

From the **Gro**ve

The Latest News from the California Avocado Industry



Commission's GAP Program Continues to Build Momentum

See article on page 28 for more information





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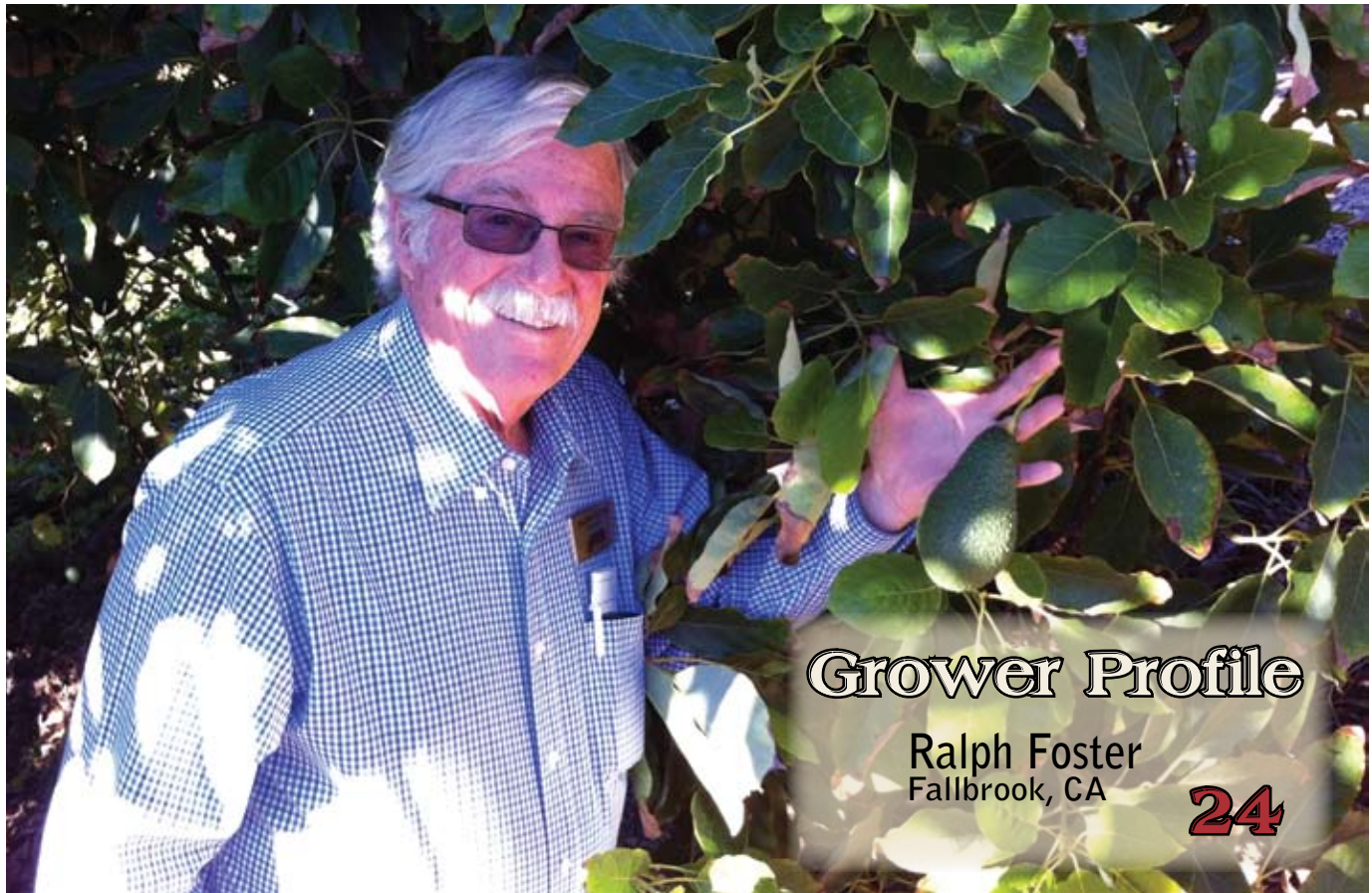
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Grower Profile

Ralph Foster
Fallbrook, CA

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From the Grove

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Winter 2013

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Measuring the Effectiveness of Promotions



Tom Bellamore

The California Avocado Commission, and virtually every other commodity board that conducts advertising and promotion activities in a significant way, face an interesting challenge when it comes to measuring program effectiveness. We spend two-thirds of our annual revenue branding, promoting, and merchandising California avocados—from \$5-\$11 million each year—but how can we tell if it is working?

If CAC was a for-profit corporation that took possession of, and sold, all of the avocados produced in California, then we could measure our success in the form of net revenue from sales. Instead, it is the industry's packers who control the "deal" and those companies must source globally to maintain their customer base, so their product offerings include avocados from California as well as other locations. The packers actively promote to the retail and foodservice trade, but they look to CAC to advertise and promote at the consumer level. Consequently, the link between sales and advertising is indirect, and finding a correlation between the two becomes complicated.

The problem is one that has long been evident to econometricians, and these very competent professionals have brought the rigor of their discipline to bear on helping commodity boards evaluate the effectiveness of



assessment-funded promotions. The National Institute for Commodity Promotion Research and Evaluation, the Cornell Commodity Promotion Research Program, and the Research Committee on Commodity Promotion (NEC-63) are all examples of organizations designed to enhance the understanding of commodity promotion economics. The Commission is fortunate to have been the focus of such analyses by several prominent members of NEC-63, Dr. Hoy Carman, professor emeritus, and Dr. Richard Sexton, chair and professor, both with the Department of Agricultural and Resource Economics at the University of California, Davis.

Recently, Drs. Carman and Sexton studied the impacts of the Commission's promotional programs from 1994 through 2012. They reported

their findings to the CAC Board on November 14, 2013, in Irvine. The methodology used in their studies largely consists of economic modeling and statistical analysis. Several models were used to isolate the impacts of promotion expenditures on avocado demand from other factors, such as consumer income, which contribute to demand growth. Statistical analysis of retail-level data was also performed to determine the effect of regional promotions. Weekly retail scan data from across the U.S. were analyzed for the five-year period from January 2008 through December 2012. This included a close look at the impacts of CAC's 2012 Fourth of July initiative.

Studies of generic advertising generally summarize results in the form of grower benefit-cost



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To contact a CAC representative, please visit:
CaliforniaAvocadoGrowers.com/Commission/your-representatives

ratios. The average benefit-cost ratio (ABCR) is the total incremental benefit generated by the program divided by the total incremental cost to fund the program. If the ABCR is greater than 1, then the program has been profitable for the industry. Carman and Sexton concluded that the ABCR for the period studied ranged from 2.12 to 9.28, which essentially says that for every grower dollar invested to fund CAC advertising and promotion, growers realized a return or benefit of \$2.12 to \$9.28. They also found a statistically significant (95 percent level) and positive impact on per capita sales in 10 designated marketing areas (DMA) where CAC conducts promotions—about 2.3 percent in additional sales per week. During the Fourth of July period in 2012, per capita sales rose by 5.6 percent in the four DMAs where California avocados were promoted on television and radio. Carman and Sexton wrapped up their report with this message to the CAC Board:


“The growth in U.S. fresh avocado demand over the last two decades is unprecedented for the fruit and vegetable sector, and the promotion programs conducted by CAC have been a very important factor contributing to the increased demand. Avocado growers have realized a very attractive rate of return for their expenditures on promotion programs. Without the demand expansion produced by the industry’s promotion programs, increased imports would have easily reduced avocado prices to levels that would have made California production unprofitable.”

If you attended the last series of District meetings, where some of the findings from the Carman and Sexton study were previewed before the grower community, you know the story goes a little deeper. The recent study confirmed an earlier finding by Carman, Li, and Sexton in 2009, that looked at the effect of CAC promotion expenditures from

1962 through 2007, showing that demand for fresh avocados is highly price inelastic. That is, grower and wholesale prices are very responsive to changes in the supply of avocados in the market. Both the recent study and the previous work estimated the price elasticity of demand to be about -0.25. An elasticity of demand is the percentage change in consumption due to a 1 percent increase in price, so this number says that if you increase price, say by 10 percent, sales will only drop by 2.5 percent. Dr. Sexton points out that “the flip side works as well....that is, a 2.5 percent increase in production would drop price by 10 percent.”

To me, all of this points to the ever-present need to stoke the engine that fuels demand for California avocados. It also signals something growers know all too well—that the U.S. market for avocados is extremely fragile and sudden supply increases, from any source, will bring severe, negative price impacts in the absence of demand growth.

If you think we can dispense with spending assessments on advertising and promotion, consider the economic analysis completed by the U.S. Department of Agriculture (USDA) in 2004 as it prepared to open the entire U.S. to imports of Mexican avocados. That study projected that Mexican avocado imports would increase to 141 million pounds, bringing total annual imports to 250 million pounds. The USDA projected that California avocado prices under this scenario would fall by 26 percent at the producer level.

Dr. Carman, with a smile, told the CAC Board, “The reality of course is that imports increased to over one billion pounds, yet the real grower price has, on average, remained nearly constant. The USDA study did not consider the effects of advertising and promotion, an important oversight in light of actual developments.” 

Winter –

This past November your new Board of Commissioners was seated following the state-wide election. The first action of the Board was to elect a new Executive Committee (EC). I am happy to report that the strong EC from last year was re-elected for another 12-month term. We have a great team and I am proud to serve our industry with my colleagues on the CAC Board and the EC. Your EC continues to be Doug O'Hara as vice chair, Carol Steed as secretary and John Lamb serving as treasurer. These growers bring a wide range of sophisticated experience and knowledge of growing, marketing, finance and what I like to call "muddy-boots farming" to the EC. We are all volunteer growers who have a huge stake in the successful marketing of our California avocado crop by our Commission.

Following the election, the new Chair traditionally has the opportunity to say a few words. I like public speaking about as much as a visit to the dentist, but there were a few points that I felt needed to be made. These were my comments to start the new Board year:

There are several reasons why I agreed to serve this Commission for another term as chair and I thought I might share those with you.

First - this Board is the most positive, cohesive and forward looking that I have seen in the years that I have watched and then served as an alternate and member. I truly believe that together we can do great things for our California avocado industry.

Second – I believe that we have the best team in the history of CAC in our current staff. They are a pleasure to work with and support. Our President Tom Bellamore leads a talented, world-class team doing CAC work for our industry.

Third - We are living in a unique time for our industry. I believe that future generations of farmers will look back at our time now as being the golden age of California avocados. Consumption is growing quickly both at home and throughout the world. Huge new markets are just beginning to be tapped. Consumption looks like it will outpace production worldwide for the foreseeable future. We are in the right place at the right time. I've been a farmer all my life and I cannot think of a better crop or place to farm than what I am doing now working with California avocados.

That does not mean that we are without problems. The wolf is always at the door, whether it is in the form of water, pest, disease or other troubles that we cannot even imagine. Part of our job here is to be vigilant and work together to solve these problems for our industry.

So - LET'S GET TO WORK!

This is the time of year when CAC staff is "setting the table" for our industry. By the time you and I begin picking, Tom Bellamore and his staff are far down the path working to make our season successful. The CAC staff and your Board are also working to prepare for our season in other ways. We are actively communicating with the other players in our industry through participation on the



Ed McFadden

Hass Avocado Board. Chairs of the marketing organizations from Chile, Mexico, Peru and the CAC sit as ex-officio members of the HAB. Your Commissioners Charlie Wolk, Carol Steed and I represent California at regular meetings of the Hass Avocado Strategy Group. This international group meets to discuss ways to enhance the U.S. Hass market. Prior to the PMA Fresh Summit in New Orleans, we met to discuss industry issues. Communication is vital in the marketing of our fruit. All players in the U.S. market have made adjustments to better organize movement of higher quality fruit into our market. As Commissioner Wolk often says, "What is good for our market floats everyone's boat a little higher." Communication on an international level is key for maximizing our market and returns back to us growers.

Winter is a scary time for California avocados growers. We start with Santa Ana winds and extreme fire danger, then transition to the opposite extreme of frost. As I write this we are preparing for our first brush with winter cold. Hopefully by the time you read this, we will be part way through a gentle and wet winter. We could all use some leaching from pure winter rains during the next few months to push what, so far, is very good sizing of our fruit. 🥑

CAC Board Approves 2013-14 Budget, Business Plan and Sets Assessment Rate

At its October 10, 2013, meeting the California Avocado Commission Board of Directors took up the annual task of approving the budget, business plan and annual assessment rate for the fiscal year commencing November 1, 2013.

The approved budget of \$16.2 million is based on a crop size of 325 million pounds (all varieties) and an assessment rate of 2.10 percent. Programs outlined in the business plan reflect a robust Marketing spend of \$10.7 million, approximately 66 percent of the total budget, with 7.6 percent dedicated to Production Research projects and 8.7 percent going toward Industry Affairs activities.

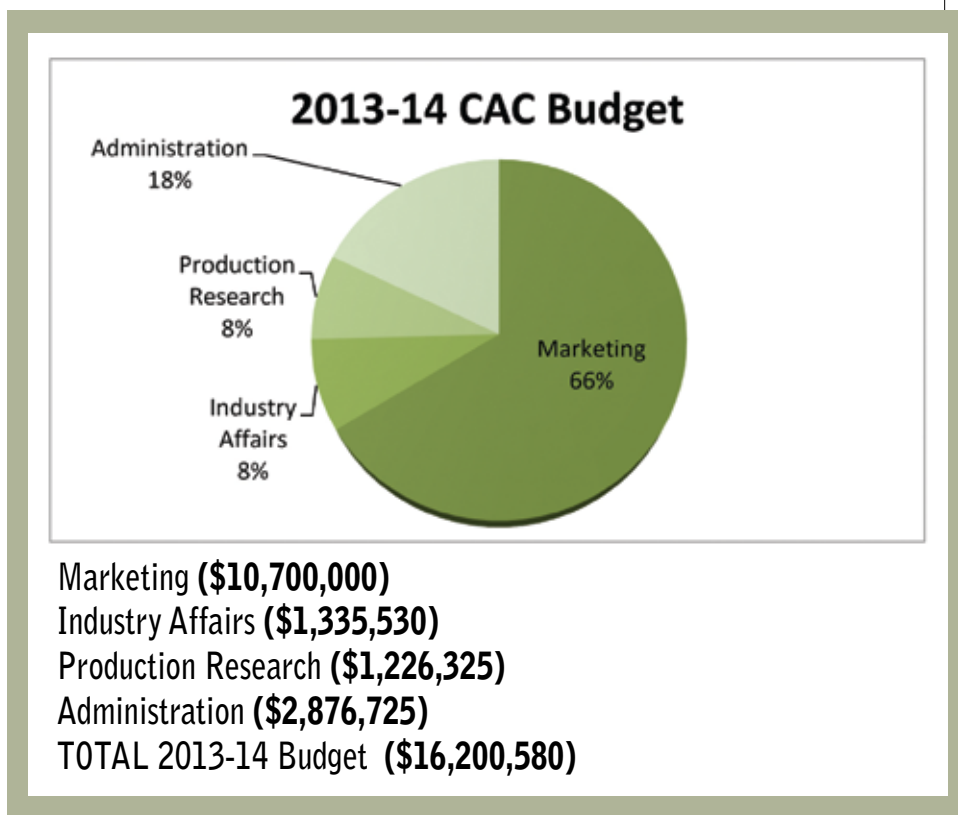
Following are business plan highlights for the 2013-14 fiscal year:

Marketing

- TV support in California
- Addition of snacking to usage campaign
- Launch California Avocado Commission blog
- Develop communications plan for sticker roll-out
- Positioning support of non-Hass varieties

Industry Affairs

- Launch of redesigned AMRIC site
- Integrate existing grove databases into one system



- Initiate phase 2 of GAP outreach
- Avocado Growing 101 online courses
- Develop and improve Demonstration Grove

Production Research

- Focus on salinity and phytophthora research
- Increased investment in rootstock breeding and preserving germplasm

Review the complete business plan and budget online at the following locations:

Business Plan: www.californiaavocadogrowers.com/Commission/accountability-reports/business-plans

Budget: www.californiaavocadogrowers.com/Commission/accountability-reports/finance 🥑

2013 CAC General Election Results

The California Department of Food and Agriculture released the results of the 2013 CAC General Election on November 1, 2013. Following are the individuals elected for the two-year term beginning November 1, 2013 through October 31, 2015.

District 1

Member: Carol Steed
Alternate: Bill Rice

District 2

Member: Charley Wolk
Alternate: Kellen Newhouse

District 3

Member: Ed McFadden
Alternate: Keith Reeder

District 4

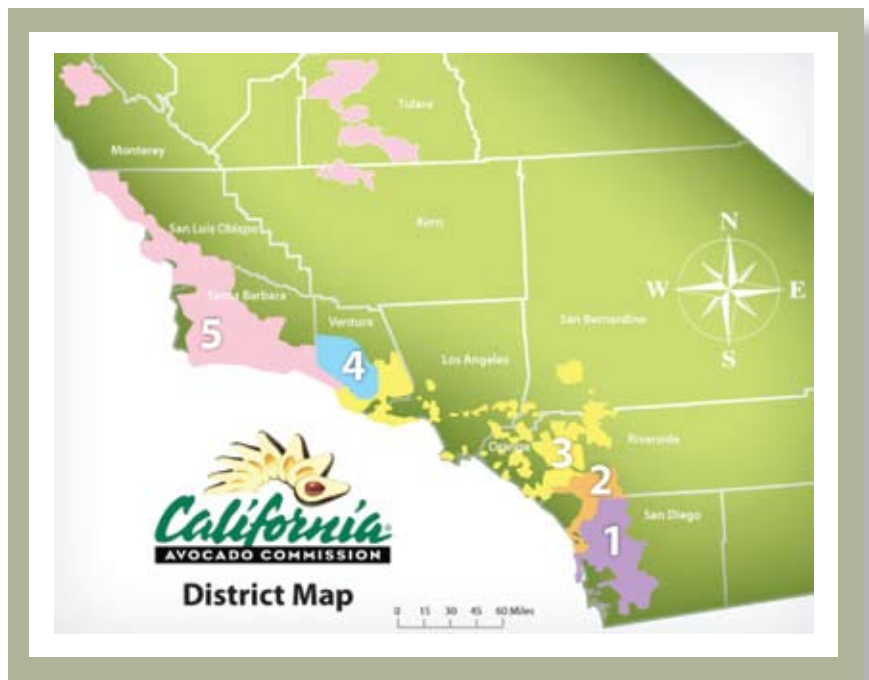
Member: John Lamb
Alternate: Robert Grether

District 5

Member: Will Carleton
Alternate: Leo Murillo

Handlers

Member: Steve Taft, Eco Farms Corporation
Alternate: Donny Lucy, Del Rey Avocado Co., Inc.
Member: John Dmytriw, Index Fresh of California, Inc.
Alternate: *Vacant Seat*



A complete list of CAC Commissioners and Alternates can be found on page 5, or by visiting the Your Representatives page on the grower website. If you are an eligible handler interested in filling the vacant alternate handler member seat, please contact April Aymami at aaymami@avocado.org or (949) 341-1955. 🥑

Expanding Export Opportunities for Avocados

By Ken Melban

Director, Issues Management

& Pamela Walther

Attorney, McDermott Will & Emery LLP

The California Avocado Commission is working with the U.S. government on market-opening efforts for California avocados in China, Japan, and the European Union to help ensure export opportunities exist for California avocados in years when production and U.S. avocado imports are both high. On the import side, the Commission is working on keeping a provision in the new Trade Promotion Authority legislation, which would help ensure import-sensitive treatment for the U.S. avocado tariff in future U.S. trade agreements.

China

The Commission's efforts with respect to China are about opening the Chinese market to California avocados for the first time. China prohibits entry of California avocados on the basis that it has not yet undertaken a pest analysis to determine what, if any, mitigation factors are needed to prevent California avocados from introducing harmful pests and diseases into China. The U.S. government, specifically the United States Department of Food and Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS), has been working on access for many U.S. commodities for more than a decade and for California avocados since May 2005. Although international law allows China to consider legitimate pest and disease concerns, China has been taking far too long to finalize market approval for a large number of U.S. commodities, including California avocados. China's large market and growing avocado consumption offer promising opportunities for California avocado exports once access is achieved. China currently allows avocados from Mexico, Chile, and Peru.

In response to California grower interest in finding new export opportunities, CAC intensified efforts to open the Chinese market this year. Earlier this year Ken Melban visited Washington, D.C., and met with APHIS Deputy Administrator Osama El-Lissy, along with personnel in charge of China issues. Recently, Tom Bellamore and Melban engaged directly with El-Lissy on China access before and after he led a U.S. team to the U.S.-China bilateral meeting held in China in early November. At the November bilateral meeting, China and the U.S. agreed, in writing, to a new concept of working on parallel tracks to open their markets for five fruit and vegetable products of importance to the U.S. and five of importance to China. Avocados are one of the five U.S. priority products. U.S. officials are cautiously optimistic that the new U.S.-China approach could result in access to China for California avocados within the next 18 months, provided that overall negotiations continue on a positive track.

In addition, at this year's Produce Marketing Association show in New Orleans, Bellamore and Melban met with im-



Tom Bellamore and Ken Melban meet with importers and retailers from China

port and retail representatives from China to discuss any actions they could take to assist with the CAC and APHIS effort. The meetings were positive and Chinese representatives indicated there would be tremendous consumer interest in China for California avocados if access were granted. They suggested, though, that ultimately any decision will have to overcome a challenging political climate, and cited China's prolonged attempt at gaining access to the U.S. market for apples and other products as a likely reason for the delay. The Commission will continue working closely with key U.S. government negotiators and may consider accompanying Deputy Administrator El-Lissy to China on his next trip in mid-2014, if it could possibly accelerate potential market access.

Japan

Japan and the United States are two of 12 Asia-Pacific countries that are negotiating a regional free trade agreement known as the Trans-Pacific Partnership Agreement, or TPP. As part of the TPP, member countries will eliminate tariffs on most intra-FTA trade. The United States is negotiating tariff reductions with Japan and the four other TPP countries that do not already have free trade agreements with the United States (i.e., Brunei, Malaysia, Vietnam and New Zealand).

CAC is seeking immediate elimination of Japan's 3 percent duty on California avocados so the avocados would enter Japan duty-free once the regional FTA agreement (TPP) is signed and implemented. Japan is a \$15 million annual market for California avocados, but could be larger with duty-free access. The volume of Mexican avocado imports, which already enter Japan duty free under a free trade agreement arrangement, are almost 10 times greater than avocado imports coming from the United States.

The Commission submitted comments to the Office of the United States Trade Representative (USTR) and the United States International Trade Commission (ITC) in June urging immediate duty-free access into Japan for California avo-

cados, and is working closely with the U.S. negotiators responsible for negotiating agricultural tariffs with Japan. Because the TPP countries want to finalize a TPP agreement by the end of the year or in early 2014, the Commission will remain engaged with USTR and USDA Foreign Agricultural Service (FAS) negotiators in the final stages of the negotiations to ensure the best market access outcome for the California industry.

The European Union

The United States and the European Union (EU) are negotiating a comprehensive free trade agreement known as the U.S.-EU Transatlantic Trade and Investment Partnership (TTIP), which will cover the 28 countries of the EU and any country that may accede to the union in the future. As part of TTIP, the United States and European Union will be negotiating duty-free access for a large part of U.S.-EU trade. Not all products will receive duty-free access, however. Many products will be subject to multi-year tariff phase-out periods and some sensitive products may be exempt from tariff reductions altogether.

The Commission is seeking immediate elimination of the EU's 4 percent and 5.1 percent seasonal avocado tariffs. The European Union is the second largest avocado import market world-wide after the United States. Europe imported nearly \$400 million worth of avocados last year principally from South Africa, Peru, Chile, Israel, and Mexico. Those avocados already enter Europe duty-free under preferential trade arrangements. Spain produces avocados, but it fills only about one-third of EU's demand.

The Commission is working with U.S. negotiators responsible for negotiating the TTIP agriculture tariffs on its request for immediate duty-free access for California avocados. In June the Commission submitted written comments to USTR and the ITC. Because a TTIP agreement won't be finalized until the end of 2014 or later, the Commission expects to continue its advocacy for immediate elimination of the EU's avocado tariffs in 2014.

Trade Promotion Authority

CAC has been working with key congressional trade staff on including an import-sensitive provision in new bipartisan Trade Promotion Authority (TPA) legislation that would allow only the smallest authorized cuts in the 11.2 cents per kilogram U.S. avocado tariff in future U.S. trade agreements with avocado producing countries. A similar provision was included in the prior TPA law that has expired. Because TPA renewal is not likely to get done this year and the TPA bill is expected to be changed frequently during the legislative process, the Commission will continue to monitor the process and provide oversight to safeguard the import-sensitive provision until TPA is enacted. 🥑

Production Research Focuses on Grower Needs

By Tim Spann

Research Project Manager

The Production Research Committee (PRC) received proposals for more than \$800,000 worth of new research for the 2013-14 fiscal year. However, with commitments to ongoing projects, less than half that amount was available in the budget. To determine which projects to fund, the PRC evaluated the likelihood of success of each proposal, whether the proposal met a critical industry need, and whether the research would result in an outcome that could be immediately used by growers. The total production research budget approved for the 2013-14 fiscal year is \$1.2 million, split almost equally between new projects and continuing projects that were funded in previous years.

Newly Funded Projects

After reviewing the submitted proposals and having some of the researchers attend a PRC meeting to answer questions, the PRC decided to recommend three new projects for funding. These three projects relate to the polyphagous shot hole borer, fertilizer recommendations, and understanding floral bud viability.

Polyphagous shot hole borer (PSHB): Dr. Akif Eskalen, plant pathologist, UC Riverside, submitted a proposal to evaluate the efficacy of fungicides against the fungi associated with PSHB. Previously, Dr. Eskalen had received funding to screen fungicides in laboratory assays and greenhouse trials. This project will take the most promising fungicides from his work and test them in the field on infected mature trees. The Huntington Botanical Gardens will be cooperating with Dr. Eskalen on many of his field trials. This is a two-year project that will provide us with the necessary efficacy data to apply for a Section 18 Emergency Exemption for these fungicides when PSHB is found in commercial avocado groves.

Improving fertilizer recommendations: Dr. Carol Lovatt, plant physiologist, UC Riverside, submitted a proposal to conduct a meta-analysis of the data from many years of fertilizer trials. These trials have been conducted by Dr. Lovatt over the course of her career throughout California's avocado growing region, across soil types, microclimates, tree ages, and other variables. By bringing these diverse datasets together and applying powerful statistical tools, Dr. Lovatt will be able to develop improved leaf nutrient recommendations to maximize avocado yield. In addition, she will cooperate with Dr. David Crowley to integrate her datasets

and results into his decision support tools project.

Floral bud viability: Dr. Lovatt also submitted a proposal to study the gene expression in floral buds throughout their development. Dr. Lovatt previously studied the gene expression in floral buds from November through February, and found that when fruit are harvested during this time, the floral buds' gene expression recovers and the buds can produce viable flowers during bloom. However, it is unknown how late in the season harvest can be delayed without irreversibly hindering flowering. Dr. Lovatt previously collected floral buds for the March through October time period, and will complete the analysis during this one-year project. The results of this project will be useful in developing harvesting strategies to mitigate alternate bearing.

In addition to these three new projects, the PRC recommended that Dr. Richard Stouthamer, entomologist, UC Riverside, receive a second year of funding on his project to identify PSHB and determine its area of origin. An update on his work is provided in the PSHB/Fusarium Dieback update article in this issue of *From the Grove*.

Plant Breeding

The PRC also recommended funding three breeding-related projects—rootstock breeding and evaluation, variety improvement, and maintaining the Gwen mapping population trees—at their 2012-13 levels while the PRC finalizes plans for a restructured breeding program beginning in 2014-15. The PRC has reviewed a draft request for proposals for the restructured breeding program and that is being finalized for distribution to researchers in early 2014. The four goals of the restructured breeding program will be: 1) development of Phytophthora resistant and salinity tolerant rootstocks; 2) rigorous horticultural evaluation of new rootstocks (of domestic or international origin) for potential to serve the California avocado industry; 3) preserve existing germplasm and biodiversity that exists within various avocado collections; and 4) develop molecular/genetic tools to expedite avocado breeding. These goals help to align the breeding program with solving the industry's two most critical issues—phytophthora and salinity.

The PRC is reviewing the research funding process to ensure that the industry is getting the most out of its investment by making sure that projects address key industry needs and produce grower usable results. 2014 will be an exciting year as the PRC continues to improve the research program to align it with these goals. 🥑

Annual Tracking Study Shows California Avocados Are Still Dominant

For more than 20 years, the California Avocado Commission has conducted an annual tracking study that provides consumer feedback concerning how brand image and consumer attitudes, perceptions and behaviors have changed over time. This study also provides effectiveness measures for the Commission's marketing programs.

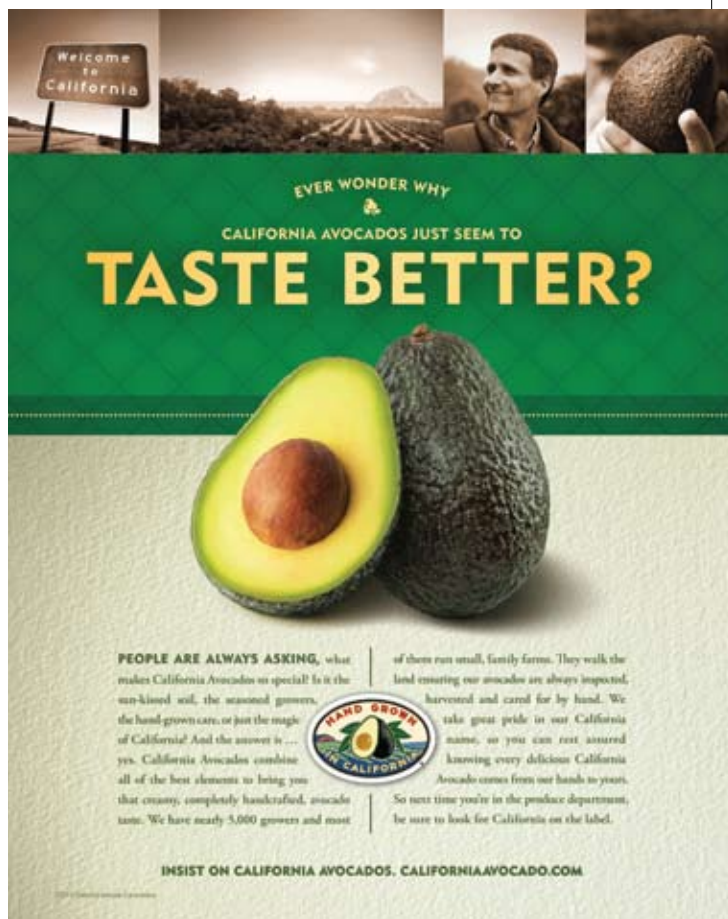
The tracking study is conducted by the independent research firm, Bovitz, Inc., in the early fall to coincide with the end of the California avocado growing season and the conclusion of CAC's advertising. The survey is conducted nationally with more than 1,500 respondents. The tracking study is done in conjunction with other market research efforts, such as consumer trends analysis and consumer segmentation to keep a finger on the pulse of the avocado consumer.

The tracking study measures progress toward accomplishing CAC's marketing objectives. The first and most prominent focus of 2013 was to enhance the perception of 'premiumness' for California avocados. California avocados have always stood for top quality, superior taste and artisan craftsmanship. This past year marketing amplified these attributes to reinforce a premium image for which consumers are willing to pay more.

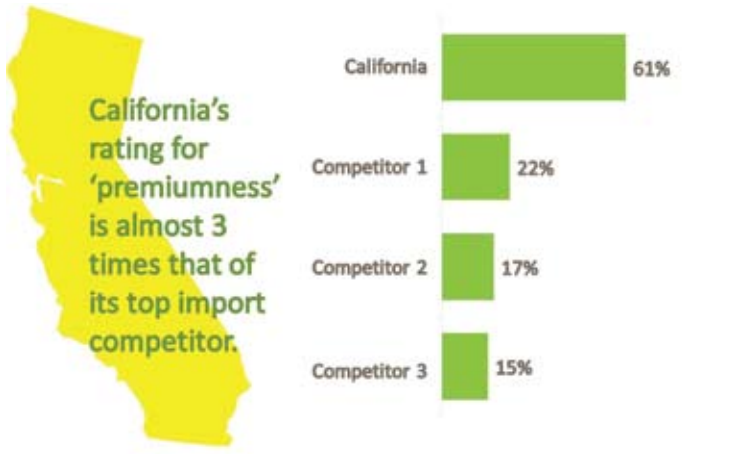
Another objective was to continue to focus on raising the importance and awareness of checking for the country of origin of avocados. This is extremely important because historically, when consumers are aware of country of origin, California has consistently come out ahead. California is the preferred growing region by as much as 10 to 1 over the next highest growing region. Lastly, the longest standing objective has been to expand overall consumption and usage of avocados during the months of the California season.

The results for 2013 show that marketing efforts in the designated ad markets (California, the Pacific Northwest, Arizona, Colorado and Utah) continue to meet the Commission's goals. While the tracking study covers the entire United States, all of the data in this article focuses on the respondents from designated ad markets.

This year, the "Premium" advertising campaign's style evolved to bolster the superior positioning of California avocados in the marketplace. The attributes of *freshness*,



taste and reliability were used to shape the premium image. The tracking study indicates this campaign has successfully built upon the well-established equity of the "Grower" campaign from previous years. The new ads have proven to be even more attention-getting (82 percent) and persuasive (70 percent) with scores that were significantly higher than the previous ads. The attributes of *freshness*, *taste* and *reliability* were used to shape the premium image for California avocados. Sixty-one percent of all respondents in ad markets rated California avocados as having the most premium qualities, while only 22 percent gave the major competitor equally high ratings. The effectiveness of this campaign is demonstrated by the fact that California avocados are rated 30 points higher by those respondents who recalled seeing

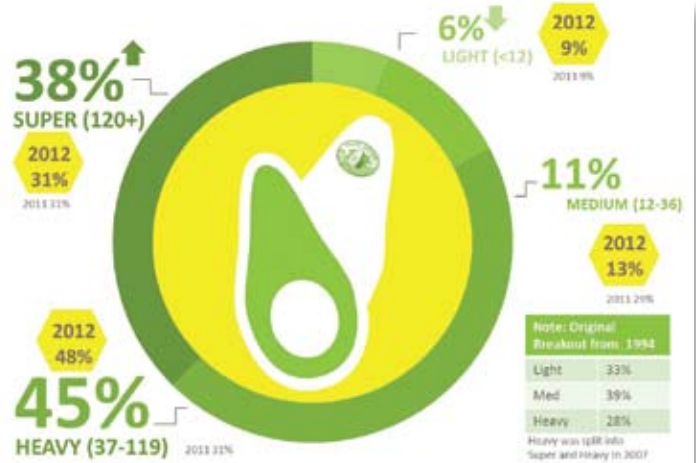


the "Premium" campaign ads versus those who did not see the ads.

The California avocado brand awareness ratings are at an all-time high of 80 percent, which maintains a significant advantage over any of the other countries. The study also revealed that 72 percent of consumers believe it's important their avocados are grown in the United States. In 2008, the year before the "Grower" campaign debuted, that number was 54 percent. People actually checking for country of origin also has reached an all-time high, increasing from 30 percent to 45 percent in just two years. While this is encouraging, 4 out of 10 respondents who do not regularly check for country of origin noted they don't do so because of poor labeling. The challenge remains to develop a labeling system that makes it easier for consumers to identify country of origin.

A long-time, overarching goal has been to expand per capita consumption of avocados. When the study was started in 1994, usage was classified into three categories – *light* (less than 12 avocados per year), *medium* (12 to 36 per year) and *heavy* (37 or more). The percent of users was

almost evenly split between the three groups. Since then avocado usage and consumption has grown by such large margins that in 2007, the heavy group had to be split into two sub groups – heavy (37-119 per year) and super users (120 or more). Today there has been almost a fourfold increase from 28 percent to 83 percent of respondents who now fall into either the heavy or super user categories.



Much of the growth in avocado consumption can be attributed to the Commission's promotions surrounding avocado usage during the summertime. Sixty-five percent of consumers served avocados for their summer holiday festivities in the past year, up from 58 percent in 2012. Summer parties, BBQs, picnics, Cinco de Mayo, Memorial Day, Independence Day and Labor Day all play a significant role in boosting summer consumption numbers.

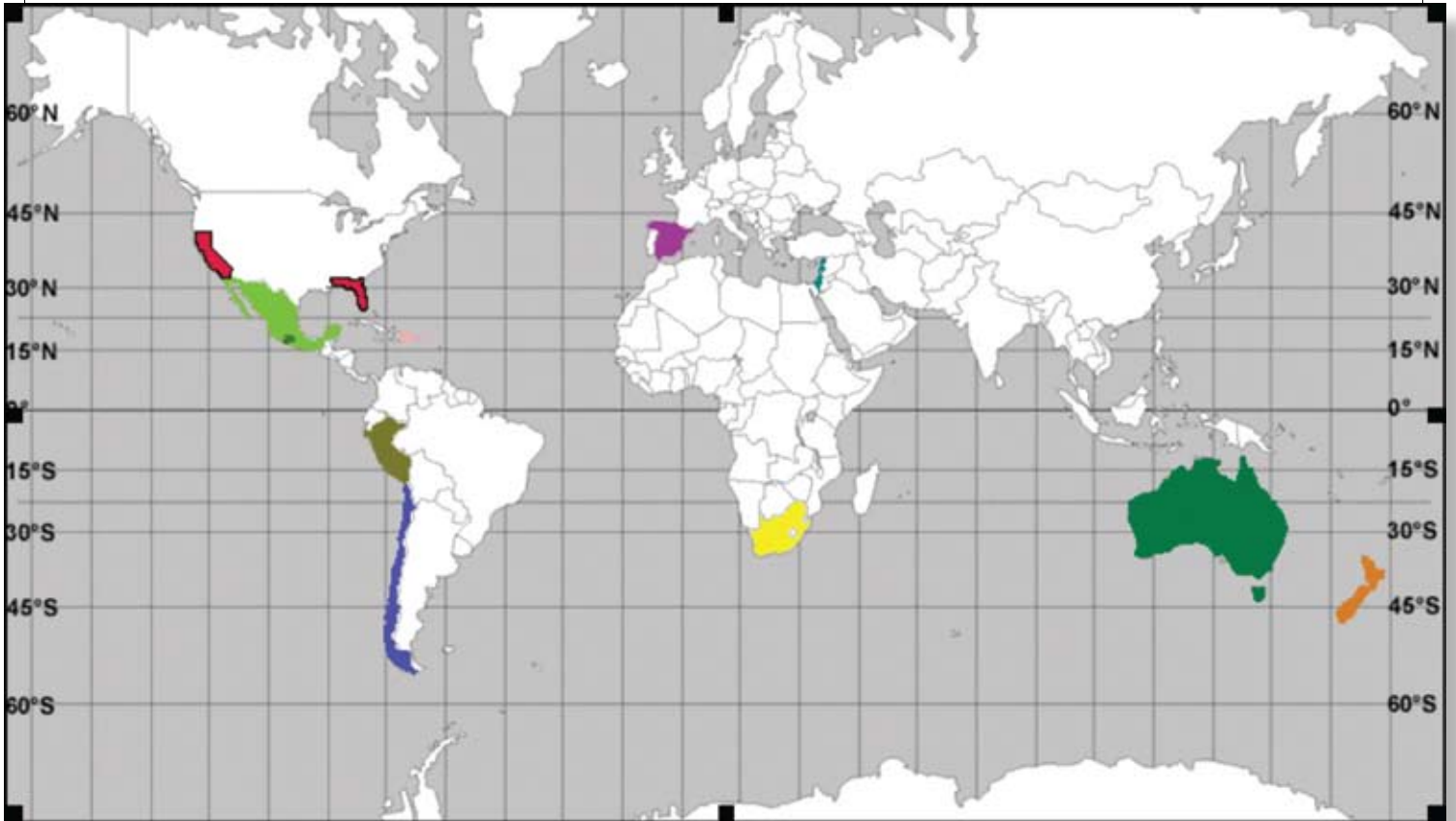
check country of origin during the purchase process
% within Ad Markets



Ways More Likely to Serve Avocados vs. Last Summer
(A lot more/a little more likely)



The results of the 2013 avocado consumer tracking study continue to validate the effectiveness of the Commission's marketing efforts. The tracking study demonstrates the impact advertising has had in bolstering California avocados into the most premium position in the marketplace. The study will be run again in September after the 2014 season to continue the evaluation of California avocado branding and marketing efforts.



Avocadosource.com: Offering Information to the Industry

By Tim Linden

Trying to figure out how much fertilizer or water to put on your avocado grove? Interested in the latest news about nitrogen applications from South Africa? Want to research a topic that was covered at an avocado symposium held in Spain a few years ago?

This information and much more is available at www.avocadosource.com, a website established and maintained by California grower Reuben Hofshi and The Hofshi Foundation. It is free of charge to anyone interested and is filled with a mountain of information. In fact, Hofshi said the site has more than 110,000 visitors per month and the average time spent by each visitor exceeds four minutes per visit. The amount of data downloaded is over 70 gigabytes per month. While visitors from some of the more common production areas such as California, New Zealand, Australia, Chile and Israel have long availed themselves of this

resource, Hofshi said the trend is toward a growing number of visitors from non-traditional but developing areas such as India, China, the Philippines, Vietnam and Iran.

His philosophy is “come one, come all” to learn about avocados and become a better producer. In fact, Hofshi bristles at the thought that anyone should charge for this information. Occasionally, he is delayed from downloading published papers or symposium reports, and that fact obviously rubs him the wrong way. “How can information be anything but free and timely,” he said.

Hofshi began dreaming about growing avocados decades

ago in the jungles of South America. He eventually moved to Fallbrook with his family in 1975 and began a lifelong love affair with the avocado. In those early days, he traveled to the University of California at Riverside seeking out information and became a determined student of the avocado. He joined research groups, attended symposiums and organized a few. Over the years, he amassed quite a bit of information and began thinking about ways of aggregating this information and getting it into the hands of many.

In the mid-1990s, the Australian avocado industry compiled some literature, AvolInfo, and placed it on a disk for sale. Hofshi didn't like that people had to purchase the information and thought it was too cumbersome and difficult to update. He decided to launch a website that might become the industry library for everything avocado.

"I began with the permission from the California Avocado Society to scan all of the CAS yearbooks and put them on line. Then I added the proceedings of the World Avocado congresses and the information from symposiums, older research and a very large number of slides provided by the authors from many countries."

With the help of Dr. Mary Lu Arpaia he contacted researchers and avocado groups all over the world and set about the task of putting that information on the website. All of the annual reports of research projects funded by the California Avocado Commission are there, as are all the annual research reports from New Zealand and South Africa. He has been able to collect quite a bit of information from Chile, Israel, and Australia, but he said the site is lacking a full body of work from Mexico. Over the years Hofshi has also developed several original tools such as the fertilizer and water calculators, as well as tools calculating nutri-

ent removal by the harvested avocados, analyzing mineral content of irrigation water and determining the amount of salts deposited by irrigation water. His collaborator on the website and for many of these calculator program is his son Shanti – "My computer guy" is how Hofshi puts it.

Moving forward, he would like to improve the search function on the site and also wants to continue converting all the documents to a PDF format for easy readability and searchability. Hofshi estimates that he has spent in the neighborhood of half a million dollars on development and maintenance of avocadosource.com since its launch 13 years ago. "Initially we spent a lot of money just scanning documents, proof reading them and putting them on the site."

He or his son is on the site frequently updating it, adding information or answering inquiries. He is especially proud of the fact that the site is purely educational with no hint of commercialism at all. His drive seems to be fueled by his early days looking for information. "Because I was an hour away from UCR, I could just drive over there and get a lot of information," he said. "Others can't do that. I want them to have the opportunity to access the same information and much more."

For the most part, he said researchers all over the world know about avocadosource.com and use it on a regular basis. But the same isn't true for growers. Anecdotaly, Hofshi often hears that many growers, even in California, do not know that this valuable resource exists. He is obviously prejudiced as he has compiled the information himself, but a cursory look at the site would convince almost anyone that it is chock full of information. 🥑

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Best Pruning Practices to Help Control Branch Canker and Stem-End Rot

As winter approaches, California avocado growers are preparing to prune their groves. Winter pruning helps to devigorate the trees, control tree size and shape. Pruning in January and February can also promote shoot-flush during fruit set, prompt early fruit development and delay leaf hardening. Recent research indicates another reason for pruning this winter — minimizing branch cankers and stem-end rot by removing inoculum from the canopy. However, pruning must be avoided during or shortly after periods of rain to reduce the spread of pathogen propagules.

Branch Canker and Stem-End Rot Pathogens

According to a new research report from Dr. Akif Eskalen's group at UC Riverside, the majority of fungi that cause avocado tree branch cankers are the same as those that lead to stem-end rot. Previous branch canker research conducted in Southern California indicated that "82 percent of the fungi associated with avocado branch cankers belonged to the Botryosphaeriaceae, with *Neofusicoccum luteum* and *N. australe* being the pre-dominant species."

The latest research confirmed that stem-end rot and branch canker isolates of *N. luteum* caused similarly severe cases of stem-end rot. While there has never been a reported case of avocado stem-end rot caused by *N. australe*, the researchers did find it to be "highly virulent" when they



Dieback symptom on an avocado branch

conducted stem-end inoculations of avocados. These findings led the researchers to conclude that branch cankers can be a source of pathogens for stem-end rot, that there may be species not detected in their survey that could lead to stem-end decay, and that pathogens from stem-end rot lesions could conversely lead to branch cankers.

Signs of Disease

Avocado tree cankers occur on twigs, branches or trunks and are caused by fungal pathogens that enter through wounds on the bark surface, caused primarily by pruning, frost damage and mechanical injury.

Avocado branch canker symptoms include:

- Reddish sap that dries to a brown and white powder
- Cracked, darkly discolored, or slightly sunken avocado tree bark

- Bark may be friable and easily removed from older cankers
- Under the canker, inner bark and wood is red-brown to brown
- When an avocado tree branch is cut, a characteristic wedge-shaped canker extending deep into the xylem may be visible
- Limbs may collapse, and leaves may turn brown and show leaf scorch

While fruit is exposed to the stem-end rot pathogens contained in living and dead branches, twigs, leaves, stems and soil, most infections and symptoms do not occur until after harvest when fruit have a reduced concentration of fungal inhibitors. The first sign of stem-end rot is shriveling around the base of the stem. Fruit typically then decays, becomes discolored, and softens.

Because California has low humidity and rainfall during the grow-

ing and harvest seasons, stem-end rot has remained a minor problem. However, losses can be heavy during rainy harvest periods and early-season spring harvests. High humidity results in stem-end rot inoculum and if fruit is harvested when it's raining, the inoculum can be spread by rain splash, wind and shaken branches. Contaminated harvest tools can also spread the spores.

Integrated Disease Management

Because of the potential impact branch canker disease can have on the occurrence of avocado stem-end rot, the researchers stress the importance of integrated disease management in groves.

In the United States, preharvest and postharvest fungicide applications have not been successful. The following cultural management practices may help minimize incidences of branch canker disease and stem-end rot:

- Prune and harvest only when it is dry
- Prune out dead limbs and twigs where the pathogen pycnidia (spore forming structures) exist
- Apply pruning wound protectants to open wounds
- Dispose of dead wood and old fruit away from avocado groves
- Sufficiently irrigate the grove
- Manage nutrients for optimal health
- Harvest fruit by clipping, not snapping stems
- Frequently sterilize clippers with either 25 percent household bleach or 70 percent ethanol or Lysol
- Store harvested fruit at optimal temperatures

Pruning Basics

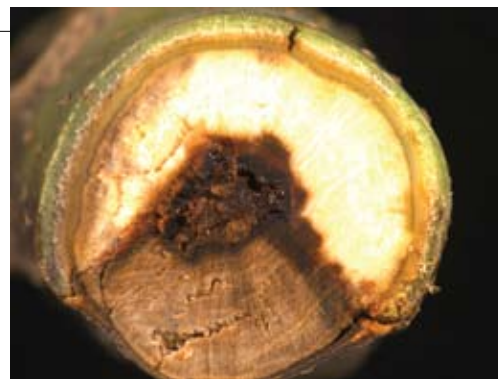
As growers prepare to prune their groves this winter, it's important to review pruning basics. Hygiene is always important, but when pruning diseased avocado trees hy-

giene is especially important. Pruning tools should be cleaned regularly, and sick – or unhealthy – trees should be pruned separately from the healthy trees in order to prevent the spread of diseases. Be certain to dispose of infected prunings away from the grove.

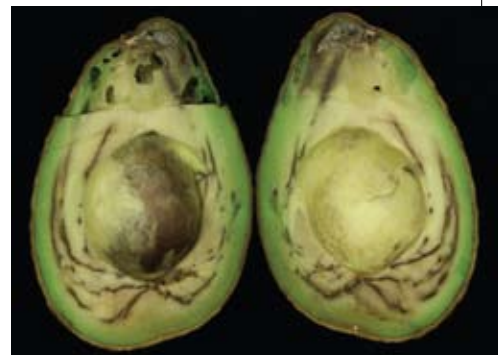
General avocado pruning principles are:

- Prune horizontal branches developing low to the ground, as these interfere with tree access
- Push enough light into the tree interior, by cutting “windows” in the canopy
- Trees grown on slopes should be pruned to a lower height than trees on flat land
- Space the main limbs three to four feet apart, to allow access inside the tree
- Rejuvenation can require cutting the tree back to the main trunk; however, don't expect production in the second year
- Eliminate 'v-type' crotches, as these are mechanically weak and prone to developing rots
- Remove dead wood, as much as possible
- Make major cuts clean, and in line, with the trunk contour
- When renovating a grove, aim to remove large, interfering — and low-lying — laterals, badly crossed limbs and split crotches
- Pruning needs to balance the side-shoot growth and remove strong, upright water shoots
- A conical, or pyramidal, tree shape enables good light interception and minimizes unproductive bare areas
- Constant attention to pruning detail, with small cuts at the correct time, minimizes need for additional major pruning cuts

Removing branch cankers this winter may decrease stem-end rot incidences and thus help ensure a healthy volume of 2014 premium California avocados. 🥑



Cross section of an avocado branch showing wedge shape wood canker symptoms extending into the xylem tissue.



Internal discoloration symptom of stem end rot on an avocado fruit

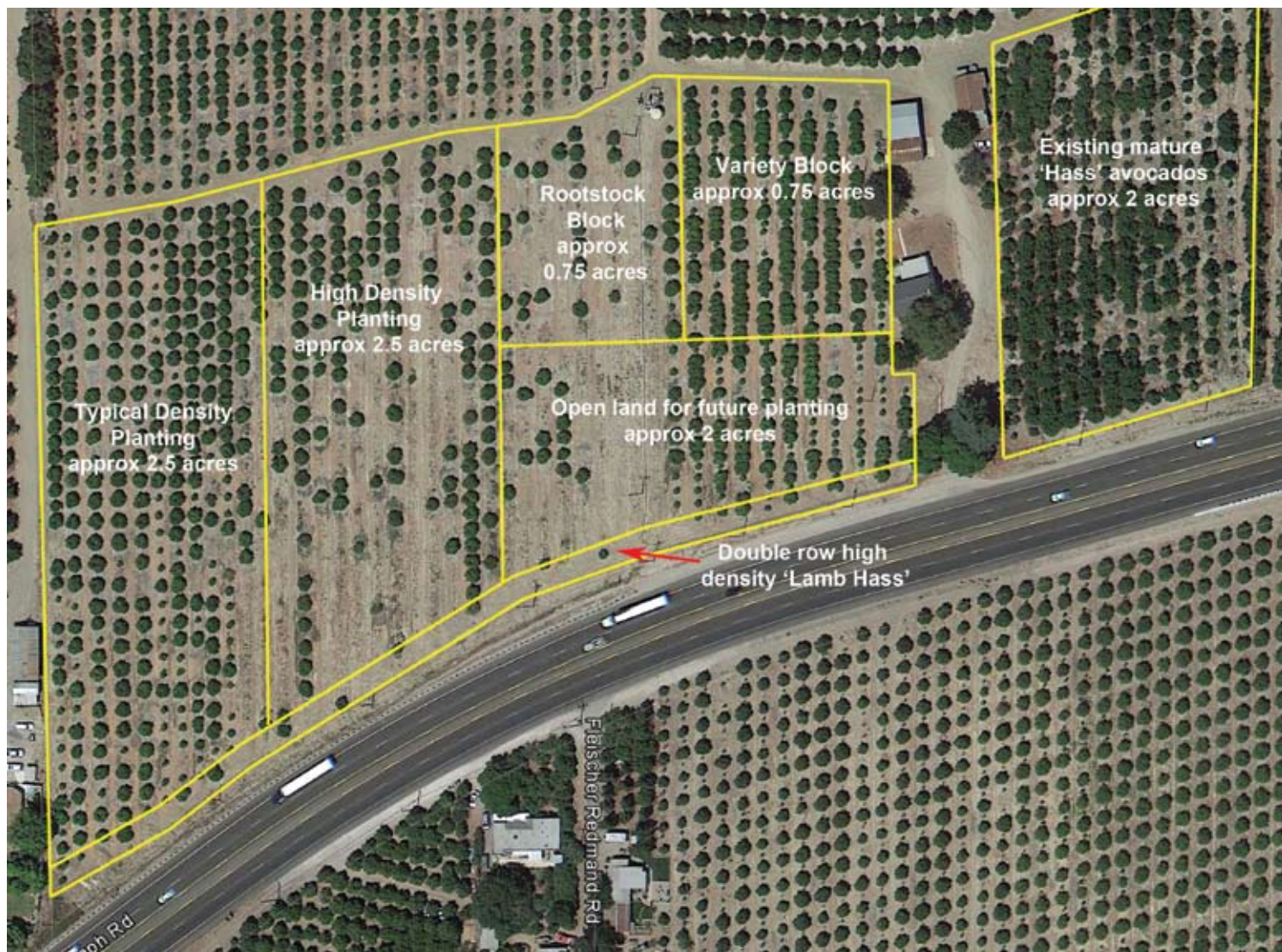


Stem end rot symptoms of avocado



Branch canker extending into the xylem tissue

Photos by Akif Eskalen (PhD), Department of Plant Pathology and Microbiology, University of California, Riverside, www.eskalenlab.ucr.edu



Pine Tree Ranch Demonstration Grove

By **Tim Spann**
Research Project Manager

On July 1, the California Avocado Commission formally leased 11 acres from the Cal Poly Pomona Foundation at the 60 acre Pine Tree Ranch research orchard on Highway 126 near Santa Paula for use as a demonstration grove. The 11 acres consisted of about two acres of established avocados and about nine acres of lemons, which have already been removed and chipped to make way for more avocados.

The grove is intended to be a place where cultural management principles and practices can be tested and dem-

onstrated, rootstock and fruit varieties can be planted, and various types of equipment can be evaluated. As the demonstration grove is developed, grower field days will be held at the site and updates on various projects will be published in *From the Grove*. The projects will be managed by CAC staff with the assistance of a grove management company. Oversight will be provided by an advisory group of industry members from Ventura County along with a representative from Cal Poly Pomona.

The advisory group met in late September and came up

with a list of plantings that could be established on the former lemon acreage that would be useful for growers. The plan that was developed from this includes planting a double row screen of high density 'Lamb Hass' trees along the front of the property, a block of standard density 'Hass' trees, a high density block of 'Hass' trees, a variety block, and a rootstock block.

The standard density block will be composed of 10 rows of 'Hass' trees on a combination of 'Dusa' and 'Toro Canyon' rootstocks. The trees will be spaced 20 feet by 20 feet, which is an historically "typical" planting density in the area. The first five rows will be planted on flat ground, the second five rows will be planted on berms, and the rootstocks will be distributed among the two planting systems. The trees in this block can be used to demonstrate tree planting technique, training and pruning practices, as well as irrigation and fertilizer practices.

The high density block will be planted with 15 rows of 'Hass' on 'Toro Canyon' rootstock. Based on the advisory groups' input and experience in the area, it was determined that 'Toro Canyon' is the best rootstock for this specific grove. The block will consist of three sets of five rows spaced 20 feet, 15 feet and 10 feet apart. The within row spacing will vary along each row, from 20 feet to 15 feet to 10 feet. This will result in nine different spacings: 20x20, 20x15, 20x10, 15x20, 15x15, 15x10, 10x20, 10x15, and 10x10. Since the 20x20 foot spacing will be well replicated in the standard density block, another spacing (e.g., 20x7.5) may be substituted in its place. The block will allow growers to see how increasing density with row spacing, tree spacing or the combination of both affects tree growth, yield and grove management.

When considering planting variety and rootstock blocks, the advisory group was adamant that the blocks be composed of genotypes that are currently available to growers. We want to be certain that if a grower attends a field day and sees something they like, they could order it from their nursery and have it in their grove. With these criteria in mind, the group identified Dusa, Toro Canyon, Duke 7, Borchard, Uzi, Stedham, Zentmyer and Mexican as rootstocks to have in the block. All will be grafted to Hass for the sake of uniformity and so growers can better compare differences in tree form, growth habit and traits among the rootstocks.

The fruit varieties identified are Hass,

Bacon, Ettinger, Fuerte, Gwen, Lamb Hass, Pinkerton, Reed, Sharwil, Zutano, Carmen, Gem, and Leavens Hass. Again, for the sake of uniformity and ease of comparison all these varieties will be grafted onto Toro Canyon rootstock. Ideally, this block would include all of the fruit varieties planted on all of the rootstocks, but unfortunately our space is too limited.

This current plan will utilize about seven of the nine acres that are open. This will allow room for future expansion of the rootstock and/or variety blocks, or planting a new block for a purpose that we have not yet thought of.

We will be holding our first grower field day at the site on Thursday, January 23, from 10:00 a.m. to noon. There will be presentations on fertilization practices and pruning for disease management, as well as hands-on pruning demonstrations. Stay tuned to the *Greensheet* and the CAC grower website for more details.

Through Pine Tree Ranch, the Commission is looking forward to more in-field interaction with growers, and the opportunity to get undergraduate and graduate students interested in avocados through Cal Poly Pomona. The demonstration grove will also be available for researchers as a place to demonstrate the application of their research findings. 🥑



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Regional Trade Shows Provide Unique Venues for Retailer Education

California Avocado Commission participation in select trade shows provides cost-effective outreach to regional and independent retailers

The California Avocado Commission merchandising staff educates retailers about the competitive advantages of stocking and promoting California avocados in season. They do so via in-person meetings with key retailers as well as participation in trade shows and other events. Regional trade shows provide CAC with excellent venues to engage with local retailers and reach many independent retailers – some of whom do not attend the annual national produce shows. Regional expos also provide an opportunity to educate produce managers and other store-level personnel in a cost-effective manner.

Most of the regional trade shows that CAC participates in occur before and during the California avocado season, allowing staff to demonstrate CAC merchandising aids such as display bins, recipe booklets and point-of-sale materials that can help the retailers promote California avocados. At many of these shows CAC uses a “pop-up” booth with graphics that call attention to premium California avocados. The merchandising team talks to retailers about the California avocado fresh-to-market advantage, handling and merchandising best practices, and fuels the fire for California avocado-branded retail ads and displays through ad and display contests.



These expos provide CAC with an excellent opportunity for networking and relationship building. The Fresh Produce and Floral Council (FPFC) is a regional association dedicated to creating business opportunities for the industry, including luncheons, golf tournaments, family-friendly events and one-day trade shows. Based in Southern California, the FPFC also holds events in Northern California and its member companies hail from all over the country. FPFC has an expo in Northern California in April and in Southern California in June.



*Carissa Mace,
President of the FPFC*

In recent years, CAC has attended the FPFC shows and sponsored activities while also meeting with retailers on the show floor. In the north, CAC Retail Merchandising Director (RMD) Dave Howald and other CAC staff have met with headquarters personnel from Food 4 Less, Grocery Outlet, Mollie Stone's, Nugget, Rally's, SaveMart, Safeway Corporate, and more. In the south CAC RMD Connie Stukenberg and other CAC staff have networked with retailers including Albertsons, Gelson's, Ralph's, Stater Bros., Vons and Southern California independents.

In 2014 CAC will expand its presence by having a booth

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"The FPFC Expos are the only regional produce and floral industry trade shows in California, and are designed to be compact, allowing attendees to meet with all of the exhibitors in a single day," said Carissa Mace, president of FPFC. "That compactness is crucial to the success of the events, because it allows retail and foodservice personnel from every level to spend the day meeting with vendors, seeing new products and learning about upcoming promotions."

Regional trade shows in outer markets help CAC reach retailers whose shopper demographics are a good fit for California avocados. CAC generally sponsors a high profile activity and staff members network with the attendees. RMD Cece Krumrine engages with retailers at the New England Produce Council Expo held in the Boston area. In 2013 CAC sponsored the parking for the event, which allowed for an opportunity to provide information about CAC's 4th of July promotion. Krumrine attends the New York Produce Show as well. In the center of the country CAC representatives network with retailers at the Midwest Produce Expo, which was inaugurated in Chicago in August 2012.

The Commission also participates in

targeted grocery wholesaler and retailer shows. In February 2013, CAC exhibited at the National Grocers' Association show in Las Vegas. CAC's booth was part of the Produce Marketing Association's "Produce Pavilion". Independent retailers from across the country attended the three-day show, which included educational sessions as well as the exhibit booths. CAC's Jan Delyser was a speaker at the event, and shared with the retailers how country of origin point-of-sale materials and on-package identification encourage sales of California avocados.

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The Unified Grocers show, which was held in Long Beach this past June, attracts many independent retailers from the West Coast, including El Super, Mollie Stone's and Vallarta Supermarkets. CAC Marketing Development Manager Dave Cruz educated retailers about California avocado merchandising best practices and marketing programs, including demonstrations of bins and other materials available in Spanish.

Retailers' own shows offer another opportunity for CAC staff to meet with store-level produce managers and encourage them to build the best displays of California avocados. H.E.B.'s show and Kroger's show in Houston were highlights in 2013.

Regional trade shows are valuable tools in CAC's marketing toolbox. They provide a cost-effective means to engage with many produce decision makers in a cost-effective manner. The shows allow CAC to reach many independent retailers and store-level personnel that the Commission would otherwise not have the manpower or time to meet individually. Participation in targeted regional trade shows



Pop-up booth used by CAC at regional trade shows

helps CAC spread its marketing messages while also showing support for local retailers and the produce community. 🥑



Food Banks Interested in More Avocados

By Tim Linden

Over the past decade, the amount of fresh produce distributed by food banks in California, as well as across the country, has increased significantly. Nationwide about one-third of all food distributed is fresh produce. In California the figure is even higher. “About half of what we distribute is fresh produce,” said Steve Linkhart, director of logistics for the California Association of Food Banks, which has its office in Oakland, CA.

The association represents 41 of the 49 food banks in the state. It often is the clearing house for donations, directing those food donations to the specific food banks that can use them on that particular day or week. Food banks have improved their efficiency, productivity and professionalism. They are distributing more meals and are working with donors on a very organized basis.

Linkhart said his group can arrange pickup and delivery and can also pay the grower a small picking fee if need be. He said that fee is only five to 10 cents per pound. While that will not cover the cost of picking, it might tip the scale in the favor of donation in some circumstances. The California Association of Food Banks calls its agricultural efforts the “Farm to Family” program. Linkhart said the organization strives to make the process easy and efficient for all involved.

He said avocados are not an item that is often found at food banks but he makes the pitch that they should be. “If you can get these people who are down on their luck to eat avocados now, they will buy them when they can afford them later.”


Linkhart added that a hard avocado that isn’t going to ripen for 3 to 7 days is perfect for the food banks because it gives them an opportunity to position the fruit where it is needed without risk of it spoiling.

Echoing sentiments made by others, Phil Henry of Henry Avocado Corp., Escondido, CA, admits that donating avocados from the packing line to food banks is not something that happens very often. “Typically we don’t have any spoiled fruit like they might have in other commodities,” he said. “We do have buyers for every class of fruit. Even the fruit that is too ripe finds a home.” And for the growers that ship through Henry Avocado, the company’s president

said “we do a gleaning pick at the end of the year. What’s left is almost zero.”

Chris Dryden, regional manager for the field department for Mission Produce in Ventura County, is also a board member for that county’s food bank called Food Share Inc. The organization runs more than 100 pantries (typically a church location) in the county where individuals and families in need can come once or twice a week to pick up some free food. Last year, Dryden said Food Share collected 10 million pounds of fresh produce from local growers. He said not much of it was avocados but “from time to time we do get some avocados.” He said weather issues are typically the cause. “Last year we graded out a grove from a large grower that had gotten some freeze damage. When we finished, we told him he could either dump it or donate it and get the tax benefit. He ended up donating three bins of fruit to Food Share.”

He said another time a load coming into the port was rejected and diverted to the local food bank for some spotting issues. Because of food safety and other regulations, Dryden said the time has passed when a gleaning crew could follow a commercial crew into the field and take what’s left for charity. “But we still do what we can,” he said, urging other growers to follow suit if a situation arises that takes some avocados off of the commercial market.

Linkhart understands the challenges but agreed that if circumstances arise that would leave a grower or packer with any excess production, the California Association of Food Banks would happily take it off your hands and give you a tax-deductible donation receipt for the fair market value of the fruit. The State of California provides a 10 percent tax credit for fresh fruits and vegetables donated to food banks. California Form 3811 can be submitted with your tax returns to claim the earned donation credit. Linkhart said it is best to call the statewide association as it is in touch with the local organizations on a daily basis and knows where the needs are. 

(California Association of Food Banks and its member food banks can be reached via its website: cafoodbanks.org or by phone: 510-272-4435.)

Grower Profile



Ralph Foster Sees Industry from Unique Perch

By Tim Linden

Fallbrook has been home to Ralph Foster for most of his 73 years...and he has spent virtually all the time involved with avocados.

He has planted trees and picked fruit. He has been a packer and a salesman. He has sold avocados from the back of his truck on the Los Angeles market and from his own packing shed. He has worked with both conventional and organic fruit. And he has bought and developed several groves as well as selling scores more as a successful realtor.

Foster knows the avocado industry from many angles.

"I was born in San Diego but by the time I was five we were living in Fallbrook and my dad was in the avocado business," he said.

In fact, his father had learned about avocados from Ralph's grandfather who had a dozen acres or more of avocados in the El Cajon area in the 1920s and '30s. Ralph's father initially was attracted to the dairy industry but it was in 1945 that he moved to Fallbrook and bought a grove.

"When I was young I'd work in the grove and by the early 1950s I was driving up to the L.A. Market and selling the fruit to wholesalers on both the Seventh Street and Ninth Street markets. His list of buyers reads like a who's who of the mid-1950s L.A. produce industry: "Eagle Produce, Hall, Hass & Vessey, Perricone Citrus...all the big guys."

The Fosters sold through several different packers but eventually started the Foster Avocado Company. Ralph bought out his father in the '60s and continued the company well into the 1970s. "We were one of the first companies to use bins," he said. "I used a 3 (foot) by 4 (foot) bin because you could fit it in the back of a pickup truck," he said.

Though he kept his grove, in the mid-1970s Foster sold the

packing shed to another company and got into the real estate business. Today he specializes in agricultural land, especially avocado groves. But he is still a grower with a 12-year-old grove of 25 acres that is a certified organic grove.

"I typically sell to two or three different packers each year," he said.

He called this year a breakeven season as he averaged 10,000 pounds per acre at an average

return of \$1.57 per pound. "My costs are a lot higher (than a conventional grower)," he said. "There are only a couple of materials (crop protection tools) that I can use on my groves. Every time the helicopter flies over for a half-hour of work that costs me \$1,000."

Foster said his materials costs for those acres average about \$2,000 per acre. He has both well and district water with district water making up about 70 percent of the total on an average year. The amount of rain that comes has a great impact on that number and this past year he said he was never able to turn off the district water spigot.

He considers himself an innovator and an experimenter. "I am trying new things including experimenting with high density planting and different pruning techniques to get more pounds per acre. There is a tremendous amount of research out there to help us improve per acre production.



Ralph Foster



We also need a way to get rid of the cycling tendencies of the trees.”

In some cases, he said that involves unburdening the trees of a big crop one year so that they can still produce next year. “Some of the old gals (trees) out there are putting 500 to 1,000 pounds on them. You’re not going to keep a tree healthy with that much weight.”

Foster is bullish on the future of the California avocado industry because he said, “We have the best tasting fruit. We start picking those Hass avocados in February to March, and into July and August, we still have great tasting fruit, at least in this area. I feel sorry for the Chilean growers. They have to pick it early and put it on a boat for two weeks. By the time it hits the grocery shelf it can be four weeks old and cutting black if you’re not careful.”

But Foster certainly knows there are challenges facing North San Diego County growers, especially water costs. “If you don’t have natural water, it’s going to be tough to compete. We are going to have a water rate increase this year (2014) and it’s going to be tough for a place like Valley Center (with little natural water) to survive. I’m not sure it will still be producing four or five years from now.”

He said some areas will be profitable but you have to have a combination of water sources, including well, reverse osmosis and district water. As a Realtor, he has noted that the per acre price of avocado land has come down significantly because of the water situation. Several years

ago, he said the best acreage could command as much as \$35,000 to \$40,000 per acre. “In this past year, the best I’ve gotten is \$25,000 for a prime grove. The average is between \$17,500 and \$20,000 with distressed groves going for \$7,500 to \$15,000. But you have to watch out for those because you are going to lose some trees.”

Despite the challenges, Foster said there is a waiting list for groves of 10 acres and less. “I can’t keep an inventory of 10 acres and smaller.”

He said lots of people see themselves as farmers and an avocado grove offers them that opportunity without the labor-intensive needs that accompany other agricultural crops. A grove owner can hire a grove manager and be a gentleman farmer, so to speak. “There’s no crop better,” Foster said.

As far as 2014 is concerned, he expects it to be a very good year for his grove. Though many are seeing a much lighter crop than this year, he said his trees have rebounded nicely. “I expect 20,000 pounds per acre,” he said.

That would break his record of four years ago when his trees yielded an average of 18,000 pounds per acre. Though he admits that real estate is now his number one pursuit, being an avocado grower “is in my blood. I am still very active in the industry. I’m close friends with at least half the Board (CAC) members and I know most of the groves in the area. I feel like I have been here since the beginning of time!” 🥑

HAB Update

Nutrition Research Focus Paying Dividends

By Tim Linden

The Hass Avocado Board (HAB), which is in its 11th year of operation, continues to focus its efforts on nutrition research and communicating the healthful benefits of avocados to U.S. consumers.

The Board is the umbrella organization for the various regional groups that make up the volume of avocados sold in the United States. Those groups include the California Avocado Commission, Avocados from Mexico, the Chilean Avocado Importers Association and the Peruvian Avocado Importers Association. According to the U.S. law establishing the marketing order for avocados sold in the United States, each of those individual groups receive 85 percent of the assessments generated on their volume to basically conduct origin-specific marketing programs. HAB operates on the other 15 percent and has focused its attention on nutrition research.

HAB Executive Director Emiliano Escobedo said that research is starting to pay dividends as studies are published and research efforts refined. As of the date of this publication, three nutritional studies have been published and two more should be published in the first quarter of 2014.

Escobedo said the research is suggesting a link between increased avocado consumption and improved health. For example, an epidemiological study that delved deeply into data concerning the eating habits of 17,000 people, found that those people with the greatest avocado consumption had significantly lower weight, lower cholesterol and were generally healthier eaters. The study does not draw a direct link between a specific food and health outcome, but it does strongly suggest that above-average avocado consumption is very consistent with a healthier diet.

Another study, conducted by UCLA researchers, specifically measured the impact eating a half of an avocado had on blood flow. Two groups were studied. One group ate a hamburger while the other group ate the exact same hamburger but this time it included a half of an avocado. The half of avocado added about 100 calories and 12 grams of fat to the meal. One might expect that blood flow to the heart would decrease as that is the typical cardiovascular action after a high fat meal. In fact, the group eating just the hamburger did experience a decrease in blood

flow. The group with the added avocado ingredient maintained normal blood flow.

Escobedo said this research was very interesting and it will be built upon with additional studies looking at the avocado's impact on cardiovascular health.

He added that because of its limited budget, HAB is very careful concerning the projects it funds. A building block approach is very consistent with the Board's goals and criteria. "As we consider funding nutritional

research we are guided by two goals," he said. "First we want it to have a high likelihood of success based on previous research. We are looking for positive outcomes. We recognize that we have to respect the science and if the research is not positive we do understand that."



HAB Nutrition Research Program Director Dr. Nikki Ford

He said secondly the research project needs to have more than just a positive outcome, it needs to be the type of research that is relevant to consumers and will motivate them to eat more avocados.

That of course is one of the major goals of the Hass Avocado Board. Escobedo said increased consumption is the key to the Board's expressed goal of increasing the profitability for growing avocados in all regions that sell their fruit in the United States.

To help on the nutrition end, HAB recently hired Dr. Nikki Ford as the director of the nutrition research program. Dr. Ford will oversee the research and interface with the researchers as well as HAB's marketing agency, which is charged with communicating the successful health story to consumers.

tion was part of HAB's assignment. "Now we have an ex-officio (non-voting) member from each producing region come to our board meetings and take part in all of the discussions. We have a representative from CAC as well as Chile, Mexico and Peru."

Escobedo said this involvement has created a much more cohesive and inclusive board that has better information on which to base its research project decisions and marketing efforts. At each board meeting, he said the ex-officio members give a country report where they talk about the crop as well the successes and challenges the industry in that specific country faces. "This has been a tremendous help as we sit at meetings and talk about plans moving forward; it is great that we can talk to people with skin in the game and truly get a global perspective."

With the view that information is critical, HAB has embarked on another journey to increase the transparency in the industry. Building on the experience that the California Avocado Commission gained with its informational system, AMRIC (Avocado Marketing Research and Information Center), HAB is creating a similar system with greater global emphasis. "AMRIC is a great success story," he said. "Making it global is a challenge, but we are very, very close to achieving that."

He expects the voluntary system to debut sometime early in 2014. The system will have both supplier and marketer components. Participants will be expected to report only accurate information regarding supplies and sales. "We are currently creating the rules of the game. It is authorized under the law but it can't be misleading," Escobedo said.

Only those who participate will have access to the information generated. Escobedo is hopeful that a critical mass of suppliers and marketers will participate, which will increase the accuracy of the information. He said all indicators point to a continued increased in avocado consumption in the United States and the more information that growers and marketers have can only help in that effort.

Speaking of the U.S. consumption curve, Escobedo said he remains very bullish on the future for two very important and interrelated reasons. In the first place, the Hispanic population in the United States continues to increase. That population is also rapidly growing its per capita income. So you have a population that is growing and has more money and is already sold on the avocado.

Secondly, he said the U.S. population in general is moving toward a more healthy diet, which is another plus for avocados. Though HAB expects avocado consumption in the United States in 2014 to be fairly close to the 1.7 billion pounds consumed in 2013, Escobedo said that is more of a function of the fact that California is expected to have a much smaller crop in 2014. Long term he sees consumption increasing, and topping the 2 billion pound mark fairly quickly. "Maybe in 2016," he predicted. 🥑



As part of that communication effort, HAB has adopted a new marketing message that it is encouraging the regional groups to adopt as well. "'Love One Today' is our new message," said Escobedo.

He said the marketing strategy is designed to promote the science but also to create an emotional connection with consumers. He said consumers that eat avocados do "love" the fruit. They have a visceral connection with the avocado and HAB wants to connect the healthy messages – contains naturally good fat and is cholesterol free – with that positive attitude to begin with. "We want them to 'Love One Today,'" he repeated.

Operationally, HAB believes it has been very successful in strengthening its rapport with all the member organizations. Legally the Board is made up of seven California avocado growers and five importers representing the various points of origins where avocados sold in the United States come from. For the first many years of operation, there was no effort to connect with the producers from the exporting countries, even though representing that produc-



Commission's GAP Program Continues to Build Momentum

By Ken Melban
Director, Issues Management

In just two years the California Avocado Commission's Good Agricultural Practices (GAP) program is yielding very impressive results, with more than 600 California avocado groves having gone through GAP certification representing more than 30 percent of the industry.

In addition, under the Commission's GAP Incentive Rebate, \$100,000 has been paid out to GAP-certified growers for their actual audit cost. And, based on the large number of growers who participated in the most recent CAC-GAP workshops held the first week of December, all indications are for the success to continue.

"It's encouraging that growers are realizing the impor-

tance of becoming GAP certified and taking the necessary steps," said CAC President Tom Bellamore. "GAPs are increasingly important to our foodservice and retail partners, and certification is essential to our premium positioning strategy because it demonstrates our commitment to deliver on our quality promise."

This was the third series of GAP workshops hosted by the Commission since the launch of the program in November, 2011, and for the first time growers were offered a unique opportunity to hear directly from a major buyer of California avocados. Colista Yates, who is senior manager for global quality assurance for Brinker International, which

owns Chili's and Maggiano's Restaurants, spoke candidly about her company's commitment to food safety and its expectation for approved suppliers to be GAP certified.

"It was enlightening for us (growers) to hear first-hand what a major buyer like Chili's expects in terms of our food safety practices," said Art Bliss, Somis grower and California Avocado Commission Board member. "I now have a clearer understanding of why GAPs are important, not only to ensure the safety of our fruit, but also to help protect the strong Hand Grown California avocado brand."

Over the last few years GAP certification of growers has become increasingly important to consumers of fresh produce due to some high-profile food safety incidents, a few of which resulted in death. In addition, the Food Safety Modernization Act (FSMA), passed in 2011, places responsibility for the safety of all produce sold in the United States on the Food & Drug Administration (FDA). Once finalized, FSMA regulations will require growers to demonstrate compliance. Based on the FSMA Draft Rule, growers who are certified against the CAC-GAP program would likely fulfill the necessary requirements.

Although avocados are considered a low-risk commodity that haven't been directly linked to any microbial outbreaks, there have been illnesses involving fresh guacamole. This can result in a "guilty by association" situation, where avocados, the key ingredient in guacamole, may be recalled along with the other produce items found in the guacamole, most of which have historically shown a great-



er probability for microbial contamination. If a food safety emergency were to occur that implicated avocado as one of the suspects, it could help shift the focus away from avocados if, during the initial FDA trace back, it was discovered that a GAP program was in place beginning with the farm. Ultimately, any food safety issue linked with avocados, regardless of the country of origin, could cause significant market disruption for California avocados, but the overall impact may be mitigated if GAPs are in place.

Remember, GAPs are intended to protect people and communicate to our customers that thought and actions have gone into minimizing the potential for contamination by pathogens. GAPs allow us to ensure the public that California avocado industry practices are safe.

If you have not yet become GAP certified I would strongly encourage you to consider taking that step. Many growers find as they go through the GAP certification process that they just need to document their current practices. Most of the handlers can provide assistance, or call the Commission office and we can help. It's important that we all do our part to uphold California's unparalleled reputation for growing avocados that are safe, nutritious and of the highest quality.

More information on the GAP program and the GAP Incentive Rebate may be found on our website at www.californiaavocadogrowers.com/growing/gap. 🥑



CAC staff and other industry volunteers before the walk, preparing to hand out produce items to walkers

City of Hope Food Industry Circle Yields Win-Win-Win Benefits

The Food Industry Circle (FIC) program offers a way for the grocery and produce industries to contribute to the City of Hope, an innovative cancer center focused on rapidly transforming scientific discoveries into better treatments and better prevention strategies for cancer as well as other life-threatening diseases.

Under the FIC program, the California Avocado Commission creates initiatives to drive California avocado demand at retail. This year's program was designed to garner late season retail commitment to California avocados.

The FIC consists of more than 1,100 leading retailers, suppliers, manufacturers, distributors, brokers and commodity boards, including CAC. This group, which is one of the largest industry volunteer pillars of support for the City of Hope, has raised more than \$145 million in support funds while connecting industry members through networking events,

auctions and product partnerships.

"City of Hope is ranked as one of the nation's leading hospitals in cancer research and treatment," states Jan DeLyster, CAC vice president of marketing, "and in addition to providing support for their ongoing innovations, the FIC cements relationships with many of our participating retailer partners and offers promotional opportunities featuring California avocados that generate funds in support of City of Hope research."

CAC's annual FIC Retailer Incentive Program was designed to do just that. During the months of September and October, CAC donated \$5 per store for FIC retailers who featured the *Hand Grown in California* logo or "California avocados" in their weekly ads. These donations, which are made on behalf of the supporting retailer, provide an incentive for key retailers to stay in California avocados during the late season. This program delivered value to the Califor-

nia grower by keeping retailers in California avocados and resulted in funds to the City of Hope.

“We’ve garnered some great ad mentions and placements as a result,” said Connie Stukenberg, CAC retail marketing director for the Southwest. “It’s truly a win-win situation resulting in timely retail promotion of California avocados and contributions to research of catastrophic diseases at the City of Hope.”

More than \$8,100 was donated to City of Hope as part of the FIC Retailer Incentive Program in 2013 because of retailers such as Albertsons, Ralphs, Stater Bros. and Gelson’s featuring and promoting California avocados in September-October. Results are verified through CAC’s third-party ad-tracking service.

Additionally, to support the 2013 Morro Bay Avocado



Sample retailer display (Ralphs) in support of the Morro Bay Avocado Festival FIC Retailer Incentive Program



Stater Bros. weekly ad featuring the Hand Grown in California ad as part of the FIC Retailer Incentive Program in 2013



Albertsons weekly ad as part of the FIC Retailer Incentive Program in 2013

CAC staff attends the walk annually, rain or shine, at the City of Hope’s facilities in Duarte, Calif. The Commission’s efforts go beyond the walk, however, with staff members donating to the City of Hope as well as volunteering to man booths and hand out fruits and vegetables as part of its involvement in “Team Produce,” which is an enthusiastic group of more than 120 Los Angeles-area produce industry employees. Team Produce suppliers and retailers donated about \$92,000 worth of produce, which some CAC staff members assisted in handing out to the walkers. In total in 2013, Team Produce proudly donated more than \$7,500 in support of the walk, with sponsors contributing an additional \$50,000. 🥑

festival, CAC incentivized participating retailers in the region to feature creative displays showcasing California avocados while promoting the upcoming festival. Retailers were offered \$200 per store to participate.

The Walk for Hope event is the City of Hope’s coast-to-coast awareness initiative for women’s cancers. Drawing from individuals and businesses alike, the event not only raises funds for the fight against women’s cancers, it also promotes regular exercise, which can cut cancer risk and help women with these diseases enjoy longer, healthier lives.

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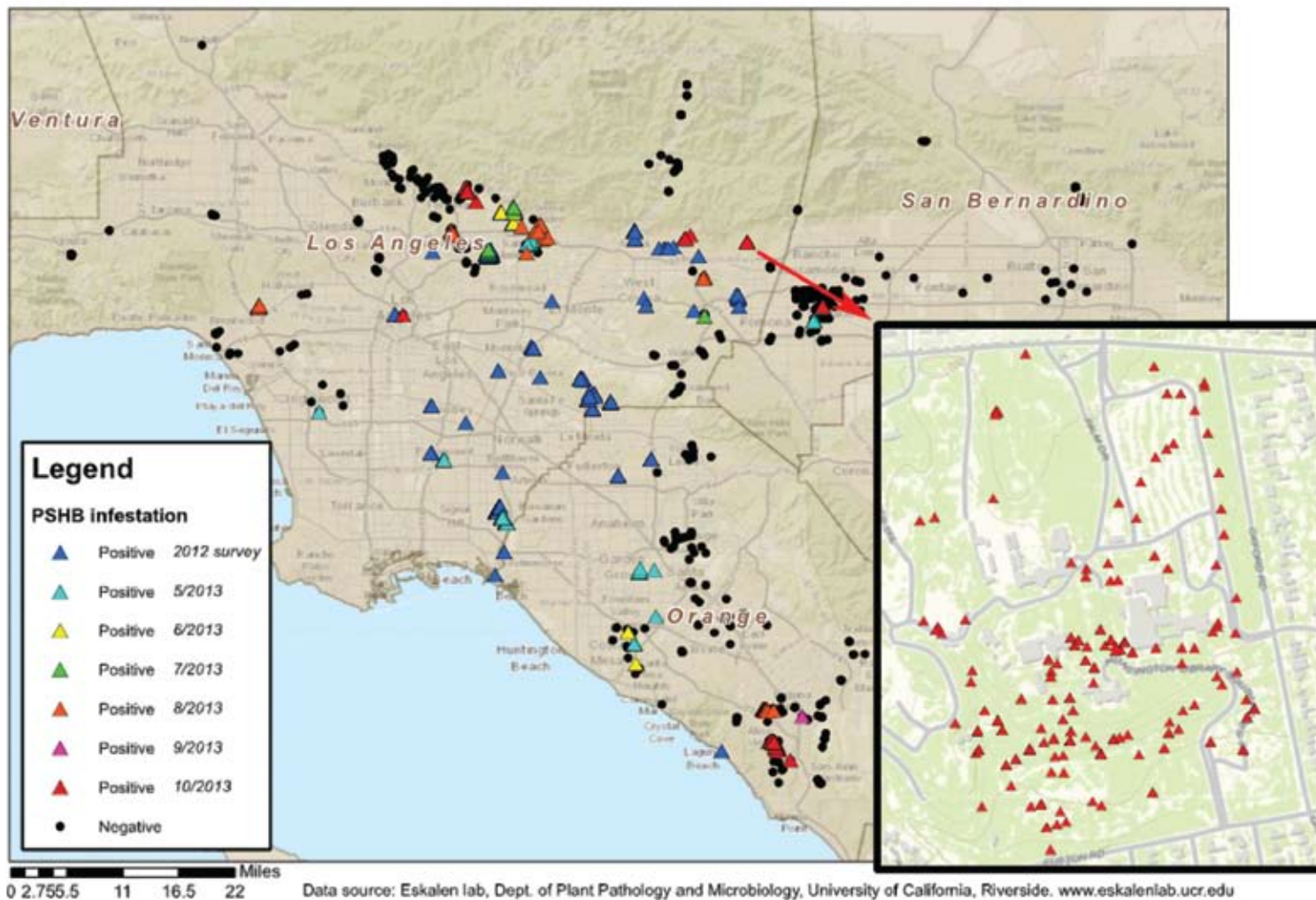
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Polyphagous Shot Hole Borer/ *Fusarium Dieback* Update

By Tim Spann
Research Project Manager

Unfortunately, there has been a significant amount of movement of the Polyphagous Shot Hole Borer (PSHB) in the southern part of Orange County around the Mission Viejo area in the latter half of 2013. The accompanying map shows the distribution of the beetle as of the end of October. This map has also been color coded to show how the beetle has spread during 2013 from the original area of infestation that was delineated in

2012 (dark blue triangles). Additionally, it is important to point out that each of the triangles on the map, which indicates a positive find, really represents numerous individual trees (see inset). However, at the scale that the map is usually drawn each individual point cannot be shown.

Although there are still no major commercial avocado groves infested, the known infestation is getting very close to some groves. It would be wise for growers who may be

PSHB Found in San Diego County

On December 2, 2013, the Polyphagous Shot Hole Borer was confirmed in San Diego County. The beetle and associated fungi were found attacking sycamore and goldenrain trees at the Sycuan Golf and Tennis Resort in El Cajon. This finding is very alarming since it is about 60 miles from the most southern end of the known infested area near Mission Viejo. Although how the beetle made this jump is uncertain, it is most likely not a natural dispersion, but due to the movement of infested material (mulch, firewood, etc.).

While the beetle has still not been confirmed in commercial avocado groves, this latest find illustrates how easily and quickly this infestation could become an epidemic if human activity moves the beetle to new areas. Avocado growers are urged to be vigilant—know what the beetle attack symptoms look like, actively scout your groves, and do not import mulch from the known infested area—to help limit the spread of this pest.

near the infestation boundary to survey their grove perimeter routinely. If possible, known alternative host species, especially castor bean, should be removed from the immediate area surrounding groves. Growers should also be familiar with the symptoms of PSHB infestation on avocado and other hosts that may be near their groves so they can identify infested trees as soon as possible after infestation.


If you find an infested tree in your grove it should be removed immediately. The wood can then either be chipped or cut into logs, preferably where the tree was standing, and the chips or logs covered with clear plastic to kill any live beetles. In the summer, the surviving beetles will be killed within a couple of weeks of covering, but in cooler months it would be best to leave the material covered for several months.

Although Dr. Tim Paine, professor of entomology, UC Riverside, has identified several pesticides that can help to prevent beetle attack, none of these chemicals are currently labeled for use on avocados. However, with Dr. Paine's efficacy data CAC is prepared to file for a Section 18 Emergency Exemption as soon as commercial avocados are affected.

Dr. Richard Stouthamer, professor of entomology, UC Riverside, has been working to identify the origins of PSHB. His work has led him to focus on Southeast Asia, and he has recently identified several specimens from the northern part of Vietnam, close to the border with China, that are a genetic match to specimens from California and Israel.

Based on the genetics of the specimens from California and Israel, Dr. Stouthamer believes it is unlikely that the beetle came directly from Vietnam, but probably came through some other area that had been invaded earlier. Regardless, it is interesting to note that Vietnam has a relatively high production of both avocados and castor bean, but there are no reports in the literature discussing the pest status of this beetle in Vietnam. This strongly suggests that there may be biological control agents at work keeping the pest in check there. Dr. Stouthamer is currently working to secure funding for a trip to Vietnam.

We encourage all growers to be vigilant and to familiarize themselves with the symptoms of PSHB attack on avocado. The beetle entry holes are quite small (about the size of the tip of a ballpoint pen), but the tree responds by exuding copious amounts of sugar, forming very visible "sugar volcanos" around the entry holes. If you see anything in your grove resembling these symptoms you are encouraged to report it immediately either to the CAC office at 949-341-1955 or to Dr. Eskalen either by phone 951-827-3499, or email at akif.eskalen@ucr.edu for confirmation of the pathogen.

DO NOT transport suspect material from your grove, but wait for someone to visit the grove and collect samples for confirmation. More information about this pest/disease complex and pictures of the beetle and symptoms on a variety of species can be found on Dr. Eskalen's website (<http://eskalenlab.ucr.edu/avocado.html>). 

By Ken Melban
Director, Issues Management

CAC Submits Comments on Food Safety Modernization Act

On November 14, 2013, the Commission submitted comments to the Food & Drug Administration (FDA) on the proposed rules under the Food Safety and Modernization Act (FSMA), specifically, the Standards for the Growing, Harvesting, Packing, and Holding of Produce for Human Consumption (Produce Safety Rule).

The FSMA, which was signed into law in January, 2011, requires the FDA to ensure the safety of fresh produce distributed in the United States. The Produce Safety Rule, once finalized, will require that growers demonstrate compliance with certain practices, policies and procedures to ensure the safety of their product. The draft Produce Safety Rule is an exhaustive proposal totaling 547 pages.

Fortunately, California avocado growers who have been audited under the CAC-GAP program, will likely show compliance with a majority of what is proposed under the Produce Safety Rule. There are a few sections of the Rule, though, that in the Commission's opinion would, as currently proposed, not improve the safety of the produce, yet place unnecessary requirements on growers. The Commission's comments were drafted by CAC President Tom Bellamore and me, and addressed the following areas:

Dropped Produce (Proposed §112.114) – As proposed under the Produce Safety Rule, dropped produce could not be distributed and would include any product that comes in contact with the ground, unless it naturally grows on or in the ground. The Commission maintains that dropped produce should not apply to avocados that may be placed onto the ground during the harvesting process, nor to avocados that drop to the ground because of extreme winds since the fruit is still hard and green, and may be released for marketing in accordance with state regulations.

Agricultural Water Definition (Proposed §112.41) – The Commission submitted comments supporting the finalization of Proposed §112.41, which, as written, provides for an exemption for crops where irrigation water is not intended to, or is not likely to, contact the produce. It is the Commission's position that the indirect water application methods in irrigating avocado trees would not be subject to the requirements of the FDA's final rule since the majority of fruit does not come in contact with irrigation water.

Agricultural Water Testing Frequency (Proposed §112.45) – As proposed under the Produce Safety Rule, the establishment of requirements related to the testing frequency of "agricultural water" fails to

appropriately consider the growing season for avocados. We believe timing of water testing should coincide with the harvest period. The Commission believes that an alternative standard-based on an application interval would be more meaningful to guide testing frequency, and that as proposed, §112.45 does not presently make an allowance for ground water testing frequency dependent upon historical test results. The Commission supports such an approach. Water that would be considered "agricultural water" and subject to the testing requirements, as defined by FDA, may include water used for preparing crop protection sprays, water used to clean equipment and tools, and hand washing water, but would not include water used for irrigation based on Proposed §112.41.

The FDA is currently reviewing the hundreds of comments submitted. There is speculation that the FDA will release another draft proposal based on the significant amount of comments received and overall concern with many aspects of the proposed Rule. The Commission will keep a watchful eye as the process continues to unfold and remain engaged to ensure the FDA hears the concerns of California's avocado growers. 🥑

By Tim Linden

Smaller Crop, Good Prices Predicted but Lots of Factor Have to Weigh In

The California Avocado Commission has estimated a 2014 crop at about 325 million pounds. While some see the number as a bit greater or a tad smaller, observers are saying there are a lot of factors that need to weigh in before the crop is made or not.

Phil Henry, president of Henry Avocado Corp., Escondido, CA, told *From the Grove* in mid-November that he had no quarrel with that number though the production in his groves are not off that much. The 325 million pound estimate, if it comes to fruition, will be only about two-thirds of the 2013 crop which came in near the 500 million pound mark.

“Our groves don’t fluctuate as much as some others so we don’t expect to be down that much, but we don’t disagree with that estimate at all,” Henry said.

Rob Wedin, vice president of fresh sales and marketing for Calavo Growers Inc., Santa Paula, CA, said in early December that at this point in time, “We sees a crop a bit less than the estimate...maybe 25 million pounds less.”

That would represent about 7.5 percent less than forecast but Wedin

is quick to add that while crop size talk is interesting in December, important factors will play out over the next couple of months that will have a significant impact on the ultimate size of the crop.

Rain/Weather

Maybe the most important factor is the amount of rain received in California’s avocado growing districts. While virtually all groves are irrigated, the vast majority of growers rely on rain to fill a significant portion of the trees’ needs. California is currently suffering through one of the worst calendar years ever for rain. While the 2012-13 rain year was bleak it doesn’t look as bad as the calendar year because November and December of 2012 saw well above average rainfall. Since January 1, precipitation in the Golden State has been meager at best, and the 2013-14 rainy season has not started out well.

“You need water to get size which creates the pounds,” said Wedin. “You just don’t know how much (irrigation) water growers will use if we don’t get the rain.”

He said both the cost of the wa-

ter and the availability will be factors as some Southern California water districts may be forced to cut back allocations. With the expectation of good per-pound pricing, growers might be expected to turn on the spigots but there is a benefit/cost equation that has to be factored in.

Henry added that on average, the size of the fruit is already larger than last year – which was plagued by small fruit – so he hopes fruit sizing will not be a major issue this year.

Wedin reminded that there are other weather factors such as wind and cold that could also play a role in the size of the crop. “Typically we have to get through February 15,” he said before growers know their crop is made.

He added that the cold snap in December might have damaged some fruit in isolated areas, especially in the more northern growing regions of the state.

Labor

Henry said the labor situation can factor into the size of the crop as even a relatively small crop, as 325 million pounds is, must be picked in a methodical fashion. While grow-

ers will want to keep their fruit on the trees to size, logistically some of the tonnage has to come off earlier than later. There were some labor issues this past year and it is possible that they will be exacerbated in 2014, especially if there is no solution on immigration reform. Henry said it may be more costly to get the fruit picked in 2014 because of the labor situation.

Competing Fruit and the Window of Opportunity

It is always difficult to look at what the marketing opportunities will be six months down the road, but there are indications that this is going to be a good marketing year for California avocados.

Henry said that while Peru's imports could be double last year, they are still expected to be under 100 million pounds and most of that tonnage will be sold on the East Coast. He said it appears that Chile will have another short crop and be out of the marketplace well before California gets going.

Wedin agreed stating that Chile is also struggling through a lack of rainfall situation which has not only hurt this year's crop, but will impact next year's crop that California competes with on the tail end of its season. It's too early to predict but because of the lack of rainfall, he said there could very well be less production from Chile in the U.S. marketplace in September and October of 2014.

As far as Mexico is concerned, Wedin said all indicators point to a crop very similar to this year. The Mexican industry, which operates on a crop year beginning in the spring, has not yet issued a crop estimate for 2014-15, but Wedin said it appears no new states will be certified for export to the United States and that Michoacán growers will once again be the sole exporter. "We expect to see that estimate at the end of April and I



am being told that it will be pretty close to the same as this year (2013-2014)."

So what will be the window of opportunity for California avocados?

Henry said a good market should exist for most of the season but it almost certainly will be better through the peak summer months than in late spring. "Pricing should be very good this year but it will depend on when you have to harvest," he said.

Aside from the aforementioned labor issue, Henry said there is cultural evidence that it is better for the trees to shed some of that fruit weight on the early end of the season. So some fruit will be picked and marketed in the spring that will not return the same amount to growers as later fruit.

While getting some fruit off for the Cinco de Mayo pull was very important this past year, Wedin does not believe that will be much of a factor in 2014. He expects the vast majority of the crop to be marketed from mid-May through September, and he said "Calavo is very bullish" on where the pricing level will be. He wasn't yet ready to give a projec-

tion but said he would have a number probably in March...and he expects it to be a good one.

He said the estimated crop size pencils out to a movement of about 18 million pounds of California avocados a week during the peak summer buying period, which is very doable considering Mexico brings in more than 25 million pounds per week on a regular basis during the spring months.

One More Look at 2013

By most measures, Wedin said 2013 was a good year for growers. "We had more pounds and a higher per pound price. So growers made more for their fruit and more per acre."

By his accounting, the California avocado crop returned about \$426 million to growers in 2013, which equates to an average per pound price of 87 cents and a return per acre of about \$7150, more than 15 percent greater than the previous year. "We saw an 11 to 12 percent increase in shipments accompanied by a better per pound price," said the Calavo executive. "I'd say that's a good year." 🥑

Israel Avocado Production in Steady Growth Mode

Commercial avocado production began in Israel in the mid-1950s and rose to its peak in the mid-1980s, before marketing conditions and a shortage of water resulted in a scaling back of the industry through the 1990s. But once again it is on the rise and growing at a clip of a couple of hundred hectares per years (almost 500 acres).

Discussing the Israeli avocado industry with *From the Grove* was Udi Gafni, a longtime official in the Israel Ministry of Agriculture, and a current consultant for avocados and other crops. But in fact, Gafni said his avocado knowledge dates back about half a century. “My father was one of the first avocado growers in Israel so you could say I have been involved in avocados for all but two of my 57 years,” he joked.

Formally, Gafni is an agronomist by education who joined the Ministry of Agriculture as a young man and rose through the ranks until he was head of the Sub-Tropicals Department. Since his retirement from the ministry, he has worked as a consultant and is head of a research and development committee within

the avocado industry.

“Avocado production started slowly in the mid-1950s but by 1965 or '66, it was large enough that we had a commercial crop, exporting mostly to Europe,” he said.

The markets were good and production grew quickly peaking at about 11,000 hectares (27,000 acres) in the mid-1980s. “At that point the industry started to decline for two main reasons,” said Gafni. “We had a shortage of water, and, in addition, we were getting a lot of competition from Mexico in Europe.”

In those years, Mexican producers could not ship to the United States so they sent their fruit to Europe, and Gafni said that drove down the prices and changed the dynamic for Israeli growers. Throughout the 1990s, avocado acreage was pulled with only about 4,000 hectares (close to 10,000 acres) under cultivation by the year 2000.

Over the next several years however, both the water and marketing situation improved, leading to increased acreage once again. He said research in Israel led to the development of better irrigation systems

as well as the ability to use recycled water. “Today, about 80 percent (of Israel’s avocado groves) are irrigated with recycled water.”

This has given growers much better access to water at a more reasonable rate.

In addition, the marketing situation in Europe has improved dramatically. Gafni said Europe has increased its per capita consumption creating more demand for avocados. And because Mexico now has the ability to ship to the U.S. market, it does not send nearly as many avocados to Europe.

Israel’s domestic consumption has also risen quite a bit in the past few years giving producers another outlet for their crop. In fact, Gafni said the percent of the fruit exported has dropped from about 75-77 percent five years ago to 60-63 percent now. He expects that number to fall even further in future years. “Our consumption rate is 5-6 kilos per capita per year (about 12 pounds),” he said.

Initially, he said producers would export their number one fruit to Europe and sell number twos to

domestic buyers. But as avocado consumption has increased, there are local outlets for the top quality fruit with those buyers willing to pay as much as the European market.

He estimated current total production in the country at about 7,000 hectares, which is about 17,000 acres. About 45 percent of those acres are devoted to the Hass varieties with green-skinned varieties (Fuerte, Pinkerton, Reeds and local varieties) making up the other 55 percent. Because the Hass variety has become increasingly important in Europe, about 70 percent of new plantings are Hass. But Gafni said that may start to change a bit in the future.

He said Israel does have a private-government avocado research partnership which includes a four-year-old breeding program. Initially, one of the guiding principles of the research was that it should be looking for Hass-like varieties that taste and look like a Hass but have better yields and other cultural advantages—sort of a super Hass variety. But Gafni said the breeding research committee recently changed that guideline to allow for research on any variety that shows promise.

Because of the range in varieties, Gafni said there is also quite a bit of difference in yields. As a general average, he estimated that Israel's 7,000 hectares yield about 16-17 tons per hectare, with the green varieties coming in around 18-20 tons and the Hass yielding on average about 13 tons. As a point of reference a 13 ton yield per hectare would equal about 10,500 pounds per acre.

Gafni agreed that's a very healthy number but he said that avocado cultivation in Israel is a very expensive proposition. Consequently there is a very high level of professionalism among the growers who have survived the ups and downs of the past few decades.

He said the research program is also doing a lot of work with high



Avocado in Israel
Production areas

density planting in an effort to increase yields and lower the cost of production.

Traditionally, Gafni said most growers used a 7 meter by 6 meter spacing configuration which let to about 300 trees per hectare (120 trees per acre). But research has resulted in spacing configurations of 6 x 4 or 6 x 3.5 meters for Hass and as close as 6.5 x 2.5 meters for some of the green skinned varieties. As a result some of the Hass groves have as many as 660 trees per hectare (265 per acre). And the green-skinned varieties, which tend to have less vegetation, can have as many as 720 trees per hectare (290 per acre).

He added that some innovators did try even greater density plantings in the 4 x 2 and 4 x 1.5 meter range “but that didn’t work for us at all.”

He said the growers discovered that the close proximity of each tree in relation to another required additional pruning, which is very difficult to achieve because of Israel’s labor situation.

The Israeli avocado expert said the cost of labor, as well as the lack of availability of it, have caused growers to focus very much on reducing vegetation and keeping the trees low to the ground and as small as possible. “The use of plant growth regulators is very important in Israel. It is very important to curtail vegetation growth,” he said.

Israel’s avocado production is located in several different regions around the country but most trees are located within 20 kilometers of the Mediterranean Sea. 🥑

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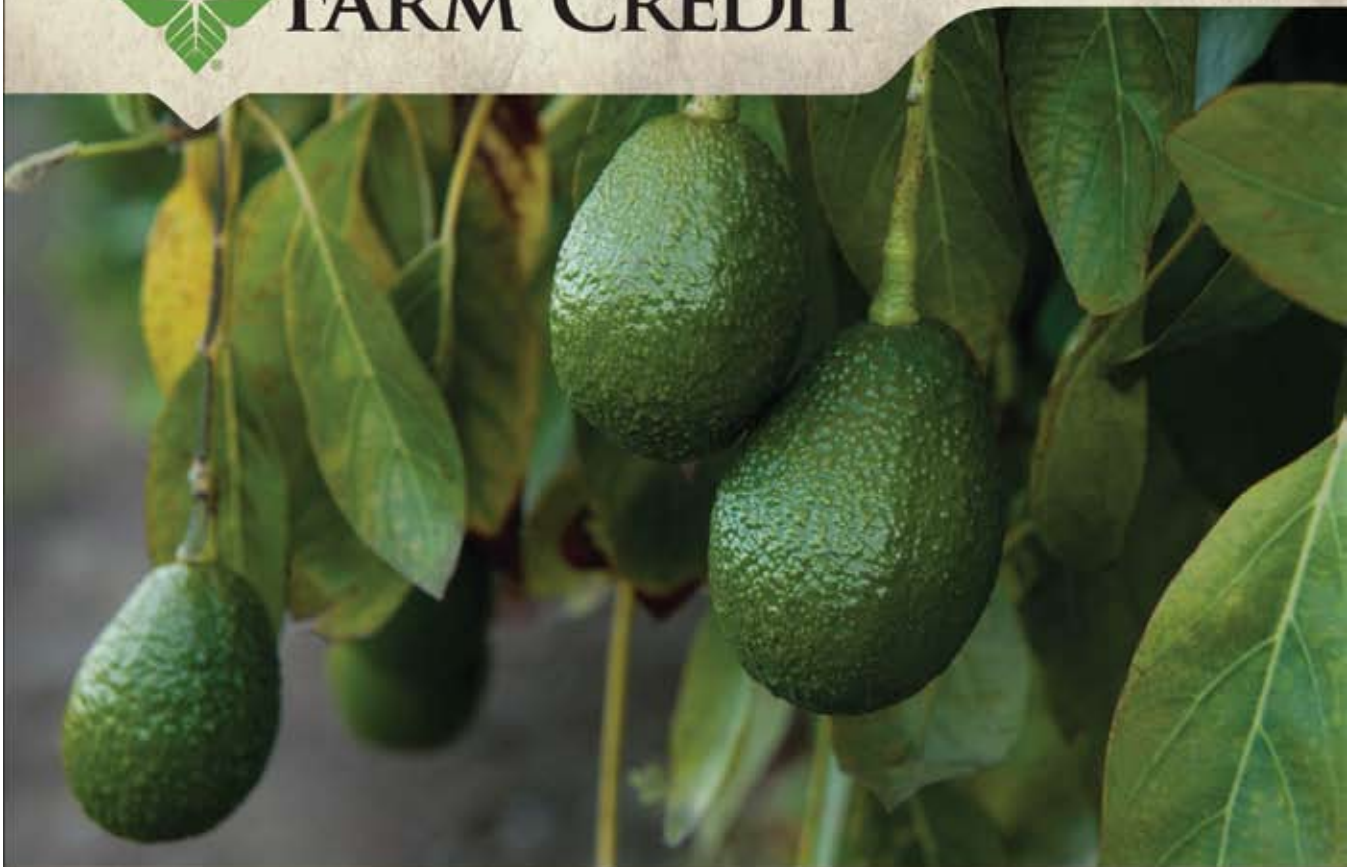
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When Joe Spychaj's longtime friend and neighbor, Bob Obole, persuaded him to buy the grove across from his, he found old wooden Index boxes in the shed showing many years of use. He also had an old Index field sign from the 1950's, on the wall of the shed. So when his neighbor Bob, suggested Joe use Index Fresh for packing it was a natural.

"Sure, at first I checked prices with the other guys but Index Fresh was always on the dime or a little better. Now, I watch my son's avocado prices (from another packing house), and I almost always beat him," Joe says. "Index's returns are so consistently better, I don't even worry about prices now."



JOE SPYCHAJ
Avocado Grower

"Index Fresh taught me how to farm, and I increased my yield, so I guess I grew my place right along with Index over the years," says Joe. "If it wasn't for the Index Fresh people, I probably wouldn't be in business now with all the cost increases over the years. The new Index Fresh Grower Seminars have been really helpful too."



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