California Agriculture

A Constant State of Innovation

California Department of Food & Agriculture

2011-2018

cdfa

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Foreword

by CDFA Secretary Karen Ross

Eight years of accomplishments, a century of innovation

As we publish this report, CDFA is preparing to celebrate our 100-year anniversary in 2019. The story of California agriculture over that span is a tale of growth and success. The engine of all of that productivity is, in a word, *innovation*. CDFA's challenge has been to keep pace with – and in many cases to encourage – that progress. We provide an important framework that protects consumers, maintains a safe and efficient food supply, ensures fairness in the marketplace and in the avenues of commerce, and helps growers continue to innovate, modernize and deliver the fruits of their productivity.

My eight years with CDFA have shown me the breadth and depth of this agency's service to consumers, farmers and ranchers, and also in terms of fostering an agricultural industry that embraces its role as a global leader on everything from the most technical aspects of farming to the broadest environmental imperatives. We offer this report to take stock of how CDFA fulfills its mission, and also to honor the innovative nature of our California farmers and ranchers and all who support them. They show the nation and the world what is possible.

Karen Ross

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SECTION 1

The global **Climate** is changing. The evidence is clear.

Farmers and ranchers are being both **Smart** and proactive – using sound science to

sequester emissions from **Agriculture** as part of California's commitment.

What is Climate Smart Agriculture?

Climate Smart Agriculture (CSA) isn't just a priority here in California. It's a global movement, and its meaning and significance change somewhat from region to region just as the presence and prominence of agriculture changes. CSA is an approach that helps to guide actions needed to transform and reorient agricultural systems to effectively support development and ensure food security in a changing climate. According to the United Nations Food and Agriculture Organization (FAO), CSA aims to tackle three main objectives: sustainably increasing agricultural productivity and incomes; adapting and building resilience to climate change; and reducing and/or removing greenhouse gas emissions, where possible. CSA provides the means to help stakeholders from local to national and international levels identify agricultural strategies suitable to their local conditions to ensure food security.

Climate Smart Agriculture

CDFA, UC ANR partnership helps farmers adopt climate measures

CDFA Secretary Karen Ross and UC Agriculture and Natural Resources vice president Glenda Humiston signed a memorandum of understanding (MOU) in October 2018 to provide $1.1 million to hire 10 community education specialists through the UC Cooperative Extension and deploy them to 10 counties statewide to assist and encourage farmers to participate in CDFA programs aimed at increasing adoption of smart farming and ranching practices.

The new program is funded by California Climate Investments dollars through the Strategic Growth Council. The partnership focuses on implementing on-farm solutions to improve soil health, nutrient management, irrigation management, on-farm composting and manure management – smart farming practices that reduce greenhouse gas emissions into the atmosphere.

CDFA Secretary Karen Ross (right) and University of California Agriculture and Natural Resources Vice President Glenda Humiston signed the MOU at the Stanford Mansion in Sacramento.

The MOU covers activities conducted by CDFA for its State Water Efficiency and Enhancement Program as well as its Healthy Soils Program and its Alternative Manure Management Program.

The 10 new education specialists will serve in Mendocino, Glenn, Yolo, San Joaquin, Merced, Kern, Imperial, San Diego, San Luis Obispo and Santa Cruz counties. The distribution helps ensure that every farm and ranch, of every size, in every part of the state, has an informed opportunity to particpate.

Healthy Soils: sustaining our natural and working lands

California's Healthy Soils Initiative is a collaboration of state agencies and departments, led by CDFA, to promote the development of healthy soils. A combination of innovative farm and land management practices contribute to building adequate soil organic matter that can increase carbon sequestration and reduce overall greenhouse gases.

So, what's so special about dirt?

CDFA Secretary Karen Ross explains it this way: "Soil has the transformative power to help us stabilize our changing climate. By capturing greenhouse gas emissions from the atmosphere and storing them underground, through the assistance of living plants and microbes, we improve both the atmosphere and the soil."

- Soil organic matter suppresses disease organisms and increases plant nutrient availability and uptake.
- Healthy soil can hold up to 20 times its weight in water. Increasing soil organic matter 1% can increase soil's available water holding capacity by 3.7%.
- Soil organic matter helps build soil aggregate stability and structure and make it more resistant to wind or water erosion.
- Soils contain approximately 75% of the carbon pool on land—three times more than the amount stored in living plants and animals.
- Increasing soil organic matter increases infiltration and biological activity that make soil a more effective filter.
- At least a quarter of the world's biodiversity lives in the soil; healthy soils improve habitats and other natural resources.

"It is important for California's soils to be sustainable and resilient to climate change... the Administration will work on several new initiatives to increase carbon in soil and establish long term goals for carbon levels in all California's agricultural soils. CDFA will coordinate this initiative under its existing authority provided by the Environmental Farming Act."

Edmund G. Brown Jr.
Governor of California

Scaling Up Soil Science:

California Sparks a Global Soil Health Challenge

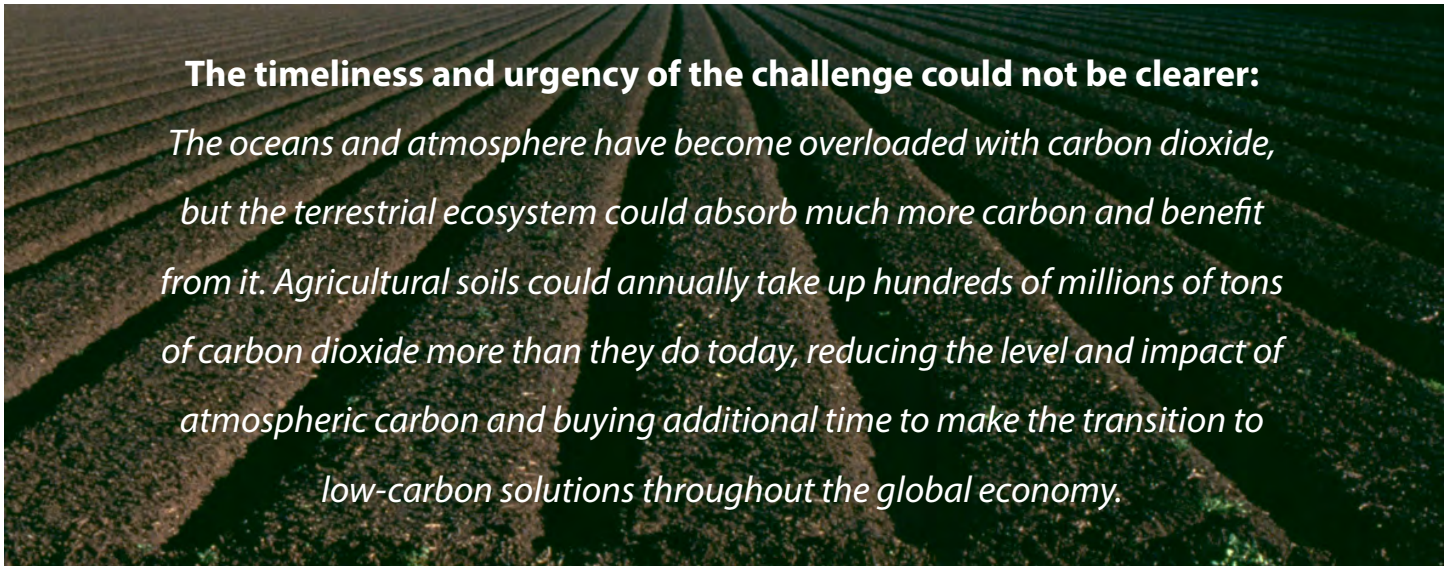
2018 saw CDFA launch the Global Soil Health Challenge at the landmark Global Climate Action Summit, held in September in California's Bay Area. Hundreds of new climate-driven commitments have been announced by states, regions, cities, businesses, investors and non-governmental organizations in conjunction with the event, including CDFA's signed agreements with France, the Netherlands and Baja California to commit to the restoration of soil health.

The challenge calls on governments across the world – both national and sub-national – to include programs that restore soil health under their national plans to meet their targets under the Paris Agreement. While only a handful of governments include programs on soil health in their Nationally Determined Contributions (NDCs), experience has proven that boosting soil carbon is relatively easy, through low-tech, sustainable agricultural practices. These measures not only help fight climate change, but also increase biodiversity and food security. The Global Soil Health Challenge seeks to leverage this potential on the broadest possible scale.

California has invested over $700 million to date in climate solutions for agriculture, which include the on-farm strategies for soil carbon sequestration. The state has specifically committed $22.5 million in climate investments for soil health ¬– the first climate commitment for soils in the US. The funds come from the state's cap-and-trade carbon pricing program and voter-approved bond money.

Karen Ross, Secretary of the California Department of Food and Agriculture said: "Improving soil health is a powerful climate solution. By removing carbon from the atmosphere and storing it in our soils, we nourish the soil for healthy food production and increase water-holding capacity to be drought tolerant and ensure food security. That's the same whether you're in California, France or any country in the world. As signatories to the Global Soil Health Challenge, we commit to apply these approaches and encourage other governments to join us in a soil health revolution to fight climate change."

These investments dovetail with the "4 per 1000" Initiative backed by the governments of France, Germany and Spain. If carbon was increased in soils by just 0.4% per year, the reduction in carbon dioxide from the atmosphere would correspond to all annual man-made greenhouse gas emissions – hence the name of the 4 per 1000 Initiative. The platform will enable international collaboration between scientists, farmers and financiers on an ongoing basis in efforts to reduce net greenhouse gas emissions by capturing more carbon in the planet's soils. >



The timeliness and urgency of the challenge could not be clearer:

The oceans and atmosphere have become overloaded with carbon dioxide, but the terrestrial ecosystem could absorb much more carbon and benefit from it. Agricultural soils could annually take up hundreds of millions of tons of carbon dioxide more than they do today, reducing the level and impact of atmospheric carbon and buying additional time to make the transition to low-carbon solutions throughout the global economy.

Scaling Up Climate Smart Agriculture

CDFA's "Scaling Up Climate Smart Agriculture" event held under the umbrella of the state's 2018 Global Climate Action Summit featured a "California Conversation" in Sonoma County that brought together no fewer than four California Agriculture Secretaries (from left): Karen Ross, A.G. Kawamura, Ann Veneman and Richard Rominger. A powerhouse panel at the event also included Don Cameron and Kat Taylor. California agriculture leaders spanning generations and geography discussed the state's broad agreement that its farms and ranches are ready to lead the way on substantive, effective action to curb climate change.

Global Soil Health Challenge, continued

Stephane Travert, France's Minister for Agriculture and Food, said: "To be efficient and to lead to a true transition towards more sustainable agriculture, many actors have to be mobilized alongside the farmers. The 4 per 1000 Initiative will thus contribute to meeting the goals of the Paris Agreement and the Sustainable Development Goals. It will allow farmers to live well from their work, and contribute to food security."

About the Global Soil Health Challenge

Announced at the Global Climate Action Summit in San Francisco, the Global Soil Health Challenge calls on national and sub-national governments to include ambitious programs of action on soil health in their Nationally Determined Contributions submitted to the United Nations (UN) Framework Convention on Climate Change in 2020 and in sub-national climate initiatives as part of broader climate action plans. The signatories agree to promote the development of healthy soils within their respected geographies and report back on their progress at the 2019 UN Climate Summit in New York. The Global Soil Health Challenge is part of a suite of climate smart agriculture practices aimed to strengthen efforts to reduce greenhouse gas (GHG) emissions and sequester carbon on natural and working lands, including agriculture.

About the 4 per 1000 Initiative

The 4 per 1000 Initiative aims to encourage stakeholders to transition towards a productive, highly resilient agriculture, based on the appropriate management of agricultural soils in food security and climate action. Supported by solid science, the initiative invites all partners to implement practical actions on soil carbon storage. The initiative's Secretariat is hosted by the CGIAR System Organization, an international organization based in Montpellier.

State celebrates its first Healthy Soils Week: December 4-7, 2017

Healthy Soils = Healthy Lives. In California, our soils help feed the world, save water, clean the air and fight climate change. In honor of these contributions, and in celebration of International World Soils Day, CDFA, alongside its state, federal and private sector partners, hosted the inaugural California Healthy Soils Week to highlight all the remarkable gifts healthy soils have to offer.

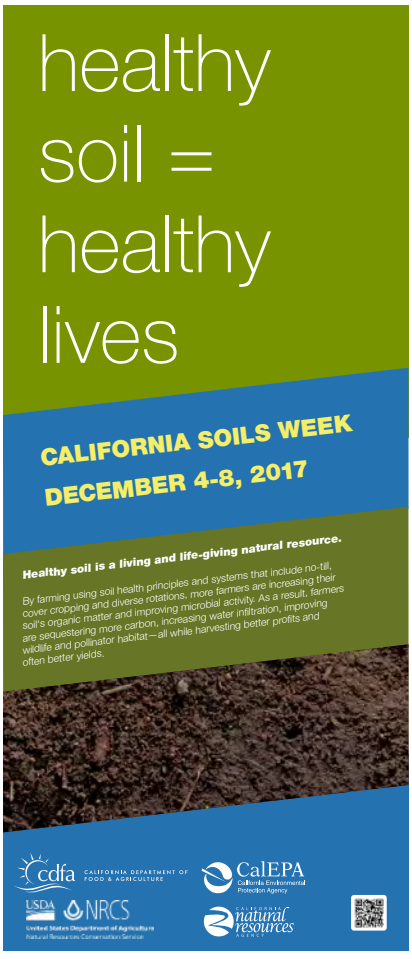
» To kick-off California Healthy Soils Week, CDFA Secretary Karen Ross joined the USDA's Natural Resources Conservation Service (NRCS) and other partners for a ribbon-cutting event in front of an informational panel display outside the doors of the Governor's Office at the State Capitol. Joining her were NRCS acting conservationist for California Raymond Dotson; Michael Dimock, president, Roots of Change; Mary Kaems, principal consultant for California Assembly Speaker Anthony Rendon; and Brian Shobe of the California Climate and Agriculture Network.

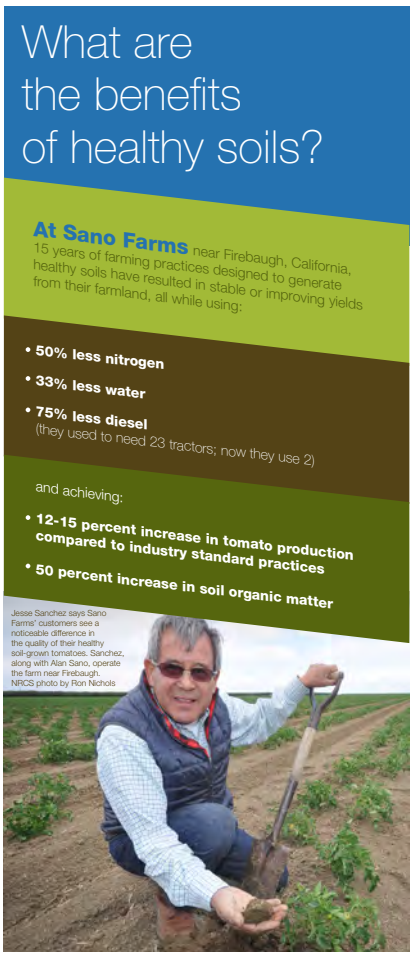
» Secretary Ross joined Assembly Speaker Anthony Rendon, Strategic Growth Council Executive Director Randall Winston and other guests in the Southern California city of Bell to tour an innovative community garden, GrowGood, that works to provide food security to the homeless and needy as well as training and jobs. The group learned that the site has produced nearly 10,000 pounds of food this year.

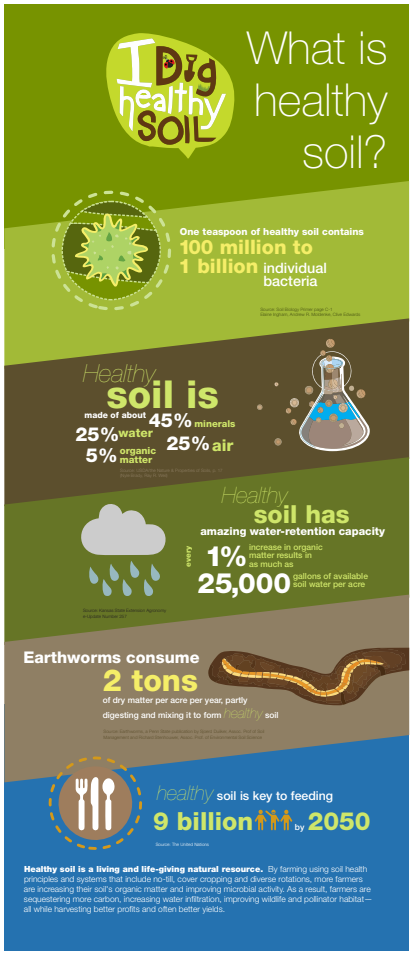
» CDFA also hosted a Climate Smart Agriculture webinar with international partners, as well as a Legislative staff briefing entitled "From Soils to Food: Celebrating Healthy Soils" at the State Capitol.

» Wednesday was "Compost Day," with tours for legislative staff at Recology Center and Sierra Orchards.

California Capitol Display Kicks







HEALTHY SOILS!

Off Statewide Educational Blitz

SET OF SEVEN POSTERS ILLUSTRATES EFFORTS BY FARMERS, RANCHERS AND AGENCIES TO IMPROVE SOIL HEALTH

ealth may prove to be our greatest ally.
nosphere, they capture more of the sun's
ing global temperatures to rise. Warmer
torms, longer growing seasons and rising
s have shown outstanding ability to trap
nd floods. Soils don't just make up the

There is nothing more important than the health of our children, including their ability to breathe clean air. According to a 2010 survey conducted by the California Air Resources Board, more than 692,000 children in California reported experiencing asthma symptoms. And it's not just our children; over 90 percent of Californians breathe unhealthy levels of one or more air pollutants during some part of the year. Improving soil health can help mitigate these effects. By reducing erosion, healthy soils limit dust and improve the air our families breathe.

In California, we conserve water – it's a way of life. As our state moves forward after years of prolonged drought, we are looking to newer, more innovative solutions to our water woes – including soils. Healthy soils act like a sponge, holding 18-20 times their weight in water. By binding to organic matter, healthy soils lose less water to runoff and evaporation. According to research, every 1% in increase in soil organic matter can add 25,000 gallons of water per acre. The path to water sustainability in California begins with soil.

With 9.1 billion people in the world by 2050 and with California's population swelling to 50 million by then, feeding that many people would require farmers and ranchers to increase food production by 60 to 70 percent. Research suggests healthier soil can help us do that. In fact, a USDA study reports that farmers who improved their soil quality saw a 3-5 percent increase in crop production.

Top photo: Michael Bell and Adam Criswell, focus management efforts on improving the health and function of the soil on their 270-acre farm near Turlock, California. NRCS photo by Ron Nichols

Innovation that embraces the cycles and systems of agriculture in California's dynamic environment

Since the earliest California farmers set down roots, they have understood the inherent value of giving back to the natural environment that enabled them to plant and to harvest. What we now call "conservation measures" or "soil science" began as family farmers living in concert with the land. The application of science and data allows us to quantify the value and importance of these time-tested practices.

And that's where CDFA's Office of Environmental Farming and Innovation comes in – recognizing those efforts as the constructive accomplishments they are, and taking additional steps to quantify and amplify those practices that make such innovative, restorative contributions to the land itself and to the systems at work in the agricultural environment.

CDFA's Dairy Digester Research and Development Program (DDRDP) provides financial assistance for the installation of dairy digesters in California. The digesters reduce greenhouse gas emissions from dairies, and they also provide real-world examples for other dairy owners who may be considering adopting this emerging technology.

How does a digester work?

Livestock manure emits methane, which becomes an important greenhouse gas if it isn't captured. Digesters capture methane and convert it into biogas, which is used to generate electricity, create transportation fuel or produce natural gas that can be directly injected into pipelines. Capturing methane, which is approximately 28 times more potent than carbon dioxide (CO) as a greenhouse gas, keeps it from escaping into the atmosphere and contributing to climate change.

CDFA Secretary Karen Ross (center) cuts a ribbon on a new dairy digester project at Lakeview Dairy in Bakersfield funded in part by a grant from the department's Dairy Digester Research and Development Program.

In 2015, CDFA awarded $11.1 million to the program's first six digester projects. These digesters provided $28.9 million in matching funds. In 2017, CDFA awarded $35.3 million to 18 projects that create fuel for transportation. These projects provided $78.7 million in matching funds.

In July 2018, CDFA awarded an additional $69.9 million in grant funding to 40 dairy digester projects across the state. Grant recipients will provide an estimated $95.5 million in matching funds for the development of their projects.

OEFI, continued

Financial assistance for the installation of dairy digesters comes from California Climate Investments, a statewide initiative that uses Cap-and-Trade program funds to support the state's climate goals.

CDFA's Alternative Manure Management Program (AMMP) provides financial assistance for the implementation of non-digester manure management practices in California, which will result in reduced greenhouse gas emissions. CDFA is on track to allocate between $19-$33 million to these grants by the end of 2018. Applications include projects such as solid separation systems, composting, and open solar drying, among other approaches.

CDFA's Healthy Soils Program promotes on-farm practices that improve soil quality through its Incentives Program and Demonstration Projects. The program provides financial assistance for incentivizing and demonstrating the implementation of conservation agricultural management practices that sequester carbon, reduce atmospheric greenhouse gases and improve soil health.

The Healthy Soils Program stems from the California Healthy Soils Initiative, a collaboration of state agencies and departments that promotes the development of healthy soils on California's farmlands and ranchlands. In addition to providing direct incentives to California farmers and ranchers for soil-improving practices on their land, the Healthy Soils Program funds on-farm demonstration projects that showcase the implementation of conservation management practices and create a platform for promoting widespread adoption of those practices throughout the state.

California's State Water Efficiency and Enhancement Program (SWEEP) was created to provide financial incentives for agricultural operations to invest in water irrigation and/or distribution systems that save water and reduce greenhouse gas emissions. Grants have been awarded to 587 projects covering over 109,000 acres. $61 million has been awarded to date, with more than $38 million in matching funds.

University of California Cooperative Extension advisor Ruth Dahlquist-Willard demonstrates how to evaluate soil moisture.

Projects include soil moisture monitoring, drip systems, switching to low pressure irrigation systems and instillation of renewable energy to reduce on-farm water and energy use.

CDFA's Office of Pesticide Consultation and Analysis (OPCA) provides consultation services to the California Department of Pesticide Regulation, which is required by the Food and Agriculture Code to work with CDFA as it develops pesticide regulations. OPCA's activities focus on the potential impacts of those regulations, along with pest management alternatives that may mitigate or prevent such impacts on production agriculture.

Outside research contracts, primarily with the University of California, provide a source of independent, unbiased expertise. In 2012 we completed a major report on alternatives to emulsifiable concentrate pesticide formulations which have been a key component of DPR efforts to dampen volatile organic compound (VOC) emissions. Another key area of research is DPR's chloropicrin mitigation proposal. We are also nearing the end of a long-term research project evaluating future prospects for biological control to combat arthropod pests. Coming challenges also include surface water issues and the neonicotinoid class of insecticides.

Helping California adopt hydrogen as an alternative fuel for vehicles

The development of fuel-cell vehicles and a network of hydrogen fueling stations in California represents a significant milestone in California's ongoing efforts to counter climate change. Any new fueling unit such as these hydrogen stations must pass a key test known as "type evaluation," administered by CDFA's Division of Measurement Standards (DMS), as a legal prerequisite for new makes and models of commercial measuring devices. CDFA puts each type of dispenser through a rigorous testing process over a range of fueling conditions to confirm that it performs within established tolerances and specifications. CDFA also ensures consistent quality of hydrogen fuel through DMS' testing program, which includes random sampling and testing in response to public complaints.

Hydrogen dispenser

According to the United States Department of Energy, California leads the nation in ZEV fueling infrastructure with an established retail hydrogen fueling network of 35 stations supporting nearly 5,000 zero-emission electric vehicles.

Hydrogen and the zero-emission fuel cell vehicles it powers are an important part of California's leadership in reducing greenhouse gas emissions. DMS is providing technical expertise and regulatory oversight to help make that clean-air vision a reality. Building a system of hydrogen fueling stations in California is a key step toward wider public use.

DMS is responsible for overseeing the fuel quality, dispenser accuracy, and advertising of all fuels sold at retail. DMS' current hydrogen-related projects include certification of hydrogen dispensers through "type evaluation" to ensure conformance with accuracy, design specifications and other technical requirements; and testing hydrogen dispensers for compliance.

California has 35 stations dispensing hydrogen, with more in the works.

CDFA's contributions to the advancement of hydrogen as a viable vehicle fuel in California include:

- Interagency agreements with the Air Resources Board, the California Fuel Cell Partnership and the California Energy Commission.
- Collaboration with SAE International to establish hydrogen fuel quality specifications for zero-emission hydrogen fuel cell vehicles.
- Contract with National Renewable Energy Lab for the fabrication of a primary standard used for testing and approving hydrogen dispensing systems resulting in the issuance of five California Type Approval Certificates.
- Constructed and commissioned a state-of-the-art hydrogen fuel quality laboratory and established the first hydrogen sampling and testing program to support the roll-out of zero-emission hydrogen fuel cell vehicles in the state.

Electric Vehicles:
Technical support for the state's expanding EV infrastructure

California's transportation sector is central to the state's short-term and long-term goals for improving air quality, reducing petroleum dependence, and lowering greenhouse gas emissions. Transforming California's transportation system towards zero-emission vehicles (ZEVs) is a key part of the state's climate change strategy. Moving to electric vehicles and other such technologies will dramatically reduce emissions from the transportation sector, which currently accounts for approximately 38% of the state's total.

According to the United States Department of Energy, California leads the nation with nearly 17,000 public access electric vehicle charging stations (28% of the nation's total). These systems support more than 300,000 battery electric and plug-in hybrid electric vehicles.

To keep it all moving in the right direction, DMS has partnered with several agencies and entities, including the California Energy Commission, the Air Resources Board, South Coast Air Quality Management District, and BKi – the management company for the California Fuel Cell Partnership.

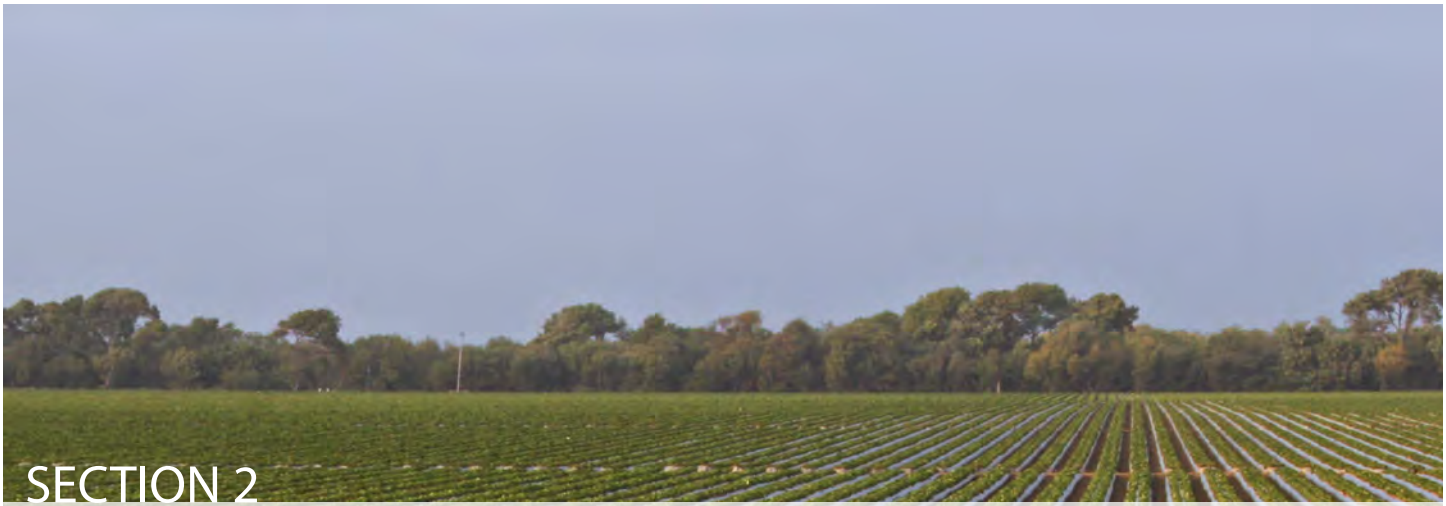
ZEV projects include the development of standards for the measurement of commercial electric vehicle supply equipment (EVSE); establishment of certification procedures for the standards used to test EVSE; creation of type evaluation procedures to certify EVSE for commercial use; and development of test procedures for use of EVSE and associated equipment.

Uber, Lyft:
Keeping up with California's constantly evolving marketplace

Consumers in California have confidence in the accuracy and fairness of the marketplace, even when that marketplace is constantly evolving. The rapid rise of Uber and Lyft and similar transportation network companies exemplifies the rapid refinement and reinvention of a market segment. DMS helps ensure that consumers get what they pay for – in this case, issuing California Type Evaluation Program Certificates of Approval to companies like Lyft, Inc. and Uber USA, LLC after determining that the companies' digital systems accurately measure distance and time in establishing costs to consumers.

Uber and Lyft connect drivers and riders via smartphone apps that provide a cost to the consumer based on time and distance traveled. The companies' digital networks utilize GPS and other data to calculate fares. After testing in real-world conditions across the state, CDFA certified the two systems in 2017, making California the first state to accept a measurement system for these transportation network companies.

This process of "type evaluation" certifies that the design and performance comply with all applicable weights and measures requirements for accuracy and reliability. These systems measure times down to the second and distances in increments of one hundredth of a mile, and they add charges such as tolls, surcharges and booking fees when determining a total fare. Once a device is certified for use, weights and measures inspectors in the 58 counties throughout California routinely check to ensure continued accuracy.



SECTION 2

Whether markets are **Strong** or not, we need a safe, affordable, reliable food supply.

To strengthen our **Foundation for** feeding a growing population

we must focus as intensely on **the Future** as we do on this year's harvest.

Long-term sustainability **of California Agriculture** is

no less than a matter of local identity, national security, and global stability.

Ag Vision:

Renewing the State Board's focus on the future of California agriculture

In 2010, the California State Board of Food and Agriculture developed its first iteration of Ag Vision, under the guidance of America's Farmland Trust. In 2016/17, the board worked with consulting firm Nuffer, Smith, Tucker to revisit the original goals, prioritize them, and develop action steps. The update includes a purpose statement that graces the cover of this report:

Agriculture: Making California a better place to live because of what we grow and how we grow it.

These words are engaging and compelling; they unify a diverse industry and inspire us to work together toward a common goal: to have all Californians take pride in their innovative, thriving California farmers and ranchers for their contributions to a healthy population and planet.

The goals of Ag Vision remain:

- *Better health and well-being* – meeting the nutrition and culinary needs of California's diverse population and consumers across the country and around the world
- *A healthier planet* – improving the health of the natural resources upon which California and food production depend
- *Thriving communities* – food production and processing are drivers of sustainable California economic growth
- *Connections between farmers and the consuming public* – citizens are agriculture and food literate, understanding and appreciating what it takes to bring food and fiber to market and the people behind California agriculture
- *A diverse set of agriculture entities are thriving* – ensuring agriculture has the land, water, human capital and access to the resources and legislative support it needs to remain profitable and competitive in the 21st century.

The strategic priorities are:

- Water
- The regulatory environment
- Labor/human capital
- Resource preservation & stewardship
- Outreach & communications

Office of Farm to Fork

Strengthening local food systems and nutrition

The Office of Farm to Fork began in 2012 as a collaboration between the California Departments of Education, Food and Agriculture, and Public Health. It became a permanent part of the Department of Food and Agriculture when Governor Brown signed AB 2413 in September 2014. Many of the office's projects are collaborations with organizations including the Departments of Education and Public Health, among others.

Goals

The Office of Farm to Fork works to strengthen local food systems, increase connections between local farms and consumers, and increase the availability of healthy and nutritious food to low-income Californians through a variety of projects and initiatives.

Increase Food Access

California Nutrition Incentives Program (CNIP)

Over the past year, the Office of Farm to Fork has launched the California Nutrition Incentive Program (CNIP), which was established by Assembly Bill 1321 to encourage the purchase and consumption of healthy, California grown fresh fruits, vegetables, and nuts by nutrition benefit clients. Phase I of CNIP provides CalFresh shoppers nutrition incentives when purchasing fruits and vegetables at Certified Farmers' Markets. The program is funded through a combination of state general fund dollars, a federal Food Insecurity Nutrition Incentive grant, partner match, and SNAP-Ed funding. USDA awarded the Office a Food Insecurity Nutrition Incentive (FINI) grant of $3.94 million to fund nutrition incentives at Certified Farmers' Markets throughout the state.

» $11.6 million in funds were secured for Phase I of CNIP, which began in July 2017 with implementing partners at the Ecology Center, Wellington Square Farmers Market, North Figueroa Association, and the Downtown Napa Farmers Market.

» In July 2018, CNIP expanded to additional outlets, including small retail stores and Community Supported Agriculture programs, and match WIC and Senior Farmers Market Nutrition Program benefits. Grantees for this phase include Interfaith Sustainable Food Collaborative, Visalia Farmers Market Association, and Mandela Marketplace.

State Employees Food Drive

The Office of Farm to Fork continued to lead the California State Employees Food Drive, partnering with the Sacramento Food Bank and Family Services to raise donations and funds to support food insecure Californians. More than 100 state agencies and departments participated, resulting in the donation of over 750,000 pounds of food, including produce.

Advance Farm to School

California Farmer Marketplace

The California Farmer Marketplace connects farmers and ranchers to California school food service directors. The Marketplace, a free and public website developed by the Office, allows farmers to list products and connect with school food service directors to increase the amount of healthy California grown foods on school lunch trays. (For more on the California Farmer Marketplace, see page 29.)

California Farm to School Network

The Farm to Fork Office transitioned the already robust California Farm to School Network (CFSN) from the Community Alliance with Family Farmers' leadership to CDFA in 2017. The CFSN is a "one-stop shop" for everything related to farm to school in the state of California. As a communications hub and a convener across many organizations and regions in the state, the CFSN will align statewide farm to school efforts by sharing resources and bringing farmers, schools, distributors, and practitioners together. The Office received a USDA Farm to School Grant and was named as a Core Partner by the National Farm to School Network to facilitate future efforts.

USDA 2015 Farm to School Census

The Healthy, Hunger-Free Kids Act of 2010 formally established a Farm to School Program within USDA to improve schools' access to local foods. In order to establish realistic goals with regard to increasing the availability of local foods in schools, in 2013, USDA conducted the first nationwide Farm to School Census (the Census). In 2015, USDA conducted a second Farm to School Census to measure progress towards reaching this goal.

Of the California school districts surveyed by USDA, 55% say they participate in farm to school activities. That covers 373 districts with 5,498 schools and 3,446,240 students. The average district spends 15% of its budget on local products, and 54% of California districts surveyed plan to increase local food purchases. School districts in California are currently buying the following types of local foods:

- 80% buy fruits
- 76% buy vegetables
- 54% buy milk
- 20% buy meat or poultry

Coordination and Communication

Program profiles, best practices on topics ranging from farm to school to food access, and other reports and materials are available on the Farm to Fork website, CAFarmtoFork.com, through the Office newsletter, and through social media accounts. Staff also participate in stakeholder conferences and community meetings to promote food access programs statewide.

- 6,500 people reached through Office of Farm to Fork outreach and presentations at statewide conferences and events.
- Directly reached 42 school food service staff from schools all over California for our Child Nutrition Director Trainings.
- These food service staff have the potential to impact 350,000 California students.
- 384 California Farm to School Network stakeholders responded to our needs assessment, which will help inform and guide the Office's facilitation and management of CFSN.

What's on your (license) plate?

Cal Ag Plate grant program supports ag education

In September 2018, CDFA began accepting applications for its fifth round of grants for agricultural education and leadership activities for students. Funding comes from the California Agriculture Special Interest License Plate (CalAgPlate).

This round of funding provides $250,000 in grant funding to benefit students at the K-12, post-secondary and adult education levels. Prior grants have sent more than $994,000 to youth educational activities since the program began in 2014. Applications are considered through a competitive process.

Some of the smaller projects have included farm and agribusiness tours to show students what kinds of jobs are available in agriculture, and seminars that show teachers how to incorporate agriculture-themed lessons that help students connect farms and crops with nutrition and other subjects that affect their own lives. Grant funds have also helped the FFA support development of young leaders and extend its programming and outreach to students.

Other recipients have included a wide range of organizations from the California Foundation for Agriculture in the Classroom, the Grower Shipper Association Foundation, the Dairy Council of California, the Madera District Fair, and Students for Eco-Education and Agriculture.

Supporting California's spay and neuter programs

There's no happier dog in the world that the one in the back of a farm truck. Pets are a natural part of farm life… so it's fitting that CDFA is the agency designated to administer two programs that help reduce animal homelessness and cruelty by supporting organizations that spay and neuter pets.

California's **Pet Lovers License Plate Program** is funded through a specialized license plate offered through the Department of Motor Vehicles. CDFA distributes those funds through a competitive grant process open to animal control agencies or nonprofit shelters that offer low-cost or no-cost animal sterilization services. Eligible veterinary facilities must be registered and in good standing with the Veterinary Medical Board and operated by local city/county government, an animal care or control agency, or a 501(c)(3) nonprofit.

The Pet Lover's License Plate was launched in 2013 with a good deal of fanfare about the artwork on the plate, an original painting by actor, artist and animal lover Pierce Brosnan. Approximately $40 from the purchase of each license plate goes to fund this program. Senate Bill 673 charges CDFA with implementing and administering the Pet Lover's specialized plate program beginning Fall 2018.

CDFA also administers the state's **Animal Homelessness and Cruelty Fund Program,** which directs taxpayer contributions through a similar, competitive basis, to municipal animal control agencies in support of spay and neuter activities to eliminate cat and dog homelessness. To be considered, applicants must be current with their reporting requirements to the State Department of Public Health, Veterinary Public Health Section.

California Grown + Visit California:

A partnership founded in foodie heaven

Fueled by the farm-to-fork movement, travelers seek new, direct culinary experiences that let them connect with growers: farm tours, farmers markets, farm-to-fork dinners, food and wine festivals, and wine tasting tours, just to name a few. Some of our ranchers and farmers are even mastering social media, developing their own cult status and becoming the next "rock stars" of the culinary scene.

In 2013 an official partnership began between California Grown (AKA the Buy California Marketing Agreement) and Visit California (California's tourism promotion agency) based on the shared interest in building awareness for and appreciation of agricultural products grown in the Golden State.

Visit California's $100 million promotional budget offers great leveraging opportunities and enhancement of the California Grown annual budget of $1.6 million through collaborative media relations and focused market promotion efforts.

Through this partnership California Grown and Visit California have worked to ensure California remains at the forefront of the "agri-tourism" trend. Promoting travel to California and growing California's tourism industry will boost the state and local economies, and agriculture and tourism are a natural pairing. Agriculture's bounty creates demand for California – and tourism opens a revenue stream for growers, infusing new dollars into rural communities.

Visit California has a long history of including California Grown products in advertising programs around the world. This partnership further cemented a collaboration that's the proverbial win-win-win. The sharing of content, ideas and common markets internationally has opened doors and increased sales of CA GROWN products.

California Grown, its board of 26 agricultural commodity commissions, and hundreds of individual farmers and their companies are committed to continuing this fruitful partnership to advance the mutual goal of promoting the strength of this great state's economy.

Supporting the Diversity of California Crops

CDFA's Specialty Crop Block Grant Program

The durable popularity of CDFA's Specialty Crop Block Grant Program (SCBGP) speaks volumes about the innovative nature of California farmers and the researchers and organizations that support them. Grants go to projects that enhance the competitiveness of California specialty crops including fruits, vegetables, tree nuts, dried fruits, and horticulture and nursery crops.

E. coli Research - Center for Produce Safety with the University of Arizona

The Center for Produce Safety, in partnership with the University of Arizona, developed a risk-based approach for sampling irrigation water to minimize the risk of produce contamination by foodborne bacteria. This project was important as the produce industry works to comply with the United States Food and Drug Administration's guidelines for generic Escherichia coli (E. coli) as an indicator of the potential presence of fecal contamination. The project's goal was to offer recommendations towards risk-based sampling strategies (frequency, timing, location, volume) for E. coli indicator bacteria. The project team developed 13 models to predict water quality and then worked with an experienced computer modeler to create a user-friendly app to help the produce industry put the new knowledge to work. User tracking on the app began in 2016, and by January 2017 we were already tracking 606 active users. Additionally, survey results during multiple events in 2015 and 2016 indicate that between 67% and 82% of stakeholders would be willing to change their current sampling protocol and use the risk assessment tool to aid in irrigation water quality assessment.

EXAMPLES

Ecoliteracy and CA Grown Fruits & Vegetables

The Center for Ecoliteracy (CEL) promoted the quality and availability of California-grown fruits and vegetables in Summer Food Service Programs (SFSP) served by California public school districts through a multi-channel marketing campaign in three California regions (Contra Costa, Sacramento, and San Diego). CEL developed, designed, and conducted the campaign; produced advertising for radio, online and social media, including outdoor ads for public transit; created a summer meals locator website (summermeals.org); conducted a public relations campaign for local events; designed, distributed, and coordinated promotional materials; encouraged districts to include more specialty crops in menu planning; and measured impacts of these activities through digital analytics, earned and paid media calculations, procurement records, key informant interviews, and participant surveys.

By the Numbers: 2010-2018

2,451
concept proposals submitted

1,258
concepts advanced to full grant proposal phase

617 grants awarded

$165,000,000
in grants awarded

321
research projects awarded

38 pilot projects

Farmers are the foundation of agriculture:

That's a central theme at the Center for Land-Based Learning

One simple reality of modern society is that fewer farmers are growing more food, which allows more of us to pursue other endeavors. This transition from a more agrarian society to a more concentrated consumer one has generated a crisis: not enough qualified people in the pipeline to become farmers, to effectively care for these priceless natural resources, to grow and process the food that feeds us all. As important as the crop and the harvest are, it's the farmer who makes it all happen again next year.

That's where the Center for Land-Based Learning (CLBL) comes in – and it's also where CDFA's support of this vital, innovative organization really makes a difference.

Through the department's **Specialty Crop Block Grant Program** (see previous page), CLBL in 2010 established its California Farm Academy program to find and train new and beginning farmers. In 2016, it used another grant to expand and strengthen the Academy with a new Incubator Program that provides additional land, staff, equipment and market opportunities to beginning farmers during their most vulnerable early years, as they develop their production and marketing skills.

From farm tours and classroom presentations, to hands-on technical exercises, to assistance with leasing tractors and equipment and identifying promising markets, the Incubator Program helps new farmers fill in many of the big "blanks" that can otherwise present daunting challenges early on.

These farmers primarily grow produce for local and regional markets, and likewise source services, inputs and infrastructure in their own communities. That local focus helps connect these farmers with consumers and partner businesses in their region.

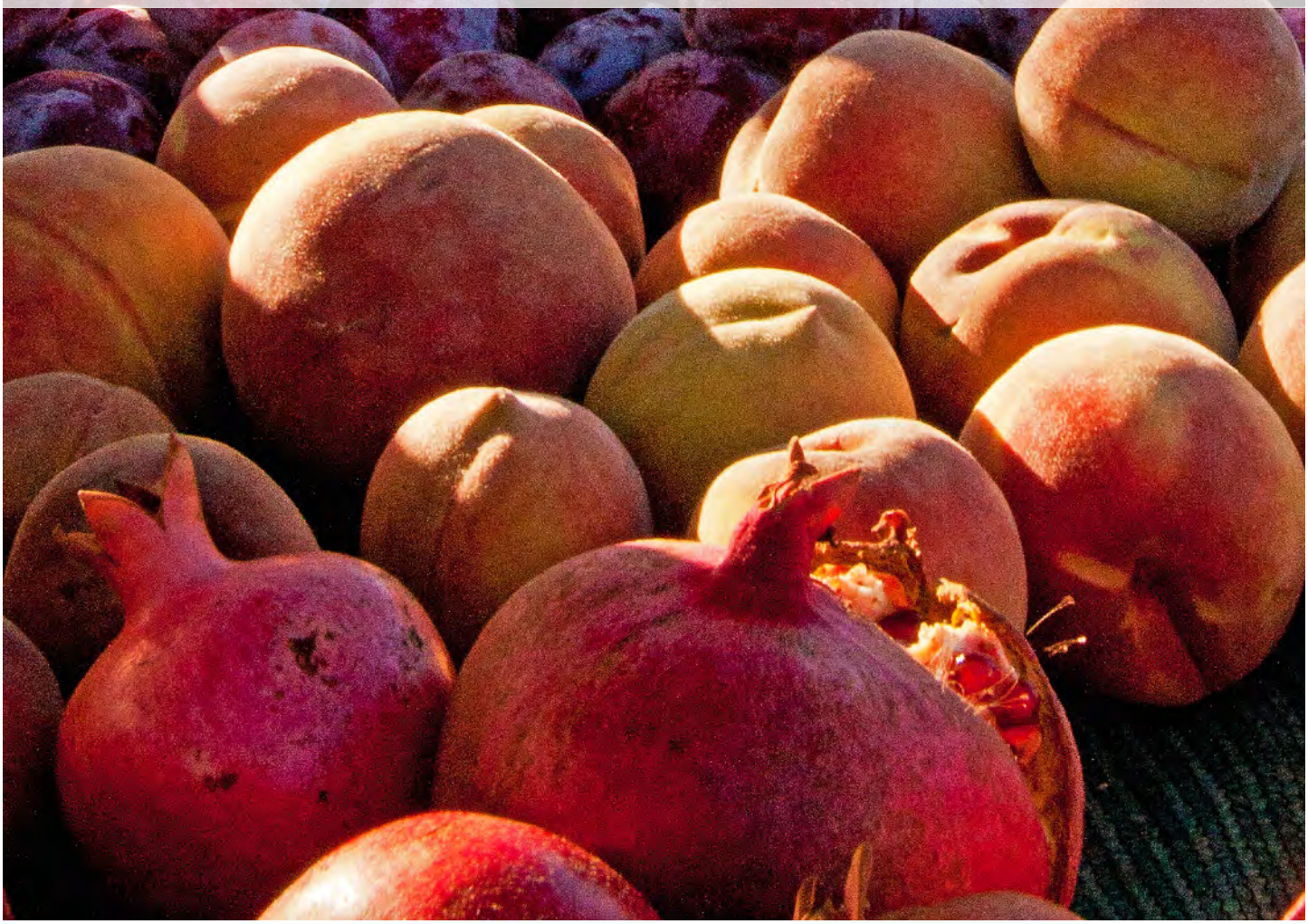
What's next? CLBL is exploring the idea of a network of farmers who can take on beginners as apprentices, further extending the reach and effectiveness of the Farm Academy's programs.

SECTION 3

Changing Marketplace

The saying goes: if you're not **Changing** you're not growing.

The California agricultural **Marketplace** proves that every day, with farmers and ranchers constantly innovating and reinventing everything from the crops and varieties they grow to the ways they get those commodities to consumers.



Quality, accuracy, and consumer trust: the Olive Oil Commission

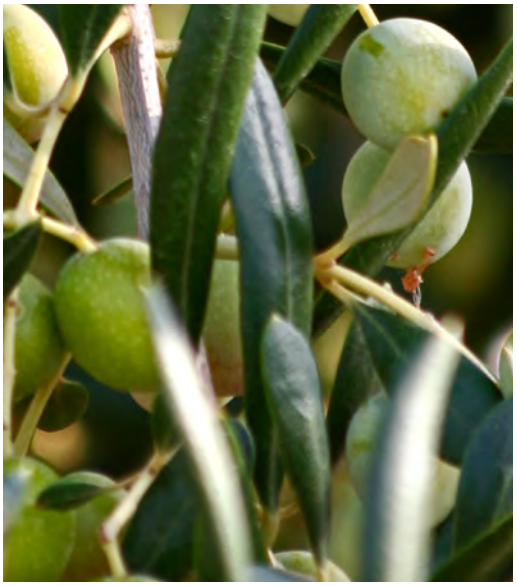
Back In 2014, when the Olive Oil Commission of California (OOCC) was implemented, it was the state's olive growers who brought it into being: 86% of the growers, representing 90% of the voted volume, voted in favor of implementing the OOCC.

The Commission supports California olive farmers by:

- Developing and enforcing standards for the purity and quality of California olive oil.
- Verifying California olive oil quality through mandatory government sampling and third-party analysis.
- Promoting simple, clear accurate labels for California olive oil.
- Conducting research to assist farmers in successfully growing a healthy, sustainable crop.

The OOCC exists so that:

- California olive oil is accurately labeled.
- Customers can have confidence in the quality of California olive oil.
- California olive oil is trusted and valued.



Laboratory analysis shows that California producers are in fact labeling their product with increasing accuracy. In 2016/17 **100% of the olive oil samples collected by CDFA were consistent with the grade identified by the handlers own testing.** This is very good news for consumers.

Media reports on olive oil fraud have resulted in confusion among consumers regarding how to select and buy good quality olive oil. The OOCC represents the growing California olive oil industry's commitment to improving the consumer's olive oil buying experience. The hope is that California can establish trust and credibility among consumers as well as with retail and food service buyers. Ultimately, this trust will increase the value of California olive oil.

No other state, or country, has mandatory standards for olive oil that require its inspection. Although olive oil production in California is still small on a global level (less than 1% of the world total), the growth rate of the state's production is remarkable.

For example, since 2007 the production of olives delivered for milling in California has grown by approximately 600%. With the introduction of medium and high-density orchards in the state, combined with mechanical harvesting, California's large-scale producers now market high-quality, extra virgin olive oil products that compete with imported extra virgin olive oil products.

California Olive Oil

by the Numbers

38,000

acres of olives are planted in California for the production of extra virgin olive oil.

3,500

new acres estimated to be planted each year in California through 2020.

400+

growers of olives for olive oil in California

40

olive oil mills in the state, with more under construction and/or expansion.

75+

olive varieties are grown in California for olive oil production, resulting in proprietary blends unique to California

Source: California Olive Oil Council

Adding industrial hemp to the long list of California crops

Following passage of the California Industrial Hemp Farming Act and subsequent changes from Proposition 64, CDFA has taken up its responsibility for establishing a registration program for the commercial cultivation of industrial hemp.

What is CDFA's Role?

- Developing regulations and guidelines for industrial hemp cultivation, inspection, testing, and enforcement
- Managing the Industrial Hemp Advisory Board (IHAB)
- Providing training and outreach to agricultural inspectors, industrial hemp growers and the public

The CDFA has established the IHAB and hosted its first several meetings. The IHAB is assisting CDFA with development of the registration process, fee structure, regulations, and other administrative details as necessary to provide for the registration of growers of industrial hemp with the county agricultural commissioners.

Existing law requires registration of growers of industrial hemp and seed breeders with county agricultural commissioners. It also requires the CDFA to establish a registration fee and appropriate renewal fee to be paid by growers of industrial hemp for commercial purposes and seed breeders (not including established agricultural research institutions) to cover the actual costs of implementing, administering, and enforcing the regulations.

Registration will become available once regulations on the fee structure are approved. At its meeting on May 30, 2018, the IHAB recommended a fee structure for establishment by the CDFA. CDFA is also preparing proposed regulations based on the IHAB's recommendations.

"Industrial hemp" means a fiber or oilseed crop, or both, that is limited to types of the plant Cannabis sativa L. having no more than three-tenths of 1 percent tetrahydrocannabinol (THC) contained in the dried flowering tops, whether growing or not; the seeds of the plant; the resin extracted from any part of the plant; and every compound, manufacture, salt, derivative, mixture, or preparation of the plant, its seeds or resin produced therefrom.

Cultivating food safety: the California Cantaloupe Program

The California Cantaloupe Program was amended in 2012 to include a mandatory food safety component. **The goal: to verify that all commercial California cantaloupe handlers are following a set of science-based food safety practices.**

Government auditors regularly inspect cantaloupe farms and cooling facilities to verify they are operating in compliance with a series of required food safety checkpoints throughout the growing, harvesting, packing and cooling processes. This food safety authority was added to the Cantaloupe Program following foodborne illness deaths caused by listeria-tainted cantaloupes produced in Colorado in 2011.

Even though California cantaloupes have never been associated with a foodborne illness, the California cantaloupe industry felt it was necessary to implement a food safety program to help protect consumers and the California cantaloupe industry from such a possibility. The cantaloupe food safety program is modeled after the work of the California Leafy Green Products Marketing Agreement (LGMA) which began in 2007.

It is important to note that when CDFA conducted the cantaloupe industry referendum to determine if the proposed food safety program would be implemented, all of the California cantaloupe handlers that participated voted in support of this new required activity.

CDFA's CalCannabis Cultivation Licensing

Helping cannabis growers transition to a regulated marketplace

CalCannabis Cultivation Licensing, a division of CDFA, licenses and regulates commercial cannabis cultivators in California. CalCannabis is organized into three branches: Licensing, Compliance and Enforcement, and Administration.

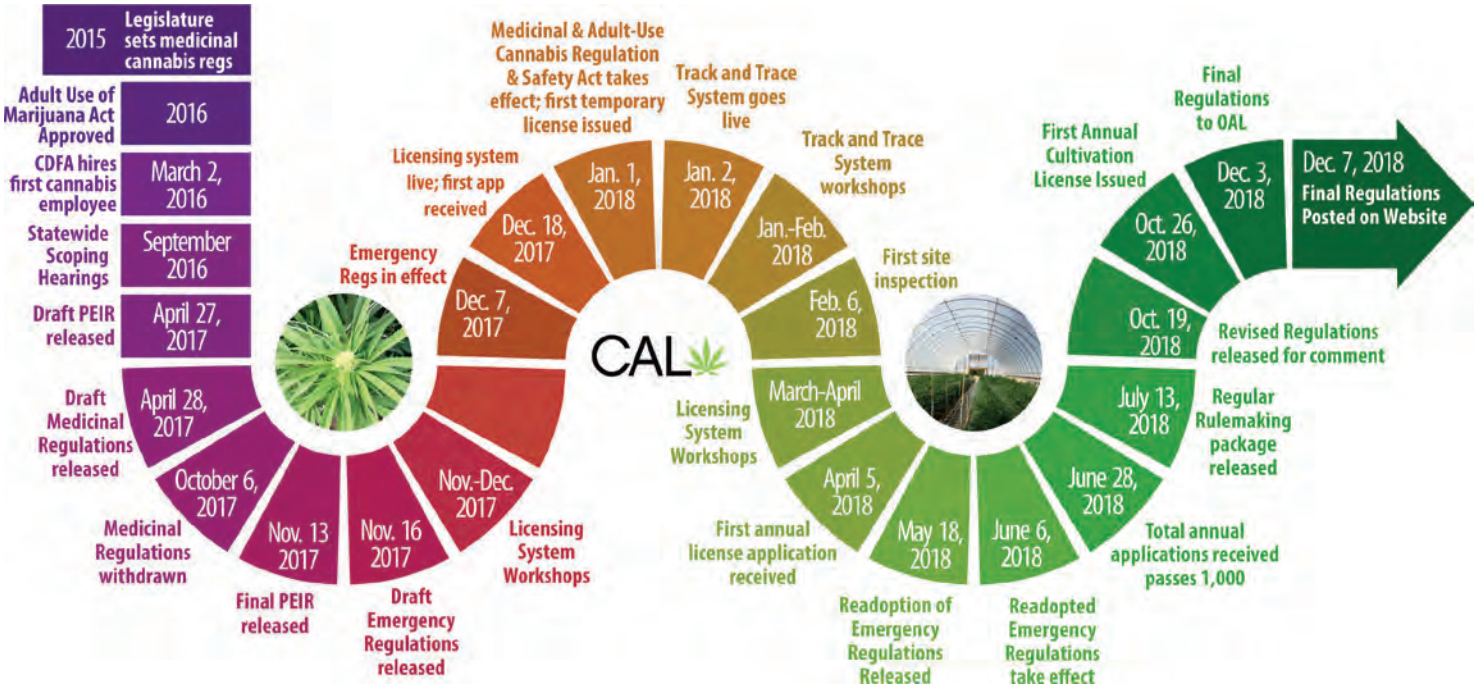
Public and grower involvement has been a key component of CalCannabis from the beginning.

See the chart at the bottom of this page for milestones in the creation of the program.

In conjunction with its oversight of cannabis cultivation, the CalCannabis office also manages the state's Track-and-Trace system, used statewide to record the inventory and movement of cannabis and cannabis products through the commercial cannabis supply chain. This system is designed to be used by all state cannabis licensees, including those with licenses for cannabis cultivation, manufacturing, retail, distribution, testing labs, and microbusinesses.

In the run-up to the January 1, 2018 launch of CalCannabis cultivation licensing, CDFA invested a tremendous amount of time and effort to create the regulatory framework, prepare the required environmental and legal reviews and documentation, and plan the staffing build-out to handle both the initial rush of applications and the longer-term need for inspections, investigations and all of the other components of this complex undertaking.

Public and grower involvement has been a key component of CalCannabis from the beginning. Beginning with scoping hearings back in September 2016, the establishment of this program has relied upon comments, advice and review by licensee growers and many other stakeholders. Dozens of workshops, hearings and comment periods later, CDFA is proud to have set in motion a fully functional program that is ready for the commercial production of cannabis as a newly legalized crop in California – and ready to respond to the changing needs of our growers.



Let's start with Quality. Safety. Integrity. Trust. Health.

CDFA's State Organic Program

The CDFA State Organic Program (SOP) is responsible for registering organic operations in California. The SOP works state-wide with county agricultural commissioners to enforce state and federal statutes and regulations governing the production, handling, labeling, and sale of agricultural products labeled as organic.

How do we know it's organic? Beyond the regulatory requirements for registration, we conduct spot inspections, investigations, sampling and training. Sufficient regulatory control ensures that organic agricultural products are produced, handled, labeled, and sold in compliance with the provisions of the California Organic Food and Farming Act, Federal Organic Foods Production Act of 1990, National Organic Program (NOP) regulations, and other rules.

The organic agricultural industry in California continues its steady growth. From 2011 to 2016, the total number of registered organic operations increased by 32%. For the 2016 calendar year, there were 504 new registrants in the SOP. Registration fees fund the SOP's efforts.

Organic Stakeholder Workgroup

CDFA Secretary Karen Ross convened the Organic Stakeholder Working Group in the spring of 2016 to review the existing SOP and provide recommendations to the Secretary on how to maximize program efficiency and responsiveness.

The Working Group was comprised of a diverse group of 23 representatives from several sectors including growers, distributors, producers, certifiers, trade associations, a County Agricultural Commissioner, and state and federal agencies. The process was designed to ensure equitable representation of statewide interests and was facilitated by the Center for Collaborative Policy at California State University, Sacramento. The Working Group set goals to:

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What's "organic?" *continued*

» Define benefits and challenges of the SOP

» Discuss future projects for CDFA's consideration

» Prepare recommendations for the Secretary and the California Organic Products Advisory Committee (COPAC).

Organic Stakeholder Working Group Recommendations and Accomplishments (June 2018)

» Streamlined the CDFA Registration Process, Enhanced Data Collection, and Maximized Data Utilization

» Initiated communication with certifiers for a path to identify a format for information sharing and the database allows certifiers the option to renew on behalf of their clients

» Implemented database updates for regulatory changes that allow the SOP to increase data collection to conduct more effective enforcement, reporting, and outreach and education activities

Improved Enforcement Activities:

» Increased enforcement activities in conjunction with the NOP to target imported products

» Regional Special Investigators were added in central and southern California

» Implemented GMO sampling as part of our GMO Testing Pilot Program

» Implemented an MOU with the Feed, Fertilizer, and Livestock Drug Regulatory Services (FFLDRS) Branch to conduct GMO testing of animal feed as part of the GMO Testing Pilot Program

Expanded Outreach and Communication:

» Established a communications contract and worked with the contractor (JP Marketing) to provide fact-based information, focused on growth and accomplishments, reinforcing and promoting consumer trust in the organic label

» Created COPAC subcommittee to provide input with communications contractor

» Worked with communications contractor to develop a survey to better understand how to serve the needs of the organic community, and to help shape the type of messaging the SOP provides to the industry

» Worked with JP Marketing, to create SOP logo and web banner

» Conducted presentations at localized county level organic industry workshops.

Integrate "Organic" Throughout CDFA and Other State Agencies

» Provided county enforcement staff with educational resources from the NOP, including the NOP Certification Training Module

» Attended trade shows to provide educational resources to organic industry.

SOP GMO Pilot Program

The SOP began developing a pilot project in the spring of 2015 to detect genetically modified organisms (GMO) in organic products. Upon approval of the pilot project, the SOP staff began collecting samples for GMO testing and analysis in April 2016. The initial sample collections continued over a 12-month period, and results were presented to the California Organic Products Advisory Committee (COPAC). Moving forward, it's anticipated that GMO testing will be part of the SOP's normal sampling and enforcement work.

For FY 2016/2017, the State Organic Program:

» Issued 22 Notices of Non-Compliance

» Handled 54 complaints/investigations

» Conducted 1,389 inspections

» Collected 312 pesticide residue samples

SECTION 4

Like a farmer who harvests this year's crop while also tending to the health of next year's soil, CDFA maintains a **Commitment to** today's growers as well as tomorrow's. Each and every **Improvement** we make in our own systems and processes means farmers and ranchers operate within a more efficient regulatory framework.

75
Growers/Producers on the Marketplace

- 48% very small
- 33.33 % small
- 4% medium
- 14.67% large

299
Consumers/ Business Accounts

83
K-12 school districts

The Office of Farm to Fork hosts the online California Farmer Marketplace, www.cafarmermarketplace.org, featuring fresh California produce, grains, meats, and other products for sale. The site offers farmers the opportunity to post products and connect with school food service directors to put more California grown and produced foods on school lunch trays.

Designed to reduce communication barriers between buyers and sellers, the website is free and open to the general public. Ranchers, producers, distributors, institutional buyers, community groups, and individual consumers may all use the site. Sellers can list products and identify their location, agricultural practices, and delivery methods. Buyers can then search for a product by region or throughout California and filter results based on their own criteria, such as the level of farm liability insurance, price, pack size, or individual processing needs.

The Marketplace offers farmers the opportunity to post products and connect directly with school food service directors

Streamlining Fiscal Systems

Administrative Services Division helps state transition to new FI$Cal system

Modernizing any one of California government's accounting, budget, cash management and procurement systems would be a tall order – so it was no small task when the state's leaders decided they all needed to be part of a single new system.

It took several years to accomplish this feat, from the time the original agreement was inked by several key agencies back in 2007 to the day in 2017 when CDFA became one of the departments to adopt the new system known as FI$Cal.

The "Partner Agencies" leading the development and deployment of FI$Cal are the Department of Finance, Department of General Services, State Controller's Office, and State Treasurer's Office. Each of these agencies has dedicated staff working on the system. Representatives from the Partner Agencies also sit on the FI$Cal Steering Committee, which acts as the approval body for key decisions.

FI$Cal
One state. One system.

As a user of this new, modernized system, CDFA is transitioning from older, separate systems to the new approach. For example, CDFA's Acquisitions Office uses the new system to perform their purchasing activities; Grants Administration uses it for processing contracts; Business Services for processing asset transactions; and Financial Services for performing accounting and reporting functions. Training for each employee who uses FI$Cal is incorporated into the design of the new system through an online "University of FI$Cal" interface that includes instructor-led and web-based courses and curriculum.

Workforce Stability at CDFA

Inspection Services Division invests in employee development

Maintaining a workforce that is not merely competent but also expert and experienced can be challenging - especially when your organization covers everything from inspecting fruits, vegetables and nuts to performing chemical analyses and ensuring the safety of feed, fertilizer and livestock drugs.

So much of what CDFA oversees - and what its Division of Inspection Services (ISD) strives to support - is agricultural innovation and diversity. Working with future generations of agriculturalists is one way to accomplish these tasks. That's why ISD offers its **Summer Internship Program,** which completed its second year in 2018. The goals of the summer internship are to engage students in agriculture, promote future agriculture ambassadors, and serve as a long-term recruitment tool to promote career opportunities available through ISD and CDFA.

One key to ISD's success in serving California farmers and ranchers is recruiting, training and promoting experienced staff for a wide variety of programs. In 2015, the **ISD Succession Plan** was adopted by Division leadership and presented to the entire staff. In an effort to promote upward mobility (and knowing that a large percentage of CDFA staff are eligible for retirement in the next five years), the Succession Plan Work Group identified opportunities and proposed creative solutions to enable staff to gain more experience. Two distinct projects resulted from the Succession Plan: The Mentorship Program and the Brown Bag Sessions.

In coordination with the internship program, the ISD established its **Mentorship Program** to help provide rank and file staff with applied leadership experiences. Candidates were given the opportunity to work closely with each respective branch chief, as well as the ISD administration staff.

Through the **Brown Bag Sessions,** ISD explored offering professional or employee-led seminars to enrich skills and competencies, or to learn more about a topic of personal interest. Recent sessions included Individual Development Plans and an explanation of the Olive Oil Testing Program, followed by an olive oil tasting.

The Center for Analytical Chemistry (CAC) completed a project implementing a **Lean Six Sigma** "green belt" program to standardize Chain of Custody protocols, from Test Sample Receipt to Sample Disposal. A leadership team evaluated the existing process functions and worked on process improvement. Effective improvement measures were put in place at every process component, with an emphasis on "mistake proofing" the process. A measurement system was created to fully document any future losses with a feedback system for corrective actions and periodic monitoring. ISD staff were also invited to tour the CAC, the Plant Pest Diagnostics Laboratory, and the headquarters location of the Division of Measurement Standards.

In 2016, CDFA hosted its first **Career Fair** with about 200 attendees. The annual event has since grown into a key strategy to introduce CDFA's role to promote and protect a safe and healthy food supply, attract new employees, and plan for the future.

Building on the success of the Career Fairs, the Inspection Services Division (ISD) was tasked with a pilot project to extend the idea and participate at colleges and universities that have majors tied to CDFA jobs - particularly agriculture and related sciences, audits, criminal justice, and veterinary science. CDFA staff showed students what was available according to their degrees, even to the point of "translating" their qualifications into specific state job classifications, they became aware of the opportunities that await them at CDFA.

As ISD's workforce demographics change over time, the division's foresight puts it in a position to refresh its Workforce and Succession Plan. The ISD's Strategic Planning workforce mission is to create a lasting, thriving division, providing meaningful careers in the delivery of services to our stakeholders.

Embracing Social Media:

Reaching California consumers and ag stakeholders a few million pixels at a time

By the time you read this, CDFA's YouTube videos will have been viewed about a million times. Our "Planting Seeds" blog, which debuted in 2011, just surpassed 750,000 views. The numbers – and the immediacy – are truly powerful.

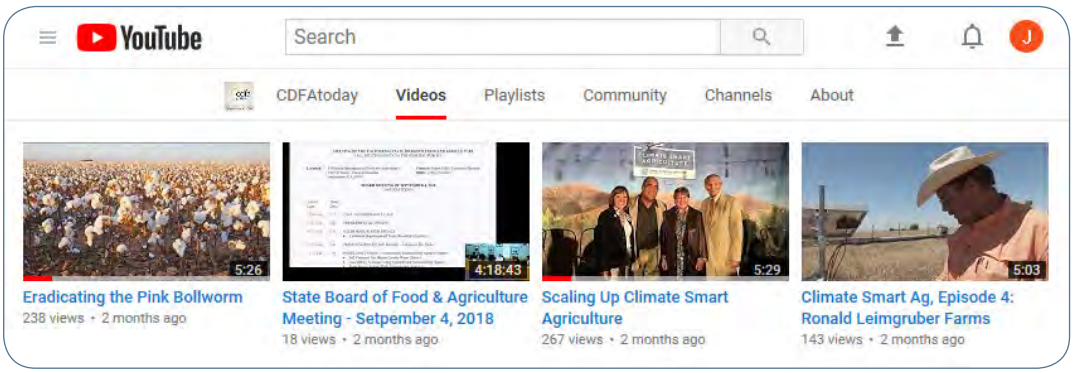
CDFA's central social media presence features a steady stream of blog posts, amplified primarily by Facebook and Twitter, with focused forays into Instagram and other outlets as well. The beauty of this new consumer-driven media market is that once something is posted, it's up to the audience to determine where to take the conversation from there.

In the vastness of the blogosphere and other social media spaces, it's safe to say that government posts aren't usually the ones that "go viral" – but that's not necessarily the goal. As much as agriculture is an industry, it is also a community - and that community, like so many others, is proficient at recognizing what's important and deciding who else might want or need to see that information - quickly. It's a remarkably agile and adept system.

Between email recipients and social media subscribers, regular posts by CDFA reach approximately 25,000 followers including media organizations, other blogs, and a variety of ag and environmental groups.

Gone are the days when government agencies and other organizations had to rely on traditional media - newspapers, magazines, TV and radio stations - to "get the word out" about projects, accomplishments, events and, well everything else. Social media and the "power of the pixel" have turned that time-honored system into something of a dinosaur in the span of a generation. CDFA still generates 60-100 traditional news releases each year, which are posted to the web and sent to subscribers who sign up on the agency web page. These releases are often also amplified by our social media feeds.

CDFA has kept pace with the rapid evolution of social media, and it has served the agency well. **#Onward!**



Providing leadership to a fairs industry in transition

California's fairs have grown and adapted over more than 150 years to become remarkable reflections of their local communities, showcasing each region's farming and ranching influences as well as many other activities, points of interest and claims to fame. In recent years, the state government's shift away from funding local fairs through the General Fund has led local leaders to adapt, rethink and transform their fairs; CDFA has been there to lend a helping hand and the wisdom of experience as each community reaches its own decisions regarding the future governance, maintenance and investment in these important sites and events. Here's a run-down of key developments during this time of transition.

Developed Fairs on the Watch Program

Fourteen fairs participate in this program, which was initially developed in 2008, and scaled up with the loss of fair funding in 2011. It is a proactive program to assist fiscally challenged fairs with additional resources/support.

Implemented State Parks Ribbon Program

Through an exhibit competition at fairs, this collaboration with State Parks mutually promotes State Parks and Fairs. In 2015 the California State Park 150th Anniversary was celebrated at all California Fairgrounds. Each fairgrounds creates a unique State Parks exhibit and showcases adult and youth competitive exhibits, all with a state park theme. A poster was developed to showcase all State Parks and California fairgrounds to promote the program.

2015 Fair Economic Impact Report

CDFA reintroduced this report as an opportunity for each fair to outline the local/state economic and community impacts of the fairgrounds. California Fairs contribute annually $3.9 billion to local economies and $1.2 million to the income of California residents. https://www.cdfa.ca.gov/Fairs_&_Expositions/Resources_and_Publications/

Reintroduced Livestock Judges Conference

Fair staff and volunteers further develop their skills and are trained on aspects of livestock and exhibits, with a focus on promoting and protecting livestock shows. Over 200 staff, volunteers, and youth participated.

Ethics, Training and Transparency 2016

We developed and implemented in-person training for the Boards of Directors at our fairs, aimed at introducing new/existing board members to relevant public laws and board relations. More than 20 boards have received the in-person trainings, and more than 930 staff and board members are currently enrolled in the training system. An orientation video was developed to provide an overview of rules/responsibilities of board members: https://www.cdfa.ca.gov/Fairs_&_Expositions/Video/StateFairBoardOrientation.mp4

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Fairs provide key bases for emergency responders, evacuation shelters

The fair comes once a year - but our fairgrounds and the people who take care of them do a lot more than that for their communities all year 'round, from hosting events to fulfilling a crucial role as evacuation centers for people and animals, and as a staging area for fire crews and other emergency response personnel and equipment. **In November 2018, for example, here's a snapshot of what our fairs were doing to help Californians and their communities recover from wildfires:**

The Butte County Fair (Gridley) served as an evacuation center and animal shelter. The fair also partnered with local and regional organizations to house an animal shelter operation and generate a directory of online images for lost animals to reconnect pets and families.

Safe Shelter and a Base for Emergency Response

Snapshot: 2016-2018

7,265
Evacuees Sheltered

4,522
Animals Sheltered

36,042
Emergency Responders Stationed

The Silver Dollar Fair (Chico) was home to approximately 6,500 emergency personnel for a main fire camp and staging ground.

The Yuba-Sutter Fair (Yuba City) – served as an evacuation center and animal shelter.

The Ventura County Fair (Ventura) served as an animal shelter, primarily for horses displaced by fire.

The Glenn County Fair (Orland) also serving as a evacuation center and animal shelter.

California's network of fairs is ready to support these emergency response activities at a moment's notice, all year long. In many cases, local farmers and ranchers are called upon as well to assist with trailers, feed, equipment and expertise. It's another way that California's agricultural community works together.

Fairs & Expositions, continued

Consumer Protection Project 2016

Signage and videos were developed to educate the public on livestock biosecurity and help connect our urban communities with a combination of agricultural education and safety messaging. The project was a collaboration between UC Davis, UCANR, CDFA Animal Health and Fairs and Expositions. Thanks to Calaveras County Fair for hosting the videos: http://ucanr.edu/sites/bio-securityeducation/Educational_Videos/

F&E Funding for Deferred Maintenance, Auditing, Legal Services

In FY 2015-16 the legislature allocated $7 million and added $4 million in FY 2016-17 for deferred maintenance activities. Also in FY 2015-16 the Budget Act appropriated $3.1 million and two permanent positions to provide operational support to the Network of California Fairs. In June 2018, voters approved SB5/Prop 68, including $18 million for facility improvement and deferred maintenance projects at fairs.

Each year, California counties participate in the State Fair by designing booths that feature local flavor.

SECTION 5

Agriculture's top priority is **Food Safety** because farmers know it has to be. From science-based protocols **&** systems to voluntary inspection and certification, growers are focused on **Consumer** protection. That's why Californians consistently have the utmost **Confidence** in our food supply.

CDFA's Produce Safety Program

Minimizing food safety risks through the Produce Safety Rule

CDFA's Produce Safety Program (PSP) was created in 2016 through a cooperative agreement and a significant investment of more than $11 million from the U.S. Food and Drug Administration (FDA) to implement the Food Safety Modernization Act's (FSMA) Produce Safety Rule (PSR).

The program's objectives are to implement the PSR by educating farmers and the agricultural industry in prescriptive measures intended to minimize on-farm contamination of produce, and by conducting environmental assessments and enforcement through inspections to ensure compliance with the PSR. The program's role is to enforce the PSR standards for growing, harvesting, packing, and the holding of produce for human consumption to minimize the incidence of foodborne illnesses.

In the 2016/17 fiscal year, the program hired senior and supporting staff to create its foundation. Then, in 2017/18, the program hired three Environmental Scientists to conduct inspections under the PSR. Plans include hiring two more Environmental Scientists, giving California an inspector for every major growing region.

Senior staff and inspectors are required to hold a BS or higher degree, attend FDA required training, and be commissioned by the FDA to conduct investigations. To date, all staff have received FDA commissions; participated in several farm tours in Sonoma, Monterey, and Orange counties; and conducted a dozen On-Farm Readiness Reviews, an educational program designed to assist the farmer in being ready for inspections under the PSR.

The PSP's cooperative agreement with FDA requires CDFA to develop and maintain a "Farm Inventory." An estimated 25,000 farms in California fall under the PSR. The PSP has utilized various resources, including compilation of California's registry of organic farms and farmer's markets and collaboration with the California Agricultural Commissioners and Sealers Association (CACASA), by far the largest resource, to gather complex California farm information.

The program also provided $450,000 for educational services to farmers and an additional $110,000 for outreach services. Under these contracts, approximately 50 required grower training courses (10 in Spanish and 40 in English) were provided at reduced cost to more than 500 growers in California; numerous informational sessions were held throughout California; introductory letters were sent to industry leaders; and the program's website (www.cdfa.ca.gov/producesafety/about.html) was developed.

The next steps for the program include continuing education and outreach for farmers; additional contracts for required grower training courses; completing the farm inventory; developing the inspectional approach and reporting procedures in collaboration with FDA and the National Association of State Departments of Agriculture (NASDA), and hiring and training additional inspectors to support California's agricultural community.

An estimated 25,000 farms in California fall under the Produce Safety Rule.

It's pretty impressive how much good we can do as a society, an industry or a government if we simply do the research and make sure everyone knows the results. That's the principle behind CDFA's Fertilizer Research and Education Program (FREP), which was established in 1991 to promote and support responsible use of fertilizing materials and to improve understanding of plant nutrients. Since then, FREP has funded 220 research and education projects, across California, committing over $17 million in financial support.

FREP Project Database

Information on all completed and ongoing FREP-funded projects have been transferred into an online database on the FREP website. Users can search the database based on keywords, project dates, crop types and/or region. Information on each project includes a short synthesis of project objectives and methods.

Technical Training and Education

CCA Training

In March 2017, the University of California held a FREP-funded nutrient management training session for Certified Crop Advisors (CCAs) in Fresno, California; approximately 100 CCAs attended. Since 2014, there have been ten of these day-and-a-half workshops that prepare CCAs to complete and certify Nutrient Management Plans (NMPs)for Central Valley Growers. The Central Valley Regional Water Quality Control Board recognizes the over 990 CCAs who have participated in this program as qualified NMP certifiers.

Grower Training

Regulations by the Central Valley Regional Water Quality Control Board's (CVRWQCB) Irrigated Lands Regulatory Program (ILRP), require Central Valley growers to have a certified Nitrogen Management Plan (NMP) on their farm to assist them in projecting and tracking nitrogen fertilizer use. The NMPs must be certified by a qualified professional, such as a Certified Crop Advisor (CCA), or growers can self-certify their own NMP if they have participated in a training program produced by CDFA for that purpose.

The Nitrogen Management Training Program for Growers provides information to improve growers' understandings of sound nitrogen management practices and to help them make informed decisions about crop nutrient management. Through this FREP-funded grower training program, CCAs instruct growers on the basic principles of crop nitrogen management and how to properly complete nitrogen management plans, as required by Central Valley Water Quality Control Board regulations. After participating in the CDFA training and passing the exam, growers are eligible to self-certify their nitrogen management plans. To date, regional grower coalitions have held over 58 sessions across the Central Valley, and more than 2,973 growers have passed the exam.

Biochar Field Day

On June 6, 2018, FREP teamed up with the Department of Land, Air and Water Resources and the Agricultural Sustainability Institute of the University of California, Davis, to host a Biochar Field Day. The event brought together over 100 stakeholders

FREP continued

to discuss and learn about research with biochar applications in agriculture. Presentations included research on applications of biochar to farmland, and occupational safety. Attendees were impressed with the knowledge conveyed through presentations and the opportunity provided for networking.

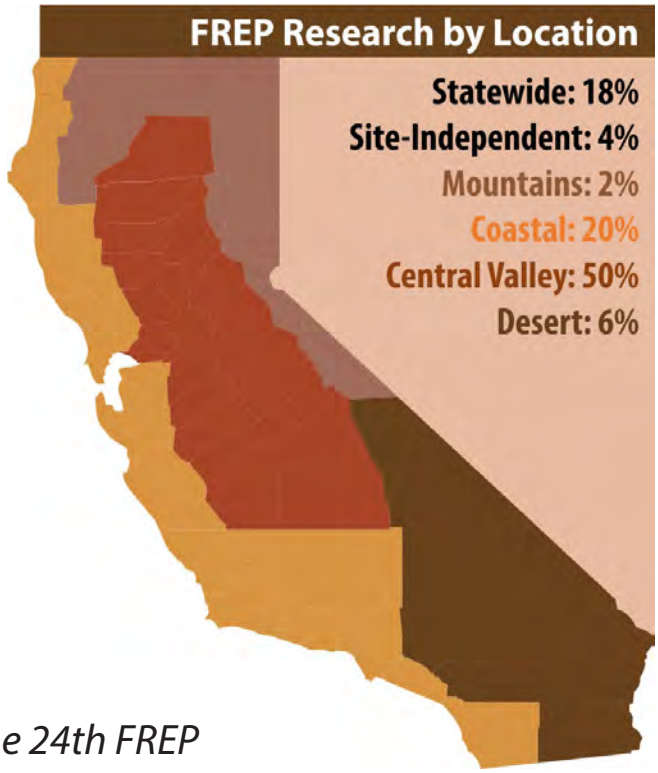
Events by FREP-Funded Projects

A FREP-funded project, developing a new fertigation book, has held two outreach events in 2018 in conjunction with the Cal Poly Irrigation Training and Research Center. The courses covered new irrigation and fertigation techniques in the control and application of fertilizers through irrigation systems. This course also assists growers and consultants employ efficient strategies to best accommodate new nitrogen reporting requirements in California.

Fertilization Guidelines Online

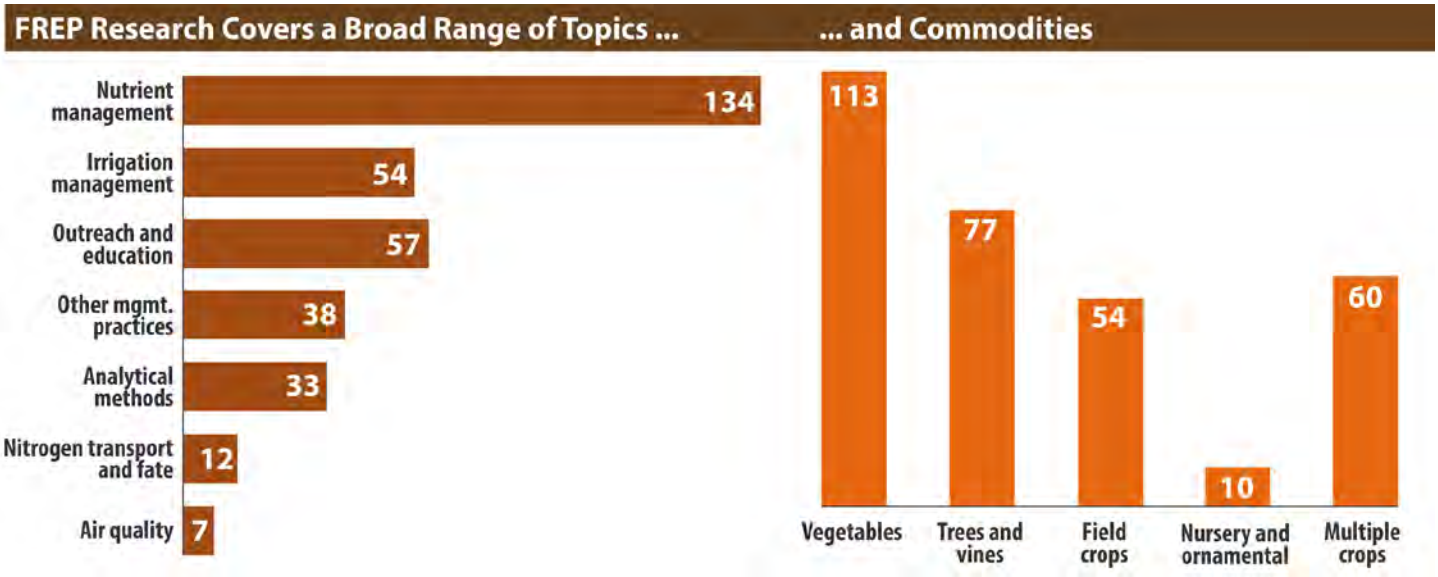
FREP's online crop fertilization guidelines help growers and crop advisors learn how to determine the right rate, time, place and source of nitrogen, phosphorous and potassium fertilizers for various crops in California. Guidelines for 28 crops, which account for over 6.5 million acres of irrigated agriculture in California, are now available on the CDFA website.

FREP has published 15 nitrogen fertilization brochures, and three in Spanish, based on the Crop Fertilization Guidelines.



The 24th FREP Annual Conference

Every year, FREP and the Western Plant Health Association (WPHA) host a day-and-a-half conference dedicated to better understanding of agricultural nutrient management. Presentations include general and technical information, current research data, and practical applications addressing statewide and regional nutrient management issues. The broad agenda is geared toward a wide range of the agriculture community, from consultants to growers to government personnel.



The science of a safe food supply: CDFA's "Chem Lab"

From organics to inorganics, from percentages to parts per billion, the internationally recognized Center for Analytical Chemistry (CAC) has been providing agrochemical analysis for the Department of Food and Agriculture since the mid 1920s. The CAC uses state-of-the-art equipment and processes to test fruits, vegetables, nuts, animal feed, and milk to ensure that pesticide and chemical levels are within safety ranges established by national and international standards. The CAC also serves the nation as a member of the Food Emergency Response Network (FERN), which integrates the nation's food-testing laboratories into a network able to respond to emergencies involving biological, chemical, or radiological contamination of food. CAC's clients are comprised of local, state and federal governmental agencies that are responsible for monitoring the nation's food supply.

The Center for Analytical Chemistry provides scientific support for a dynamic, demanding industry

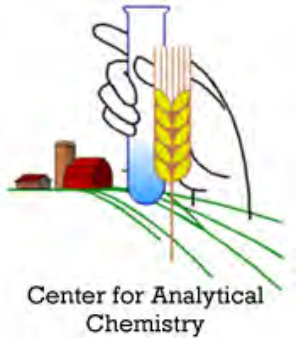
The Chem Lab's accomplishments in recent years include several major milestones:

ISO 17025 Accreditation

The Center for Analytical Chemistry has continued its ISO 17025 accreditation and has successfully added methodologies into the scope of its accreditation (% of Feed Assays that are ISO 17025 Accredited = 61.7%). Under an AFRPS grant, the CAC has added new methods for the Feed program that includes:

1) Crude Protein – Combustion Method
2) Crude Fiber - Ankom Filter Bag Method
3) Aflatoxin Analysis of Corn Using Affinity Chromatography and HPLC Fluorescence Detection
4) Monensin and Lasalocid Analysis Using Liquid Chromatography With Single Quadrupole Mass Spectrometric Detection (LC/MS)
5) Multi-Element Analysis of Inorganic and Organic Feed and Fertilizers by Inductively Coupled Plasma – Optical Emission Spectroscopy

Expanding analytical capability


Center for Analytical Chemistry

The CAC programs have continuously expanded the scope of the Multi-Residue Screening (MRS) method to stay ahead of the cuve and to meet challenges in food safety surveillance. Since 2012, the food safety lab has increased its analytical screen list more than 76%, meaning that the MRS method can now detect more than 440 pesticides on a variety of products such as produce, milk, wheat flour and rice.

The use of highly scientific instruments and robust method allows for low detection limits and flexibility. The Environmental Safety lab has developed many methodologies for monitoring pesticides in the environment down to concentration levels of parts per trillion (ppt). The CAC is committed to using emerging technologies to further expand our analytical capability and streamline the work process for increasing efficiency.

New Technology: GMO Laboratory

The popularity of organic produce has continued to expand, and industry experts are forecasting extended, steady growth. The State Organic Program (SOP) is statutorily mandated to protect consumers, producers, handlers, processors, and retailers by monitoring, and enforcing the USDA organic regulations. Testing for genetically modified produce is necessary to ensure organic produce is free of GM materials in accordance with NOP (National Organic Program) regulations. CDFA's team has successfully set up a GMO laboratory at the CAC and is refining its methods and validation modules to meet the SOP's requirement.

It takes a lot of modern equipment - and staff who know how to use it - to protect California's food supply.

Effective Monitoring Program

The Food Safety (FS) team at the Center for Analytical Chemistry was tasked to develop a glyphosate (Round Up) detection method that offers fast turnaround of results for enforcement purposes. There have been reports about the detection of this widely used chemical in food. This has prompted concern among various environmental and consumer protection groups because there has not been any monitoring of this widely used chemical on produce, especially in California. Our client, California Department of Pesticide Regulation, has turned to the FS group to start a Glyphosate project beginning in July 2016. The Pesticide Residue team incorporated the USFDA extraction method to develop a simplified glyphosate method that allowed data results to be released the next day - a substantial improvement on a process that previously took three days to complete. Of the samples analyzed, less than 0.7% have tested positive for glyphosate at a level of less than 12% of the allowable limit, substantiating the safety of our food supply.

Participating in Relevant Scientific Studies: Neonicotinoid pesticides exposure to bees from ornamental plants

Scientific reports identify a possible link between neonicotinoid insecticides and Colony Collapse Disorder. In 2015 The Environmental Protection Agency conducted a review of studies from open literature as well as data from a registrant-submitted database on the four neonicotinoids clothianidin, thiamethoxam, imidacloprid and dinotefuran and concluded that these pesticides can pose risks to honey bee health, but these risks depend on which agricultural crops bees are pollinating and the manner of exposure.

CDPR and EPA jointly prepared the release of the Preliminary Pollinator Assessment to support the registration review of imidacloprid. While targeted monitoring studies have provided residue data on agricultural uses, residue data are not available to assess neonicotinoids in the pollen and nectar of ornamental plants which, in some cases, have higher application rates than those for agricultural crop applications. In 2017, the Registration Branch at CDPR designed a study to provide realistic measures of exposure of the four bee-toxic neonicotinoids and two metabolites (5-hydroxy imidacloprid and Olefin) to honey bees and *non-Apis* bees from pollen and nectar from treated ornamental plants. The Pesticide Residue laboratory at the CAC and UC Davis were selected as participants in the two-year project. The Pesticide Residue team developed a high-sensitivity method to meet the low detection limits of these pesticides.

Safety + Quality = Confidence.

CDFA's Meat, Poultry and Egg Safety Branch

California consumers are used to a marketplace full of fresh meats, eggs, produce and an array of foods that, frankly, would be astounding to shoppers in many other parts of our world. That's "confidence" - knowing not just that it will all be there, but that the quality of those eggs will be consistent, the meats and poultry will be fresh and safe, the products consumers want will be reliably available, and the places that process and sell them will comply with high standards that promote food safety.

CDFA's Meat, Poultry and Egg Safety (MPES) Branch oversees this part of the commercial marketplace, in addition to the rendering industry and the handling of inedible kitchen grease. If you've never heard of MPES, it's because they quiety, efficiently maintain the quality and safety standards that give consumers such high confidence in these businesses and their products and processes.

Candling: using a bright light to allow inspection the interior of an egg is one of the ways inspectors check quality and confirm grading of eggs.

Meat, Poultry and Egg Safety Branch Highlights: 2011-2018

Back in January 2012, the MPES Branch adopted the Rendering Industry Advisory Board (RIAB), which advises the CDFA Secretary on issues relating to the state's **rendering industry.** It's not an industry you hear a lot about, but it is nonetheless an important and necessary segment and service for businesses that turn meats and related commodities into consumer products. The rendering program now licenses and inspects 120 facilities for compliance and quality assurance, in addition to 314 registered Inedible Kitchen Grease transporters and 31 Dead Animal Haulers.

In July 2011, the Egg Quality Control Program moved from Inspection Services Division to Animal Health and Food Safety Services Division. Once a small, "county oversight" egg inspection unit, the program now is a risk based grading and food safety audit/inspection focused program called the **Egg Safety and Quality Management (ESQM) program.** Since 2011, the ESQM has accomplished the following:

- Retail Egg Surveillance Inspection – 24,530 retail facilities inspected, 86,645 dozen rejected
- Compliance & Risk Based Inspection – 42 processing facilities inspected monthly; 1,298,997 dozen rejected
- Compliance & Risk Based Inspection – 63 wholesale/distribution facilities inspected monthly; 1,882,251 dozen rejected
- Shell Egg Food Safety Audits – 368 layer farms audited (since 2014)
- Shell Egg Food Safety Audits – 2,652 layer farms audited (Out-of-State, since 2014)
- Implemented California's Egg Safety Rule, considered the most proactive egg safety program in the Nation
- The Meat and Poultry Inspection program has doubled the number of licensed Retail Processing establishments curing, drying, smoking for preservation, or rendering products of cattle, sheep, swine, goats, and poultry in the capacity of a retail store, restaurant or similar facilities.

Ensuring Californians have safe, wholesome milk and dairy products

CDFA's Milk and Dairy Food Safety Branch

The Milk and Dairy Food Safety Branch (MDFS) protects California's consumers by ensuring that milk, products of milk, and products resembling milk products are safe, wholesome and properly labeled. That means food safety inspections from farm to table including, but not limited to, dairy farms, bulk milk tanker trucks and milk processing plants throughout the state.

California is the leading dairy state in the nation and produces about 13 million gallons of milk each day that is processed into a variety of dairy products shipped across the nation and around the world.

MDFS has implemented federally recognized Manufactured Food Regulatory Program Standards to help ensure continuous program improvement and efficiency, and works cooperatively with the U.S. Food and Drug Administration as an integral part of the developing national state-federal integrated food safety system. The daily activity of MDFS thereby ensures the protection of public health and the continued approval of California dairy products to move freely in both interstate and international commerce.

SNAPSHOT: MDFS Food Safety Activities in 2017	
Inspections at Dairy Farms	1,075
Inspections of Bulk Milk Tanker Trucks	1,213
Field Proficiency Evaluation of Tanker Truck Drivers	950
Inspections at Dairy Processing Plants	2,370
Pasteurization Equipment Inspections	2,472
Milk and Product Samples Collected for Testing	13,457
Water Samples Collected for Testing	1,725

Fertilizer inspection: helping growers from farm to garden

CDFA's Fertilizing Material Inspection Program (FMIP) registers fertilizing materials that are to be used in California Agriculture and in consumers' homes and gardens.

The program has seen a steady increase in fertilizers destined for used in organic production, which are held to standards developed by the National Organic Program (NOP). Conventional fertilizers remain more widely used, and are reviewed for labeling compliance to protect consumers and the industry. While the total volume of fertilizers sold in California has not drastically increased, the diversity and number of products has. That growing range of products reflects the increasing diversity of crops and growing needs in the state.

National Organic Program Recognition

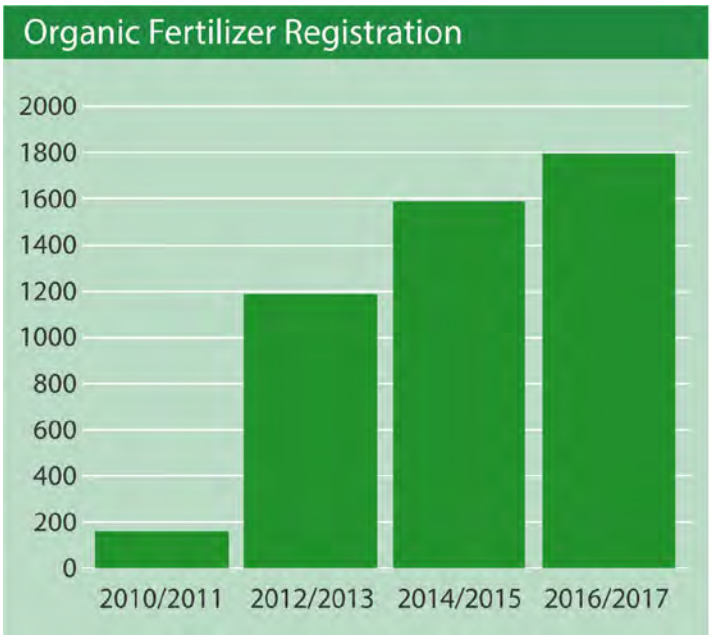
December 15, 2015 was an important day for the FMIP: that's when the NOP announced that the CDFA Organic Input Materials (OIM) Program had met the criteria for a material review organization. The CDFA OIM Program was established in 2010 to review and register organic materials for organic production in California, so this acknowledgement by the NOP allowed organic certifiers to accept reviews conducted by the CDFA OIM Program. ISO 17065 accreditation was a qualification condition in NOP's policy memo regarding material review organizations; this milestone was achieved by the OIM Program on January 29, 2016.

Organic Input Material

The rise in popularity of organically grown foods, along with California's status as the world's number one producer of organic crops, means California growers need quality fertilizing materials that are approved and effective for growing organic. Fertilizing materials for organic growing are called Organic Input Materials and must be evaluated and reviewed by the FMIP. The number of OIM product reviewed and registered by the FMIP has grown steadily since the inception of the program.

Fertilizer Registration in California

The FMIP monitors fertilizing materials distributed in California and inspects the facilities where they are manufactured. Inspectors stationed throughout the state annually monitor both conventional and organic fertilizer manufacturing and distribution within their districts and in neighboring states (for organic production shipping into California). In 2016, 242 organic fertilizer manufacturers were inspected and audited. Additionally, there are over 1,400 conventional fertilizing manufacturers and distributors monitored throughout the state.



SECTION 6

Protection from Invasive Species

Our food supply requires constant pests and diseases. California is a prime destination for organisms because of constant inbound travel and commerce. from around the world present risks to the Golden State's agriculture, environment and habitat.

Japanese Beetle

Bee Safe Program

Supporting the health of Mother Nature's little miracle workers

It's not enough to say that "agriculture depends on bees." True as that may be, our understanding and appreciation of pollination has evolved.

In the grand sense, "bees" have been replaced by "Bs" – as in not just bees but also birds, butterflies, beetles and even bats. It takes all these creatures and more to accomplish the natural miracle of pollination, so preserving biodiversity and ecosystems to keep that all in order is in everyone's best interest – farmers and consumers, of course, but also virtually every other member of the food chain. And it's not just about crops, either; our national forests and grasslands and open spaces depend on pollination, and everything in these diverse ecosystems is likewise dependent on this key step in the cycle of nature.

Still, **bees remain the main pollinators for our global food supply,** and that's why pollinator health is behind CDFA's new Bee Safe Program, which began on July 1, 2018 with a $1.85 million budget appropriation intended to improve the health and survival of honeybees by increasing foraging opportunities, reducing pesticide exposure, and providing funds for enforcement of existing laws at the local level to promote and protect California's beekeeping industry.

Each year, thousands of shipments carrying more than 650,000 beehives are transported into California in time for the almond bloom. Honeybees help pollinate at least 90 different California crops in addition to almonds, including berries, cucumbers, cantaloupes and apples.

California also joins partners around the globe in celebrating June 18-24 as "Pollinator Week," a time to spotlight the need to maintain pollinator health, including progress in addressing various threats to bee populations. Pollinator Week was originally created by Congress more than a decade ago and has now grown into an international celebration of the valuable ecosystem services provided by pollinators.

650,000

beehives are transported into California each year for the almond bloom.

90+ other California crops – including berries, cucumbers, cantaloupes and apples – also rely on bees and other pollinators.

The Bee Safe Program is designed to improve the health and survival of honeybees by increasing foraging opportunities, reducing pesticide exposure, and providing funds for enforcement of existing local laws to promote and protect California's beekeeping industry.

Protecting an icon: California citrus

Crews are at the ready every day in Southern California; as soon a lab test tells us we have detected a tree infected with Huanglongbing (HLB) in someone's yard, we are there in a matter of hours to notify the owner and arrange to remove that tree.

Why the rush? Because here in California, citrus isn't just a crop; it's an icon. Like palm trees along a Southern California beach, like the Golden Gate bridge, like the majesty of Yosemite, citrus trees are an emblem of California's allure. We have a county called "Orange." Countless towns and parks and streets and public facilities are named after citrus varieties. It's etched into our story.

Back to the issue of HLB: If an Asian citrus psyllid (ACP) feeds on an infected tree, the pest can pick up the bacteria and spread it to neighboring trees. The program has detected and removed 953 trees from three Southern California counties. For six years now, this approach has kept the disease from making the jump into commercial groves. Response measures are ready when and if that happens as well, but for now the focus remains on early detection and quick eradication.

Our dedicated field staff continue to survey residential and commercial citrus trees statewide, vigilantly looking for ACP and the symptoms of HLB. They collect ACP and symptomatic plant tissue samples and send the samples to the CDFA Plant Pest Diagnostics Center and our partner Laboratories, the Citrus Research Board's Jerry Dimitman Lab in Riverside California and the University of Arizona's Lab, for analysis.

As 2018 comes to a close, 784 square miles are under quarantine for HLB in four counties. The quarantines have created a tremendous workload for HLB eradication and quarantine enforcement crews. To date, 874 infected trees have been removed from residential properties in Riverside, Los Angeles and Orange Counties.

HLB has only been found in limited areas in Los Angeles, Orange, and Riverside Counties. The vast majority of commercial and residential citrus can still be protected by enhanced suppression and quarantine enforcement. The establishment of ACP and HLB in other parts of the state would also result in the imposition of quarantines. Citrus produced in a quarantine area must be treated with pesticides and all stems and leaves must be removed before the fruit can leave the quarantine area. Nursery stock grown in a quarantine area requires inspection and testing for HLB, must be grown in a CDFA-approved screen house, tested for HLB, and only sold within the HLB quarantine area.

In ACP-infested counties, growers engage in area-wide management activities and the CPDPC funds "buffer" treatments. CDFA is currently suppressing infestations in 16 counties utilizing industry funds. Growers in Riverside, Imperial, Ventura, San Bernardino, Santa Barbara and San Diego Counties have transitioned to area-wide ACP management which requires that CDFA conduct residential buffer treatments around commercial groves that participate in the coordinated area-wide treatment.

Key Events in California's HLB Response

July 2008
State's first detection of ACP, in San Diego County. It has since been found as far north as Placer County.

March 2012
First detection of HLB in a backyard tree in Hacienda Heights.

July 2015
Second detection of HLB, in San Gabriel, about 10 miles northwest of the first positive tree.

2016
HLB confirmed in residential trees in Cerritos.

2017
HLB confirmed in the Rosemead and Pico Rivera areas of LA County; the Anaheim, Fullerton and La Habra areas of Orange County; and in the City of Riverside near the San Bernardino County border.

2018
HLB confirmed in Whittier and Norwalk in LA County, and in Garden Grove, Westminster, Santa Ana, Tustin, Yorba Linda and the City of Orange in Orange County.

As of the end of 2018, there are **784 square miles under quarantine** for HLB in Los Angeles, Orange, Riverside, and San Bernardino counties.

953 HLB-infected trees have been removed from residential properties in these communities.

Celebrating the eradication of pink bollworm

The story of American agriculture simply would not be complete without certain key crops, and cotton ranks among them. Beyond pure market value, history will also reflect upon cotton's importance in the emergence of the concept of Integrated Pest Management (IPM).

This approach provides not only a means protecting a particular crop, but also a sustainable method of addressing such threats by considering a range of measures to ensure the long-term sustainability of a field, a crop, a farm, a region, a market and an industry.

Cotton's global importance as a crop is, of course, paralleled in the pest world by the pink bollworm – the world's number-one pest of cotton. Native to Asia, the bollworm came to the cotton belt of the United States and, within about 40 years, made the trip out to the cotton fields of Southern California and up into the San Joaquin Valley, tunneling through cotton bolls, feeding on seeds. Early efforts by farmers tended toward pesticides, which were ineffective.

Mandatory plow-down dates and host-free periods were the next major efforts, aimed at starving the pest of viable feeding and breeding opportunities.

Then came pheromones to keep the moths from mating, and the development of the sterile insect technique and the release of millions of sterile moths – 31 million a day at the peak. Combined with the widespread planting of Bt cotton after the year 2000, this allowed growers to see the light at the end of the tunnel.

California trapped its last pink bollworm moth in 2011. In November 2018, growers, scientists and regulators gathered on the outskirts of Lemoore, California to shake hands, clink glasses and celebrate a long-fought, hard-won, and truly historic accomplishment.

Sterile Insect Technique (SIT) Successfully Eradicates Each

The Preventive Release Program (Medfly PRP) is a joint program of CDFA and USDA. Releasing sterile male flies keeps wild female Mediterranean and Mexican fruit flies from reproducing. It's called "Sterile Insect Technique."

Next Steps: Improving California's pest prevention infrastructure

CDFA maintains border inspection stations, labs, and many other facilities, personnel and processes that are vital to fulfilling our responsibility for protecting California's agriculture, environment and habitat from invasive pests.

A major challenge for the agency is making sure these facilities and professionals and programs are up-to-date. Does the border station's capacity match the highway it's on? Are new roads being added that could render the station less effective? Can our labs keep pace with the demand for fast, accurate identification of a growing number and widening range of submitted samples? Are we being as efficient and cooperative as we can with other agencies, such as the USDA and county agricultural commissioners' offices, that share responsibility for tracking and responding to to infestations?

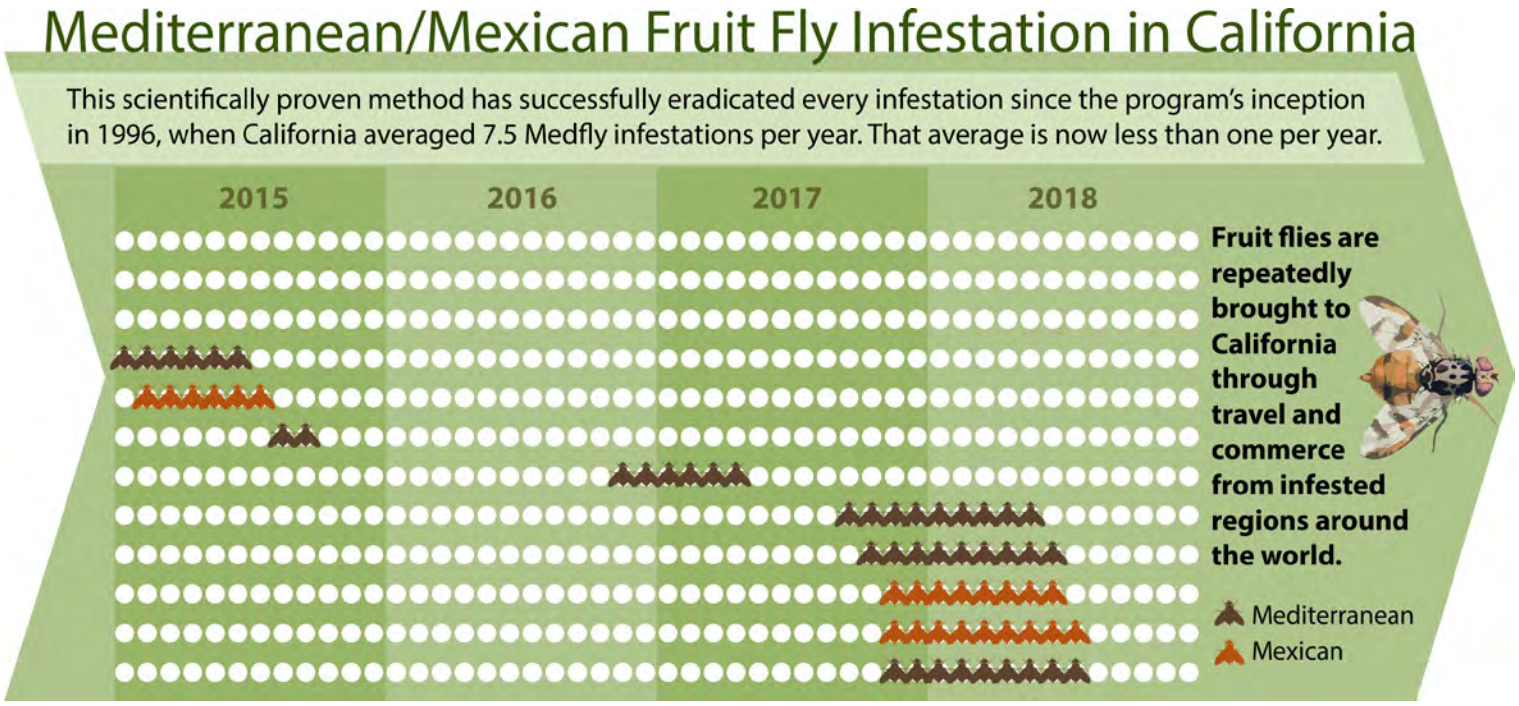
CDFA's newest border protection station, in Mountain Pass, is preparing to open in 2018.

Co-Locating a Federal Lab with CDFA's Lab

One improvement we are pursuing in terms of cooperation, efficiency and information-sharing is planning to co-locate a federal agricultural lab on the property where CDFA's current lab sits. USDA's Animal and Plant Health Inspection Service (APHIS) and its Plant Protection and Quarantine (PPQ) office have contracted with a laboratory planner to develop a Program of Requirements/Agency Specific Requirements for this California laboratory. Plans include a multifunctional laboratory that includes integrated pest management, phytosanitary treatment, risk analysis, seed diagnostics, and pest identification functions. When the Program of Requirements is complete (planned for 2018), the project will move into the design phase.

Border Protection Stations Update

On the heels of a years-long transition to a new inspection facility in the Truckee area, CDFA is now focused on final touches at a new Mountain Pass station, scheduled to open in 2018. Next up: purchasing land for a new Blythe station that will handle one of our state's busiest routes for inbound vehicles.



Pierce's Disease:

"Vineyard Apocalypse" predictions give way to science, solutions

In late 1999 and 2000, as news of a virulent vineyard scourge in Temecula sent shivers through an entire industry, even the venerable *Wine Spectator* saw reason to be scared. Its "California Vineyard Apocalypse" headline thankfully hasn't come to pass, but few if any at the time were surprised to see those words in print.

At first, no one was sure whether it was a pest or a disease that was causing the destruction. It turned out to be both: a leafhopper pest called the glassy-winged sharpshooter had quietly made its way into the state, shielded temporarily from discovery because it bore a resemblance to other known insects. As it fed on the vines it was quickly spreading a bacterium that causes Pierce's disease.

So it was that 2000 was suddenly a frightening time to be a grape grower, a vintner, or even just a devotee of California wine. It was a time when questions outnumbered answers, and growers quickly realized they had to act decisively and cooperatively in defense of their crop, their industry and their way of life. They invested in science – from discovering how to detect and deter the pest to how to recognize and respond to the disease.

Fast-forward to today, and our Pierce's Disease Control Program and Pierce's Disease/Glassy-winged Sharpshooter (PD/GWSS) Board have reached a level of shared success that deserves some retrospective appreciation. We've kept the disease at bay in the vast majority of California's grape-growing regions, and in those where it has encroached we have maintained an unwavering focus on detection, vine removal, and vigilance.

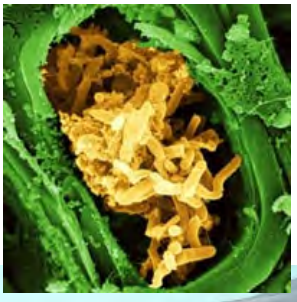
Dire predictions have given way to solutions in the pipeline, and the board has seen fit to expand its focus to other vineyard threats that are likewise best addressed by solid science, as fostered by the forum and the framework that our PD/GWSS research and outreach efforts provide.

Pests and diseases still claw at the farm gate at all hours of the day and night; the threat remains. But on the California side of this particular fence, everyone involved in the growing of grapes and the making of wine knows this industry can solve the worst that Mother Nature can concoct. Our state's experience with Pierce's disease has become a model of cooperative response, and hints of its success are seen in many of our industry's subsequent efforts to protect crops, to sleuth diseases, to develop resistant plant varieties and so forth.

"Apocalypse" is a big, scary word. But when it comes to California's response to Pierce's disease, "Exemplary" is the word that fits best.

What's at risk?

Pierce's Disease threatens California grape production value of **$4.95 billion** and associated economic activity within California of approximately **$57.6 billion.** Other crop and ornamental plant resources such as almonds ($5.33 billion) and susceptible types of citrus ($776 million), stone fruits ($842 million), and shade trees are also at risk, either from the Pierce's disease strain of the bacterium or from related strains found elsewhere in the world.



This electron micrograph shows *Xylella fastidiosa,* the bacteria that causes Pierce's disease, inside an oleander plant. The disease decimated vineyards in Temecula (below).

EGVM Eradicated: The relatively brief story of a grapevine pest in California

At its peak in 2010, the infestation grew to more than 100,000 EGVM. The pest damages grapes by webbing and feeding inside berries and within bunches, and its larvae also feed on flowers and developing berries.

CDFA Secretary Karen Ross gathered with grape growers, winemakers, stakeholders and colleagues on Friday, Oct. 21, 2016 to mark a mutual achievement: eradication of the European grapevine moth (EGVM). She credited growers and communities where the pest was found with the lion's share of the program's success. "They formed and sustained the cooperative effort with our agencies that ultimately achieved this goal," she observed.

The pest was first detected in Napa County in 2009, with subsequent quarantines in Fresno, Mendocino, Merced, Nevada, Santa Clara, Santa Cruz, San Joaquin, Solano and Sonoma counties. The last EGVM was detected in June of 2014.

Agencies, stakeholders provide leadership on invasive species readiness

When an invasive pest or disease makes its way into California, crops aren't the only thing at risk. Native plants and habitat, public lands, even pets and people can be put in harm's way by invasive species. That's one reason our state's comprehensive approach includes the multi-agency Invasive Species Council of California (ISCC) as well as a stakeholder group appointed by the ISCC, the California Invasive Species Advisory Committee (CISAC). The ISCC consists of the CDFA Secretary along with the heads of the Natural Resources Agency; the California Environmental Protection Agency; the Business, Transportation and Housing Agency; the Health and Human Services Agency; and the Emergency Management Agency.

In recent years, the two groups have overseen the creation of a list of invasive species that have a reasonable likelihood of entering or have entered California, and for which an exclusion, detection, eradication, control or management action by the state might be taken. The CISAC worked with the UC Davis Information Center for the Environment to develop an online tool for creating and monitoring a "living" list of invasive species in California. Additionally, CDFA Secretary Ross and her colleagues on the ISCC asked the CISAC to reach out to farmers' markets to educate the general public about invasive species and actions the public can take to help protect agricultural and other natural resources in California.

Asian Longhorned Beetle

In 2010, the ISCC initiated a project called "Stopping The Spread: A Strategic Framework for Protecting California from Invasive Species." It lays out 46 recommendations organized by categories such as Leadership and Coordination; Prevention and Exclusion; and Outreach and Public Engagement. The framework is an excellent resource for state agencies and others working to prevent, reduce, and control the establishment of invasive species in our state.

To ensure that coordination and collaboration on invasive species among different agencies continues, the ISCC worked with the legislature and the administration in 2018 to codify the organization. ISCC members asked the CISAC to convene a California Invasive Species Summit to bring diverse stakeholders, including State, Federal and County agencies, NGOs, Native Americans and others together to develop a list of priority action items, from which legislation (AB 2470 Grayson) was written to codify the ISCC/CISAC. It ultimately passed both houses of the California legislature and was signed into law by Governor Brown on September 28, 2018.

Japanese beetle:

Early detection, rapid response and outreach preserve state's JB-free status

As insects go, the Japanese beetle (JB) is a beautiful specimen – but it isn't a very strong flier… maybe that's why it's attracted to airplanes. In 2017 alone, the pest was found on 403 aircraft that landed at various California airports. Scientists aren't entirely sure what the connection is, but they do know these flights have to be a significant focus of our efforts to keep this pest out of California. The pest is also routinely detected at our interstate border stations, in mailed parcels and, less frequently, in traps set in the natural environment.

As its name indicates, the beetle is native to Japan. It is generally not considered a significant pest in its native range because population levels remain constrained by a cooler climate and parasitic flies that keep it in check. Since it was discovered in a New Jersey nursery in 1916, it has thoroughly colonized 20 states and partially infested another 15. Its national distribution now ranges from Maine south to Georgia and westward to the Mississippi River, with additional areas scattered across the Great Plains to central Colorado.

Why is the Japanese beetle considered such a significant pest in California? Our warmer climate tends to accelerate the pest's reproductive cycle, and the natural enemies that coexist with the beetle in Japan don't come along for the ride when the beetle hops a flight to the US. Combine those facts with the smorgasbord of turf, crops and other plants on the menu here, and it's a recipe for a lot of damage.

Japanese beetle larvae feed on the roots of grasses, and the adult beetles "skeletonize" leaves by eating around the larger veins. Host plants include vine and tree fruits, many garden and farm crops, and ornamental shrubs and trees. Feeding studies show a host range in excess of 300 plants in 79 plant families. Preferences are grape, apple, cherry, peach, plum, rose, and corn. Soft fruits such as grapes, berries, and stone fruits may be completely consumed. So this beetle is certainly a pest of agricultural crops, and it is also a threat to the turf in our parks, schools and golf courses, and to landscaping.

California has historically been free of JB, but has detected and eradicated occasional infestations, allowing the state to maintain its nationally-recognized JB-free status. In addition to our work at airports and in mail/package facilities, our state also keeps tabs on shipments of nursery stock and other plants, and we maintain an array of approximately 13,000 traps statewide. In recent years, eradication projects have successfully countered infestations in the Northern California communities of Fair Oaks and Carmichael, both near Sacramento. Early detection, rapid response and thorough community outreach remain the keys to keeping this pest at bay.

Japanese Beetle Eradications in California

Year(s) of Finds	City	County	Adults	Larvae
1951*	Lennox (LAX)	Los Angeles	1	0
1954*	Hawthorne (LAX)	Los Angeles	1	0
1956*	Fairfield (TAFB)	Solano	1	0
1961-1962	Sacramento/West Sac.	Sacramento/Yolo	449	71
1973-1974	Balboa Park	San Diego	24	0
1974*	San Diego (SAN)	San Diego	1	0
1983-1984**	Orangevale/Citrus Heights	Sacramento	93	8
2002*	Rancho Cordova (MHF)	Sacramento	5	0
2006-2007	Vista	San Diego	3	0
2010-2012, 2014	Fair Oaks	Sacramento	10	0
2014-2015	Carmichael	Sacramento	10	0

* = Trapped at or near Los Angeles Airport (LAX), Mather Field Airport (MHF), San Diego Airport (SAN), or Travis Air Force Base (TAFB). Considered quarantine treatments at point of introduction.

** = This was the only time CDFA implemented a JB Interior Quarantine, from 1983-87.

Program Environmental Impact Report (PEIR)

Environmental analysis is a key consideration for CDFA's Statewide Plant Pest Prevention and Management Program

Between 2015 and 2017, a notorious plant pest called the Japanese beetle was detected on 575 airplanes arriving in California. In the same period, 102 gypsy moths were detected in traps and during inspections at our borders and ports. Establishment of either of these pests would be devastating not just for farms and farmers, but also for public landscapes, forests and riparian habitats in our state. Multiply those risks across dozens of pests, then factor in California's vast agricultural footprint, its hospitable Mediterranean climate, and its status as a pre-eminent destination for both travelers and commerce, and the magnitude of the "pest pressure" for California comes into focus.

CDFA is responsible for preventing, detecting and responding to these threats. Since its inception in 1919, CDFA has fulfilled its mandate to prevent, detect, manage and eradicate pests and the diseases they carry. This mandate extends not only to agriculture, but also to native and ornamental landscapes. It's a broad responsibility for readiness and response.

In 2014, CDFA certified a program environmental impact report (PEIR) and approved a Statewide Plant Pest Prevention and Management Program. It was the culmination of a years-long effort to first compile the department's various programs for dozens of specific pests, including a set of options for controlling or eradicating each; and then conduct a comprehensive environmental review of these activities as required by the California Environmental Quality Act (CEQA). The process included numerous public meetings as well as ample opportunity for public comments and responses. The entire process, start to finish, took just over four years.

From top: Asian citrus psyllid, Japanese beetle, European grapevine moth (caterpillar), and emerald ash borer.

Because it is impossible to predict with certainty where in the state a pest will be detected, it likewise isn't possible to pinpoint and analyze every site where the department's mandate will be called into action. That's why the PEIR analyzes specific activities and considers geographic factors to carry out a project-level analysis. The department then uses a "tiering checklist" for every activity to determine whether the potential environmental impacts of the proposed activity are adequately analyzed in the PEIR. If so, the activity can be approved and implemented; if not, additional review may be necessary. CDFA has completed more than 1,000 of these checklists in approximately four years since the PEIR was certified.

CDFA's Statewide Plant Pest Prevention and Management Program, and the environmental review and analysis conducted in its adoption, allow the department to carry on fulfilling its founding mission to protect agricultural and the broader environment from plant pests and diseases. This comprehensive approach provides the rapid response required to succeed in this mission, and it also builds in flexibility for future additions, adjustments and improvements as time and technology allow. Our goal is not merely to establish, but also to maintain, a system that is focused, thorough, cost-effective and efficient.

235,000 traps.

At peak season, that's about how many pest traps CDFA and our partners at the counties set and check statewide. Fruit flies, moths, beetles, you-name-it: if it's an agricultural or environmental pest, the odds are pretty good that we've got a full array of traps deployed to give us the earliest indication of any new infestation. These charts show just a few examples of what we find – and why these traps are so important.

Fruit Flies in California: 2011-2017

Year	Flies	Species	Eradications	Quarantines	Delimitation Only
2011	55	5	8	2	17
2012	37	4	6	1	15
2013	161	4	12	1	16
2014	94	6	10	3	26
2015	110	6	18	4	32
2016	46	7	4	2	18
2017	106	7	8	5	30
TOTALS	**609**	**39**	**66**	**18**	**154**
Avg/year	87	6	9	3	22


Oriental fruit fly


Gypsy moth caterpillar

Gypsy Moth in California: 2011-2017

Year	GM	Asian GM	Eradications	Quarantines	Delimitation Only
2011	1	0	0	0	1
2012	0	1	0	0	1
2013	2	0	0	0	1
2014	5	0	0	0	5
2015	9	0	0	0	8
2016	9	0	0	0	6
2017	1	1	0	0	2
Total	**27**	**2**	**0**	**0**	**24**

Japanese Beetle in California: 2011-2017

Year	JB in Detection Traps	Delimitations	Eradications	JB in High Hazard Traps
2011	2	1	1	0
2012	4	0	0	0
2013	1	0	0	2
2014	6	1	1	2
2015	10	2	1	2
2016	3	2	0	20
2017	3	0	0	51
TOTAL	**29**	**6**	**3**	**77**


Japanese beetle damage

SECTION 7

From Hollywood to the high desert, **Ranching** has always been a feature of California's image **&** allure. It is an enduring part of our agricultural story.

Ranchers who raise **Livestock** for meat, dairy, eggs and other products depend on CDFA for veterinary oversight as well as vigilance for diseases and other threats.

Virulent Newcastle Disease (VND)

Vigilance protects our food supply - and our pets and backyard birds

In May 2018, CDFA's State Veterinarian Dr. Annette Jones got the call: virulent Newcastle disease had been detected in backyard chickens in Southern California. Any way you look at it, it's a serious situation. For birds, it's an incurable, fatal disease that often kills so quickly that there's little or no warning; for private bird owners, it's a highly contagious disease that can spread easily between backyard flocks and pet birds; for our state's poultry farmers, it's a threat to their livelihood and their way of life.

Fortunately, this is exactly the kind of threat CDFA's Animal Health Branch prepares for - and one we have considerable experience with from a similar outbreak that began in Southern California's private bird population in 2002. In a matter of hours, we had veterinarians on site and many more in cars and airplanes, on the way to the region to begin the monumental task of standing up an emergency management project to investigate the outbreak, track disease transmission and spread, and work quickly and effectively toward eradication.

It's not the kind of work one does on the phone, from the comfort of a cubicle. The vast majority of the people working on this outbreak are "boots on the ground" - they are veterinarians, inspectors and investigators who spend their days walking entire neighborhoods, knocking on every door, testing birds and asking questions. They are laboratory scientists who check feathers, nasal swabs and all manner of symptomatic tissues for disease, and then do it all again tomorrow, with remarkable speed and efficiency so that the leaders of the project will know where to focus their staff and resources each morning.

The analogies are many, but none are quite right: it's like fighting a wildfire, except the flames are invisible until you put them under a microscope; or it's like a scavenger hunt, except most of the clues turn out to be dead ends. In the end, though, it's not a game and it's not a fight - it's a matter of science and perseverance. It's bird owners being aware and vigilant, maintaining biosecurity measures that protect their birds as well as their neighbors' flocks. It's spreading the word about prevention so that the disease has nowhere to spread. **It comes down to key people making key decisions – quickly, with the weight of science and the strength of conviction behind them.**

Our experience from the 2002-2003 outbreak, when more than three million birds were euthanized because of this disease, tells us that we must proactively protect both backyard and commercial poultry. We have not yet reached the end of this outbreak, but we will, because we must - and because CDFA and its partners and the federal and local levels take our responsibility seriously by maintaining our readiness for the next outbreak.

Snapshot

Here's what happened in the first four months of the ongoing VND response project:

92,915
homes and other premises visited by census and survey teams

122
homes and other premises where birds have tested positive for VND

278
calls to CDFA's Sick Bird Hotline

4
Counties with infected birds (Los Angeles, Riverside, San Bernardino, Ventura)

Avian Influenza

CDFA's Animal Health Branch maintains constant vigilance for a high-risk disease

Humans are used to the annual "flu season," and the health care industry's massive effort to administer flu shots and educate people about the very real risks of this contagious illness. There's a parallel each year in the world of birds with the disease Avian Influenza (AI), commonly called bird flu, as it moves through populations of wild and migratory water fowl that can then infect chickens, turkeys, pheasants, quail, ducks, geese and guinea fowl, as well as a wide variety of other domesticated and wild birds.

CDFA's Animal Health Branch has a responsibility to protect both our food supply and our bird populations - commercial, privately owned and wild - from this and other diseases. It requires constant monitoring and testing in settings as varied as backyard flocks, pet and feed stores, commercial barns and avenues of trade and commerce. And outbreaks require emergency response.

AI viruses can be classified as either *low pathogenic* avian influenza (LPAI) or *high pathogenic* avian influenza (HPAI) based on the severity of the illness they cause in poultry. Most AI strains are classified as LPAI and cause few clinical signs in infected birds. In contrast, HPAI causes a severe illness with a high mortality rate among infected birds. **Because some LPAI strains have the potential to genetically change into HPAI, authorities will euthanize flocks infected with those strains of LPAI before they have the potential to change to HPAI and cause severe mortality.**

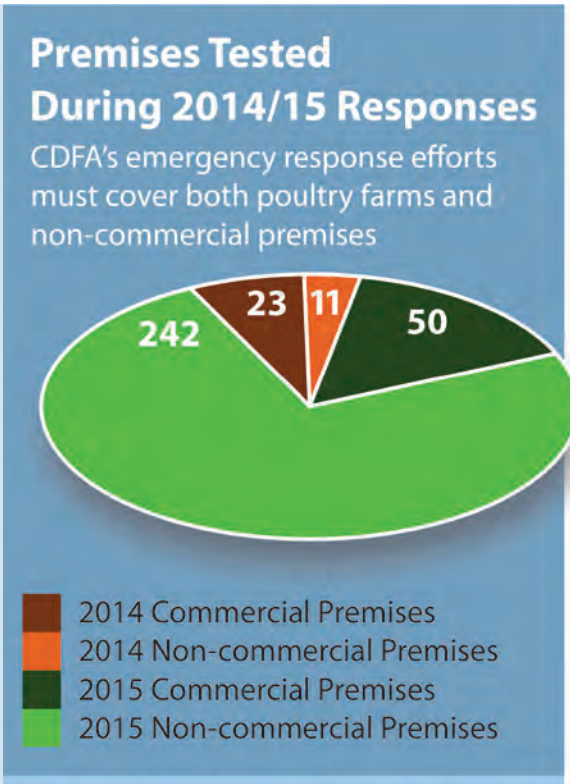
During 2014 and 2015, the CDFA Animal Health Branch joined USDA to eradicate dangerous strains of H5 and H7 Avian Influenza from California poultry:

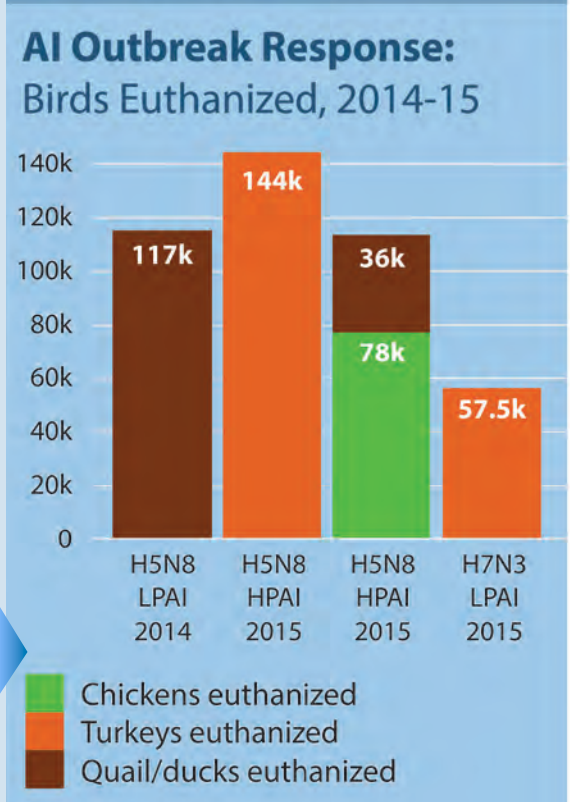
» **2014 (April – December)**
H5N8 Low Pathogenic Avian Influenza in quail layer flock

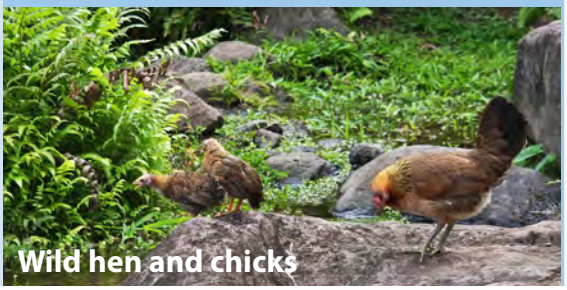
» **2015 (January – July)**
H5N8 Highly Pathogenic Avian Influenza in turkey flock

» **2015 (February – July)**
H5N8 Highly Pathogenic Avian Influenza in chicken & duck flock

» **2015 (March – August)**
H7N3 Low Pathogenic Avian Influenza in turkey flock






Wild hen and chicks

The Bureau of Livestock Identification still gets its boots dirty... ***but they do try to keep the muck off the iPads***

LID Mobile Inspection App

The Bureau developed and launched a mobile application for use in the field by Brand Inspectors to reduce the time it takes to write an inspection, improve the timely collection of fees, and improve communications between LID regions. In the event of a disease outbreak, the application also allows the Bureau to quickly and efficiently relay detailed information to the Animal Health Branch. Bottom line: a more efficient program; an asset to the cattle industry; and rapid support in case of a disease outbreak.

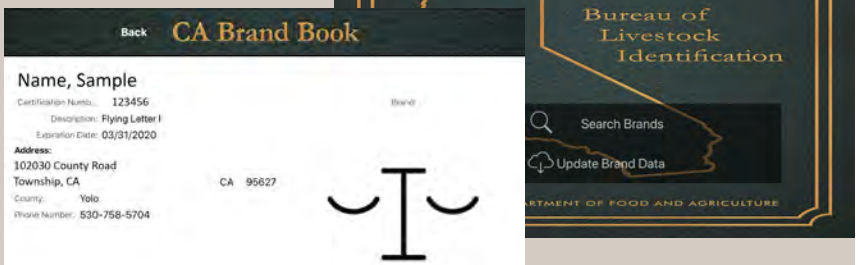
Statewide Staff Training

iPads, apps, modernization... it's a new world out there. The Bureau has made training a priority, bringing in its newest Brand Inspectors, as well as tenured employees, to ease the transition to new tools and techniques. The best part, though, was that the training has also fostered a comradery between regions. The training also helped to hone the training skills of the Agriculture Program Supervisors for the regions, the Brand Registrar and office staff on procedures under their purview. The outcome has been better trained field staff who are in a better position to cooperate, communicate and succeed.

Brand Book App

The Bureau released a free Brand Book Lookup app for use by law enforcement to help owners locate their animals; financial agencies to look up their clients' brands; and the public to see what brands are available and help them understand the correct designs for brands. This app is currently available for Apple mobile devices and will soon be available on all mobile platforms, as well as a web version.

Brand book app landing screen (right) and detail screen (below)



Antimicrobials: California leads on stewardship efforts

Following passage of a new law in California in 2015 (SB 27, Hill), effective January 1, 2018, all medically important antimicrobial drugs (MIADs) must be administered with a prescription or veterinary feed directive (VFD) ordered by a California licensed veterinarian under a valid veterinarian-client-patient relationship (VCPR), including MIADs that are federally labeled for over-the-counter use.

The new rules also address the development of antimicrobial stewardship guidelines and best management practices, and surveillance of antimicrobial use as well as antimicrobial resistance patterns in bacteria.

The law also requires the CDFA to ensure that livestock producers in rural areas continue to have timely access to antimicrobials. CDFA accomplishes this with regulations to safely enable restricted livestock drug retailers to sell the products that changed to prescription status in California only.

The Antimicrobial Use and Stewardship Program (AUS) is dually administered by CDFA's Animal Health and Food Safety Services Division and the Division of Inspection Services. The Division of Inspection Services AUS program staff has been concentrating on outreach to licensed and unlicensed Restricted Livestock Drug Retailers who may be selling MIADs and on collection of VFDs from retailers and feed manufacturers.

In 2017 and 2018, field staff conducted visits to licensed and unlicensed retailers to provide outreach regarding changes to the sale of MIADs.

A coordinated effort by physicians, veterinarians, patients, animal caretakers and producers is essential to preserve the efficacy of these important drugs.

Staff completed 126 initial visits and 558 follow up visits in 2017. Beginning in 2018, staff visits include outreach on the new regulations and ensuring that retailers are not selling the products that have changed status.

Staff completed 105 initial visits to locations who filed a letter of intent with FDA to potentially manufacture or distribute feed that require a VFD. A follow up visit was done in Spring 2018 to 11 new facilities on the FDA letter of intent list and to all 58 locations that indicated they would manufacture (18) and/or distribute (40) VFD feeds, which included collection of VFDs from 2017.

In May 2018, the program began collecting all VFDs issued, along with monthly distribution or manufacturing reports. Moving forward, data collection will be done quarterly with an option for electronic submission.

Taking the lead on antimicrobial use and stewardship

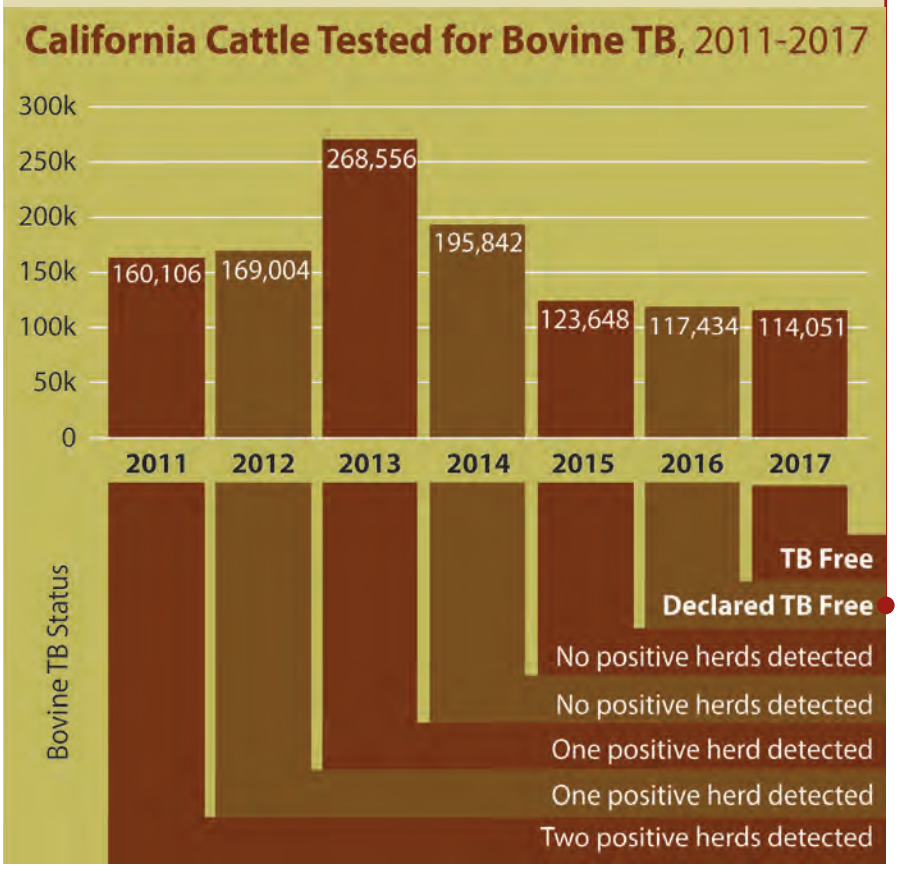
The passage of SB 27 in 2016 allowed for CDFA to take the lead nationwide in addressing antimicrobial use in livestock. The program is pioneering new ground: it is a blend of the right amount of regulatory mandate along with industry's cooperation and participation to achieve the goals of reducing antimicrobial use and thwarting the development of resistance. The department's leadership has allowed this program to take shape and the livestock industry is proactive and engaged in support of the efforts.

Bovine Tuberculosis

Protecting livestock, wild animals and human health from a persistent disease

Bovine tuberculosis (TB) is a serious bacterial disease that usually affects the animal's respiratory system. Animals infected with TB may not show signs for years, but animals that appear healthy may still be capable of transmitting infection to other animals - not just cattle, but also a wide range of other livestock and wild mammals. Risks for humans are primarily linked to consuming raw milk and unpasteurized cheese; while the possibility of humans contracting bovine TB is extremely low, positive cases in cattle nonetheless affect consumer confidence in milk and beef products.

California detected a total of 11 affected TB herds between 2002 and 2013. After years of regulatory response, removing TB affected animals from their herds, and private and regulatory testing, **California attained "bovine TB free" status in August 2016.**



Veterinarians

OUTREACH. EDUCATION. ACCREDITATION.

Three important steps toward maintaining a vigilant veterinary and support staff ready for emergency response and protection of our food supply. CDFA's Animal Health Branch engages in ongoing collaborative and training programs on several levels to make sure California's public and private veterinarians and the staff who support them are ready - every day - to protect California's food supply.

- **Two California veterinary schools**
- Core accreditation seminars
- Temporary license curriculum programs
- Accreditation supplemental training modules
- Numerous fairs and agricultural events
- Cattle and equine health advisory boards
- Public health, environment, wildlife agencies
- International liaison efforts
- **11,495 licensed veterinarians**
- **7,976 accredited veterinarians** who monitor and survey animal health on behalf of the state

CAHFS lab system welcomes new Alex A. Ardans Tulare Branch Lab

The California Animal Health and Food Safety Laboratory System (CAHFS) took an important step toward improved service and faster emergency response with the opening of the Alex A. Ardans Tulare Branch Laboratory. The culmination of years of planning and investment, this 29,000-square-foot facility allows CAHFS staff to expand diagnostic services available in Tulare, an immensely important agricultural region. The new lab incorporates important technological upgrades and safety features that together accelerate our responsiveness and enhance the safety of our staff and clientele.

Even with all of the gleaming new tech in this lab, its most important feature might just be its location. By offering so many tests and analyses right there in Tulare, this lab provides vital services for a prime farming and ranching area. Many clients will get routine results more quickly, and when the emergency happens - it's always a matter of *when,* not if - our farmers and ranchers as well as our staff and responders will be able to detect sooner, respond faster and gain valuable lead time.

The detection of certain foreign animal diseases can set in motion emergency response efforts that must mount quickly and cover a lot of territory. Those efforts depend on science, and at the most basic level inside a lab such as this one that means necropsy. This facility was conceived and designed to handle the kind of necropsy capacity expected during such an emergency. From the safety of personnel to the accuracy of test results and the biosecurity necessary to receive and process highly contagious samples, the Ardans lab is purpose-built for precisely this type of scenario. On-site serologic testing for animal diseases is another key diagnostic capability at the lab, as well as on-site PCR testing for cattle diseases.

The Ardans lab is near the UC Davis School of Veterinary Medicine's Veterinary Medical Teaching and Research Center (VMTRC), which housed the CAHFS-Tulare lab for the past 30 years. CAHFS' new location is literally yards away, so the two sites fully expect to carry on their long history of collaboration. CDFA's Animal Health Branch will have office and meeting space for its Tulare District office inside the new lab to maximize information-sharing and enhance policymakers' access to the science that underpins many of their most urgent and important decisions.

CDFA Secretary Karen Ross with Dr. Alex Ardans at the lab's grand opening.

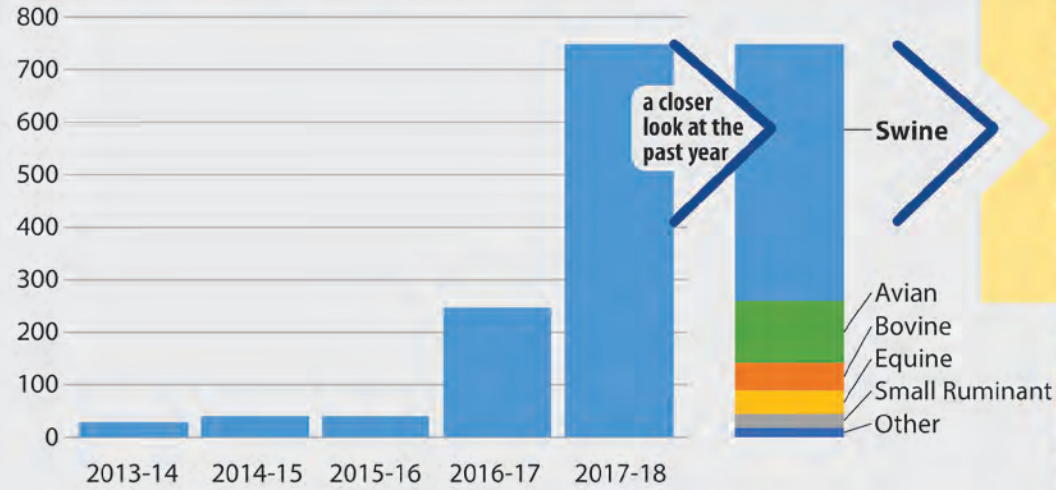
So, what's next?

The Ardans lab fits into a bigger picture - a network of labs and facilities that must work together. CDFA Secretary Karen Ross and State Veterinarian Annette Jones are working through Phase 2 of an ambitious and important Central Valley facility update plan that would also bring a new full-service laboratory to the Turlock/Modesto area.

Inside the Ardans Lab

CDFA's Animal Health Branch:

Foreign Animal Disease Investigations, 2011-2017



An outbreak in summer 2017 of Senecavirus A, a look-alike of Foot and Mouth Disease, triggered a wave of investigations in market hogs coming into California.

Prevention and Detection of Animal Diseases, 2011-2017

More than 1.8 million cattle tested for brucellosis, and **40,000** cattle tested for trichomonosis

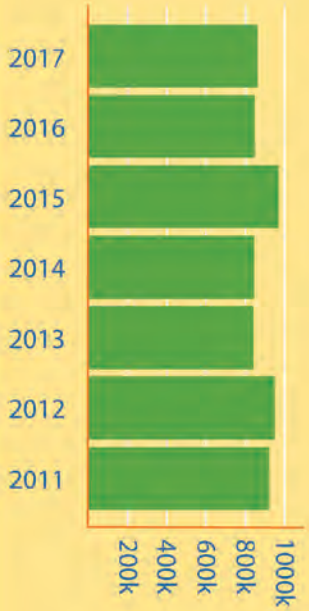
a closer look at brucellosis vaccination for cattle

Nearly a million cattle are vaccinated for brucellosis each year

59,038 birds tested annually on average for avian influenza by CDFA personnel and in cooperation with the National Poultry Improvement Plan Program

More than 6,100 sheep and more than **2,000** goats tested for scrapie

Nearly 5,000 pigs tested for pseudorabies and swine brucellosis, and **more than 3,700** high-risk pigs tested for African swine fever, classical swine fever, and foot and mouth disease.



Keeping disease off the farm and out of the food chain

The Animal Health Branch's highest priority is to exclude foreign animal diseases from our farms and our food chain. Finding, isolating and eliminating domestic diseases that threaten public health and the availability of affordable, wholesome food can only be achieved through dedicated, highly trained personnel maintaining programs to rapidly detect and respond to these animal disease introductions.

50,073
Livestock shipments crossing border stations annually

25,030,840
animals

21,616
Health certificates for incoming shipments received annually

93,970
animals

9,871
Livestock Entry Permits issued by AHB annually

90,269
animals

Traceability:

The ability to rapidly trace movements of diseased or at-risk animals is essential for a prompt response to an animal disease event.

Traceability depends on official identification of livestock and documentation to track movements, including records of livestock shipments crossing through California's border stations, incoming health certificates (Certificates of Veterinary Inspection), and livestock entry permits.

These sources of movement data are reviewed daily, and Animal Health Branch (AHB) staff investigate livestock shipments that are noncompliant with California's entry requirements.

Official Animal ID Tag Distribution, 2017

AIN 840 Tags	AIN Brucellosis Tags	Brucellosis NUES Orange Tags	NUES Silver Brite Tags	Scrapie Tags	Swine Plastic NUES Tags	Total Official ID Tags	USDA Backtags
							
1,996,619	5,200	878,318	231,988	168,774	422	**3,281,321**	982,594

" Healthy as a "

Protecting California's 540,000 horses

The CDFA Animal Health Branch is a national leader in addressing situations which threaten the health of the equine industry. It is the Branch's responsibility to react promptly to threatening situations and address equine diseases of concern. Two equine specific advisory committees, namely the **Equine Advisory Committee** and the **Equine Medication Monitoring Program Advisory Committee,** assist the State Veterinarian and the Secretary of Agriculture in making informed decisions related to equine health. The committees are comprised of some of the nation's most respected practicing veterinarians, researchers, scientist and industry leaders.

$13.3 billion
Economic impact of California's equine industry

15,500
Jobs generated by California's equine industry

310
Reportable equine disease cases detected in California from 2010 to 2017

Equine Diseases: Number of Reportable Cases: 2010-2017

Year	Equine Infectious Anemia (EIA)	Equine Piroplasmosis (EP)	EIA/EP Dual Infection	Contagious Equine Metritis (CEM)	Equine Herpes Virus (EHV-1)	West Nile Virus (WNV)	Totals
2010	1	3	0	1	N/A	19	24
2011	1	0	0	0	35	15	51
2012	2	0	0	0	22	16	40
2013	9	7	2	4	4	8	34
2014	26	14	8	0	3	15	66
2015	3	0	0	0	5	19	27
2016	0	0	0	0	20	21	41
2017	1	0	0	0	5	21	27
TOTALS	**43**	**24**	**10**	**5**	**94**	**134**	**310**

Equine Medication Monitoring Program

Monitoring horses at events, shows and competitions

California is the only state with an industry-funded program for drug testing targeting sample collections from horses entered in public equine events The California equine industry sponsored legislation in 1971 to prevent misuse of drugs and medications in equines (horses, ponies, mules and donkeys) in public shows, competitions and sales.

The intent of the Equine Medication Monitoring Program (EMMP) is to ensure the integrity of public horse shows, competitions and sales through the control of performance- and disposition-enhancing drugs, and to allow limited therapeutic use of drugs at an equine event.

The EMMP monitors equines in public shows, competitions, and sales though random collection of blood or urine for chemical analysis. The California Equine Medication Rule prohibits use of certain drugs or drug combinations, yet accommodates specific, legitimate, therapeutic use of medications within certain parameters.

Horses competing annually in California — **110,000**

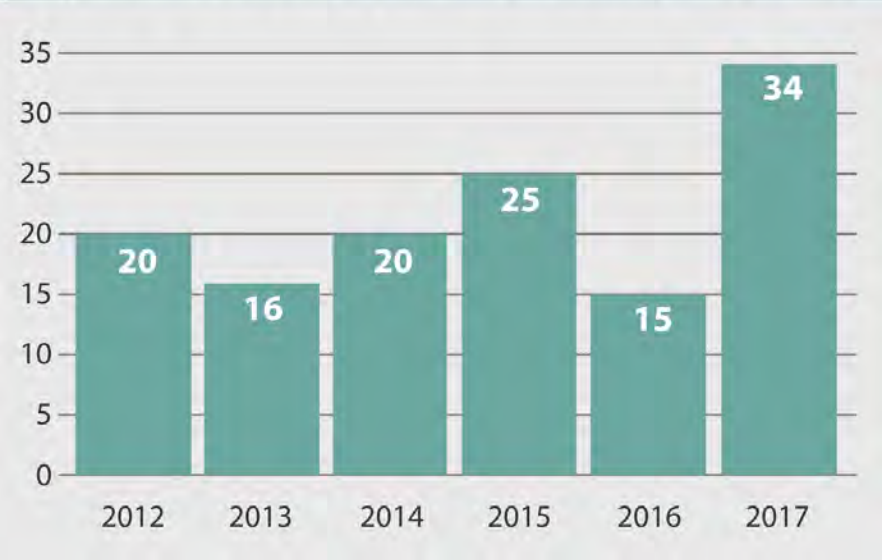
1,300 — **Equine events held annually in California**

Equine events tested annually by EMMP — **400**

Biosecurity Toolkit for Equine Events

- Developed in 2012 to help event managers prevent disease spread
- Distributed in all 50 states and 12 other countries
- Used at the London and Rio Olympics, and the 2014 World Equestrian Games in France
- CDFA staff presented to the World Animal Health Organization in Paris and to the Veterinary Conference of the Federation Equestrian Internationale (FEI) in Athens

Equine Medication Rule Violations 2012-2017



Safe Animal Feed Education (SAFE) Program update

The Safe Animal Feed Education (SAFE) Program was established in 2005 (AB 1071) and is entirely industry-funded. The program was developed in collaboration with the commercial feed industry to promote a cooperative relationship to help ensure the safety of animal feed in California.

Outreach and education has been a top priority this year in the Feed and Livestock Drugs Program. This is in response to the massive evolution in food and feed safety occurring at both a Federal and State level. In preparation for Food Safety Modernization Act (FSMA) implementation, SAFE has facilitated one session of Food Safety Preventive Controls Alliance (FSPCA) *Preventive Control Qualified Individual Training for Animal Food* and one FSPCA *Preventive Controls Qualified Individual Lead Instructor Training for Animal Food,* during which time key staff, of the SAFE program became a Lead Instructor and is now able to host trainings for industry.

The SAFE program has also sent key staff to the FDA FSMA *Current Good Manufacturing Practices (CGMP) Regulator Training for Animal Food* course to gain perspective on FDA's enforcement tactics and to learn how to best educate the California Feed industry about the requirements outlined in the regulation.

The program has been conducting FSMA CGMP readiness inspections to assist industry in identifying areas that need improvement prior to CGMP compliance dates, and to determine training needs.

In preparation for the FDA Veterinary Feed Directive (VFD) Rule, the SAFE program provided informational packets to industry members who submitted letters of intent to FDA, notifying FDA that they will be distributing VFD medicated feeds. The SAFE program has also been assisting firms by reviewing VFDs for accuracy.

- In March 2016 the program hosted a FSMA Informational Seminar in Modesto to discuss what the rule would look like for industry to begin implementation.
- In 2016 the program performed FSMA Firm Visits to distribute informational packets about the regulation and the available informational materials.
- In March, July and December 2017 the program hosted Food Safety Preventive Control Alliance's Preventive Controls Qualified Individual training for industry.
- In 2017 and continuing the program is performing FSMA Current Good Manufacturing Practice Readiness Inspections at firms to give them an idea of where they are at with regards to implementation of the FSMA CGMP regulations and the areas that they need to focus on to gain compliance.

Ewe are what ewe eat

California's Commercial Feed Regulatory Program

CDFA's "Feed Program" conducts inspections on a routine basis, as well as to follow up on violations and to ensure good manufacturing practices (GMP) at all feed manufacturing facilities throughout California. Inspectors are empowered to take enforcement action on any adulterated products entering the channels of trade, and the program is also charged with ensuring proper labeling of all feed products being sold, manufactured and distributed in California.

In 2015 the Feed Program was awarded a five-year grant from the Food and Drug Administration (FDA) to implement the Animal Feed Regulatory Program Standards (AFRPS). The staff took this opportunity to focus on several key factors including the program's regulatory foundation, training, self-assessment, inspections, auditing, emergency response, enforcement, outreach, planning and resources, sampling, and laboratory services. In January 2016, a FDA audit team visited the Program and offered positive feedback and great encouragement for first-year efforts on implementation. During that year, the Feed program collected 998 samples at licensed feed locations throughout the state.

The program currently holds two US FDA Enforcement contracts in the areas of Tissue Residue Enforcement, and Bovine Spongiform Encephalopathy (BSE) compliance. The program also holds a FDA Cooperative Agreement pertaining to the AFRPS and is working towards adoption and full implementation of the FDA's and Association of American Feed Control Official's, Animal Feed Regulatory Program Standards in an effort to ensure mutual reliance and regulatory equivalency with FDA.

Feed Inspection Program: By the Numbers (2016-17)

1,873
Number of Feed Program Licenses

791
Number of Samples obtained

50
Number of BSE compliance inspections

3,000
Number of Inspections

73
Number of Tissue Residue Investigations

3
Number of CGMP-FSMA Readiness Inspections

Livestock Drug Program by the numbers

Safe and effective use of livestock drugs is one of the lesser-known ways that CDFA ensures the safety and reliability of our food supply. CDFA registers all drugs sold for livestock in California, ensures proper labeling of products, licenses all retail locations that sell restricted livestock drugs in California, and conducts verification inspections of all required records at retail.

Restricted Livestock Drug Licenses	**328**
Registered Livestock Drug Labels	**1,018**
Restricted Livestock Drug Labels	**149**

Parting Shot:
Celebrating California Agriculture

Ag Day!

Our annual celebration on the west steps of the State Capitol

Hosted by CDFA in partnership with California Women for Agriculture and the California Foundation for Agriculture in the Classroom, Ag Day is an annual celebration of California's agricultural community, held in mid-March on the west steps of our State Capitol. The event showcases the tremendous bounty of crops and commodities grown and produced in our state. It is also a day for farmers and ranchers to show their appreciation by bringing together state legislators, government leaders and the public for agricultural education.

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