



News & Notes of the UCSC Farm & Garden

Issue 146, Summer 2015

An Anomalous* Fruit Year — by Orin Martin

So, what's up with our deciduous fruit trees along the Central Coast? Some (not all) seem to be behaving poorly, displaying erratic behavior.

A sardonic cynic might reply: "Not much, not much at all," or "Hey folks, we're skipping a year with our fruit trees." A more kindly response might be: "Folks, 5 letters — R-E-L-A-X. It is what it is, and besides, there is nothing you can do..."

From sea level to 800 feet elevation, the last two winters have featured dry and warm conditions. Following a warm, wet El Niño-like December (2014), the months January through March of 2015 featured consistent daytime temperatures in the 60's and 70's, with an occasional reading in the 80's. Night-time temperatures were correspondingly warm, often 40°–45° or higher. These months also featured virtually no measureable precipitation.

This seasonal weather pattern seems to align with predictions from the arena of climate change science: that climate change will lead to increases in the frequency, intensity, and duration of extreme weather patterns, with periodic catastrophic events, e.g. —

- Heavy rainfall: 18 inches in 22 days in 2014 at the Alan Chadwick Garden
- Intensity of rainfall: 8 inches in 24 hours in December 2014 at the Chadwick Garden
- Warm spells: winters of 2013-14 and 2014-15
- Drought: a fourth consecutive drought year in California
- And of course, the associated sea level rise

The Roots of Dormancy

Because most deciduous fruit trees—apples, pears, apricots, plums, peaches, nectarines, cherries, etc.—originated in the northern temperate zones of Europe, Asia, and North America, they're adapted to survive cold winter temperatures. They developed the evolutionary strategies of shedding both leaves and fruit—dropping their leaves, hardening and encasing their tender buds in leaf-like wrappings called bud scales—and thus going dormant in the winter.

Dormancy is an adaptive feature that not only prevents cold injury, but also ensures a period of rest for trees. This rest period allows trees to "spring" from rest to active growth in early spring, which features almost all components of the tree growing simultaneously: roots, shoots, flowers, and fruit. Additionally, during spring, trees initiate the following year's flower buds internally. The pomologists of the early 20th century dubbed this riotous time of spring activity "the Grand Period of Growth," or the "Royal Flush of Growth."

In contrast to this well-orchestrated "grand period," if there is prolonged warm weather in the winter, trees come out of dormancy in a slow, staggered, drawn-out fashion. This winter, with its almost unparalleled warmth, has caused just such a long, continued "scraggly" break from dormancy. Some trees have been in the process of "awakening" over a 2–3 month period, whereas the norm is 2–3 weeks (sometimes 4). Very apparently, some peaches, cherries, and apples will not "awaken" at all this summer.

Dormancy and Chill Hours

Dormancy actually begins in mid to late summer, when shoot growth extension stops. At this point the tree is allocating its resources to ripening fruit and storing nutrients for the following year's growth activities. Dormancy in deciduous trees is triggered by both shortening days and colder temperatures—the colder it is, the more rapid the onset of dormancy.

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*from the Greek *an* = not, *homalos* = even

As a tree goes into dormancy it manufactures a plant growth regulator/hormone called abscisic acid, which not only contributes to leaf drop but also acts as a growth inhibitor, moving from the tip (apical bud) of a branch downward by gravity. This hormone sends a message (anthropomorphic as this sounds) to the tree: "Don't grow yet, rest." The accumulation of abscisic acid in buds keeps them from breaking from dormancy during "false spring" thaws (i.e., warm winter days), providing an evolutionary "safety net."

Over time, cold temperatures (see chill hours, below) and UV sunlight degrade the abscisic acid in buds. Dormancy is finished when the abscisic acid accumulated in buds is exhausted and no longer controls the "inner workings" of the tree. The tree will then "break dormancy" and grow anew.

The term "chill hours" refers to the cumulative number of hours in a season with temperatures between 32–45°F. Again, its importance reflects the origin of most deciduous trees –

- Apples and pears from Khazakstan/Uzbekistan
- Plums from Northern Europe
- Peaches and apricots from Northwest China
- Almonds from the northern mountains of Iran and Iraq

All deciduous fruit trees and all geographic areas have been categorized as per the average number of chill hours they need, or experience, to complete the cycle of dormancy and "reawakening" in the spring. That's why it's important to match the chill hour requirements of your fruit trees with the average chill hours your area receives (see more at *Reliable Fruit Tree Varieties for Santa Cruz County*, available online: casfs.ucsc.edu/about/publications/for_the_gardener.html). Note that the Central Coast receives an average of 500–900 chill hours.

Some examples of fruit tree varieties and their chill hour requirement –

- *Apples*: Braeburn, 400 hours; Fuji, 400–500 hours; Golden Delicious, 700 hours; Jonagold, 700–800 hours; Cox's Orange Pippin, 800 hours
- *Apricots*: Blenheim, 400 hours
- *Apriums*: Flavor Delight, 300 hours
- *Pears*: Bosc, 400–500 hours; Comice, 600 hours; D'Anjou, 800 hours
- *Peaches*: Donut/Saturn, 200–300 hours; Babcock, 250–300 hours; Suncrest, 500 hours; Arctic Supreme, 700 hours; Red Haven and White Lady, 800 hours
- *Plums*: Beauty, 250 hours; Santa Rosa and Satsuma, 300 hours

Trees with higher chill hour requirements simply accumulate more abscisic acid, and thus require more chill to break dormancy.

Once a tree has gone into dormancy, it will not awaken and grow again until its chill hour requirements

have been met and the temperatures begin to warm. For many tree species, that simply didn't happen this winter, with portions of the Central Coast receiving as little as 50% of the trees' required chill hours.

The Effects of a Warm Winter

Many deciduous fruit trees on the Central Coast have displayed some if not all of the telltale signs of inadequate chill this spring and early summer –

- Delayed break from dormancy
- Prolonged, scraggly flower bloom
- Small flowers with low pollen count
- Delayed foliation
- Small leaves, leading to low rates of photosynthesis
- Bare or "blind" fruit buds that never emerge from dormancy
- Poor and late fruit set
- Small, poor quality fruit
- Late fruit maturation
- Poor development of next year's fruit buds

Some examples of apple varieties most affected by the lack of chill hours at the Chadwick Garden include those that are still coming out of dormancy, such as the Golden Delicious, Spigold, Elstar/Valstar, Arkansas Black, and Ginger Gold. Some have broken dormancy but have few or small fruit and leaves, including Cox's Orange Pippin, Jonagold, Belle de Boskoop, and Yellow Newtown Pippin.

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Chadwick Garden manager Orin Martin discusses summer fruit tree care.

Summer/early Fall Calendar of Events

Growing & Designing Special Event Flowers

Saturday, July 25, 10 am – 3 pm

Alan Chadwick Garden, UCSC

Join professional flower grower Zoe Hitchner of Front Porch Farm in Healdsburg, and Sky DeMuro of UCSC's Alan Chadwick Garden for a workshop on special event flowers. If you are a bride, groom, farmer-florist, or simply love playing with flowers, this workshop will delight and educate.

Zoe and Sky will lead participants in demonstrations and hands-on activities as we make unique, seasonal arrangements that are farm-fresh and elegant. In addition to basic floral design techniques including hand-tied bouquets, centerpieces, corsages, and boutonniers, this workshop will also cover organic growing and selection tips for those who want to grow their own bouquets. You'll take home your own beautiful arrangements.

Cost of the workshop is \$95 for members of the Friends of the UCSC Farm & Garden or \$125 general admission (all supplies included). Discounts available for beginning farmers. Space is limited; pre-registration required.

For details and to pre-register, see flowers2015.bpt.me. To pre-register by mail, send a check made payable to UC Regents to: CASFS/UCSC Farm, 1156 High St., Santa Cruz, CA, 95064. Attn: Flower Workshop. For more information or to inquire about beginning farmer discounts, call 831.459-3240 or email casfs@ucsc.edu.

Docent-Led Tours of the UCSC Farm

Sundays, August 2 and September 6, 2 pm – 3:30 pm

UCSC Farm

Join us for a guided tour of one of Santa Cruz's most beautiful locations—the 33-acre organic farm at UC Santa Cruz. Tours meet at the Louise Cain Gatehouse.

Visitors can enjoy touring the organically managed greenhouses, hand-worked garden beds, orchards, row crop fields, and children's garden, while learning about the history of the site and the basic concepts of organic farming and gardening, including water conservation practices. The monthly tour is free and does not require a reservation.

Summer Fruit Tree Care Workshop

Saturday, August 8, 9:30 am – 12 pm

UCSC Farm

Join Matthew Sutton of Orchard Keepers, along with Orin Martin and Sky DeMuro of the Alan Chadwick Garden, for a workshop on summer care of deciduous fruit trees (apples, pears, peaches, apricots, plums, etc).

The warm winter of 2014-15 has created some special challenges for fruit tree growers on the Central Coast (see cover article). Workshop topics will include summer pruning, fertility, irrigation, and preparation for new plantings.

Cost of the workshop is \$20 for Friends of the Farm & Garden members (pre-registered) or \$30 (at the door), \$30/\$40 general admission, \$15/\$20 for UCSC students and limited income. For details and to pre-register, see summerfruit2015.bpt.me, or send a check made payable to UC Regents to: CASFS/UCSC Farm, 1156 High St., Santa Cruz, CA, 95064. Attn: Fruit Tree Workshop.

Cowell Ranch Hay Barn Dedication

Sunday evening, September 13

Cowell Ranch Hay Barn, UCSC

Save the date for the dedication of the Cowell Ranch Hay Barn, which will become the new headquarters for the Center for Agroecology & Sustainable Food Systems (CASFS; see more on page 4). Planning for this campus and community celebration is underway—stay tuned for upcoming announcements!

Fall Harvest Festival at the Farm!

Sunday, September 27, 11 am – 5 pm UCSC Farm

Join us to celebrate the fall harvest with a fun day on the farm! Enjoy live music, great food, workshops, tours, kids' crafts, fresh produce and much more at this campus and community event. \$5 general admission. Free for Friends' members, UCSC students, and kids 12 and under. For more information or to volunteer, call (831) 459-3240 or email casfs@ucsc.edu.

If you'd like more information about these events, need directions, or have questions about access, please call 831.459-3240, email casfs@ucsc.edu, or see our web site, casfs.ucsc.edu.

UCSC student participation in workshops is supported by UCSC Measure 43 funding.

Sponsored by the UCSC Center for Agroecology & Sustainable Food Systems (CASFS), and the Friends of the UCSC Farm & Garden.

Gaia Fund Grant Launches Phase II of Hay Barn Project

A new grant of \$100,000 from Gaia Fund will partially support the completion of the interior of the Cowell Ranch Hay Barn, the newly reconstructed historic barn that will become the headquarters for the Center for Agroecology & Sustainable Food Systems (CASFS) and the new front door of the CASFS/UCSC Farm. Gaia Fund has supported CASFS in the past with grants to the Apprenticeship, for the revision of the instructor resource manuals, and for the Farm's greenhouses. This new grant, to be paid in \$50,000 installments this July and July 2016, will launch phase II of the Hay Barn construction.

The original 150-year-old Cowell Ranch Hay Barn captured the attention and imagination of many of us at UCSC over the years, with its proximity to both the Farm and the main entrance to campus. The idea to restore the Hay Barn to be the headquarters for CASFS and other environmental programs has now progressed to a full reconstruction of the barn structure with funding from the Helen and Will Webster Foundation. The Webster gift is paying for Phase I of the project, which reached a milestone this March with the barn raising attended by over 150 people. We look forward to the celebration of Phase I's completion in September (see page 3), marking the opening of a large multi-purpose space for assemblies and other events, along with a 300-square-foot conference room, restrooms, and utility rooms.

Further fundraising for Phase II interior work is needed to allow the building to become fully functional as offices, visitor center, and classroom space. We are deeply grateful to Gaia Fund for this very generous grant that will allow us to move forward with Phase II and help make this wonderful barn the campus and community resource it was designed to be.

For more information and to learn how to support the Hay Barn project, see casfs.ucsc.edu/about/support-casfs/haybarn.html

Wish List Items

Staff at the Alan Chadwick Garden are seeking several items for the garden, kitchen and garden chalet –

- Full-sized refrigerator (preferably energy efficient)
- Large rectangular tablecloths
- Vases
- Clean 5-gallon buckets

If you have any of these items that you'd like to donate, please contact Sky DeMuro at 831.459-3240 (leave message for Sky) or sdemurom@ucsc.edu.

Applications Open for 2016 Apprenticeship Program

Aspiring organic farmers and gardeners are invited to apply for the 2016 Apprenticeship in Ecological Horticulture at the University of California, Santa Cruz. Now in its 48th year, the Apprenticeship is the longest running university-based organic farming training program in the U.S.

The upcoming six-month program starts in April 2016. Scholarship support at different levels is available, including the Simply Organic annual scholarship. AmeriCorps funding can also be used to cover tuition costs.

The Apprenticeship is managed by the Center for Agroecology & Sustainable Food Systems at UCSC. It is open to all participants 21 years or older, regardless of educational background.

Program information, application materials, details on scholarship support, and a list of dates for upcoming orientation tours are available online at casfs.ucsc.edu/apprenticeship. Application deadlines for the 2016 program are August 15, 2015 for international applicants, and September 30, 2015 for U.S. citizens.

The six-month, full-time residential program is based at the 30-acre organic farm and 3-acre Alan Chadwick Garden on the UC Santa Cruz campus. The program trains adults in the concepts and practices of organic gardening and small-scale sustainable farming. The Apprenticeship blends experiential learning with traditional classroom studies on topics that include soil management, composting, pest and weed control, crop planning, irrigation, farm equipment, direct marketing techniques, business planning, and social and environmental issues in the food system.

The 39 apprentices accepted into the program each year come from all regions of the U.S. and abroad, and represent a wide spectrum of ages, backgrounds, and interests.

Program graduates have established their own commercial farms and market gardens, developed farm- and garden-based educational programs, run urban garden programs, and more (see page 7 of this issue). You can read more about Apprenticeship alumni's work at www.growafarmer.org.

For more information about the Apprenticeship, please contact the Center for Agroecology & Sustainable Food Systems at 831.459-3240, or at casfs@ucsc.edu. Learn more about CASFS at casfs.ucsc.edu.

For examples of the Apprenticeship curriculum, see the newly revised and expanded *Teaching Organic Farming & Gardening*, and *Teaching Direct Marketing & Small Farm Viability*, produced by CASFS in 2015, and available free online at casfs.ucsc.edu/about/publications.

Are Your Plants Water Stressed?

If you're gardening in California you're no doubt acutely aware of the need to use water judiciously. Learning the signs of water stress in your plants is one way to fine-tune your water use and make the most of this limited resource while keeping your plants healthy.

Providing enough water *before* your plants show signs of stress is important, as water-stressed plants will be less productive and more susceptible to diseases and pests. Plants can show some water stress and still recover, but learning to anticipate their needs will help prevent stress-related damage

Signs of water stress include:

- Graying leaves: A change in leaf color from a vibrant green to a dull gray-green or bluish color
- Loss of sheen: Plant leaves change from glossy to dull in appearance
- Insect damage: The presence of cabbage aphids on Brassica family crops (broccoli, cabbage, kohlrabi, etc.) often indicates dry conditions
- Damage to the root system: Upon closer examination, plants that look dry even after watering often have root damage, e.g., from symphyllans, and can't take up sufficient water
- Red or purple leaf color: Can indicate dry conditions, saturated conditions (anaerobic), or root damage
- Development of small spines on the leaf margins or increased spinyiness on stems: This condition is especially likely to occur in lettuce and related species such as endive that experience water stress
- Wilting: Pay attention to the time of the day. If plants wilt early in the cool of the day, this can be a sign that they need water. Some wilting in the mid-day heat (e.g., zucchini, winter squash) is a plant-protective strategy to reduce transpiration losses.
- Slower than expected growth: This can be detected over time with a practiced eye

You can time your watering to maximize the plants' ability to use what you apply: either late in the day so that overnight and early in the morning plants have plenty of time for uptake, or as early as possible in the day so that plants access the water well in advance of critical need. Note, too, that a number of crops, including tomatoes, peppers, eggplant, potatoes, winter squash, and even cucumbers, will benefit from a good "wet-dry swing," allowing the soil to dry down thoroughly between waterings.

Here are some critical periods at which specific crops are most vulnerable to water stress. Providing sufficient water during these periods will help ensure healthy plants.

- Arugula: During vegetative growth
- Basil: Maturity, to prevent stress-induced flowering
- Beans: Flowering, seed set, pod development
- Beets: Regular water as roots develop
- Broccoli: Head development
- Brussels Sprouts: Vegetative and sprout development
- Cabbage: Head development
- Carrots: Early root development, regular water to prevent cracking
- Cauliflower: Head development
- Cilantro: During vegetative growth
- Collards: During vegetative growth
- Corn: During crown root development, at pollination and kernel development
- Cucumbers: Flowering and fruit development
- Eggplant: All stages; allow dry-down between waterings
- Fennel: Bulb development
- Kiwifruit: During spring growth, flowering, and fruit set
- Leeks: All stages
- Lettuce, head: Head development, pre-harvest
- Lettuce, leaf: All stages, pre-harvest
- Melons: Flowering and fruit set
- Onions, garlic, shallots: During bulb enlargement
- Parsley: All stages
- Parsnips: Early root development
- Peas: Flowering, pollination, pod enlargement
- Peppers: All stages, but allow dry-down between waterings
- Potatoes: Tuber enlargement, from flower to die-backs; allow dry-down between waterings
- Pumpkins: Flowering, fruit set and development
- Radishes: All stages
- Small grains: During crown root development, heading, flowering
- Squashes (summer and winter): Flowering, fruit development; allow dry-down between waterings
- Tomatoes: All stages, but especially flowering and fruiting; allow dry-down between waterings
- Flowers: Bud development through pre-harvest

To learn more about how to manage water in your garden, see the Irrigation: Principles and Practices unit in the free online resource Teaching Organic Farming and Gardening: Resources for Instructors, available at casfs.ucsc.edu/about/publications.

Apprenticeship Updates

Meet the 2015 Apprentices

Here's a brief introduction to the rest of the new group of apprentices that joined us on April 13 from across the U.S. and overseas (the first part of the group was introduced in the Spring 2015 issue of the *News & Notes*).

Your membership in the Friends of the UCSC Farm & Garden helps fund this 48-year-old internationally known training program by providing funds for scholarships, teaching staff, equipment, outreach, and facility improvements.

Many thanks for your ongoing support!

Courtney Mellblom: I live in San Luis Obispo, California, and I work for the Jewish community center (JCC). We have a 10.5-acre property with a vegetable garden, orchard, lavender field, and nature trails, which are maintained by a crew of developmentally disabled adults. I founded the JCC's land-based programs initiative, Hebrew Roots, which seeks to "put the culture back into agriculture" through environmental programming rooted in the Jewish culture.

Jose R. Ortega: I live in Hayward, California and attending Chabot Community College. It is through the "Passion and Purpose" class that I have discovered my calling in the garden as a guide and mentor for students in an urban setting. My goal is to immerse myself within the program to augment my current skill set and become a more effective future educator and fulfill my aspirations of operating a farm.

Clare Riesman: I am originally from Oak Park, Illinois and have a degree in Environmental Studies with an Agroecology focus from UC Santa Cruz. For the past three years, I have been managing North Coast Farms, which provides produce and cut flowers for a small community in the Santa Cruz Mountains. Through the Apprenticeship, I hope to enhance my understanding of organic growing systems in the hopes of someday running an educational farm or garden.

Brittany Rymer: I'm just finishing up a Master's program in Stanford's School of Earth Sciences where I study climate change adaptation methods for subsistence farmers. In the Apprenticeship, I'm looking to gain a deeper pragmatic understanding of sustainable farming methods that I can apply to my research. As a child my father was in the military, so I grew up bouncing around

military bases in the U.S. and abroad. As for hobbies, I love photography and hiking/exploring!

Jesse Schaffer: Originally from Chicago, Illinois, I spent last winter milking cows in rural Vermont. In May I graduated from GWU in DC where I studied international affairs. Those DC institutions turned me off so during college I built a small educational farm in Michigan and an urban community garden in DC. At CASFS I'm looking to expand my knowledge in sustainable agriculture and apply it in a community building and social justice context.

Yonah Shapiro: I am a preschool teacher and youth group advisor from Columbus, Ohio. With the skills and tutelage from CASFS, I hope to contribute to the education of the younger generations about the beauty and promise of local and communal gardening and farming. I also would love to work in the Israeli desert climate, where there is much unique ingenuity and technology within the farming world.

Katrina Siladi: I teach gardening at a public middle school in East Harlem with Edible Schoolyard NYC. After teaching cooking and gardening to youth for five years on urban educational farms, I am beyond excited to be a student on a larger farm. I have dreams of a cooperatively owned production and educational farm in New England. I like to sing, make pottery, and be in, on, or near the ocean.

Tina Singleton: I currently live in Roselle, Illinois, and learned how to garden in a war zone, behind the barbed wire and high walls of my compound in Kabul, Afghanistan. My goal for participating in the Apprenticeship program is to develop a solid foundation of skills in organic, small scale farming and gardening for a future endeavor in sustainable agriculture. I am a writer and certified raw food chef and instructor.

Corrie Spellman: A Pennsylvania native, I now live in Philadelphia and work for Teens 4 Good. I work as the farmer and educator alongside high schoolers to run a CSA farm and to bring food justice to our community. I am excited for a shift in focus from non-profit to production agriculture, and to explore more fully the intricacies of farm systems and sustainable business models.

Maya Stansberry: I live in Brooklyn, New York and this past year worked at Kingsborough Community College's (KCC) urban farm, which distributes fresh vegetables to the student body. KCC is also where I recently finished my associate's degree in Culinary Arts. During my time at CASFS I'm looking to strengthen my agricultural knowledge/skills so that I can help bring farming and cooking together to educate individuals in urban communities.

Daniella Vargas: I live in Miami, Florida, and work at Florida International University as a research assistant in an evolutionary (plant) ecology lab. I'm currently working to set up a non-profit organization with local farmers at Treehugger Organic Farms, in order to provide gardening/small farming, permaculture, and sustainable living

education to our community. Through the Apprenticeship, I hope to expand my farming skills, and learn the necessary tools to educate my community.

Collette Walsh: I'm a Brooklyn, New York native. My farming experience began in New York and has continued on urban farms from Brooklyn to Alabama. Because of this background, my passion is for urban farming and the various intersections of education and agriculture that exist in cities. My main goal for participating in the CASFS program is to deepen my farming knowledge so I can offer my best and strongest self in the next city I work with.

Kate Watters: I am from Flagstaff, Arizona and have been working in the fields of botany, restoration and volunteer management for Grand Canyon National Park and a regional conservation non-profit, Grand Canyon Trust for the last 15 years. This apprenticeship is a mid-life career change to immerse myself in what really matters—soil, flowers and food. I am excited to see where it will lead me.

Sunyoung Yang: I currently live in Waianae, Hawaii but I'm based out of Los Angeles. I am working at an organic farm that is part of a 40 year old non-profit. I've been farming for the past year after transitioning from my job as a community organizer. Through the program I hope to gain the practical skills of farming to become a farmer myself and organize other farmers around food sovereignty.

Apprenticeship Alumni News

Mary Hillemeier (Apprenticeship class of 2012) and **Kasey Butler** (2011) have returned from farming jobs on the East coast and are working at Blue House Farm in Pescadero, California, which is owned and managed by **Ryan Casey** (2001). Learn more about Blue House Farm at bluehouseorganicfarm.com.

Greg Peck (1996) earned his PhD from Cornell University and is now an assistant professor at Virginia Tech University, specializing in sustainable tree fruit systems. He's the author of *A Grower's Guide to Organic Apples* (ny-sipm.cornell.edu/organic_guide/apples.pdf), published through Cornell's Cooperative Extension unit.

Zoe Hitchner (2010) is managing the organic cut flower operation and **Johnny Wilson** (2005) is farm manager at Front Porch Farm (fpfarm.com) in Healdsburg, California. Read a profile of Zoe and farm owner Mimi Buckley at fieldtovase.com/jaclyn-k-nesbitt-designs-florist-and-flower-farmer-relationship/. Zoe will team up with Sky DeMuro of the Alan Chadwick Garden to teach a Special Events Flowers workshop on Saturday, July 25 at the Alan Chadwick Garden (see page 3).

Cooper Funk (2006) recently founded Dooryard Farm (dooryardfarmmaine.com), serving the Camden-Rockland area of Maine. Before relocating to Maine, Cooper was co-founder of Dinner Bell Farm (dinnerbellfarm.com) in Grass Valley, California, with **Paul Glowaski** (2006) and **Molly Nakahara** (2006).

Keep Up with Farm & Garden News!

Keep up with the latest news from CASFS/UCSC Farm & Garden by becoming a Facebook friend. Type Center for Agroecology and Sustainable Food Systems into your Facebook search engine and "Like" our page. And check out the CASFS website for updates, information and resources: casfs.ucsc.edu. You can read more about the Apprenticeship alumni's activities at www.growafarmer.org.

Albie Miles (1994) is an assistant professor at the University of Hawaii, where he is starting a new program in Sustainable Community Food Systems. According to the UH website, the new program "... is a multi-disciplinary, experiential and applied education program about key ecological and social issues in food and agricultural systems. It incorporates problem-based and hands-on learning to develop food system professionals capable of solving real-world problems and transitioning Hawai'i agriculture toward greater ecological sustainability and social equity."

Corie Pierce (2005) and **Adam Wilson** (2004) co-own and manage Bread and Butter Farm in Shelburne, Vermont. The farm and its popular community "Burger Night" received a wonderful write up; see the article at www.penzeys.com/cook/themes/harvest-2014/bread-butter-farm/ and read more at breadandbutterfarm.com.

Ryan Silsbee (2012) and farming partner **Levon Minassian** recently started Fire Tongue Farm, an 8-acre organic chile pepper farm in Hollister, California. Writes Ryan, "Our goal is to spark a craze in California kitchens by growing a wide variety of fresh and smoked hot peppers that most people have never seen before."

Through a Barnraiser effort, the partners have raised enough funds to build a smokehouse and are now hoping to reach their "stretch" goal to raise funds for a walk-in cooler and dry storage facility. Visit their Barnraiser site, www.barnraiser.us/projects/a-new-smokehouse-for-fire-tongue-farm, to learn how you can support the new farm.



Farming partners Ryan Silsbee (left) and Levon Minassian of the new Fire Tongue Farm in Hollister, California.

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In contrast, some apples look vigorous and are bearing a good crop, including Braeburn, Gala, Fuji, Fiesta Cox, Pink Lady, Chehalis, Sunrise, and Hudson's Golden Gem. Apricots and Japanese plums, along with those peaches that have <500 hours of chill requirements (July Elberta, Suncrest, Donut/Saturn, and Babcock) are in good shape, though in some cases the fruit is small. Most peaches, though, are still in the throes of winter dormancy, and as of this mid-June writing don't look as though they'll snap out of it this year. This includes Baby Crawford, Red Haven, Arctic Supreme, White Lady, Snow Giant, Frost, and O'Henry.

It's really a sad state of affairs, with cherries and peaches most affected, apples and pears variable, and fruits with lower chill requirements, such as plums, persimmons, pomegranates, and quinces seemingly unfazed by all this "global weirdness."

What does the future portend? Well, who knows? We have had years with low chill winters before (2 in 10 on average), but quite frankly, nothing to date with the severity of the winter of 2014–15. Previously, after a low chill winter, if the following winter chill was "adequate" the trees recovered. Stay tuned ...

Orin Martin, Matthew Sutton, and Sky DeMuro will team up to offer a workshop on summer fruit tree care on Saturday, August 8. See page 3 for details.

Postscript

Perhaps we can take solace from a quote from John Steinbeck's *East of Eden* and a description of the Salinas Valley:

"I have spoken of the rich years when the rainfall was plentiful. But there were the dry years too, and they put a terror on the valley. The water came in a thirty-year cycle. There would be five or six wet and wonderful years when there might be nineteen to twenty-five inches of rain, and the land would shout with grass. Then would come six or seven pretty good years of twelve to sixteen inches of rain. And then the dry years would come, and sometimes there would only be seven or eight inches of rain. The land dried up and the grasses headed out miserably a few inches high and great scabby places appeared in the valley. The live oaks got a crusty look and the sagebrush was gray. The land cracked and the springs dried up and the cattle listlessly nibbled dry twigs. Then the farmers and the ranchers would be filled with disgust for the Salinas Valley. The cows would grow thin and sometimes starve to death. People would have to haul water in barrels to their farms just for drinking. Some families would sell out for nearly nothing and move away. And it never failed that during the dry years the people forgot about the rich years, and during the wet years they lost all memory of the dry years. It was always that way."