

# GLOBAL PRECIPITATION MEASUREMENT MISSION APPLICATIONS

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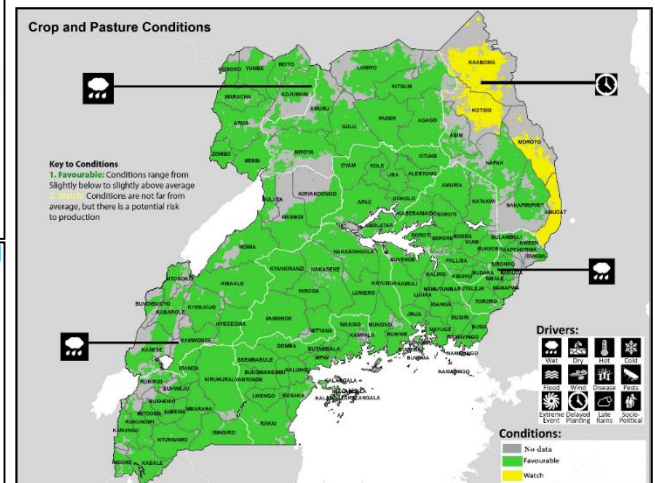
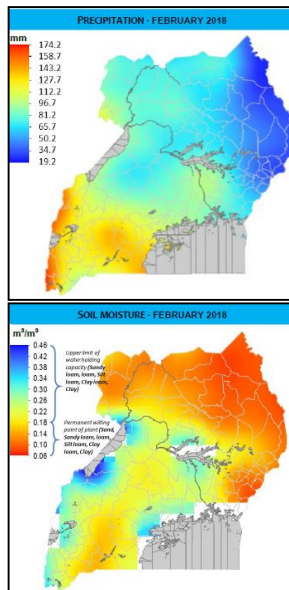
## Water Resources, Agricultural Forecasting & Food Security

Growing human population, increased demand for water and energy, and a changing climate have contributed to concerns of how freshwater resources and food supply and production may be stressed. Both water resource managers and the agricultural community need to know the amount, distribution, timing and onset of seasonal rainfall to prepare for freshwater shortages and forecast crop yields. Remotely sensed precipitation estimates play a key role in predicting changes in freshwater supply and agricultural forecasting. The Water Resources, Agricultural Forecasting and Food Security applications area highlights examples and encourages the use of GPM precipitation data to analyze and forecast changes that affect water resources and its subsequent impact on agricultural productivity.



Credit: USDA FAS

## CASE STUDY: Monitoring Crop Conditions throughout Uganda



*U-NIEWS, Vol. 2, Issue No. 17: Maps created with satellite precipitation data (top left) and soil moisture (bottom left) for February 2018. Crop and pasture conditions using satellite data as variables (right).*

The National Emergency Coordination and Operations Centre (NECOC), with the support of United Nations Development Programme (UNDP), is Uganda's central facility for early warning and the coordination of emergency and crisis response and recovery action. NECOC provides publicly available monthly bulletins, U-NIEWS (Uganda National Integrated Multi Hazard Early Warning System), to understand crop and pasture conditions, food insecurity, weather/climate forecast and to determine anticipated disasters while providing disaster management and humanitarian aid information.

Each month, NASA rainfall data are combined with soil moisture, temperature, and evapotranspiration data to analyze crop and pasture conditions in Uganda at the national and sub-national level to determine crop production risks. This information enables NECOC and UNDP to determine the probability of food insecurity and other disasters such as flooding and landslides to issue warnings and alerts. The data is analyzed and shared among government departments, parliament ministers, diplomatic missions, academics, UN Agencies, NGOs, farmer organizations, and the public via emails.



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