test which examines the oil and measures the absorption under ultraviolet light. These absorptions are expressed as K (extinction coefficient) for the specified wavelength. The wave regions examined, 232 nanometers (nm) to calculate K232 and 270 nm to calculate K270 and 264-274 to calculate delta K (ΔK). This test provides information on the quality of the oil, state of preservation, and changes brought through processing.

5.2 **Apparent β-sitosterol.** The sum of the concentrations of β-sitosterol, Δ-5avenasterol, Δ-5,23-stigmastadienol, Δ-5,24-stigmastadienol, cholesterol, and sitostanol.

5.3 **Aroma.** A volatilized chemical compound that is perceived by olfaction.

5.4 **Cold pressed.** Olive oil obtained by pressing crushed olives with a mechanical, hydraulic, or centrifugal press at a temperatures that does not lead to significant thermal alterations.

5.5 **Cold extracted.** Olive oil obtained by separating the oil by any mechanical or other physical means at a temperature that does not lead to significant thermal alterations.

5.6 **Desmethylsterol Composition.** A test used to indicate the origin and purity of the Oil, reported as Total Sterols.

5.7 **Diacylglycerol (DAG).** A glyceride consisting of two fatty acids chains covalently bonded to a glycerol molecule through ester linkages. In mechanically extracted olive oils, DAGs are present in a range of 1% to 3% and they are found as 1,2- and 1,3- isomers.

5.8 **Equivalent Carbon Number 42 (ECN 42).** The determination of the difference between the actual Equivalent Carbon Number triacylglycerol content of the oil molecules determined by High Performance Liquid Chromatography (HPLC) and the theoretical amount of ECN 42 triacylglycerol using fatty acid composition. It is used for the detection of seed oils and verifies authenticity and origin of oils.

5.9 **Erythrodiol and Uvaol.** Two triterpene dialcohol components found in olive oil and olive-pomace oil. The levels present differentiate oils that were physically extracted from oils that were produced by solvent extraction.

5.10 **First extraction.** First mechanical process to separate the oil from the olive paste by centrifugation, decantation, or pressing. This does not include the second mechanical extraction or solvent extraction used to chemically separate the oil remaining in the pomace.

5.11 **Flavor.** The sensory impression of oil, determined mainly by the senses of taste and smell. Refers to the typical flavor of olive oil produced from olives and the degree of positive or negative attributes as listed in sections 5.17-5.23.

5.12 Free fatty acid content/free acidity. Expressed as a percentage by weight of grams per 100 grams, as free oleic acid. The free fatty acid is a measure of the quality of the oil, and reflects the care taken in producing the oil and the quality of the in-coming fruit.

5.13 Handler. A "Handler" is a person who engages, in this state, in the operation of marketing olive oil that he or she has produced, or purchased or acquired from an olive producer, or that he or she is marketing on behalf of an olive producer, whether as an owner, agent, employee, broker, or otherwise.

5.14 Initial glyceridic structure. The pattern of mono-, di-, and tri-glycerides present in olive oils or crude olive-pomace oils as extracted prior to any refining process.

5.15 Lot. A lot is a quantity of oil contained in one or more vessels that is declared by the handler to have uniform characteristics and that is marked in accordance with section 11.3.8 of these standards.

5.16 Malaxing. Malaxing is the mechanical mixing of the olive paste after crushing of the olives. Malaxing serves to break down emulsions and cell walls in order to facilitate the extraction of the oil.

5.17 Median of defects. (Md). A calculation of the median score of the oils negative flavor and aroma attributes according to the method in section 9.12 or an equivalent method according to section 9.1.

5.18 Median of defects-Fusty. A flavor defect attributable to poor storage conditions usually promoting the bacterial growth of the *Clostridium* and *Pseudomonas* genera.

5.19 Median of defects-Muddy-sediment. A flavor defect caused by the storage of olives in contact with oil sediment for long periods of time giving the oil a putrid flavor and aroma. The resulting oil has moldy aroma.

5.20 Median of defects-Musty. A flavor defect occurring when low temperatures and high humidity promote mold growth, mainly of the *Aspergillus* and *Penicilium* genera.

5.21 Median of defects-Rancid. A flavor defect caused by the oxidation of the oil and subsequent formation of aldehydes during the production process or during storage giving the oil an oxidized flavor and aroma.

5.22 Median of defects-Winey-vinegary. A flavor defect caused by storage condition of the olives that causes aerobic fermentation by the growth of yeasts that produce ethanol, acetic acid, and ethyl acetate.

5.23 Median of Fruity (Mf). A calculation of the median score of the intensity of the positive fruity characteristics of the oil according to the method in section 9.12 or an equivalent method according to section 9.1.

5.24 Monopalmitate (2-Glyceryl) content determination. A test used to determine if oil has been re-esterified by synthetic means or by the addition of animal fat.

5.25 Organoleptic analysis. An analysis based on flavor and aroma characteristics.

5.26 **Peroxide value.** A measure of the oxidation of oil expressed as milliequivalents of active oxygen per kilogram of oil.

5.27 **Pressing.** An oil extraction method consisting of pressing the malaxed paste utilizing a hydraulic or centrifugal press.

5.28 **Producer.** A "Producer" is any person that produces or causes to be produced olives that are processed into olive oil in the amount of 5,000 gallons or more during the marketing season and that shall upon request of the commission provide proof of commodity sale.

5.29 **Pyropheophytin a.** A degradation product of Chlorophyll a that results from the thermal or age related degradation of the oil.

5.30 **Refining.** A process in which oil undergoes treatment using but not limited to the following, heat (typically stripping steam) or chemicals (typically caustic soda or sodium carbonate) in combination with heat. Soft Column refining, also sometimes known as deodorization, is a type of refining using lower temperatures under vacuum often used to neutralize flavor and aroma.

5.31 **Shelf Life.** 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 can appear as "Best Before", "Best By", "Best if Used By", etc.

5.32 **Sterols.** A subgroup of steroids with a hydroxyl group at the 3-position of the A-ring. Sterols comprise one of many minor constituents of oils that are characteristic indicators of impurity.

5.33 **Trans fatty acid.** A group of compounds consisting of all the geometrical isomers of monounsaturated and polyunsaturated fatty acids having one or more non-conjugated carbon-carbon double bond in the trans configuration interrupted by at least one methylene group. As they are not present in olive oil in its natural state their presence indicates if processing such as deodorization or de-coloring has taken place.

5.34 **Triglyceride.** A major component of oil comprised of an ester of three fatty acids and glycerol, also known as triacylglycerol.

5.35 **Wax content.** A minor component of olive oil that is found in the skin of the olive fruit.

6.0 QUALITY AND PURITY PARAMETERS

6.1 The quality parameters and limits for grades of olive oil, refined-olive oil, and olive-pomace oil shall be as set out in Table 1.

6.2 The purity parameters of olive oils, refined-olive oils, and olive-pomace oils shall be set out in Tables 2-5.

6.3 The limits established for each parameter take account of the precision values of the respective recommended methods of determination specified in section 9.

TABLE 1

QUALITY PARAMETERS

	OLIVE OIL			REFINED-OLIVE OIL		OLIVE-POMACE OIL		
Parameter	Extra Virgin olive oil	Virgin olive oil	Crude olive oil[1]	Refined olive oil blend	Refined olive oil	Refined olive pomace oil blend	Refined olive pomace oil	Crude olive pomace oil
Free Fatty Acid Content (%m/m)	≤0.5	≤1.0	>1.0	≤0.8	≤0.3	≤0.8	≤0.3	N/A
Peroxide Value (PV) (meq O_2/kg oil)	≤15.0	≤20.0	>20.0	≤15.0	≤5.0	≤15.0	≤5.0	N/A
Absorbency in ultraviolet K_{232}	≤2.40	≤2.60	>2.60	N/A	N/A	N/A	N/A	N/A
Absorbency in ultraviolet K_{270}	≤0.22	≤0.25	>0.25	≤0.90	≤1.10	≤1.70	≤2.00	N/A
Absorbency in ultraviolet Delta K	≤/0.01/	≤/0.01/	≤/0.01/	≤/0.15/	≤/0.16/	≤/0.18/	≤/0.20/	N/A
Moisture and volatile matter (MOI)(%m/m)	≤0.2	≤0.2	≤0.3	≤0.1	≤0.1	≤0.1	≤0.1	≤1.5
Insoluble impurities (INI) (%m/m)	≤0.1	≤0.1	≤0.2	≤0.1	≤0.1	≤0.1	≤0.1	N/A
Pyropheophytin a (PPPs) (%)	≤17	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2 Diacylglycerols (DAGs) (%)	≥35	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Organoleptic Analysis Median of Defects(MeD)	=0.0	0.0<MeD≤2.5	>2.5	≤2.5	≤2.5	≤2.5	≤2.5	N/A
Organoleptic Analysis Median of Fruity(MeF)	>0.0	>0.0	N/A	>0.0	N/A	>0.0	N/A	N/A

[1] Note: These criteria are not required to be concurrent for crude olive oil, one is sufficient.

TABLE 2

PURITY PARAMETERS

	OLIVE OIL			**REFINED-OLIVE OIL**		**OLIVE-POMACE-OIL**		
Parameter	Extra Virgin olive oil	Virgin olive oil	Crude olive oil	Refined olive oil blend	Refined olive oil	Refined olive pomace oil blend	Refined olive pomace oil	Crude olive pomace oil
Total sterol Content (mg/kg)	≥870[3]	≥870[3]	≥870[3]	≥1000	≥1000	≥1600	≥1800	≥2500
Wax Content (C40+C42+C44+C46)(mg/kg)	≤250	≤250	≤300[1]	≤350	≤350	>350	>350	>350[2]
Trans fatty acid content (C 18:1 T %) (% trans fatty acids)	≤0.05	≤0.05	≤0.10	≤0.20	≤0.20	≤0.40	≤0.40	≤0.20
Trans fatty acid content (C 18:1 T % +C 18:3 T %) (% trans fatty acids)	≤0.05	≤0.05	≤0.01	≤0.30	≤0.30	≤0.35	≤0.35	≤0.10
Maximum difference between the actual and theoretical ENC 42 triacylglycerol content	≤/0.2/	≤/0.2/	≤/0.3/	≤/0.3/	≤/0.3/	≤/0.5/	≤/0.5/	≤/0.6/
Stigmastadienes content (mg/kg)	≤0.10	≤0.10	≤0.50	N/A	N/A	N/A	N/A	N/A
Content of 2-glyceryl monopalmitate (%)	≤1.5	≤1.5	≤1.5	≤1.8	≤1.8	≤2.2	≤2.2	≤2.2

[1] When the oil has wax content between 300mg/kg and 350mg/kg, it is considered a crude olive oil if the erythrodiol + uvaol content is ≤3.5% and the total aliphatic alcohol content is ≤350mg/kg.
[2] When the oil has a wax content between 300mg/kg and 350mg/kg, it is considered a crude olive-pomace oil if the erythodiol + uvaol is >3.5% and the total aliphatic alcohol content is >350mg/kg.
[3] Values between 870mg/kg and 1000mg/kg shall be subject to the traceability requirements of Section 12.

TABLE 3

FATTY ACID COMPOSITION (Expressed as % m/m Methyl Esters)		
Myristic acid	(C 14:0)	≤0.05
Palmitic acid	(C 16:0)	7.0-22.0
Palmitoleic acid	(C16:1)	0.25-3.5
Heptadecanoic acid	(C17:0)	≤0.3
Heptadecenoic acid	(C17:1)	≤0.5
Stearic acid	(C 18:0)	0.5-5.0
Oleic acid	(C 18:1)	50.0-85.0
Linoleic acid	(C 18:2)	2.5-22.0
Linolenic acid	(C18:3)	≤1.5
Arachidic acid	(C20:0)	≤0.6
Gadoleic acid (eicosenoic)	(C20:1)	≤0.5
Behenic acid	(C22:0)	≤0.2[2]
Lignoceric acid	(C24:0)	≤0.2

[2] ≤ 0.3 for olive-pomace oils

TABLE 4

STEROL AND TRITERPENE DIALCOHOLS COMPOSITION (Expressed as % of Total Sterols)	
Cholesterol	≤0.8[1]
Brassicasterol	≤0.1
Campesterol	≤5.4[2]
Stigmasterol	≤1.9
Δ-7 stigmastenol	≤0.6
Apparent β-sitosterol	≥91.5[3]
Erythrodiol+Uvaol (olive oils/refined-olive oils)	≤5.1[4/5]

[1] Values between 0.5% and 0.8% shall be subject to the traceability requirements of Section 12.
[2] Values between 4.8% and 5.4% shall be subject to the traceability requirements of Section 12.
[3] Values between 91.5% and 92.5% shall be subject to the traceability requirements of Section 12.
[4] Values between 4.5% and 5.1% shall be subject to the traceability requirements of Section 12.
[5] >4.5 Erythrodiol+Uvaol for olive-pomace oils

TABLE 5

TRACE METALS (Expressed as mg/kg)	
Iron (Fe)	≤3.0
Copper (Cu)	≤0.1

7.0 FOOD ADDITIVES

7.1 **Olive oils and crude olive-pomace oil.** Olive oils and crude-olive pomace oils shall not contain food additives.

7.2 **Refined-olive oils, olive-pomace oil and refined olive pomace oil.** Tocopherols may be added to refined-olive oil, olive-pomace oil and refined olive-pomace oil to restore the natural tocopherols lost in the refining process up to a maximum level of 200mg/kg of total alpha-tocopherol in the final product. Use of tocopherols shall be in compliance with the Food and Drug Administration (FDA) 21 C.F.R. Sub Chapter B Part 170, Part 178, and Part 182 (*Food Additives, Indirect Food Additives: Adjuvants, Production Aids, and Sanitizers, and Substances Generally Recognized as Safe (GRAS)*).

7.3 **Processing aids.** Processing aids are allowed to be used during oil extraction to the extent allowed by the Food and Drug Administration (FDA) 21 C.F.R. Sub Chapter B Part 178 (*Indirect Food Additives: Adjuvants, Production Aids, and Sanitizers*).

8.0 CONTAMINANTS

8.1 **Halogenated Solvents.** The maximum permissible content for refined olive-pomace oil of each halogenated solvent is 0.1 mg/kg. The maximum permissible content of all halogenated solvents is 0.2mg/kg.

8.2 **Pesticide Residues.** The products covered by these standards shall comply with the maximum residual level (MRL) limits established by the U.S Environmental Protection Agency (EPA) 40 C.F.R Sub Chapter E Parts 150 to 180 (*Pesticide Programs*).

9.0 METHODS OF ANALYSIS

9.1 **General**
The following methods shall be used to determine the characteristics of the olive oil, refined olive oils, and olive pomace oils. Alternative methods may be used provided they have been recognized as official methods IOC, AOCS, ISO (International Organization for Standardization), or Codex Alimentarius and shown to give equivalent results. At all times the most recently published version of the listed method or their alternatives shall be used.

9.2 **Sampling.** According to the ISO standard 5555:2001 and Appendix A.

9.3 **Preparation of the test sample.** According to ISO 661 “Animal and vegetable fats and oils-Preparation of the test sample”.

9.4 **Determination of the fatty acid composition**. Preparation of methyl esters in accordance with AOCS Ce 2-66 or ISO 5509 or COI/T.20/Doc.24. Methyl esters of fatty acids shall be analyzed by gas chromatography in accordance with ISO 5508 or AOCS Ch 2-91.

9.5 Determination of the trans fatty acid content. According to AOCS Ch 2a-94 (Rev. 2002) or ISO 15304 or COI/T.20/Doc.17.Rev.1.

9.6 Determination of the sterol composition and total sterol content. Sterol composition and total sterol content shall be determined in accordance with ISO 12228 or COI/T.20/Doc.10.Rev.1 or AOCS Ch 6-91.

9.7 Determination of the content of erythrodiol + uvaol. Erythrodiol + uvaol content shall be determined in accordance with IUPAC no. 2.431; capillary columns are recommended or IOC/T.20/Doc. 30.

9.8 Determination of wax content. According to COI /T.20/Doc.18.Rev.2 or AOCS Ch 8-02 (Rev.2007).

9.9 Determination of the stigmastadienes content. Stigmastadienes shall be determined in accordance with AOCS Cd 26-96 or COI /T.20/Doc.11.Rev.2.

9.10 Determination of the content of 2-glyceryl monopalmitate. According to COI /T.20/Doc.23.

9.11 Determination of the difference between the actual and theoretical ECN 42 triglyceride content. The difference between the actual and theoretical ECN 42 triglyceride content shall be determined in accordance with AOCS Ce 5b-89 or COI /T.20/Doc.20.Rev.3.

9.12 Determination of organoleptic characteristics. Organoleptic characteristics shall be determined in accordance with COI/T.20/Doc. 15.Rev.2.

9.13 Determination of free fatty acid content. Free fatty acid content shall be determined in accordance with ISO 660 or AOCS Ca 5a-40.

9.14 Determination of the peroxide value. Peroxide value shall be determined in accordance with AOCS Cd 8b-90 or ISO 3960.

9.15 Determination of absorbency in ultraviolet. Absorbency in ultraviolet shall be determined in accordance with ISO 3656 or AOCS Ch 5-91 or COI/T.20/Doc.19.Rev.2.

9.16 Determination of moisture and volatile matter. Moisture and volatile matter shall be determined in accordance with ISO 662 or AOCS Ca 2c-25.

9.17 Determination of insoluble impurities in light petroleum. Insoluble impurities shall be determined in accordance with ISO 663 or AOCS Ca 3a-46.

9.18 Determination of trace metals. Determination of copper and iron by direct graphite furnace atomic absorption spectrometry shall be in accordance with ISO 8294.13

9.19 Determination of alpha-tocopherol. Tocopherols and tocotrienols contents, using high-performance liquid chromatography, shall be determined in accordance with ISO 9936.

9.20 Determination of pyropheophytins. The degradation products of chlorophylls a and a' (pheophytins a, a' and pyropheophytins) shall be determined in accordance with ISO 29841.

9.21 Determination of 1,2-Diacylglycerol content. Relative amounts of 1,2- and 1,3-diacylglycerols shall be determined in accordance with ISO 29822.

10.0 HYGIENE

10.1 Products covered by these standards shall be prepared and handled in accordance with the Food and Drug Administration (FDA) 21 C.F.R. Sub Chapter B and E Parts 110 and 589 (*Current Good Manufacturing Practices in Manufacturing, Packaging, or Holding of human food*).

11.0 PACKAGING

11.1 General. Olive oils, refined-olive oils, and olive-pomace oils intended for trade should be packaged in containers complying with the *General Principles of Food Hygiene* by the Codex Alimentarius Commission (CAC/RCP 1) and shall comply with the Food and Drug Administration (FDA) 21 C.F.R. Sub Chapter B and E Parts 110 and 589 (*Current Good Manufacturing Practices in Manufacturing, Packaging, or Holding of human food*).

11.2 Packaging materials. Only packaging materials fit for the intended use, selected to minimize the deterioration of oil quality, and selected to ensure continued compliance with the grade of the oil of the shall be used.

11.3 Labeling

11.3.1 General. In addition to the requirements set out herein handlers of olive oils, refined-olive oils and olive-pomace oils shall comply with the Food and Drug Administration (FDA) 21 C.F.R Sub Chapter A, B, D, E, F, G Part 101 (*Food Labeling*).

11.3.2 Product name. The labeling on each container shall indicate the specific grade of the product as specified and determined by these standards in section 4. The designations shall be prominent and clearly legible in the principal display panel of the label. The following are the only grade designations permitted:

(a) Extra Virgin Olive Oil
(b) Virgin Olive Oil
(c) Crude Olive Oil*
(d) Refined-Olive Oil Blend composed of refined-olive oil and virgin (or extra virgin) olive oils
(e) Refined-Olive Oil
(f) Refined Olive Pomace-Oil Blend composed of refined olive-pomace oil and virgin (or extra virgin) olive oils
(g) Refined Olive Pomace-Oil*
(h) Crude Olive Pomace-Oil*

*Note: Grades for trade only, not fit for consumption without further processing.

11.3.3 Prohibited Terminology. Indications shown on the labeling shall not mislead the purchaser as to the characteristics of the oil contained therein by attributing to it characteristics that it does not possess. Examples of designations prohibited but not limited to; "Pure", "Pure Olive Oil", "Lite", "Lite Olive Oil", "Light", "Light Olive Oil", "Extra Light", "Extra Light Olive Oil" "Extra Lite" or "Extra Lite Olive Oil", "Super Virgin" shall not be used.

11.3.4 Provenance.

(a) 100% of the oil must be from olives grown in the state of California.
(b) If reference is made to a specific region in California, then at least 85% of the oil (by weight) must be from olives grown in that region.
(c) If reference is made to a specific estate within California, then at least 95% of the oil (by weight) must be from olives grown on that estate.

11.3.5 Varietal Names. If olive varietal names are used on the label, then varietals comprising 85% of the oil by weight must be listed in their order of dominance.

11.3.6 Year of Harvest. If reference is made to a harvest date, then 100% of the olives used to make the oil must have been harvested during that time period. Because the harvest typically runs from October through January, the dating refers to it by the calendar year; for example the 2014-2015 harvest season is deemed to be the 2015 harvest. When oils from multiple years are combined and the year of harvest is indicated the label must indicate each of the harvest years contained therein. If the month and year of harvest are indicated then 100% of the oil must be from that period. If the season and year are indicted then 100% of the oil must be from that period.

11.3.7 Food ingredients. When olive oils, refined-olive oils, or olive pomace-oils are used as ingredients of food the label of the food product shall specify the grade of the oil used in accordance with section 11.3.2.

11.3.8 Lot identification. Each container shall be permanently marked to identify the producing factory and the lot in accordance with the relevant US and California codes. Every lot must include a date of manufacture; in either closed or open format.

11.3.9 Shelf Life and Harvest Date. Declaration of a best-before date is optional, if used must be supported by technical evidence. The Shelf Life can be displayed as but not limited to: "Best Before", "Best if Use By", "Best By". If a shelf life is declared the label shall include storage conditions necessary to ensure the validity of that date. In no case however, shall a best before date greater than two years from the date of the packaging be used. A harvest date may also be included on the label.

11.3.10 First Cold Pressing/ Cold Extraction. The indication "First Cold Pressing" Cold pressing", Cold extraction", "Cold Crushed", or similar language may be used only for "Extra Virgin Olive Oil "or "Virgin Olive Oil" extracted by mechanical means that do not lead to significant thermal alterations in the oil.

12.0 TRACEABILITY

12.1 All containers of oil shall be clearly labeled as to their contents and be identified by a lot number. The lot number shall provide the ability for the handler to identify the following:

12.1.1 The location including the address, county and assessor's parcel number(s) of the land where the olives were grown.

12.1.2 The pesticide records for that location.

12.1.3 The name of any harvesting company used in harvesting the olives

12.1.4 The name of the transportation company that transported the olives

12.1.5 Total quantity by weight of olives delivered to the mill for processing.

12.1.6 Applicable processing and quality records.

12.1.7 Total quantity of oil by weight or volume produced from the tonnage as stated in section 12.1.5.

12.1.8 Final lot numbers identified on the goods that were sold.

12.2 Product traceability documents and identification records shall be maintained and available for review. All records shall be maintained for a minimum of 3 years.

12.3 All traceability, documentation, verification, and validations shall be in accordance with 21 C.F.R Part 120 (*Hazard Analysis and Critical Control Point (HACCP) Systems*).

12.4 In the event that purity testing results are in the ranges footnoted in tables 2 and 4, the handler shall provide the documents identified in section 12.1 to the commission for review.

Appendix "A"

SAMPLING, TESTING AND GRADING METHODOLOGY FOR OLIVE OIL, REFINED-OLIVE OIL AND OLIVE-POMACE OIL

cdfa CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

Appendix A: Sampling, Testing and Grading Methodology for Olive Oil, Refined-Olive Oil and Olive-Pomace Oil

Table of Contents

PREFACE

The goal of the Olive Oil Commission of California is to further the objectives of these Standards by requiring mandatory testing and grading of olive oil produced in California under the jurisdiction of the Commission using accredited laboratories prior to the oil being sold . The resources necessary to achieve this goal are limited by:

- the current level of olive oil production in California;
- the lack of a local laboratory that is accredited for testing olive oil; and
- the time required to submit samples to an accredited lab off shore and to receive test results.

Therefore, a period of transition is required. This testing appendix is thus a beginning only and will develop as resources allow. The Commission is committed to full implementation for the 2016 fiscal year.

1.0 GENERAL PROVISIONS

1.1 **Applicability.** This appendix shall apply to all oil under the jurisdiction of the California Department of Food and Agriculture (CDFA) Olive Oil Commission of California (the Commission), Chapter 29 of Part 2, Division 22 of the California Food and Agricultural Code.

1.2 **Method of Sampling.** According to International Standards Organization (ISO) 5555:2001-International Standard, Animal and Vegetable Fats and Oils-Sampling as applicable.

1.3 **Controlling rule**. Where differences exist between this appendix and ISO 5555-2001 this appendix shall be controlling.

1.4 **Requirement of Sampling.** All lots of olive oil shall be sampled, tested and graded.

1.5 Sample results are only valid for 16 months from the date of testing. Oil sold after expiration of the test results must be re-sampled retested and re-graded.

2.0 DEFINITIONS

2.1.1 **Lot.** A lot is a quantity of oil contained in one or more vessels that is declared by the handler to have uniform characteristics and that is marked in accordance with section 11.3.8 of these Standards.

2.1.2 **Increment**. Per ISO 5555:2001 Section 2.3 "a quantity of fat taken at one time from one place in a lot".

2.1.3 **Bulk Sample**. Per ISO 5555:2001 Section 2.4 "quantity of fat obtained by combining the various increments from a lot in amounts proportional to the quantities they represent".

2.1.4 **Laboratory sample**. Per ISO 5555: 2001 Section 2.5 "quantity of fat obtained from the bulk sample after suitable homogenization and reduction in size which is representative of the lot and intended for laboratory examination".

2.1.5 **Standards** means the Grade and Labeling Standards for Olive Oil, Refined-Olive Oil and Olive-Pomace Oil issued pursuant to Chapter 29, Part 2 of Division 22 of the Food and Agricultural Code.

3.0 SAMPLING BY COMMISSION

3.1 Five samples will be taken at random from each handler subject to the jurisdiction of the Commission under the direction of the CDFA or by a CDFA and Commission approved independent third party (sampling party). Samples will be taken following the procedures and sampling plan in accordance with ISO 5555:2001 as applicable.

3.2 **Sample Timing.** The date of the sampling as well as which lots are to be sampled will be determined by the sampling party and shall not be disclosed prior to the sampling day to the handlers. All sampling testing and grading must be completed by March 31 of the fiscal year. All results must be reported to the Commission by the same date.

3.3 **Bulk samples per lot.** A single bulk sample is required per lot.

3.4 **Quantity and volume of laboratory sample containers per lot.** A minimum of five laboratory samples in containers of 250ml or larger are required per lot.

3.5 **Sampling technique.** The sampling technique shall be in accordance with Section 5 of ISO 5555:2001 as appropriate.

3.6 Methods of sampling shall be applicable to the container in which the oil is stored in accordance with Section 6 ISO 5555:2001**.**

3.7 Samples shall be packed and handled in accordance with ISO 5555:2001as appropriate

3.8 Samples shall contain the information identified in Section 7.2 items e, f, h, j, k, l, m, and n of ISO 5555:2001 as appropriate.

3.9 All laboratory samples shall have a tamper evident seal placed on the container and marked by the sampling party.

3.10 The maximum lot size is 200,000 gallons.

3.11 The sampling party shall send to an accredited edible oil analytical laboratory designated by the Commission three laboratory samples for each lot sampled in accordance with this section for analysis and grading based on the quality parameters in Table 1 of these Standards and for the analysis of the purity parameters as described in the following paragraph.

3.12 The Commission shall direct the sampling party to randomly select from the samples of lots taken by the sampling party from handlers a number, fixed annually, of samples to be tested for the purity parameters in tables 2-5 of these Standards at an analytical laboratory designated by the Commission.

3.13 The sampling party shall retain two containers of the laboratory sample for the purpose of replacement of a lost sample, or retesting. The laboratory samples shall be retained until the end of the fiscal year. Additional laboratory samples may be taken by sampling party and retained by the handler.

3.14 The results of the tests shall be distributed to the handler and to Commission administrator, and shall include the name of the handler. The name of the handler shall be confidential. The results shall be reported to the commissioners referenced by only the lot. The results shall include the information listed in section 5.

3.15 The Commission shall pay the cost of sampling, shipping testing, grading and reporting of the samples under this section.

4.0 SAMPLING BY HANDLERS

4.1 All handlers subject to the jurisdiction of the Commission shall be required to sample, test and grade all lots of olive oil for the quality parameters listed in Table 1 of these Standards. Sampling and testing may be done by the handler or by a laboratory chosen by the handler following an official testing method as described in section 9 of these Standards. The handler is required to assign a distinct number to each lot.

4.2 The handler shall retain two containers of the sample for the purpose of retesting. The retained samples shall be a minimum of 250ml and be retained until the end of the fiscal year in which the oil was produced.

4.3 The handler shall pay the cost of sampling, quality testing and retention of samples required under this section.

4.4 The results of the quality tests and grades assigned under this section shall be sent to the Commission administrator, and shall include the name of the handler. The results of sampling shall be reported to the commissioners. Reports shall include the lot number to the commissioners without the name of the producer or handler.

4.5 The results of the sampling testing and grading must be reported to the Commission no later than March 31 of the fiscal year of production and must include all information required by section 5.

5.0 REPORTING

5.1 The designated sampling party or the handler shall send to the Commission or its representative the following information:

(a) The identifying number of each lot sampled.
(b) The volume or weight of each lot.
(c) The date and time each lot was sampled.
(d) The percentage of all varieties in each sample to the extent known.
(e) A complete copy of the laboratory report or reports.
(f) The grade assigned to each sample.

6.0 GRADING

6.1 Based on the results of the testing each lot will be assigned a grade.

6.2 Lots that fail purity testing are not eligible to be graded and shall not be sold as olive oil, refined-olive oil or olive-pomace oil.

7.0 RIGHT TO REVIEW AND RETEST

7.1 Any handler is entitled to a retest of any or all lots of oil tested by the Commission; provided however that the retesting is at the sole expense of the handler.

7.2 The handler must notify the Commission of his or her desire to retest within 15 days of receipt of test results.

7.3 All retests must be done using retained laboratory samples.

7.4 The results of the retest if the same as the original test shall be final. If however the retest results in the assignment of a different grade the handler may request a third test the result of which will be final.

EXHIBIT "C"

Table 1

Quality Parameter: Free Fatty Acid Content (%m/m)				
Product	**Grade**	**CHSC Standard**	**Proposed Standard**	**Notes**
OLIVE OIL	Extra Virgin Olive Oil	≤0.8	≤0.5	More stringent
	Virgin Olive Oil	≤2.0	≤1.0	More stringent
	Crude Olive Oil	>2.0	>1.0	More stringent
REFINED-OLIVE OIL	Refined Olive Oil Blend	≤1.0	≤0.8	More stringent
	Refined Olive Oil	≤0.3	≤0.3	Same
OLIVE-POMACE OIL	Refined Olive Pomace Oil Blend	≤1.0	≤0.8	More stringent
	Refined Olive Pomace Oil	≤0.3	≤0.3	Same
	Crude Olive Pomace Oil	No Limit	N/A	Same

Table 2

Quality Parameter: Peroxide Value (PV) (meq O_2/kg oil)				
Product	**Grade**	**CHSC Standard**	**Proposed Standard**	**Notes**
OLIVE OIL	Extra Virgin Olive Oil	≤20.0	≤15.0	More stringent
	Virgin Olive Oil	≤20.0	≤20.0	Same
	Crude Olive Oil	No Limit	>20.0	Same
REFINED-OLIVE OIL	Refined Olive Oil Blend	≤15.0	≤15.0	Same
	Refined Olive Oil	≤5.0	≤5.0	Same
OLIVE-POMACE OIL	Refined Olive Pomace Oil Blend	≤15.0	≤15.0	Same
	Refined Olive Pomace Oil	≤5.0	≤5.0	Same
	Crude Olive Pomace Oil	No Limit	N/A	Same

Table 3

Quality Parameter: Absorbency in Ultraviolet K_{232}				
Product	**Grade**	**CHSC Standard**	**Proposed Standard**	**Notes**
OLIVE OIL	Extra Virgin Olive Oil	≤2.50	≤2.40	More stringent
	Virgin Olive Oil	≤2.60	≤2.60	Same
	Crude Olive Oil	N/A	≤2.60	Additional parameter
REFINED-OLIVE OIL	Refined Olive Oil Blend	N/A	N/A	Same
	Refined Olive Oil	N/A	N/A	Same
OLIVE-POMACE OIL	Refined Olive Pomace Oil Blend	N/A	N/A	Same
	Refined Olive Pomace Oil	N/A	N/A	Same
	Crude Olive Pomace Oil	N/A	N/A	Same

Table 4

Quality Parameter: Absorbency in Ultraviolet K_{270}				
Product	**Grade**	**CHSC Standard**	**Proposed Standard**	**Notes**
OLIVE OIL	Extra Virgin Olive Oil	≤0.22	≤0.22	Same
	Virgin Olive Oil	≤0.25	≤0.25	Same
	Crude Olive Oil	N/A	≤0.25	Additional parameter
REFINED-OLIVE OIL	Refined Olive Oil Blend	≤0.90	≤0.90	Same
	Refined Olive Oil	≤1.10	≤1.10	Same
OLIVE-POMACE OIL	Refined Olive Pomace Oil Blend	≤1.70	≤1.70	Same
	Refined Olive Pomace Oil	≤2.00	≤2.00	Same
	Crude Olive Pomace Oil	N/A	N/A	Same

Table 5

Quality Parameter: Absorbency in Ultraviolet Delta K				
Product	**Grade**	**CHSC Standard**	**Proposed Standard**	**Notes**
OLIVE OIL	Extra Virgin Olive Oil	≤/0.01/	≤/0.01/	Same
	Virgin Olive Oil	≤/0.01/	≤/0.01/	Same
	Crude Olive Oil	N/A	≤/0.01/	Additional parameter
REFINED-OLIVE OIL	Refined Olive Oil Blend	≤/0.15/	≤/0.15/	Same
	Refined Olive Oil	≤/0.16/	≤/0.16/	Same
OLIVE-POMACE OIL	Refined Olive Pomace Oil Blend	≤/0.18/	≤/0.18/	Same
	Refined Olive Pomace Oil	≤/0.20/	≤/0.20/	Same
	Crude Olive Pomace Oil	N/A	N/A	Same

Table 6

Quality Parameter: Moisture and Volatile Matter (MOI) (%m/m)				
Product	**Grade**	**CHSC Standard**[1]	**Proposed Standard**	**Notes**
OLIVE OIL	Extra Virgin Olive Oil	≤0.2	≤0.2	Additional parameter, same
	Virgin Olive Oil	≤0.2	≤0.2	Additional parameter, same
	Crude Olive Oil	N/A	≤0.3	Additional parameter
REFINED-OLIVE OIL	Refined Olive Oil Blend	≤0.1	≤0.1	Additional parameter, same
	Refined Olive Oil	≤0.1	≤0.1	Additional parameter, same
OLIVE-POMACE OIL	Refined Olive Pomace Oil Blend	≤0.1	≤0.1	Additional parameter, same
	Refined Olive Pomace Oil	≤0.1	≤0.1	Additional parameter, same
	Crude Olive Pomace Oil	≤1.5	≤1.5	Additional parameter, same

[1] Optional quality criteria.

Table 7

Quality Parameter: Insoluble Impurities (INI) (%m/m)				
Product	**Grade**	**CHSC Standard**[1]	**Proposed Standard**	**Notes**
OLIVE OIL	Extra Virgin Olive Oil	≤0.1	≤0.1	Additional parameter, same
	Virgin Olive Oil	≤0.1	≤0.1	Additional parameter, same
	Crude Olive Oil	N/A	≤0.2	Additional parameter
REFINED-OLIVE OIL	Refined Olive Oil Blend	≤0.05	≤0.1	Additional parameter, less stringent
	Refined Olive Oil	≤0.05	≤0.1	Additional parameter, less stringent
OLIVE-POMACE OIL	Refined Olive Pomace Oil Blend	≤0.05	≤0.1	Additional parameter, less stringent
	Refined Olive Pomace Oil	≤0.05	≤0.1	Additional parameter, less stringent
	Crude Olive Pomace Oil	N/A	N/A	Same

[1] Optional quality criteria.

Table 8

Quality Parameter: Pyropheophytin a (PPPs) (%)				
Product	**Grade**	**CHSC Standard**	**Proposed Standard**	**Notes**
OLIVE OIL	Extra Virgin Olive Oil	N/A	≤17	Additional parameter
	Virgin Olive Oil	N/A	N/A	Same
	Crude Olive Oil	N/A	N/A	Same
REFINED-OLIVE OIL	Refined Olive Oil Blend	N/A	N/A	Same
	Refined Olive Oil	N/A	N/A	Same
OLIVE-POMACE OIL	Refined Olive Pomace Oil Blend	N/A	N/A	Same
	Refined Olive Pomace Oil	N/A	N/A	Same
	Crude Olive Pomace Oil	N/A	N/A	Same

Table 9

Quality Parameter: 1,2 Diacylglycerols (DAGs) (%)				
Product	**Grade**	**CHSC Standard**	**Proposed Standard**	**Notes**
OLIVE OIL	Extra Virgin Olive Oil	N/A	≥35	Additional parameter
	Virgin Olive Oil	N/A	N/A	Same
	Crude Olive Oil	N/A	N/A	Same
REFINED-OLIVE OIL	Refined Olive Oil Blend	N/A	N/A	Same
	Refined Olive Oil	N/A	N/A	Same
OLIVE-POMACE OIL	Refined Olive Pomace Oil Blend	N/A	N/A	Same
	Refined Olive Pomace Oil	N/A	N/A	Same
	Crude Olive Pomace Oil	N/A	N/A	Same

Table 10

Quality Parameter: Organoleptic Analysis: Median of Defects (MeD)				
Product	**Grade**	**CHSC Standard**	**Proposed Standard**	**Notes**
OLIVE OIL	Extra Virgin Olive Oil	=0.0	=0.0	Same
	Virgin Olive Oil	0.0<MeD≤2.5	0.0<MeD≤2.5	Same
	Crude Olive Oil	>2.5[1]	>2.5	Same
REFINED-OLIVE OIL	Refined Olive Oil Blend	N/A	≤2.5	Additional parameter
	Refined Olive Oil	N/A	≤2.5	Additional parameter
OLIVE-POMACE OIL	Refined Olive Pomace Oil Blend	N/A	≤2.5	Additional parameter
	Refined Olive Pomace Oil	N/A	≤2.5	Additional parameter
	Crude Olive Pomace Oil	N/A	N/A	Same

[1] Or when the MeD attribute is less than or equal to 2.5 and the MeF attribute is equal to 0.

Table 11

Quality Parameter: Organoleptic Analysis: Median of Fruity (MeF)				
Product	**Grade**	**CHSC Standard**	**Proposed Standard**	**Notes**
OLIVE OIL	Extra Virgin Olive Oil	>0.0	>0.0	Same
	Virgin Olive Oil	>0.0	>0.0	Same
	Crude Olive Oil	N/A	N/A	Same
REFINED-OLIVE OIL	Refined Olive Oil Blend	N/A	>0.0	Additional parameter
	Refined Olive Oil	N/A	N/A	Same
OLIVE-POMACE OIL	Refined Olive Pomace Oil Blend	N/A	>0.0	Additional parameter
	Refined Olive Pomace Oil	N/A	N/A	Same
	Crude Olive Pomace Oil	N/A	N/A	Same

EXHIBIT "D"

Table 12

Purity Parameter: Total Sterol Content (mg/kg)				
Product	**Grade**	**CHSC Standard**	**Proposed Standard**	**Notes**
OLIVE OIL	Extra Virgin Olive Oil	≥1000	≥870[1]	Less stringent, traceability requirement
	Virgin Olive Oil	≥1000	≥870[1]	Less stringent, traceability requirement
	Crude Olive Oil	≥1000	≥870[1]	Less stringent, traceability requirement
REFINED-OLIVE OIL	Refined Olive Oil Blend	≥1000	≥1000	Same
	Refined Olive Oil	≥1000	≥1000	Same
OLIVE-POMACE OIL	Refined Olive Pomace Oil Blend	≥1600	≥1600	Same
	Refined Olive Pomace Oil	≥1800	≥1800	Same
	Crude Olive Pomace Oil	≥2500	≥2500	Same

[1] Values between 870mg/kg and 1000mg/kg shall be subject to the traceability requirements of Section 12 of the proposed Standards.

Table 13

Purity Parameter: Wax Content (C40+C42+C44+C46) (mg/kg)				
Product	**Grade**	**CHSC Standard**[1]	**Proposed Standard**	**Notes**
OLIVE OIL	Extra Virgin Olive Oil	≤250	≤250	Same
	Virgin Olive Oil	≤250	≤250	Same
	Crude Olive Oil	≤300[2]	≤300[2]	Same
REFINED-OLIVE OIL	Refined Olive Oil Blend	≤350	≤350	Same
	Refined Olive Oil	≤350	≤350	Same
OLIVE-POMACE OIL	Refined Olive Pomace Oil Blend	>350	>350	Same
	Refined Olive Pomace Oil	>350	>350	Same
	Crude Olive Pomace Oil	>350[3]	>350[3]	Same

[1] Confirmatory test for products with linolenic acid values between 1.0 and 1.5 percent, and/or campesterol values between 4.0 and 4.5 percent.

[2] When the oil has wax content between 300mg/kg and 350mg/kg, it is considered a crude olive oil if the erythrodiol + uvaol content is less than or equal to 3.5 percent and the total aliphatic alcohol content is less than or equal to 350mg/kg.

[3] When the oil has a wax content between 300mg/kg and 350mg/kg, it is considered a crude olive-pomace oil if the erythodiol + uvaol is greater than 3.5percent and the total aliphatic alcohol content is greater than 350mg/kg.

Table 14

Purity Parameter: Trans Fatty Acid Content (C 18:1 T %) (% trans fatty acids)				
Product	**Grade**	**CHSC Standard**	**Proposed Standard**	**Notes**
OLIVE OIL	Extra Virgin Olive Oil	≤0.05	≤0.05	Same
	Virgin Olive Oil	≤0.05	≤0.05	Same
	Crude Olive Oil	≤0.10	≤0.10	Same
REFINED-OLIVE OIL	Refined Olive Oil Blend	≤0.20	≤0.20	Same
	Refined Olive Oil	≤0.20	≤0.20	Same
OLIVE-POMACE OIL	Refined Olive Pomace Oil Blend	≤0.40	≤0.40	Same
	Refined Olive Pomace Oil	≤0.40	≤0.40	Same
	Crude Olive Pomace Oil	≤0.20	≤0.20	Same

Table 15

Purity Parameter: Trans Fatty Acid Content (C 18:2 T % +C 18:3 T %) (% trans fatty acids)				
Product	**Grade**	**CHSC Standard**	**Proposed Standard**	**Notes**
OLIVE OIL	Extra Virgin Olive Oil	≤0.05	≤0.05	Same
	Virgin Olive Oil	≤0.05	≤0.05	Same
	Crude Olive Oil	≤0.10	≤0.10	Same
REFINED-OLIVE OIL	Refined Olive Oil Blend	≤0.30	≤0.30	Same
	Refined Olive Oil	≤0.30	≤0.30	Same
OLIVE-POMACE OIL	Refined Olive Pomace Oil Blend	≤0.35	≤0.35	Same
	Refined Olive Pomace Oil	≤0.35	≤0.35	Same
	Crude Olive Pomace Oil	≤0.10	≤0.10	Same

Table 16

Purity Parameter: Maximum Difference Between the Actual and Theoretical ENC 42 Triacylglycerol Content				
Product	**Grade**	**CHSC Standard**[1]	**Proposed Standard**	**Notes**
OLIVE OIL	Extra Virgin Olive Oil	≤/0.2/	≤/0.2/	Same
	Virgin Olive Oil	≤/0.2/	≤/0.2/	Same
	Crude Olive Oil	≤/0.3/	≤/0.3/	Same
REFINED-OLIVE OIL	Refined Olive Oil Blend	≤/0.3/	≤/0.3/	Same
	Refined Olive Oil	≤/0.3/	≤/0.3/	Same
OLIVE-POMACE OIL	Refined Olive Pomace Oil Blend	≤/0.5/	≤/0.5/	Same
	Refined Olive Pomace Oil	≤/0.5/	≤/0.5/	Same
	Crude Olive Pomace Oil	≤/0.6/	≤/0.6/	Same

[1] Confirmatory test for products with linolenic acid values between 1.0 and 1.5 percent, and/or campesterol values between 4.0 and 4.5 percent.

Table 17

Purity Parameter: Stigmastadienes Content (mg/kg)				
Product	**Grade**	**CHSC Standard**	**Proposed Standard**	**Notes**
OLIVE OIL	Extra Virgin Olive Oil	≤0.15	≤0.10	More stringent
	Virgin Olive Oil	≤0.15	≤0.10	More stringent
	Crude Olive Oil	≤0.50	≤0.50	Same
REFINED-OLIVE OIL	Refined Olive Oil Blend	N/A	N/A	Same
	Refined Olive Oil	N/A	N/A	Same
OLIVE-POMACE OIL	Refined Olive Pomace Oil Blend	N/A	N/A	Same
	Refined Olive Pomace Oil	N/A	N/A	Same
	Crude Olive Pomace Oil	N/A	N/A	Same

Table 18

Purity Parameter: Content of 2-Glyceryl Monopalmitate (%)				
Product	**Grade**	**CHSC Standard**[1]	**Proposed Standard**	**Notes**
OLIVE OIL	Extra Virgin Olive Oil	≤0.9[2] ≤1.0[3]	≤1.5	Less stringent
	Virgin Olive Oil	≤0.9[2] ≤1.0[3]	≤1.5	Less stringent
	Crude Olive Oil	≤0.9[2] ≤1.1[3]	≤1.5	Less stringent
REFINED-OLIVE OIL	Refined Olive Oil Blend	N/A	≤1.8	Additional parameter
	Refined Olive Oil	N/A	≤1.8	Additional parameter
OLIVE-POMACE OIL	Refined Olive Pomace Oil Blend	≤1.2	≤2.2	Less stringent
	Refined Olive Pomace Oil	≤1.4	≤2.2	Less stringent
	Crude Olive Pomace Oil	≤1.4	≤2.2	Less stringent

[1] Confirmatory test for products with linolenic acid values between 1.0 and 1.5 percent, and/or campesterol values between 4.0 and 4.5 percent.
[2] If palmitic acid is less than or equal to 14 percent.
[3] If palmitic acid is greater than 14 percent.

Table 19

Purity Parameters: Fatty Acid Composition (Expressed as % m/m Methyl Esters)			
Parameter	**CHSC Standard**	**Proposed Standard**	**Notes**
Myristic Acid (C 14:0)	≤0.05	≤0.05	Same
Palmitic Acid (C 16:0)	7.5 – 20.0	7.0 – 22.0	Less stringent
Palmitoleic Acid (C16:1)	0.3 – 3.5	0.25 – 3.5	Less stringent
Heptadecanoic Acid (C17:0)	≤0.3	≤0.3	Same
Heptadecenoic Acid (C17:1)	≤0.3	≤0.5	Less stringent
Stearic Acid (C 18:0)	0.5 – 5.0	0.5 – 5.0	Same
Oleic Acid (C 18:1)	55.0 – 83.0	50.0 – 85.0	Less stringent
Linoleic Acid (C 18:2)	3.5 – 21.0	2.5 – 22.0	Less stringent
Linolenic Acid (C18:3)	≤1.5[1]	≤1.5	Less stringent
Arachidic Acid (C20:0)	≤0.6	≤0.6	Same
Gadoleic Acid (Eicosenoic) (C20:1)	≤0.4	≤0.5	Less stringent
Behenic Acid (C22:0)	≤0.2[2]	≤0.2[2]	Same
Lignoceric Acid(C24:0)	≤0.2	≤0.2	Same

[1] Linolenic acid values between 1.0 and 1.5 are subject to further testing along the following purity parameters: maximum difference between actual and theoretical ECN 42 triacylglycerol content, erythrodiol and uvaol content, wax content C40+C42+C44+C46, and content of 2-glyceryl monopalmitate.
[2] A standard of less than or equal to 0.3 applies to all olive-pomace oils.

Table 20

Purity Parameters: Sterol and Triterpene Dialcohols Composition (Expressed as % Total Sterols)			
Parameter	**CHSC Standard**	**Proposed Standard**	**Notes**
Cholesterol	≤0.5	≤0.8[1]	Less stringent, traceability requirement
Brassicasterol	≤0.1[2]	≤0.1	Same, more stringent for olive –pomace oils
Campesterol	≤4.5[3]	≤5.4[4]	Less stringent, traceability requirement (partial)
Stigmasterol	< Campesterol in Edible Oils	≤1.9	
Delta-7 Stigmastenol	≤0.5	≤0.6	Less stringent
Apparent β-Sitosterol	≥93.0	≥91.5[5]	Less stringent, traceability requirement (partial)
Erythrodiol+Uvaol	≤4.5[6]	≤5.1[6/7]	Less stringent, traceability requirement

[1] Values between 0.5 and 0.8 percent shall be subject to the traceability requirements of Section 12 of the proposed Standards.
[2] A standard of less than or equal to 0.2 applies to all olive-pomace oils
[3] Campesterol values between 4.0 and 4.5 percent are subject to further testing along the following purity parameters: maximum difference between actual and theoretical ECN 42 triacylglycerol content, erythrodiol and uvaol content, wax content C40+C42+C44+C46, and content of 2-glyceryl monopalmitate.
[4] Values between 4.8 and 5.4 percent shall be subject to the traceability requirements of Section 12 of the proposed Standards.
[5] Values between 91.5 and 92.5 percent shall be subject to the traceability requirements of Section 12 of the proposed Standards.
[6] A standard of greater than 4.5 applies to all olive-pomace oils
[7] Values between 4.5 and 5.1 percent shall be subject to the traceability requirements of Section 12 of the proposed Standards.

Table 21

Purity Parameters: Trace Metals (Expressed as mg/kg)			
Parameter	**CHSC Standard**	**Proposed Standard**	**Notes**
Iron (Fe)	≤3.0[1]	≤3.0	Same, additional parameter for crude olive–pomace oil
Copper (Cu)	≤0.1[1]	≤0.1	Same, additional parameter for crude olive–pomace oil

1 Not applicable for crude olive-pomace oil.