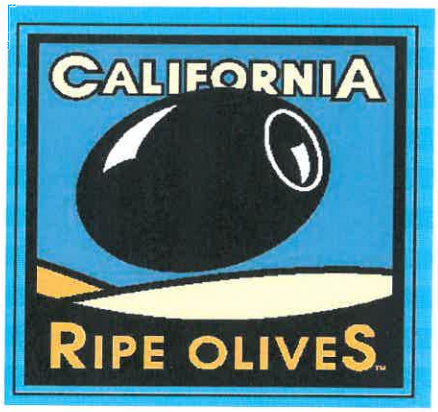


CALIFORNIA OLIVE COMMITTEE

COMMITTEE MEETING

Wednesday, December 9, 2015
10:00 a.m.
Double Tree Hotel • Ball Room IV & V • Modesto, CA

CALIFORNIA OLIVE COMMITTEE

COMMITTEE MEETING

Wednesday, December 9, 2015
10:00 a.m.
Double Tree Hotel • Ball Room • Modesto, CA

AGENDA

I. CALL TO ORDER

A. Roll Call
B. Approval of 7.30.15 Full Committee Minutes (action item)
C. Chairman's Comments

II. MARKETING SUBCOMMITTEE

A. Review 2015
B. Presentation of 2016 Plan & Budget
C. Approval of 2016 Plan & Budget (action item)
D. Delegation of Authority from the Committee to the Executive Director with oversight by the Chairman for inter-item transfers of the marketing budget (action item)

III. INSPECTION SUBCOMMITTEE

A. Review of 2015
B. Approval of 2016 Inspection Budget (action item)
C. Delegation of Authority from the Committee to the Executive Director with oversight by the Chairman for inter-item transfers of the inspection budget (action item)

IV. EXECUTIVE SUBCOMMITTEE

A. Review of 2015 Budget
B. Approval of 2016 Administrative Budget (action item)
C. Delegation of Authority from the Committee to the Executive Director with oversight by the Chairman for inter-item transfers of the administrative budget (action item)
E. Delegation of Authority from the Committee to the Executive Director with oversight by the Chairman to obtain legal counsel for employee personnel matters (action item)

V. **RESEARCH SUBCOMMITTEE**

A. Review 2015
B. Proposals of 2016 projects
C. Approval of 2016 Research Budget (action item)
D. Delegation of Authority from the Committee to the Subcommittee to approve contingency fund (action item)
E. Delegation of Authority from the Committee to the Executive Director with the oversight by the Chairman for inter-item transfers of the research budget (action item)

VI. **REVIEW OF FISCAL 2015 BUDGET**

A. Approval 2016 Fiscal Budget (action item)
B. Approval 2016 Assessment Rate (action item)

VII. **OTHER BUSINESS**

VIII. **ADJOURNMENT**

CALIFORNIA OLIVE COMMITTEE

June 1, 2015 – May 31, 2017

PRODUCERS

DISTRICT #1 (Counties of Alpine, Tuolumne, Stanislaus, Santa Clara, Santa Cruz all counties north thereof)

Members	Alternates
Ed Curiel	Chris Henderson
Edward Garcia	Scott Patton
Pablo Nerey	Michael Silveira

DISTRICT #2 (Counties of Mono, Mariposa, Merced, San Benito, Monterey, and all counties south thereof)

Members	Alternates
Mark Hendrixson	Vito DeLeonardis
Mark Heuer	Paul Danielson
Art Hutcheson	Rick Benson
Julia Inestroza	Bert Quezada
Pat V. Ricchiuti	Vacant

HANDLERS

Members	Alternates
Cody McCoy	Carla Anderson
Doug Reifsteck	Julia Tinsley
Tim T. Carter	Phil Quigley
James Thomas	Maria Belshaw
Janet Edwards	Larry McCutcheon
Felix Musco	Benjamin Hall
Bill McFarland	Wai Wu
Dennis Burreson	Scott Hamilton

CALIFORNIA OLIVE COMMITTEE

Full Committee Meeting Minutes
Thursday, July 30, 2015
Double Tree – Modesto, CA

I. CALL TO ORDER

A meeting of the Full Committee was called to order by Mike SILVEIRA at 10:36 a.m., and the following members were present:

Members	Affiliation:
Tim T. CARTER*	BELL CARTER
Doug REIFSTECK*	BELL CARTER
Bert QUEZADA	GROWER
Dennis BURRESON*	MUSCO
Felix MUSCO*	MUSCO
Chris HENDERSON*	GROWER
Art HUTCHESON	GROWER
Janet EDWARDS*	MUSCO
Julia TINSLEY	BELL CARTER
Mark HENDRIXSON*	GROWER
Pat V. RICCHIUTI*	GROWER
Pablo NEREY*	GROWER
Carla ANDERSON	BELL CARTER
Larry MCCUTCHEON	MUSCO
James THOMAS*	BELL CARTER
Ed CURIEL*	GROWER
Mark HEUER*	GROWER
Phil QUIGLEY	BELL CARTER
Julia INESTROVA*	GROWER
Maria BELSHAW	BELL CARTER
Edward GARCIA*	GROWER
Wai WU	MUSCO
Ben HALL	MUSCO
Scott HAMILTON	MUSCO
Rick BENSON	GROWER
Paul DANIELSON	GROWER
Vito DELEONARDIS	GROWER
Mike SILVEIRA	GROWER

Others Present:	
Alexander OTT	COC
Denise JUNQUIERO	COC
Liza RAMON	COC
Terry VAWTER	USDA
Adin HESTER	OLIVE GROWER COUNCIL
Tony GIANNETTA	USDA

Ed MILANESIO	MUSCO
Jacob PETERS	BELL CARTER
Allison GREGG	SAMPSON, SAMPSON & PATTERSON, LLP
Tanya UBICK	USDA
Daniel CASARES	USDA
Nathan O'CONNOR	USDA
Dan FYLNN	UC DAVIS
Carol LOVATT	UC RIVERSIDE
Vic TOLOMEO	NASS
Jim ADASKAVEG	UC RIVERSIDE
Kim BEDWELL	FLEISHMAN HILLARD

*Denotes voting members for the Committee

With the appropriate number of members in attendance and the seating of an alternate member, a quorum was established.

II. INSTALLATION OF 2015-2017 COMMITTEE

Every two years the California Olive Committee (COC) holds elections for its representation. Committee members are elected and nominated by their peers to serve the Industry in a two year term. The Committee must elect following officers Chairman, Vice Chairman, and Secretary/Treasurer.

MOVED by Pat V. RICCHIUTI, duly seconded by Mark HEUER, and unanimously carried THAT Mike Silveira be elected as Chairman for the 2015-2017 term. (Motion 7-30-15 #1)

MOVED by Pat V. RICCHIUTI, duly seconded by Mark HEUER, and unanimously carried THAT the Committee close the nominations and cast an unanimously ballot for Mike Silveira. (Motion 7-30-15 #2)

MOVED by Ed CURIEL, duly seconded by Doug REIFSTECK, and unanimously carried THAT Dennis BURRESON be elected as Vice - Chairman for the 2015-2017 term. (Motion 7-30-15 #3)

MOVED by Ed CURIEL, duly seconded by Doug REIFSTECK, and unanimously carried THAT the Committee close the nominations and cast an unanimously ballot for Dennis Burreson. (Motion 7-30-15 #4)

MOVED by Dennis BURRESON, duly seconded by Tim T. CARTER, and unanimously carried THAT James Thomas be elected as Secretary/Treasurer for the 2015-2017 term. (Motion 7-30-15 #5)

MOVED by Dennis BURRESON, duly seconded by Tim T. CARTER, and unanimously carried THAT the Committee close the nominations and cast an unanimously ballot for James Thomas. (Motion 7-30-15 #6)

MOVED by Mark HENDRIXSON, duly seconded by Pat V. RICCHIUTI, and unanimously carried THAT the Chairman be empowered to assign subcommittees. (Motion 7-30-15 #7)

MOVED by Pat V. RICCHIUTI, duly seconded by Chris HENDERSON, and unanimously carried THAT the minutes of the 12-9-14 Full Committee meeting be approved. (Motion 7-30-15 #8)

Executive Director, OTT, gave a presentation to the Committee on the duties of the Marketing Order. The title of the presentation was call MOIUU.

USDA Representative, VAWTER, gave a presentation on the oversight of the Marketing Order and the requirements of the Committee under USDA.

III. MARKETING SUBCOMMITTEE

In December of 2014, the Subcommittee approved the 2015 marketing plan presented by Fleishman Hillard. The plan is focused on health messaging around the Mediterranean diet. A copy of the presentation was provided in the meeting packet

IV. INSPECTION SUBCOMMITTEE

Each year, the industry approves the Incoming and Outgoing Inspection requirements. The enclosed charts are used to ensure the industry meets an acceptable U.S. standard and marketing order size regulations. In addition, an acceptable count range and mid-point must be approved.

MOVED by Doug REIFSTECK, duly seconded by Pablo NEREY, and unanimously carried THAT the Committee approve the Incoming and Outgoing 2015-2016 Inspection charts. (Motion 7-30-15 #9)

Each year, the United States Department of Agriculture (USDA) provides an industry inspection report. Tanya Ubick, with the USDA, presented information on the 2015-2016 import inspection and inspection fees, and 2014 imported olives.

In 2014, the industry implemented an electronic reporting system. All growers were registered with Grower Identification Numbers (GIN) and receivables COC-3 reports are now transposed through the system. Updates have been made to enhance the capabilities of the system in an effort to increase the flow of deliveries. Currently, electronically reports are being developed.

In 2014, the Committee voted to fund research on a sevillano sorter. A Request For Proposal (RFP) was sent out to eight possible companies who could meet the industry's needs. Two responded and only one was able to meet the Committee's needs. In order to address these needs, technologies used in similar commodities will have to be explored as most innovations are not coming from the United States. The goal is to find a sorter that can service all olive sizes and varieties.

V. REVIEW OF CROP ESTIMATES

Each year, the National Agricultural Statistical Service (NASS) provides the industry with a forecast of the crop for the upcoming season. This forecast assists the industry in preparation for next year's season and budget. A representative from NASS will discuss the 2015 crop forecast.

Each year, the industry makes a forecast for the California Olive industry. The Committee will discuss and develop a 2015 crop estimate.

MOVED by Tim T. CARTER, duly seconded by Mark HENDRIXSON, and unanimously carried THAT the Committee approve an estimated 67,000 tons as the official forecast for the 2015-2016 crop. (Motion 7-30-15 #10)

VI. EXECUTIVE SUBCOMMITTEE

A representative from Sampson & Sampson has completed the California Olive Committee's 2014 fiscal audit. A report was distributed at the meeting.

MOVED by Pat RICCHIUTI, duly seconded by James THOMAS, and unanimously carried THAT the Committee approve the 2014 FY audit. (7-30-15 #11)

Each year, the California Olive Committee (COC) must approve a Marketing Policy Statement. The Marketing Policy Statement (MPS) is an annual analysis of the industry that is used by the U.S. Department of Agriculture (USDA) to determine the effectiveness of the Federal Marketing Olive Order 932 and its relationship to the requirement established by the Agricultural Marketing Agreement Act.

MOVED by Mark HEUER, duly seconded by Pat V. RICCHIUTI, and unanimously carried THAT the Full Committee approve the 2015-2016 amended Marketing Policy Statement. (Motion 7-30-15 #12)

Every year the California Olive Committee (COC) must approve the Annual Compliance Plan (ACP). The ACP describes compliance strategies, resources, and activities for the current year. USDA requires that this program be established in order for the industry to comply with its Order and regulations. Additionally, the ACP must be in place to provide the COC the procedures needed should violations be brought forward before the Committee.

On a side note, in 2010 USDA required the Committee to file an E-Compliance Plan. The compliance plan serves as template for USDA staff. By 2011, USDA requested the Committee to approve both a completed E-Compliance Plan and ACP Plan. Although both plans are similar and duplicative, USDA has stated that both plans are required.

MOVED BY Mark HEUER, duly seconded by Mark HENDRIXSON, and unanimously carried THAT the Committee approve the 2015-2016 Annual Compliance Plan and E-Compliance Plan. (Motion 7-30-15 #13)

VII. RESEARCH SUBCOMMITTEE

In 2014, the Research Subcommittee funded various projects and fly trapping programs. Today, researchers will present to the Committee their results. Their presentations provided below.

Researcher	Project	Amount Funded
Ferguson	Propagating Dwarfing Olive Rootstock	$24,975
Ferguson	Demonstrating how mechanical pruning can produce commercial yields and decrease alternate bearing	$24,087
Lovatt	Use of PGRs to increase bud break and growth of vegetative shoots during the on-crop year and bud break in Spring the following year to increase return bloom and yield-(continuation project)	$42,286
Adaskaveg	Epidemiology and management of olive knot caused by Pseudomonas syringae pv. Savastanoi	$44,000
Takeoka and Wang	Determination of Ethanol in table olives as a simple, rapid and dependable method of detecting low quality olives	$25,530

VIII. ADJOURNMENT

MOVED by Mark HEUER, duly seconded by Ed CURIEL, and unanimously carried THAT the meeting be adjourned at 1:31 p.m. (Motion 7-30-15 #14)

Aug. 3, 2015

Date: August 3, 2015

Liza Ramon, California Olive Committee

SUMMARY OF MOTIONS FOR JULY 30, 2015

Motion 7-30-15 #1 **APPROVED**
MOVED by Pat V. RICCHIUTI, duly seconded by Mark HEUER, and unanimously carried THAT Mike Silveira be elected as Chairman for the 2015-2017 term.

Motion 7-30-15 #2 **APPROVED**
MOVED by Pat V. RICCHIUTI, duly seconded by Mark HEUER, and unanimously carried THAT the Committee close the nominations and cast an unanimously ballot for Mike Silveira.

Motion 7-30-15 #3 **APPROVED**
MOVED by Ed CURIEL, duly seconded by Doug REIFSTECK, and unanimously carried THAT Dennis BURRESON be elected as Vice - Chairman for the 2015-2017 term.

Motion 7-30-15 #4 **APPROVED**
MOVED by Ed CURIEL, duly seconded by Doug REIFSTECK, and unanimously carried THAT the Committee close the nominations and cast an unanimously ballot for Dennis Burreson.

Motion 7-30-15 #5 **APPROVED**
MOVED by Dennis BURRESON, duly seconded by Tim T. CARTER, and unanimously carried THAT James Thomas be elected as Secretary/Treasurer for the 2015-2017 term.

Motion 7-30-15 #6 **APPROVED**
MOVED by Dennis BURRESON, duly seconded by Tim T. CARTER, and unanimously carried THAT the Committee close the nominations and cast an unanimously ballot for James Thomas.

Motion 7-30-15 #7 **APPROVED**
MOVED by Mark HENDRIXSON, duly seconded by Pat V. RICCHIUTI, and unanimously carried THAT the Chairman be empowered to assign subcommittees.

Motion 7-30-15 #8 **APPROVED**
MOVED by Pat V. RICCHIUTI, duly seconded by Chris HENDERSON, and unanimously carried THAT the minutes of the 12-9-14 Full Committee meeting be approved.

Motion 7-30-15 #9 **APPROVED**
MOVED by Doug REIFSTECK, duly seconded by Pablo NEREY, and unanimously carried THAT the Committee approve the Incoming and Outgoing 2015-2016 Inspection charts.

Motion 7-30-15 #10 **APPROVED**
MOVED by Tim T. CARTER, duly seconded by Mark HENDRIXSON, and unanimously carried THAT the Committee approve an estimated 67,000 tons as the official forecast for the 2015-2016 crop.

Motion 7-30-15 #11 **APPROVED**
MOVED by Pat RICCHIUTI, duly seconded by James THOMAS, and unanimously carried THAT the Committee approve the 2014 FY audit

SUMMARY OF MOTIONS FOR JULY 30, 2015

Motion 7-30-15 #12 **APPROVED**

MOVED by Mark HEUER, duly seconded by Pat V. RICCHIUTI, and unanimously carried THAT the Full Committee approve the 2015-2016 amended Marketing Policy Statement.

Motion 7-30-15 #13 **APPROVED**

MOVED BY Mark HEUER, duly seconded by Mark HENDRIXSON, and unanimously carried THAT the Committee approve the 2015-2016 Annual Compliance Plan and E-Compliance Plan.

Motion 7-30-15 #14 **APPROVED**

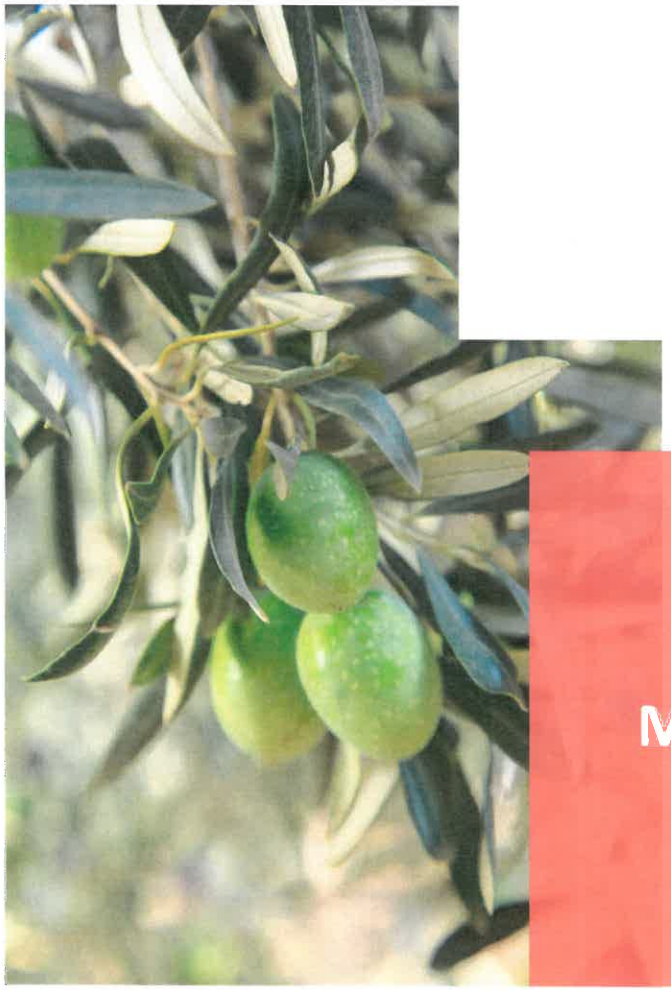
MOVED by Mark HEUER, duly seconded by Ed CURIEL, and unanimously carried THAT the meeting be adjourned at 1:31 p.m.

*****INFORMATION*****

FROM: MARKETING SUBCOMMITTEE

SUBJECT: 2015 MARKETING PLAN IN REVIEW

BACKGROUND: Today we have two presentations reviewing the activities for 2015. One is from California Grown to provide more information about our membership, review partnership activities of 2015 and answer any questions on the organization. The other presentation is from Fleishman Hilllard on our Mediterranean Diet campaign.



California Olive Committee
Marketing Sub-Committee Update

November 5, 2015

2015 in Review

Here's what you asked for in the December 19, 2014 meeting:

- Focus on the consumer audience, specifically Mom
- Reach target with a health-focused message through traditional and social channels
  - Consumer media
  - Bloggers
  - Social media (Facebook, Twitter, Pinterest)
- Hammer home 2-3 key messages over and over
  - Could be tied to caloric amounts, existing non-COC research – will be contingent on what we able to develop and get approved by USDA
- Program must be within pre-approved $411,500 budget

2015 in Review

- Target results (based on recommended program):
  - 60 million impressions
  - 10% Facebook fan growth
  - 80% total key message pull through

Mediterranean Diet Program

Research Review

Live longer, live better! Olives are an essential part of the Mediterranean diet and contain monounsaturated fat – the good fat!

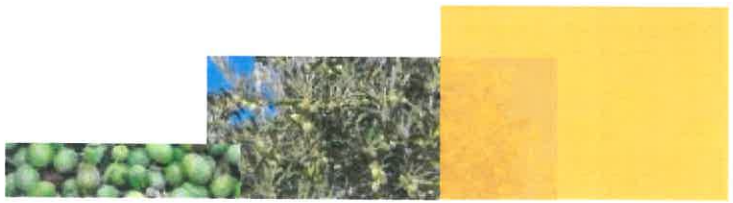
- Adherence to the Mediterranean diet, of which olives and olive oil are a key component, not only supports good health but has been associated with promoting longevity. Data from the Nurses' Health Study suggests that women who adhere to the Mediterranean diet had longer telomeres in their blood cells. Telomeres are DNA sequences that get shorter when cells divide, so their length is thought to be a measure of a cell's aging.

California black ripe olives are as good as they taste, and contain vitamin E, iron, vitamin A, and fiber. They are packaged at their peak to preserve nutrients for year-round enjoyment.

- Vitamin E is an antioxidant which helps protect cells from oxidation and fight off free radicals produced during cellular energy production. A serving of olives has .25 milligrams of Vitamin E.
- The ability of red blood cells to carry oxygen throughout the body is due to the presence of iron in the blood. A serving of olives has 0.50 milligrams of iron.
- Vitamin A is needed for new cell growth, healthy skin, hair, tissues, and vision. A serving of olives has 60 IUs of Vitamin A, 1.2% of your daily value of 5,000 IUs.
- Fiber promotes digestive tract health by helping to move food through the system at a healthier pace. A serving of olives has .50 grams of fiber.

Olives naturally contain plant-powered polyphenols, one of the most important health promoting phytochemicals in the plant kingdom!

- A number of studies have shown that plant-based polyphenols (including those from olives) have the potential to reduce inflammation and are linked to a reduced risk for certain chronic diseases. Of more than 450 foods studied, black olives were among the top 50 polyphenol rich foods and ranked higher than extra virgin olive oil!



See CalOlive.org for references

CALIFORNIA RIPE OLIVES

Mediterranean Diet Program

Daytime

OK! TV

National Broadcast Segments

Reached 4 million viewers

Mediterranean Diet Program

1,095 placements generating 58.5M+ impressions

Los Angeles Times
San Francisco Chronicle
Chicago Tribune
SFGATE
Orlando Sentinel
THE BALTIMORE SUN
baltimoresun.com

607placements generating 32.5M+ impressions

Releases

CALIFORNIA RIPE OLIVES

Mediterranean Diet Program

thetastybite

WICKED SPATULA

DINNER at the ZOO

the Complete Savorist

THE Seasoned Mom

POSTS: 50
IMPRESSIONS: 2,406,570

TWEETS: 453
IMPRESSIONS: 4,326,125

POSTS: 52
IMPRESSIONS: 281,688

PINS: 52
IMPRESSIONS: 288,389

Blogger Engagement

Custom Recipe Creation and Social Amplification from 50 Online Influencers

Mediterranean Diet Program

recipe REDUX

Blogger Engagement

Reached nearly 1 million readers

783K social impressions

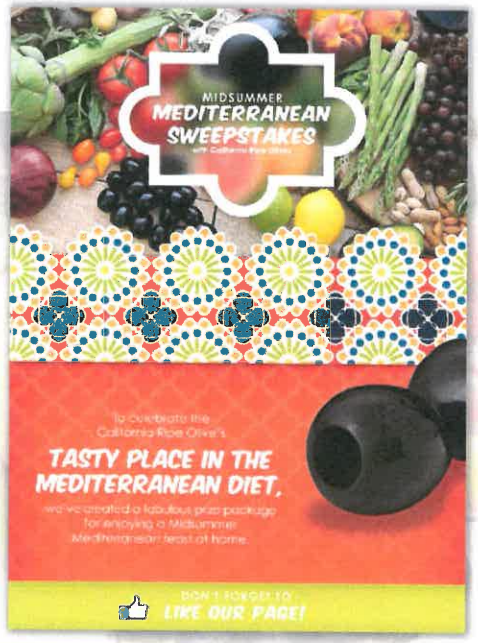
51 new healthy Mediterranean recipes and photos

Mediterranean Diet Program

"I would love to collaborate with California Ripe Olives on a project, olives are one of my favorite sources of healthy fat. I am a little obsessed with the new snack-size containers of olives that I eat on-the-go. I, especially, love the black olives. So good!!"
-Amee Livingston, *Amee's Savory Dish*

Blogger Engagement

Mediterranean Diet Program



Social Media Engagement

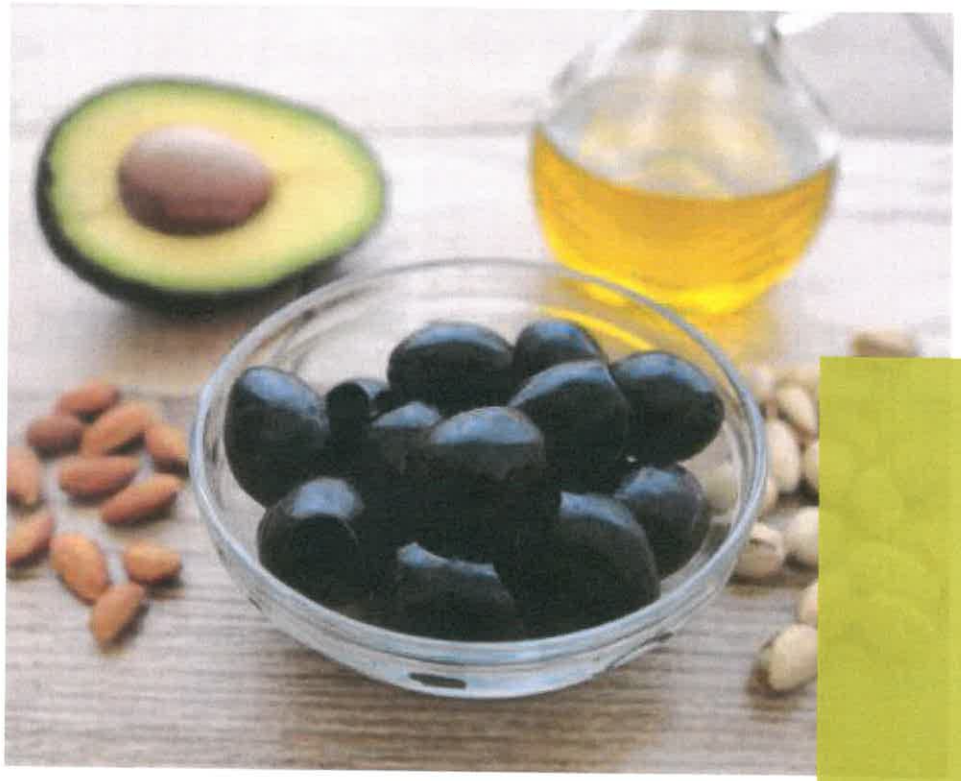
More emphasis on Med Diet posts

Nearly 25,000 Facebook Sweepstakes Generated Entries

Mediterranean Diet Program

- New photography
- 100+ new recipes – coming soon
- Enhanced Industry section

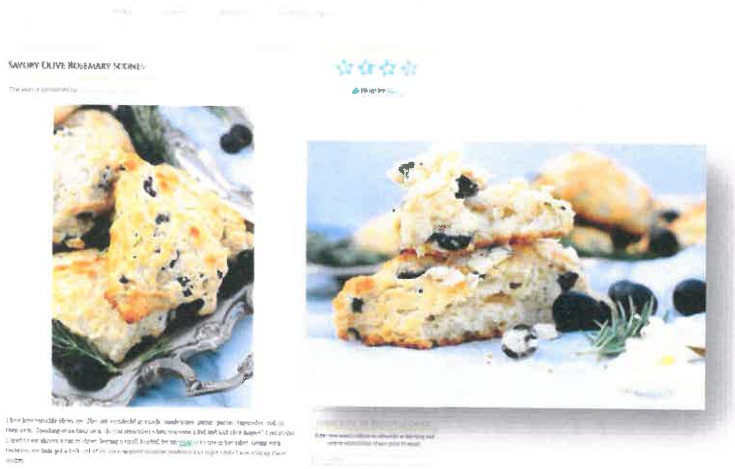
Website



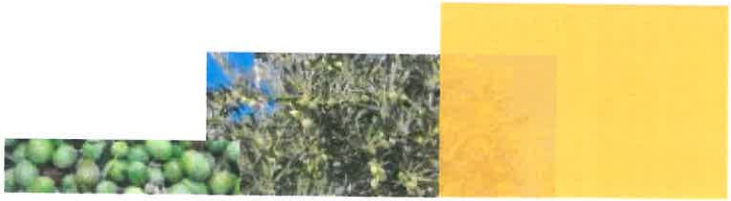
Additional Program Elements

Consumer Outreach

Reached 90,000 readers
Collected 9 new assets



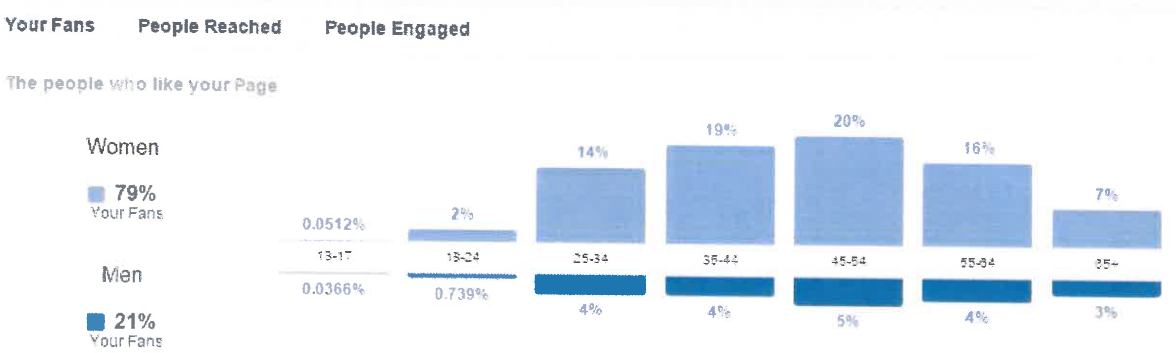
Blogger Engagement



CALIFORNIA RIPE OLIVES

Consumer Outreach

8% Facebook fan growth – 1,096 new fans



Most Popular Post

Social Media

Consumer Outreach

Twitter

- 800 followers
- Used to interact with bloggers and RDs during promotions
- Complements outreach on Facebook page

Pinterest

- 25 boards
- 512 pins
- 747 followers
- Complements outreach on Facebook page

Social Media

Industry Relations

Still to Come

- 8 Ways to Stuff an Olive Listicle
- Friendsgiving Release
- Tis the Season for California Ripe Olives Blogger and Social Media Program

Q4 Activity

2015 in Review

Target	Actual
60,000,000 impressions	94,621,795
10% Facebook fan growth	8% Facebook fan growth
80% key message pull through	100% key message pull through

Results as of 10/20/2015

Thank You

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

FROM: MARKETING COMMITTEE

SUBJECT: 2016 BUDGET

RECOMMENDATION: THAT the Committee adopt the Marketing Budget for the 2016 FY.

BACKGROUND: Each year, the Marketing Subcommittee approves a marketing plan with a contracted agency. Additionally, the Committee approves travel for staff, and growers to various marketing events, association fees, and partnerships.

1) Education and Partnerships - $38,500

   a. Alliance for Food and Farming
   b. CA Grown
   c. Partnerships
   d. Travel
   e. Olive Day

Fleishman Hillard TOTAL - 689,300

Staff has put together a history of previous Marketing Committee Budgets.

FISCAL YEAR	*2016 (proposed)*	*2015*	*2014*	*2013*	*2012*	*2011*	*2010*
ADMIN	$727,800	$450,000	$565,600	$637,380	$520,000	$700,000	$255,000
%Differ	38%	-25%	-13%	23%	-35%	175%	-59%

The Sub-Committee must decide:

1) Marketing Budget
2) Recommend to the Committee to delegate authority from the Committee to the Executive Director with oversight by the Chairman, for Inter-Item transfer fund Authority.

FISCAL IMPACT: $727,800 for FY 2015.

California Olive Committee

2016 Marketing Program Recommendations

November 19, 2015

Strategic Approach

- Focus on the quality of **California**
- Highlight **family traditions**
- Leverage connection to **Mediterranean Diet**

Campaign:

Grown in California.

Enjoyed by Families Everywhere.

Why It Works:

Blends two "brand" attributes:
California and Family

Origin:

California = Quality

Usage:

Versatility

Health:

Mediterranean Diet

Campaign Theme

Ripe Olives

Grown in California. Enjoyed by Families Everywhere.

Ripe Olives

Grown in California. Enjoyed by Families Everywhere.

Fully Integrated Approach

Utilize third-parties to carry your message to families interested in food and cooking across the country

Ripe Olives

Grown in California. Enjoyed by Families Everywhere.

National Media Partner

MODERNmom®

Unique monthly visitors: 2,861,373

Twitter followers: 263,543

Facebook likes: 53,695

Pinterest followers: 26,800

Google+ followers: 1,020,026

Newsletter subscribers: 85,800

ModernMom is a trusted resource for the "Woman Behind the Mom," with practical tips, advice, videos and information on family, health, cooking, crafts and more

CALIFORNIA RIPE OLIVES

Ripe Olives

Grown in California. Enjoyed by Families Everywhere.

National Media Partner

MODERNmom

- 10 sponsored posts hosted on ModernMom.com
- Each article featured on home page for 3 days and shared on all social properties
- Inclusion in 10 newsletters
- California Ripe Olives hub on ModernMom.com
  - Links to articles, grower stories, videos and recipes
  - Contests and giveaways

Ripe Olives

Grown in California. Enjoyed by Families Everywhere.

Asset Development

Recipe Features

Grower Photography and Profiles

How-to and Grower Videos

CALIFORNIA RIPE OLIVES

Ripe Olives

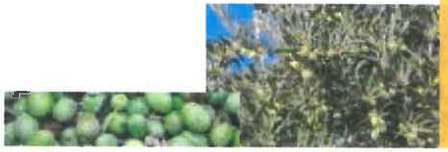
Grown in California. Enjoyed by Families Everywhere.

Blogger/Media Engagement

LET'S EAT

SPEED PITCHING MEDIA EVENT

Emeril's table · MARTHA · epicurious · CUCINA ITALIANA · FamilyCircle · Rachael · MORE · Ladies' Home Journal · Good Housekeeping · FOOD & WINE · REAL SIMPLE · MTV · Parenting MAGAZINE · People · SELF · SHAPE · The Daily Meal · [the nest] · THE NIBBLE · ESSENCE · This Old House · WORKING MOTHER

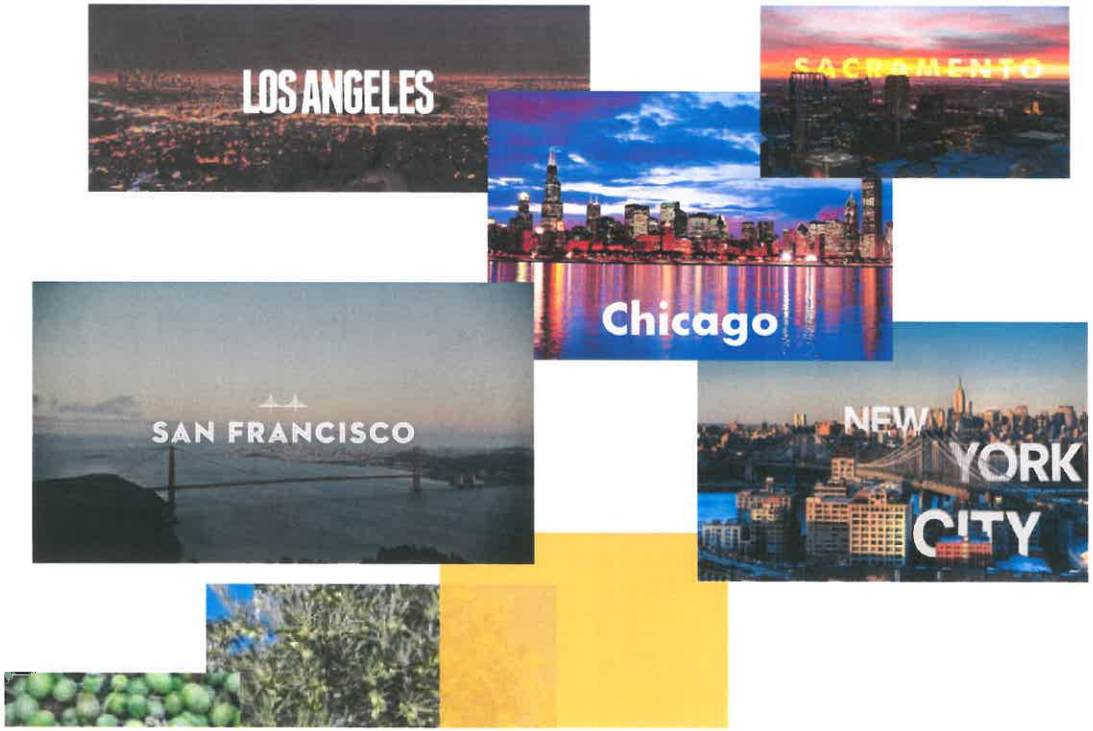


Test Kitchen Seminar at
New Sunset Headquarters

Ripe Olives

Grown in California. Enjoyed by Families Everywhere.

Blogger/Media Engagement



- Bring the Family Tradition message to key influencers such as bloggers and media through custom dinners at family restaurants in select markets
  - Markets selected based on penetration of bloggers and media, as well as timing with other programs
- Growers will attend the dinner and share their family traditions as well as key messages on quality and heritage

Ripe Olives

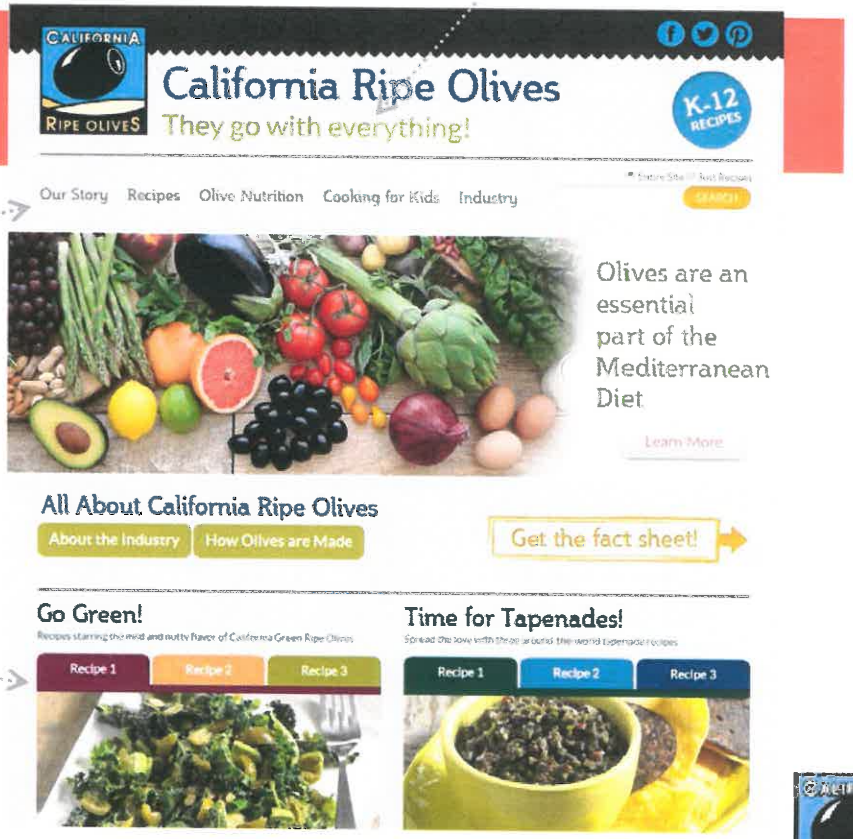
Grown in California. Enjoyed by Families Everywhere.

Ripe Olives
Grown in California.
Enjoyed by Families Everywhere.

Digital/Social Media Integration

Website Updates

New Grower Profiles



Highlight New Content

Ripe Olives

Grown in California. Enjoyed by Families Everywhere.

Digital/Social Media Integration

- Several posts a week
- Custom content
- Leverage partners reach
- Community management
- Sponsored posts
- Giveaways

- Share Facebook content
- Communicate with partners and bloggers
- Utilize as tool at events that COC attends

- Pin relevant content including all new assets
- Leverage partners reach
- Link with Facebook for contests

Ripe Olives

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Trade Media Advertising

Trade

- Launch advertising buy with select trade media to support 'Grown in California. Enjoyed by Families Everywhere' campaign
  - Preliminary ad buy recommendation:
    - *Full-page, 4-color advertisements in Progressive Grocer (3x), Supermarket News (2x) and Grocery Headquarters (1x)*
    - *Exact months to be determined, based on complementary editorial coverage*
- Announce campaign to trade media (beyond advertising partners) as part of kick-off

PROGRESSIVE GROCER

SN SUPERMARKET NEWS

GROCERY HEADQUARTERS

CALIFORNIA RIPE OLIVES

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Industry Outreach

Industry

- Mid-year recap to all growers via mailing
- Continuous updates to CalOlive.org

Budget

Program	Total
National Media Partner	$116,000
Blogger/Media Engagement	$131,800
Asset Development	$168,500
Digital/Social Media Integration	$115,000
Trade Advertising	$100,000
Industry/Trade Media Outreach	$12,000
Account Management	$46,000
TOTAL	$689,300

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PROGRESSIVE GROCER

PMA SmartBrief

pma

AndNowUKnow
produce industry news

MODERNmom®

National Media Partner

Industry/Trade Outreach

Asset Development

Digital/Social Media Integration

Media/Blogger Engagement

Sunset

LET'S EAT
SPEED PITCHING MEDIA EVENT

CALIFORNIA RIPE OLIVES

FOR YOUR INFORMATION

FROM: INSPECTION SUBCOMMITTEE

SUBJECT: 2015 IN REVIEW

BACKGROUND: 2015 inspection projects focused on the Olive Electronic Reporting System (OERS) and finding a sevi sorter. OERS was in its second year and proved to be a valuable asset to the industry. Improvements were made to the system for user's friendliness, more efficiencies and to provide more value. One major improvement was the establishment of a sample bin tag generator. This was put in place to eliminate the need for inspection services to select the bins, but still have the third party mechanism in place.

A sevi sorter working group was established and the group surveyed eight potential companies. Two companies responded with possible capabilities to assist and meet the industry's needs. Meetings were held with the two companies and one company felt their R&D would not be able to address smaller fruit until 2017. The other Unitec has been extremely cooperative and running tests in Italy to provide us with some data based on our criteria. The overall goal is to find a machine that can size all varieties and provide local service support. We are still looking for other companies in an effort to explore to get the best outcome for the industry.

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

FROM: INSPECTION COMMITTEE

SUBJECT: 2016 BUDGET

RECOMMENDATION: THAT the Committee adopt the Inspection Budget for the 2016 FY.

BACKGROUND: Last year, the Committee did not allocate dollars for inspection as electronic reporting and optical sizing projects were carried over from previous years. With the systems in place, the industry is seeing success in both the reporting and optical sizing. Adjustments to the program will be made in order to ensure integrity of the system and to ensure the technology keeps up with software and other items.

For the 2016 FY, phase two of the two major projects will expand. The following items are expenditures for the Inspection program.

1. Travel - $12,000
2. Electronic Reporting (Phase II) - $40,000
3. Optical Sizer - $50,000

Staff has put together a history of previous Inspection Committee Budgets.

FISCAL YEAR	*2016 (Proposed)*	*2015*	*2014*	*2013*	*2012*	*2011*	*2010*
INSPECT	$102,000	$132,000	$0	$105,000	$50,000	$75,000	$50,000
%Differ	-29%	100%		52%	-50%	33%	

The Sub-Committee must decide:

1) Approval of the 2016 Inspection Budget
2) Recommend to the Committee to delegate authority from the Committee to the Executive Director with oversight by the Chairman, for Inter-Item transfer fund Authority.

FISCAL IMPACT: $102,000 for FY 2016.

GENERAL ADMINISTRATION BUDGET	Budget 2014	Budget 2015	Budget 2016	Difference
Salaries	$ 112,000	$ 114,500	$ 118,000	$ 3,500
Attorney/crisis communication	$ 5,000	$ 5,000	$ 25,000	$ 20,000
Audit Fee	$ 6,500	$ 7,500	$ 8,500	$ 1,000
Bookkeeper	$ 5,000	$ 5,000	$ 5,000	$ -
Accounting Service	$ 1,800	$ 1,800	$ 1,800	$ -
Vacation & Sick Leave Expense	$ 5,000	$ 5,000	$ 5,000	$ -
FICA & Medicare Expense	$ 10,000	$ 10,000	$ 10,000	$ -
Health Insurance	$ 20,000	$ 25,000	$ 28,000	$ 3,000
Disability Insurance	$ 3,000	$ 3,000	$ 3,000	$ -
Pension Plan Contribution	$ 4,000	$ 4,000	$ 4,500	$ 500
Storage	$ 1,100	$ 1,100	$ 1,100	$ -
Telephone	$ 5,500	$ 5,500	$ 5,500	$ -
Travel Committee	$ 15,000	$ 20,000	$ 20,000	$ -
Travel Office	$ 9,000	$ 15,000	$ 15,000	$ -
Travel Insurance	$ 1,800	$ 1,800	$ 1,800	$ -
General Insurance	$ 6,600	$ 6,900	$ 6,900	$ -
Insurance-members/management	$ 8,000	$ 9,500	$ 10,000	$ 500
Postage	$ 9,200	$ 9,200	$ 7,000	$ (2,200)
Office supplies	$ 4,500	$ 4,700	$ 4,700	$ -
Maintenance	$ 500	$ 1,000	$ 1,000	$ -
Printing - Admin	$ 10,000	$ 11,500	$ 11,500	$ -
Equipment, Software,Furniture	$ 3,000	$ 4,000	$ 4,000	$ -
Crop Estimate	$ 6,500	$ 6,500	$ 6,500	$ -
Misc. Admin Expense	$ 1,500	$ 2,000	$ 2,000	$ -
Education Training	$ 2,000	$ 4,000	$ 4,000	$ -
Crisis Communication	$ -	$ 20,000	$ -	$ (20,000)
California Apple Commission	$ 90,000	$ 90,000	$ 90,000	$ -
Industry Studies	$ -	$ 72,000	$ 85,000	$ 13,000
TOTAL	$ 346,500	$ 465,500	$ 484,800	$ 19,300

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

FROM: EXECUTIVE COMMITTEE

SUBJECT: 2016 BUDGET

RECOMMENDATION: THAT the Committee adopt the General Administration 2016 FY Budget and the following actions outlined 1 – 3.

BACKGROUND: The following is the General Administration Budget for the California Olive Committee. This year, it is anticipated that the Committee will be nearly the same costs compared to last year.

Staff has put together a history of previous Executive Committee Budgets.

FISCAL YEAR	*2016 (Proposed)*	*2015*	*2014*	*2013*	*2012*	*2011*	*2010*
ADMIN	484,800	$393,500	$346,500	$333,800	$333,500	$415,900*	$324,923
%Differ	18%	13%	3%	0%	-24%	28%*	-11%

* The original approved Executive Sub-Committee budget for 2011 was $335,900. However, in order to begin electronic reporting, USDA required the Committee to approve $80,000 not used in research for the 2011 FY and reallocate to the Executive Sub-Committee, otherwise the project would have to be placed on hold. The mid-year correction increased the Executive Sub-Committee budget by $80,000 to total $415,900.

The Sub-Committee must decide:

1) Approval of the 2016 Fiscal Budget
2) Delegation of Authority from the committee to the Executive Director with oversight by the Chairman for inter-item transfers of the administrative budget.
3) Delegation of Authority from the Committee to the Executive Director with the oversight by the Chairman to obtain legal counsel for employee personnel matters.

FISCAL IMPACT: $484,800 for FY 2016

2015 Research Projects

Updated 12/4/2015

Researcher	Project	Amount	Finalized MOU	Paid thus far	% Paid	No Cost Extension
Lovatt & Fichtner	Alternate Bearing in Olives	$ 33,357.00		20014.2	60%	6/30/2016
Ferguson	Propagagating Dwarfing Rootstocks and Establishight a long Term Orchard	$ 13,245.00		$7,947.00	60%	7/31/2016
Wang, Avena, Friedman	Evaluation of Several Promising Processing Variables and Additives for Reducing Acrylamide in Black Ripe Olives	$ 64,000.00		$38,400.00	60%	
Pickett	Biological Control of Olvie Psyllid Parasitoid	$ 35,304.00		$7,060.80	20%	6/30/2016
Adaskaveg	Olive Knot	$ 21,000.00		$12,600.00	60%	
Lightle	Evaluation of Magnet OL Attract-&-Kill Device for Efficacy Against Olive Fruit Fly and Alternative to GF-120	$ 11,592.00		$6,955.20	60%	
Flieshman-Hillard	Health Benefits	$ 12,000.00		$7,740.00	65%	
Schramm, Williams & Associates	World Trade Study-Ripe Olvies	$ 15,000.00		$8,964.50	60%	
	Contingency	$ 41,000.00			0%	
Ernie Simpson	Northern Fly Trapping	$ 6,400.00		$4,810.00	75%	
Jim Stewart	Southern Fly Trapping	$ 6,333.00		$5,541.69	88%	
	Total	**$ 259,231.00**		$120,033.39	46%	

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

FROM: RESEARCH SUBCOMMITTEE

SUBJECT: 2016 RESEARCH PROJECT

RECOMMENDATION: THAT the Subcommittee approve research project for 2016.

BACKGROUND: Each year the Research Subcommittee approves various research projects funded by the Committee. The Subcommittee must which proposed projects to recommend to the Committee for funding. A budget of $ 210,815.00 is purposed based on the submitted projects.

2016 RESEARCH PROPOSALS FOR THE CALIFORNIA OLIVE COMMITTEE

TOPIC	LEADERS	AMOUNT
Northern Valley Olive Fruit Fly Monitoring Project	Erin Simpson	$6,500.00
Southern San Joaquin Valley Olive Fruit Fly Monitoring Project	Jim Stewart	$6,334.00
PGRs and pruning treatments to manage alternate bearing	Carol Lovatt Elizabeth Fichtner	$11,045.00
Epidemiology and management of olive knot	Jim Adaskaveg	$21,000.00
Biological control of olive psyllid (renewal)	Charlie Pickett	$15,840.00
Prapagating Dwarfing Olive Rootstocks and Establishing a Long Term Orchard	John Preece, Louise Ferguson	$15,096.00
Contingency		$135,000
TOTAL		$210,815

FISCAL IMPACT: $ 210,815.00

The Committee must decide:

1) Research Budget
2) Recommend to the Committee to delegate authority to the Subcommittee to approve projects for contingency fund.
3) Recommend to the Committee to delegate authority from the Committee to the Executive Director with oversight by the Chairman, of the research budget.

Ern's Pest Control

Project Plan/ Research Grant Proposal

Project Year: 2016

Project Leader: Ernie Simpson
Mailing Address: 320 County Road 15 Orland, California 95963
Phone: 530-865-9829 Cell: 530-518-4685
E-mail: ernsimp17@sbcglobal.net

Cooperator: Dani Lightle, Orchards Advisor, UC Cooperative Extension, Orland

Commodity: Olive

Problem and its Significance:

Since the detection of Olive Fruit Fly in California in 1998, it has been a concern to olive growers in commercial orchards; preventative sprays are necessary. Trapping to monitor the Olive Fruit Fly populations in individual orchards is recommended. This will allow growers and PCA's to follow trends to their orchards and help evaluate spray program efficacy. Having an idea of area-wide population trends will help growers and PCA's interpret the results from their orchards.

Objectives:

1: Provide timely information to area growers regarding area-wide olive fruit fly population trends.
2: Continue to develop a historical perspective of olive fruit fly populations for the area.

Plans and Procedures:

Starting in early April plastic McPhail traps using Torula yeast tablets dissolved in water as the bait will be placed in one tree at 12 sites (6 in Glenn County and 6 in Tehama County). The same sites that have been used in previous years will be monitored again to allow for comparison of current years trap catches to previous years. Earlier work in Glenn and Butte Counties has shown that the plastic McPhail traps catch more flies than the commonly used yellow panel trap. Traps will be checked and flies counted weekly. The results and field observations will be posted on the Glenn County UC website (Http://ceglenn.ucdavis.edu) and reported via email to the COC for further distribution. Trapping results will be reported as male and female flies for individual traps and combined and averaged by site for a graphic presentation of the data. Trapping and reporting will be continued through December or until trap catches decline for the year.

Budget Request

Budget Year: 2016

Funding Source: California Olive Committee

Salaries	$4735
Supplies and Expenses: Trapping Supplies	$ 300
Travel 2545 mi. @ $.575/mi.	$1465

This may vary due to fuel prices

Total $6500

Originator's Signature

Ernie Simpson

PROJECT PLAN/RESEARCH GRANT PROPOSAL

Project year: 2016 Anticipated Duration of the project: April –November 2016

Project Leader: Jim Stewart Location: Tulare County
Mailing Address: PO Box 1095, Exeter CA 93221
Phone: (559) 730-6243 FAX: (559) 592-4105 E-mail: jsagipmc@verizon.net

Project Title: Southern San Joaquin Valley Olive Fruit Fly Monitoring Project

Cooperating personnel: Bert Quezada, Doug Bigham

Keywords: Olive Fruit Fly, Monitoring, Traps,
Commodity: Olive

PROBLEM AND ITS SIGNIFICANCE:

The monitoring of Olive Fruit Fly (OLFF) in commercial olive groves in the Southern San Joaquin Valley started in 2001. OLFF is potentially the most significant insect pest in commercial Olive.

OBJECTIVES:

The objective of this project would be to continue the monitoring program of adult OLFF in commercial olive groves in the Southern San Joaquin Valley. Detection and seasonal monitoring of OLFF and the accurate timing of control measures, primarily bait sprays, would be the goal of this project. Correlation of fly collections with fruit susceptibility to infestation would indicate to growers when initial bait treatments should be applied. In addition, monitoring would continue to give growers information on the general OLFF population. This information would specific for only the groves being monitored and would be available to growers to aid in making OLFF management decisions in their respective groves in the area being trapped.

PLANS AND PROCEEDURES:

The same nine sites used in the years 2013 to 2015 in commercial olive groves will be set up with traps in April of 2015. The locations will be Ivanhoe, Woodlake, Exeter, South Exeter, Tonyville, West Lindsay, Strathmore, Porterville and Terra Bella. In addition, a site in the city of Visalia would also be monitored. All of these sites are in Tulare County where a high percentage of the commercial olives are located in the Southern San Joaquin Valley. Many of the sites have been monitored starting in 2001. All traps will be in place by the first week of April and the program will end the last week of November. Two yellow panel traps with ammonium carbonate bait and male pheromone will be used per site. Traps will be serviced and OLFF counted weekly. Reports detailing the number of OLFF found at each location will be submitted to the California Olive Committee and interested parties within 24 hours on a weekly basis.

BUDGET REQUEST

Budget year: April 1, 2016-December 1, 2016

Funding Source: California Olive Committee
Leffingwell Ag Sales Co., Inc.
Ag IPM Consultants, Inc.

Salaries and benefits:		$15,400.00
Supplies:		
Traps, bait and pheromone		1200.00
Travel:		
Mileage to trap sites		2,400.00
Equipment:		0.00
	TOTAL	$19,000.00

Funding would be split equally between the above listed funding sources.

Total funding from the California Olive Committee would be: $6,333.33

James R. Stewart
Project leader
AgIPM Consultants, Inc
PO Box 1095, Exeter CA 93221
Phone: (559) 730-6243
Fax: (559) 592-4105

Bert Quezada
Senior Pest Control Advisor
AgIPM Consultants, Inc
PO Box 1095, Exeter CA 93221
Phone: (559) 936-0102
Fax: (559) 592-4105

Olive Workgroup / Department of Botany and Plant Sciences, UCR

University of California
Division of Agricultural Sciences

PROJECT PLAN/RESEARCH GRANT PROPOSAL

Project Year: 2016

Anticipated Duration of Project: New 2-year proposal to determine the efficacy of the PGR and pruning treatments to manage alternate bearing; this requires yield data for 2 consecutive years.

Project Leaders: Carol Lovatt and Elizabeth Fichtner

Project Leaders' Contact Information:
CL-Professor of Plant Physiology, Botany and Plant Sciences-072, UC-Riverside, CA 92521-0124 Phone: 951-827-4663; Fax: 951-827-4437; Email: carol.lovatt@ucr.edu

EF-Farm Advisor, Orchard Systems, Cooperative Extension, 4437 S. Laspina St., Tulare, CA 93274, Phone: 559-684-3310; Fax: 559-685-3319; Email: ejfichtner@ucdavis.edu

Location: Lindcove Research and Education Center, Exeter

Project Title: Managing Alternate Bearing in Olive with PGRs and Pruning

Cooperating Personnel:
Lindcove Research and Education Center, Exeter

Keywords: Alternate bearing, ON-crop trees/year, OFF-crop trees/year, vegetative shoot growth, spring bud break, bud abscission, inhibition of floral development, plant growth regulators, flower and fruit thinning/removal

Commodity(s): Table Olive **Relevant AES/CE Project No.:** 4556H

Problem and its Significance: Alternate bearing (AB), production of a heavy "on-crop" (high yield, ON trees) followed by a light "off-crop" (low yield, OFF trees), occurs in perennial fruit and nut crops and in forest species (where it is called "masting"). AB is a serious problem of significant economic consequence to table olive growers, and probably oil olive growers (Sibbett 2000). Industry-wide, yield can vary from 46,300 tons one year to 195,000 tons the next (USDA NASS 2011 CA Olive Probability Survey Report). In ON years, trees produce a large number of small size fruit with reduced commercial value. In OFF years, trees produce large fruit but too few to provide a good income to the grower. For olive, the ON-crop takes longer to mature, attain size and accumulate oil. The delayed harvest further exacerbates AB.

In tree crops and forest species, there are four known mechanisms by which the ON-crop of fruit reduces floral intensity and yield in the year following the ON-crop. Unfortunately, for California olive growers, all four mechanisms are operating in the 'Manzanillo' olive. Our results provided clear evidence that the ON-crop of fruit (i) reduces summer vegetative shoot growth, starting in July and thus, the number of node pairs that can bear inflorescences the next spring (olive has the potential to produce 2-4 inflorescences per node pair), (ii) causes the abscission of floral buds, with greatest period of floral bud abscission between September and October [consistent with the report of Dag et al., (2010) that olive fruit must be removed before

September to increase return bloom], (iii) inhibits the expression of a key gene required for normal floral development, and (iv) inhibits spring bud break.

There is a recurring need to mitigate the problem of alternate bearing. Alternate bearing is initiated by external factors (freeze; lack of chilling; low or high temperatures at bloom affecting not only the crop trees, but also the pollenizer trees) that cause poor flowering or pollination or excessive flower and fruit drop, resulting in an OFF-crop that is typically followed by an ON-crop, depending on how long it takes the trees to recover from the stress causing the loss of yield. Conversely, optimal conditions during bloom and fruit set such that normal crop thinning fails to take place result in an ON-crop, which is followed by an OFF-crop. Since climate is a factor initiating AB, the need for a corrective strategy reoccurs. The best solution is a flexible management strategy that is easily adapted to ON- or OFF-crop trees and utilized annually.

Results of our attempt to mitigate alternate bearing in 'Manzanillo' olive with foliar-applied PGRs. The best PGRs identified in our branch injection research for increasing summer vegetative shoot growth and spring bud break of ON-crop 'Manzanillo' olive trees and the PGR + urea treatment successful in preventing floral bud abscission in pistachio (the only other crop in which the abscission of floral buds during the ON-crop year is known to perpetuate alternate bearing) were applied to ON-crop trees to test their capacity to increase yield the following year. The experiment included 15 individual tree replications per treatment: (1) ON-crop control trees; (2) ON-crop trees receiving foliar-applied 6-BA + low-biuret urea in June and July and 6-BA only the following spring; (3) ON-crop trees receiving foliar-applied cytokinin X (a proprietary natural product) + low-buiret urea in June and July and cytokinin X only the following spring; (4) OFF-crop trees receiving foliar-applied cytokinin X in June and July; and (5) OFF-crop control trees. The PGRs were applied at 0.9 g/tree and low-biuret urea at 0.18 kg N per tree with a 400-psi handgun sprayer at 4 gallons per tree for good coverage. No applications were made after the spring applications for Year 2.

For Year 1, ON-crop trees treated with 6-BA plus low-biuret urea in June and July produced significantly more fruit per tree than trees in any other treatment, resulting in a net increase in yield of 15 kg/tree compared to the ON-crop control trees and 126 kg/tree compared to the OFF-crop control trees ($P < 0.0001$) (Table 1). The June and/or July application times clearly increased fruit set. Increasing yield with 6-BA and urea in the ON-crop year followed with a spring application of 6-BA resulted in trees that were not "more OFF" the following year; all Year 1 ON-crop trees had the same OFF-crop yields in Year 2 (Table 2). Thus, trees receiving foliar-applied 6-BA and urea in the ON-crop year and 6-BA in the spring had better 2-year average yields and 2-year cumulative yields, but not significantly better than most other treatments ($P = 0.1045$) (Table 3). Year 1 treatments applied to ON-crop trees had no effect on Year 2 yield (Table 2), which indicates that applications of 6-BA or cytokinin X in spring were without effect. (Note: the optimal application time is February, but due to adverse weather the applications could not be made until mid-March, which our prior data showed to be less effective).

Year 1 ON-crop trees produced more fruit of sizes tiny, small and medium than OFF-crop trees. OFF-crop trees produced more extra-large and jumbo size fruit (Table 1). OFF-crop trees treated with cytokinin X in June and July produced significantly more colossal-size fruit in the OFF-crop year compared to all ON-crop trees regardless of treatment ($P = 0.0614$). In Year 2, the OFF-crop trees (now ON-crop trees) produced more fruit of sizes sub-petite, petite, small, medium and large than the now OFF-crop trees (Table 2). In Year 2, all trees produced the same amount of extra-large fruit; Year 1 ON-crop trees treated with cytokinin X in March following the ON-crop year produced more jumbo size fruit than trees in all other treatments in Year 2, except Year 1 ON-crop trees treated with 6-BA in March following the ON-crop year; 6-BA

treated trees produced more jumbo size fruit than the Year 1 OFF-crop trees (now ON-crop trees).

Whereas the PGR treatments had some positive effects on fruit size, we failed to reduce the severity of alternate bearing and increase yield in the year following the ON-crop. This may be due to the fact that the treatments were applied before we discovered that the major period of floral bud abscission on bearing shoots of ON-crop 'Manzanillo' olive trees is from September to October. We applied the treatment to reduce olive floral bud abscission in June and July, which was likely too early to be effective.

Proposed management strategy. Given the fact that the ON-crop causes 70% to 76% of buds on bearing shoots to abscise and for those buds remaining inhibits floral development and since all four mechanisms operating during the ON-crop year in olive have a less severe effect on flowering and yield for nonbearing shoots compared to bearing shoots, it is clear that it is essential to increase the number of nonbearing shoots during the ON-crop year to successfully mitigate alternate bearing. An increase in the number of nonbearing shoots would also reduce the negative whole tree (crop load) effect on return bloom and our data show that nonbearing shoots respond better to PGRs, which would further increase return bloom and yield the year following the ON-crop. Thus, it is also important to use PGRs in the spring prior to the OFF-crop year to increase bud break and also during bloom to increase fruit set.

Inflorescence pruning or chemical inflorescence thinning during the ON-bloom would provide an effective cultural practice to help evening out the yield of ON/OFF cycles in alternate bearing 'Manzanillo' olive orchards. Most growers understandably are reluctant to thin in the ON-crop year prior to fruit set, but because inflorescences are easy to see, the degree of thinning can be adjusted to accommodate differences in bloom intensity and potential set from year to year and among trees within an orchard in a single year. Fruit removal by pruning, hand thinning or chemical thinning must be done before mid-July to reduce the inhibition of summer shoot extension growth and increase return bloom. It is difficult to see differences in set at this time. It should also be noted that the negative effects of the ON-crop of fruit are cumulative – the longer the ON-crop of developing fruit is on the tree, the more severe the impact on return bloom and yield. Thus, the goal of thinning reproductive structures in olive should be to increase the number of nonbearing shoots on ON-crop trees. Mechanical pruning does not lend itself well to creating nonbearing shoots, it tends to simply shift crop from one area of the tree to another in any given year. A chemical thinner (e.g., NAA or S-abscisic acid, which is less sensitive to temperature fluctuations than NAA) can be applied to reduce the number of fruit per shoot and the number of shoots with no fruit more uniformly around the tree.

Proposal goal, objective and research plan. Using our discovery that all four known mechanisms perpetuating alternate bearing in trees function in olive, as well as what we have learned about the timing and efficacy of PGR treatments that we have tested as branch injections and whole tree sprays, the goal of our proposal is to develop a flexible management practice that can be adapted to ON- and OFF-bloom trees to even out alternate bearing in 'Manzanillo' olive orchards, so that growers do not experience the dismally low yields an OFF-crop year. Using 'Manzanillo' olive trees, which have been subjected to light hand-pruning to maintain space and sunlight within rows and between rows, our objective is to test the following treatments: (1) untreated ON-crop (ON bloom) control trees; (2) ON-crop (ON bloom) trees sprayed with the growth inhibitor S-abscisic acid (S-ABA) (500 mg/L) at bloom to reduce fruit set, the treatment is applied as a 2-ft wide strip as the sprayer drives down the row on both sides of the tree to achieve a 30% to 40% reduction in yield; (3) ON-crop (ON bloom) trees sprayed with the growth inhibitor S-abscisic acid (S-ABA) (1000 mg/L) at bloom to reduce fruit set, the treatment is applied as a 2-ft wide strip as the sprayer drives down the row on both sides of the tree to achieve a 30% to 40% reduction in yield; (4) ON-crop (ON bloom) trees sprayed with the growth inhibitor S-abscisic acid

(S-ABA) (500 mg/L) at bloom to reduce fruit set, the treatment is applied as a 2-ft wide strip as the sprayer drives down the row on both sides of the tree to achieve a 30% to 40% reduction in yield, trees are also sprayed with 6-BA in mid-July to increase summer vegetative shoot growth, at the beginning of September to increase floral bud retention, and the following February to increase spring bud break; (5) OFF-crop (OFF bloom) control trees; and (6) OFF-crop (OFF bloom) trees sprayed with the ethylene biosynthesis inhibitor aminoethoxyvinylglycine (AVG) at 10% bloom to increase fruit set and yield in the OFF-crop year.

Selection of these PGRs was based on their known abilities: (i) 6-BA to increase summer vegetative shoot growth during the ON-crop year (results of our research with olive and avocado) and to increase spring bud break (results of our research with olive; also avocado); (ii) S-ABA to reduce flowering and fruit set, increase fruit size during the ON-crop year and increase yield the following year (avocado); and (iii) AVG to increase fruit set (walnut and cherry). The PGRs proposed for use, 6-BA as MaxCel, S-ABA as ProTone and AVG as ReTain are all products of Valent BioSciences$_{TM}$, which will contribute financially to the research.

Literature Cited:

Dag, A., A Bustan, A. Avni, I. Tzipori, S. Lavee and J. Riov. 2010. Timing of fruit removal affects concurrent vegetative growth and subsequent return bloom and yield of olive (*Olea europaea* L.). Scientia Hort. 123:469-472.

Sibbett, S. 2000. Alternate bearing in olive trees. California Olive Oil News. Vol. 3, Issue 12.

BUDGET REQUEST – Lovatt and Fichtner
Budget Year: 1 January 2016 – 31 December 2016

Funding Source: California Olive Committee		
Salaries and Benefits:		
Postdocs/RA's		
Toan Khuong- Assistant Specialist @ $ 4,362/mo. variable time equivalent to 25% x 1 mo. (Under my supervision, assists in laying out the experiment in the orchard, making maps, treatment applications, harvest, fruit size determination, data management, data sheets, data entry, and statistical analyses of the data.)		1,091
SRA's and Lab/Field Assistance		
Lab Assistant I @ $ 15.07/hr x 100 hours. (To assist with laying out the experiments in the orchards, treatment applications, harvest, fruit size determination.)	1,507	
Subtotal	Sub2	2,598
Employee benefits:		
TK = $1,091x 76.11%	830	
TBA Lab Asst I = $1,507 x 2.76%	42	
	Sub6	872
	TOTAL	3,470
Supplies and Expenses	Sub3	5,638

Recharge to the Lindcove REC: use of olive grove, water, fertilizer,
Weeding, pest management, pruning, and harvest = $5,638

Equipment Sub4 0

Travel Sub5 2,937

5 roundtrips to Exeter
(520 mi x 5 = 2,600 mi x $0.6014 = $1,564;
UCR vehicle rental 10 days x $47.268/day = $473
$90/day per diem (Lindcove Trailer plus meals) x 2 people x 5 trips (1.5 days each) = $900

SUBCONTRACT

Sub7 4,000

Elizabeth Fichtner, Farm Advisor, Orchard Systems, Cooperative Extension,
4437 S. Laspina St., Tulare, CA 93274

Department account number: AO1082 TOTAL 16,045

Originator's Signature Carey Knott Date 10/19/2015

COOPERATIVE EXTENSION
County Director: Allison Ferry Alva (acting CD) Date 10/20/2015
Program Director: _____ Date _____

AGRICULTURAL EXPERIMENT STATION
Department Chair: Michael L. Roose Date 10/20/2015

UC COC LIAISON OFFICER: _____ Date _____

BUDGET SUBCONTRACT

Budget Year: 1 January 2016 – 31 December 2016

Elizabeth Fichtner
Farm Advisor, Orchard Systems, Cooperative Extension,
4437 S. Laspina St., Tulare, CA 93274

Funding Source:

Salaries and Benefits:

Postdocs/RA's/SRA's and Lab/Field Assistance

215 hours of labor for Student Assistant II/Lab Assistant I	3,203
Subtotal	Sub2
Employee benefits:	Sub6 0
	TOTAL 3203
Supplies and Expenses	Sub3 0
Field supplies: bags, ribbons, cooler box	
Equipment	Sub4 0
Travel	Sub5 400
	SUBTOTAL 3603
UC ANR Overhead @11% $3603 x 11% =	Sub6 396
	SUBCONTRACT TOTAL $4,000

Elizabeth Fichtner, Farm Advisor, Orchard Systems, Cooperative Extension,
4437 S. Laspina St., Tulare, CA 93274

Elizabeth J. Fichtner

Originator's Signature Date 10/20/2015

COOPERATIVE EXTENSION

County Director: Allison Fargo Abee (acting CD) Date 10/20/2015

Program Director: _____ Date _____

AGRICULTURAL EXPERIMENT STATION

Department Chair: _____ Date _____

UC COC LIAISON OFFICER: Elizabeth J. Fichtner Date 10/20/2015

Table 1. Effect of a proprietary natural cytokinin (CKX) applied to OFF-crop trees and CKX and 6-benzyladenine (6-BA) plus low-biuret urea applied to ON-crop trees in June and July, with CKX and 6-BA also applied to the ON-crop trees the following spring on the Year 1 yield and fruit size distribution of 'Manzanillo' olive trees located at the Lindcove REC, Exeter, CA.

Year 1 tree status	Year 1 treatment	Total yield (kg/tree)	Fruit size distribution (pack out) based on fruit diameter in mm (No./100 fruit/tree)							
			Tiny (< 16)	Small (16 to < 17)	Medium (17 to < 19)	Large (19 to < 20)	X-large (20 to < 22)	Jumbo (22 to < 24)	Colossal (24 to < 26)	Super Colossal (> 26)
OFF	Control	44.4 c[z]	1.2 b	0.8 b	13.1 b	17.4 a	53.9 a	13.3 a	0.3 ab	0.0 a
OFF	CKX	48.5 c	0.9 b	1.2 b	10.7 b	15.5 ab	52.8 a	18.4 a	0.5 a	0.0 a
ON	Control	155.3 b	19.4 a	24.8 a	42.8 a	9.7 bc	3.2 b	0.1 b	0.0 b	0.0 a
ON	CKX+urea	157.9 b	25.7 a	23.6 a	37.6 a	9.6 bc	3.2 b	0.1 b	0.0 b	0.0 a
ON	6-BA+urea	170.4 a	27.6 a	26.8 a	39.5 a	4.6 c	1.4 b	0.0 b	0.1 b	0.0 a
P-value		< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0043	< 0.0001	< 0.0001	0.0614	--

[z] Values in a vertical column followed by different letters are significantly different at the *P*-value specified by Fisher's Protected LSD Test.

Table 2. Effect of the Year 1 applications of a proprietary natural cytokinin (CKX) applied to OFF-crop trees and CKX and 6-benzyladenine (6-BA) plus low-biuret urea applied to ON-crop trees in June and July, with CKX and 6-BA also applied to the ON-crop trees the following spring on the Year 2 yield and fruit size distribution of 'Manzanillo' olive trees located at the Lindcove REC, Exeter, CA.

Year 1 tree status	Year 1 treatment	Total yield (kg/tree)	Fruit size distribution on (pack out) based on fruit weight (g) (kg/tree)								
			Sub-petite (2.21-2.66)	Petite (2.67-3.08)	Small (3.09-3.58)	Medium (3.59-4.22)	Large (4.23-5.07)	X-large (5.08-7.27)	Jumbo (7.28-9.76)	Colossal (9.77-13.97)	Super Colossal ≥ 13.98
OFF	Control	149.4 a[z]	8.7 a	20.1 a	32.3 a	43.1 a	30.4 a	14.8 a	0.1 c	0.0 a	0.0 a
OFF	CKX	130.2 a	5.8 a	15.9 a	26.0 a	35.7 a	26.2 a	19.7 a	0.8 c	0.0 a	0.0 a
ON	Control	42.1 b	0.5 b	0.9 b	2.3 b	5.8 b	12.8 b	18.3 a	1.5 bc	0.0 a	0.0 a
ON	CKX+urea	47.9 b	0.2 b	0.3 b	1.8 b	6.1 b	10.7 b	25.0 a	3.7 a	0.0 a	0.0 a
ON	6-BA+urea	45.0 b	0.2 b	0.4 b	0.8 b	4.0 b	10.3 b	26.5 a	2.8 ab	0.0 a	0.0 a
P-value		< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	0.1794	0.0002	0.4160	--

[z] Values in a vertical column followed by different letters are significantly different at the *P*-value specified by Fisher's Protected LSD Test.

Table 3. Effect of the Year 1 applications of a proprietary natural cytokinin (CKX) applied to OFF-crop trees and CKX and 6-benzyladenine (6-BA) plus low-biuret urea applied to ON-crop trees in June and July, with CKX and 6-BA also applied to the ON-crop trees the following spring on the 2 year average yield and 2-year cumulative yield of 'Manzanillo' olive trees located at the Lindcove REC, Exeter, CA.

Year 1 tree status	Year 1 Treatment	2-year average (kg/tree)	2-year cumulative (kg/tree)
Off	Control	96.9 ab[z]	193.8 ab
Off	CKX[y]	89.3 b	178.7 b
On	Control	98.7 ab	197.4 ab
On	CKX + N	102.9 ab	205.8 ab
On	6-BA + N	107.8 a	215.7 a
Year			
1		115.3 a	--
2		83.0 b	--
P-value			
Treatment (T)		0.1045	0.1045
Year (Y)		<0.0001	--
T x Y		<0.0001	--

[z] Values in a vertical column followed by different letters are significantly different at the *P*-value specified by Fisher's Protected LSD Test.

AES/CE MAR 84

Workgroup: Olive
Department: Plant Pathology/ UCR

University of California
Division of Agricultural Sciences
PROJECT PLAN/RESEARCH GRANT PROPOSAL

Project Year: 2016

Anticipated Duration of Project: 3rd year of 3 years

Principal Investigators: J. E. Adaskaveg

Cooperating: D. Thompson, K. Nguyen, H. Förster, D. Lightle (UCCE - Butte Co.), and E. Fichtner (UCCE-Tulare Co.)

Project Title: Epidemiology and management of olive knot caused by *Pseudomonas savastanoi* pv. *savastanoi*

Keywords: Bactericides, biological controls, and systemic acquired resistance (SAR) compounds

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JUSTIFICATION/ BACKGROUND

Olive knot caused by the bacterium *Pseudomonas savastanoi* pv. *savastanoi* (Psv) occurs throughout olive (*Olea europaea*) growing regions of the world including California (Young, 2004). The pathogen enters through wounds causing hyperplastic outgrowths (knots, tumors, galls, etc.) on branches and occasionally on leaves and fruit. Olive knot is one of the most economically important diseases of olives as infection may lead to tree defoliation, dieback, and reduced tree vigor, which ultimately lowers fruit yield and quality (Schroth, 1973). Psv can be found as both an endophyte and epiphyte of the olive phyllosphere, but the main source of inoculum are Psv-induced olive knots. Inoculum production of the pathogen is promoted during wet periods. It is exuded from knots and disseminated by rain, wind, insects, birds, as well as human activity. We demonstrated that inoculum is produced very rapidly after wetting olive knots. The opportunistic pathogen takes advantage of wounds caused by natural leaf abscission, frost, and hail damage, as well as pruning and harvesting practices. These latter orchard practices lead to direct mechanical damage of the knots and exposure of inoculum. After entering its woody host, the pathogen actively induces knot formation by production of indoleacetic acid (IAA) and cytokinins. In California, infections occur mostly during the rainy season (late fall, winter, and spring) but knots do not develop until new growth starts in the spring. Infections can occur at fairly low temperatures (5-10° C) and thus, wetness is the main limiting factor for the disease. Historically, the most susceptible olive cultivars were Manzanillo, Sevillano, Ascolano, and Mission, and none of the newer cultivars is resistant to the pathogen.

Formation of olive knots on wounded, inoculated branches depends on inoculum concentration as well as cultivar. We are focusing our studies on cv. Manzanillo but will include cv. Arbequina in selected trials, both of which are highly susceptible to the disease. Knot induction is usually localized to the initial entry point of the bacterium. Systemic movement of the pathogen has rarely been observed (Wilson and Magie, 1964). In spring 2014 evaluations of our fall 2013 trials in commercial and experimental olive plots we noticed apparent systemic movement of Psv which we never observed in any of our previous trials. Infections caused bark blistering and cracking as well as development of knots in proximity to and away from the initial point of inoculation, even on neighboring branches. In more severe cases, inoculated branches died. Potential causes of systemic movement have not been well characterized. Thus, one of our objectives was to determine environmental or other factors leading to these symptoms and whether the pathogen is migrating internally or externally on the host. These studies were initiated in 2015.

In 2016, we plan to continue these low-temperature studies in addition to implementing chemical treatments during periods of frost to determine if treatments are able to control Psv movement and knot development under these conditions. After repeated applications, the antibiotic oxytetracycline has been reported to move systemically to young citrus tissue. This strategy may also provide improved control of

olive knot in these situations and therefore will be evaluated along with other treatments. Additionally, soil applications of kasugamycin will be evaluated to determine if systemic uptake can be achieved.

Sanitation and prevention are the most successful strategies for management of olive knot. Any horticultural practice that promotes tree health, minimizes tree stress, and results in less leaf drop will reduce infections. Removal of knots during dry periods (i.e., summer to early fall) reduces inoculum and re-infection at pruning sites. Because the bacteria may be carried on pruning shears, frequent disinfection of equipment is necessary. Painting galls with Gallex is an effective therapeutic treatment but is very labor intensive and impractical. Spray applications of copper-containing bactericides have been very effective in minimizing the disease, but they often may need to be repeated to protect new wounds. A minimum of two applications is usually necessary: one in the fall before the rainy season starts and one in the spring when most leaves have been shed. Additional applications may be needed during winter rains or spring/summer hail storms. New copper formulations have been developed to reduce the metallic copper equivalent while maintaining the efficacy of the treatment. Our evaluations of copper sensitivity in populations of the olive knot pathogen indicated a reduced sensitivity of all strains with several strains showing an increased tolerance to copper. These results demonstrate a potential risk towards resistance development of Psv to copper with its continual and often exclusive use. Although the combination of copper and mancozeb is highly toxic to strains of Psv that are less sensitive to copper, the EPA will not allow additional crops to be added to the mancozeb label. In 2015 trials, we tested several copper hydroxide formulations at the highest labeled rates which resulted in exceptional disease control. High rates of copper were effective even when challenged with a copper-tolerant Psv strain. In order to maintain copper efficacy and reduce resistance development, we are planning to evaluate high rates of copper in mixed treatments with antibiotics and other chemicals. Trials performed in 2015 with selected copper enhancing compounds did improve copper performance as compared to copper alone (using low rates of copper) and will be further evaluated. We will no longer pursue systemic acquired resistance (SAR) compounds for the control of olive knot as past trials have resulted in highly inconsistent disease control. Additionally, in more recent trials where we inoculated SAR-treated plants with reduced Psv concentrations showed very poor to no control when compared to copper treatments.

We have been instrumental in the development of the new agricultural antibiotic kasugamycin (commercial name Kasumin) for several bacterial diseases of agronomic crops in the United States. Kasugamycin has high activity against *Erwinia* and *Pseudomonas* species and moderate activity against *Xanthomonas* species and other plant pathogenic bacteria. We found it to be the most promising new treatment for preventing olive knot in our field studies, including in a commercial application to inoculated branches. We plan to continue its evaluation, especially in mixtures with copper. Kasugamycin is currently federally registered on pome fruit crops (e.g., apples and pears), whereas use on olives was approved as an "A" priority by IR-4 in Sept. 2014. In Sept. 2015, we proposed and IR-4 accepted an "A" priority for oxytetracycline based on the need to develop several active ingredient that along with copper can used in rotation or in mixtures. These antibiotics proposed uses were considered low risk because they were requested as after harvest, dormant and leaf drop treatments prior to the development of the crop in the current season. Thus, we will continue to evaluate kasugamycin, oxytetracycline, and other antibiotics as well as adjuvants that may optimize performance. Having several years of data will provide the best use strategies for growers.

In our research on sanitation treatments as part of an integrated olive knot management program, we demonstrated that quaternary ammonia compounds, guanidine, and chlorhexidine were highly toxic against the olive knot pathogen in laboratory studies. The quaternary ammonia sanitizers are volatile compounds that leave near zero residues and are not corrosive to equipment. We extensively tested Deccosan 321 (Maquat) for its effectiveness against Psv and obtained federal registration of it as a sanitizer of field equipment for use on olives in 2015. We initiated several small field trials in the spring of 2015 and plan to continue these trials in 2016.

RESEARCH OBJECTIVES

1) **Continuation of quaternary ammonium compound (QAC) trials.**
   a. Evaluate the performance of the quaternary ammonium compound Deccosan 321 as an equipment sanitizer under field conditions in comparison to chlorine by itself and in conjunction with additional foliar treatments (copper and kasugamycin).

b. Test the effect of pH on Deccosan 321 activity against Psv in direct contact assays.

2) **Efficacy of new bactericides.**
   a. Optimize the efficacy of antibiotic treatments (kasugamycin, oxytetracycline, streptomycin) against Psv in greenhouse and field trials using various formulations (technical and commercial grades), application timings, and additives (UV blockers, buffering agents, etc.)
   b. Develop copper activity-enhancing (CAE) materials such as Terrazole, Tanos, and amino-thiadiazole (ATD) when using maximum rates of copper.
   c. Field trials on the persistence of copper-antibiotic mixtures after a rain event using stickers and oils vs. hydrated lime.
   d. Field trials using high rates of copper mixed with antibiotics in tank mixtures as a resistance management strategy using copper-resistant strains of Psv.
3) **Epidemiology and management under different environmental conditions with copper-resistant strains of the pathogen.**
   a. Continue to conduct growth chamber studies to reproduce systemic infections of Psv.
   b. Determine if protective treatments can reduce infection of olives under low-temperature conditions using different rates and application timings
   c. Greenhouse studies on soil drench application of antibiotics (e.g., Kasumin) against olive knot systemic infections using potted olive plants.

PLANS AND PROCEDURES

1) Continuation of quaternary ammonium compound (QAC) trials.

a. We initiated several small field trials with Deccosan 321 in 2015 and are planning to expand these trials in 2016. Trials will be performed in olive orchards at UC Riverside (cv. Arbequina), UC Davis (cvs. Arbequina and Manzanillo), and at a commercial orchard in Yuba county (cv. Arbequina). Trials will involve the contamination of field pruning equipment with a suspension of Psv, sanitation with Deccosan 321, and then making pruning cuts and injuries to disease-free olive branches and twigs. Specifically, a handheld gas-powered hedger will be used to simulate larger commercial pruning equipment. The hedger pruning teeth will be contaminated by spraying with a suspension of Psv, sanitized using Deccosan 321 at labeled rates and exposure durations, and the hedger will then be used to make pruning wounds that will include lateral cuts along larger limbs (i. e., scraping against branches) and terminal stub cuts of smaller branches. Pruning of olive branches with a disinfected hedger will be used as a negative control, and pruning with a contaminated non-sanitized hedger as a positive control. Wounds created by a Psv-contaminated and QAC-sanitized hedger will also be spray-treated with copper hydroxide or a copper hydroxide-kasugamycin mixture in additional treatments. The experiment will be laid out using a randomized complete block design.

b. Deccosan 321 efficacy under different pH conditions will be investigated using an in vitro direct contact assay. For this, a biological buffer solution will be chosen that can accommodate a pH range of 5 to 9. Psv will be mixed with a fixed concentration of Deccosan 321 prepared in buffer at pH 5, 6, 7, 8, or 9. After selected time periods, suspensions will be diluted 1000-fold with sterile water, and then spiral-plated onto culture media for enumeration of viable bacteria to determine Deccosan 321 efficacy. For controls, Psv suspensions at the various pH values will be diluted and plated without exposure to Deccosan 321. This information will be useful to find out of efficacy of Deccosan 321 can be improved by changing the acidity of the solution.

2) Efficacy of new bactericides.

a. Optimize the efficacy of antibiotic treatments (kasugamycin, oxytetracycline, streptomycin) against Psv in greenhouse and field trials using various formulations (technical and commercial grades), application timings, and additives (UV blockers, buffering agents, etc.). We will be exploring strategies that can potentially optimize the effectiveness of the antibiotics kasugamycin, oxytetracycline, and streptomycin. In greenhouse trials, we will compare technical and commercial formulations of the antibiotics using cvs. Manzanillo and Arbequina. In the field, application timings will be adjusted so that the antibiotics are applied during the period in the day when there is reduced sunlight to protect treatments from heat and UV degradation (our past treatments have typically been applied midday with intense sunlight). Addition of

adjuvants such as UV blockers and buffering agents to antibiotics will also be evaluated for improved disease control.

b. We will continue to evaluate copper-activity enhancing materials in field trials as a strategy to reduce copper resistance development. Previous trials have resulted in improved control when mixing these compounds with copper, especially against a copper-tolerant strain. Modifying rates of copper or CAE compounds in combination may increase control.

c. Persistence of copper-antibiotic mixed treatment after a period of simulated rain using overhead irrigation. Plants will be wounded and treated followed by a period of rain before wounds are Psv inoculated. We will evaluate selected agricultural stickers and oils compared to hydrated lime mixed with antibiotics and copper.

d. Field trials using high rates of copper formulations (7 lbs/acre) mixed with streptomycin (Firewall), oxytetracycline (Fireline), and kasugamycin (Kasumin).

For the above trials, we will design the trials with 4 or more replications of each treatment and evaluate the data using analysis of variance and mean separation procedures using SAS version 9.4.

3) Efficacy of bactericides under different environmental conditions.

a. Continue to conduct growth chamber studies to reproduce systemic infections of Psv. Plants will be subjected to low temperatures (-5°C) for selected periods of time (4 to 12 h) after wounding and inoculation. Plants will then be transferred to the greenhouse and observed for disease development. Scanning electron microscopy (SEM) of frost-damaged olive twig sections will be performed to visualize bark injuries.
To track the movement of Psv and to determine if migration is systemically inside plant tissues or epiphytically, we will use selective re-isolation techniques and electron microscopy. Secondary wounds will be made at different distances from the initial inoculated wound. Development of knots and re-isolation of Psv from these wounds and from inside tissues distal to the original inoculation site will suggest systemic movement. Tissue samples will be taken after different incubation periods at different distances from the initial wound and examined using SEM. Inoculations may also be done with a copper-resistant strain to allow for discrimination of the inoculated isolate from potentially naturally present Psv strains (the majority of field strains are copper-sensitive).

b. Determine if protective treatments can reduce infection of olives under low-temperature conditions using different rates and application timings. Greenhouse grown cv. Manzanillo olives will be subjected to low temperature conditions (-5°C) in growth chambers. We will focus on several combinations of conditions to evaluate the best time to apply treatments (high copper rates and antibiotics) when freezing events are predicted to occur which will include:

1. Wounding healthy olive twigs and treating wounds with select compounds. Inoculating wounds with a Psv suspension. Placing trees in growth chambers for a duration of 12 hours at -5°C. Removing trees to greenhouse for growth until evaluations are made.
2. Wounding healthy olive twigs and treating wounds with select compounds. Placing trees in growth chambers for a duration of 12 hours at -5°C. Removing trees and inoculating wounds before moving trees to greenhouse until evaluations.
3. Wounding healthy olive twigs and placing plants in growth chamber. Removing plants, treating with compounds and inoculating with a Psv suspension before placing trees in greenhouse until evaluations.

c. Greenhouse trials using antibiotics applied as a soil drench will be conducted on potted olive plants. Different rates, application intervals, and number of applications will be evaluated to determine greatest disease control. Plants will be wounded and inoculated in between applications intervals or after the final application is made.

For the above trials, we will design the trials with 4 replications of each treatment and evaluate the data using analysis of variance and mean separation procedures using SAS version 9.4.

References

1. Adaskaveg, J.E., Förster, H., and Wade, M.L. 2011. Effectiveness of kasugamycin against *Erwinia amylovora* and its potential use for managing fire blight of pear. Plant Dis. 95:448-454.
2. Comai, L., and Kosuge, T. 1980. Involvement of plasmid deoxyribonucleic acid in indoleacetic acid synthesis in *Pseudomonas savastanoi*. J. Bacteriol. 143: 950-957.
3. Hewitt, W. B. 1939. Leaf scar infection in relation to the olive knot disease. Hilgardia 12:41-66.
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5. Schroth, M.N., 1973. Quantitative Assessment of the Effect of the Olive Knot Disease on Olive Yield and Quality. Phytopathology 63, 1064. doi:10.1094/Phyto-63-1064
6. Wilson, E. E. 1935. The olive knot disease: Its inception, development, and control. Hilgardia 9:233-264.
7. Wilson, E.E., Magie, A.R., 1964. Systemic invasion of the host plant by the tumor-inducing bacterium, *Pseudomonas savastanoi*. Phytopathology 54, 576–579.
8. Young, J.M., 2004. Olive knot and its pathogens. Australasian Plant Pathology 33, 33–39. doi:10.1071/AP03074

Budget Request:

Budget Year: 2016 Funding Source: Olive Board of California

Salaries and Benefits:	Post-Docs/RAs		22,000
	Lab/Field Ass't		2,000
	Subtotal		24,000
	Employee's Benefits*		14,000
		Subtotal	38,000
Supplies and Expenses			0
Equipment and University Land and Orchard charges			1,000
Operating Expenses/Equipment Travel (Davis Campus only)			0
Travel			3,000
Department Account No. _____		**Total**	**$42,000**

*-Note: Benefits for UCR employees have increased dramatically over last years.

J.E. Adaskaveg Date: Sept. 30, 2015

Originator's Signature (PI)

Katherine Borkovich

Dept. Chair _____ Date: Oct. 2, 2015
(Riverside Campus)

Liaison Officer _____ Date: _____

University of California
Division of Agricultural Sciences

PROJECT PLAN/RESEARCH GRANT PROPOSAL

Project Year: 2016 Anticipated Duration of Project: one year

Project Leader: C. H. Pickett Location: UC Berkeley quarantine
Mailing Address: CDFA, 3288 Meadowview Rd., Sacramento, CA 95832
Phone: 916.262-2053 FAX:916.262-2059 E-mail:cpickett@cdfa.ca.gov

Project Title: Renewal: Biological Control of Olive Psyllid Parasitoid, *Psyllaephagus euphyllurae* (Hymenoptera: Encyrtidae)

Cooperating Personnel: Dr. Kent Daane

Keywords: olive psyllid, biological control
Commodity(s): olive fruit Relevant AES/CE Project No.:

Problem and its Significance:

The olive psyllid, *Euphyllura olivina* (Hemiptera: Psyllidae), was first reported in California in 2007 infesting olive trees in San Diego and Orange counties. It has now spread to Riverside and Los Angeles counties and has been found on olive trees at one private residence in Monterey County. So although we don't know for certain that it will become a serious pest in commercial production regions of central and northern California, we do know that it is spreading. This pest naturally occurs throughout the Mediterranean Basin, both coastally and inland, and exclusively attacks the flower blossoms and growing tissue of olive (Tzanakakis 2006, unpubl. data). The olive psyllid is reproductively active during spring months when nymphal populations can cause significant reductions to the olive fruit set. Spring infestations have been reported reducing fruit yields by up to 60% in some parts of the Mediterranean (Jardak, T, 1984, Tzanakakis, M. E. 2006).

The principal parasitoid attacking this pest in the western Mediterranean Basin, *Psyllaephagus euphyllurae* (Garcia-Mercet 1921, Aversenq 2005) was initially discovered and collected from Spain as part of other foreign exploration activities. Through funding from the Olive Commission in 2011 and funding from the Federal Specialty Crops Block Grant Program, 2012-2015, we have made a great deal of progress in demonstrating, under quarantine conditions, the host specificity of this parasitoid: that it attacks only olive psyllid (Table 1). This information is required to obtain a field release permit in California. It also shows that *P. euphyllurae* is highly host specific, a trait shared with other parasitoids released over past decades in California and that have successfully suppressed agricultural pests. However, it is possible we may be asked for additional testing, delaying release for another season. Also our Block Grant ended in June 2015 and may not be renewed. If the Block grant is not funded, we will solicit the COC for another year of funding beyond 2015.

Table 1. Non-target psyllid species, selection criteria, and preliminary results in host specificity testing.

Psyllid species	Selection criteria	Non-target attacks
Asian citrus psyllid, *Diaphorina citri*	Relatedness	none
Ceanothia ceanothi	Natural habitat near olive production	none
Fremontia psyllid, *Dichlidophlebia fremontiae*	Relatedness, and habitat proximity	Not completed
Potato psyllid, *Bactericera cockerelli*	Native pest psyllid	none
French broom psyllid, *Arytinnis*	Beneficial insect attacking a	none

Our long term goal is to establish permanent populations of this parasitoid in southern California, before the olive psyllid spreads farther north into commercial production areas. By doing so, it may be possible to greatly delay, or even prevent its spread north and contain the population within southern California. Establishment of *P. euphyllurae* will also permanently reduce olive psyllid populations throughout its current and future distribution in California. Two hyperparasitoids (parasitoids that kill other parasitoids) have been found while collecting in Spain; these do not occur in California allowing the candidate parasitoid to exert far more impact on olive psyllid in its new home. A second parasitoid was discovered attacking olive psyllid in southeastern Spain during a recent collecting trip in support of the above project in a region that matches climatically with the central valley of California. Both *Psyllaephagus euphyllurae* and *Psyllaephagus pulchellus* co-occur in the more inland, and southern regions of Spain. With continued funding, we can insure permitting and release of the one parasitoid recently tested and most commonly associated with olive psyllid in Spain, *P. euphyllurae*.

Now is the time to be pro-active with this pest. Without an effective parasitoid in California, populations of olive psyllid will be more costly to control. We have in culture what is likely the most important natural enemy attacking the olive psyllid in the western Mediterranean Basin, the native home for both of these insects. We also have in place trained personnel who can rapidly complete studies and move on to field releases, hopefully before this pest establishes permanent populations in key olive growing regions.

Objectives:

1. Complete host specificity testing of *P. euphyllurae*, if required.
2. Release for permanent establishment *P. euphyllurae* into olive psyllid infested trees.

Plans and Procedures:

The goal of host range testing is to show that the candidate parasitoid for introduction attacks only the target pest insect, e.g. the olive psyllid, or has only a very narrow range of species that it can develop on. At this time, testing has been done on four species of psyllids. These represent native and non-native species, of which one is being considered for release as a biocontrol agent for an invasive weed. However, additional replication is needed for some species, and we hope to complete testing on a fifth non-target psyllid.

Non-Target Psyllids for host testing. Several native and exotic psyllids are in culture at quarantine laboratories located at UC Riverside, UC Berkeley, and CDFA in Sacramento, and USDA ARS in Albany. These psyllids were selected and tested for several reasons, including relatedness to the olive psyllid, occurrence in habitat similar to and near where commercial olives are grown, and their availability. California has a rich diversity of native psyllids associated with its native vegetation (Percey et al. 2011). However, only a small subset can be chosen for testing since there are over 165 representative species. We have also tested against the Asian citrus psyllid, which is related to the

olive psyllid. If *P. euphyllurae* is unable to attack and develop on a related psyllid, then it is unlikely to develop on the native, more distantly related psyllids. Several native psyllids are associated with native plants common to foothill regions of southern and central California, i.e. *Ceanothus* spp., *Fremontodendron californicum*, and *Rhus ovata* (Table 1). Associated psyllids are *Ceanothia* sp., *Diclidophlebia fremontiae,* and *Calophya triozomima*. The biological control agent, *Arytinnis hakani*, imported for control of French broom *Cytisus scoparius*, has also undergone testing.

Host plants. Insects will be reared on respective host plants (Table 2). Psyllids require new plant growth for feeding and reproduction, therefore plants will routinely be clipped to maintain a constant supply of new flush growth. Most of these psyllids are host specific and require rearing on a single species of plant. Host plants will be purchased from nearby nurseries. Plants lacking availability will be grown from cuttings at the CDFA in Sacramento, California.

Table 2. List of host plants and non-target psyllids.

Psyllid species	Host plant	Botanical name
Asian citrus psyllid, *Diaphorina citri*	Citrus	*Citrus spp.*
Ceanothia ceanothi	Ceanothus	*Ceanothus integerrimus*
Fremontia psyllid, *Dichlidophlebia fremontiae*	Flannel bush	*Fremontodendron californicum*
Potato psyllid, *Bactericera cockerelli*	Egg plant	*Solanum melongena*
French broom psyllid, *Arytinnis hakani*	French broom	*Genista monospessulana*

Rearing olive psyllid, its parasitoid, and non-target psyllids. The olive psyllid, olive tree saplings, and non-target host plants are currently in culture at CDFA's quarantine and greenhouse in Sacramento. Psyllids and plants are periodically shipped or hand-carried to Riverside for host specificity testing on an as-needed basis. Additional olive psyllids are collected in the field in southern California as well. Prior to testing, saplings are transferred to Ray Leach 'Cone-tainers' which have done well in host range tests for the Asian citrus psyllid parasitoid, *Tamarixia radiata* (Hoddle and Pandey 2014). Host plants will be placed in Bugdorms (Megaview Science, Taiwan) and maintained in a laboratory until needed for testing in Quarantine.

Host Testing.

The remaining choice and no-choice tests will be conducted in a laboratory inside of the UC Berkeley Quarantine facility using sequential no-choice, and choice exposure testing procedures. Rooted seedlings with 10 to 20 nymph test insects will be caged with the candidate parasitoid, *P. euphyllurae* alone or together with the olive psyllid, also placed on rooted seedlings. The three experimental treatments will be as follows:

Sequential no-choice tests: *P. euphyllura* is exposed to olive psyllid first, then to a non-target psyllid; or *P. euphyllura* is explosed to the non-target then to olive psyllid. Exposure times will be ca. 4 hrs, and temperatures will be set at 25 to 27 °C, with a 40% RH and 14:10 L:D photophase, following Hoddle and Pandey (2014).

Choice tests: *P. euphyllura* is exposed to olive psyllid and a second non-target host simultaneously, with each foraging on respective host plants, for 4 hrs. under the same environmental conditions as above.

Data will be recorded on the number of psyllids successfully developing to adults, psyllid nymph mortality, and number of parasitoids emerging from host psyllids. Observations will also be recorded once each hour, on the number of attempts at parasitism, and number of contacts between hosts and parasitoids.

Releases.

Once a field release permit is obtained, parasitoids will be released during spring months onto trees infested with olive psyllid in southern California. Past surveys of infested trees in southern California have found no native parasitoids or predators feeding on these psyllids. Release trees will be monitored for establishment and impact of released parasitoids for as long as funding is available. Travel to Spain to field collect additional parasitoids may be required if we are unable to mass rear adequate numbers. This trip would be made during May when olive psyllids are at their highest numbers both in Spain and southern California. Collections would be made at locations known to harbor high numbers of parasitoids.

References

Aversenq, S., C. Gratraud, and C. Pinatel. 2005. Ravageurs et auxiliaires des oliviers, synthèse de trois ans d'observations dans le Sud-Est de la France. Phytoma 586: 32-36.

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Tzanakakis, M. E. 2006. Insects and Mites Feeding on Olive, Distribution, Importance, Habits, Seasonal Development and Dormancy. Koninklijke Brill NV, Leiden, The Netherlands. 182 pp.

BUDGET REQUEST

Budget Year: 2016

Funding Source:

Salaries and Benefits:		_____
Postdocs/RA's		_____
SRA's		
Lab/Field Assistance (9 months @$2400/mo., 75%)		$16,200
Subtotal	Sub2	$16,200
Employee benefits (@40%)	Sub6	$6,480
	TOTAL	**$22,680**
Supplies and Expenses	Sub3	0
Equipment	Sub4	0
Travel		
In state, releases and monitoring		$2,000
Overseas, collecting		$7,000
	Sub5	**$9,000**
Grand Total		**$31,680**

Department account number:

_____ Date_____

Originator's Signature

CALIFORNIA OLIVE COMMITTEE

PROJECT PLAN/RESEARCH GRANT PROPOSAL

Workgroup/Department: Olive / Plant Sciences, UC Davis

Project Year 2016 Anticipated Duration of Project: 10 years

Project Title:
Propagating Dwarfing Olive Rootstocks and Establishing a Long Term Orchard

Project Leaders:
Dr. John Preece: Research Leader, USDA-ARS National Clonal Germplasm Repository, UC Davis, 1 Shields Ave., Davis CA 95616. John.Preece@ars.usda.gov, (530)-752-7009
Dr. Louise Ferguson: Extension Specialist, Department of Plant Sciences, 2037 Wickson Hall, Mail Stop II, UC Davis, 1 Shields Ave., Davis CA 95616, (530) 752-0507 [Office], (559) 737-3061 [Cell], LFerguson@ucdavis.edu
Mr. Dan Flynn: University of California Olive Center, Davis CA
JDFlynn@UCDavs.edu; (530)-752-5170
Mr. James M. Jackson: Principal Superintendent, Plant Sciences Field Facility, UC Davis CA
JMJackson@ucdavis.edu; (530)-753-2173 and (530)-681-2279

Commodity: Olive Relevant AES/CE Project No.

Year Initiated: 2013 Current Funding Request: **15,096.00**

Problems and Significance:
To facilitate mechanical harvesting the newest table olive orchards are planted in hedgerows and require regular mechanical pruning to keep the trees small. Our 12 X 18' foot research planting established at Nickels Soils Laboratory in 2002 has demonstrated to us this will be difficult with the 'Manzanillo' olive cultivar. Such hedgerow 'Manzanillo' orchards designed for mechanical harvesting would be easier to maintain if they could be grafted on dwarfing rootstocks. Among those olives with promise for use as a dwarfing rootstocks are:
Nikitskaya,
Olea cuspidate
Verticillium Resistant Oblonga
Dwarf D
Little Ollie (2015 addition)

In 2013 we proposed propagating these rootstocks and testing with grafted and non-grafted own rooted 'Manzanillo' controls for their dwarfing potential with 'Manzanillo' to produce a tree that is more amenable to mechanical harvesting. The own rooted 'Manzanillos' and 'Manzanillo' grafted to 'Manzanillo' in this orchard could also serve as the next generation hedgerow trained mechanically pruned orchard for mechanical harvesting with trunk and canopy contact shakers.

In 2013 year we were awarded funding to propagate the desired rootstocks and locate a suitable orchard site for establishment of the propagated trees. Both objectives have been achieved but due to difficulty of propagation with some cultivars and difficulty in locating a site with proper infrastructure planting was in spring 2014.

Progress through 9/30/2015:

This application for initial funding was for two purposes:

I. **Propagation and grafting of the rootstocks with 'Manzanillo' scions.**
   a. Dr. John Preece supervised the development of specific propagation techniques for 112 each of the following olive cultivars to be used as dwarfing rootstocks; Nikitskaya, *Olea cuspidate,* Verticillium Resistant Oblonga and Dwarf D. Dwarf D proved very difficult to root as cuttings and this means that there were sufficient trees only for the closer spacing. At the wider spacing, Little Ollie, which roots easily is being tested, which adds another potential rootstock and expands the scope of the study in a logical way.

II. **Establishing the next generation olive hedgerow orchard for evaluation of mechanical harvesters.**
   a. Field 3556, a four acre block located in Plant Sciences Field Facility located on the UC Davis Campus and maintained by UC Davis Plant Sciences field personnel was chosen as the planting site. This site has the added advantage of being located adjacent to oil orchards being developed by the UC Olive Center. The trees were planted in 2014. Attachment I: Field Map: 3556.

III. **Experimental Field Design:**
   a. Split plot design with the north half of the field at spaced at 10 X 16' and the south at 10 X 8'.
   b. There are 4 Randomized Complete Blocks
   c. Four different dwarfing rootstocks grafted with 'Manzanillo'
   d. Own rooted 'Manzanillo' and 'Manzanillo' grafted to a 'Manzanillo' grafting controls.
   e. Sevillano pollinizers were planted as border rows around the perimeter of the orchard and in the middle, as a row between the wide and narrow spacing.

Progress Summary:

The trees planted in 2014 were maintained and staked and grown through the summer of 2015 to allow the trees to reach sufficient size for grafting. The 'Oblonga' trees were falling over more and in more need of staking (which was done) than the others. In spring of 2015, the border rows of 'Sevillano' pollinizers were completed by planting the last 41 trees. There were insufficient trees available in 2014 to complete the border rows.

Some of the rows of dwarf olives were incomplete, therefore additional cuttings were rooted and trees produced at the National Clonal Germplasm Repository nursery. The exception is that 'Dwarf D' has proven to be extremely difficult to root to produce plants for the wider spacing portion of the study. Therefore, in addition, cuttings of 'Little Ollie' were rooted and this cultivar proved to be easy to propagate. On September 29, the nursery produced plants were planted into the orchard and 'Little Ollie' replaced the originally planned 'Dwarf D' at the wider spacing. This completes the planting and also gives a fifth genetically different rootstock to test

for dwarfing of olive. One of the 'Sevillano' trees died during the summer of 2015, but there were a few extra trees from the spring 2015 planting, and that tree was replaced.
Sierra Gold Nursery and staff of the National Clonal Germplasm Repository grafted the trees from September 28 – Oct. 1, 2015. This will give a cooler time of the year for the grafts to heal and take. Following grafting, the orchard was sprayed with Kocide to control olive knot.

2016 Objectives:

I. **Finish grafting all rootstocks, once the 2015 plants are established: Attachment I: Field 3556 Plot Map**

II. **Collect data to study the any growth differences among the scions on the different rootstocks compared to the controls**

Experimental Procedures:
Complete grafting. Based on experience gained on grafting, the final trees planted in 2015 will be sufficiently large for grafting late summer, 2016. This will be completed and will add Little Ollie as an experimental rootstock at the wider spacing.

Two scions were bark or whip grafted onto each rootstock. During 2016, the weaker of the two grafts will be pruned off to a single scion per rootstock.

The goal is to be able to dwarf the olive trees by using one or more of these rootstocks. Therefore, data will focus on measurements of vegetative vigor, including branch numbers and lengths, tree height, tree caliper of both the rootstock and scion. During 2015, there were fruit on the Manzanillos, and although it is early in the study yield data will be collected.

Data will be analyzed using ANOVA with an LSD means separation.

Desired Result:
At maturity the rootstocks will maintain tree size at 10 feet or less, and the trees can be harvested with trunk shakers or canopy contact harvesters. The experimental design will also allow a determination of 'Manzanillo' tree yields at 10 X 16' and 8 X 16' feet spacings.

BUDGET REQUEST: 2016
BUDGET REQUEST
Budget Year: 2016 Funding Source: COC

Orchard Maintenance Costs:	**3,600.00**
UC Davis Plant Sciences Field Facility: 4 acres @ 650.00/acre per year = $2600 Supplies, such as herbicides $1000.00	
Sub 1	**3,600.00**
Data Collection:	**10,000.00**

Student workers to collect the tree growth and fruiting data.

Sub 2	**13,600.00**
UC Overhead @ 11%:	**1,496.00**
Sub 3	**15,096.00**
TOTAL BUDGET REQUEST	**15,096.00**

UNIVERSITY OF CALIFORNIA

	Originator's Signature	10/02/2015 Date
Agricultural Experiment Station	Department Chair	Date
	Liaison Officer	Date

Scope of Work

Drs. John Preece and Louise Ferguson and Mr. Dan Flynn:
Responsible for overall coordination of the project and orchard management.

Mr. James M. Jackson:
Responsible for orchard management implementation.

Grove Road with Olive Sevillano Border on North

NW	Row 29		28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	Row 1 NE
Tree1	Sevillano	Nitskaya	O.Cusp.	Dwarf D	Manz. Graft	Manz Cont.	Oblonga		Manz. Cont.	Oblonga	Nitskaya	Dwarf D/Littl	O.Cusp.	Manz. Graft	Sevillano	Manz. Cont.	Dwarf D/Littl	O.Cusp.	Manz. Graft	Nitskaya	Oblonga	Sevillano	Manz. Cont.	Dwarf D/Littl	O. Cusp.	Oblonga	Manz. Graft	Nitskaya	Sevillano	
2	10 x 15 13	13	planting 9/29		13	13	13	13	13	13	13		planting 9/25	13	13	13		planting 9/25	13	13	13	13	13		planting 9/29	13	13	13	13	13
3	12	12	planting 9/29		12	12	planting 9/25	12	12	12	12		planting 9/25	12	12	12		planting 9/25	12	12	12	12	12		planting 9/29	12	12	12	12	12
4	11	11	planting 9/29		11	11	fell over 11	11	11	11	11		planting 9/25	11	11	11		planting 9/25	11	11	11	11	11		planting 9/29	planting 9/29	11	11	11	11
5	10	10	planting 9/29		10	10	10	10	10	10	10	10	planting 9/25	planting 9/25	10	10	10	planting 9/25	planting 9/25	10	10	Leaning 10	10	planting 9/29	planting 9/29	10	10	10	10	10
6	9	9	planting 9/25	planting 9/25	9	9	9	9	9	9	9	9	planting 9/25	planting 9/25	9	9	9	planting 9/25	planting 9/25	9	9	9	9	planting 9/29	planting 9/29	9	9	9	9	9
7	8	planting 9/25	planting 9/25	planting 9/25	8	8	8	8	8	8	8	8	planting 9/25	planting 9/25	8	8	8	planting 9/25	planting 9/25	8	8	planting 9/25	8	8	planting 9/29	planting 9/29	8	8	8	8
8	7	7	planting 9/25	planting 9/25	7	7	7	7	7	7	7	7	planting 9/25	planting 9/25	7	7	7	planting 9/25	planting 9/25	7	7	7	7	7	planting 9/29	planting 9/29	7	7	7	7
9	6	6	planting 9/25	planting 9/25	6	6	6	6	6	6	6	6	planting 9/25	planting 9/25	6	6	6	planting 9/25	planting 9/25	6	6	Fell over 6	6	6	planting 9/29	planting 9/29	6	6	6	6
10	5	5	planting 9/25	planting 9/25	5	5	fell over 5	5	5	5	5	5	planting 9/25	planting 9/25	5	5	5	planting 9/25	planting 9/25	5	5	5	needs tree	5	planting 9/29	planting 9/29	5	5	5	5
11	4	4	planting 9/25	planting 9/25	4	4	planting 9/25	4	4	4	4	4	planting 9/25	planting 9/25	4	4	4	planting 9/25	planting 9/25	4	4	4	4	4	planting 9/29	planting 9/29	4	4	4	4
12	3	3	3	planting 9/25	3	3	3	3	3	3	3	planting 9/25	planting 9/25	sick 3	3	3	3	planting 9/25	3	3	3	3	3	3	planting 9/29	3	3	3	3	3
13	2	planting 9/25	2	planting 9/25	2	2	planting 9/25	2	2	2	2	2	planting 9/25	planting 9/25	2	2	2	planting 9/25	2	2	2	2	2	2	planting 9/29	2	2	2	2	2
14	1	1	1	planting 9/25	1	1	1	1	1	1	1	1	planting 9/25	1	1	1	1	planting 9/25	1	1	1	1	1	1	planting 9/29	1	1	1	1	1
15	Sevillano	**Replication IV**							**ReplicationIII**							**Replication II**									**Replication I**					Sevillano
16	8 x 15 13	planting 9/25	13		13	13	13	13	13	13	13	13		13	13	13	13	13	13	13	13	13	13		13	13	13	13	13	13
17	12	planting 9/25	12		12	12	12	12	12	12	12	12		12	12	12	12	12	12	12	12	12	12		12	12	12	12	12	12
18	11	planting 9/25	11		11	11	planting 9/25	11	11	11	11	11	11	11	11	11	11	11	11	11	Fell over 11	11	11	11	11	11	11	11	11	11
19	10	planting 9/25	10	10	10	10	leaned 10	10	10	10	10	leaned 10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
20	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	Fell over 9	9	9	9	9	9	9	9	9
21	8	planting 9/25	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
22	7	planting 9/25	7	7	7	7	7	7	7	7	7	7		7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
23	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
24	5	5	5		5	5	5	5	5	5	5	sick 5	5	5	5	5	5	5	5	5	5	5	5	5	planting 9/29	5	5	5	5	5
25	4	4	4		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
26	3	3	3		3	3	3	3	3	3	3	3	leaned 3	3	3	3	3	3	3	Fell over 3	3	3	3	3	3	3	3	3	3	3
27	2	2	2		2	2	2	2	2	2	2	planting 9/25	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
28	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SW Tree29	Sevillano								Sevillano							Sevillano							Sevillano							Sevillano SE
Southwest	HutchInson																													
8 and 10 feet in row spacing																														
15 feet between rows																														
290 and 363 trees per acre																														
4 acres																														
Planted May 19-20, 2014																														
Bamboo Stakes May 20 and 21, 2014																														
Tied May 20. 21,22 2014																														
Irrigated May, 19, 20, 21 and 22																														

Grove Road with Olive Sevillano Border on North

NW	Row 29		28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	Row 1 NE
Tree1	Sevillano		Nitskaya	O.Cusp.	Dwarf D	Manz. Graft	Manz Cont.	Oblonga		Manz. Cont.	Oblonga	Nitskaya	Dwarf D/Littl	O.Cusp.	Manz. Graft	Sevillano	Manz. Cont.	Dwarf D/Littl	O.Cusp.	Manz. Graft	Nitskaya	Oblonga	Sevillano	Manz. Cont.	Dwarf D/Littl	O. Cusp.	Oblonga	Manz. Graft	Nitskaya	Sevillano
2	10 x 15	13	13	planting 9/29		13	13	13	13	13	13	13		planting 9/29	13	13	13		planting 9/29	13	13	13	13	13		planting 9/29	13	13	13	13
3		12	12	planting 9/29		12	12	planting 9/29	12	12	12	12		planting 9/29	12	12	12		planting 9/29	12	12	12	12	12		planting 9/29	12	12	12	12
4		11	11	planting 9/29		11	11	fell over 11	11	11	11	11		planting 9/29	11	11	11		planting 9/29	11	11	11	11	11		planting 9/29	planting 9/29	11	11	11
5		10	10	planting 9/29		10	10	10	10	10	10	10	planting 9/29	planting 9/29	10	10	10	planting 9/29	planting 9/29	10	10	Leaning 10	10	10	planting 9/29	planting 9/29	10	10	10	10
6		9	9	planting 9/29	planting 9/29	9	9	9	9	9	9	9	planting 9/29	planting 9/29	9	9	9	planting 9/29	planting 9/29	9	9	9	9	9	planting 9/29	planting 9/29	9	9	9	9
7		8	planting 9/29	planting 9/29	planting 9/29	8	8	8	8	8	8	8	planting 9/29	planting 9/29	8	8	8	planting 9/29	planting 9/29	8	8	planting 9/29	8	8	planting 9/29	planting 9/29	8	8	8	8
8		7	7	planting 9/29	planting 9/29	7	7	7	7	7	7	7	planting 9/29	planting 9/29	7	7	7	planting 9/29	planting 9/29	7	7	7	7	7	planting 9/29	planting 9/29	7	7	7	7
9		6	6	planting 9/29	planting 9/29	6	6	6	6	6	6	6	planting 9/29	planting 9/29	6	6	6	planting 9/29	planting 9/29	6	6	Fell over 6	6	6	planting 9/29	planting 9/29	6	6	6	6
10		5	5	planting 9/29	planting 9/29	5	5	fell over 5	5	5	5	5	planting 9/29	planting 9/29	5	5	5	planting 9/29	planting 9/29	5	5	5	needs tree	5	planting 9/29	planting 9/29	5	5	5	5
11		4	4	planting 9/29	planting 9/29	4	4	planting 9/29	4	4	4	4	planting 9/29	planting 9/29	4	4	4	planting 9/29	planting 9/29	4	4	4	4	4	planting 9/29	planting 9/29	4	4	4	4
12		3	3	3	planting 9/29	3	3	3	3	3	3	3	planting 9/29	sick 3	3	3	3	planting 9/29	3	3	3	3	3	3	planting 9/29	3	3	3	3	3
13		2	planting 9/29	2	planting 9/29	2	2	planting 9/29	2	2	2	2	planting 9/29	planting 9/29	2	2	2	planting 9/29	2	2	2	2	2	2	planting 9/29	2	2	2	2	2
14		1	1	1	planting 9/29	1	1	1	1	1	1	1	planting 9/29	1	1	1	1	planting 9/29	1	1	1	1	1	1	planting 9/29	1	1	1	1	1
15	Sevillano	Replication IV								Replication III							Replication II							Replication I						Sevillano
16	8 x 15	13	planting 9/29	13		13	13	13	13	13	13	13		13	13	13	13		13	13	13	13	13	13		13	13	13	13	13
17		12	planting 9/29	12		12	12	12	12	12	12	12		12	12	12	12		12	12	12	12	12	12		12	12	12	12	12
18		11	planting 9/29	11		11	11	planting 9/29	11	11	11	11	11	11	11	11	11	11	11	11	11	Fell over 11	11	11	11	11	11	11	11	11
19		10	planting 9/29	10	10	10	10	leaned 10	10	10	10	leaned 10	10	10	10	10	10		10	10	10	10	10	10	10	10	10	10	10	10
20		9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	Fell over 9	9	9	9	9	9	9	9	9
21		8	planting 9/29	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
22		7	planting 9/29	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
23		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
24		5	5	5		5	5	5	5	5	5	sick 5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
25		4	4	4		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
26		3	3	3		3	3	3	3	3	3	3	leaned 3	3	3	3	3	3	3	3	Fell over 3	3	3	3	3	3	3	3	3	3	3
27		2	2	2		2	2	2	2	2	2	planting 9/29	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
28		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SW Tree29	Sevillano								Sevillano							Sevillano							Sevillano							
Southwest	Hutchinson																													Sevillano SE
8 and 10 feet in row spacing																														
15 feet between rows																														
290 and 363 trees per acre																														
4 acres																														
Planted May 19-20, 2014																														
Bamboo Stakes May 20 and 21, 2014																														
Tied May 20. 21,22 2014																														
Irrigated May, 19, 20, 21 and 22																														

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

FROM: CALIFORNIA OLIVE COMMITTEE

SUBJECT: 2016 BUDGET

RECOMMENDATION: THAT the Committee adopt the 2016 FY Budget.

BACKGROUND: The following is the total 2016 FY Budget.

TOTAL 2016 BUDGET

BUDGETS	*MARKETING*	*RESEARCH*	*INSPECTION*	*EXECUTIVE*	*TOTAL*
2016	**$727,800**	**$210,815**	**$102,000**	**$484,800**	**$1,525,415**
% Budget	50%	19%	0%	31%	100%

HISTORIC BUDGET, TONNAGE, & ASSESSMENT COMPARISON

FISCAL YEAR	*2016 (Proposed)*	*2015*	*2014*	*2013*	*2012*	*2011*	*2010*	*2009*
Previous	$1,525,415	1,296,731	1,129,682	$1,289,198	$1,197,291	$2,203,909	$929,923	$1,482,34
% Difference	15%	12%	-12%	7%	-46%	107%	-39.97	-6.69%
Tonnage	77,977	37,119	90,790	78,179	26,944	167,000	22,150	49,067
%Difference	52%	145%	14%	235%	-83%	654%	-55%	-55%
Assessment Rate		$26.00	$15.21	$21.16	$31.32	$16.61	$44.72	$28.63
% Difference		41%	-39%	-52%	89%	-63%	56%	84%

FISCAL IMPACT: $1,525,415 for FY 2016 with $46,884 for no-cost research extensions from 2015.