



Natural Resources Conservation Service

# NRCS and Drought:

## Investing in Water Conservation & Resilience



Puerto Rico and the U.S. Virgin Islands (USVI) are in the grip of a historic drought. Eastern Puerto Rico, eastern parts of St. Thomas and St. John, and the entire islands of Vieques, Culebra, and St. Croix have suffered through over three months without significant rainfall.

Although little can be done to control rainfall events, technical experts at NRCS can help producers in Puerto Rico and the USVI apply science-based conservation solutions to build resilience in their operations and mitigate against the impacts of drought. Below are examples of conservation practices NRCS can help farmers install to deal with the impacts of drought.

### Cropland

The goals of rain-fed cropping systems are to: increase the amount of water that is absorbed into the soil (*infiltration*), minimize the loss of moisture through evaporation, improve soil water availability, and increase water use efficiency through improved soil management.

Conservation practices such as *cover crops* and *crop residue management* can help soils absorb rain-drop energy and slow runoff, allowing more time for water infiltration. *Riparian forest buffers* trap sediment, organic matter, nutrients and pesticides in surface runoff from agricultural lands bared by drought, and reduce excess nutrients and other chemicals in shallow ground water flow.



NRCS can help farmers conduct comprehensive *irrigation water management* assessments to identify water application inefficiencies by comparing crop water uptake to the existing irrigation system. Assessments help produce more efficient irrigation system designs using NRCS standards and specifications to increase efficient water use. Benefits for farmers include higher yields, as well as reduced water demands, environmental impacts and costs. *Water management practices* provide farmers

U.S. Drought Monitor  
Puerto Rico

August 25, 2015  
(Released Thursday, Aug. 27, 2015)  
Valid 8 a.m. EDT

	Drought Conditions (Percent Area)				
	None	D0-D4	D1-D4	D2-D4	D3-D4
Current	27.23	19.78	33.92	44.96	24.91
Last Week	13.46	39.54	33.92	44.96	24.91
3 Month Avg	44.91	55.10	17.04	0.00	0.00
Start of Calendar Year	98.04	3.16	0.00	0.00	0.00
Start of Water Year	91.07	10.93	2.62	0.00	0.00
One Year Ago	76.40	21.60	3.99	0.00	0.00



Intensity:  
D0 Anomally Dry  
D1 Moderate Drought  
D2 Severe Drought  
D3 Extreme Drought  
D4 Exceptional Drought

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<http://droughtmonitor.unl.edu/>

- Over 86% of Puerto Rico and the USVI are under a water deficit.
- Almost 25% of Puerto Rico is under *extreme drought* and 45% is under *severe drought*.
- This is the third driest period in Puerto Rico since 1898, and it is expected to last through the end of the year.
- Puerto Rico is under the strictest water rationing in its history. The island's main reservoir is shrinking; many areas will receive water only 1 out of every 3 or 4 days.
- Puerto Rico's severe drought is forcing businesses to temporarily close, public schools to cancel breakfast service and people to find creative ways to stay clean amid sweltering temperatures ([US News & World Report](#)).
- Severe drought in St. Croix has parched pastures, dried up ponds, and killed a large number of livestock.





and ranchers with tools to improve water resource management, monitoring and crop and pasture quality. Better management means better efficiency, more available water, and lower costs.

## Pasture

**Rotational grazing** yields well-managed, healthy pastures with increased soil cover to improve water use efficiency and help maintain pastures during drought conditions. **Grazing land mechanical treatment** reduces water runoff and increases infiltration. **Silvopasture** can provide long-term erosion control, improve water quality and reduce heat stress. **Exclusion fences** keep grazing animals out of water bodies to help protect sensitive stream banks and shorelines weakened by drought, and maintain or improve water quality.



## Livestock

Providing enough water is essential for livestock production. Insufficient high-quality water will quickly reduce animal performance, so producers are challenged to provide livestock with plenty of good, clean water and shade during times of drought. This is why many producers are now opting to install and manage more efficient livestock watering equipment. Water availability is critical, especially when adopting year-round grazing. Water can be supplied by ponds, wells, springs, and water conveyance systems. Water can also be harvested from farm buildings' roof runoff and stored in tanks or cisterns.

NRCS can help producers design and install more efficient livestock watering systems. **Spring development** collects water from springs or seeps to provide improved quantity and/or quality of water for livestock, wildlife or other agricultural uses. **Watering system designs** provide better distribution of livestock watering facilities to boost pasture and rangeland use.

## FEEDING LIVESTOCK IN DRY WEATHER

Dry weather can be stressful on livestock. Pastures and brush dry out, are less nutritious and have little or no protein. Animals need more water to digest dry grass.



These conditions can lead to weaker animals that do not grow, cannot provide milk for their young, and are more susceptible to disease and worms.

In the dry season, it is important and necessary to provide additional nutritious feed for animals, especially protein. *The dry season comes every year so prepare and plan ahead.*

### How will you provide the proper feed for your herd?

- Cut and carry young, green grass/bush and provide quality hay.
- Provide a complete grain with 16% protein (not just corn).
- Provide molasses for additional calories.
- Deworm your animals and spray for ticks as recommended.
- And, of course, make sure there is plenty of water available.

*Provided by the V.I. Department of Agriculture Veterinary Services Division*

## NRCS Assistance

NRCS offers technical and financial assistance to Caribbean Area producers to conserve resources through the **Environmental Quality Incentives Program (EQIP)** and Farm Bill initiatives such as the **StrikeForce for Rural Growth & Opportunity**.

Responding to frequent drought and farmers' concerns about the long-term availability of the region's aquifers for agriculture, NRCS has helped design and fund **23** irrigation reservoirs with a storage capacity of **103** million gallons (Mgals) since **2004**. NRCS has also planned and obligated funds to build **23** additional irrigation reservoirs (**8** excavated ponds & **15** tanks). This translates into over **\$12 million** invested to provide over **175 Mgals** of irrigation water to Caribbean Area producers.

## For More Information:



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