UNDERSTANDING WATER SHORTAGE AFFECTS ON FARMLAND IN CALIFORNIA

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ABSTRACT:

The impact of severe drought and water usage limitations on farmland in California has become an increasingly important topic of discussion for researchers and remote sensing analysts in drought quantification. From the discussions, a project emerged linking the research efforts of USDA National Agricultural Statistics Service (NASS), NASA Ames Research Center, USGS Earth Resources Observation and Science, and the California Department of Water Resources to tackle the questions surrounding the water shortages in farmland in California using the latest in remote sensing technology and administrative data collection.

One component of the project is a land cover geospatial classification developed by NASS called the Cropland Data Layer (CDL). The CDL is the culmination of agricultural ground data collected by the Farm Service Agency during the current growing season from farmers within California and satellite imagery collected from the Disaster Monitoring Constellation and Landsat 8. Using current information on crop type and planting location collected in the farm administrative data and from seasonal satellite images, researchers at NASS are able to identify and locate many different types of land cover including fallowing fields. Between the months of June and October a binary mask identifying fields classified as fallow is created from the CDL and distributed to fellow researchers and project stakeholders. The CDL idle mask and components created by the other researchers are being used to understand and quantify the resulting impact of water shortages on farmland located in one of the most highly productive, diverse, and profitable agricultural states in the country.