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Grower Profile

Monty & Maio Winkler
Fillmore, CA

22

From the **Grove**

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In This Issue

Fall 2012

- 8 **Setting the 2012-13 Assessment Rate**
Management has Recommended 1.75 Percent
- 10 **Foodservice Promotions Keep Demand for Fresh California Avocados Growing**
- 12 **Top Chefs Share Avocado Secrets**
- 14 **From the Halls of Congress to the Groves of Fillmore...**
Grower Profile
- 20 **New Food Safety Materials Provide Grower Education, Training**
- 28 **Shot Hole Borer Update**
- 31 **More Collaboration Explored on Avocado Research**
- 36 **California Avocados Add Green to Red, White & Blue Celebrations**
- 42 **Southern California Agriculture Contributes Billions to the Economy**

Departments

- 4 Message from the President
- 6 Chairman's Report
- 16 Handlers Report
- 18 Grower Communications
- 22 Better Growing
- 26 Avocado Research
- 33 Issues Watch
- 40 Global Perspectives

Volume 2, Number 3 FALL 2012

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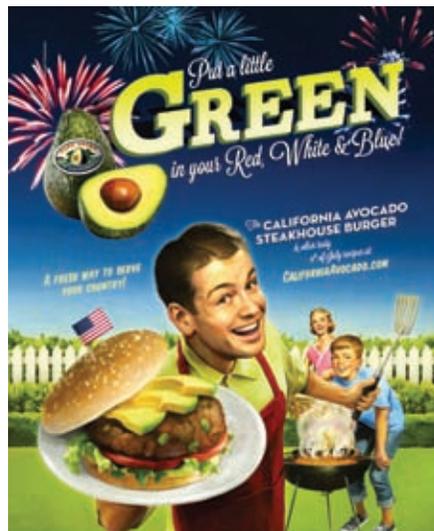
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Fourth of July, Revisited

Decades ago, prior to the entry of imported avocados into the U.S. market in any significant way, Super Bowl reigned supreme as an avocado-consumption event. Without regard to which teams were vying for the championship, football's culminating game gave a kick start to the California avocado harvest... even in years when the crop size was small or mature avocados were few in number. Since then, Super Bowl has lost some of its luster for California avocados at least. Although the event still represents a marketer's dream, the avocados being sold in late January come mostly from Chile and Mexico.

On the positive side of the column, annual U.S. demand for avocados is fast approaching 1.5 billion pounds, with no end in sight. On the negative side, California accounts for about one quarter of the total supply, and our harvest has become compressed, with some exceptions, to the period between April and September. No longer are we alone in the market, not even at the peak of our harvest. We have a feather in our cap, though, that others cannot sport. We simply need to make it sing Yankee Doodle Dandy.

California avocados are in their prime on the Fourth of July. They are creamy perfection in a half-shell, closest to market, and they are all-American. They are not, gener-



ally speaking, the first thing a family thinks about when it comes to an outdoor barbecue, however. Then again, there was a time when guacamole was not the first thing that came to mind for football enthusiasts gathering in late January. Things change. Or, said another way, we can make things change if we put our mind to it.

It should come as no surprise that a year or two ago, the focus around the boardroom table began to shift from Super Bowl to the Fourth of July holiday. Wouldn't it be great if California could stake out that red, white and blue territory as its own, and elevate it to the premier, avocado consumption occasion of the year?

Earlier this year, your CAC Board saw an opportunity to begin that quest in earnest. Summer holi-



Tom Bellamore

days have been a feature of California avocado promotions for some time, but a concerted effort to make the consumer connect the dots between Memorial Day and Labor Day with California avocados and summer menus had yet to be attempted. At the heart of the challenge was changing consumer behavior. Causing consumers to make the mental association between summer holidays and family fare containing California avocados would require a long-term marketing commitment, along with a substantial investment.

In the marketing world, even in the digital age, television remains the most impactful way to launch a major initiative. The road to the Super Bowl may seem long to an aspiring team on the first day of the season, but it seems an eternity to a marketer hoping to leverage sales in conjunction with that event. So what do marketers do to help the process along? They advertise. They promote. They publicize.

Unlike the competing teams, though, they do not necessarily expect a win on Sunday. Instead, they know that consumer behavior changes over time; that it takes multiple impressions across various media to seed that initial association between the product and the event. They settle for incremental gains, just as teams advance incrementally toward their goals.

The reappearance of California avocados on television after years of absence, by itself, was a statement. Our industry is not only alive and well, but we are willing to take on the competition. We have faith in our ability to ultimately prevail because we are the best: The best quality, the best taste, the best value. Our appeal to patriotism is not manufactured. It is who we are, what we do, our small, family-farm heritage. It is real. So why not make that known to consumers who have choices when it comes to menu ingredients and when it comes to the origin of their avocados.

The early indicators are that the consumers took notice. Aggregate volume for the early July period soared to new heights, and the social media buzzed with positive impressions in response to California's message.

In the market, conditions were far from ideal. Mexico shipped nearly 60 percent more than the prior year in the weeks leading up to the holiday. Peru struggled to gain a foothold and badly miscalculated inventories, seeking recovery through discounted fruit that cost everyone, but most notably the California grower, money. Fruit sizing vacillated from glut to scarcity in the most haphazard way I've ever witnessed. Into this turmoil, the Commission launched its initiative, and California growers sold their fruit. Understandably, few of us are satisfied.

As summer fades and we take a look back at the holiday period, it is evident that things might have gone better. The Commission board is in the process of fully dissecting the results of the marketing investment made this summer as planning for the

2012-13 season gains momentum. Emerging from the results, early on, is some key learning that will be used to strengthen retailer commitments next year. Still forthcoming is the result of our annual consumer usage and attitude study, which should tell us, definitively, if we moved the needle with respect to making the association between California avocados and summer holidays.

Just as guacamole and the Super Bowl did not become an immediate connection, it would be premature to expect that our initial foray to link California avocados and the Fourth of July would complete the task. The issue before the Commission will be one of Board resolve. Do we see the commitment through and stay the course, or are we content to leave Fourth of July up for grabs, in light of mixed results at the outset? 🥑



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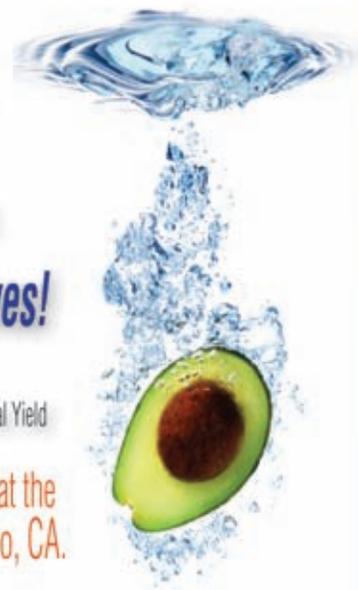
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Chairman's Report

Change



Ed McFadden



The avocado world has changed dramatically since the days of that black and white photo and the rate of change continues to accelerate. We expect to see a total of more than 1.6 billion pounds of avocados sold in the United States next year and more is on the way from groves in Mexico, Chile and Peru. Other international sources have had their eyes on our market success and are on the sidelines working for access. As a nation, we will be consuming two billion pounds annually within a few years. Imported fruit has allowed U.S. consumers to buy our favorite crop every week of the year. Thanks to this constant supply our U.S. market has grown dramatically while grower returns have strengthened and stabilized. We need to be working as an industry to prepare for a *lot* more fruit in the near future.

In the 1950s and '60s when my family was farming the groves of avocados and citrus in Orange County planted by my father and grandfather, the avocado world seemed much simpler. In those days there were no imports; California and Florida supplied virtually all of the avocado needs for the United States. Insect pests were not significant concerns for most growers. Hass was a new and relatively unimportant variety. Fuerte, Bacon and many other

varieties were planted on sensible flat or gently sloping ground at 20'x20' or 24'x24' spacing and furrow irrigated much like citrus. For some growers, avocados were a supplemental crop that helped fill in the season for what in those days were more profitable crops like Valencia oranges.

The photo on this page shows me "driving" a Caterpillar orchard tractor a few years back with my father Tom McFadden at our grove in El Toro in Orange County.

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Pioneer California growers and handlers started what is now a booming, successful U.S. market for our



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

fruit early in the last century. Since California growers formed the California Avocado Commission we have invested hundreds of millions of our assessment dollars to market our product and to learn techniques to grow more and better fruit through our production research program. California growers enjoy a huge advantage that will never change – we grow our fruit in the middle of one of the best avocado markets in the world. Our climate allows us to produce a superior product and our location enables us to put that product on the shelves of our local markets within a few days of harvest. It all started here in California. Thanks to that special California native patented by Rudolf Hass in 1935, 80 percent of the avocados consumed worldwide trace their ancestry to us.

Back when the photo of the young tractor driver was recorded, we were not treating our groves for insect pests. Today we treat regularly for Scirtothrips, Persea mite and other pests that have moved into our groves from other avocado growing areas of the world. This year a new pest to avocados was rediscovered in Los Angeles. The Shot Hole Borer, and the Fusarium fungus that it carries and spreads to avocado and many other host trees, has become established on landscape trees and avocados in urban areas located the middle of our California growing regions. The Ambrosia Beetle and potentially deadly Laurel Wilt are spreading toward us from the southeast United States. New pests and diseases are expected to move into our state with increasing frequency in the future. We need to be prepared for them and ready to act when they arrive.

How many of you worked with furrow irrigation growing up? My brothers and I ran sets from gravity fed systems flowing through concrete lines into concrete stand-pipes and down dirt furrows. It took virtually all day for one person to run a

5-10 acre set and required constant attention to get water to the ends of the furrows in time to adequately water the line of trees. Drip and micro-sprinkler technologies have allowed us to plant areas that would have been impossible to farm in the early days of avocados. Web-based remote monitoring systems now allow us to better see and control our irrigation and efficiently use our water. New planting, pruning and fertilization techniques are helping us to produce more and better fruit. We need to continue our generations-old "hand grown" approach to cultivating our special California crop while constantly changing our farming techniques as we learn new state-of-the-art farming practices.

What do these changes have to do with our California Avocado Commission? CAC President Tom Bellamore and his team are working for us to position California growers on the leading edge of change. CAC is recognized as the world leader in avocado marketing. Jan DeLyser and the marketing group work year-round to coax premium returns for our fruit from a constantly changing market. Research Program Director Jonathan Dixon manages our CAC funded studies and is in contact with researchers across the U.S. and throughout the world to bring the latest production techniques to our groves. Issues Management Director Ken Melban seems to be in constant motion throughout our state working on changing water issues, materials registration, GAP issues and others. CAC Industry Affairs Manager April Aymami is like the glue that holds everything together. If you have not received a half dozen emails from or written by April during the past month you have not been checking your inbox. Under Tom's leadership the CAC team aggressively tracks, predicts and initiates changes in our industry on our behalf. 🥑

Setting the 2012-13 Assessment Rate

Management has Recommended 1.75 Percent for Fiscal 2012-13

By Tim Linden

The board of the California Avocado Commission received an assessment recommendation of 1.75 percent for fiscal year 2012-2013 from CAC President Tom Bellamore at its August meeting.

CAC staff will make September presentations to growers throughout the growing districts explaining the factors that went into that recommendation. Commission members will mull over the concept, no doubt crunch some numbers themselves and come back to the October board meeting to vote in a new assessment rate, either confirming staff's recommendation or going with a different number.

Bellamore said the decision is always an important and thoughtful one and the more information the industry has at its disposal to consider the assessment rate, the better off it is. To give widespread distribution of the thinking behind the 1.75 percent number, Bellamore laid out the many factors that went into determining his recommendation.

To start the number crunching process, Bellamore takes a look at the historical situation, estimates volume and price, determines a marketing budget and the financial needs of the Commission, and considers the fiscal health of the industry. Underlying these calculable equations is his promise, since he took over the helm of CAC, to bring some predictability and stability to the assessment rate, so that growers can plan with some certainty about the assessment part of their costs. "In days gone by, there were very wide swings in the assessment rate. We've tried to eliminate that so growers can plan ahead," he said.

Bellamore called 2012-13 a "transition year" as the industry transitions from several extraordinary years that featured widely fluctuating revenues and ambitious promotions to a more predictable future with revenues and promotions on a more even keel.

The Reserve Fund

Of course the discussion has to begin with where the industry is now and where it is going. For the 2011-12 season, growers had an assessment rate of 1.1 percent, which was a historical low. It is no secret that the tremendous marketing situation in 2009-10 and 2010-11 led to that low rate.

Bellamore explained that in both those years, the crop value exceeded \$400 million. Because the assessment is a percentage of value, when the value of the crop spikes

so does the amount of money collected. "The high prices paid for avocados in both of those years led us to a higher reserve level than we usually have," he said. "We didn't get to that level by design; performance got us there."

Hence going into the 2012 season, the commission had a reserve of \$10.4 million. That higher-than-expected reserve level allowed the commission to have a very aggressive marketing campaign this season. But it also allowed for some direct grower benefits. In the first place, the commission established a rebate program to help growers institute a GAP (Good Agricultural Practices) Program in their groves. "The GAP Rebate Program was a short term effort reflective of the creative thinking (by the commission) made possible by the additional reserves," he said.

The rebate program allowed any grower who so desired to have most, if not all of the cost of their initial GAP audit reimbursed. But Bellamore said the commission knew that not every grower would take advantage of that program, so it also wanted to establish some way that every single grower could reap benefits from the larger than usual reserve fund. "The answer: lower the assessment rate," Bellamore said. "This benefits every grower and gives every grower a break."

The lower assessment rate literally left millions of dollars in the growers' pockets. It is projected that largely because of the rebate program, the lowered assessment rate and the ambitious summer marketing plan, the reserve fund at the end of this fiscal year on Oct. 31, 2012, will be at a very respectable \$5 million.

While \$3 million has been the level that CAC has been comfortable with in the past, Bellamore said changes in the marketing of the crop require a bit larger reserve these days. Today, because of the advent of foreign competition, the California crop is marketed in a tighter time frame, with most of the production sold from April through September. Consequently, that is when the assessment money comes in. That means the CAC office has to operate for almost half of its year from the reserve account. And it is that time of the year when significant costs are incurred. "We now go through the first quarter with hardly any revenue at all," Bellamore said. "We have to keep the lights on, ensure the research effort moves forward, and we also have to cover up-front costs associated with the new season's marketing campaign, like the production of radio commercials. There

was a time when that reserve fund was used for emergencies, now it is also used to pay the bills in the early part of the season. If it was still at \$3 million, we'd probably have to increase our line of credit to stay afloat."

For the 2012-13 season, the reserve will be about right where it should be which means the assessment level can be set without figuring a need for an increase or decrease in that reserve.

Marketing Needs

For 2012-2013, Bellamore has developed a budget that is about 14 percent less than this season. He said the decrease is necessary because it is understood that 2011-12 was an extraordinary year and funding needs to return to a more sustainable level. The previously-mentioned larger-than-normal reserve allowed CAC to create a very ambitious marketing campaign to begin elevating the Fourth of July holiday to the same consumption levels as Super Bowl Sunday and Cinco de Mayo. While factors outside the commission's purview – most notably a glut of imported fruit in the marketplace during that time period and heavy price discounting – left a difficult marketing situation with lower than expected prices, the marketing effort did help move the fruit. "The results are mixed," said Bellamore. "The pricing wasn't where we wanted it, but we moved a lot of fruit and the early indicators tell us that we registered with the consumer. We still feel strongly that focusing on a mid-season consumption event like the Fourth of July makes sense. It falls at the peak of our season, and the holiday is uniquely American, which gives us a marketing advantage. We need to change consumer behavior and we still think that is eminently achievable."

So while the Fourth of July marketing campaign may be a bit less ambitious this year, Bellamore said it remains an important strategy for the commission.

Overall, management expects to hold the line on administrative expenses and slightly decrease marketing expenses to a still very-healthy \$9.5 million to create a total budget of \$14.6 million.

Crop Size and Value

Of course determining the size of the crop and the farm-gate value more than a half a year before the start of the next season is difficult at best. But avocados do allow an educated guess as the fruit set has occurred. "Anything

can happen between September and April, but we have to come up with a number in August and it needs to be fairly conservative," Bellamore said.

While many in the industry are estimating a crop of 500 million pounds for the 2013 season, Bellamore said, that for the purpose of estimating, he has to assume that wind, freeze, fire or many other natural calamities can take part of the crop. "For the purpose of this exercise, I used 450 million pounds. If the crop size turns out to be larger than that, then so much the better." He said that is a healthy increase over this year's expected final figure of 413 million pounds.

Value is even a trickier proposition. For 2011-12, management went into the discussion last Fall thinking that an average price per pound for the 2011-12 crop of \$1.00 per pound was realistic if not a bit ambitious, considering the projected volume. Eventually, the commission board adopted an estimated price of \$1.20 per pound for budgeting purposes. At season's end, Bellamore said it appears that the actual value realized will be more like 80 cents. "The board chose a higher value in hopes of sending a signal to the market, and they felt comfortable doing so because of the large reserves. The experiment failed, but the miscalculation was not fatal."

He added: "In 2012-13 and the years ahead, the number used has to be much more accurate," Bellamore said, "or we risk cutting programs or personnel. The large reserve buffer will be gone and we must return to a more prudent policy when budgeting."

For 2012-13, on a 450 million pound crop, the preliminary value being used for planning purposes is 80 cents per pound.

Assessment Rate

So when you factor in the budget and the reserve along with the revenue generated from the Hass Avocado Board (i.e. a Hass avocado assessment of 2.5 cents per pound, 85% of which gets returned to CAC), then plug in the crop size and value, what emerges is the need for a 1.75 percent assessment rate. A 450 million pound crop that sells for an average of 80 cents per pound will produce a farm value of \$360 million. An assessment rate of 1.75 percent will yield \$6.3 million. Add to that amount the revenue generated through HAB and CAC has its budget.

There is one final piece to the equation. In Bellamore's administration, financial planning is a multi-year exercise. "The alternate bearing tendency of avocado production must be taken into consideration in order to avoid future cash flow problems," he said.

Consequently, thought must be given to the anticipated level of reserves at the end of the upcoming fiscal year. "If spending levels stay relatively stable and revenue declines because of a smaller crop in 2013-14, reserves could be entirely depleted in one year if we are not careful," he said. 

UPDATE

At its August 2012, the CAC Board of Directors accepted management's recommended assessment rate of 1.75% for the 2012-13 crop year as minimum, indicating that it might set the rate as high as 1.95% if it determines that more revenue is needed for marketing because of the expected large crop and increasingly competitive market environment. A final decision on the 2012-13 assessment rate will be made at the Board's October 2012 meeting.

Foodservice Promotions Keep Demand For Fresh California Avocados Growing

The California Avocado Commission has marketed to the foodservice industry for decades, and the programs just keep getting better," said Jan DeLyser, vice president of marketing. "Most foodservice operators welcome new ways to use fresh California avocados because creative menus keep customers coming back for more. Often, restaurant consumption of avocados is the first step in bringing new consumers into the fold or giving existing avocado consumers new usage ideas."

Approximately 30 percent of California Avocado volume is directed to foodservice channels, and opportunity for continued segment growth remains strong. Product quality and availability rank high on a foodservice operator's list of requirements, and California avocados have a distinct advantage when in season.

Fueling demand at foodservice means keeping a close eye on foodservice trends. Foodservice use of, and preference for fresh California avocados are increasing and continued growth is expected. Menu Trak, a foodservice research institute that follows chain menu trends, reports annual growth of avocado mentions on foodservice menus from 23.6 percent in 2000 to 38.2 percent in 2011, with fresh avocado (versus processed) providing the momentum. Fresh, local and farm-grown produce topped the preferences of the nearly 1,800 American Culinary Federation chefs surveyed by the National Restaurant Association—a member-based association of restaurants, suppliers, educators and non-profits—in "What's Hot in 2012."

And according to the foodservice menu research firm Data Essential, experimentation with more unique flavors

and the use of healthful, sustainably-sourced ingredients are trending among American diners, with operators "subbing out" safe flavor choices for sophisticated and unique ingredients...and a focus on health and whole foods."

With the dining environment primed for wholesome, natural and farm-sourced ingredients, 2012 is proving a great year for fresh California avocados to shine on foodservice menus. Highlights of the Commission's foodservice promotions this year include programs with Chipotle, Denny's, Ruby's Diner, Sizzler and Sodexo.

During Farmers Market Week (August 5-12, 2012), 250 Chipotle stores in California showcased fresh California avocados and the growers who produce them. Chipotle spearheaded a *fresh guacamole* promotion to generate awareness for Chipotle's locally-grown produce initiative and its efforts to support the farming community. Also on the agenda: enticing customers to try their *guacamole* made with delicious, peak season fresh California avocados. Stores statewide featured the *Hand Grown in California* logo on point-of-purchase materials, and Chipotle reached out to loyal customers on Facebook and other social media.

California Denny's locations switched from frozen to fresh avocados to support their "Tour of America" menu. Two of the items on the promotion, *Huevos Rancheros* and *Malibu Fish Tacos*, feature fresh California avocados. Both menu items were showcased in a July 23, 2012, *PennySaver* direct mail piece to more than 4.5 million households in Los Angeles and San Diego.

Ruby's Diner, a Southern California based chain, features breakfast and fresh produce in a big way, and one of their newest morning menu additions—the *California Benedict*—is a good example of their fresh start strategy. The dish tops potato pancakes with sliced tomatoes and a generous fan of fresh California avocados, poached eggs and Hollandaise sauce. A mouthwatering photo of the *California Benedict* is pictured on Ruby's *New Breakfast Specialties* menu, which is available through September 30, 2012, at the chain's locations in California.

In the spring, Sizzler launched an exciting steak combo promotion featuring grilled tri-tip sirloin paired with *California Grilled Malibu Chicken*—a grilled chicken breast, topped with sliced ham, melted Swiss cheese, Sizzler's signature Malibu sauce and slices of fresh California avocados. The promotion ran in Arizona, California and New Mexico, with merchandising including floor banners, counter cards and table tents, as well as broadcast support in five California markets. In addition, at the salad bar, Sizzler offers fresh guacamole "made with fresh California avocados" daily.

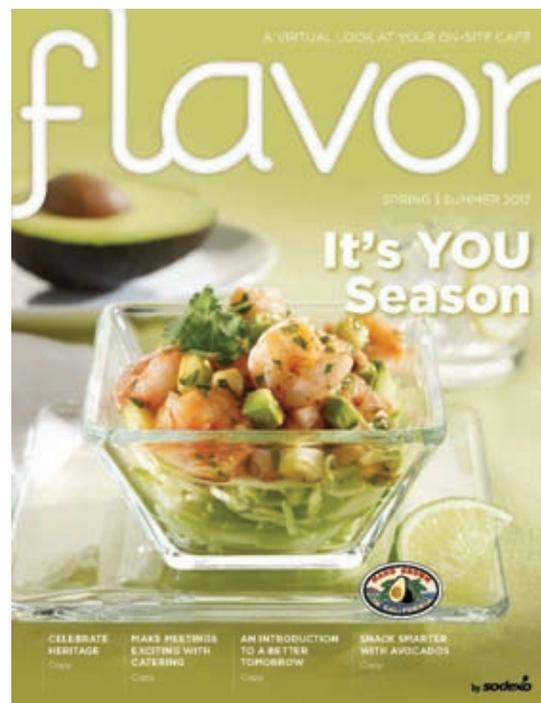
Promotions with onsite foodservice operations (college, university and business locations) are also part of the CAC foodservice program. This summer, Sodexo Corporate Services, a leading foodservice management company, displayed its dedication to customer wellness by showcasing five new fresh California avocado menu items in 850 units. The five items—*Turkey Avocado Club Croissant*, *Avocado BLT Burger*, *Shrimp Ceviche Salad*, *Avocado Caprese Salad* and *Avocado Breakfast Sandwich*—were offered on a two-week rotation and promoted with fresh California avocado-themed point-of-purchase materials. Each "headliner" was designed for maximum flavor and minimum calories such as the *Avocado Breakfast Sandwich* (grilled egg whites, ripe avocado slices, and pico de gallo on a whole wheat English muffin).

CAC's foodservice team also connects with chain marketing and menu decision-makers at events throughout the year to keep current California avocado food-



service users committed, and to engage new operators who express interest in using our product or expanding existing menus. The 2012 event calendar included the National Restaurant Association Marketing Executives Group, Culinary Institute of America's Worlds of Flavor, the Flavor Experience, National Association of College and University Foodservice-Pacific Region, and the International Corporate Chefs Association conferences.

The final component of the foodservice effort is educational outreach and public relations. At least once a year, the foodservice team invites a select group of corporate chefs, chain marketers and foodservice editors to a one-day grove tour to showcase the consistent quality and hand grown care that makes fresh California avocados the right choice for their menus. The experience seeds new ideas for menu innovation and a steady stream of publicity about California avocados. 🥑





Top Chefs Share Avocado Secrets

Through its Artisan Chef Program, the California Avocado Commission capitalizes on the popularity of well-known and up-and-coming chefs to increase demand, drive California avocado awareness and boost coverage in target markets during the season.

CAC's partner chefs, who utilize locally-grown products and enjoy working with California avocados, provide a valuable resource for public relations and other marketing opportunities. These third-party endorsers help drive awareness and demand for California avocados during the season with their regional and national reputations. They also lend invaluable culinary credibility through recipe creation and delivery of key messages during media opportunities and via social media channels.

CAC currently works with 14 partner chefs in key markets throughout the country in Boston, Chicago, Dallas, Houston, Los Angeles, New York City, Phoenix, Portland, Sacramento, San Antonio, San Diego, San Francisco and Seattle. This year, CAC continued to leverage existing chef partnerships to communicate the *Hand Grown in California* message and promote the fruit's versatility, premium quality and consistent reliability through media, events and in-restaurant opportunities.

This year, CAC leveraged the popularity of artisan chefs to host special events where they delivered key messages while guests experienced the premium fruit firsthand through interactive competitions and cooking demonstrations. The events consisted of a media/blogger luncheon hosted by Chef Ivy Stark at Dos Caminos in New York, a

day of California avocado activities at Tom Douglas' 6th Annual Culinary Summer Camp in Seattle and a sponsored dinner at the annual Evolution of Women in Social Media Conference (Evo) in Park City, Utah, hosted by CAC's featured chefs Mary Sue Milliken and Susan Feniger.

The Evo dinner is a prime example of an artisan chef program success. Even though there was a power outage at the conference hotel, guests braved the inopportune weather to make it to the dinner to meet the



famed Too Hot Tamales. Once there, the chefs shared key messages and usage ideas that the attendees then posted and tweeted about. So far, nearly 30 blog posts have hit cyberspace with many of these bloggers contributing to nearly 250,000 social media impressions. In addition, a group of attendees planned their

own "GuacFest 2012" in which they purchased their own California avocados to create unique guacamole recipes for online posting and sharing with each other as well as their blog audiences.

Artisan chefs also play an integral role in year-round news bureau efforts and other marketing initiatives. In addition, CAC utilizes its artisan chef partners in activities such as morning show appearances for Cinco de Mayo or Fourth of July. They also promote California avocado-themed restaurant menu items for California Avocado Month in June.

In 2012, Mary Sue Milliken and Susan Feniger served as the featured artisan chef spokespeople and played a key role in Cinco de Mayo and Fourth of July outreach, contributing to several national television broadcast segments, countless online hits and numerous print stories.

The artisan chef program has resulted in nearly one million consumer impressions during the 2011-12 California avocado season with coverage still happening. In 2013, CAC plans to continue to expand its artisan chef efforts, building on 2011-12 success. 🥑

For every Avocado...

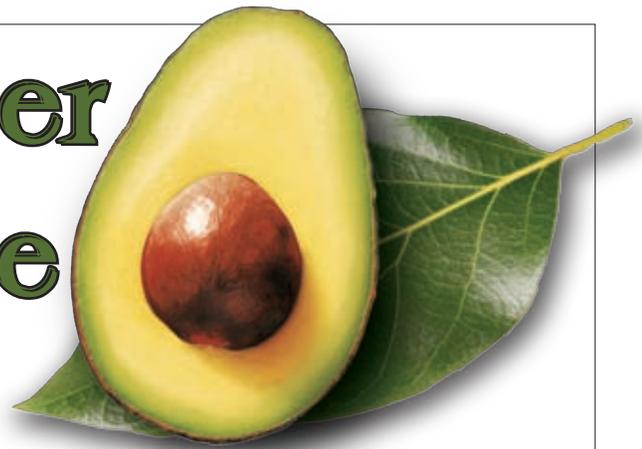
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Grower Profile



From the Halls of Congress to the Groves of Fillmore...a Grower's Journey

Monty & Maio Winkler

By Tim Linden

Legend has it that George King left Kansas in the late 1800s and made his way to San Francisco and then Fillmore by foot. It was there that he established himself first as a land salesman and then as a grower planting citrus and eventually adding avocados.

His grandson, Monty Winkler, took a less arduous route to this Ventura County hamlet, but his journey has been no less interesting.

"My mother's father was from Kansas and the family story is that he walked to San Francisco to first visit an uncle," said Winkler. "The uncle opened his door, gave him some advice and then shut the door, which sent him on his way south."

The young George King heard they were planting citrus in Piru and there could be some job opportunities. He headed to Ventura County, again by foot, and did indeed secure a job. Soon Mr. King was a land agent selling plots in the community of Bardsdale, which was named after California Senator Thomas Bard. He did that for many years and by the late 1920s, he apparently had amassed enough cash to buy one of the plots for himself. Today that 120 acre ranch sits across from the Santa Clara River in Grimes Canyon, about two miles outside of Fillmore. It is still in the King family.

"My grandfather started planting citrus in 1928 and put the avocados in probably in the early '40s," said Winkler. "I think it was the Fuerte variety."

Monty was born in 1932 and four years later he moved to the ranch when his father died and his mother had to take



Along with mature trees, they have planted 6-7 thousand new ones.

a teaching job away from the area to make ends meet. His mom eventually moved back but Monty's early life revolved around the ranch and the family house, which is where he lives today with his wife and partner, Maio. But the ranch living he enjoyed as a kid and that the Winklers enjoy again today, had more than a three decade hiatus.

After graduating from Fillmore High School and then Whittier College, Monty went to Washington, D.C., to at-

tend graduate school at George Washington University. He majored in foreign affairs and quickly found a job as an administrative assistant for Congressman Charles Teague, who represented Ventura County for many years. "I was in the right place at the right time," recalls Mr. Winkler. "I knocked on his door for a job just as one of his assistants had quit."

For the next 22 years, Winkler served Rep. Teague and his successor, Rep. Bob Lagomarsino. He then stayed in the nation's capital for another decade serving as a lobbyist for agriculture, including representing the California Avocado Commission for a time.

Along the way, he married Maio and they raised three very successful sons: one is an executive with Chrysler, another is an architect in D.C., and the third is a professor at Georgetown University.

While they spent a good portion of their lives in Washington, the Winklers made frequent trips out to California, where his mother still lived in the family ranch house and tended to the agricultural production. "In fact one of my jobs while in Washington was to lead tours of California agriculture for many of the Midwestern congressmen who knew about their kind of agriculture but had no idea about California agriculture. We also used to come here every Christmas and during other vacations. The kids loved the ranch and used to come during their summer vacations."

By now it was the early 1990s, Monty was approaching his 60s and his mother needed care. Monty and Maio moved out to take care of his mother and assume full control of the ranch. They've spent the last 20 years as growers, though Monty has kept his toes in the political theater – first as a member of the State Board of Agriculture and also as an active and avid supporter of several political candidates and positions.

"I am a big supporter of PACs (political action committees)," he says. "Relationships matter in Washington and Sacramento. PACs are a tool to establish relationships with key decision makers and actively support those who are sympathetic to our industry."

He said the agricultural community has to be generous in its giving "as that is how you open up doors."

He added: "The Congressional experience sensitized me to the significant impact government has on growers and shippers, and to the decision-making process by government officials. Ideally you identify to them the problem and suggest a preferred solution and the tools to achieve such."

On the growing front, he and Maio have set out to modernize the ranch by pulling out underperforming varieties and crops and replacing them with better producers.

"We have taken out everything that is orange colored," Maio said referring to oranges, Minneolas and other citrus varieties, "and in the last two years we have planted 6000 more avocados trees."



Monty Winkler

She added that the ranch is now 50 percent avocados and 50 percent lemons.

Monty said they have also put in a trial plot of GEM variety avocados, which he said has fruit that looks like a Haas but the tree is smaller and a better producer.

The Winklers ranch is also in the process of becoming certified for Good Agricultural Practices (GAP). And next year "we will start experimenting with the new growth regulators," Monty said.

For this interview, the Winklers wanted to specifically credit Darrell Nelson of Fruit Growers Labs and Nelson Consulting Services for all the professional advice he has given them over the years. "He really helps us in telling us when to pick and what to look for," Monty said.

Though the octogenarian Mr. Winkler shows no signs of slowing down and credits ranch living for keeping the couple young in spirit, he does think about the future and the future of the ranch. He doesn't know if any of his kids or grandkids will take over when it is their turn but he thinks they might. He reiterates that everyone in the family loves the ranch, and he remains very bullish about the future of growing avocados in California. He said Grimes Canyon has an excellent micro-climate that tends to protect the trees against frost, and he said consumption of avocados continues to head in the right direction. 🥑

Challenging Season with Great Crop Movement

There is no doubt that 2012 has been a challenging season for California avocado growers, but as far as several handlers are concerned, on balance it has been a fairly good season as a lot of fruit was moved and several important lessons learned.

"It was definitely a confusing season," said Ross Wileman, vice president of sales and marketing for Mission Produce Inc., Oxnard, Calif. "Knowing the volume that we pushed through the system, I think it was a pretty good year for growers, but it certainly didn't meet their expectations."

Wileman said with big summer volume from Mexico and California, and to a lesser extent Peru, there were some weeks with more volume than can be typically moved, which caused a weakening of the market at several inopportune times. "We (the industry) are geared toward moving 31 to 32 million pounds a week, but we had some weeks with 33 to 36 million pounds. That was just too much fruit."

With Peru gaining access to the U.S. market for the first time on a full

season basis, Wileman has heard that country's production being blamed for the difficult marketing conditions, but he doesn't buy it. Mission Produce is one of the major importers of Peruvian avocados. "We had some weeks with 18 million pounds of California avocados and 15 million pounds of Mexican fruit. Peru was shipping 3 to 5 million pounds into here. That wasn't the deal breaker."

Phil Henry of Henry Avocado, Escondido, Calif., came to a similar conclusion. "Going into the season there were very high expectations because we had exceptionally good results from last year," he said. "I think everyone recognized that prices would be lower but we still thought they'd be pretty good."

Henry mentioned Mexico's increased volume beginning in June as the biggest factor impacting the price of California avocados. "Mexico shipped pretty high volumes in June and July and they never dropped down...and they had good fruit quality."

As a result, the f.o.b. price on avocados dropped and couldn't recover, especially on the larger fruit.

"Typically we have a rising market from mid-summer to late summer but that just didn't happen this year, especially on 60s and larger"

Wileman agreed that Peru did have a bigger impact on large fruit because "they have young plantings and they produced a lot of large fruit. We have older trees in California and the fruit tends to be smaller."

Rob Wedin, vice president of fresh sales for Calavo Growers Inc., Santa Paula, Calif., thought the California industry got off to too late of a start this year. "The season didn't go as we expected," he said. "Clearly, we thought it would be better. We got started later than we should have and just couldn't move all the fruit in the shorter time frame."

He said in 2011 the crop was marketed in a very tight time frame and it worked very well. That has not been the case for 2012.

In addition, he said the industry read the sizing wrong. In April the fruit was small and so growers left it on the tree and it sized to the point where it was too large, and increased the overall volume. With a push toward earlier sales, he says more fruit

would have been sold in the spring leaving a better marketing situation for the summer and late summer.

He also said that collectively the industry is focusing too much of its sales in the West. “The West just couldn’t take all of California’s fruit. We had to go to Plan B and move some fruit to the East.”

He said that was challenging but some good lessons were learned for next year. With a bigger crop on the horizon – some have estimated a California crop well in excess of 500 million pounds – Wedin said the key will be to market early and market nationally.

But overall these marketers said the 2012 season should not be looked at as a bad year. Gene Carbone, who represents Calavo on the California Avocado Commission board, said the numbers pencil out. While growers had high expectations, he believes that at the end of the year there will be about a 30 percent increase in volume and it will be accompanied by a similar decrease in price. “That’s not so bad and what you would expect.”

He admits that he has estimated the final numbers at a figure greater than others as he thinks there will be about 430 million pounds of California avocados shipped this year.

Henry said a final farmgate price of about 80 cents per pound on this year’s volume should produce a profit for growers with good yields. But he said the high cost of water makes it very difficult for growers with poor or less than average yields.

Fourth of July Promotion

All of the handler representatives agreed that the Fourth of July promotion initiated by CAC this year is a positive move that should be continued.

Carbone said “Calavo sold a lot of fruit away from the West Coast this summer (which is where the promotion was) so it helped but it didn’t help us a lot.”

Henry called the summer promotion “absolutely a good idea” and urged the industry to continue it as he said it should reap even greater benefits in the future.

Echoing the sentiments of his Calavo colleague, Wedin said it did not impact Calavo as much as others because of its East Coast sales but he agreed that it is a good idea and will need “multiple years of promotion” to establish the summer holiday period as a big avocado consumption time.

“I thought it was a good start,” said Wileman. “We saw good movement. The only negative about it is that at that time of year we are competing against a lot of other fruits (for retail promotions).”

2013

With a California crop that could approach or surpass 500 million pounds next year, no let up in sight in Mexican avocado volume, a good Chilean crop and a potential for increased production from Peru, there could be record volume needed to be moved next year. In fact, Carbone is estimating that there will be as much as 1.9 billion pounds available in the U.S. marketplace. He reasons that Mexico could ship 900 million pounds to the United States and California could add as much as 600 million pounds. Throw in Peru and Chile and he said 1.9 billion pounds is feasible. At that volume, he said avocados are going to have to be marketed at retail at about \$1 per piece returning 75 cents a pound to growers.

Carbone said growers with good production will make it, but those with higher water costs and poor yields, will not make a profit.

Wedin said growers are going to have to have more realistic expectations next year and do a better job of production planning if the large crop materializes. He advocates some size picking to allow for earlier shipments

and a longer marketing year for the California crop. Besides expanding its marketing reach across the country, Wedin said Calavo believes there has to be an even greater push for the selling of ripe fruit. “There has to be more and better ripening programs at all levels,” he said. “Many ripening programs are not as good as they should be.”

He explained that handlers are fitting the specs of the buyers but some operations just aren’t selling the fruit to the consumer at the right ripeness level. And he believes that all ripe fruit should be stickered to give the consumer added knowledge and an easier purchase choice. “If the ripe program is conducted properly, it does not increase shrink,” he said. “Shrink actually decreases.”

Wileman of Mission remains bullish about avocados even if the huge crop appears. He said U.S. consumption is growing at 10 percent a year which can take most of the volume increase. “And let’s not forget the global impact on avocados. Europe’s demand for the Hass variety is growing and the growth in Canada is off the charts. Japan and Asian demand is also growing. For the first time ever we shipped avocados into China this year. I’m very bullish but we also have to be realistic.”

He said the doom and gloom scenario is not warranted but indicated it is also not possible to expect price increases when the volume climbs significantly from one year to the next.

Henry is one person who is not certain that the tremendous increase in California volume will materialize next year. He said this year’s market will take its toll on some of the poorer producers in areas where water prices are sky high, and they will get out of the business. He said water costs in some areas of San Diego County are just too high to justify marginal avocado production numbers. 

CAC Road Trip “Cooks Up” Ideas

Remember the good old days when you piled in the car and traveled cross-country for the family vacation? Well, the California Avocado Commission has returned to those “postcard” days of travel. And this month we came out to see you—our family of growers—for some traditional Cook-Outs where, together, we “Cooked Up” some great ideas.

A New Research Initiative

Who says research can't be fun? Enhancing grower communications is a top priority for the California Avocado Commission, so we invited you to join us at one of three Grower Listening Sessions/Cook-Outs. Our goal in hosting these sessions was to...

- Improve overall CAC communications
- Launch a new, redesigned grower website
- Identify the information you need
- Deliver content and articles in formats you desire, when and where you need it
- Understand how we can better facilitate sharing, interaction and ideas



CAC President Tom Bellamore says, “We hope you enjoyed ‘cooking up’ some good ideas together. Our grower communications cover the gamut from Field Day demonstrations to articles in *From the Grove* to Internet-based newsletters, research reports, videos and more. While we are gathering feedback using traditional methods and face-to-face communication, we also want to take this opportunity to look forward. We need your insights that will help us better communicate with you, assist us in better delivering the information you need, in the formats you desire, and in ways that offer opportunities to share, interact and learn from each other. If you missed out on the cook-outs, we invite you to sign up for a telephone interview to share your ideas.”

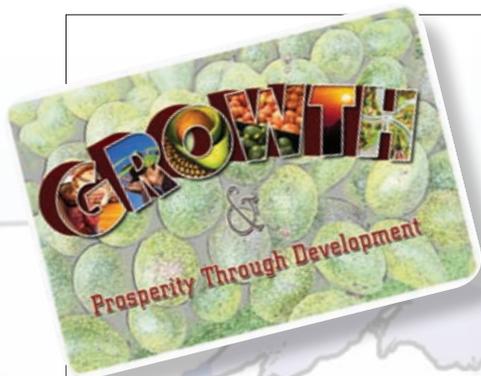


New Paths to Prosperity

While times change and information super-highways replace dirt roads, some things remain the same. Point #6 of the CAC 7-Point Plan summarizes our overarching goal well: to “seek continual improvement in grower communications.” (<http://www.californiaavocadogrowers.com/7-point-plan>).

Over the next month, detailed telephone interviews will be conducted to gain a deeper understanding of your needs as related to topics that emerged from the listening sessions. Look for upcoming articles about our findings. We'll begin development of the new grower website in November, all culminating in the launch of your new website in Spring 2013.

Today we have more ways than ever to get there, yet we all share the same destination. We are seeking honest feedback and open minds as we endeavor to understand every item on your wish lists. Thanks to all of you who have already shared your thoughts, and we invite those who didn't have that opportunity already to share your ideas with us in the spirit of cooperation.

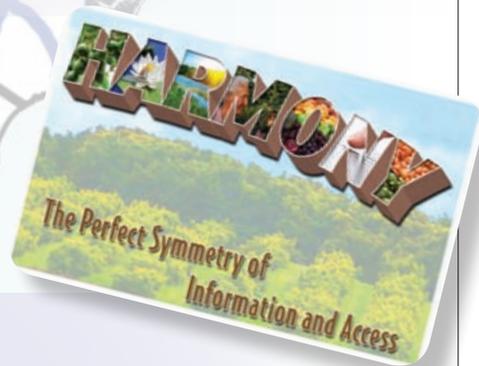


A New Partnership

Route 66 symbolized the road to opportunity for hundreds of thousands who migrated to California following the Dust Bowl of the 1930s—and later millions went on vacation on our nation’s first cross-country highway. As fate would have it, the “Mother Road” almost exactly connects the locations of CAC and its newest partner, TMA+Peritus (TMAP), a full-service content marketing and web development agency based in the agricultural heartland of Madison and Wausau, Wisconsin.

In order to assist us with this grower communication initiative, CAC has entered into a new collaborative effort with TMAP. Our partnership emerged from a lengthy review process of many communications companies. We selected TMAP because of their knowledge of the agricultural community, their technical expertise and track record of working with numerous clients that fit our precise needs. Their staff developed successful marketing campaigns for a variety of agriculture commodity boards, including the American Dairy Association, Wisconsin Milk Marketing Board, and the Wisconsin Potato and Vegetable Growers Association. In addition, the agency collaborated with partners including the World Wildlife Fund, Defenders of Wildlife, the International Crane Foundation and researchers at the University of Wisconsin-Madison in generating greater consumer and trade brand awareness for Healthy Grown, the nation’s only environmentally friendly potato. TMAP has vast experience in collaborative research efforts, creating websites, marketing strategies and digital content for economic development initiatives with strong agricultural components integrated into regional branding initiatives.

“It’s an honor for our agency to be selected for this project. We’re looking forward to working with the California avocado growers and CAC as we conduct additional research and gain insights that will lead to a new grower website and enhanced communications efforts,” said Kathy Marks, TMA+Peritus managing principal.



Timeline for CAC Communications Initiative

September—Grower listening sessions

(Visit <http://www.californiaavocadogrowers.com/vocsessions/> to see photos from our three grower listening sessions in Fallbrook, Pismo Beach, and Santa Paula.)

October—Telephone interviews

November—Development begins on new grower website

Spring 2013—New website launches

Missed out on the Grower Listening Sessions?

Call 715-573-1936 to schedule a telephone interview to give your input.

New Food Safety Materials Provide Grower Education, Training

As more and more food safety outbreaks are being reported, the pressure increases on all produce growers to step up their food safety programs. California avocados are no exception. From one direction comes the Food Safety Modernization Act (FSMA) that, when implemented, will impose mandatory food safety standards on the industry, and from another direction come consumers, whose concerns about the safety of produce they eat are putting pressure on buyers to ask for certification from their suppliers.

In response, the California Avocado Commission put together a set of Good Agricultural Practices (GAP) and Good Harvesting Practices (GHP) specific to the avocado industry. These practices are the basis of a grower food safety program that can be certified by a third-party audit.

“Consumers want assurances that the food they buy has been grown with every precaution taken to avoid contamination, and certification under the CAC GAP/GHP program communicates a grower’s commitment to food safety,” said Ken Melban, who is director of issues management for the commission.

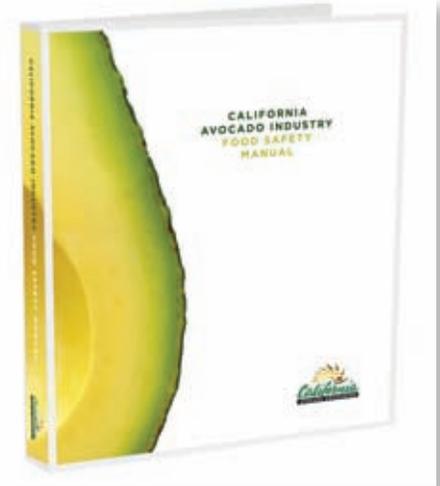
“Moreover,” he continued, “under FSMA, there will be food safety policies that will likely impact all California growers. Our food safety program addresses both those concerns, and also protects the hand-grown image of California avocados by ensuring consistent food safety practices without burdening growers with onerous requirements that do not improve the safety of the fruit.”

Why do we need a program?

Although the CAC GAP/GHP documents list and describe the steps growers need to take to become certified in food safety, it is also important to understand the justification for these steps. They don’t, in general, provide detailed justification. For instance, did you know that:

- Field workers who are sick or fail to wash hands after using the toilet can transfer bacteria to avocado skins?
- Using water that doesn’t meet appropriate quality standards in the spray tank for applying pesticides or foliar nutrients can spread contamination onto trees?
- A livestock operation near an avocado grove, or growing avocados on land previously used for livestock, can be a source of microbial contamination?
- Once harmful pathogens contaminate avocado skins, they can be transferred to the flesh when the fruit is cut with a knife?

The CAC has now upgraded and added to its lineup of food safety documents with the help of Broadhead, an agricultural marketing and communications group headquartered in Minneapolis with offices in the Bay Area and Washington, D.C. Broadhead cut its teeth on food safety working with the Almond Board of California, developing food safety documents and outreach communications to growers and



The Food Safety Manual includes the complete Good Agricultural and Good Harvesting Practices, Pre-Audit Checklists and more.



The Quick-Start Guide offers a high-level introduction to food safety practices. Download a copy from CaliforniaAvocado-Growers.com/GAP.

handlers shortly after that industry experienced food-safety incidences in 2001 and 2004.

GAP Education Funding

Funding for CAC's GAP education series comes from a Farm Bill Specialty Crop Block Grant awarded by the California Department of Food and Agriculture. The project, "California Avocado Grower GAP Education Series," is designed to "educate growers on food-safety principles included in the avocado GAP program and facilitate compliance with GAP audits and standards."

Included in the educational materials is a new food safety binder, a comprehensive collection of avocado food safety documents including:

- Good Agricultural Practices and Pre-Audit Checklist
- Good Harvesting Practices and Pre-Audit Checklist
- Quick-Start Guide
- Quick-Start Self-Assessment

While the first two documents have been updated, the final two are completely new. The Quick-Start Guide is an introduction to the complete GAP/GHP documents, covering the "why's" as well as the "how-to's" of avocado food safety. The companion piece, a Self-Assessment, allows growers to quickly make a general assessment of their practices and discover areas in which their food-safety programs may need work. Cross-references to the GAP/GHP documents provide quick and complete details of the steps needed for compliance.

Many of the actions required in a food-safety program call for documentation. To simplify this process, wherever documentation or record keeping is needed, templates are provided for growers to copy and use.

Achieving certification of a food-safety program should not be costly or time-consuming — most growers already have good practices in place but need to document those practices and improve on those that do not meet standards. Once growers are satisfied that they have a food safety program in place, the Pre-Audit Checklist can be used to confirm that they are ready for a third-party audit. Passing this audit qualifies them to be certified in food safety, adding to the already highly valued adding to the esteem of the California avocado brand.

In the first six months of the California avocado food-safety initiative, more than 9,300 acres have been certified, representing about 20 percent of total acreage. While the goal is

100 percent certification, this is an important first step that demonstrates the commitment of growers to a food safety program.

With these new materials to help more growers understand the need for food safety, that goal is not out of reach. And to help defray the cost of an audit, CAC is offering a GAP Incentive Rebate of up to \$300 for actual costs of a GAP inspection for as long as funds are available.

All food safety materials can be downloaded at CaliforniaAvocadoGrowers.com/GAP. Or, email the commission office at cac.iaf@avocado.org.



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Better Growing

By Jonathan Dixon
CAC Research Program Director

Growing Avocados: Why is it So Complicated?

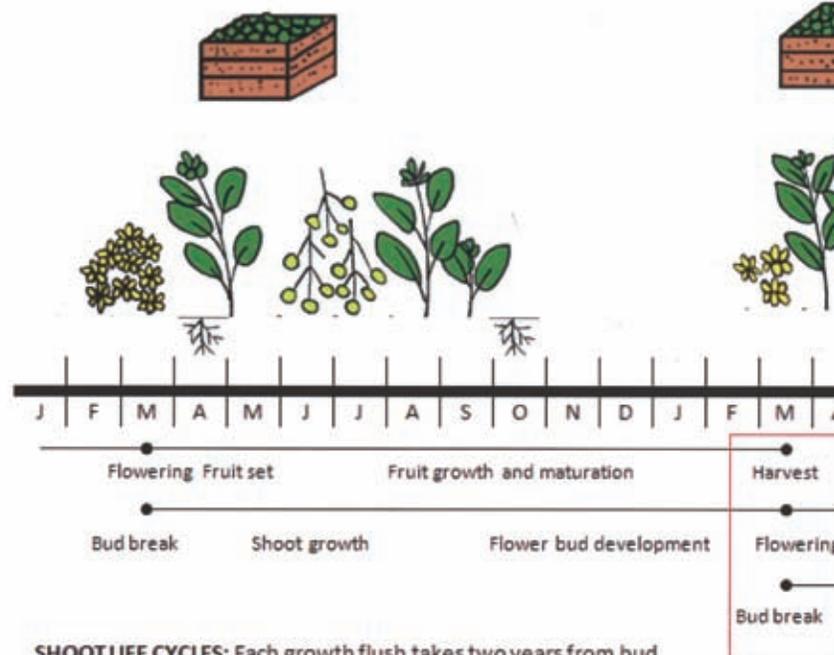
When I arrived in California in 2010 to start as research program director, I encountered an industry dealing with a very large crop of 535 million pounds. This crop had been preceded by a very low crop in 2009 of only 175 million pounds. In 2011, the California avocado crop was 303 million pounds and the 2012 crop is projected to be over 400 million pounds. Now as of late August 2012 some industry commentators are suggesting the next California avocado crop could be 600 million pounds. The total crop fluctuating up and down from year to year and being somewhat unpredictable is not unusual and occurs in all avocado regions worldwide.

But the change in total avocado crop each year can hide the potentially extreme variation in yields from year to year that individual avocado groves experience. For some growers, a grove can crop well one year and then have almost nothing the next. I saw examples of avocado groves in 2010 where the trees were carrying heavy crops and failed to flower and set a crop for 2011. Such an irregular yield pattern is generally harmful as grower incomes fluctuate unpredictably and it is difficult to develop an industry-wide marketing program when there is feast or famine with financial resources.

Developing consistent production is a desirable trait that the CAC Board recognized in January 2011 and defined as one of its five technical strategic imperatives: Achieve and sustain critical industry mass. This imperative sets the goal that regular supply of high quality California fruit is required to sustain grove profitability and is advantageous for a successful long term marketing program. The focus of the CAC outreach program and a number of research proj-

THE TWO YEAR ALTERNATE BEARING CYCLE:

sink strength changes each year, in an "off-crop" year it is mostly to flowers and fruit

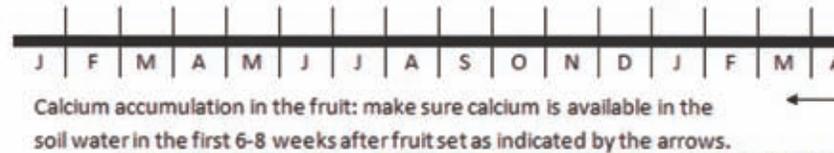


SHOOT LIFE CYCLES: Each growth flush takes two years from bud break until fruit set on the flush are harvested



EXAMPLES OF CRITICAL TIMES FOR:

Phytophthora control: apply control measures when the roots are the primary sink; arrows indicate when roots are the primary sink



Calcium accumulation in the fruit: make sure calcium is available in the soil water in the first 6-8 weeks after fruit set as indicated by the arrows.



Roots



Bud break



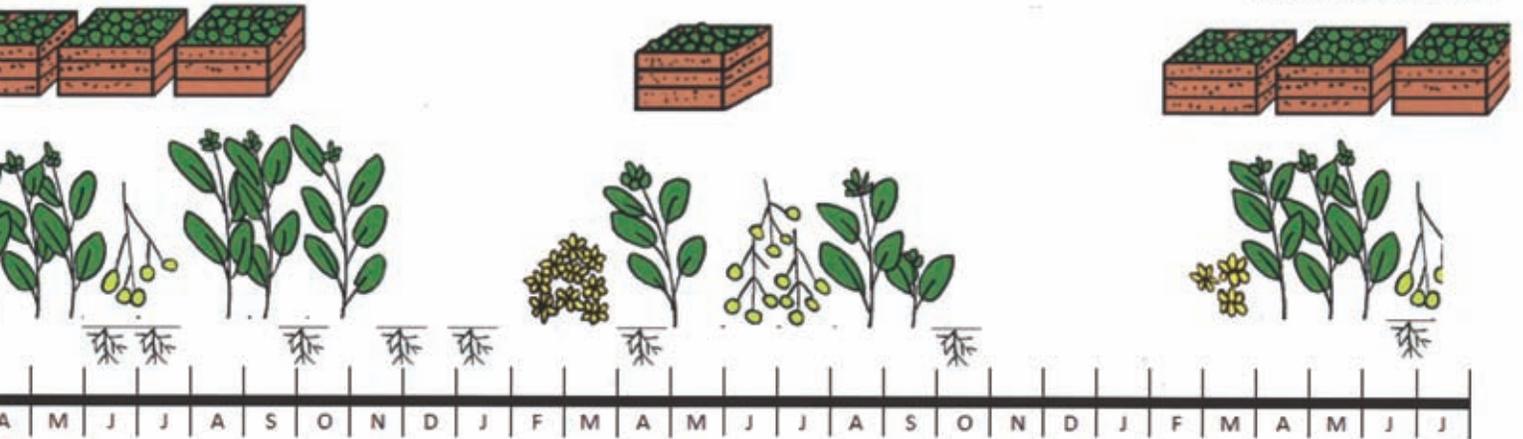
Shoot growth

ects over the next few years is to increase yields and to create a California avocado industry with smaller swings in production each year.

Why do avocado crops vary by so much from year to year?

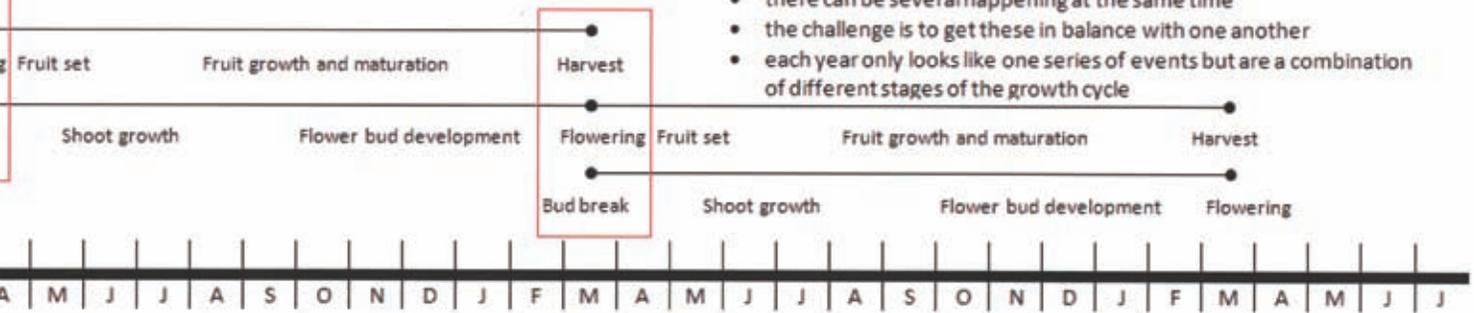
The answer is not simple and, in my opinion, requires developing a big picture view of how avocados produce fruit, and then determine what that may imply to explain differences in yields

...t, in an "on-crop" year it is mostly to growth



MULTIPLE SHOOT GROWTH CYCLES HAPPEN AT THE SAME TIME:

- there can be several happening at the same time
- the challenge is to get these in balance with one another
- each year only looks like one series of events but are a combination of different stages of the growth cycle



...the best application times



Shoot growth Flower development Flowering and shoot growth Fruit set Fruit ready to harvest

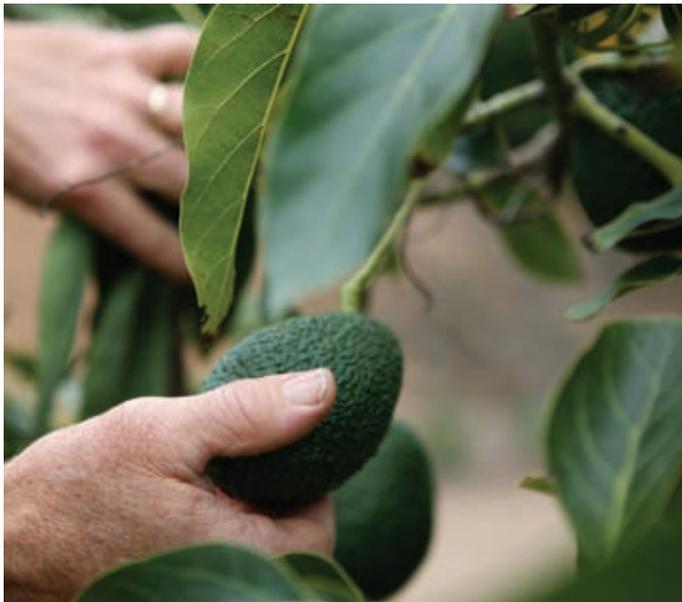
from year to year. More importantly, that information can be used to suggest what can be done to manage the trees for regular yields.

There is a lot of scientific research and observations of avocado trees and their fruiting habit that only describes relatively small parts

of the big picture of avocado fruit production. The research is rarely integrated into a meaningful holistic explanation of avocado fruit production. This is in part due to gaps in our knowledge which leads us to speculate or at least offer best guesses on some aspects of avocado fruit pro-

duction.

From this explanation cultural management "best practice" can be proposed. The best practice can then be tested through monitoring and evaluating the yields of trees under different management regimes. Over time it should be possible to adjust as-



pects of best practice and to monitor if there are improvements to yields.

The development of a best practice scheme starts with a review of the basic knowledge about growing and producing avocados. Best practices are then modified to incorporate other factors into a description of the very complex system that growers have to manage. For the average avocado grower determining best practice can be a challenge as there is an incomplete understanding of the best way to grow avocados. There may also be random factors, like the weather, to take into account. It is easy to become overwhelmed by the complexity of successful avocado fruit production. Many growers tend to limit their focus on what they do understand and therefore only concentrate their efforts on a limited part of the system used to produce fruit.

To a grower, a lighter yield than expected is the most common symptom showing there is a problem (in my view a much bigger yield than expected is also a problem). This fruit set failure could have a single cause but is more likely to have multiple causes. Fruit set failure need not occur as it is known that consistent yields are possible as some groves do achieve consistency. The best avocado groves for high yields and consistent production generally have these features: good free draining soils;

low Phytophthora root rot pressure; good high quality water and irrigation management; a good fertilizer program to support fruit production; and a pruning system that manages costs without overly reducing fruiting potential. A well managed grove typically will: show plenty of flower buds developing over fall and winter; accumulate

high levels of starches and sugars in the trees; show high leaf health with large leaves that stay dark green all year, are retained until shaded by new growth, with little leaf drop during flowering and tip burn is minimal; good root growth with new white roots easy to find in the leaf litter under trees; good shoot growth with lots of growing tips for flowering points; and the trees are maintained in a more generally juvenile state through pruning.

To understand the causes of poor fruit set requires a look at some of the very general principles at work, but to also understand that different avocado groves need different cultural management activities as there are differences in soils, the site and grower methods from grove to grove.

The first general principle is to avoid irregular/alternate bearing production through good cultural management. The second is when irregular/alternate bearing occurs to act quickly to break the cycle. However, breaking the cycle can take 2-3 years, for reasons described later. The cultural management system used each year will depend on whether the grove is under regular production or if intervention is needed to get into consistent production. The goal of any avocado cultural management

system is to have grove-specific activities to grow the right type of fruiting wood at the right time so that there is regular flowering each year enabling the tree to support root, shoot and fruit growth.

Manipulating the production of good quality fruiting wood on avocado trees is where growers can exert the most control of the tree through cultural management. For example, if growth is too great then a grower can reduce fertilizer applications and prune off the excess growth. If growth is not enough then a grower can fertilize and water more and prune to encourage the right kind of growth.

To get good growth there are three more general principles to use: ensure the trees have good exposure to light; have an adequate supply of good quality water; and have the appropriate nutrition. Trees with the right balance of fruiting wood have the potential to come back from serious set-backs, like a freeze, better than trees that are not well set up.

To get consistent production, the cultural management system used needs to present options for avoiding and for breaking the alternate bearing cycle. To avoid alternate bearing requires “proactive” management in looking forward and anticipating what the trees will do. Managing the trees proactively is more challenging than the alternative “reactive” or passive management as it requires a good working knowledge of the avocado tree growth cycle and the symptoms of problems. Many growers opt for reactive management of their trees by waiting for problems to show up.

To avoid and break alternate bearing, requires recognizing there is a problem early and then taking action to correct the problem. For proactive management, good monitoring and record keeping is essential as this is the only way to determine if the management activities have worked or there is still a problem. A good

start is to carry a small notebook to make notes on observations in the grove as events happen. The notes are then a good reference to look back to determine what was done to rectify the issue.

To explain, to the limit of our current understanding, why avocado crops vary from year to year, it is necessary to look at the tree growth cycle. The diagram shows a generalized description of three and one half years of avocado tree growth where the trees are in an alternate bearing cycle. Most classical descriptions of the avocado growth cycle describe the visual activities of the trees within one calendar year and is the most common model used when identifying management activities. The single year models for fruit trees work well when the tree has very well defined “seasons”. Deciduous fruit trees have relatively easy to define growth cycles as there is a very clear dormant period each year where the leaves are shed, there is no fruit on the tree and the trees are clearly inactive. This is then followed by very active periods of flowering, shoot growth and fruit development.

However, avocado trees are evergreen subtropical/tropical trees that are never truly dormant. They slow down in winter but never really stop growth and development. The lack of a truly dormant period makes cultural management of avocados more complex as the end of one phase of the growth cycle is not well defined and the timing of phases in the growth cycle tends to move around the calendar from year to year.

Avocado trees do have phases in their growth cycle that can be recognized as relatively distinct events, for example flowering and shoot flushes. When the growth cycle of avocado trees is looked at in more detail down to the level of individual branches, it is possible to see that there is a clear, well-defined pattern to how branches grow. It is the sum of the individual

branch growth patterns that is then observed by the grower. Because the whole tree growth cycle is the collocation of lots of slightly different growth patterns, tree growth cycles can appear to vary a great deal from year to year.

A simple version of an individual fruit-bearing branch’s growth pattern is:

- a vegetative bud to a vegetative shoot which grows for some time before stopping;
- the buds on this new shoot then either begin to develop into flower buds or remain vegetative;
- the flower buds develop over winter in preparation to flower in spring;
- flower buds break and grow rapidly into flowers;
- flowers open and fruit set occurs; unfit fruit are shed and the remaining fruit then grow until harvest.

This whole process usually takes about two years, which adds a further layer of complexity as individual vegetative buds start to grow at different times of the year and across different years. This means that on an avocado tree there are branches following the same growth pattern but are at different stages at the same time. In the diagram this is illustrated by the lines under the drawings showing where the shoot growth cycles overlap. Therefore the growth cycle that appears to be a yearly event is really a combination of multiple two-year growth cycles. This implies that to manage avocado trees for regular high yields each of these overlapping growth cycles needs to be in balance with one another. Branches in one part of the growth cycle are likely to be competing for resources with branches in other parts of the growth cycle.

For example, it has been observed that when flowering is very heavy and a lot of fruit are set, only

small amounts of shoot growth occur. This reduced shoot growth then leads to low amounts of flowering and fruit set the following year, and alternate bearing. An imbalance of different stages of the branch growth pattern can also affect the growth patterns of roots and fruit. Getting the balance between all the different growth stages right is a major challenge for successful fruit production.

Understanding the branch growth pattern is important when formulating cultural management best practice as this then defines the growth cycle and identifies where it is possible to intervene in order to manage the trees for best yields. This is most important in understanding how different pruning strategies could be used depending on the phase of the branch growth cycle and the balance of the multiple branch growth cycles. For example, excessive flowering of the trees can be reduced by pruning at the time of flowering to force more vegetative bud break that will lead to more flowering in the following year avoiding a very poor crop and breaking the alternate bearing cycle.

Over the next few years, the Commission is planning to investigate some different best practice schemes by establishing demonstration groves where cultural management activities can be monitored and measured. To set up an evaluation of different cultural management schemes, we first have to produce a cultural management calendar, even though it may be flawed, and begin the process of evaluating what happens to the trees when best practices are applied and when best practices are not followed.

In addition, it is important to demonstrate to growers what they should look for when monitoring their trees. The demonstration grove testing cultural management best practice should also enhance a grower’s ability to manage trees as needed to realize high, consistent yields. 🥑

PRC Analyzes New Proposals

The summer is a busy time for the Production Research Committee (PRC) with the review and evaluation of concept proposals received from the May, 2012, call for proposals.

Fourteen concept proposals were submitted to the Commission covering projects on pests and diseases, postharvest quality, plant breeding, outreach, productivity, and salinity. The total funding requested for new projects was a little more than \$1.4 million. In addition, the PRC solicited research proposals on the Shot Hole Borer and Fusarium dieback complex and received proposals requesting more than \$300,000 in new funding. At the January, 2012, CAC Board meeting, the commissioners approved funding for three research projects from the 2011 research proposal round, which, with the Alternate Bearing project, total just over \$300,000. Altogether the PRC meeting had close to \$2 million of funding requests for production research projects.

The PRC met on July 11 to consider the concept proposals analyzing each project as it relates to the Commission's research strategy and its value to the industry.

Three of the fourteen proposals were related to plant breeding as either continuing research or new research. The committee decided to table those proposals and wait until the

review and planning for a new long term effort on plant breeding is completed. In the meantime, the current continuing plant breeding projects will be supported so that breeding capital is not lost. If the breeding program is maintained at the current levels of funding about \$340,000 will be required.

Each PRC member ranked the 11 remaining concept proposals from highest to lowest and rated the proposals as to how well they fit the Commission's strategic needs. The values were averaged across the committee members and were used as the basis for discussion on the merits of each proposal. The discussion resulted in PRC recommending that eight concepts be developed into full proposals for presentation and consideration at the PRC meeting in late August (after the deadline for this article).

The concept proposal most highly regarded by the committee was from Professor Joe Morse on Sustained Chemical Control of Avocado Arthropod pests. In this project, Professor Morse of UC Riverside proposes to develop methods that can be used to document abamectin resistance in avocado thrips and persemites. The ultimate aim of this project is to see that the efficacy of abamectin is retained for as long as possible by reducing potential overuse and rotation of alternative chemicals.

The second highest ranked pro-

posal was from Dr Mary Lu Arpaia, also of UC Riverside, who is proposing to develop a sufficiently large amount of budwood from potential salt tolerant rootstocks imported from Israel in preparation for a larger trial on evaluating salt tolerant rootstocks in different growing regions of California. The third highest proposal was from Dr Peggy Mauk, UC Riverside, who is proposing to investigate a range of Californian and South African rootstocks for their salinity tolerance in a replicated trial.

The proposals on salinity are very welcome as high saline water can reduce yields and is a serious issue for many California avocado growers. These top three proposals are requesting about \$230,000 of funding.

The lower ranked proposals included a concept from Dr Frank Martin (USDA, Salinas) to develop a better test for determining Phytophthora root rot leading to a possible field test. Root rot and Phytophthora induced trunk canker continue to be serious disease issues on avocados reducing the productivity of trees. A field test would allow growers to monitor root rot in their groves.

Dr Mark Hoddle (UC Riverside) has proposed to investigate his large collection of mites from Mexico under a grant from the U.C. Hansen Trust for potential predator mites

that could be used as future biological control agents. Dr Mary Lu Arpaia (UC Riverside) wants to look at maturity and eating quality in different growing environments and investigate the potential of Near Infra-Red spectroscopy to non-destructively measure dry matter. Dr Alassane Toure (Geospatial partners) has proposed a proof of concept study on using satellite imagery to determine stress on avocado trees. The measurement of stress could then indicate if the trees were diseased.

The final concept proposal was withdrawn by the authors before the full proposal deadline. These four proposals total about \$240,000 of funding requests.

The PRC also discussed the research proposals put forward by researchers on the Shot Hole Borer and Fusarium dieback. It was recommended that the proposals be approved with some modification by the Executive Committee of the CAC Board. The Executive Committee met on July 24, 2012, and under their emergency mandate approved research projects addressing Fusarium dieback and the Shot Hole Borer under the supervision of Dr. Akif Eskalen, Professor Richard Stouthamer

and Professor Tim Paine of U.C. Riverside. The proposals cover identification and determination of the beetles likely origin; biology and control of the vector; and biology and pathogenicity studies. The total funding approved is \$250,000.

This means that before the PRC meeting in late August there was about \$550,000 of funding for research already committed. With the total request for funding whittled down from \$2 million to \$1.36 million.

The PRC met again on August 27 to hear presentations from researchers and to make recommendations to the CAC Board as to which new research projects should be funded for the next CAC fiscal year.

Over the past couple of years a new research process and system has been implemented that has more accountability but which also allows for multi-year funding of research (see Summer 2011 Issue of *From the Grove* for a description of the system). The system is also more clearly aligned to the Commission's strategic goals and business plan. The research approved is more in-line with strategic initiatives that seek to ultimately set up systems in the industry that help

growers to get the tools they need to be more sustainable and profitable.

This has meant that the PRC has a more challenging task in evaluating research proposals to look at the broad picture and assess how well the research projects will advance the business of avocado growing. The members of the PRC are being asked to make difficult choices as not all research proposals will be funded. It is important the PRC can say no to some proposals as the Commission is being asked to make funding commitments of substantial amounts of funding across several years.

For example, a three year research program totaling \$500,000 over the three years demands a great deal of careful thought and analysis of how such a project will advance the industry before a recommendation to fund can be made. Because research is an important strategic investment by the Commission, the PRC has vigorous discussions on each proposal before a vote is made to recommend or turn down funding. Seeing the big picture and strategic thinking by the PRC is ensuring that California avocado growers assessment dollars are spent wisely on the best research projects to meet industry needs. 🥑

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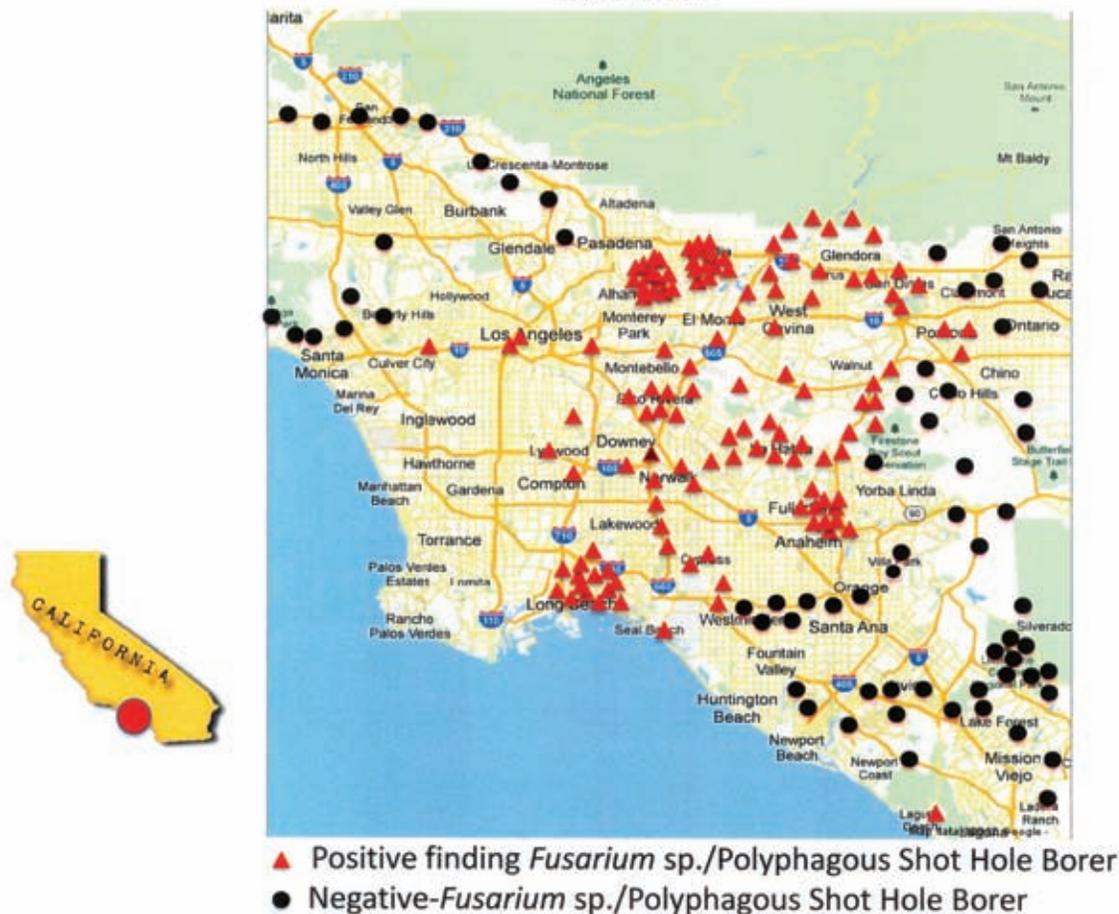
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08/21/2012



Shot Hole Borer Update

By Jonathan Dixon
CAC Research Program Director

This summer, the Executive Committee of the California Avocado Commission Board of Directors, under an emergency mandate, approved three research projects on biology and control of *Euwallacea fornicatus* (Tea Shot Hole Borer/Polyphagous Shot Hole Borer) the vector of *Fusarium* dieback disease in avocados and, understanding the fundamental biology, epidemiology of *Fusarium* species and fungicide screening.

The three projects represent a swift and comprehensive approach to the beetle and disease complex. It is expected the Commission will be funding close to \$600,000 worth of research on the beetle/*Fusarium* dieback complex. This is

a serious effort to combat what may be a serious potential pest. However, despite the research effort of the Commission it is likely that the beetle and *Fusarium* disease will continue to spread through the urban landscape and forests in Southern California where the damage and death of native trees occurs faster and more severely than for avocado trees.

The following is a summary of each approved project.

Identification of shot hole borers and determination of the species of *Euwallacea* affecting avocado in California. Professor Richard Stouthamer and Dr. Paul Rugman-Jones Department of Entomology, University of California, River-

side

This is a small research project totaling \$19,494 in the next CAC fiscal year which will support activities around the DNA identification of beetle specimens collected in surveys from overseas collectors, museums and Florida. This is important support for the other research projects and it is hoped that it will eventually result in research publications on identifying the beetle, and may help to pinpoint the geographical origin of the beetle. Both Professor Stouthamer and Dr Rugman-Jones have been very active in research on the beetle since its discovery about six months ago.

Biology and control of *Euwallacea* sp., the vector of Fusarium dieback disease in California avocado. Professor Timothy Paine, Christopher Hanlon and Michele Jones, Department of Entomology, University of California, Riverside

This large, highly important project is scheduled to run over the next two and a half years and cost \$325,502. Professor Paine and his team are very experienced in researching bark beetles and similar insects. Overall, the research project breaks down to two major deliverables: treatments that growers can use to manage the Fusarium dieback disease and a description of the fundamental biology of the beetle associated with the Fusarium dieback disease.

Specifically the project will involve research that looks at a range of contact insecticides on arriving and colonized beetle mortality by applying a range of insecticides on uninfested tree trunks and large limbs either in the quarantine facility at UC Riverside or in the field. Treated trees will be sampled monthly to determine if there is an effect on colonization rates. Treated log bolts will be exposed to beetles every three months to see how long the treatments remain effective. A parallel study using systemic insecticides will also be conducted. Already infested trees or log bolts will be treated with insecticides and the emergence of beetles evaluated. There will be research projects evaluating the physical treatments of solarization of infested material or chipping of infested material into different sized chips to assess if the beetles and/or fungus are killed or reduced in population.

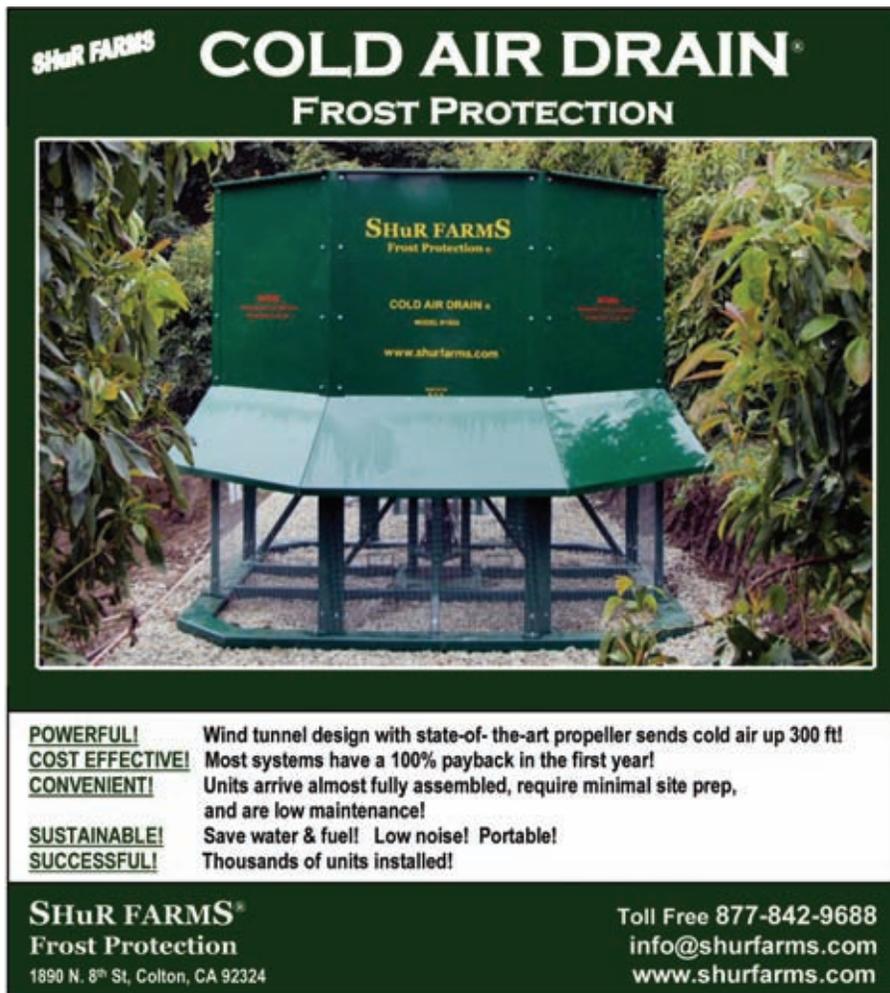
Further research projects will look at the number of generations each year and the temperature dependent development rates of the beetle. The surviv-

al and reproductive rates in different host species including different avocado varieties, common landscape trees and native trees will be determined. There will also be an experiment looking at the beetles preference for different avocado varieties and other host species. The attractiveness of host plant stress will be investigated using trees subjected to different soil moisture deficits. And there will be an investigation of the attractiveness host plant in relation to previous infestation history. There is some thought that the beetles do not “mass attack” a tree but debilitate the trees through repeated infestations that eventually overwhelm the trees defenses.

Identification and management of Fusarium dieback disease on avocado in California. Dr Akif Eskalen, Dr Greg Douhan, Professors Paine and Stouthamer, UC Riverside and UC farm advisors

This is another very important project as the beetle feeds on the fungus it uses to infect trees. It is the fungus that causes the most harm to the tree and causes dieback or canker symptoms. The research is for 18 months at a cost of \$94,588.

The research is seeking to understand the biology of the



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different kinds of fungi the beetle carries by careful DNA analysis of fungal samples and to give clues as to how the fungus is spreading. The growth of the fungi at different temperatures from 41F to 104F will be studied as will the effect of light of the production of spores. The severity of the fungus on causing disease in avocado trees will be investigated by inoculating avocado trees with cultures of each different kind of fungus. Potential fungicides will be tested in the laboratory and then the most promising fungicides tested under greenhouse conditions using different application methods of soil drenches, sprays on trunks and branches.

Invasive Ambrosia Beetle Conference

This scientific meeting, funded by the Hofshi Foundation and supported by the University of California, was held in Riverside in August, with 63 experts, who over three days went out into the field to see beetle infested trees exhibiting symptoms of Fusarium disease. Different tree species do not necessarily show dieback symptoms. There were presentations outlining current knowledge on ambrosia beetles and their symbiotic fungi and the situation in Israel.

The meeting brought together national and international experts from a wide range of backgrounds and experience with ambrosia beetles and the beetle *Euwallacea fornicatus* in other countries and on other plant species. Of particular note was the presentation given by Dr. Jiri Hulcr from the University of Florida on ambrosia beetles in general and his thoughts on the behavior of the Shot Hole Borer in California.

Dr Hulcr pointed out that *E. fornicatus* is not a well-defined species and may be a patchwork of different populations around the world as the beetles are an inbred species (mating is mostly between brothers and sisters) of clones diverging into different species. This may mean that the same species can have very big genetic differences but look the same. This may explain why beetles that look the same in different parts of the world have different hosts and life cycles. It also implies that only one beetle is needed to become established in a new location. With respect to the severity of the beetle attack and fungal infection *E. fornicatus* is in the middle of the spectrum with Laurel Wilt and Red Bay ambrosia beetle (present in Florida) representing the most severe type of damage. The Fusarium fungi can kill trees if there are too many beetles that overwhelm the trees defenses.

There was discussion on how the beetle population appears to be exploding as it encounters new tree species. While in some types of trees the beetle can reproduce, most of the trees attacked by the beetles are poor hosts for reproduction. This could suggest that once all the best hosts are killed or removed, the beetle population will collapse to low background levels. Therefore, it should be possible

to do something practical to slow the spread of the beetle by removing the most favored host plants at the edge of the infestation. It is clear that the California native trees Box Elder (*Acer negundo*), Coast Live Oak (*Quercus agrifolia*), and the invasive weed species Castor Bean (*Ricinus communis*) are very heavily infested by the beetle. Box Elder and Coast Live Oak appear to be killed in short order by the fungi associated with the beetle while Castor Bean seems to survive a long time. English Oak (*Quercus robur*) and Golden Rain (*Koelreuteria paniculata*) also look to be very susceptible to the fungus. Avocados are also infested by the beetle and can suffer some dieback but do not have the severe and immediate reaction to the fungi and beetle that Box Elder and Coast Live Oak have. Many other different species of trees are attacked by the beetle, however, at this point it is not well established how well the beetle will breed in different tree species or if it is only trying out the trees.

The beetle looks the same around the world but has different behavior and symbiotic fungi in different countries and therefore there may be different species in each country. To illustrate, in Sri Lanka on tea plants (*Camellia sinensis*), the beetle attacks young thin woody branches and is controlled by pruning and chipping. In Australia, the beetle attacks small branches on avocado trees, while in California and Israel the beetle appears to attack the trunk and main limbs. It was also interesting to hear that in Australia, in a much wetter climate, fungi that kill insects were found to have killed the Shot Hole Borer beetles. In Florida, the beetle is present but appears to infest trees after the Red Bay Ambrosia beetle and Laurel Wilt have done the damage.

After much good discussion, it was clear that the research projects approved by the Executive Committee in July were on the mark and did not need to be changed. Of particular interest was hearing the lessons learned from the Florida experience of managing Laurel Wilt and the citrus industries activities with Huanglongbing bacterial disease and the Asian Citrus Psyllid. The key lessons were to have early communication of a new pest, conduct a threat assessment, get regulator assistance, find funding for research and extension, build partnerships and deal with all components of the insect and disease.

With the beetle and Fusarium disease severely affecting landscape and native trees the problem is much greater than just another avocado pest. Slowing the spread of the beetle will be important and a major way the beetle could be spread is through the movement of firewood. Therefore an important initiative is to tap into the schemes already in place for other pests that publicize to the general not to move firewood from where it was cut.

The greatest outcome of the meeting was bringing together the disparate groups affected by Shot Hole Borer and the Fusarium disease so that collaborative efforts can begin in managing this new pest. 🥑

More Collaboration Explored on Avocado Research

By Jonathan Dixon

CAC Research Program Director

TAt the end of May CAC Chairman Ed McFadden, Production Research Committee Chairman and CAC Board member Shane Tucker and myself visited Dr David Kuhn at the USDA Miami Dade research station. The visit was a follow up to the article in the Spring 2012 Issue of *From the Grove* where the considerable amount of avocado genetics research conducted at the station was described.

It is worth noting this research was not initiated or funded by the California Avocado Commission. The plant breeding program sponsored by CAC is currently under review with the purpose of developing a long term plan on avocado plant breeding for consideration by the CAC Board. An investment in plant breeding is a very important strategic investment in the future of the California avocado industry. To make sure that a 15-20 year effort makes the best use of grower assessments very careful planning is needed at the start of the program.

Genetic research has become an increasingly important part of plant breeding activities. The Commission has funded avocado genetic research for many years but has never had a genetics research program with the resources as great as the USDA research program. This is partly due to the fact that USDA station is the national germplasm repository for avocados in the United States, with Miami being its location because of historical reasons.

Even though the research is being conducted in Florida, a 750 trees California variety mapping population (Hass by Bacon crosses) has been established at the Miami station. The USDA would like to create a similar mapping population in California. An avocado mapping population is a number of individual trees being evaluated for different traits so the small difference in genetic code can be "mapped" to the traits.

Collaboration between USDA and UC Riverside already occurs. An increased commitment to collaboration by CAC would strengthen the efforts in understanding avocado genetics. USDA is also interacting with the Mexican genome project. Furthermore, USDA is currently reviewing its five year plan for avocado genetics and the trip to Florida provided a good opportunity to find out first-hand more about the USDA program from its researchers. We were able to discuss the California avocado industry's needs with regard to avocado genetics and how those needs can be woven into the USDA's five year plan. The USDA staff was very welcoming and arranged for some Florida avocado growers to also be included. It was very interesting to meet Florida avocado growers and to learn of the issues they face.

Meeting Summary

In Florida, at the Miami station there are the two largest avocado mapping populations in the world -- 750 trees of the West Indian cultivars Simmonds by Tonnage hybrids and 750 California cultivars Hass by Bacon hybrids. In Florida, there is also a large germplasm collection of 269 accessions of mostly tropical avocado varieties. By contrast, the mapping population at the University of California is 200 trees but is repeated in different locations.

The California mapping population in Florida was planted in 2008 and consisted of more than 1000 seeds of Hass

by Bacon crosses sourced from Limoneria Ranch in Santa Paula. As it is important that the seeds come from only two parents, the DNA of each seedling was analyzed and compared to its parents to identify those seedlings that are hybrids. This resulted in 1070 seedlings planted of Bacon by Hass crosses. There are 750 trees at the Miami station and 300 trees further north at Fort Pierce, which gives them separation from Laurel Wilt and exposes them to colder conditions. Some of the traits of interest for new varieties in Florida have been genes that confer cold tolerance and better 'B' types self pollination.

The goal of the research is to use the genetic maps developed for Marker Assisted Selection using genetic markers called SNPs (single nucleotide polymorphisms) to select seedlings with traits of interest. This is essentially the same idea and method as is being used in the UC Riverside avocado plant breeding program. The SNP discovery strategy used by the USDA was to sequence leaf and flower RNA from Hass as the reference Transcriptome (all the RNA molecules). This took four months and resulted in 600,000 SNP markers, costing \$65,000. Generating SNP's is a much cheaper and faster method than other methods and resulted in the discovery of SNPs evenly distributed throughout genes.

Following the SNP discovery process, a chip was developed that can screen for 6,000 SNPs associated with traits of interest. The chip has been used to screen the Florida mapping population (Tonnage by Simmonds hybrids, 807 trees), the California mapping population (Hass by Bacon hybrids, 509 trees), the Germplasm collection (308 trees), the Tropical Garden germplasm (100 trees), and the UC Riverside mapping population (in California, 208 trees). This screening resulted in 10 million data points and took about 6 weeks at \$108 per tree for a very economical cost of about \$210,000. By doing this exercise, the researchers at USDA are placing traits onto genetic maps with the idea to create a map showing where there are a large number of genetic differences. This information is now being used by the USDA researchers to collaborate with the Mexican genome sequencing project. By sharing the genetic marker map the construction of the genome sequence will be sped up and should be available in about a year's time.

In other projects being undertaken similar methods are being used to screen the germplasm collection in Florida for resistance to Laurel Wilt and to find the genes that could be selected in the development of a Laurel Wilt resistant avocado. Root rot is also a serious disease in the more tropical areas where avocados are grown. A study has begun where 2,355 seedlings from 51 types have been screened for root rot resistance. The finding there is a heritability for root rot resistance of 0.45 in West Indian varieties. This makes West Indian varieties good candidates to develop root rot resistant rootstocks. UC Riverside has a very long standing root

rot resistant rootstock breeding program, led by Dr. Douhan, that is successfully generating new rootstocks suited to California soils and growing conditions. USDA is looking to breed Phytophthora root rot resistant rootstocks suitable for Hawaii, Puerto Rico and Florida. Rootstock breeding is an area where collaboration with the expertise in California and USDA would be very useful and allow access to much greater resources than the Commission can provide alone.

Although there has been considerable collaboration between USDA scientists and UC Riverside researchers, more USDA research on avocado genetics in California could be possible. One idea under consideration is to reproduce the 750 Bacon by Hass hybrid mapping population of trees by planting these trees in California. The mapping population would be used to determine the differences in how the trees grown under California conditions compare to Florida conditions. In addition, a West Indian by Mexican variety hybrid population could also be planted in California and Florida. With such a mixture of hybrids, most of the genetic diversity in the avocado races would be covered. These mapping populations could then be screened for root rot resistance and salinity tolerance. Such plantings would be a long term program as it will take at least 10 years for the seedlings to grow and express different traits.

In conclusion, there has been and continues to be a significant research program on avocado genetics at the USDA station in Miami, Florida. This federal research program has collaborated with the avocado research at UC Riverside and has not been funded by California avocado grower assessments. The scope of work and results are impressive and it is clear that greater communication about the USDA program to California avocado growers is needed. By expressing California avocado growers needs and encouraging greater collaboration, especially with the establishment of hybrid mapping populations in California, the plant breeding program supported by CAC will be strengthened.

USDA is able to approach much of the research needs with the ability to process more samples and trees than the Commission has been able to afford. The ability to process large numbers of samples using skilled staff and state-of-the-art facilities can help make the necessary progress on avocado genetics so that the plant breeding program can take advantage of new technologies and information. The research at the USDA is very much complementary to that conducted at UC Riverside and both institutions continuing to work together could be very powerful in advancing avocado plant breeding in the United States. The Commission needs to continue to support plant breeding at UC Riverside but also needs to consider an appropriate level of support for the USDA breeding program. One of the best ways to do this is to publicly acknowledge the merits of the respective research programs and to increase the Commission's interaction with the USDA. 

New Farm Bill Fails to Clear Congress; Expiration Likely Before Action is Taken

The following is an update on a few of the critical issues CAC staff has been working on that significantly impact the California avocado industry.

Farm Bill

As anticipated, it appears Congress will not reach agreement in authorizing a new Farm Bill prior to the September 30 expiration of the current Farm Bill. In June the Senate approved its version of the bill, but before departing for the August recess, the House leadership had to shelve an attempt to extend the current bill after the votes could not be gathered. The disagreement in the House centers on the level of cuts. The House Agriculture Committee approved a proposal that would save \$35 billion, but those in the House minority are supportive of the Senate version and the comparatively lower \$23 billion in cuts. The higher level of cuts would come from nutrition programs. Fortunately, the specialty crop priorities are largely spared from significant cuts in either the House Ag Committee or Senate-passed versions, and in both versions state block grants would receive increases.

It is unclear how an extension

or a new bill will be moved across the House floor given the challenge in securing the necessary 218 votes. One glimmer of hope is that the savings from the Farm Bill will be used to pay for other priorities such as an extension of expiring tax cuts.

Therefore, post-election, the Farm Bill's prospects for authorization may improve in a lame duck session. If no extension of the current bill is agreed upon, it will create a variety of cascading effects over the next few months. In the specialty crop world, research likely would not be able to receive funding and 37 other programs are in a similar position. It is estimated that Congress will need to find roughly \$2 billion annually to keep those 37 programs functioning.

With the concern surrounding the recent discovery of the Ambrosia Beetle in Southern California, it is likely federal funds will be pursued in California for research, detection and suppression. This type of funding comes through the specialty crop research provision under the Farm Bill and is just one example of how critical these funds are to the California avocado industry. I am meeting with congressional members in early October and will continue to stress

the importance of maintaining funding for specialty crops along with the need for a speedy Farm Bill authorization.

Immigration

As the California avocado season continues, reports from the field indicate there have been some challenges in scheduling harvest crews. There are a number of factors which contribute to this situation, all of which stem from the ongoing stalled federal immigration reform, and resulting actions like increased border enforcement or the threat of E-Verify implementation. The sense is these factors have reduced the agricultural labor pool and caused less movement among workers.

At the beginning of August, the Obama administration announced its Deferred Action program. In summary, the program is intended to focus existing federal immigration enforcement resources on deporting undocumented workers who have committed a felony or a significant misdemeanor. To be eligible, unauthorized workers must have been under the age of 31 as of June 15, 2012, and have come to the United States before reaching the age of 16. In addition, applicants must have resided



continually in the United States since June 15, 2007, and either graduated from high school (GED qualifies), enrolled in high school, or been honorably discharged from the U.S. military.

It is not certain if the Deferred Action program will benefit California agriculture, but initial estimates from the Pew Hispanic Center are that 700,000 unauthorized immigrants between the ages of 18-30 will meet the criteria. Of that number, it has been estimated that California's agricultural sector will have just over 400,000 beneficiaries.

The program will grant qualifying immigrants two years of protection from deportation but does not confer any current or future legal status. Hopefully the Deferred Action program will provide some much

needed stability for California's agriculture workforce until an immigration reform policy is put in place that creates a long-term workable guest worker program.

Uniconazole (Sunny)

In July, Valent representatives toured an avocado grove and met with Commission staff and industry members to discuss the possibility of a U.S. Uniconazole registration on avocados. Uniconazole is a plant growth regulator used in other avocado growing countries to control shoot growth. It could prove to be an important tool for California growers, especially in a higher density planting pattern where labor costs for pruning could be high. There seemed to be genuine interest from Valent in helping the Commission

pursue a registration, although the registration process is both lengthy and costly. Scientific testing must be conducted to determine Human Health Effects, Eco-Toxicity, Environmental Fate, Residue Chemistry and Risk Assessment, and could run as high as \$2 million or more.

The Commission is working with Valent to determine what registration data exists from other countries and whether that data would be accepted by the U.S. Environmental Protection Agency in support of a U.S. label. Once this evaluation is completed, the Commission will be able to make an assessment of the costs to pursue the necessary registration data and make a decision on next steps.

Water

Bay Delta Conservation Plan (BDCP) - At the end of July, California Governor Jerry Brown and U.S. Secretary of the Interior Ken Salazar held a press conference outlining their proposed path forward for the Bay Delta Conservation Plan and California's water future. Much of the water California avocado farmers rely on is delivered through the Delta and the well-being of the industry is inseparably linked to a reliable water supply. The Commission is working hard as the California avocado growers' voice in this critical discussion. We are raising the tenor of the conversation by establishing the value California avocados provide beyond economics by looking at areas like environmental and quality of life benefits.

We believe at the core of this issue is a philosophical question: Do the water policy decision makers acknowledge the importance of agriculture to Southern California? And if so, are they willing to pursue solutions that will result in a water supply that is not only reliable and of good quality, but also affordable?

Whether it is the BDCP or another possible alternative like groundwater recovery, recycled water or desalination, CAC staff and CAC Water Committee Chairman Charley Wolk continue to work with key officials to communicate the necessity for an affordable, reliable and high quality water supply for agriculture.

Irrigation Efficiency Funding Available to Growers - Rancho California Water District (RCWD) agricultural customers are eligible to receive funding to improve irrigation water-use-efficiency through the new Agricultural Irrigation Efficiency Program (AIEP).

An initial irrigation system evaluation is conducted (at no cost to growers) to identify inefficiencies. Growers are eligible for funding for

implementation of a variety of best management practices including irrigation system upgrades and can cover a significant portion of the equipment and labor costs required for their implementation.

On average, 85 percent of the equipment and labor costs for projects already funded through the new AIEP have been covered by the program. Examples of equipment funded through the program include (but are not limited to) sprinklers, pressure regulators, piping materials, water control valves and soil moisture sensing equipment. The funding is provided by the United States Department of Agriculture Natural Resources Conservation Service (NRCS) in partnership with the RCWD, Metropolitan Water District of Southern California and the California State Department of Water Resources.

For basic information about the Program, contact Justin Haessly of RCWD at (951) 296-6942. To begin the application process, contact the San Jacinto NRCS Office at (951) 654-7139, or visit their office at 950 Ramona Blvd, Suite 6, San Jacinto, or online at <http://www.ca.nrcs.usda.gov/programs>. The deadline to apply is Friday, November 2, 2012.

CAC Working to Develop an Irrigation Efficiency Program - CAC staff is working with Metropolitan Water District (MWD) to develop an agricultural irrigation efficiency program. The concept is for a program that will provide funding to growers for an initial irrigation systems evaluation along with reimbursement for identified equipment to improve a grove's water use efficiency. If successful the program will likely be similar to the Rancho California model.

Commission Advocates on Behalf of Moorpark Avocado Growers - In January 2012, Commission staff was asked to intervene in a local water issue by Moorpark avocado growers

after a 12 percent increase in their agricultural water rates. Although a great number of farmers in the Ventura County Water Works District 1 (VCWWD1), which includes the community of Moorpark and outlying area, have groundwater wells, those growers who are dependent on VCWWD1 for their water supply have endured significant rate increases over the last few years.

CAC staff worked with VCWWD1 staff in the development of a tiered rate structure that will, on average, result in only a 4 percent increase for agricultural users. While this is an increase, at 4 percent it is much less than the increases of previous years. The VCWWD1 Citizens Advisory Committee approved the recommended rate structure on August 9th, 2012 and it will now go before the Ventura County Board of Supervisors, where it is expected to be approved.

The proposed rate structure is based on allocating the local water supply to agriculture users without a groundwater well at a Tier 1 rate of \$680/AF for the first 0.90 AF/Acre of irrigated land, and then a Tier 2 rate of \$1,123/AF for water usage in excess of 0.90 AF/Acre. Those agricultural users with a groundwater well will pay a Tier 1 rate of \$680/AF for the first 0.25 AF/Acre of irrigated land, and then a Tier 2 rate of \$1,123/AF for additional water usage. Historically VCWWD1 agricultural users with a groundwater well have only utilized district water when their wells were being repaired, so it is unlikely they will exceed their Tier 1 usage.

While the Commission will continue to work at the wholesale level on a water pricing strategy, we are also committed to working at the local level when necessary to ensure the industry is well represented. 🥑



California Avocados Add Green to Red, White & Blue Celebrations

By Jan DeLyser

CAC Vice President Marketing

Super Bowl and Cinco de Mayo have topped the list of avocado consumption events for years. With the California avocado season becoming compressed and most of the harvest occurring between April and September, the California Avocado Commission Board of Directors set an objective to strengthen the link between summer holidays and consumption of California avocados. Independence Day, in particular, was identified as the prime opportunity to create a key avocado consumption event at the heart of the California avocado season because it is a uniquely American holiday that matches many of the selling points for California avocados. California avocados are naturally “All American” and they complement traditional Fourth of July fare such as burgers, hot dogs and salads.

Expected increases in volume from Mexico and the unimpeded introduction of Peruvian avocados into California’s core markets during the heart of the season made supporting the California market an even stronger imperative. At its March meeting, the CAC Board allocated approximately \$1.6 million for television advertising in California to take place over a four-week period leading up to the Fourth of July.

CAC set two key goals for the Fourth of July marketing campaign. First, introduce the trade and targeted consumers to the notion that California avocados are synonymous with the celebration of America’s Independence Day. Second, make the Fourth of July at least the second largest avocado consumption event of 2012, and over time build Fourth of July consumption to surpass both Super Bowl and Cinco de Mayo. Measuring the progress toward the first goal will

not be available until October 2012, when the results of CAC's consumer usage and attitude survey are compiled. However, the overall summer holiday promotional campaign can be measured, to some degree, by evaluating retail performance in this period relative to prior years.

The actual volume results exceeded the goal with 85.4 million pounds of avocados shipped. In fact, the Fourth of July period surpassed both the 2012 Super Bowl (71.9 million pounds) and Cinco de Mayo (81 million pounds) to become the highest avocado consumption event of the year. This compares to Fourth of July period volume of 54.5 million pounds in 2011 and 72 million pounds in 2010. In California retail volume increased 19 percent and retail dollars increased 12 percent over 2010, which was CAC's fourth largest crop on record.

However, volume alone does not necessarily spell success for California avocado growers. As CAC set the stage



for building a strong tie between the Fourth of July and California avocados with its marketing campaign, dynamic market forces were at work. The California crop was running heavy to smaller sizes with the majority being 60s and 70s. Import volume doubled from 2010, with Mexico shipping nearly 60 percent more fruit than in 2011 in the four weeks leading up to the holiday, and Peru entering the market. Inventory and sizing issues plagued all suppliers, exerting downward pressure on price.

CAC initiated its Fourth of July trade marketing campaign very early in the year. Vice President of Marketing Jan Delyser visited key trade publications and planted the seeds for trade press articles to announce the campaign. The Commission's merchandising team met with retailers across the country to present Fourth of July promotional opportunities. CAC conducted a webinar with the AMRIC handlers and held individual meetings with their sales teams. Also, CAC developed a supermarket registered dietitian nutrition newsletter with ideas for how the dietitians could promote California avocado usage for the Fourth of July to their consumers through their communications channels and in their stores. CAC also created a demo kit for in-store support.

Consumer advertising was developed encouraging consumers to "Put a Little Green in Your Red White and Blue." The advertising had a nostalgic feel suggesting that California avocados and Fourth of July celebrations had been a natural pair for years and years. CAC tested the creative message with consumers and received positive results before launching the campaign.

In California, television advertising ran for four weeks (including one week of bonus spots), generating significant awareness of California avocados for the Fourth of July. National and regional print ads carried the campaign to consumers both in and outside of California, along with online sponsorship of numerous food-related websites such as FoodNetwork.com's "Grilling Central," AllRecipes.com, EatingWell.com, TasteofHome.com and RachelRay.com.

CAC's Fourth of July message stayed in front of consumers



Fred Meyer



Fry's



Gelson's



Albertsons

through traditional and online radio, suggesting many ideas for adding California avocados to backyard barbecues and summer gatherings. CAC also received a bonus of two-weeks of traffic radio in Los Angeles and San Francisco, increasing overall awareness. In San Francisco BART transit ads caught shoppers' eyes and created awareness as they commuted to and from work.

Once shoppers were in retail stores they saw and heard the California avocado Fourth of July message multiple times; including on bread aisle shelf talk banners that showed how to add avocados to burgers, on in-store radio advertising and on retailer-customized point of sale materials, header cards and recipe booklets. Consumer advertising generated more than 187 million impressions that reinforced the perfect pairing of California avocados and American summer holidays like the Fourth of July.

Public relations outreach also played a key role in building awareness of California avocados for the Fourth of July. CAC contracted celebrity chefs Mary Sue Milliken and Susan Feniger as media spokespeople. The chefs developed recipe demonstration videos, a radio news release and a special press release for the holiday. CAC also hosted a blogger media event at Catal Restaurant in Downtown Disney as part of California Avocado Week. Blogger outreach from that event resulted in 2.1 million consumer impressions, while the overall Fourth of July PR campaign generated more than 17 million impressions.

Online and social media are now a critical component of CAC's marketing campaign. The Commission built a special microsite and mobile site to support the Fourth of July efforts, and promoted both via recipe emails sent to more than 153,000 subscribers. Recipe ideas that paired California avocados with traditional American summer holiday fare, like potato salads, coleslaw, grilled chicken, hot dogs and burgers were well received by the digital audience. A Facebook contest asked consumers to submit their own Fourth of July California avocado creations. During this period CAC hit its full-year goal of getting at least 120,000 Facebook fans, with over 800 people "liking" the Commission on July 3 alone – the highest rate of "like" increases for CAC to date.

California avocado summer holiday recipes were promoted further through co-marketing programs. CAC partnered with King's Hawaiian bread on a California Avocado Aloha Slider recipe. King's Hawaiian included the recipe in four million packages of their rolls and promoted the recipe online and in social media. CAC also joined with Dulcinea PureHeart watermelons and developed the Firecracker Guacamole recipe, which is a spicy guacamole served in a chilled, hollowed-out mini watermelon bowl. Dulcinea promoted the California avocado recipe on 1,500 retail displays in shared key

markets. Retail supermarket dietitians particularly liked this recipe concept; promoting it during in-store demos, cooking classes, online, via videos and appearances on wide-reaching television shows.

As noted previously, during this holiday period there was an abundance of avocado supply in the market from multiple sources, and there were some instances where expected distribution of California avocados did not occur. Nonetheless, 31 retailers promoted California avocados with a branded feature ad during the week prior, during or after the Fourth of July. That compares to 14 ads in 2011 and 38 in 2010. Nationwide there were 352 ads, which was an increase of 28 percent vs. 2010.

Highlights of retailer and retail supermarket dietitian activity included:

- Fred Meyer (Washington and Oregon) Fresh Ideas with Leigh Ann TV segment leading into the Fourth of July, with display bins and recipe brochures in-store through the week after the holiday
- Savemart (Central California) display bins and Celebrate American Summer Holidays brochures
- Gelson's (Southern California) Pre 4th of July 1-3 day demos of Firecracker Guacamole in all 17 stores
- Haggen/Top Foods (Washington) article in the Summer 2012 edition of Haggen Real Food magazine
- Article in Raley's (California) Something Extra magazine, which reaches 700,000 shoppers
- Hy-Vee (Mid-West) registered dietitian promotion of the Firecracker Guacamole recipe on video and TV news segments
- Meijer (Michigan and Illinois) registered dietitian inclusion of California avocados on her cooking segment on both Fox and NBC affiliates
- Walmart (National) had distribution of California avocados in 85 percent of all their U.S. distribution centers on the Fourth of July, and featured them in co-op demos in 115 Western supercenter locations

As we go to press, the CAC Board is analyzing the marketing investment made this summer as planning for the 2012-13 season is underway. If the long-term plan to develop the Fourth of July into an occasion synonymous with California avocados continues, CAC's marketing team plans to tighten up the performance measures, including garnering better California branding in customer ads and secur-



ing distribution commitments from both buyers and sellers. Fourth of July remains a big opportunity for California avocado growers, due to the timing of the holiday in the heart of the California season, the in-roads of additional foreign competition, and the uniquely American position held by California avocados. 🥑

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By Tim Linden

South Africa Eyeing U.S. Market

But Domestic Market Also on Rise

The commercial South African avocado industry is more than a half century old, and growers have been exporting the product since the late 1960s. But in the past decade growth in both the export and domestic market has increased significantly, and the future looks bright with the potential opening of the U.S. market to fruit from that country.

Derek Donkin who manages the grower organizations for several sub-tropical crops including lychees and macadamia nuts, also serves as the chief executive officer of the South African Avocado Growers Association (SAA-GA). He told *From the Grove* that the first commercial plantings of avocados in South Africa occurred in the 1950s and growers started exporting a decade later. But as a point of reference, South Africa exported less than 1,500 metric tons of avocados in 1970, while growers are expected to top 50,000 tons of exports this year.

In the early years, green-skinned avocados dominated, led by the Fuerte variety. Today about 60 percent of the exports are of the Hass variety, but green-skinned avocados are still preferred domestically



and grown in fairly large numbers. Currently domestic consumption and exports are split pretty evenly with each accounting for a bit more than 40 percent of production. In addition, another 12-15 percent of the avocados are processed into puree or avocado oil. Donkin said when planting their acreage, growers have to make a conscience decision whether they want to participate in the export market and grow the Hass variety or whether they want to sell to the domestic market and produce the green-skinned varieties. "Economically, the green skinned avocados make more sense," Donkin said. "The growers get better production per acre."

Though the domestic market is growing, and has great potential ac-

ording to Donkin, it can't consume all the avocados produced, so the growers have to have an export outlet. For the most part, the export market is Europe.

For now and the foreseeable future, Donkin expects Europe to be the major importer of South African avocados. But SAAGA is starting to look at both the Far East and the Middle East. And the United States could also be a market at some time in the

future. Currently Donkin said gaining access to the U.S. market is in the negotiation stages so he could make no accurate prediction as to how long that will take. He said South Africa has completed a risk assessment with regard to pests and has also developed a cold sterilization protocol that is being presented to the U.S. governing agencies.

"It is difficult to say when we will gain access, as it depends largely on the speed of government to government processes over which we have very little control," he said. "I doubt we will have access in 2013. A three to five year time frame would probably be more realistic."

South Africa produces most of its avocados in the northeastern



New planting at Everdon Estate, KwaZulu-Natal province, South Africa

provinces of the country. The timing is about the same as California with most of the avocados marketed from June through October.

SAAGA, which is a voluntary organization representing about 85 percent of the country's export production, does promote avocados domestically and in foreign markets. The organization does not do much advertising but it does participate in in-store promotions and runs a publicity campaign. Donkin said because of political changes in South Africa over the past generation, the middle class is growing rapidly.

For the most part, he said commercial avocados purchased from traditional retail grocery stores are

consumed by those in the middle or upper classes. Those less fortunate also consume avocados but buy them from roadside stands or other less formal marketing arenas. He said in South Africa consumption of the fruit is definitely determined by income level as opposed to ethnicity. All groups in Africa's diverse society do purchase the fruit, if they can afford it, he said.

Donkin said on average an avocado at the supermarket costs about four rand, which is the equivalent of 50 U.S. cents. While that might seem inexpensive, he said the average wage in South Africa is lower than that in the United States, so the four rand cost does limit purchases to house-

holds with fairly significant amounts of income.

Guacamole has not yet caught on in South Africa as it has in the United States and other markets. Donkin expects that use of avocados to grow but he said it is not very popular at this point.

He added that currently South Africa is not a major importer of avocados. "South Africa imports limited volumes during the off-season (November, December and January) to supply the high-end and ready to eat market."

Spain gets most of that business at this point, though he said avocados exporters from Chile and Israel are also potential suppliers in the future. 

Southern California Agriculture Contributes Billions to the Economy

By Ken Melban,
CAC Director, Issues Management

A recent University of California research study finds that Southern California agriculture, which includes farming, support activities (labor contractors, pest control advisers, etc.) and food processing, produced \$48 billion in sales and directly employed 160,000 workers in 2010.

According to the report, farming alone produced \$9 billion in sales and employed 40,000 people. "This report confirms what we know to be the case," said Charley Wolk, CAC Water Committee chairman. "Agriculture is an important part of Southern California and makes a very significant contribution to the local economy."

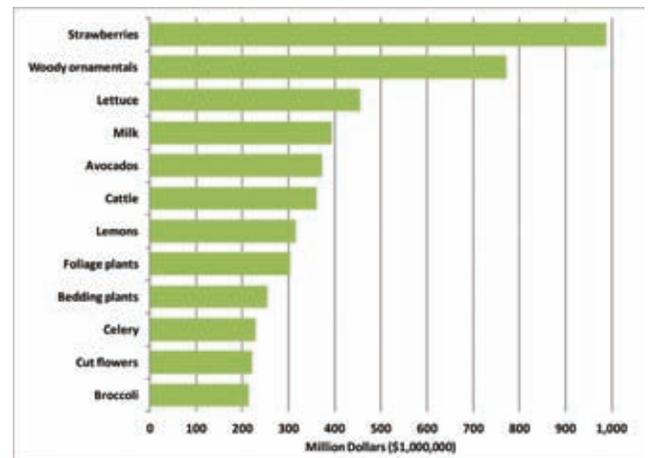
The study, entitled "Contributions of Agriculture to Employment and the Economy in Southern California", was conducted by Jessica Vergati and Dr. Daniel Sumner of the UC Agricultural Issues Center through funding provided by CAC.

When you account for ripple effects, agricultural industries generate about 450,000 jobs, \$25 billion in labor income and another \$42 billion in value added in the regional economy. The agricultural multipliers measuring the total effects of agriculture on regional employment and value added are each about 2.9 times. For farming, each additional job creates a total of 2.7 jobs in Southern California and each dollar of farm value added creates \$2.30 of economy-wide value added.

The report documents that agriculture remains a vital part of the Southern California economy, accounting for hundreds of thousands of jobs, billions of dollars of economic activity, and substantial tax revenues while providing open space, visual amenities and an important link for the increasingly urban population to its food and agricultural roots. CAC staff is utilizing the report in communicating with urban neighbors and elected officials on the value that California-grown avocados provide to the local community and on key issues like water pricing and labor.

The study defined Southern California as the counties of San Diego, Riverside, Orange, Los Angeles, Ventura, Santa Barbara, San Bernardino and Imperial and used 2010 data, which is the most recent available from the United States

**Top 12 Commodities in Southern California
By Value of Production, 2010**

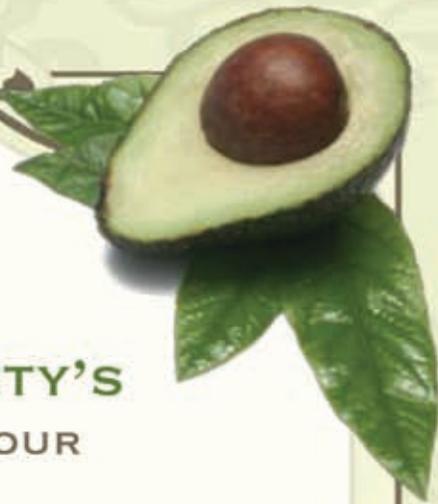


Source: USDA, NASS, California Field Office (2011).
California County Agricultural Commissioners' Data, 2010 Crop Year (2011).

Department of Agriculture's National Agricultural Statistics Services and County Agriculture Commissioners. Individual summaries for the top five commodities and individual counties are included in the full report. If you are interested in seeing more of the report please send your request to: cac.iaf@avocado.org.

Agriculture is large in Southern California with farm gross revenue of more than \$9 billion- ranking in the top 10 among all U.S. states

For every one job in Southern California agriculture, two additional jobs are generated for the region's economy



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CULTIVATING GROWERS

Kelly Haeseke, avocado grower in Montecito—

"My grandfather grew citrus with pride and care, and I loved the groves as a child. I ventured into the avocado business three years ago after acquisition of an 84-acre avocado ranch. The forty-year-old orchard was in a weakened state due to many years of neglect and mismanagement. Having no formal ag training, I welcomed the expertise of my Index Fresh field man as we began the process of rescuing the trees and increasing production. With determination, cutting edge science, and hard work, we witnessed a transformation nothing short of a miracle.

About eight months ago, another avocado grower had heard about the turn-around of our ranch and shared her experiences with me, about a different large packer that was handling her crops.

She felt she wasn't getting sufficient attention or service from them and that their prices weren't competitive. I told her, "You really should try Index Fresh."



KELLY HAESEKER
Avocado Grower

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Gary Nichols (805) 659-4929

Santa Barbara & San Luis Obispo Counties:
Giuseppe Bonfiglio (805) 341-3059

Southern Counties:
Jose Avina (951) 676-8696
T.J. Salinas (909) 233-5329

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