



Sustainability in the LA Foodshed

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About the Los Angeles Sustainability Collaborative

The Los Angeles Sustainability Collaborative (LASC) is dedicated to creating a more sustainable Los Angeles by facilitating collaborative research, providing solutions to emerging environmental challenges and educating stakeholders. LASC seeks to achieve this mission by 1) collaborating with other non-profit organizations and academic institutions to identify research needs on key environmental issues, 2) funding research projects conducted by emerging environmental leaders at the university level and 3) sharing research findings to community, policy and business stakeholders.

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Executive Summary

The Los Angeles Food Policy Council (LAFPC) is a collective impact initiative, working to make Southern California a Good Food region for everyone—where food is healthy, affordable, fair and sustainable. One of the key priorities of LAFPC is the Good Food Purchasing Policy (GFPP). The goals of the program are to increase market demand for Good Food, increase access to high-quality healthy food in underserved communities, and shift production practices by leveraging the purchasing power of major institutions.

LAFPC is interested in tracking the impact of GFPP on food system outcomes, including the extent to which it encourages farmland to remain in production, provides markets to keep small and medium scale farmers in business, and reduces the overall environmental impact of the food system.

This report looks at indicators in several key sustainability areas: regional farm size and number, agricultural water usage, greenhouse gas emissions in agriculture, particulate matter emissions, and pesticide application. It finds that in the approximately the last five years, indicators in these areas have remained approximately the same, suggesting that there is still a significant role for policies such as the Good Food Purchasing Policy and others to contribute to an improvement in the environmental impact of regional agricultural production.

Specific policy areas in which the LA Sustainability Collaborative may be influential include:

- 1) *Support for an Evaluation of the Good Food Purchasing Policy*
- 2) *Research on the Impact of Integrated Pest Management*
- 3) *Inclusion of Agriculture Strategies in Greenhouse Gas Emissions Reduction*
- 4) *Prevention of the Loss of Regional Farmland*
- 5) *Reduction of Meat Consumption to Address Water Impacts*

Background: LA Food Policy Council and the Good Food Purchasing Policy

The Los Angeles Food Policy Council (LAFPC) is a collective impact initiative, working to make Southern California a Good Food region for everyone—where food is healthy, affordable, fair and sustainable. It is an independent non-profit that was created by the Mayor of the City of Los Angeles in January 2011.

LAFPC facilitates cross-sector collaboration by connecting public, private, non-profit and governmental leaders with diverse areas of food system expertise to advance the common agenda of building a sustainable food system. Representatives from across sectors and issue areas work together to develop solutions that comprehensively address local economic development, worker equity, environmental stewardship, individual and community health, and health disparities in underserved communities.

One of the key priorities of LAFPC is the Good Food Purchasing Policy (GFPP). The GFPP was developed by a multi-stakeholder working group of procurement, labor, public health, animal welfare, and supply chain experts who examined best practices across the country over two years to develop Good Food Purchasing Guidelines for food service institutions.

The Good Food Purchasing Policy is a commitment from large food service institutions to improving our region's food system through the adoption and implementation of the Good Food Purchasing Guidelines, which emphasize five key values: (1) Local Economies, (2) Environmental Sustainability, (3) Valued Workforce, (4) Animal Welfare, and (5) Nutrition. It features a tiered, points-based scoring system that awards increasing points for stronger commitment to purchasing criteria in the five valued categories.

The goals of the program are to increase market demand for Good Food, increase access to high-quality healthy food in underserved communities, and shift production practices by leveraging the purchasing power of major institutions.

In the Fall of 2012, the City of Los Angeles became the first institution to adopt the Good Food Purchasing Pledge, through a Mayoral executive directive and a motion passed unanimously by the LA City Council. A few weeks later, the Board of the Los Angeles Unified School District, the largest food purchaser in the City, also unanimously passed the Good Food Purchasing Policy. These commitments were followed by two large corporate institutions through their food service company, Guckenheimer. In all, the program impacts over 750,000 meals daily.

The number of meals impacted by GFPP adoption in major local institutions allows these purchasers to influence the supply chain in ways that have made an immediate impact on the local food system. For example, through participation in GFPP, LA Unified School District and its produce distributor increased the overall amount of produce purchased and served to students, redirected at least \$12 million in produce purchases to local businesses, generated at least 125 new well-paying food chain jobs, and compelled production shifts toward sustainable, California grown ingredients.

LAFPC is interested in tracking the impact of GFPP on food system outcomes, including the extent to which it encourages farmland to remain in production, provides markets to keep small and medium scale farmers in business, and reduces the overall environmental impact of the

food system. In 2013, LAFPC gathered metrics through its Food System Snapshot (Snapshot) that helped establish baseline metrics for these indicators, among others, that describe the overall state of the regional food system in Southern California.

In 2014, LAFPC and Los Angeles Sustainability Collaborative (LASC) teamed up for a look at trends in the environmental sustainability indicators of the Snapshot and the broader context in which change in the environmental impact of the food system may be taking place. This report seeks to improve the understanding of environmental issues and trends confronting the food system in Southern California and recommends specific areas for additional research and collaboration between LASC and LAFPC to expand the GFPP and evaluate its impact.

The Los Angeles Regional Foodshed

US food production today is a highly industrialized, centralized, and technologically sophisticated process. Over the last 60 years, the number of farms has decreased and individual farm size has more than doubled, leading to loss of local revenue and threatening small scale family farms. Today, most of our food comes from a small number of very large farms. While 90 percent of farms are classified as small-scale family farms that take in less than \$250,000 a year, these farms account for less than 25 percent of total agricultural production value¹—which means that 10 percent of farms account for more than 75 percent of our food supply.² Industrial farms and the extensive transportation of their output debilitate the natural environment through water use, chemical impacts, and air quality. The production and application of fossil fuel based, toxic pesticides and fertilizers used to produce our food, methane emissions from industrial feedlots and landfills, the far distances our food travels, and water pollution from agricultural runoff are among the reasons that our food system is a leading contributor to environmental degradation, ecosystem decline, and climate change.

The 2013 Food System Snapshot established Regional Foodshed indicators to better understand the state of agriculture in our region, observe trends, and track progress towards improvement in key indicators. The regional foodshed is defined as the 200 mile radius, 10 county region around the City of Los Angeles, which includes the counties of Kern, Ventura, San Diego, Imperial, Riverside, Santa Barbara, San Luis Obispo, San Bernardino, Orange and Los Angeles.

Small and mid-size producers who don't have the capacity to supply large retail buyers like supermarkets are left with few options. Many sell off their farms or work for contract. These trends reflect in Southern California: the region lost 10 percent of its farm land from 2002-2007. Nationally in the last five years, the number of smaller farms (earning between \$50,000 and \$500,000) declined by 22 percent.³

Some of the data in the 2012 Census of Agriculture show that the LA foodshed faces many of the same challenges as those found in other agricultural regions of the country. At the same time, because of its diversity, agriculture in our region provides an opportunity to adapt and serve as a model of sustainability in California and in the country.

GFPP attempts to address these trends by encouraging participants to source from small and mid-sized local producers to maintain local economies; create jobs; prevent the impacts of overdevelopment; preserve farmland; provide fresher, more nutritious food; and minimize transport and storage. It does so by awarding more points in the tiered scoring system for

¹ National Agricultural Statistics Service, USDA. (2009). *USDA Census of Agriculture, 2007*. USDA. Retrieved from <http://www.agcensus.usda.gov/>

² National Agricultural Statistics Service, USDA. (2009). *USDA Census of Agriculture, 2007*. USDA. Retrieved from <http://www.agcensus.usda.gov/>

³ National Agricultural Statistics Service, USDA. (2009). *USDA Census of Agriculture, 2007*. USDA. Retrieved from <http://www.agcensus.usda.gov/>

purchasing food from farms that are local within 200 miles and small or medium-scale operations (less than 500 acres, per the USDA definition of farm sizes).

Farm Size and Number

The objective of observing farm size trends is to track the stability of small and mid-sized farming and the amount of farmland that is maintained for agricultural production. In the Los Angeles foodshed, as in the rest of the country, agricultural acreage has steadily decreased over the past decade as farmland is either consolidated or converted into urban space. Small and mid-size farms are often pushed out of the market, as they lack the infrastructure to meet the high-volume demand of supermarkets and other large retail buyers.

Key LA Food System Snapshot Metrics

- **From 2007-2012, we lost over 3,000 farms:** the number of farms in the LA foodshed decreased from 23,000 to 20,000
- 68 percent of harvested cropland in 2012 was located on farms of at least 1,000 acres
- 87 percent of farms in the LA foodshed are small [fewer than 180 acres, per USDA definition], compared to 67 percent nationally
- The average size farm is 174 acres, while the median falls in the smallest farm category, which is between one and 49 acres
- Total fruit, vegetable, and field crop production value in LA foodshed: over \$12 million
- The number of farms reporting direct sales increased nationwide by 6 percent from 2007 to 2012, and in the LA foodshed, this number increased by 18 percent to 2,409 farms⁴

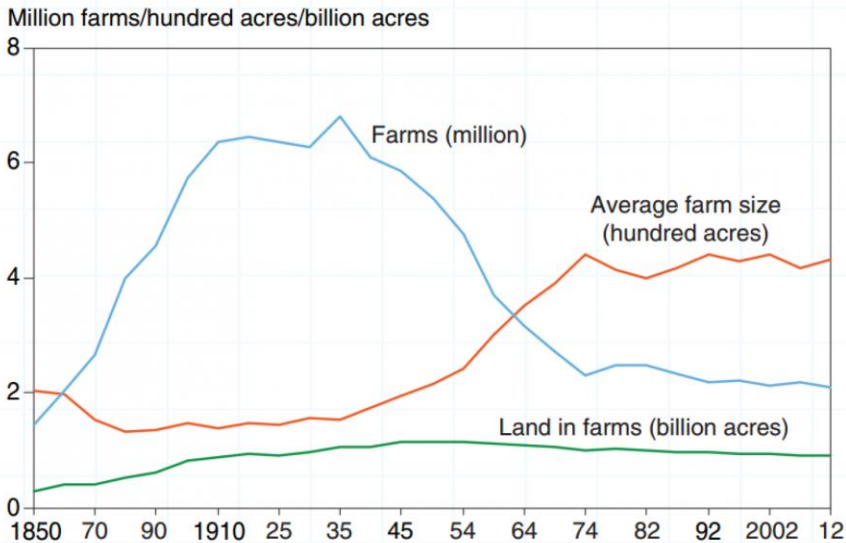
Discussion

In line with the national trend (see Figure 1)⁵, the data from the 2012 Census of Agriculture shows a decrease of about 3,000 in the total number of farms in the Los Angeles foodshed from 2007. There is not yet a definitive explanation for why there are fewer farms in the LA foodshed and whether this is a significant change, but conjecture that it is due to either consolidation into large farms or sale of farmland to real estate developers. The California Department of Conservation farmland conversion data based on the most recent Census of Agriculture [released at the end of 2014] will be a useful resource to give context to this apparent loss of farms by documenting any decrease in acres of farmland and the new farmland conversion rate.

⁴ 2012 Census of Agriculture Highlights “Farmers’ Marketing”
http://www.agcensus.usda.gov/Publications/2012/Online_Resources/Highlights/Farmers_Marketing/Highlights_Farmers_Marketing.pdf

⁵ Nationally, the number of farms decreased about 4 percent from 2007. See: National Geographic, “Amid a National Decline, Some States are Gaining Farms,” May 2, 2014 <http://news.nationalgeographic.com/news/2014/05/140502-farm-report/> and USDA NASS, “Preliminary Report Highlights, US Farms and Farmers,” February 2014 http://www.agcensus.usda.gov/Publications/2012/Preliminary_Report/Highlights.pdf; Ferdman, RA (2014). ‘The decline of the small American family farm in one chart’, <http://www.washingtonpost.com/blogs/wonkblog/wp/2014/09/16/the-decline-of-the-small-american-family-farm-in-one-chart/>

Farms, land in farms, and average acres per farm, 1850–2012



Source: USDA, Economic Research Service using data from USDA, National Agricultural Statistics Service, Census of Agriculture.

Figure 1: Farms, Land in Farms, and Average Acres Per Farm Trends

Southern California is a diverse agricultural region, so a broad characterization of agriculture across the ten country region is elusive. Large-scale industrial agriculture exists in the LA foodshed, and like other agricultural regions, the majority of production is accounted for by a minority of large farms.⁶ Yet 87 percent of farms in the LA foodshed are small [fewer than 180 acres per USDA definition], and the average size farm is 294 acres—larger than in 2007, but still smaller than the average of 328 acres in California and 434 acres nationally.⁷

According to 2013 county crop reports, the majority of profits in the LA foodshed came from high-value specialty crops,⁸ with the exception of cattle and dairy in two counties. Many counties registered record or near-record highs in farm sales in 2013.

In addition to farm size, it is important to note that the types of crops produced in the LA region have changed over time. Agriculture in the LA foodshed has transitioned from growing field crops such as cotton, hay, or corn to growing more specialty crops such as fruits, vegetables, and nuts.⁹ The breakdown of crops, particularly those of the highest value, is important to

⁶ USDA-NASS 2007 Census of Agriculture

⁷ USDA-NASS 2012 Census of Agriculture Census Data Query Tool.

⁸ The 2014 Farm Bill defines specialty crops as: “fruits and vegetables, tree nuts, dried fruits, horticulture, and nursery crops (including floriculture).” From USDA Agricultural Marketing Service:

<http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELPRDC5082113>

⁹ These crops require fewer acres for growing. Says James MacDonald of ERS, “Field crop farms tend to have larger acreages, so to some extent what you see is (for example) four cotton & field crop farms getting replaced by 5-8 fruit and vegetable operations. That compositional shift helps to explain why you see only a modest change in the state cropland midpoint in CA even though almost all the crops that CA produces show large increases in consolidation.”

understand from a sustainability perspective. The types of crops produced in the foodshed carry environmental implications, and the next section attempts to understand the broad environmental impact of current production practices.

In general, examining farm trends between 2007 and 2012 shows that the number of farms in the region continues to decrease, while the trend toward most food being produced on large farms has maintained over time.

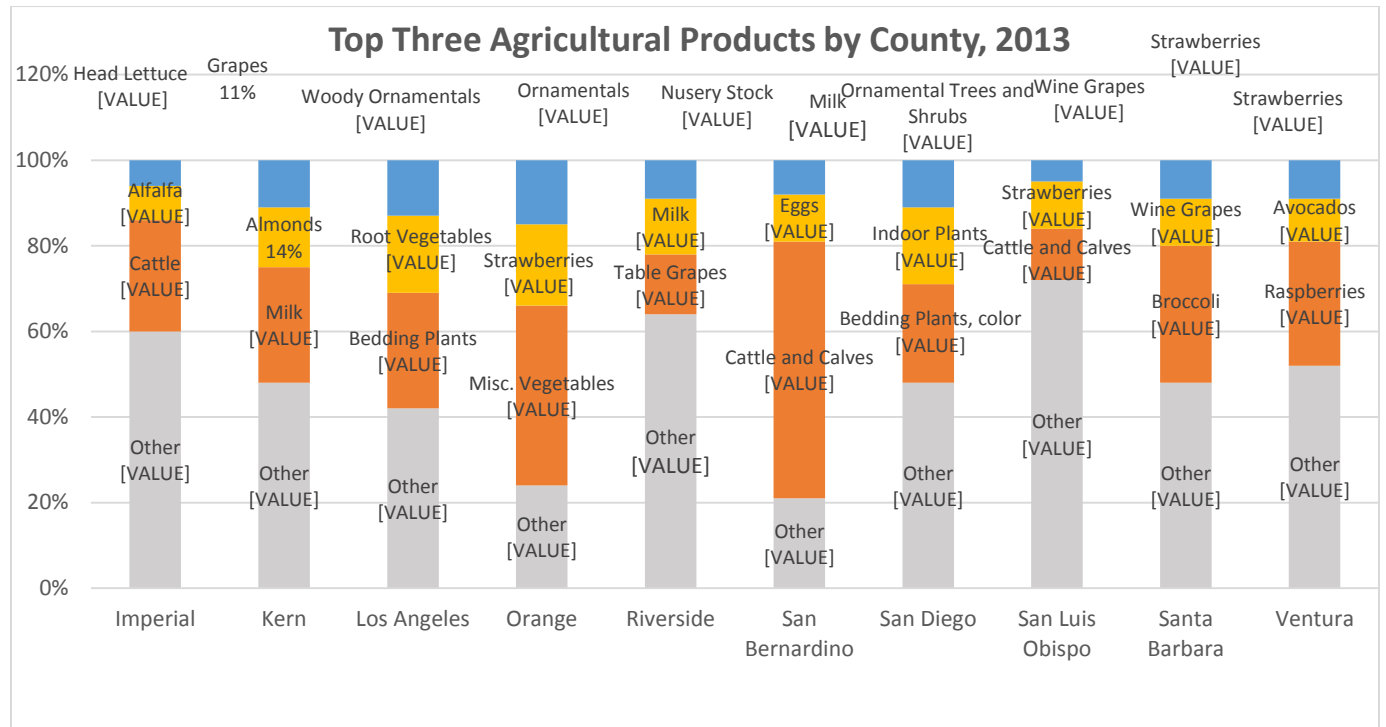


Figure 2: Top Three Agricultural Products by County, 2013

Agriculture and the Environment in the LA Foodshed

In the 2013 LA Food System Snapshot, the Los Angeles Food Policy Council developed baseline indicators to address the effects of agriculture on the environment in the LA foodshed and measure progress towards greater environmental sustainability in our region's agricultural sector.

The Environmental Sustainability indicators help to understand the interaction between agriculture and the environment and track progress in four main areas: water use, greenhouse gases, NOx and fine particulate emissions, and pesticide use.¹⁰ Each of these areas is related to best practices encouraged through GFPP participation.

GFPP rewards purchasers that source from farmers who meet strong environmental standards or are certified by third-parties. It encourages production and food service practices that prioritize:

- protecting, enhancing and conserving water, such as the Food Alliance certification and Biodynamic certification;
- reducing chemical pesticide use through organic practices and integrated pest management;
- minimizing greenhouse gas and particulate emissions through initiatives such as local purchasing or participation in "Meatless Mondays."

The following section briefly describes key issues and trends in water use, greenhouse gas emissions, NOx and fine particulate emissions, and pesticide use as they relate to agricultural activity in the LA foodshed.

Water

Agriculture is responsible for 80 percent of all water use in California. Historic agricultural policies have led to the dominant production of small grain field crops that are not consumed as fresh food, such as the alfalfa, hay and pastureland that support the cattle and dairy industry. Field crops are water intensive, and account for more than half of applied irrigation in California.¹¹

Key LA Food System Snapshot Metrics

- Agricultural applied water use in LA foodshed: 7264.2 thousand acre-feet

¹⁰ There is a lack of uniform data to measure soil health. The California State Water Board is currently developing a stateside system to measure nitrate levels in agricultural runoff which will contribute significantly to the overall understanding of the impact of pesticide application.

¹¹ Pacific Institute. (2009). Sustaining California agriculture in an uncertain future. Retrieved from http://www.pacinst.org/reports/california_agriculture/final.pdf

- Agricultural water use in the LA foodshed has remained unchanged/does not yet show signs of change

Discussion

One author and observer of the California drought recently mused, “Simply put: We can’t eat without California.”¹² In other words, California plays a central role in supplying fresh produce and dairy throughout the country. This has major consequences for a state that relies on a complex water infrastructure to grow food in its third year of drought. Despite this, agricultural applied water use has not changed significantly from the data provided in the 2013 LA Food System Snapshot, according to the California Department of Water Resources.¹³

The level of agricultural water use may be consistent for the time being, but California farmers are facing a severe water shortage. The experience of farmers in the Central Valley as state and federal water agencies curtailed the vast majority of water deliveries this year showed how quickly agriculture must adapt to the conditions of long-term drought.¹⁴ Where farmers would have previously planted row crops to make use of their land, they have had to leave land vacant or make difficult choices on how to use their allocation. For example, for many a top priority is the preservation of orchards since the trees are a long term investment. The situation is already dire for many farmers in the region, especially for those without senior water rights or adequate groundwater supply on their property to supplement or replace imported water.¹⁵

While the crisis around water supply becomes amplified as the current drought wears on, farm sales data above showed that production of some water-intensive crops has increased. This may be in response to high demand on both domestic and international markets. For example, there are now more exports to countries such as China, where demand for water-intensive crops like almonds and alfalfa hay, used as feed for dairy cows, has risen dramatically in recent years.¹⁶

¹² Eric Holthaus, “Ten Percent of California’s Water Goes to Almond Farming,” Thirsty West Series, Slate Magazine, May 14, 2014 http://www.slate.com/articles/technology/future_tense/2014/05/10_percent_of_california_s_water_goes_to_almond_farming.html

¹³ Tipton, E. (2014). CA Department of Water Resources. Personal communication. “There have been no significant changes to the agricultural numbers I sent you last year.”

¹⁴ Patrick Healy, “California Drought Threatens Nation’s Most Productive Farming Valley” NBC News, September 1, 2014 <http://www.nbclosangeles.com/news/california/California-Drought-Threatens-Nations-Most-Productive-Farming-Valley-273339641.html>

¹⁵ Patrick Healy, “California Drought Threatens Nation’s Most Productive Farming Valley” FNBC News, September 1, 2014 <http://www.nbclosangeles.com/news/california/California-Drought-Threatens-Nations-Most-Productive-Farming-Valley-273339641.html>

¹⁶ See Stephanie Strom, “California’s Thirsting Farmland,” New York Times, April 20, 2014 http://www.nytimes.com/2014/04/21/business/energy-environment/californias-thirsting-farmland.html?_r=0&and Tim Linden, “California Nuts: Continued growth expected with drought offering a small bump in the road,” Western

Policymakers are responding to drought conditions by addressing water-use issues in the state. Governor Brown signed the first groundwater legislation in California in September 2014, making California the last state in the Western United States to regulate groundwater on private property.¹⁷ In November 2014, voters will decide whether or not to authorize the \$7.12 billion California Water Bond.¹⁸ The state of water policy and regulation continues to evolve and the impact of the drought on agricultural production and prices will certainly influence the market for institutional purchasers and individual consumers alike in the near future.

The production of livestock for meat and dairy is particularly water-intensive, and among the highest-earning agricultural products in some counties in the LA foodshed [see Figure 2].¹⁹ Reducing meat and consumption are a key strategy for minimizing water usage in food production. Policies such as “Meatless Mondays” at large institutions (a component of GFPP) can play a significant role by reducing demand for meat one day a week and educating consumers about the environmental impacts of meat consumption. California is also a key producer of dairy products and reducing their consumption could also contribute to the overall reduction of greenhouse gas emissions in the region; however, there is no clear campaign strategy around the reduction of dairy product consumption.

Greenhouse Gases

Greenhouse gas emissions from livestock production produces 18 percent of the world’s greenhouse gas emissions – a higher share than all transportation sectors combined.²⁰ More recent reports suggest that the livestock industry may actually account for closer to 50 percent of the world’s greenhouse gas emissions.²¹ The production of fruits, vegetables and nuts generates significantly less greenhouse gas emissions than the production of livestock for meat and dairy.

Key LA Food System Snapshot Metrics

- Percent of greenhouse gas emissions due to agriculture in California: 8% (37.86 out of 468.68 million metric tons)
- Percentage of agricultural greenhouse gas emissions due to livestock production in California: 63% (23.92 out of 37.86 million metric tons)

Growers, April 2014 <http://www.wga.com/magazine/2014/04/01/california-nuts-continued-growth-expected-drought-offering-small-bump-road>

¹⁷ Alexei Koseff, “Jerry Brown Signs Historic Groundwater Management Legislation,” Sacramento Bee, September 16, 2014 <http://www.sacbee.com/2014/09/16/6709605/am-alert-jerry-brown-signs-historic.html>

¹⁸ Melanie Mason, “California to vote on scaled-down \$7.5-billion water bond in November,” Los Angeles Times, August 13, 2014 <http://www.latimes.com/local/politics/la-me-pol-water-bond-20140814-story.html>

¹⁹ ¹⁹ California Department of Food and Agriculture, Agricultural Statistics Review 2013-2014 Report <http://www.cdfa.ca.gov/statistics/>

²⁰ United Nations. (2006). Livestock’s long shadow: Environmental issues and options. Rome, Italy: Food and Agriculture Organization.

²¹ Goodland, R., & Anhang, J. (2009). Livestock and Climate Change. In *State of the World 2011: Innovations that Nourish the Planet*. Retrieved from <http://www.worldwatch.org/sow11>

Discussion

While California is known for forward-thinking environmental legislation and regulation, reducing greenhouse gas emissions remains a major challenge. Agriculture in California emits about 8 percent of total greenhouse gases, compared to 9 percent nationally.²² The data show no change in course; both agricultural emissions and total statewide emissions show increases over the previous year.

It is important to note that this statewide rate of 8 percent only accounts for on-farm production, not the full lifecycle of emissions-- food distribution, storage or waste --and would be much higher if there were a way to measure the effects of the entire supply chain.

Equally important is that agriculture contributes to 75 percent of national nitrous oxide (N₂O) emissions, which are 300 times more powerful than carbon,²³ and 25 percent of methane (CH₄) emissions, which are 20 times stronger than carbon.²⁴

Agriculture is not subject to regulations on its greenhouse gas emissions under the California Global Warming Solutions Act of 2006, or AB 32,²⁵ but farms can participate in voluntary compliance and offsets, or credits that regulated firms can purchase to cover up to eight percent of their emissions cap. At present, there is only one official agricultural offset protocol, called the Livestock Offset Compliance Protocol, for biogas control system (BCS) installation.²⁶

No California farms are officially participating in the offset protocol at this time. There is anecdotal evidence that many farms in the LA foodshed are engaging in some form of emissions-reducing practices, though the lack of data makes these other voluntary measures difficult to quantify.²⁷

There are numerous strategies for greenhouse gas reduction in agriculture that could be explored further and have the potential to significantly improve the sustainability of California's food systems, particularly in the area of meat production and consumption.²⁸ Improved irrigation and fertilization methods, more efficient farm machinery and food transport vehicles, carbon sequestration, and energy production from biomass are just a

²² Environmental Protection Agency 2012 Greenhouse Gas Inventory data
<http://www.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2014-Chapter-6-Agriculture.pdf>

²³ Environmental Protection Agency "Overview of Greenhouse Gases: Nitrous Oxide"
<http://www.epa.gov/nitrousoxide/sources.html>

²⁴ Environmental Protection Agency "Overview of Greenhouse Gases:Methane Emissions"
<http://epa.gov/climatechange/ghgemissions/gases/ch4.html>

²⁵ California Air Resources Board AB 32 Overview <http://www.arb.ca.gov/cc/ab32/ab32.htm>

²⁶ California Air Resources Board Compliance Offset Protocol Livestock Projects, 2011
<http://www.arb.ca.gov/regact/2010/capandtrade10/coplivestockfin.pdf>

²⁷ As conveyed by Adam Kotkin of California Climate and Agriculture Network.

²⁸ Kari Hamerchlag, "US Agencies Consider a Diet for a Healthy Planet," Friends of the Earth Blog, posted September 14, 2014 <http://www.foe.org/news/blog/2014-09-us-agencies-consider-a-diet-for-a-healthy-planet-2>

few examples of practices that could be scaled up in the near future.²⁹ Identifying and studying farms that engage in these practices- for example, farms that use sustainable energy from biomass-- also add to our knowledge of agriculture's role in sustainability in the LA foodshed and can contribute to knowledge about the most effective strategies for farms in the region to contribute to overall greenhouse gas emissions reduction.

NOx and Fine Particulate Matter

While NOx (nitrogen oxide) is often associated with emissions from cars in smog-afflicted cities like Los Angeles, a major source is the added nitrogen in soil from synthetic fertilizers, pesticides, and livestock manure. Fine particulate matter, or PM2.5, also has both urban and agricultural origins, including agricultural burning. Both toxins add to ground level ozone and pose serious health concerns, particularly for people at high risk of respiratory disease.³⁰

Key LA Food System Snapshot Metrics

- Average amount of nitrogen oxide (NOX) emitted from agricultural production in LA foodshed in 2013: 26.56 tons/day
- Average amount of fine particles (PM2.5) emitted from agricultural production in LA foodshed in 2013: 6.37 tons/day

Discussion

Both nitrogen oxide and small particulate matter are regulated through ambient air quality standards set by the Environmental Protection Agency (EPA) in the Clean Air Act.³¹ In 2012, the EPA lowered the National Ambient Air Quality Standard for PM2.5 from 15 to 12 micrograms per cubic meter (a daily average). Los Angeles County has struggled to meet the more stringent standard, though air quality experts say it is on track to meet the three-year daily average of 12 micrograms per cubic meter over the next few years, coming in at an average of 12.55 micrograms per cubic meter in 2012.³²

There is further good news on the NOx and fine particulates emissions front: an average 26.56 tons per day of NOx and 6.37 tons per day of PM 2.5 were emitted from LA foodshed agriculture in 2012, both decreases from 32.74 tons per day and 10.32 tons per day in the previous year.³³ These figures do not include more significant sources of PM2.5 such as fuel combustion from food transport, but they do indicate the

²⁹ See "California Agriculture and Climate Change: Challenges and Opportunities for Profitability," USDA Natural Resources Conservation Service, undated
<http://www.suscon.org/cowpower/pdfs/CaliforniaAgricultureandClimateChange.pdf>

³⁰ Centers for Disease Control and Prevention, "Health Impacts of Fine Particles in Air,"
<http://ephtracking.cdc.gov/showAirHIA.action> and Environmental Protection Agency
<http://www.epa.gov/air/nitrogenoxides/health.html>

³¹ See EPA Ambient Air Quality Standards <http://www.epa.gov/air/criteria.html>

³² See South Coast Air Quality Management District 2012 Air Quality <http://www.aqmd.gov/docs/default-source/air-quality/historical-data-by-year/2012-air-quality-data-table.pdf?sfvrsn=8>

³³ California Air Resources Board 2012 Estimated Annual Average Emissions by county
<http://www.arb.ca.gov/ei/maps/statemap/cntymap.htm>

possibility that agriculture is actively moving in the right direction in other practices that affect emissions.

Pesticides

Pesticide use has many well-known consequences: contamination of air and groundwater, public health risks, including neurological disorders and cancer, and even higher risks to farm workers who are exposed to dangerously high levels of pesticides for prolonged periods of time.

Key LA Food System Snapshot Metrics

- Total pesticide use in LA foodshed was 28,905 tons in 2012
- Pesticides used for agriculture constituted 85 percent of total pesticide use in the LA foodshed in 2012

Discussion

California is known for its strict pesticide oversight; it was the first state to require full reporting of all pesticide use in agriculture.³⁴ According to the Department of Pesticide Regulation (DPR), there have been numerous “fluctuations” in pesticide use since 1990, with little in the way of discernable trends.³⁵ There may have been shifts in what types of pesticides are most commonly applied and their threat to human and environmental health, though these trends based on pesticide classification are viewed differently by experts on different sides of the debate on pesticide use.³⁶

What we know of the LA foodshed is that total pesticide use increased 1,000 tons to approximately 28,905 tons in 2012, while the percentage used for agriculture amounted to 85 percent, compared to 86 percent the previous year. The most commonly used pesticides in the LA foodshed can be seen in Figure 3. Based on these figures it appears that pesticide usage amounts have remained largely unchanged. A question requiring more detailed research is how to move agriculture in the LA foodshed away from the use of any pesticides, and how methods such as Integrated Pest Management (IPM) can become more widespread among food growers.³⁷

Much like the case of water, different crops are susceptible to different insects, fungi, and other blight, and therefore require different measures to eradicate them. Part of the next steps in analyzing pesticide use in the LA foodshed is to match some of the most commonly grown crops to the types of pesticides used and what specific strategies of IPM could be used efficiently and effectively on farms in the region.

³⁴ See Department of Pesticide Regulation See DPR <http://www.cdpr.ca.gov/docs/pur/purmain.htm>

³⁵ CA Department of Pesticide Regulation, “Summary of Pesticide Use Report Data - 2012,” <http://www.cdpr.ca.gov/docs/pur/pur12rep/12sum.htm#pestuse>

³⁶ This refers to “restricted use pesticides” by the DPR. From Wells, Jim, “Pesticide Use Trends in California Agriculture,” Environmental Solutions Group, no date given http://www.foodandfarming.info/docs/508Pesticide_Use_Trends_Report_Final.pdf

³⁷ More information on Integrated Pest Management here: <http://www.ipm.ucdavis.edu/GENERAL/pesticides.html> See also this report from UC Davis for public agencies implementing IPM: <http://anrcatalog.ucanr.edu/pdf/8093.pdf>

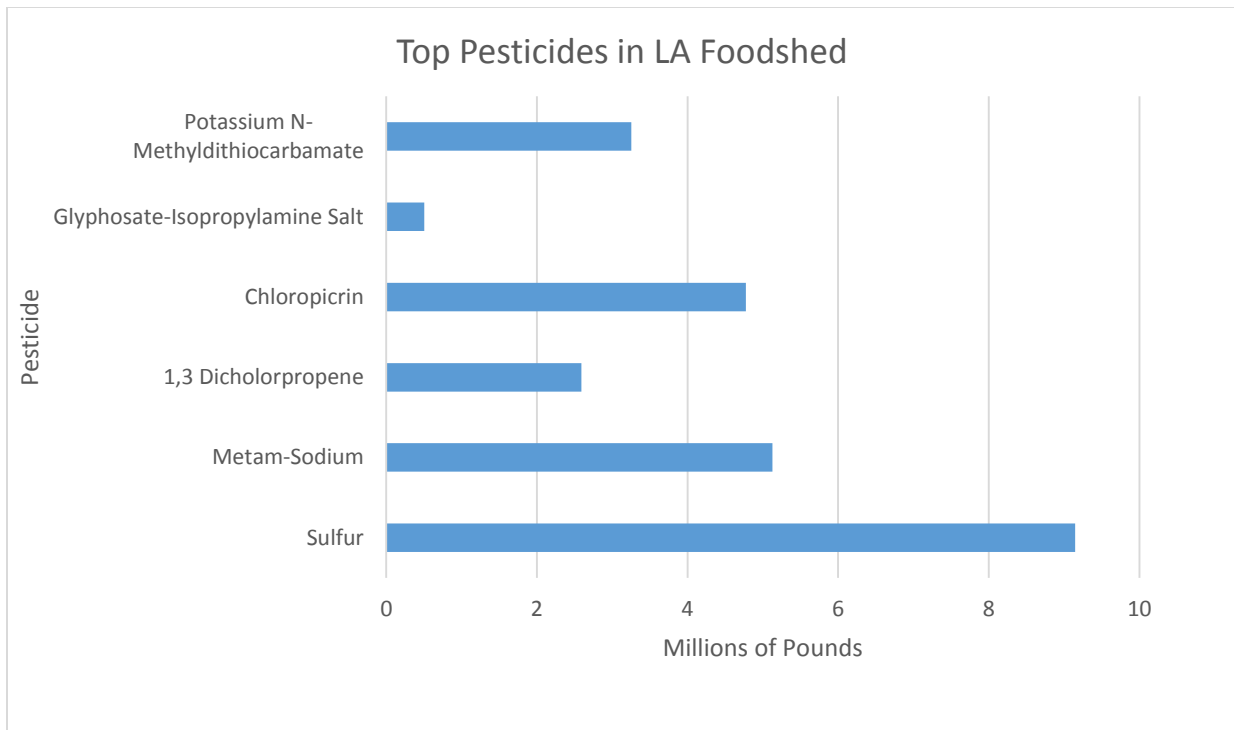


Figure 3: Pesticide Usage in the LA Foodshed

Recommendations/Conclusion

An analysis of the state of regional foodshed and environmental indicators demonstrates that in the short term, trends relating to farmland maintenance, farm size, and environmental impacts of agriculture in the region are largely being maintained or worsening. Key policies already in place, including the Good Food Purchasing Policy, attempt to contribute to changing these patterns over the long term. Organizations such as LASC could be instrumental in the contribution to overall research and policy advocacy that supports the continued expansion and understanding of the impact of policies such as GFPP. The following are key areas in which LASC's expertise and policy support could make a particularly strong contribution within the landscape of food policy:

- 1) *Support for an evaluation of the Good Food Purchasing Policy:*
The LA Food Policy Council has established a nationally leading program in the Good Food Purchasing Policy that puts specific guidelines in place to support small and medium-sized local producers and encourage the broad adoption of sustainable practices by regional farmers. One component of the Good Food Purchasing Policy that presents a challenge is evaluating the impact of changes in supply chain practices on farmland conservation and environmental sustainability. LASC can contribute significantly to the continued success of the policy by partnering with LAFPC to evaluate key impacts and contribute to broader policy discussions around production practices.
- 2) *Research on the Impact of Integrated Pest Management:*
Despite California's leadership in pesticide regulation, use of pesticides appears to be continuing to increase in the LA foodshed. LASC can support efforts to decrease pesticide usage by contributing to the improved understanding of how pesticides are used on major crops in the region and which specific IPM strategies can be most effective for these crops. Additionally, some cities in California have enacted policies related to IPM (<http://www.pesticidereform.org/section.php?id=45>), and there may be an opportunity for LASC to support state level policy action or pursue additional local level IPM policies.
- 3) *Advocate to Include Agriculture Strategies in Greenhouse Gas Emissions Reduction:*
Agriculture is currently not subject to greenhouse gas regulations under AB 32. Some environmental groups have advocated for its broader inclusion under GHG regulations, but significant opportunity remains to work on policy that incorporates specific on-farm GHG reduction strategies into the broader regulatory framework, such as renewable energy use. LASC could aid in the exploration of the feasibility of some of these strategies and support inclusion of the most effective strategies in GHG emissions reduction programs.
- 4) *Prevent Loss of Regional Farmland:*
The data examined indicates a loss of farms in the LA foodshed over the last five years, but doesn't provide insight into trends on change in land use, or how much land has been converted to other uses. LASC could support work being done to protect small and mid-sized farmers by contributing to the overall understanding of changes in the number of farms and farmland conversion, and if appropriate, supporting additional state and local policies that encourage the maintenance of farmland in production.

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- 5) *Reduce Meat Consumption to Address Water Impacts:* Agricultural water usage in the LA foodshed remains consistent from previous data, despite worsening drought conditions. Of particular interest in this area are policies which discourage livestock production and consumption (for instance expansion of “Meatless Mondays” or a broader dairy consumption reduction strategy), as livestock production is a leading consumer of water used for agriculture.