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As California's Drought Goes On, What Can Farmers Do?

By **Kendall Lambert** on **February 26, 2014**

This is the third and final post of our series on the California drought. Read parts one and two of this series.

As we are all very much aware, California is now faced with an historic drought. Farmers generally have two choices when it comes to watering their crops: Surface water, which comes from sources like streams, rivers, and storm runoff, and groundwater, which is generally accessed through wells. At the moment, farmers in California have much less of the former, but may be unable to sufficiently and sustainably substitute groundwater. There are, however, many things farmers can do save water, or practice good 'water stewardship' practices to optimize farm production, save money, and benefit people and the environment.

What Can Farmers Do?

A water stewardship approach takes and integrated view of water's place in the farm's ecosystem. It's also

effective, relatively inexpensive, and if it's put in place the Department of Water Resources (DWR) estimates that California agriculture can save 1 million acre-feet of water every year (without growing less food!).

Many of these tools and techniques are not new. But according to the Pacific Institute, farmers have been slow to adopt on-farm water stewardship practices. There are many reasons why: American Farmland Trust surveyed growers and found that risk, cost, and a lack of information are the biggest barriers to adopting new practices. The cost of water has also been relatively low in California, which is a disincentive to conserve. On top of all this, the programs that provide much-needed education, outreach, and technical assistance are underfunded and understaffed. For example, with only 200 farm advisors, the number of UC Cooperative Exter down 40% in 2010 compared to what it was in the 1990s.

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On the bright side, this means there are still opportunities for farmers to adopt these practices farms much more resilient in the face of drought.

So what can farmers do? Below are a few on-farm practices featured in the California Agricult Stewardship Initiative (CAWSI) online resource center:

Irrigation:

- **More efficient systems**. Micro/drip irrigation can reduce water use by 30-50 percent.
- **Irrigation scheduling**. Based on crop water needs, growers can use some combination of soil moisture monitoring, weather station information, and crop data as appropriate.
- **System maintenance**. Regular inspections and upkeep improve the efficiency and uniformity of irrigation equipment.
- **Plan ahead**. Farmers can also work with local Natural Resource Conservation Service (NRCS) staff to create irrigation plans and consult the NRCS Guide to Effective Irrigation Practices.

Recycled Water:

- Growers can use treated municipal wastewater, reuse agricultural runoff or tailwater from irrigation events, or even use household grey water or roof runoff for small scale crop irrigation. For instance, farm advisors estimate in California's Marin County that with 40,000 square feet of roofing, growers in the Chileno/Hicks Valley area could collect over an acre-foot of roof runoff for reuse.

Soil Management:

- By better managing their soil, growers can help soil hold more water, while decreasing erosion, and filtering more water faster. Some options include tilling the fields less (a practice known as "no-till farming" or "conservation tillage"), using soil amendments such as mulch or compost, and planting winter cover crops (though these do require winter rains to grow). Through these techniques, growers can build soil organic matter (SOM); studies have shown that for every one percent increase in SOM, soils can hold an additional 16,000 gallons of water in the top foot of soil.

On-Farm Ponds:

- When winter rains do fall, farms with their own ponds capture and store rainwater to use later in the season. Ponds can also be used to store runoff or tailwater from irrigation to reuse. Penn State Extension estimates that one two-acre, clay-lined pond with an average depth of seven feet can provide roughly 10 acre-feet of irrigation water when filled.

This is by no means an exhaustive list of the things farms can do to save water. Depending on the severity of

water scarcity, growers may even consider switching to more drought-tolerant crops or even fallowing fields.

Growers should consult with local UC Cooperative Extension (UCCE) Advisors, NRCS staff, Resource Conservation Districts (RCDs), or their relevant commodity group, such as the Almond Board or California Sustainable Winegrowing Alliance, for crop-specific water management advice during and after the drought.

What Can Lawmakers Do to Support Farmers?

Community Alliance with Family Farmers *(*CAFF), The California Climate and Agriculture Network (CalCAN), and other groups believe that farmers need more technical and financial support when it comes to facing drought and other effects of climate change.

California lawmakers have an opportunity to direct funding to on-farm water stewardship practices with the upcoming 2014 Water Bond.. In the past, Water Bond funding has overwhelmingly been allocated to large infrastructure projects, such as dams and pipelines. For example, CAFF estimates that nearly 70 percent of the money set aside since 2005 for the Proposition 50 Agricultural Water Use Efficiency grant, has gone to implementation and infrastructure projects.

Large infrastructure projects take years to complete and, given the changing climate, the water quantity outcomes are uncertain. Meanwhile, on-farm water stewardship practices can result in immediate individual water savings, as well as more resiliency and self-sufficiency for farmers. The more farmers that use these tools, the greater the collective water savings will be.

Farmers and climate advocates want to see a water bond that directs funding to support on-farm water stewardship in the following areas:

- **Outreach, Education, and Technical Assistance:** Provide funding to support groups such as the Resource Conservation Districts, University of California Cooperative Extension, Natural Resources Conservation Service, and similar organizations who supply farmers with the knowledge to adopt new practices.
- **Research and Development:** Provide funding for universities and researchers to further develop best management practices for on-farm water use efficiency.
- **Financial Assistance:** Provide direct financial assistance to growers in the form of loans or cost shares to assist with the financial risk of adopting new practices.

There are also opportunities for a portion of California's cap-and-trade funds to go towards water stewardship activities that achieve greenhouse gas emissions reductions, with associated energy savings in having to move less water.

There is still time for spring rains to come, but in the event that the drought continues and disaster relief is needed, the California Department of Food and Agriculture (CDFA) has put together a Drought Resources webpage with news and information. Farmers can also check there for Federal and State Assistance programs, including crop insurance, disaster assistance programs, and emergency loan services.