



# Carbon Farming

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Sustainable Organics Recycling

## Regenerating the New Dust Bowl

Likely no event in this country's history did more to emphasize the importance of soil health than the Dust Bowl. Beginning in 1932, persistent drought conditions on the Great Plains caused widespread crop failures and exposed the region's soil to blowing wind. A large dust storm on May 11, 1934 swept fine soil particles over Washington D.C. and three hundred miles out into the Atlantic Ocean. Outcry from both the public and leading conservationists urged for the creation of a national soil conservation agency. The result was the Soil Conservation Act, which President Roosevelt signed on April 27, 1935, creating the Soil Conservation Service, later renamed the National Resource Conservation Service, in the USDA.

Eighty years later, California is facing on again and off again droughts of biblical proportions. When Newsweek ran an article in 2016 proclaiming California is becoming a Dust Bowl, Governor Brown launched his message on healthy soils and their climate change benefits:

"As the leading agricultural state in the nation, it is important for California's soils to be sustainable and resilient to climate change. Increased carbon in soils is responsible for numerous benefits including increased water holding capacity, increased crop yields and decreased sediment erosion. In the upcoming year, 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."

The Healthy Soils Initiative has established both short and long term actions for enhancing soil health and

compost is front and center of many elements outlined. The 'Sustainable Agriculture' goal is to meet society's food and textile needs in the present without compromising the ability of future generations to meet their own needs. 'Organic Farming' is agriculture that makes healthy food, healthy soils, healthy plants, and healthy environments a priority, along with crop productivity that involves choosing not to use pesticides, fertilizers, genetically modified organisms, antibiotics, and growth hormones. These types of carbon farming are now being studied as 'Regenerative Agriculture' that among other benefits, can reverse climate change

by rebuilding soil organic matter and restoring degraded soil biodiversity – resulting in

both carbon drawdown and improving the water cycle and saving up

to 30% water use. Agricultural

can pull carbon out of the

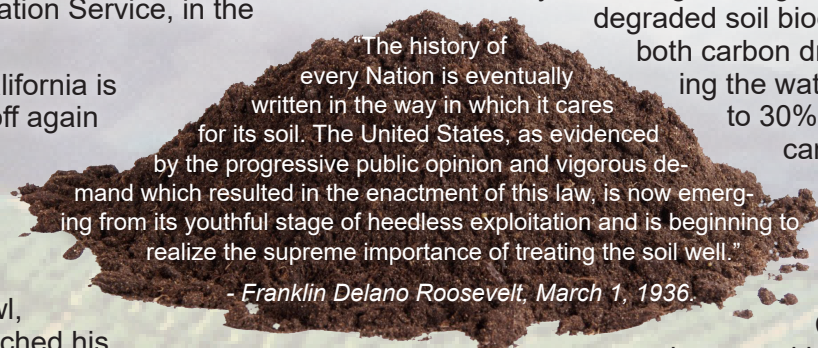
air and into the soil

with compost use and regenerative agricultural practices.

Compost production

and use, and biochar generation via

biomass gasification with renewable energy, are now being viewed as carbon negative with protocol development underway. According to new research, soil could act as a huge carbon sink to help balance out greenhouse gases with holding up to three times as much carbon as is found in the atmosphere. If we can tap into its potential to suck even more carbon pollution out of the air, it could be our savior. Will Big Soil sequester the emissions from Big Oil? A New York Times article ran this year asking, 'Can Dirt Save the Earth?' "Drought to drought, dust to dust", California is baking as the next Dust Bowl. "Earth to earth, ashes to ashes, biochar to biochar", we commit this compost to the ground, in sure and certain hope of the regeneration to the eternal life of soil.





## HEALTHY SOILS AND COMPOST USE

Since our February report on “The State of the Compost,” some promising legislation has been passed, following bills which have led to looming regulations, adding to the slew of state mandates to collect and recycle organics. Moving into early 2019, CalRecycle plans to adopt SB 1383 regulations. Although the regulations will not take effect until 2022, adopting them in 2019 allows regulated entities nearly three years to plan and implement necessary budgetary, contractual, and other programmatic changes in order to develop much-needed infrastructure and bolster markets.

In the wake of multiple devastating recent wildfires, including the Thomas Fire in the author’s home district in the Santa Barbara and Ventura area – unfortunately a trend reportedly on an upwards trajectory due to climate change – AB 1981 (Limon) would add the Department of Forestry and Fire Protection to the body of state agencies previously mandated to coordinate under AB 1045: CDFA, CalRecycle, the State Water Board, and CARB. The intent of this bill is to develop mechanisms to increase the use of compost on fire-ravaged lands, reducing erosion immediately and enhancing restoration of plant communities.

Another measure targeting sustainable compost market building, AB 2411 (McCarty) requires CalRecycle to develop and implement a plan to maximize the use of compost for slope stabilization and revegetation following wildfires. Not only would this provide a potential market for compost, it could close the loop for thousands of tons of disaster debris materials. Additionally, in coordination with CalRecycle, CalTrans would be required to develop best management practices in each of their districts to determine cost-effective compost uses. Given that statute has required CalTrans to purchase compost for projects since the early 1990’s, it seems overdue that they should give it a more serious consideration in many parts of the state.

CalRecycle was once again approved for a budget allocation of \$25 million in Greenhouse Gas Reduction Funds (GGRF) for recycling and organics processing infrastructure projects, adding to the \$8 million that was not awarded following the last round of grants earlier in 2018. While this funding represents only a small portion of the estimated \$3 billion (or more), which is anticipated to be required to meet SB 1383 organics diversion goals, it is nonetheless critical in stimulating the development of projects in the still-early phase of building towards 2025, requiring enough capacity to handle 10-15 million more tons of compostable materials.

Over the last few years, CCC has provided estimates of current compost use on agricultural lands (~7.5 million tons) in attempting to identify the potential untapped market, which will be critical to diverting the SB 1383 organics through compost use. The good news is that CDFA is expected to have useful information next year regarding the amount of compost that is being sold through the Organic Input Materials (OIM) program; beginning in 2018 OIM participants were required to submit tonnage sold, in addition to the dollar sales, when reporting to CDFA. Ironically, CDFA also reports that several individual composters were unhappy that this information was to be required.

Improving the quality and fertility of California soils has been a key pillar of the Brown administration – a movement which is growing across the country in an effort to increase agricultural productivity on depleted lands and advance climate-driven resiliency. AB 2377 (Irwin) would authorize up to \$5 million in GGRF for CDFA to establish technical assistance, primarily for small farmers, in the application for funding for, and implementation of, Healthy Soils Program practices, Alternative Manure Management Practices, and water efficiency program.

### [AB 1981 \(Limon\)](#)

**TOPIC:** Organic waste: composting. This bill would, among other changes, impose additional duties on state agencies relating to promoting the application of compost and additionally including the Department of Forestry and Fire Protection in the state agencies in coordination with which the California Environmental Protection Agency is required to develop and implement the above-specified policies. The bill would additionally require the California Environmental Protection Agency to work with the Department of Forestry and Fire Protection and the Tree Mortality Task Force to achieve the goal of reducing at least 5 million metric tons of greenhouse gas emissions per year through the development and application of compost on working lands.

**STATUS:** Signed by the Governor on September 21, 2018

### [AB 2411 \(McCarty\)](#)

**TOPIC:** Solid waste: use of compost: planning. This bill would require the Department of Resources Recycling and Recovery, on or before December 31, 2019, to develop and implement a plan to maximize the use of compost for slope stabilization and for establishing vegetation in the course of providing debris removal services following a wildfire. The bill would require the Department of Resources Recycling and Recovery, in coordination with the Department of Transportation, to identify best practices for each of the Department of Transportation’s 12 districts regarding the cost-effective use of compost along roadways and to develop a plan to implement the identified best practices in each of the districts. The bill would additionally require the Department of Resources Recycling and Recovery to review the best practices at least once every 5 years and update the best practices as necessary.

**STATUS:** Signed by Governor on August 28th, 2018

### [AB 2377 \(Irwin\)](#)

**TOPIC:** This bill authorizes up to \$5 million to be appropriated from the Greenhouse Gas Reduction Fund (GGRF) This bill would require Department of Food and Agriculture to establish a technical assistance grant program to provide funds to technical assistance providers, as defined, to provide assistance to Healthy Soils Program, alternative manure management practices programs, and State Water Efficiency and Enhancement Program applicants, prioritizing that technical assistance to farms and ranches that are 500 acres or less.

**STATUS:** Enrolled to the Governor on August 31st, 2018

### DOUBLE DOWN ON COMPOST USE

In May 2018, the [Concept Paper – California 2030 Natural and Working Lands Climate Change Implementation Plan](#) was released and a series of public workshop were held throughout California. The Plan set a goal to maintain a resilient carbon sink on the natural working lands to reduce GHG emissions by at least 15-20 million metric tons (MMT) by 2030. Goals in AB 1045 for compost use are set to reduce GHGs by 5 MMT amounting to about 9 million tons, which is needed. The [COMET-Planner](#) was developed by USDA and will now be used for modeling compost use where CCC will continue to provide testimony and metrics to guide this bright comet into the next Policy Paper.

CCC has been on the organic high-way promoting the need to double down on compost use by 2025. We have clarified the intent of the AB 32 Scoping Plan language. It is that compost use should not be just for grasslands, but also for irrigated croplands, as we pointed out during the Public Workshop on Carbon Sequestration Modeling Methods and Initial Results for the Natural & Working Lands Sector back in 2015 and 2016. The Working Lands presentation by Lawrence Berkeley National Laboratory using CALAND had modeling inputs with low and high management scenarios for an incremental 10,000 acres each year, both for croplands and grasslands, and would be adopting sustainable agriculture practices, adding a total of 260,000 acres by 2030. However, compost use on irrigated cropland was not specifically mentioned.

CCC supports the use of metrics and goal setting to get to 2030, and specifically identifying compost use on irrigated cropland can accommodate a new 7 million tons in California. CCC added that 40,000 acres per year to 80,000 acres per year should be identified as low and high management scenarios and tied it back to SB 1383.

#### [SB 1383 - Regulations](#)

CalRecycle announced at their Monthly Meeting on September 18th, their plans to adopt the regulations in 2019 and keep the momentum going. Hopefully this will inspire local government and the industry to start to get these new SB 1383 tons at a new price under contract to flow into the new compost and anaerobic digestion facilities that are being permitted and receiving grants dollars. The final informal draft of the rulemaking text for SB 1383 (<https://www.calrecycle.ca.gov/Laws/Rulemaking/SLCP/>).

**Procurement of Recovered Organic Waste Products** in Article 12 is being proposed as authorized in SB 1383. Recognizing the importance in developing RNG demand and compost use, CCC has been out in front supporting the inclusion in the regulation. CalRecycle has presented a fair share calculation with flexibility of procuring compost or RNG. Requiring, through a written contract, that a direct service provider to the jurisdiction procure recycled organic waste products and provide written documentation of such evidence to the jurisdiction. This will allow the jurisdiction to delegate the RNG use to the local franchise hauler, and fulfill the procurement requirement. This is an elegant community-scale fit where the franchise holder could produce and utilize their own RNG without the need for expensive and restrictive pipeline injection, but could also draw from a pipeline at a CNG fueling station where RNG is not being produced locally.

Although the regulations will not take effect until 2022, adopting them in 2019 allows regulated entities approximately three years to plan and implement necessary budgetary, contractual, and other programmatic changes. Jurisdictions, haulers, and generators should consider taking actions now to implement programs to be in compliance with the regulations on January 1, 2022.

#### [AB 901 Regulations](#)

At the CalRecycle Monthly Meeting on September 18th, it was announced that the AB 901 regulations start date has been pushed to July 2019, with registration on April 1, 2019. The DRS system will remain in place as is until June 30, 2019, and then AB 901 will start, giving the industry another 6 months to gear up and allow CalRecycle to conduct proper training. The seventh draft of the proposed regulatory text will be released late-September, 2018 for a 15-day formal comment period. Please refer to the current draft - "Notice of Changes to Proposed AB 901 Regulations." AB 901 will track the land application of green waste and wood chips to ADC.

#### Direct Land Application

Direct land application of green waste and other organic materials continues to limit the available feedstock for composting operations, diminishing potential project development, while enabling the spread of pathogens, invasive pests, and physical contamination that could be reduced with proper processing and composting. In many areas of the state, particularly south of the Tehachapi Mountains, the lack of composting infrastructure has been perpetuated by this diversion of feedstocks to the low-cost direct land application option.

Also in SoCal, there is a looming threat that could have devastating consequences for California citrus if not stopped. The Asian citrus psyllid feeds on citrus leaves and stems, and can infect citrus trees with a bacteria that causes a serious plant disease called Huanglongbing, also known as HLB or citrus greening disease. While not harmful to humans, the disease kills citrus trees and has no cure. The best way to protect citrus trees from HLB is to stop the Asian citrus psyllid. Once a tree is infected with HLB, it will die. Diseased trees need to be removed in order to protect other citrus trees on the property, neighbors' trees, and the community's citrus. The processing of infested citrus tree materials with typical yard waste is a continuing threat to spread HLB.

CDFA oversees the quarantine program for invasive pests, like HLB, which has now spread throughout western Orange County and into Los Angeles County, infecting hundreds of trees. CDFA is now intensifying efforts to limit the spread of HLB, including requirements for compliance agreements for all haulers, processors, and composters of green materials. Under these quarantine measures, the direct land application of green materials collected within the quarantine zone(s) is illegal. Local governments beware that contracted operators are legally handling green materials on your behalf. The citrus industry is rightfully concerned about losing millions of trees and billions of dollars in lost productivity, as has been witnessed in Florida over the last 20 years.

#### [CDFA Organic Input Materials](#)

Over the last few years, CCC has provided estimates of current compost use on agricultural lands (7.5 million tons) in attempting to identify the potential untapped market, which will be critical to diverting the SB 1383 organics through compost use. The Good news that CDFA is expected to have useful information next year regarding the amount of compost that is being sold through the Organic Input Materials (OIM) program; beginning in 2018 OIM participants were required to submit tonnage sold, in addition to the dollar sales, when reporting to CDFA.



### **The California Compost Coalition**

is a registered Lobbying Coalition with the Fair Political Practices Commission (FPPC), created in 2002 by a group of compost operators in response to demands for increased recycling of organic materials & production of clean compost, bioenergy, anaerobic digestion, renewable natural gas, and biochar.

#### **CCC Members**

Agromin  
Atlas Disposal  
Burrtec Waste Industries  
Caglia Environmental  
California Waste Recovery Systems  
California Wood Recycling  
CleanFleets.net  
Clean Fleets Advocates  
Clover Flat Compost  
Cold Canyon Compost  
GreenWaste Recovery  
Harvest Tulare  
Harvest Lathrop  
Marin Sanitary Service  
Mt. Diablo Resource Recovery  
Napa Recycling Compost  
Northern Recycling Compost  
Organic Waste Solutions  
Phoenix Energy  
Quackenbush Mt. Compost  
Recology Blossom Valley Organics  
Recology Feather River Organics  
Recology Jepson Prairie Organics  
ReFuel Energy Partners  
Soiland Co, Inc.  
Sonoma Compost  
Tracy Materials Recovery Compost  
Upper Valley Recycling  
Vision Recycling  
Zanker Road Resource Management  
Z-Best Compost Facility  
Zero Waste Energy Development  
Zero Waste Energy, LLC

#### **CCC Executive Committee**

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Evan Edgar, Regulatory Affairs  
Steve Peterson, Financial Advisor  
Rick Moore, Peer Review Engineer  
Monica White, Sustainability Advisor  
Sean Edgar, Fleet Advisor

#### **CCC Legislative Affairs**

Justin Malan, EcoConsult  
Neil Edgar, Edgar & Associates Inc.

## CCC Compost Counties

### California

In 2017, California's farms and ranches received over \$50 billion in cash receipts for their output accounting for over 13 percent of the nation's total agricultural value. California's agricultural abundance includes more than 400 commodities. Over a third of the country's vegetables and two-thirds of the country's fruits and nuts are grown in California. In 2017, organic farm numbers increased 11 percent to 14,217 certified organic farms and ranches, and organic acreage grew by 15 percent to 5 million acres. Once again, California is the top organic state in terms of organic sales, farm numbers, and acreage.

The agricultural sector has both value and volume markets and has the potential to use over 40 million tons of compost per year. If compost was listed as an agricultural commodity in the California Crop Report, it would rank number 43, between cantaloupe and olive production, at an estimated \$150 million per year in sales. Compost use on irrigated croplands is the largest market, estimated at 1 million acres of the 9 million acres of irrigated lands in California, representing an 11% statewide market penetration, which needs to double.

### Napa

In 2017, the top 4 crops grown in Napa County, which include wine grapes, floral and nursery, vegetables, and hay, netted \$752 million and occupied just under 45,000 acres of land. If compost was used to aid the production of just these top 4 crops, it could yield a potential demand of 260,000-350,000 tons per year. According to Napa's Crop Report, organic farming covered 4,200 acres, 10% of all acreage. If local certified organic compost was used the organic compost demand would be nearly 30,000 tons. Napa County currently has a permitted capacity of compost production of about 134,000 tons per year and will need to divert another 38,000 tons of organic waste by 2025 to fulfill state mandates, resulting in another 22,000 tons of compost.

### Ventura

In 2016, the top 10 crops grown in Ventura County netted \$1.82 billion and occupied just over 70,000 acres of land, with the top 3 crops being strawberries, lemons, and nursery stock. If compost was used to aid the production of just these top 10 crops, it could yield a potential demand of 420,000-550,000 tons per year. According to Ventura's Crop Report, organic farming covered 7,500 acres. Ventura currently has a permitted capacity of compost production of 81,000 tons per year and will need to increase yearly diversion by another 305,000 tons of organic waste by 2025 to fulfill state mandates, resulting in another 177,000 tons of compost. The County has been leading the agricultural community by demonstrating that compost use can save up to 30% water on citrus crops.

### Yolo

In 2016, the top 10 crops grown in Yolo County netted \$458 million and occupied just over 200,000 acres of land, with the top 3 crops being tomatoes, almonds, and wine grapes. If compost was used to aid the production of just these top 10 crops, it could yield a potential demand of 1.2-1.6 million tons per year. According to Yolo's Crop Report, organic farming covered 45,000 acres. If local certified organic compost was used organic compost demand would be nearly 316,000 tons. Yolo County currently has a permitted capacity of compost production of 104,000 tons per year and will need to increase yearly diversion of organic waste by 66,000 tons by 2025 to fulfill state mandates.

### Kern

In 2016, the top 10 crops grown in Kern County netted \$5.1 billion and occupied just over 620,000 acres of land, with the top 3 crops being grapes, almonds, and citrus. If compost was used to aid the production of just these top 10 crops, it could yield a potential demand of 3.7 to 4.9 million tons per year.

Kern County currently has a permitted capacity of compost production of 1.1 million tons per year and will need to divert at least 341,500 tons of organic waste by 2025 to fulfill state mandates, resulting in another 200,000 tons of compost.

Kern County is already doing better than most in terms of organics capacity, ranking in first of all the counties analyzed.