CALIFORNIA OLIVE COMMITTEE
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AGENDA
Ripe Olive Executive Subcommittee Meeting
Double Tree • Sacramento Room
Wednesday, December 14, 2016
9:00 a.m.

I. Call to Order

   a. Roll call
   b. Chairperson's comments
   c. Approval of 11-10-16 Executive Subcommittee minutes (action item)

II. Industry Trade Research

   a. Review Project
      1. Production Costs – Dan Block

III. Approval of Credit Card

IV. Other Business

V. Adjournment

COC Subcommittees for 2015-2017

Executive Subcommittee:

12 Michael Silveira, G-1
Mark Hendrixson, G-2
Dennis Burreson, MUS
Julia Tinsley, BCF
Tim T. Carter, BCF
Ed Curiel, G-1
Janet Edwards, MUS
Felix Musco, MUS
Edward Garcia, G-1
Mark Heuer, G-2
Pat Ricchiuti, G-2
Doug Reifsteck, BFC

Marketing Subcommittee:

14 Bill McFarland, MUSCO
Vacant, BCF
Tim T. Carter, BCF
Ed Curiel, G-1
Wai Wu, MUS
Julia Inestroza, G-2
Pat Ricchiuti, G-2
Scott Hamilton, MUS
Mark Hendrixson, G-2
Vacant, BCF
Edward Garcia, G-1
Michael Silveira, G-1
Rick Benson, G-2
Pablo Nerey, G-1

Inspection Subcommittee:

16

Julia Tinsley, BCF
Paul Danielson, G-2
Julia Inestroza, G-2
Dennis Burreson, MUS
Pablo Nerey, G-1
Rick Benson, G-2
Janet Edwards, MUS
Ben Hall, MUS
Chris Henderson, G-1
Doug Reifsteck, BCF
Cody McCoy, BCF
Larry McCutchen, MUS
Vito Deleonardis, G-2
Phil Quigley, BCF
Art Hutcheson, G-2
Edward Garcia, G-1

Research Subcommittee:

15

Dennis Burreson, MUS
Julia Tinsley, BCF
Art Hutcheson, G-2
Scott Patton, G-1
Bert Ouezada, G-2
Paul Danielson, G-2
Vito Deleonardis, G-2
Chris Henderson, G-1
Cody McCoy, BCF
Ben Hall, MUS
Phil Quigley, BCF
Felix Musco, MUS
Pablo Nerey, G-1
Ed Curiel, G-1
Pat Ricchiuti, G-2

CALIFORNIA OLIVE COMMITTEE
Executive Subcommittee Meeting Minutes
Thursday, November 10, 2016
9:00 a.m.
Double Tree Hotel - Modesto, CA

I. CALL TO ORDER

A meeting of the Executive Subcommittee was called to order by Chairman Mike Silveira at 9:15a.m., and the following members were present:

Members	Affiliation:
Julia Tinsley	Bell-Carter
Felix Musco	Musco
Dennis Burreson	Musco
Michael Silveira	Grower
Janet Edwards	Musco
Pat V. Ricchiuti	Grower
Doug Reifsteck	Bell-Carter
Felix Musco	Musco
Ed Curiel	Grower
Tim T. Carter	Bell-Carter

Others Present:

Alexander Ott	COC
Todd Sanders	COC
Liza Ramon	COC
Peter Sommers	USDA
Elizabeth Carranza	COC

With a majority of the Subcommittee members present, a quorum was established.

MOVED BY Dennis BURRESON, duly seconded by Ed CURIEL, and unanimously carried THAT the minutes of the July 21, 2016 Executive Subcommittee meeting be approved. (Motion 11.10.16 #2)

II. MAP/TASC FUNDING

The Foreign Agricultural Service (FAS) helps to maintain and expand foreign markets for U.S. agricultural products by helping to remove trade barriers and enforcing U.S. rights under existing trade agreements. They accomplish this is by distributing funding to cooperators, such as the COC, under programs such as the Market Access Program (MAP) and Technical Assistance for Specialty Crops Program (TASC).

Through the Market Access Program (MAP), FAS partners with U.S. agricultural trade associations, cooperatives, state regional trade groups, and small businesses to share the costs of overseas marketing and promotional activities that help build commercial export markets for U.S. agricultural products and commodities.

The Technical Assistance for Specialty Crops (TASC) program provides funding to U.S. organizations for projects that address sanitary, phytosanitary, and technical barriers that prohibit or threaten the export of U.S. specialty crops.

Each year, FAS announces the MAP and TASC program application period, along with criteria. The application process allows applicants to request funding from multiple USDA market development programs through a simple, strategically coordinated proposal. These proposals are reviewed by FAS, and funds are allocated on a competitive basis.

By obtaining MAP and TASC funding, the COC would then be able to receive the assistance necessary to begin identifying potential export countries and exploring ways to overcome any existing barriers to trade. With an ever increasing presence of foreign product, it is imperative that the California Ripe Olive industry continue to increase its presence in these foreign markets. Conclusively, the assistance of MAP and TASC funds would drastically improve the COC's chances of gaining access to these competitive foreign markets and could potentially increase the presence of California Ripe Olives across the globe.

In 2016, the COC applied for a total of $350,000 in MAP and TASC funding, and is currently awaiting the news of the dollar amount received.

MOVED BY Tim T. CARTER, duly seconded by Dennis BURRESON, and unanimously carried THAT the COC keep section 8(e) and current inspection process in place. (Motion 11.10.16 #1)

III. INDUSTRY TRADE RESEARCH

The COC is currently conducting a review project to calculate the average costs of production for California Ripe Olives. This project has been facilitated by the COC and consultant, Dan Block, of D.W. block Associates, LLC. A summary of this study is currently underway and will be presented at the next Executive Subcommittee meeting in December.

IV. 2017 AMINISTRATIVE BUDGET

MOVED BY Felix MUSCO, duly seconded by Doug REIFSTECK, and unanimously carried THAT the Committee adopt the General Administration 2017 FY Budget. (Motion 11.10.16 #3)

MOVED BY Pat V. RICCHIUTI, duly seconded by Dennis BURRESON, and unanimously carried THAT the Committee delegate authority from the Committee to the Executive Director with oversight by the Chairman, for Inner-item transfer fund and THAT the Committee use legal counsel should one be needed with approval from the USDA. (Motion 11.10.16 #4)

I hereby certify that the above is full, true and correct copy of the minutes of the meeting held on November 10, 2016 in Modesto, California, by the Subcommittee.

November 14, 2016 Liza Ramon

Date November 14, 2016 Liza Ramon, California Olive Committee

SUMMARY OF MOTIONS FOR November 10, 2016

Motion 11.10.16 #1 APPROVED

MOVED BY Tim T. CARTER, duly seconded by Dennis BURRESON, and unanimously carried THAT the COC keep section 8(e) and current inspection process in place.

Motion 11.10.16 #2 APPROVED

MOVED BY Dennis BURRESON, duly seconded by Ed CURIEL, and unanimously carried THAT the minutes of the July 21, 2016 Executive Subcommittee meeting be approved.

Motion 11.10.16 #3 APPROVED

MOVED BY Felix MUSCO, duly seconded by Doug REIFSTECK, and unanimously carried THAT the Committee adopt the General Administration 2017 FY Budget.

Motion 11.10.16 #4 APPROVED

I MOVED BY Pat V. RICCHIUTI, duly seconded by Dennis BURRESON, and unanimously carried THAT the Committee delegate authority from the Committee to the Executive Director with oversight by the Chairman, for Inner-item transfer fund and THAT the Committee use legal counsel should one be needed with approval from the USDA.

*****FOR YOUR INFORMATION*****

FROM: EXECUTIVE SUBCOMMITTEE

SUBJECT: INDUSTRY TRADE RESEARCH

BACKGROUND: The COC is currently conducting a review project to calculate the average costs of production for California Ripe Olives. This project has been facilitated by the COC and consultant, Dan Block, of D.W. Block Associates, LLC.

Final Report

TABLE OLIVE PRODUCTION COST STUDY

for the California Olive Committee

Prepared by

D.W. BLOCK ASSOCIATES, LLC

December 9, 2016

D.W. BLOCK ASSOCIATES, LLC

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Introduction

The California Olive Committee (COC) is a grower-funded entity that administers marketing, research, inspection, and compliance programs for ripe (also referred to as table) olives produced in the state of California. The organization is comprised of two family-owned canning facilities and roughly one thousand growers located from Kern County to Shasta County, with operations ranging from less than 5 acres to over 1,000 acres in size.

In 2015, COC retained the services of D.W. Block Associates, LLC (DWB) to conduct a study of table olive production costs in California. The study was initiated in mid -2015 but was put on hold for several months until June 2016. The bulk of the primary research in the field, including grower interviews, was done in the summer and fall of 2016.

DWB is grateful to all the growers and COC staff who provided their valuable input and time for this study. Growers took time out of their busy schedules to share specific cost data and insights into the various factors affecting the cost of ripe olive production in California.

Methodology

Research for this study consisted of secondary (literature review) and primary (field) methods. In late 2015, DWB obtained and analyzed official statistics pertaining to ripe table olives in the United States and abroad, and also reviewed some of the critical issues in California agriculture as they related to table olive production, including labor, water, land use change, international trade, food safety, and consumer preferences. These sources helped provide context for specific developments in the California industry.

Primary research consisted of in-person interviews and an online survey with 31 growers believed to be representative of the overall population of California table olive growers. Of the 14 growers initially contacted, 13 were interviewed. For the online survey, a total of 206 growers were contacted via email, which yielded 18 responses.

Each grower was interviewed with the same set of questions (included in the Appendix), and also reviewed a sheet of production cost assumptions based on figures from Cost-Return studies for olives produced by UC Davis in 2016. Interviews were conducted in June 2016, followed by the online survey, which ran from August to October 2016.

The results of this research have been compiled in the following report.

Executive Summary

Tables ES-1 and ES-2 report the major categories of variable and fixed production costs obtained by the survey detailed in this report.

Table ES-1. Average[1] cash operating costs, by region/size of respondent.

			North		South	
		Baseline	Large	Small	Large	Small
Average Yield/Acre		5.00	4.89	4.92	6.09	4.54
Average Price/Ton		$1,020	$940	$940	$1,100	$1,100
Avg. Gross Returns		$5,100	$4,595	$4,621	$6,694	$4,996
Average Operating Costs	By item	500	500	500	493	607
Custom	Harvest Olives	$2,500	$2,444	$2,458	$2,999	$2,758
	PCA Fees	35	35	35	35	35
Water-Irrigation		270	334	273	207	411
Herbicide		47	47	64	68	69
Insecticide		197	197	181	139	144
Fertilizer		59	89	113	58	120
Fungicide		62	65	63	76	66
Thinning Agent		41	101	72	129	25
Labor	Equipment Operator	108	177	151	139	148
	Non-Machine Labor	453	582	490	478	410
Machinery	Fuel-Gasoline	6	6	6	5	6
	Fuel-Diesel	24	24	24	86	26
	Lube	5	5	5	5	5
	Machinery Repair	13	13	13	13	13
Interest on Operating Capital (4.25%)		33	40	37	35	40
Total Operating Costs / Acre		3,854	4,159	3,985	4,473	4,276
Total Operating Costs / Ton		771	851	811	735	941
Net Returns/Acre Above Operating Costs		1,246	437	636	2,221	720

Numbers may not add due to rounding

[1] Weighted by grower acreage

Table ES-2. Average[1] cash and non-cash overhead costs, by region/size of respondent.

Annual Costs per Acre	UC Davis Baseline	North Large	North Small	South Large	South Small
Cash Overhead Costs					
Liability Insurance	16	13	17	28	25
Office Expense	75	74	76	69	56
Sanitation Fees	18	17	18	15	18
Property Taxes	135	135	133	92	132
Property Insurance	11	13	19	12	37
Investment Repairs	108	108	113	133	109
Total Cash Overhead Costs/Acre	363	360	376	349	377
Non-Cash Overhead Costs					
Buildings	158	158	123	158	150
Orchard Establishment	205	264	223	246	234
Irrigation System-Double Drip	71	81	78	61	81
Land - Olives SV	260	349	288	342	411
Shop Tools	16	16	14	16	16
Pruning Equipment	5	5	8	5	5
Fuel Tank 2X 1000-Gallon	18	18	16	18	18
Equipment	190	190	190	190	190
Total Non-Cash Overhead Costs/Acre	923	1081	940	1036	1105
Total Costs/Acre	5138	5535	5274	6432	5837
Net Returns Above Total Costs	-40	-1,004	-680	836	-762

Numbers may not add due to rounding

Background

1. While U.S. ripe olive consumption continues to grow, imports are taking up an increasing share of U.S. market
2. California table olive acreage is in a long term decline due to multiple factors:
   a. High production costs (labor)
   b. Competition from imported product
   c. Urban development
   d. Higher returns from other crops
3. For a variety of reasons, the labor situation is not likely to improve
   a. Increased enforcement of immigration laws
   b. Costs of guest worker program
   c. Supply of farm labor from Mexico is shrinking:
   d. Immigration reform that normalizes undocumented workers also increases their mobility and ability to find work outside agriculture
   e. Mechanical harvesting challenges

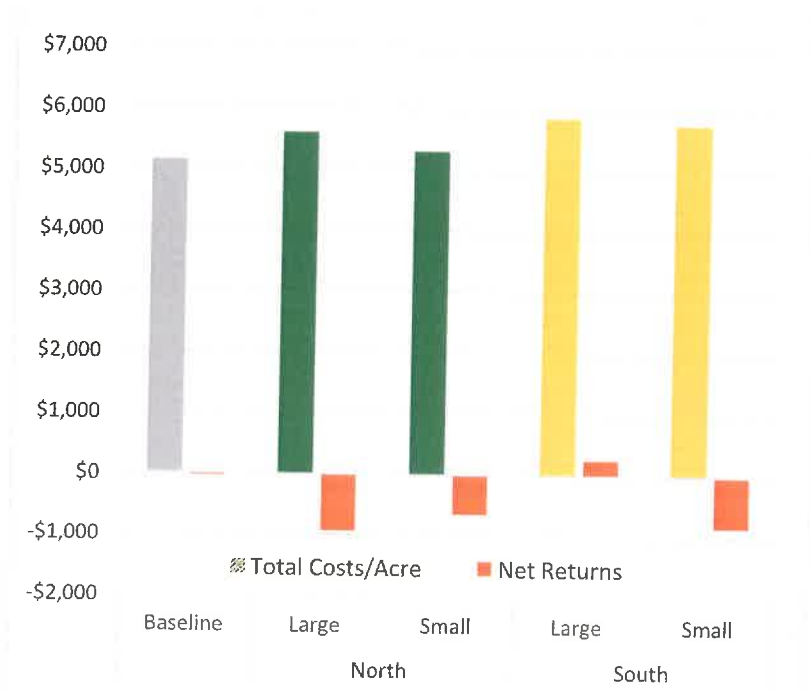
Production cost survey results

4. Survey of 31 table olive growers. Respondents were broken down by geographic location (North/South) and size (Less than/greater than 100 acres)
5. Production costs reported by survey respondents were \$150 to \$700 per acre higher among all respondents compared to the baseline 2016 Olive Production Cost study produced by the UC Davis Agricultural Issues Center (AIC Study)
6. Net returns in three of the four respondent categories were negative. Only large southern growers *as a group* reported positive net returns.
    a. Key reasons for this are the higher yields of larger growers and higher pricing obtained in the south due to a higher proportion of higher-priced sized fruit.
    b. Insecticide and nutrient costs were generally lower among southern growers, while northern growers saw lower herbicide costs.
7. While production costs per acre were higher among large, southern growers, higher reported yields resulted in the lowest costs per ton of all the categories.
8. Cash overhead costs were similar across regions and sizes
9. Non-cash overhead costs were smallest among smaller, northern growers.

Total Costs and Net Returns

Total costs and returns are summarized in **Table ES-1**, below. Each region/size category is compared with the baseline figures from the 2016 UC Davis/AIC cost-return study.

Figure ES-1. Average total costs and net returns per acre.



Source: 2016 COC Grower Survey

Industry Background

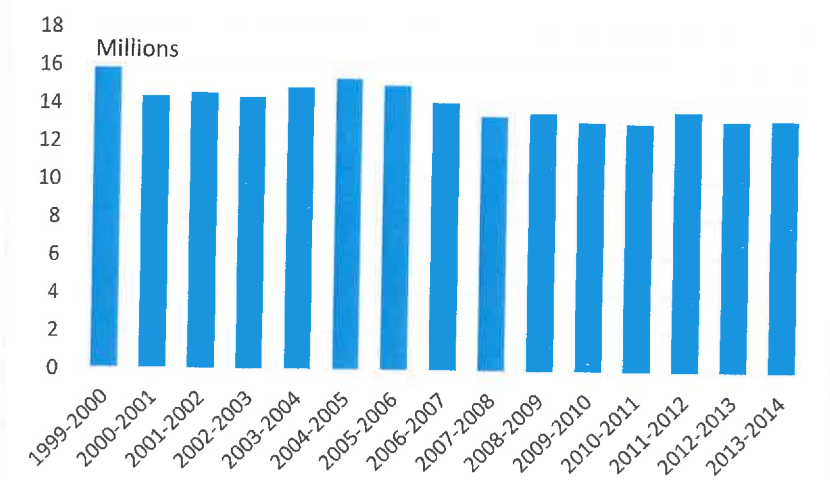
While this study focuses on production costs in California's diverse table olive growing industry, some background information is provided to add context to the following analysis.

California olive supply

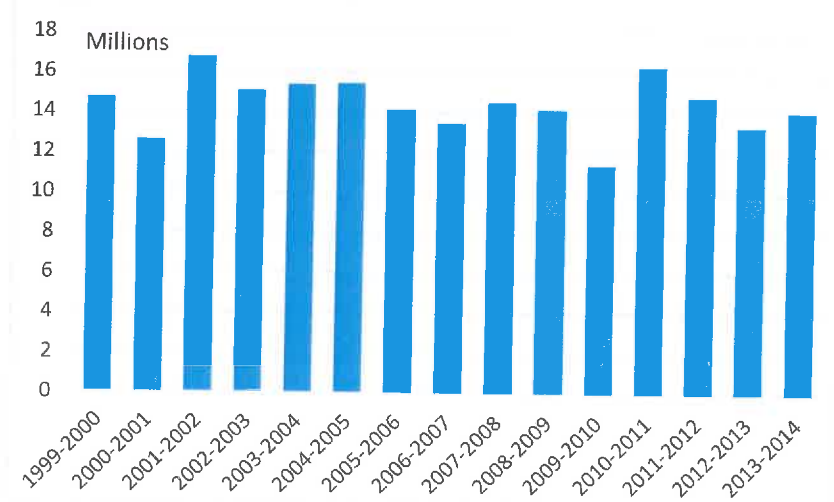
Even in the face of tremendous industry changes, the supply of California ripe olives has been stable over the past fifteen years, as shown in **Figure 1** and **Figure 2** below. While shipments are lower than levels seen in the early 2000s, they have been more or less flat since 2008. Pack, which varies according to the size of the crop each year, still remains close to the long-term average, as also shown in the charts below.

Figure 1. California ripe olive shipments and pack (converted cases 24/300 basis).

a. Shipments



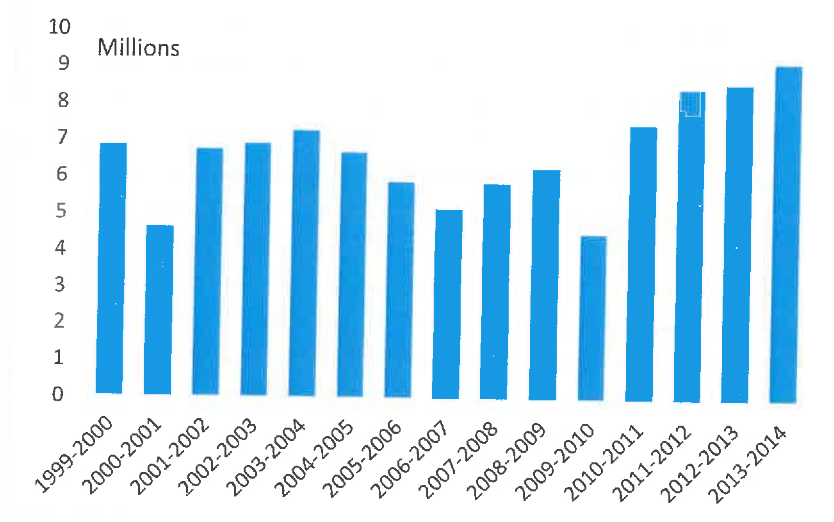
b. Pack



Source: California Olive Committee

Ripe olive inventories have been increasing in recent years, beginning with the record 2010 harvest.

Figure 2. California ripe olive inventories (converted cases 24/300 basis).



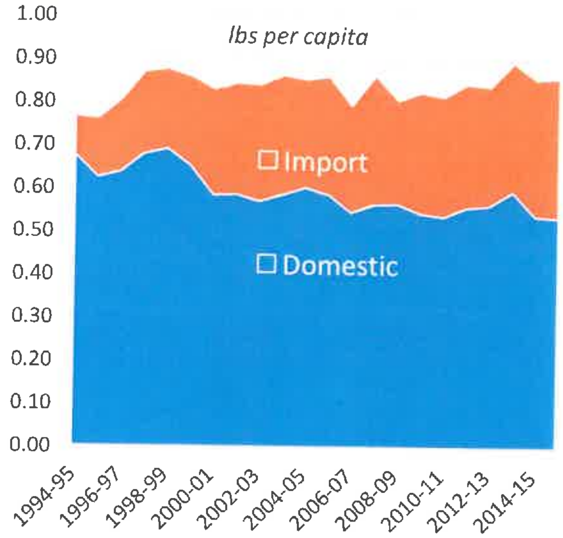
Source: California Olive Committee

U.S. olive demand/disappearance

U.S. consumption of ripe olives totaled approximately 270 million pounds in 2015. Total per capita consumption of canned ripe olives has been steady over the past 20 years, but the supply has increasingly come from imports, primarily from Spain, as ongoing support from the European Union's Common Agricultural Program (CAP) has encouraged high levels of olive production in Europe.[2] During the 1994-95 season, the California industry supplied nearly 70 percent of the table olives consumed in the U.S. By 2014-15, California represented roughly 55 percent of U.S. supply, as shown in **Figure 3**, below.

[2] http://www.teatronaturale.it/strettamente-tecnico/l-arca-olearia/22809-il-90-dell-olivicoltura-spagnola-e-in-perdita-senza-gli-aiuti-della-pac.htm

Figure 3. U.S. per capita consumption of canned olives

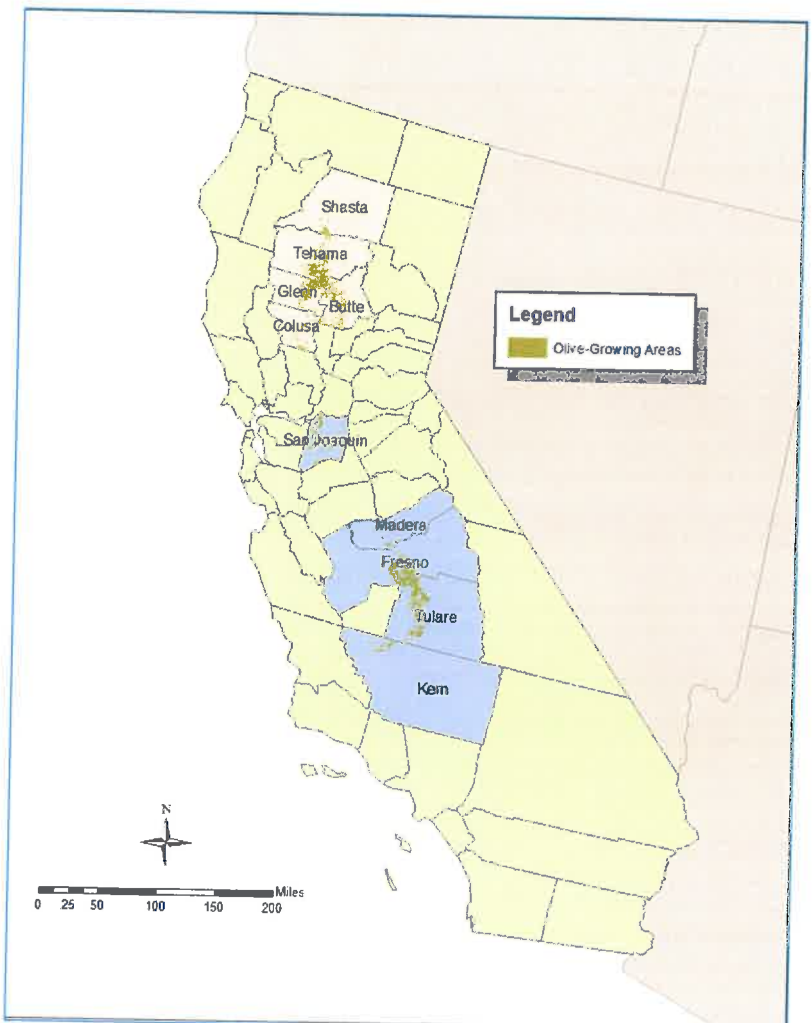


Sources: COC, USDA, U.S. Customs, Census Bureau

California olive acreage

Table olives are grown in two distinct regions in California. The southern growing region running from Kern County north to Tulare, Fresno, Madera, and parts of San Joaquin County represents approximately 15,000 acres; roughly two-thirds of the state total. The remaining third includes over 8,000 acres in the Sacramento River Valley counties of Colusa, Glenn, Butte, Tehama, and Shasta. Crop area devoted to table olive production has declined steadily over the past decade, due to a combination of increasing foreign imports and unfavorable domestic conditions, including rising production costs, urban development, and competition for land from more profitable crops.

Figure 4. Table olive-growing regions in California.



Sources: COC, USDA

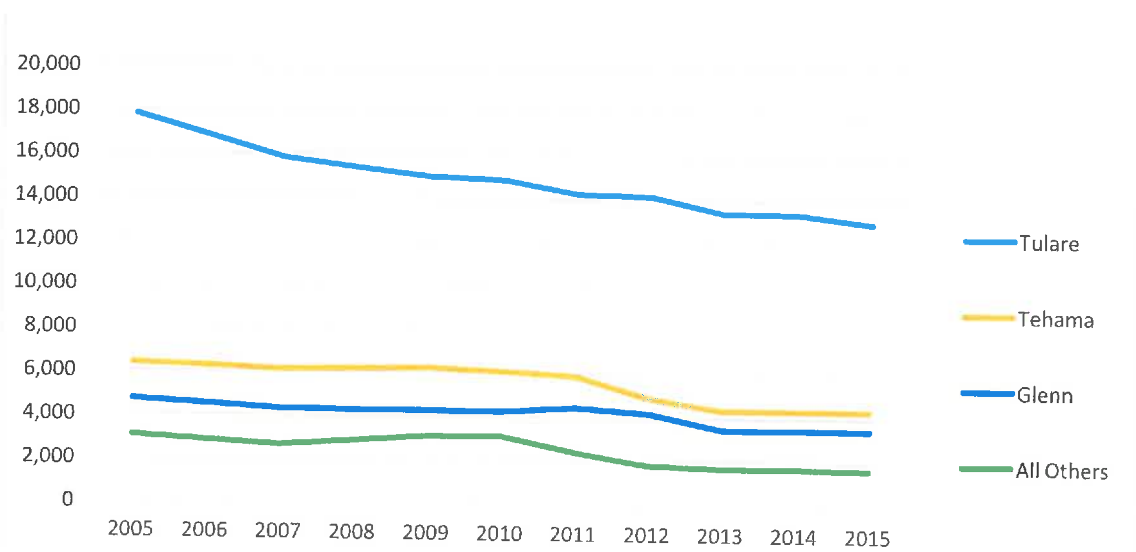
In the ten-year period between 2006 and 2014, California olive acreage declined from nearly 32,000 acres to less than 23,000 acres, an average decrease of 3.5 percent per year, as shown in **Table 1** and **Figure 5**, below.

Table 1. California olive acreage, 2005-2014

County	2006	2007	2008	2009	2010	2011	2012	2013	2014
Tehama	6,365	6,242	6,118	6,174	6,229	6,094	5,874	4,903	4,364
Glenn	4,697	4,506	4,315	4,295	4,274	4,252	4,459	4,200	3,486
Butte	-	-	-	226	451	495	511	371	351
Colusa	22	22	22	23	23	25	25	20	25
Shasta	252	239	226	251	276	258	241	111	12
Subtotal	11,336	11,009	10,681	10,967	11,253	11,124	11,110	9,605	8,238
Tulare	17,789	16,817	15,845	15,427	15,009	14,890	14,264	14,167	13,401
Fresno	962	879	795	720	644	650	649	604	625
Madera	1,407	1,332	1,256	1,281	1,305	1,256	575	462	361
Kern	393	372	350	368	386	386	386	240	240
San Joaquin	-	-	-	10	20	16	16	12	91
Subtotal	20,551	19,399	18,246	17,805	17,364	17,198	15,890	15,485	14,718
Grand Total	31,887	30,407	28,927	28,772	28,617	28,322	27,000	25,090	22,956

Source: California Olive Committee. Numbers may not add due to rounding.
Note: In June 2016, several growers interviewed stated they intended to reduce acreage significantly in 2017.

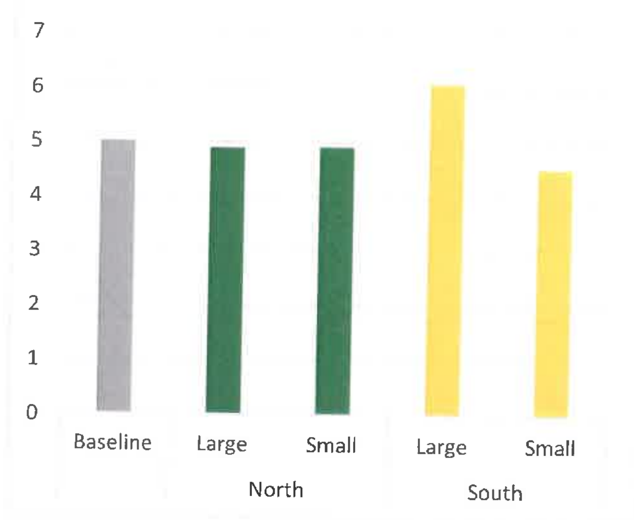
Figure 5. California table olive acreage: 2004-2015



Source: California Olive Committee

Table olive yields are reported in **Figure 6**, below. The comparatively high yields among large southern growers appear to be due largely to higher density production systems compared to the other categories.

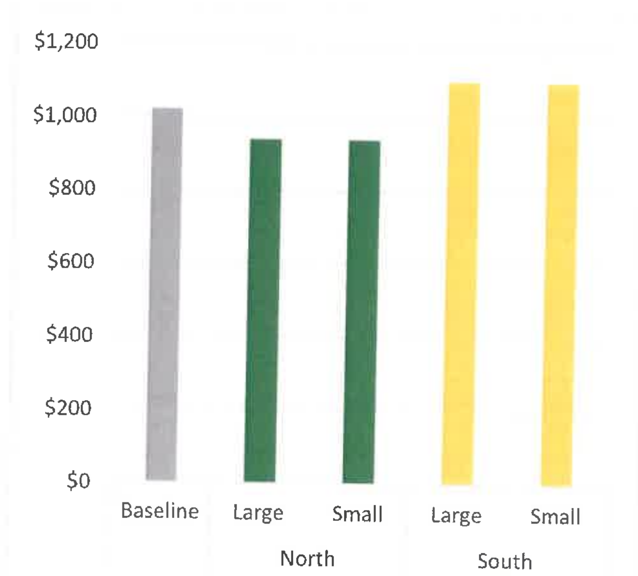
Figure 6. Olive yields by region and size of operation (tons/acre).



Source: 2016 COC Grower Survey

Average prices are reported by region for the 2016 harvest. The price differences are attributable to the predominant sizes in each region – the southern region produces a larger proportion of higher-priced sizes.

Figure 6. Average price/ton received by region and size.



Source: 2016 COC Grower Survey

California Trends: Industry trends, operating conditions, competing crops

The following discussion covers major components of olive production costs in California. For the purposes of this report, all production costs are expressed in terms of how they relate to a baseline established by the cost-return studies published by the UC Davis Agricultural Issues Center (AIC).

Recognizing that each individual olive grower in California has its own unique costs, the present study aims to capture facts about the industry at a greater level of detail than the AIC cost-return studies, while preserving the anonymity of those who responded to the COC-sponsored survey conducted in June-October 2016. Substantial effort was made to interview as many growers in each category as possible. The growers sampled for this study represent over 25% of the total California acreage.

All production costs described as "Average" on the following pages are reported per acre, and are based on a weighted average of the survey respondents – in other words, the costs per acre of a larger producer in a category carries more weight than that of a smaller producer in the same category. This is simply done to reflect the actual practices on the ground: a 2,000-acre grower represents a larger share of production, and their costs are weighted accordingly. Detailed methods are explained in the Appendix.

Labor costs

Hand-harvested olives are one of the most, if not the most labor-intensive crops in the California specialty crop sector.

Baseline labor rates as reported in the AIC's 2016 Olive Cost-Return study are based on the wages paid plus the employer's share of payroll taxes, insurance, and benefits. According to the U.S. Bureau of Labor Statistics, labor rates in the key growing regions (Tulare-Fresno and Tehama-Glenn counties), farm labor rates are roughly the same, though differences may exist due to the availability of other employment opportunities and in the timing of different harvests that may affect going wage rates.

Recent developments, such as the increase in the state minimum wage (SB 3) and the phase-out of the overtime exemptions for agricultural workers (AB 1066), are expected to hit labor-intensive industry segments the hardest

Table 2, below compares the labor costs associated with selected specialty crops grown in the Sacramento and San Joaquin valleys.

Table 2. Labor as a percentage of total operating costs, selected California crops.

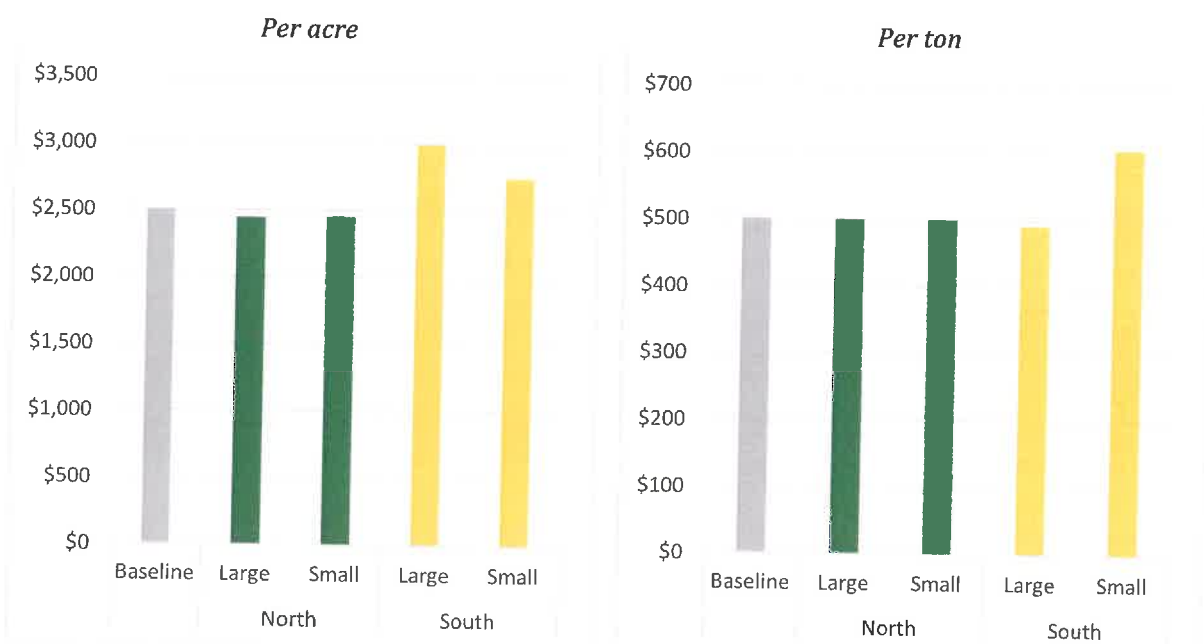
Crop	Harvest Method	Labor Cost
Olives – Standard	Hand	81%
Tomatoes – Fresh	Hand	77%
Grapes – Wine	Mech	43% - 54%
Grapes – Table	Hand	51% - 53%
Almonds	Mech	28% - 35%
Tomatoes – Processing	Mech	20%
Olives – High Density	Mech	19%
Walnuts	Mech	12% - 14%

Includes cultural, harvest, and post-harvest labor.

Sources: UC Davis, DWB estimates

Harvest costs, as measured by acre, are highest among large growers in the southern region. This is due to the higher yields, as mentioned above. On a per-ton basis, the situation is reversed, with those growers seeing the lowest costs, as shown in **Figure 7**, below.

Figure 7. Average harvest costs per acre.



Source: 2016 COC Grower Survey

As would be expected, the industry has focused a great deal of attention on developing mechanical harvesting methods for olives, both in the U.S. and in Spain, the world's leading table olive producer. While high density approaches have been tested in the field, adoption rates have been slow, due to the large upfront capital costs and the attractiveness of other crops currently bringing in higher returns than olives.

Labor supply

The labor situation for California specialty crops looks increasingly adverse, with factors inside and outside the U.S. leading to a continued decline in farm labor supply and higher costs for the workers who do remain in agriculture. Key developments include:

- Increased enforcement/auditing of I-9 forms: workers simply quit/move on
- Costs of H-2A guest worker program: housing requirements and minimum wage
- Supply of farm labor from Mexico is shrinking:
    - Increased agricultural employment within Mexico
    - Decreasing supply of farmworkers in rural Mexico – less pressure to emigrate to U.S.
    - During housing boom that peaked in 2007-08, many workers went into construction; after recession they did not return to farm work
- Immigration reform that normalizes undocumented workers also increases their mobility and ability to find work outside agriculture
- Mexico is a destination of its own for farmworkers from Central America, leaving fewer willing to come to the U.S.
- Minimum wage increase and new overtime rules for agricultural workers
- Growing role of farm labor contractors: higher out-of-pocket costs (up to 30% commission on top of wages)

Water

Water is a large component of non-labor operating costs in the standard, hand-harvested production system, representing approximately 35 percent of these costs. This is largely due to the low density of the orchards. In newer, high-density plantings, irrigation costs are roughly half of these costs. **Table 3** compares irrigation costs for selected crops.

Table 3. Irrigation water costs as percent of non-labor operating costs, selected crops.

Crop	Water Cost
Olives (Std)	35%
Olives (Hi-density)	16%
Grapes (Wine)	4% - 12%
Walnuts	8% - 11%
Tomatoes – Fresh	10%
Tomatoes – Processing	9%
Almonds	2% - 7%

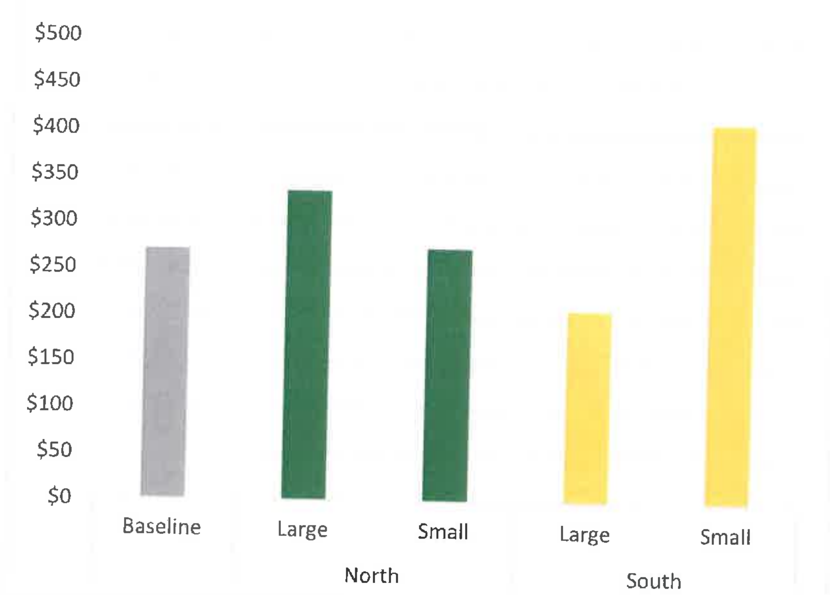
Sources: UC Davis, DWB estimates

Irrigation water costs vary widely by region, and water availability continues to be limited by the ongoing drought. As has been in the case in other drought periods over the past 15 years, the most water-stressed areas are in the eastern Tulare Lake Basin (Kern and Tulare counties) and in the Westside Water District (Fresno County). These areas represent over 60 percent of California's olive acreage.

Water supplies are less constrained in the Sacramento River Valley, which in most years receives most of its allotment of the state and federal water.

Irrigation costs by region and grower size are reported in **Figure 8**. These figures from the grower survey include purchased water and groundwater pumping.

Figure 8. Average irrigation water costs per acre.



Source: 2016 COC Grower Survey

The move to manage the state's groundwater resources moved forward rapidly in the 2014/2015 water year. In addition to the Sustainable Groundwater Management Act (SGMA), which took effect in early 2015, bipartisan bills (AB 1390 and SB 226) to accelerate the groundwater basin adjudication process become law in October 2015. Together, the legislation will eventually result in setting firm allocations for groundwater users in order to prevent unsustainable pumping in the future. In practical terms, this means that agricultural groundwater use will effectively be capped, which will ultimately put a firm limit on irrigated acreage. In the long run, this implies that the state's agriculture will shift even further toward high value specialty crops, combined with continued fallowing of marginally productive land.

Crop protection (fungicides, herbicides, insecticides, rodenticides)

Crop protection costs also loom large with standard olive production systems, with these costs making up around 30 percent of non-labor operating costs. In high-density systems, crop protection represents closer to 20 percent.

As high density production systems become more established, more data will be available regarding these costs; however, some reports have suggested that conditions in high-density orchards may favor development of certain pests and fungal diseases if orchards are not carefully pruned.

Table 4. Crop protection costs as percent of non-labor operating costs, selected crops.

Crop	Crop Protection Costs
Olives (Std)	30%
Tomatoes-Fresh	29%
Almonds	17% - 28%
Grapes (Wine)	22% - 28%
Walnuts	21% - 25%
Olives (Hi-density)	19%
Tomatoes-Processing	7%

Sources: UC Davis, DWB estimates

Soil fertility management

Fertilizer costs represent a relatively small amount of non-labor production costs, ranging from 5 percent (high density) to 13 percent (standard density) of these costs. **Table 5** compares olives with selected other crops.

Table 5. Fertilizer costs as percent of non-labor operating costs, selected crops.

Crop	Crop Protection Costs
Almonds	22% - 26%
Tomatoes-Fresh	18%
Grapes (Wine)	6% - 14%
Olives (Std)	13%
Tomatoes-Processing	11%
Olives (Hi-density)	5%
Walnuts	4% - 9%

Sources: UC Davis, DWB estimates

Food safety

While food safety is a major item of concern in many California-grown crops, olives appear to have little exposure to new costs or risks associated with the implementation of the 2011 Food Safety Modernization Act (FSMA). There have been no reported recalls of domestic (i.e., California) product since the FDA began capturing such data in 1994. On the other hand, imported olives were implicated in two separate incidents in 2007, where olives of Italian origin were recalled due to concerns over botulism. In the case of U.S.-produced table olives, the nature of the industry (there being only two processors) provides strong imperatives for product traceability and quality control, and in fact, most domestic canned food processors are already exempt from FSMA requirements because the industry is considered to have already adopted best practices for food safety.

Environmental concerns

As air and water quality regulations are implemented at the regional level, olive growers face the same set of environmental regulations as other crops in the Central Valley. Consequently, economic effects will be roughly the same regardless of the crop grown, so olive growers are expected to neither benefit nor be exceptionally burdened by environmental regulations in the state compared to other crops.

As of April 2016, there does not appear to be any new or proposed environmental regulations being formally proposed at the state level[3]. Additional legislation could take place by the end of 2016, but their likelihood of being enacted is not known at this time.

Mechanization

While mechanization in the olive industry has been proceeding at a slow pace, another California crop has experienced a fairly rapid mechanization, which could provide an example of what might occur with olives if the industry chooses that path. California raisin producers have dealt with rising labor costs by planting new grape varieties that allow dried-on-the-vine (DOV) methods that allow for machine harvesting, which has reduced labor requirements by as much as 50 percent. In all, approximately 50,000 acres of grape vines for raisins have been replanted since 2000, representing over 26 percent of the state's acreage. This transition has taken place mostly with larger operations.

Table 6 compares the operating costs of standard and high-density olive production systems.

Table 6. Comparison of traditional and high-density olive production costs

Cost Per Acre	Standard Manual Harvest	% of Total	High Density Machine Harvest	% of Total
Total Operating Costs	$3,049		$1,664	
Labor - Pre/Post Harvest	$554	18%	$308	19%
Labor - Harvesting	$1,750	57%	$600	36%
Total Labor	$2,304	76%	$908	55%

Source: 2011 Olive Cost-Return studies for medium and super high density olive orchards

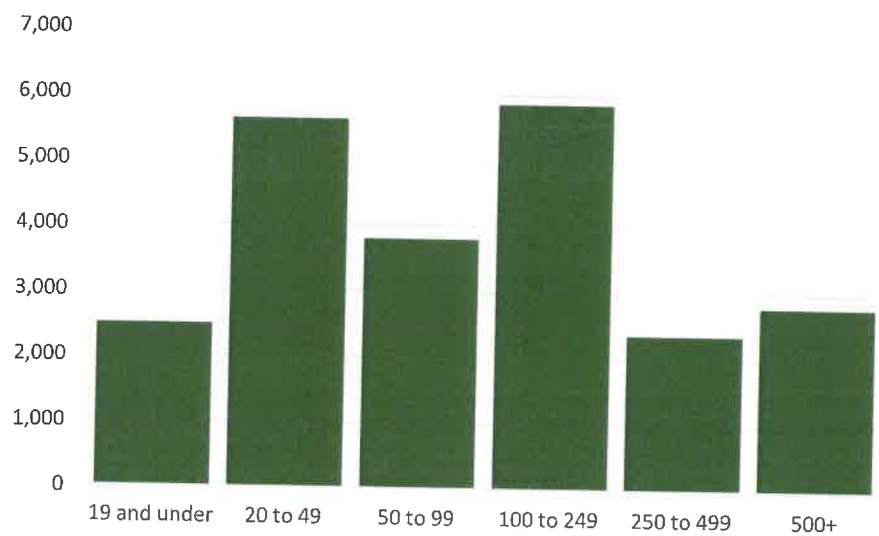
[3] http://www.oal.ca.gov/proposed-regulations/

Distribution of olive growers by size

Based on figures reported by the COC, the median size of olive-growing operations is slightly less than 100 acres. This midpoint is used to distinguish between small (up to 100 acres), and large (over 100 acres) operations in the production cost survey results found in the following section.

The distribution of olive acreage by size of operation is estimated in **Figure 9**, below, based on COC data about the number of growers in each size class. For example, the total area in California taken up by small operations (less than 20 acres each) is roughly 2,500 acres. The total crop area taken up by operations of 20-49 acres each is 5,600 acres, and so on.

Figure 9. Olive acreage, by size class of operation, 2006.



Source: COC, with estimated distribution by DWB

Production Cost Model

Approach

The UC Davis Agricultural Issues Center (AIC), along with the UC Cooperative Extension (UCCE), produces cost and return studies for a wide variety of crop and livestock commodities grown in California. The UC system has issued four dozen table olive studies since 1938, reflecting the long history and stature of table olive production in California.

The most recent table olive cost-return study was issued in 2016, and focuses on a prototypical Manzanillo orchard on 40-acres in the Sacramento Valley.

These cost and return studies contain detailed figures relating to production practices for each crop and region, including cultural practices from pre-plant to post-harvest, as well as cash and capital overhead costs.

Recognizing that these studies are a useful resource for planning and evaluating production costs of valuable crops in California, this study attempts to describe production costs at a finer resolution, reflecting the diversity of operations throughout the state's major growing areas.

Accordingly, the approach to the present study is to analyze differences between the two major growing regions (the Sacramento Valley and Tulare-Fresno counties), as well as operation size: small (up to 100 acres) and large (over 100 acres).

In order to obtain additional information, the research team obtained production cost data and background on production practices from 31 individual growers in the state. An initial group of 13 growers were identified by the research team and interviewed in June 2016. This was supplemented by an online survey of growers in September 2016, which yielded an additional 18 responses out of 206 growers contacted via e-mail.

Respondents were categorized by location (North and South) and size (Large and Small), and the average values for each category were used to summarize the variation in production costs by line item (e.g., irrigation water, nutrients, herbicides, etc.), as reported in the following section.

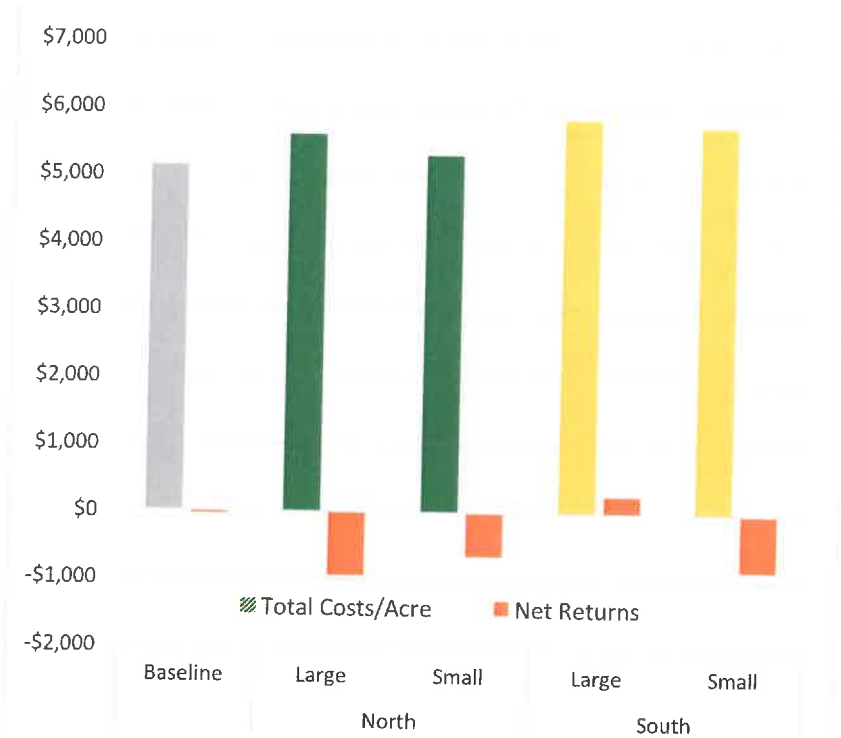
A detailed discussion of the survey approach and methods can be found in the Appendix.

Survey Results

The survey results are summarized in **Table 7** and **Figure 10**, below. These findings illustrate two broad conclusions: costs are generally slightly higher and revenues are generally lower than the baseline figures, with some variation by size and region.

As will become clear on the following pages, large growers in the southern region have seen considerably higher costs, due largely to higher yields per acre. This is offset by higher overall pricing based on a larger proportion of higher-valued olive size.

Figure 10. Average total costs and net returns per acre.



Source: 2016 COC Grower Survey

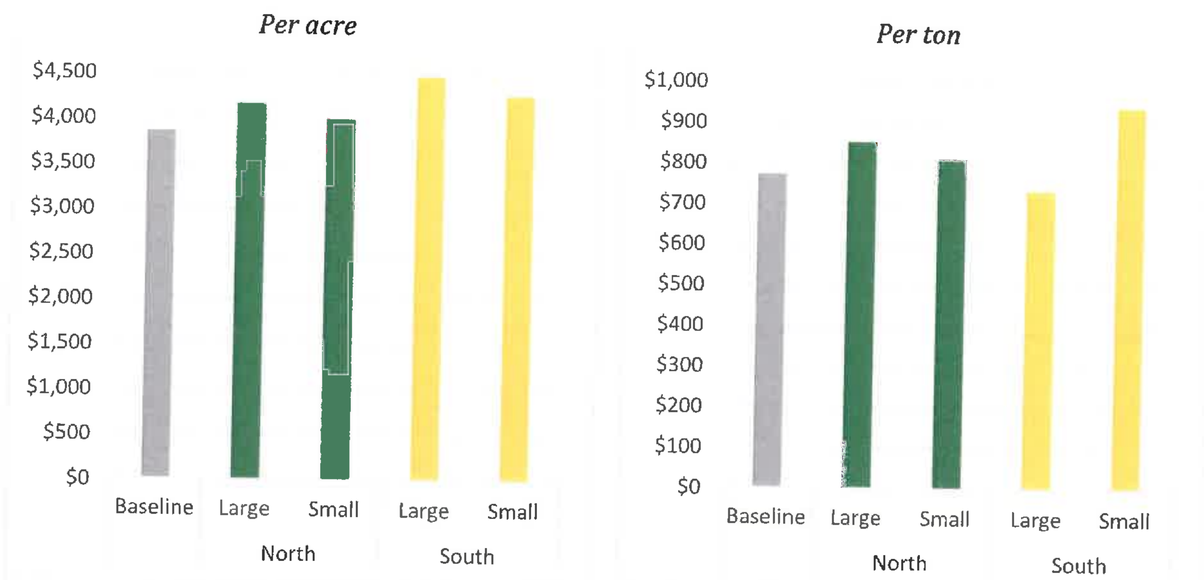
Table 7. Costs and returns per acre.

Category	Operating Costs	Overhead	Total Costs	Revenues	Net Returns
Baseline	$3,854	$1,286	$5,140	$5,100	-$40
North-Large	$4,159	$1,441	$5,600	$4,595	-$1,004
North-Small	$3,985	$1,316	$5,301	$4,621	-$680
South-Large	$4,473	$1,385	$5,858	$6,694	$836
South-Small	$4,276	$1,482	$5,758	$4,996	-$762

Source: 2016 COC Grower Survey

Operating Costs depend greatly on harvest costs, a topic discussed in more detail in the regional breakdowns in the next section. Depending on the region and grower size, harvesting costs represented between 60 percent and 72 percent of operating costs.

Figure 11. Average total operating costs.

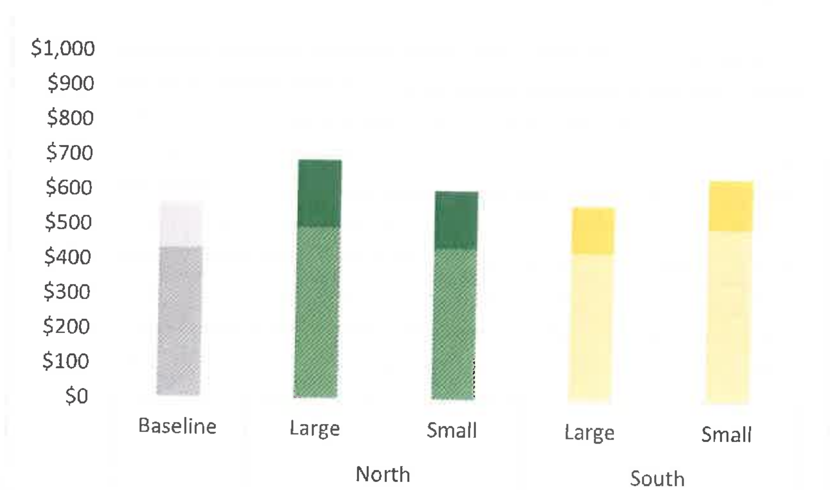


Source: 2016 COC Grower Survey

Labor costs

Even when excluding the harvest, labor costs represent a substantial portion of operating costs, as shown in **Figure 12** below. Pruning and shredding costs represent the largest proportion of these costs, as shown in the crosshatched area below.

Figure 12. Average labor costs per acre (excluding harvest).



Source: 2016 COC Grower Survey

Combined, harvest and pruning costs represent over 90 percent of labor costs among the growers surveyed.

Table 8. Average labor costs per acre, by type.

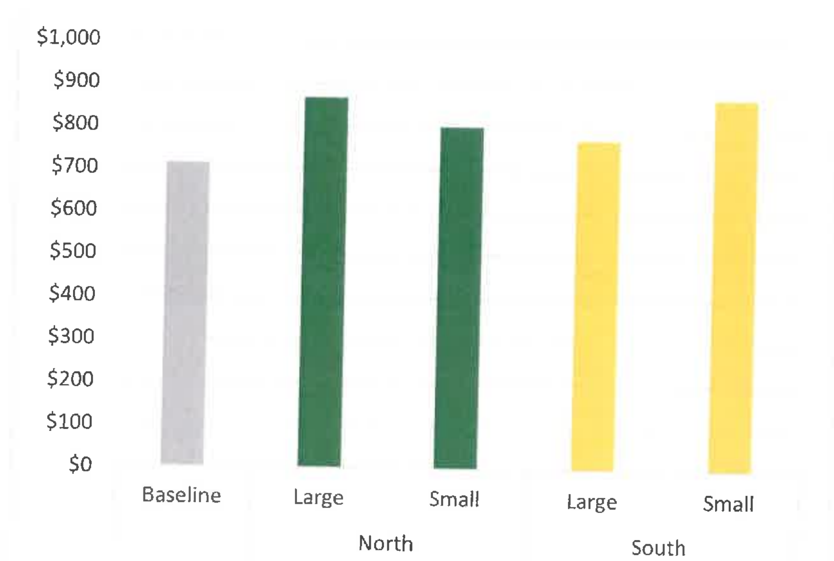
Category	Harvest	Irrigation	Machine (Skilled)	Non-machine (Unskilled)	Other	Pest/ disease mgmt	Pruning	Weed mgmt	Total
Baseline	$2,500	$15	$108	$28	$8	$20	$425	$22	$3,125
North-Large	$2,444	$34	$106	$26	$36	$35	$486	$36	$3,204
North-Small	$2,458	$21	$108	$32	$7	$21	$431	$21	$3,099
South-Large	$2,999	$23	$98	$27	$7	$20	$421	$21	$3,616
South-Small	$2,758	$12	$117	$21	$6	$15	$495	$16	$3,316

Source: 2016 COC Grower Survey

Crop inputs

Reported input costs exceeded the baseline in all of the respondent categories, though these costs varied by location and size in different ways. For example, fungicide and herbicide costs were uniformly higher than the baseline among all respondents. All other costs were generally higher in the north, while thinning agent (Liqui-Stik) costs were higher among large growers compared to small growers.

Figure 13. Average total input costs per acre.



Source: 2016 COC Grower Survey

Table 9. Average input costs per acre, by location and size.

Category	Fungicide	Herbicide	Insect Control	Insecticide	Nutrients	Thinning Agent	Water	Total
Baseline	$62	$47	$14	$197	$59	$41	$270	$720
North-Large	$65	$47	$15	$197	$89	$101	$334	$879
North-Small	$63	$64	$16	$181	$113	$72	$273	$810
South-Large	$76	$68	$7	$139	$58	$129	$207	$782
South-Small	$66	$69	$8	$136	$120	$25	$411	$867

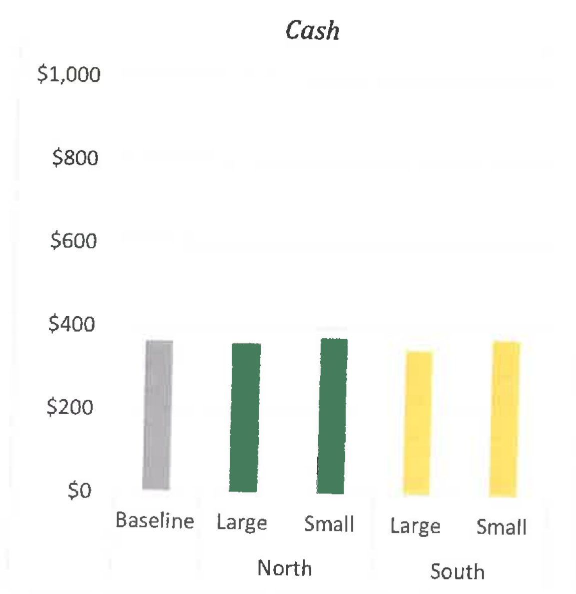
Source: 2016 COC Grower Survey

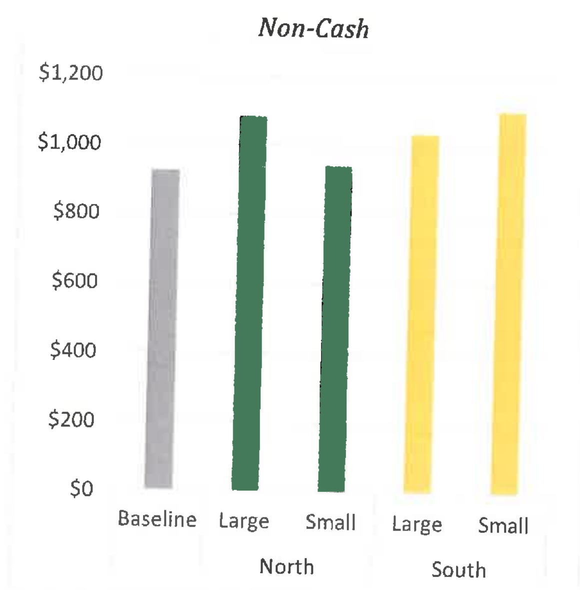
Overhead costs

Cash overhead costs per acre did not deviate much from the baseline. The most notable finding is that some costs, such as office, insurance, fees, and taxes, were lower among larger producers, which would seem to match expectations, as larger operations can spread their costs over a larger acreage base.

Non-cash overhead costs were likewise similar to, though slightly higher than, the baseline across all regions and size categories. Land costs were slightly higher among respondents in the southern region.

Figure 14. Average overhead costs.





Source: 2016 COC Grower Survey

Cash and non-cash overhead costs are shown in more detail in **Tables 10** and **11**, below.

Table 10. Average cash overhead per acre cost detail.

Category	Equipment Repair	Liability Insurance	Office	Property Insurance	Property Tax	Sanitation	Total
Baseline	$108	$16	$75	$11	$135	$18	$363
North-Large	$108	$17	$74	$13	$135	$17	$365
North-Small	$113	$17	$76	$19	$133	$18	$374
South-Large	$133	$28	$69	$12	$92	$15	$349
South-Small	$115	$25	$56	$37	$132	$14	$454

Source: 2016 COC Grower Survey

Table 11. Average non-cash overhead per acre cost detail.

Category	Buildings	Equipment	Orchard Establishment	Fuel Tanks	Irrigation System	Land Cost	Tools	Total
Baseline	$158	$190	$205	$18	$71	$260	$21	$923
North-Large	$158	$190	$264	$18	$81	$349	$21	$1,082
North-Small	$123	$179	$223	$16	$78	$288	$22	$930
South-Large	$158	$190	$246	$18	$61	$342	$21	$1,036
South-Small	$112	$143	$176	$14	$134	$411	$16	$1,005

Source: 2016 COC Grower Survey

Ranging Analysis (Net returns at varying prices and yields)

The following tables provide a dynamic picture of the potential profitability of each region/size category. This sensitivity, or ranging, analysis compares the net returns per acre and per ton for a range of crop yields (from 2tons/acre to 8 tons/acre) and price (from $720 to $1320 per ton).

Table 12. Costs and returns: Baseline (2016 UC Davis Cost-Return Study)

Baseline	Yield (Tons/Acre) 2.00	3.00	4.00	5.00	6.00	7.00	8.00
OPERATING COST/ACRE							
Cultural	1,319	1,319	1,319	1,319	1,319	1,319	1,319
Harvest	1,000	1,500	2,000	2,500	3,000	3,500	4,000
Interest on Operating Capital @ 4.25%	26	28	30	32	34	35	37
TOTAL OPERATING COSTS/ACRE	2,345	2,847	3,349	3,851	4,353	4,854	5,356
TOTAL OPERATING COSTS/TON	1,173	949	837	770	726	693	670
CASH OVERHEAD COSTS/ACRE	363	363	363	363	363	363	363
TOTAL CASH COSTS/ACRE	2,708	3,210	3,712	4,214	4,716	5,217	5,719
TOTAL CASH COSTS/TON	1,354	1,070	928	843	786	745	715
NON-CASH OVERHEAD COSTS/ACRE	923	923	923	923	923	923	923
TOTAL COSTS/ACRE	3,631	4,133	4,635	5,137	5,639	6,140	6,642
TOTAL COSTS/TON	1,816	1,378	1,159	1,027	940	877	830

Net Return per Acre Above Operating Costs		Yield (Tons/Acre) 2.00	3.00	4.00	5.00	6.00	7.00	8.00
	$720	-905	-687	-469	-251	-33	186	404
	$820	-705	-387	-69	249	567	886	1,204
	$920	-505	-87	331	749	1,167	1,586	2,004
Price ($/ton)	$1020	-305	213	731	1,249	1,767	2,286	2,804
	$1120	-105	513	1,131	1,749	2,367	2,986	3,604
	$1220	95	813	1,531	2,249	2,967	3,686	4,404
	$1320	295	1,113	1,931	2,749	3,567	4,386	5,204

Net Return per Acre Above Cash Costs		Yield (Tons/Acre) 2.00	3.00	4.00	5.00	6.00	7.00	8.00
	$720	-1,268	-1,050	-832	-614	-396	-177	41
	$820	-1,068	-750	-432	-114	204	523	841
	$920	-868	-450	-32	386	804	1,223	1,641
Price ($/ton)	$1020	-668	-150	368	886	1,404	1,923	2,441
	$1120	-468	150	768	1,386	2,004	2,623	3,241
	$1220	-268	450	1,168	1,886	2,604	3,323	4,041
	$1320	-68	750	1,568	2,386	3,204	4,023	4,841

Net Return per Acre Above Total Costs		Yield (Tons/Acre) 2.00	3.00	4.00	5.00	6.00	7.00	8.00
	$720	-2,191	-1,973	-1,755	-1,537	-1,319	-1,100	-882
	$820	-1,991	-1,673	-1,355	-1,037	-719	-400	-82
	$920	-1,791	-1,373	-955	-537	-119	300	718
Price ($/ton)	$1020	-1,591	-1,073	-555	-37	481	1,000	1,518
	$1120	-1,391	-773	-155	463	1,081	1,700	2,318
	$1220	-1,191	-473	245	963	1,681	2,400	3,118
	$1320	-991	-173	645	1,463	2,281	3,100	3,918

Table 13. Costs and returns: North/Large

Baseline	Yield (Tons/Acre) 2.00	3.00	4.00	5.00	6.00	7.00	8.00
OPERATING COST/ACRE							
Cultural	1,618	1,618	1,618	1,618	1,618	1,618	1,618
Harvest	1,000	1,500	2,000	2,500	3,000	3,500	3,999
Interest on Operating Capital @ 4.25%	40	40	40	40	40	40	40
TOTAL OPERATING COSTS/ACRE	2,657	3,157	3,657	4,157	4,657	5,157	5,657
TOTAL OPERATING COSTS/TON	1,329	1,052	914	831	776	737	707
CASH OVERHEAD COSTS/ACRE	360	360	360	360	360	360	360
TOTAL CASH COSTS/ACRE	3,017	3,517	4,017	4,517	5,017	5,517	6,017
TOTAL CASH COSTS/TON	1,509	1,172	1,004	903	836	788	752
NON-CASH OVERHEAD COSTS/ACRE	1,081	1,081	1,081	1,081	1,081	1,081	1,081
TOTAL COSTS/ACRE	4,098	4,598	5,098	5,598	6,098	6,598	7,098
TOTAL COSTS/TON	2,049	1,533	1,275	1,120	1,016	943	887

Net Return per Acre Above Op Costs		Yield (Tons/Acre) 2.00	3.00	4.00	5.00	6.00	7.00	8.00
Price ($/ton)	$720	-1,217	-997	-777	-557	-337	-117	103
	$820	-1,017	-697	-377	-57	263	583	903
	$920	-817	-397	23	443	863	1,283	1,703
	$1020	-617	-97	423	943	1,463	1,983	2,503
	$1120	-417	203	823	1,443	2,063	2,683	3,303
	$1220	-217	503	1,223	1,943	2,663	3,383	4,103
	$1320	-17	803	1,623	2,443	3,263	4,083	4,903

Net Return per Acre Above Cash Costs		Yield (Tons/Acre) 2.00	3.00	4.00	5.00	6.00	7.00	8.00
Price ($/ton)	$720	-1,577	-1,357	-1,137	-917	-697	-477	-257
	$820	-1,377	-1,057	-737	-417	-97	223	543
	$920	-1,177	-757	-337	83	503	923	1,343
	$1020	-977	-457	63	583	1,103	1,623	2,143
	$1120	-777	-157	463	1,083	1,703	2,323	2,943
	$1220	-577	143	863	1,583	2,303	3,023	3,743
	$1320	-377	443	1,263	2,083	2,903	3,723	4,543

Net Return per Acre Above Total Costs		Yield (Tons/Acre) 2.00	3.00	4.00	5.00	6.00	7.00	8.00
Price ($/ton)	$720	-2,658	-2,438	-2,218	-1,998	-1,778	-1,558	-1,338
	$820	-2,458	-2,138	-1,818	-1,498	-1,178	-858	-538
	$920	-2,258	-1,838	-1,418	-998	-578	-158	262
	$1020	-2,058	-1,538	-1,018	-498	22	542	1,062
	$1120	-1,858	-1,238	-618	2	622	1,242	1,862
	$1220	-1,658	-938	-218	502	1,222	1,942	2,662
	$1320	-1,458	-638	182	1,002	1,822	2,642	3,462

Table 14. Costs and returns: North/Small

Baseline	Yield (Tons/Acre) 2.00	3.00	4.00	5.00	6.00	7.00	8.00
OPERATING COST/ACRE							
Cultural	1,468	1,468	1,468	1,468	1,468	1,468	1,468
Harvest	1,000	1,500	2,000	2,500	3,000	3,500	4,000
Interest on Operating Capital @ 4.25%	37	37	37	37	37	37	37
TOTAL OPERATING COSTS/ACRE	2,505	3,005	3,505	4,005	4,505	5,005	5,505
TOTAL OPERATING COSTS/TON	1,252	1,002	876	801	751	715	688
CASH OVERHEAD COSTS/ACRE	376	376	376	376	376	376	376
TOTAL CASH COSTS/ACRE	2,881	3,381	3,881	4,381	4,881	5,381	5,881
TOTAL CASH COSTS/TON	1,440	1,127	970	876	813	769	735
NON-CASH OVERHEAD COSTS/ACRE	940	940	940	940	940	940	940
TOTAL COSTS/ACRE	3,821	4,321	4,821	5,321	5,821	6,321	6,821
TOTAL COSTS/TON	1,910	1,440	1,205	1,064	970	903	853

Net Return per Acre Above Op Costs		Yield (Tons/Acre) 2.00	3.00	4.00	5.00	6.00	7.00	8.00
Price ($/ton)	$720	-1,065	-845	-625	-405	-185	35	255
	$820	-865	-545	-225	95	415	735	1,055
	$920	-665	-245	175	595	1,015	1,435	1,855
	$1020	-465	55	575	1,095	1,615	2,135	2,655
	$1120	-265	355	975	1,595	2,215	2,835	3,455
	$1220	-65	655	1,375	2,095	2,815	3,535	4,255
	$1320	135	955	1,775	2,595	3,415	4,235	5,055

Net Return per Acre Above Cash Costs		Yield (Tons/Acre) 2.00	3.00	4.00	5.00	6.00	7.00	8.00
Price ($/ton)	$720	-1,441	-1,221	-1,001	-781	-561	-341	-121
	$820	-1,241	-921	-601	-281	39	359	679
	$920	-1,041	-621	-201	219	639	1,059	1,479
	$1020	-841	-321	199	719	1,239	1,759	2,279
	$1120	-641	-21	599	1,219	1,839	2,459	3,079
	$1220	-441	279	999	1,719	2,439	3,159	3,879
	$1320	-241	579	1,399	2,219	3,039	3,859	4,679

Net Return per Acre Above Total Costs		Yield (Tons/Acre) 2.00	3.00	4.00	5.00	6.00	7.00	8.00
Price ($/ton)	$720	-2,381	-2,161	-1,941	-1,721	-1,501	-1,281	-1,061
	$820	-2,181	-1,861	-1,541	-1,221	-901	-581	-261
	$920	-1,981	-1,561	-1,141	-721	-301	119	539
	$1020	-1,781	-1,261	-741	-221	299	819	1,339
	$1120	-1,581	-961	-341	279	899	1,519	2,139
	$1220	-1,381	-661	59	779	1,499	2,219	2,939
	$1320	-1,181	-361	459	1,279	2,099	2,919	3,739

Table 15: Costs and returns: South/Large

Baseline	Yield (Tons/Acre) 2.00	3.00	4.00	5.00	6.00	7.00	8.00
OPERATING COST/ACRE							
Cultural	1,331	1,331	1,331	1,331	1,331	1,331	1,331
Harvest	986	1,478	1,971	2,464	2,957	3,450	3,943
Interest on Operating Capital @ 4.25%	35	35	35	35	35	35	35
TOTAL OPERATING COSTS/ACRE	2,352	2,845	3,338	3,831	4,324	4,817	5,309
TOTAL OPERATING COSTS/TON	1,176	948	835	766	721	688	664
CASH OVERHEAD COSTS/ACRE	349	349	349	349	349	349	349
TOTAL CASH COSTS/ACRE	2,701	3,194	3,687	4,180	4,673	5,166	5,658
TOTAL CASH COSTS/TON	1,351	1,065	922	836	779	738	707
NON-CASH OVERHEAD COSTS/ACRE	1,036	1,036	1,036	1,036	1,036	1,036	1,036
TOTAL COSTS/ACRE	3,737	4,230	4,723	5,216	5,709	6,202	6,694
TOTAL COSTS/TON	1,869	1,410	1,181	1,043	951	886	837

Net Return per Acre Above Op Costs		Yield (Tons/Acre) 2.00	3.00	4.00	5.00	6.00	7.00	8.00
Price ($/ton)	$720	-912	-685	-458	-231	-4	223	451
	$820	-712	-385	-58	269	596	923	1,251
	$920	-512	-85	342	769	1,196	1,623	2,051
	$1020	-312	215	742	1,269	1,796	2,323	2,851
	$1120	-112	515	1,142	1,769	2,396	3,023	3,651
	$1220	88	815	1,542	2,269	2,996	3,723	4,451
	$1320	288	1,115	1,942	2,769	3,596	4,423	5,251

Net Return per Acre Above Cash Costs		Yield (Tons/Acre) 2.00	3.00	4.00	5.00	6.00	7.00	8.00
Price ($/ton)	$720	-1,261	-1,034	-807	-580	-353	-126	102
	$820	-1,061	-734	-407	-80	247	574	902
	$920	-861	-434	-7	420	847	1,274	1,702
	$1020	-661	-134	393	920	1,447	1,974	2,502
	$1120	-461	166	793	1,420	2,047	2,674	3,302
	$1220	-261	466	1,193	1,920	2,647	3,374	4,102
	$1320	-61	766	1,593	2,420	3,247	4,074	4,902

Net Return per Acre Above Total Costs		Yield (Tons/Acre) 2.00	3.00	4.00	5.00	6.00	7.00	8.00
Price ($/ton)	$720	-2,297	-2,070	-1,843	-1,616	-1,389	-1,162	-934
	$820	-2,097	-1,770	-1,443	-1,116	-789	-462	-134
	$920	-1,897	-1,470	-1,043	-616	-189	238	666
	$1020	-1,697	-1,170	-643	-116	411	938	1,466
	$1120	-1,497	-870	-243	384	1,011	1,638	2,266
	$1220	-1,297	-570	157	884	1,611	2,338	3,066
	$1320	-1,097	-270	557	1,384	2,211	3,038	3,866

Table 16: Costs and returns: South/Small

Baseline	Yield (Tons/Acre) 2.00	3.00	4.00	5.00	6.00	7.00	8.00
OPERATING COST/ACRE							
Cultural	1,562	1,562	1,562	1,562	1,562	1,562	1,562
Harvest	1,215	1,822	2,429	3,036	3,644	4,251	4,858
Interest on Operating Capital @ 4.25%	40	40	40	40	40	40	40
TOTAL OPERATING COSTS/ACRE	2,816	3,424	4,031	4,638	5,246	5,853	6,460
TOTAL OPERATING COSTS/TON	1,408	1,141	1,008	928	874	836	808
CASH OVERHEAD COSTS/ACRE	377	377	377	377	377	377	377
TOTAL CASH COSTS/ACRE	3,193	3,801	4,408	5,015	5,623	6,230	6,837
TOTAL CASH COSTS/TON	1,597	1,267	1,102	1,003	937	890	855
NON-CASH OVERHEAD COSTS/ACRE	1,105	1,105	1,105	1,105	1,105	1,105	1,105
TOTAL COSTS/ACRE	4,298	4,906	5,513	6,120	6,728	7,335	7,942
TOTAL COSTS/TON	2,149	1,635	1,378	1,224	1,121	1,048	993

Net Return per Acre Above Op Costs		Yield (Tons/Acre) 2.00	3.00	4.00	5.00	6.00	7.00	8.00
Price ($/ton)	$720	-1,376	-1,264	-1,151	-1,038	-926	-813	-700
	$820	-1,176	-964	-751	-538	-326	-113	100
	$920	-976	-664	-351	-38	274	587	900
	$1020	-776	-364	49	462	874	1,287	1,700
	$1120	-576	-64	449	962	1,474	1,987	2,500
	$1220	-376	236	849	1,462	2,074	2,687	3,300
	$1320	-176	536	1,249	1,962	2,674	3,387	4,100

Net Return per Acre Above Cash Costs		Yield (Tons/Acre) 2.00	3.00	4.00	5.00	6.00	7.00	8.00
Price ($/ton)	$720	-1,753	-1,641	-1,528	-1,415	-1,303	-1,190	-1,077
	$820	-1,553	-1,341	-1,128	-915	-703	-490	-277
	$920	-1,353	-1,041	-728	-415	-103	210	523
	$1020	-1,153	-741	-328	85	497	910	1,323
	$1120	-953	-441	72	585	1,097	1,610	2,123
	$1220	-753	-141	472	1,085	1,697	2,310	2,923
	$1320	-553	159	872	1,585	2,297	3,010	3,723

Net Return per Acre Above Total Costs		Yield (Tons/Acre) 2.00	3.00	4.00	5.00	6.00	7.00	8.00
Price ($/ton)	$720	-2,658	-2,438	-2,218	-1,998	-1,778	-1,558	-1,338
	$820	-2,458	-2,138	-1,818	-1,498	-1,178	-858	-538
	$920	-2,258	-1,838	-1,418	-998	-578	-158	262
	$1020	-2,058	-1,538	-1,018	-498	22	542	1,062
	$1120	-1,858	-1,238	-618	2	622	1,242	1,862
	$1220	-1,658	-938	-218	502	1,222	1,942	2,662
	$1320	-1,458	-638	182	1,002	1,822	2,642	3,462

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Appendix – Grower Survey Methods

Survey Background

With approximately 1,000 growing operations in California, the table olive industry is especially diverse, in terms of size, location, ownership structure, and production practices. For this reason, the aim of the present study was to build upon the benchmark production cost studies prepared by the University of California Cooperative Extension (UCCE) and the Agricultural Issues Center at UC Davis (AIC). The table olive study was updated in mid-2016, providing a current look at the generalized production practices and costs faced by table olive growers in California. Some of the assumptions made in the cost-return study include:

- Manzanillo variety
- 40-acre operation (35 acres in actual production)
- Sacramento River Valley (i.e., northern California) location
- Owner-farmed
- Pruning conducted every year
- 36 acre-inches of applied irrigation water
- Only nitrogen fertilizer (UAN-32) is considered
- Costs of adjuvants, black scale treatment, and micronutrients not included
- Thinning conducted in alternate years
- Hand harvesting
- 5-tons per acre average yield

As shown in Table 8 earlier in this report, operations with around 40 acres represent about 25 percent of total table olive acreage in California. In addition to this sizeable group, the COC is also interested in the cost structure of different-sized growers. To better understand larger operations as well as those in southern growing areas, COC authorized a survey of production costs faced by growers throughout the state.

Data sampling strategy

Obtaining detailed cost data from a representative sample of growers proved to be one of the major challenges to conducting this study. To reduce the effort required of growers, DWB prepared a two-page summary of production costs based on the most recent UC cost-return study. Growers were asked to compare their costs with the UC figures (referred to throughout this report as the *baseline* costs). This has benefits as well as drawbacks. The benefits of this approach were a consistent cost reporting framework, a reduction in the time required by growers to look up cost details, and the use of the baseline costs as a prompt for talking about how production practices and costs differed by size of operation and location. One drawback of this approach is the potential for the baseline costs to bias the responses, but was judged to be a sufficient tradeoff in order to maximize the response rate.

Survey Questions

The survey instruments were based on selected tables from the 2016 *Sample Costs to Produce Table Olives* produced by the University of California Cooperative Extension. The in-person survey is reported in **Figure 14**; the online survey is depicted in **Figure 15.**

Figure 14. In-person survey instrument.

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Table Olive Cost Survey

Page 1

County:
Year of Data:
Variety and est. Acreage:
Water Source (own well/water district):

Interviewee
Date

Yield/Acre: 5.0 tons
Planting Density:
Low (less than 50 trees/acre)
Med (50-150 trees/acre)
High (150-250 trees/acre)
Higher than 250 trees/acre

Notes

Labor Rate/Hour - High $ 21.90
Labor Rate/Hour - Low $ 17.52

		UC Davis Figures (2016 Update)					Your Costs			
Operating Costs	Description	Qty/Acre	Unit	Unit Price/ Cost	Cost/Ac	Total Cost	Qty/Acre	Unit Price/ Cost	Cost/Ac	Total Cost
Labor	Machine	4.92	Hr	21.90	108	4,320				
	Non-machine, misc.	1.59	Hr	17.52	28	1,116				
	Harvest Olives	5.00	Ton	500.00	2,500	100,000				
	Pruning	24.26	Hr	17.52	425	17,000				
Fungicide	Kocide 3000	8.00	Lb	7.80	62	2,496				
Fertilizer	UN-32	100.00	Lb	0.59	59	2,360				
Irrigation	Water	36.00	AcIn	7.50	270	10,800				
Custom	Pest Control Advisor	1.00	Acre	35.00	35	1,400				
Thinning Agent	Liqua-stik	36.00	Oz	1.15	41	1,656				
Herbicide	Roundup Ultra Max	2.76	Pint	4.31	12	476				
Herbicide	Simazine 4L	7.00	Pint	3.40	24	952				
Herbicide	Diuron 4L	3.20	Pint	3.53	11	452				
Olive Fly Trap	McPhail Trap	0.10	Ea	5.00	1	20				
Bait	Torula Yeast	0.95	Lb	13.80	13	524				
Insecticide	GF 120	140.00	Oz	1.41	197	7,896				
Labor costs associated with above items	Irrigation/Fertigation	28.00	Hr							
	Pest/disease mgmt	36.00	Hr							
	Weed mgmt	40.00	Hr							
	Other	18.00	Hr							

Figure 14. In-person survey instrument, cont.

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Table Olive Cost Survey

Page 2

Operating Costs (cont)	Description	UC Davis Figures (2016 Update) Qty/Acre	Unit	Unit Price/ Cost	Cost/Ac	Total Cost	Your Costs Qty/Acre	Unit Price/ Cost	Cost/Ac	Total Cost
Fuel - Gasoline	Total costs for operation	2.11	Gal	2.77	6	234				
Fuel - Diesel	Total costs for operation	9.72	Gal	2.48	24	968				
Lube	Total costs for operation				5	200				
Machinery Repair	Total costs for operation				13	520				

Cash Overhead		UC Davis Cost/Ac	UC Davis Total Cost	Your Cost/Ac	Your Total Cost
Office Expense	Total costs for operation	75	3,000		
Sanitation Fees	Total costs for operation	18	720		
Liability Insurance	Total costs for operation	16	640		
Property Taxes	Total costs for operation	135	5,400		
Property Insurance	Total costs for operation	11	440		
Investment Repairs (Equip)	Total costs for operation	108	4,320		

Non-Cash Overhead	UC Davis Cost/Ac	UC Davis Total Cost	Your Cost/Ac	Your Total Cost
Drip Irrigation System	1,800			
Land	8,000			
Orchard Establishment Costs	5,000			
Fuel Tank - 2 X 2000 gallon	274			
Buildings	3,000			
Shop Tools	250			
Pruning Tools	80			
Equipment	250			

Other Costs Not Included Above	UC Davis Cost/Ac	UC Davis Total Cost	Your Cost/Ac	Your Total Cost

Figure 15. Online survey instrument.

2016 California Table Olive Production Cost Survey

Greetings California ripe olive grower,

Our firm has been retained by the California Olive Committee to undertake a study of the costs of producing ripe olives in the state. We have interviewed several growers personally and are now asking for your input via this online survey.

We understand how busy you are and we are most grateful for your time and attention in completing this questionnaire. Your responses will provide valuable input to the California Olive Committee's work to better understand the production cost concerns of your industry.

Please be assured that your responses are anonymous, and we do not ask any questions that can be used to identify you or your operation.

Thank you for your input; please contact Daniel Block, Principal Consultant of D.W. Block Associates, LLC at 206-801-3500 if you have any questions or comments.

Background

1. In which county/counties are you currently growing table olives? (Please check all that apply)

- Kern
- Tulare
- Fresno
- Madera
- San Joaquin
- Colusa
- Glenn
- Butte
- Tehama
- Shasta

2. How many total acres of table olives do you grow?

- Less than 25 acres
- 25-49 acres
- 50-99 acres
- 100-249 acres
- 250-499 acres
- 500 acres or more

3. Which would you consider to be your primary variety/varieties?

- Manzanillo
- Sevilliano
- Other:

4. Do you grow table olives only?

- Yes, I grow table olives only
- No, I grow other crops as well

Figure 15. Online survey instrument, cont.

5. What proportion of your total acreage is devoted to table olives?

- 25% or less
- 25% to 50%
- 50% to 75%
- More than 75%

6. Are you mechanically harvesting any of your current acreage?

- Yes
- No

Input Costs

The following values come from the 2016 UC Davis Cost-Return study for table olives in the Sacramento Valley. If your costs are the same as these default values, you can proceed to the next section. If your costs differ in any way, please check the corresponding checkbox and enter your own values.

Category	Product	Quantity/ Acre	Unit Cost	Cost/ acre
Fungicide	Kocide 3000	8 lbs	$7.80	$62
Fertilizer	UN-32	100 lbs	$0.59	$59
Irrigation	Water	36 acre/inches	$7.50	$270
Custom	Pest control advisor	Rate per acre	$35.00	$35
Thinning Agent	Liqua-stik	36 Ounces	$1.15	$41
Herbicide	Roundup Ultra/Power Max	2.76 pints	$4.31	$12
Herbicide	Simazine 4L	7 pints	$3.40	$24
Herbicide	Diuron 4L	3.2 pints	$3.53	$11
Olive fly trap	McPhail trap	1 per 10 acres	$5.00	$0.50
Olive fly bait	Torula yeast	0.95 lbs	$13.80	$13
Insecticide	GF 120	140 ounces	$1.41	$197
Fuel	Gasoline			$6
Fuel	Diesel			$24

If you would like to enter different values in any category, please check the appropriate boxes and enter the new values in the spaces below

- Fungicides
- Nutrients
- Water
- Pest ctrl advisor
- Thinning Agent
- Herbicides
- Insect ctrl
- Insecticide
- Gasoline
- Diesel
- Other:

Figure 15. Online survey instrument, cont.

Labor Costs

The following values come from the 2016 UC Davis Cost-Return study for table olives in the Sacramento Valley. If your costs are the same as these default values, you can proceed to the next section. If your costs differ in any way, please check the corresponding checkbox and enter your own values.

Category	Quantity/Acre	Wage/hr	Cost/acre
Machine	4.94 hrs	$21.90	$108
Non-machine, misc.	1.59 hrs	$17.52	$28
Harvest	Tons/acre	$500/ton	$2,500
Pruning & shredding - Annualized costs	24.26 hrs	$17.52	$425
Irrigation	0.7 hr	$21.90	$15
Pest/disease mgmt	0.9 hr	$21.90	$20
Weed mgmt	1 hr	$21.90	$22
Other	0.45 hr	$17.52	$8

If you would like to enter different values in any category, please check the appropriate boxes and enter the new values in the spaces below

- [ ] Machine
- [ ] Non-machine, misc.
- [ ] Harvest
- [ ] Pruning & Shredding
- [ ] Irrigation
- [ ] Pest/disease mgmt
- [ ] Weed mgmt
- [ ] Other:

Overhead Costs

The following values come from the 2016 UC Davis Cost-Return study for table olives in the Sacramento Valley. If your costs are the same as these default values, you can proceed to the next section. If your costs differ in any way, please check the corresponding checkbox and enter your own values.

Cash Overhead	Cost/Acre
Office expense	$75
Sanitation fees	$18
Liability insurance	$16
Property insurance	$11
Property taxes	$135
Investment repairs (equip)	$108

If you would like to enter different values in any category, please check the appropriate boxes and enter the new values in the spaces below

- [ ] Office expense
- [ ] Sanitation fees
- [ ] Liability insurance
- [ ] Property insurance
- [ ] Property taxes
- [ ] Investment repairs (equipment)
- [ ] Other:

Figure 15. Online survey instrument, cont.

UC Davis Cost-Return Default Values

Non-Cash Overhead	Cost/Acre
Drip irrigation system	$1,800
Land	$8,000
Orchard establishment costs	$5,000
Fuel tanks (2X 1000 gallon)	$274
Buildings	$3,000
Shop tools	$250
Pruning tools	$80
Equipment	$291
Other	

If you would like to enter different values in any category, please check the appropriate boxes and enter the new values in the spaces below

- ☐ Drip irrigation system
- ☐ Land
- ☐ Orchard establishment
- ☐ Fuel tanks
- ☐ Buildings
- ☐ Shop tools
- ☐ Pruning tools
- ☐ Equipment
- ☐ Other:

If you have any specific practices, products, or costs not included in this survey, please describe briefly here

Example: Micronutrients/brand name, 4 lbs per acre, $10 per lb.

Submit Form

Descriptive Statistics

Between June 20 and October 14, 2016, DWB surveyed a total of 30 California table olive growers. Responses were gathered through a combination of in-person, structured interviews (n=12) at growers' offices and an online survey conducted in late September (n=18). A final phone interview was conducted with one additional grower in early October (n=1). **Table 17** reports responses by location and size of the olive operation.

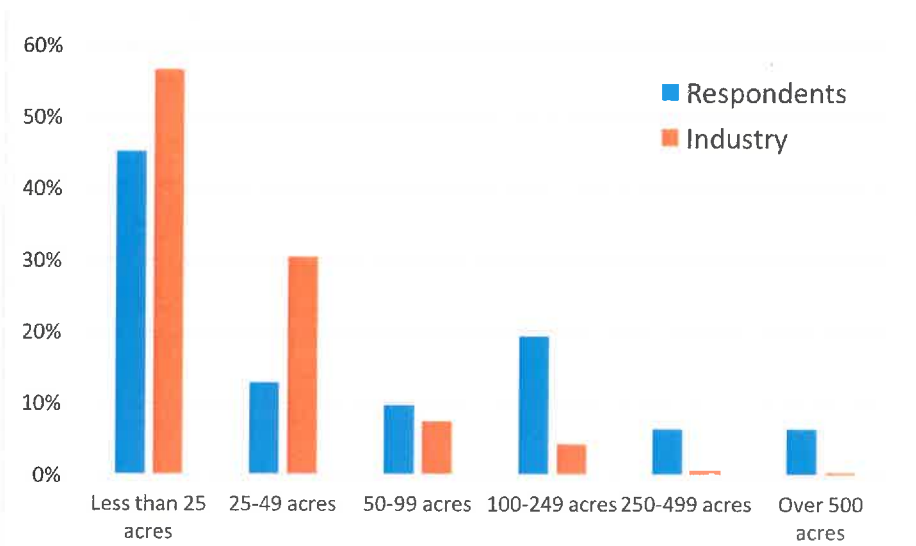
Table 17. Survey responses by location and size

Acreage Category	North	South	Total	% of total
Less than 25 acres	8	6	14	45.2%
25-49 acres	4	0	4	12.9%
50-99 acres	0	3	3	9.7%
100-249 acres	4	2	6	19.4%
250-499 acres	1	1	2	6.5%
500-999 acres	0	0	0	0.0%
Over 1000 acres	1	1	2	6.5%

South: Tulare and Fresno counties. North: Tehama and Glenn counties

The size distribution of respondents is compared with the statewide distribution of growers in **Figure 15**, below.

Figure 15. Distribution of survey respondents and entire industry, by operation size.



Source: 2016 COC Grower Survey

*****ACTION REQUIRED*****

FROM: EXECUTIVE SUBCOMMITTEE

SUBJECT: ADDITIONAL CREDIT CARD APPROVAL

RECOMMENDATION: THAT the Committee approve the use of a California Olive Committee Business Card with a credit limit of $10,000 for COC management, Todd Sanders.

*******FOR YOUR INFORMATION*******

FROM: EXECUTIVE SUBCOMMITTEE

SUBJECT: RECOMMENDED COC BYLAWS UPDATE

BACKGROUND: Earlier this year, the COC was audited by USDA. During this audit, USDA noted several items that should be updated in the COC's bylaws. As a result, the COC is in the process of reviewing its existing bylaws and comparing them to the suggested recommendations by USDA.

Staff will work with the Executive Subcommittee on these changes, and have suggested amendments by July 2017. Should you have any suggestions or concerns regarding this matter, please feel free to share them with members of the COC staff.