

House Committee on Agriculture
Subcommittee on Biotechnology, Horticulture, and Research
Resiliency of Agriculture in the US Virgin Islands

Wednesday June 12, 2019

Testimony of Robert W. Godfrey, Ph.D.

Introduction

Good morning Chairwoman Plaskett, Ranking Member Dunn and Members of the Subcommittee. Thank you for this opportunity to provide testimony for this subcommittee.

My name is Dr. Robert Godfrey and I am the Director of the Agricultural Experiment Station (AES) at the University of the Virgin Islands. Our faculty and staff conduct research in the disciplines of Agroforestry, Agronomy, Animal Science, Aquaculture, Biotechnology and Horticulture. The Cooperative Extension Service (CES) provides outreach to the community in Agriculture & Natural Resources, 4-H/Family & Consumer Sciences and Communications, Technology & Distance Learning.

Most of our research projects incorporate climate and the environment as a necessity due to our location. Currently we have research projects evaluating micro-irrigation to enhance water use efficiency for crops, mulching systems and cover crops to minimize external inputs for soil improvement, evaluating adaptive traits of local livestock breeds such as Senepol cattle and St Croix White Hair sheep and selecting and developing field crop varieties for enhanced production in the tropics.

Overview of Agriculture in the US Virgin Islands

It is estimated that the US Virgin Islands imports 90 to 95% of its food items indicating that there is an enormous potential market opportunity for local farmers to tap into. Farming in the US Virgin Islands is characterized by small farms averaging less than 5 acres in size¹. Most agricultural production inputs are imported and high shipping costs contribute significantly to the costs of operating a farm.

Based upon the USDA definitions, the majority of the farmers in the US Virgin Islands are limited resource and socially disadvantaged farmers. They face many constraints that are unique to small scale tropical agriculture such as seasonal rainfall, high incidence of pests and diseases, high organic matter turnover in soils, high temperature and humidity, increasing frequency and intensity of extreme weather events, limited market, and limited access to financing for farm support.

Impact of Extreme Weather on Agriculture in the US Virgin Islands

In September 2017 two category 5 hurricanes devastated the US Virgin Islands only 12 days apart enhancing the level of destruction and hampering recovery efforts. After Hurricane Irma

devastated St. Thomas and St. John, St. Croix farmers, AES, CES, the Virgin Islands Department of Agriculture and community groups collected and shipped relief supplies to our sister islands by commercial and private boats. St. Croix also served as a base of operations for federal support efforts with cargo and personnel being flown back and forth between the islands' airports. Then St. Croix and Puerto Rico were hit by Hurricane Maria and suffered severe damage. The ports of St. Croix, St. Thomas and Puerto Rico were all shutdown, even just temporarily, at the same time which limited the access to relief and recovery resources.

Many crops were lost due to wind damage and saltwater contamination. Livestock farmers suffered damage to fences, animal pens and loss of animals from airborne debris. As an example, the University sheep research flock lost a third of the breeding ewes in its flock. the lack of local resources available such as irrigation supplies, seedlings, fence wire, fence posts and animal feed made recovery efforts for all farmers difficult.

In addition to hurricanes, there have also been periods of drought in the US Virgin Islands. The average annual rainfall is 51 inches² but in 2015 we received less than 25 inches of rain. The Virgins Islands Department of Agriculture was able to offer some livestock feed and imported hay at reduced fees but their ability to provide other services and water for farmers was very limited. The ability for livestock farmers to sell animals was hampered by the limited capacity of the one federally inspected abattoir on St. Croix. The abattoir on St. Thomas is still not operating after suffering damage during Hurricane Irma.

Response to Extreme Weather Events

The field research facilities of the Agricultural Experiment Station were severely damaged and limited our ability to conduct research for most of 2018 after the Hurricane Maria. Our research programs are slowly coming back online but we still have a long way to go.

A proposal has been submitted by AES to the FEMA Hazard Mitigation Grant Program to develop an Agricultural Hazard Mitigation and Resiliency Plan. It will coordinate with the territory-wide comprehensive Hazard Mitigation and Resiliency Plan managed by other units within the University.

In response to stakeholder needs after the recent storms and drought, CES has offered training to help livestock producers rehabilitate their pastures, training on the use of composting, micro-irrigation, and soil conservation, and workshops on restoring trees damaged by storms and droughts using proper pruning techniques. AES and CES staff joined an ad-hoc advisory committee that developed a plan for recycling the large amounts of vegetative/wood debris left by the hurricanes by making mulch that is available for distribution farmers and the community.

Conclusion

In conclusion, I want to say that agriculture in the US Virgin Islands will continue to be impacted by climate change through increased frequency and intensity of extreme weather events. These types of extreme events only serve to highlight the importance of food security and accessibility in a remote island location such as ours. As the University of the Virgin Islands

continues to support and develop agriculture in the US Virgin Islands by working with our local stakeholders and regional and federal partners, the impact of climate change will play a significant role in the development of our resiliency, mitigation and sustainability plans.

Thank you for the opportunity to testify before this subcommittee. I look forward to your questions.

Supplemental Information

- St. Croix is the largest US Virgin Island of approximately 84 square miles displaying relatively flat topography. St. Thomas, 40 miles to the north, is approximately 32 square miles and is well known for its mountainous terrain and excellent harbors. Three miles east of St. Thomas, St. John is approximately 20 square miles, and two-thirds of this island has been designated a U.S. National Park.
- The University of the Virgin Islands was named as an 1862 Land Grant institution in 1972, and is also a Historically Black College and University (HBCU).
- The U.S. Virgin Islands have been impacted by several hurricanes in the past 30 years. The most impactful storms to hit the US Virgin Islands in recent history were Hurricane Hugo in 1989, Hurricane Marilyn in 1995, Hurricane Georges in 1998, Hurricane Lenny in 1999, and Hurricanes Irma and Maria in 2017.
- The most recent data for agriculture in the US Virgin Islands from the 2007 Census of Agriculture¹ indicated between 2002 and 2007 the number of small farms increased, both in number (23%) and acreage occupied (15%). Farm size is small with 64% of farms in the Virgin Islands being 4 acres or less. There has been no Census of Agriculture survey conducted in the US Virgin Islands since 2007 so newer data is unavailable.
- The limited availability and high cost of arable land is a major drawback to farm ownership in the US Virgin Islands. Land ownership is also a concern as 41% of farms, occupying 29% of the total acreage of lands in farms, are on land rented from either the Virgin Islands Department of Agriculture or private individuals.

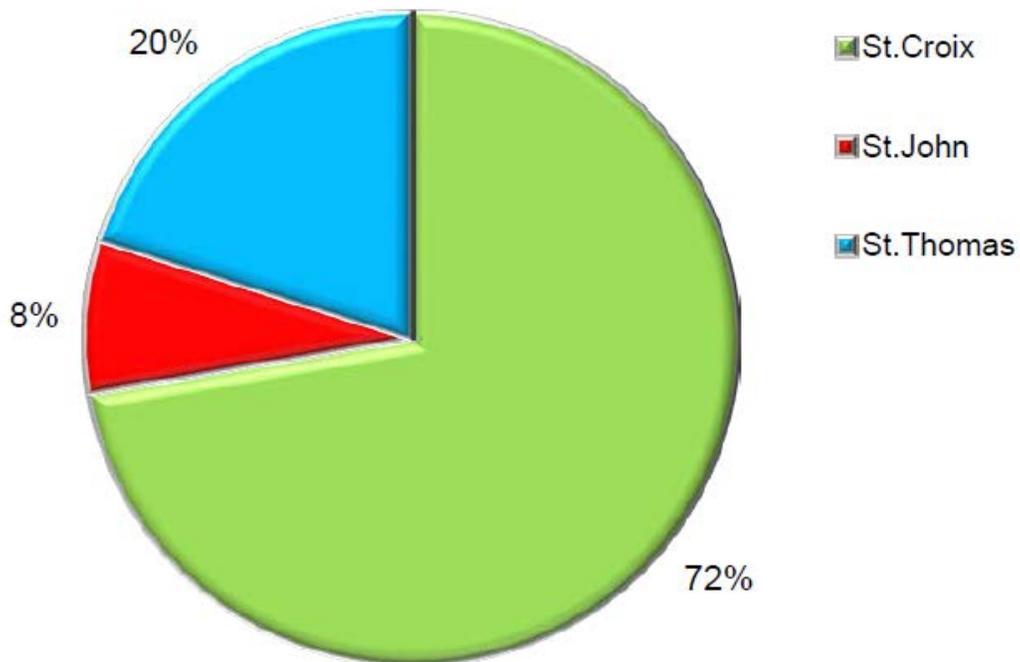


Figure 1. Location of farmers in the US Virgin Islands³

Table 1. Total acreage of farms in US Virgin Islands (in percent) from survey conducted by UVI in 2018³

Response Category	St. Croix	St. Thomas & St. John	Total
Number of respondents	132	49	181
Less than 2 acres	44.2	53.0	44.2
2 to 4 acres	19.9	24.5	19.9
5 to 9 acres	9.4	8.2	9.4
10 or more acres	26.5	14.3	26.5

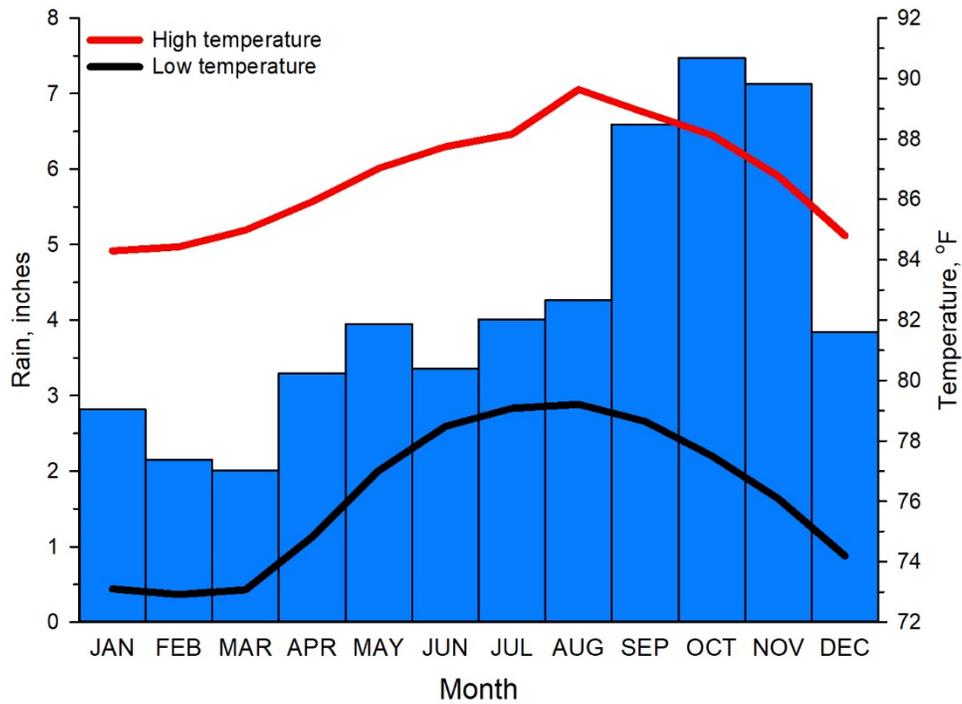


Figure 3. Monthly average rainfall and high and low temperatures on St. Croix (1987-2011) measured at UVI-AES Sheep Research Facility²

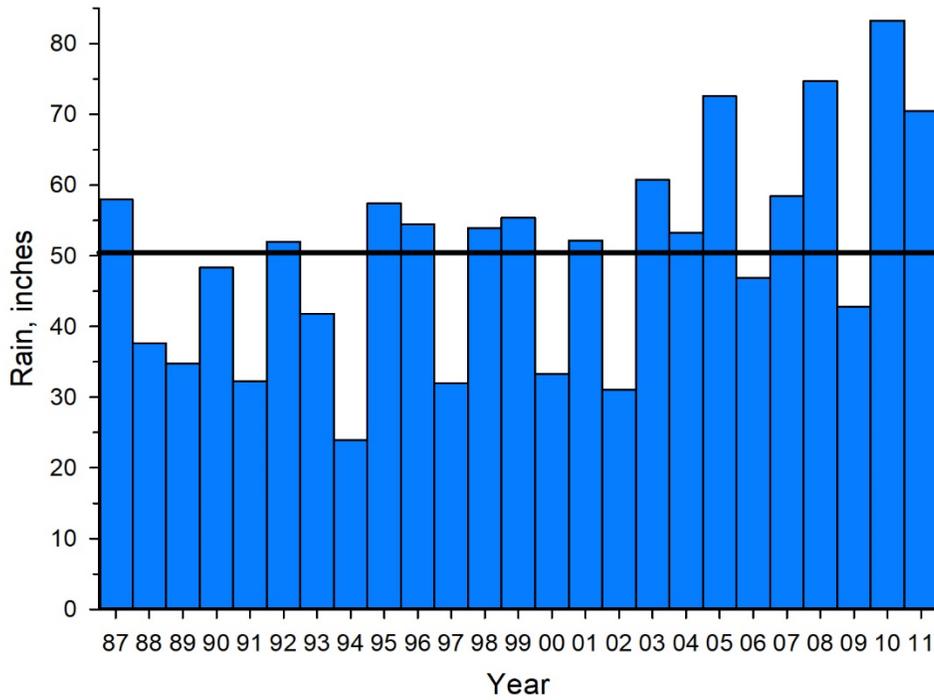


Figure 4. Annual total rainfall on St. Croix (1987-2011) measured at UVI-AES Sheep Research Facility²

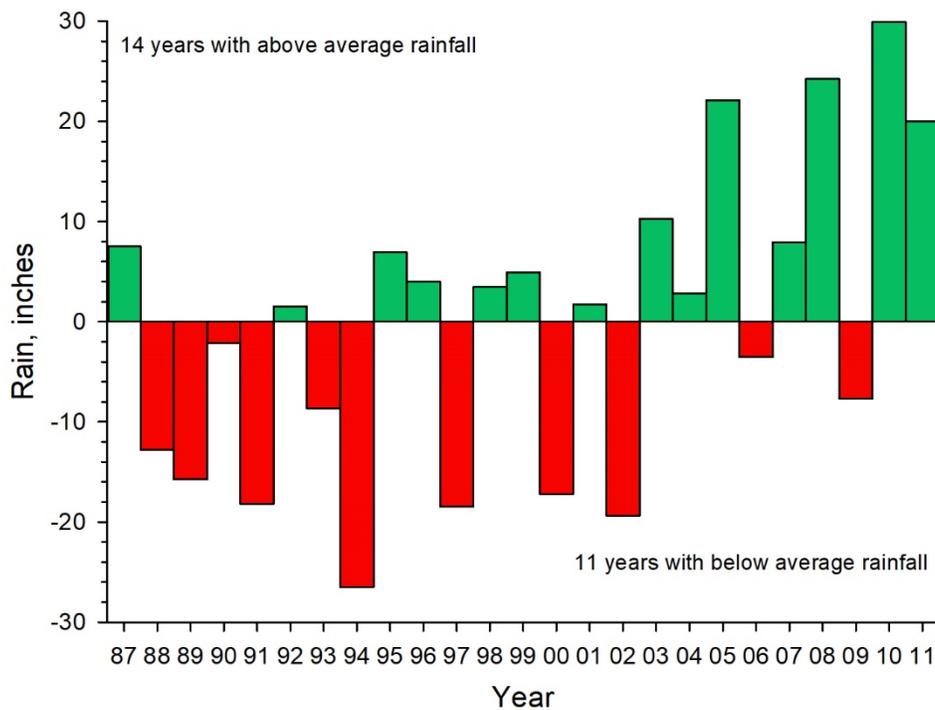


Figure 5. Comparison of annual total rainfall to average on St Croix (1987-2011) collected at UVI-AES Sheep Research Facility²

References

¹2007 Census of Agriculture. United States Department of Agriculture National Agricultural Statistics Service, Issued February 2009

²Godfrey, R.W. Impact of Drought on Livestock. USVI Drought Monitoring Forum. August 30, 2016. Sponsored by: USDA Office of the Chief Economist, National Drought Mitigation Center, NOAA National Weather Service, USDA Farm Service Agency, USDA Natural Resources Conservation Service, UVI Cooperative Extension Service, VI Department of Agriculture, VI Climate Council

³United States Virgin Islands Agro Processing/Packaging Plant Feasibility Study. 2018. University of the Virgin Islands, Institute for Leadership & Organizational Effectiveness