

Drought costs California agriculture \$1.84B and 10,100 jobs in 2015

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A dry field sits beside an orchard in Merced. The drought is expected to cost California's agricultural economy \$1.84 billion and 10,100 jobs in 2015, according to a UC Davis Center for Watershed Sciences report. Credit: Gregory Urquiaga

The drought is tightening its grip on California agriculture, squeezing about 30 percent more workers and cropland out of production than in 2014, according to the latest drought impact report by the UC Davis

Center for Watershed Sciences.

In 2015, the state's agricultural economy will lose about \$1.84 billion and 10,100 seasonal jobs because of the [drought](#), the report estimated, with the Central Valley hardest hit.

The analysis also forecasts how the industry will fare if the drought persists through 2017.

'Not a free lunch'

Currently, the industry overall remains robust. The agricultural economy continues to grow in this fourth year of [severe drought](#), thanks mostly to the state's vast but declining reserves of groundwater, which will offset about 70 percent of the surface [water](#) shortage this year, the researchers said.

California is the world's richest food-producing region. Continued strong global demand and prices for many of its fruits, nuts and vegetables has helped sustain the farm economy along with intrastate water transfers and shifts in growing locations.

"We're getting by remarkably well this year—much better than many had predicted—but it's not a free lunch," said lead author Richard Howitt, a UC Davis professor emeritus of agricultural and resource economics.

The heavy reliance on groundwater comes at ever-increasing energy costs as farmers pump deeper and drill more wells. Some of the heavy pumping is in basins already in severe overdraft—where groundwater use greatly exceeds replenishment of aquifers—inviting further land subsidence, water quality problems and diminishing reserves needed for future droughts.

Further, several small rural communities continue to suffer from high unemployment and drying up of domestic wells because of the drought, particularly in the Tulare Basin.

"If a drought of this intensity persists beyond 2015, California's agricultural production and employment will continue to erode," said co-author Josué Medellín-Azuara, a water economist with the UC Davis Center for Watershed Sciences.

Major conclusions

The UC Davis team used computer models and the latest estimates of surface water availability from state and federal water projects and local water districts. They forecast several drought-related impacts in the state's major agricultural regions for the current growing season, including:

- The direct costs of drought to agriculture will be \$1.84 billion for 2015. The total impact to all economic sectors is an estimated \$2.74 billion, compared with \$2.2 billion in 2014. The state's farmers and ranchers currently receive more than \$46 billion annually in gross revenues, a small fraction of California's \$1.9 trillion-a-year economy.
- The loss of about 10,100 seasonal jobs directly related to farm production, compared with the researchers' 2014 drought estimate of 7,500 jobs. When considering the spillover effects of the farm losses on all other economic sectors, the employment impact of the 2015 drought more than doubles to 21,000 lost jobs.
- Surface water shortages will reach nearly 8.7 million acre-feet, which will be offset mostly by increased groundwater pumping of 6 million acre-feet.
- Net water shortages of 2.7 million acre-feet will cause roughly

542,000 acres to be idled—114,000 more acres than the researchers' 2014 drought estimate. Most idled land is in the Tulare Basin.

- The effects of continued drought through 2017 (assuming continued 2014 water supplies) will likely be 6 percent worse than in 2015, with the net water shortage increasing to 2.9 million acre-feet a year. Gradual decline in groundwater pumping capacity and water elevations will add to the incremental costs of a prolonged drought.

Groundwater laws could help

The scientists noted that new state groundwater laws requiring local agencies to attain sustainable yields could eventually reverse the depletion of underground reserves.

"The transition will cause some increased fallowing of cropland or longer crop rotations but will help preserve California's ability to support more profitable permanent and vegetable crops during drought," said co-author Jay Lund, director of the UC Davis Center for Watershed Sciences.

More information: Report:
[watershed.ucdavis.edu/files/biblio/Final_Drought
%20Report_08182015_Full_Report_WithAppendices.pdf](https://watershed.ucdavis.edu/files/biblio/Final_Drought%20Report_08182015_Full_Report_WithAppendices.pdf)

Provided by UC Davis

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