

STATE OF CALIFORNIA
Budget Change Proposal - Cover Sheet
 DF-46 (REV 09/14)

Fiscal Year 2016-17	Business Unit 8570	Department Food and Agriculture	Priority No. 9
Budget Request Name 8570-009-BCP-DP-2016-GB		Program 6590- GENERAL AGRICULTURAL ACTIVITIES	Subprogram

Budget Request Description
 CA Drought Economic Impacts and Solutions for Agriculture

Budget Request Summary

The California Department of Food and Agriculture requests one-time \$200,000 General Fund in Fiscal Year 2016-17 to validate and conduct economic analysis studies to determine the ongoing economic impacts of California's drought on the State's agriculture sector and identify potential solutions.

Requires Legislation <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Code Section(s) to be Added/Amended/Repealed	
Does this BCP contain information technology (IT) components? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes, departmental Chief Information Officer must sign.</i>	Department CIO	Date
For IT requests, specify the date a Special Project Report (SPR) or Feasibility Study Report (FSR) was approved by the Department of Technology, or previously by the Department of Finance. <input type="checkbox"/> FSR <input type="checkbox"/> SPR Project No. Date:		

If proposal affects another department, does other department concur with proposal? Yes No
Attach comments of affected department, signed and dated by the department director or designee.

Prepared By Amrith Gunasekara, PhD	Date 11/13/15	Reviewed By Nathan Johnson	Date 11/16/15
Department Director <i>Kevin Masuhara</i>	Date <i>1-6-16</i>	Agency Secretary <i>Karen Ross</i>	Date <i>1-6-16</i>

Department of Finance Use Only

Additional Review: Capital Outlay ITCU FSCU OSAE CALSTARS Dept. of Technology

BCP Type: Policy Workload Budget per Government Code 13308.05

PPBA <i>[Signature]</i>	Date submitted to the Legislature <i>1/7/16</i>
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BCP Fiscal Detail Sheet

BCP Title: CA Drought Economic Impacts and Solutions for Agriculture

DP Name: 8570-009-BCP-DP-2016-GB

Budget Request Summary

	FY16					
	CY	BY	BY+1	BY+2	BY+3	BY+4
Operating Expenses and Equipment						
5340 - Consulting and Professional Services - External	0	200	0	0	0	0
Total Operating Expenses and Equipment	\$0	\$200	\$0	\$0	\$0	\$0
Total Budget Request	\$0	\$200	\$0	\$0	\$0	\$0

Fund Summary

Fund Source - State Operations						
0001 - General Fund	0	200	0	0	0	0
Total State Operations Expenditures	\$0	\$200	\$0	\$0	\$0	\$0
Total All Funds	\$0	\$200	\$0	\$0	\$0	\$0

Program Summary

Program Funding						
6590 - General Agricultural Activities	0	200	0	0	0	0
Total All Programs	\$0	\$200	\$0	\$0	\$0	\$0

Analysis of Problem

A. Budget Request Summary

The California Department of Food and Agriculture (CDFA) requests one-time \$200,000 General Fund in Fiscal Year (FY) 2016-17 to validate and conduct economic analysis studies to determine the ongoing economic impacts of California's drought on the State's agriculture sector and identify potential solutions. California is currently experiencing a historic drought, which is expected to continue. In 2014 and 2015, CDFA entered into an agreement with the University of California, Davis (UC Davis) for economic analyses studies, based on modeling, to obtain critical information on the economic impacts to agriculture, as a result of the drought, in order to provide information and assistance to farmers, ranchers, and the farm worker community. The analyses done in 2014 and 2015 have led to the distribution of emergency drought funding for food and housing assistance. The funds requested in this proposal will support an additional economic study for 2016 and 2017, and work to validate the 2016 and 2017 information with county agricultural farm reporting data.

CDFA does not have adequate tools and technical expertise to determine the economic impacts from the drought on California's valuable agriculture sector and identify potential solutions based on geographic location and crops. The information expected to be obtained from this study is critical to quantifying the extent of the drought and for advocating for financial and technical assistance to farmers and ranchers. Additionally, the study will explore potential opportunities to mitigate and prepare for future droughts through management practices and other strategies.

B. Background/History

California's \$54 billion agriculture industry has a significant role in California's economy. Agricultural food production is not possible without adequate water. In January 2014, the Governor declared a state of emergency for California as a result of the drought and asked State agencies to take all necessary actions to prepare for water shortages. One of those actions taken by CDFA was to fund an economic analysis study on the impact of the drought on California agriculture to provide information not only to farmers, but also to other State agencies, federal government, agricultural industry, and the general public.

UC Davis researchers conducted the 2014 and 2015 economic analyses by using the Statewide Agriculture Production (SWAP) and Impact Analysis for Planning (IMPLAN) models which showed the drought will have significant impacts on the agricultural sector. IMPLAN is a model used for rapid response drought impact analysis which has been used in various studies in conjunction with the SWAP model to estimate the effects of drought, flooding, habitat and changes in agricultural water diversions on the regional economy. The IMPLAN is the most widely used input-output model utilized extensively in economics, planning and engineering studies to account for interrelationships among sectors within regional economies and ultimately to ascertain the full economic impacts of regional economic activity.

In 2014, results from the models concluded that the direct costs to agriculture totaled approximately \$1.5 billion, which accounted for a net revenue loss of approximately three percent of the State's total agricultural value. Additionally, the study estimated the total statewide economic cost of the 2014 drought at \$2.2 billion with a loss of 17,100 seasonal and part-time jobs related to agriculture (representing 3.8 percent of farm unemployment). Results also included the amount of irrigated cropland that would be fallowed, potential for groundwater to be over-drafted, and the effect on consumer food prices. The 2015 study continued to account for the economic impact of the drought with quantitative values. For example, the 2015 data predicted an estimated \$2.74 billion in economic losses, compared with \$2.2 billion in 2014. Further, expected was a loss of about 10,100 seasonal jobs directly related to farm production, compared with the researchers' 2014 drought estimate of 7,500 jobs. Roughly 542,000 acres of agricultural land would be left idled — 114,000 more acres than the researchers' 2014 drought estimate. The studies concluded that the drought is expected to continue.

Analysis of Problem

C. State Level Considerations

This proposal is consistent with CDFA's mission to serve the citizens of California by promoting and protecting a safe, healthy food supply, and enhancing local and global agricultural trade, through efficient management, innovation, and sound science, with a commitment to environmental stewardship. Furthermore, the economic impact information resulting from the study will inform other State agencies, the Legislature, federal government, agricultural industry, and the public on the economic impacts of California's drought. For example, this economic analysis will include the identification of fallowed land along major highways that could generate dust and interfere with driving visibility, which will help the Governor's Office of Emergency Services (OES) to ensure public safety on highways. Additionally, this information will assist the Department of Water Resources in managing water supplies and maintaining sustainable use of groundwater resources.

D. Justification

The 2014 and 2015 economic impact analyses were only two of several actions taken by CDFA to address the ongoing drought. There is a significant need to validate the 2016 economic modeling results with actual information on agricultural production data provided by county agricultural commissioners and also complete a similar economic analysis for 2017. This information is critical to ensuring CDFA, other State agencies, federal government, agricultural industry, and the public are informed of the potential economic impacts of another drought year. CDFA does not have adequate tools and technical expertise to determine the economic impacts from the drought to California's valuable agriculture sector and identify potential solutions based on geographic location and crops. The information expected to be obtained from this study is critical to quantifying the extent of the drought and advocating for financial and technical assistance to farmers, ranchers, and farm workers. Additionally, the study will explore potential opportunities to mitigate and prepare for future droughts through management practices and other strategies. The 2014 and 2015 economic analyses were conducted by UC Davis scientific researchers and economists. UC Davis has the technical resources and expertise to complete the modeling work related to the economic impacts analysis.

The proposed study will consist of the following activities:

- Drought impacts, forecasting, and model validation (\$120,000):
 - Update the SWAP model based on observation of fallowed land and groundwater use;
 - Determine economic impacts of the drought on California agriculture using the updated SWAP model integrated with the IMPLAN model;
 - Collect fallowed land information using remote sensing land imaging data by satellite (also called Landsat Data Continuity Mission or LANDSAT) with a focus on Kern County or other areas severely affected by water shortages; and
 - Identify areas with potential for dust issues based on LANDSAT image analysis of fallowed land, particularly along major highways to assist OES with dust mitigation measures along highways to maintain visibility and public safety.
- Groundwater and agriculture (\$50,000):
 - Provide information on groundwater use in agriculture and the impact of overdraft of wells.
- Explore the potential and use of water markets and propose drought mitigation strategies (\$30,000):
 - Identify potential short and long term drought mitigation and adaptation measures for future events including management practices (e.g., planting cover crops to reduce dust, building soil organic matter for water holding capacity) and market-based mechanisms.

Without this study, the State will not be prepared to assist the agriculture sector during the drought, which is expected to continue and lead to further economic hardship with potential loss of food production and increased food prices.

Analysis of Problem

E. Outcomes and Accountability

CDFA will be responsible for ensuring the tasks identified above are achieved in accordance with the timeframes identified in the Implementation Plan section of this proposal. The modeling and economic impact activities identified above will be completed by UC Davis, in coordination with CDFA's Science Advisor to the Secretary. Upon completion of the study, CDFA will be able to determine the California drought's 2016 and potential 2017 economic impacts on the State's agriculture sector and identify potential solutions.

F. Analysis of All Feasible Alternatives

Alternative #1: Approve one-time \$200,000 General Fund in FY 2016-17 to validate and conduct economic analysis studies to determine the ongoing economic impacts of the drought to the State's agriculture sector and to identify potential solutions.

Advantages: CDFA will be able to obtain critical information on the economic impacts of the ongoing drought on the California agriculture sector. Additional benefits to be realized include identifying short and long-term drought mitigation and adaptation practices, regions where dust from fallowed land would impact highway driving visibility, and impacts to existing and future groundwater reserves. The information resulting from the study is critical in quantifying the extent of the drought and for advocating for financial and technical assistance to help farmers, ranchers, and farm workers. The results help CDFA secure assistance to farmers experiencing financial difficulties as a result of the drought. Additionally, the study will explore potential opportunities to mitigate and prepare for future droughts through management practices and other strategies (e.g., market based water systems).

Disadvantages: This alternative increases the obligation to the General Fund by \$200,000.

Alternative #2: Do not fund the economic study identified in this proposal.

Advantages: There would be no obligation to the General Fund.

Disadvantages: CDFA, other State agencies, the Legislature, federal government, agricultural industry, and the public will not have information on the economic impacts of the ongoing drought for the California agriculture sector. CDFA will not be able to assist growers by providing short and long term drought mitigation and adaptation strategies and will have difficulty securing federal funds to support farmers experiencing financial difficulties as a result of the drought. Consequently, the State's agriculture sector will continue to experience economic hardship with potential loss of food production and increased food prices.

Alternative #3: Pursue federal funds.

Advantages: There would be no obligation to the General Fund.

Disadvantages: Future federal fund allocations for such economic impact studies are unknown at this time. In the rare case that federal funds were identified, it is difficult to predict if those funds can be secured in a timely manner to complete the drought economic analysis and impacts to California agriculture for 2016 and 2017.

Analysis of Problem

G. Implementation Plan

- July 2016 – UC Davis will provide a report to CDFA with modeled economic impacts to California agriculture from the 2016 drought
- July to August 2016 - Identify areas with potential for dust issues based on LANDSAT image analysis from 2015 fallowed land, particularly along major highways to ensure dust mitigation measures are taken to maintain highway visibility and public safety
- July to October 2016 – Conduct a post assessment of the 2015 drought impacts by using the 2014 and 2015 agricultural commissioner reports on county crop production (published in 2015 and 2016) to validate the 2015 and 2016 modeled results
- July to October 2016 - Identify potential short and long term drought mitigation and adaptation measures for future events including management practices and market-based mechanisms
- July to October 2016 - Use fallowed land information using remote sensing LANDSAT data collected in 2015 with a focus on Kern County or other areas severely affected by water shortages to validate the 2015 economic impact information and calibrate the models
- July to December 2016 - Collect fallowed land information using remote sensing LANDSAT data for 2016 with a focus on Kern County or other areas severely affected by water shortages
- October 2016 – Report on potential short- and long-term drought mitigation and adaptation measures for future events including management practices and market-based mechanisms
- November 2016 and June 2017 – Report and provide information on groundwater use in agriculture and the impact of overdraft of wells
- January to June 2017 – Complete economic impacts to California agriculture of a 2017 drought scenario using the updated SWAP model integrated with the IMPLAN model
- January to June 2017 – Use fallowed land information using remote sensing LANDSAT data collected in 2016 with a focus on Kern County or other areas severely affected by water shortages to validate the 2016 economic impact information and calibrate the models
- February to June 2017 – Use 2015 and 2016 LANDSAT data to determine areas of dust development along major highways to ensure dust mitigation measures are taken to maintain highway visibility and public safety

H. Supplemental Information

CDFA will enter into a \$200,000 agreement with UC Davis to validate and conduct economic analysis studies to determine the ongoing California drought's economic impacts to the State's agriculture sector and to identify potential solutions.

I. Recommendation

CDFA recommends approval of Alternative #1, providing one-time \$200,000 General Fund in FY 2016-17 to validate and conduct economic analysis studies to determine the ongoing California drought's economic impacts to the State's agriculture sector and to identify potential solutions.