

DROUGHT CHARACTERISTICS IN TWO AGRO-CLIMATIC ZONES IN SUB-SAHARA AFRICA

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Introduction

Extreme drought events are among the challenges smallholder farmers face in many parts of Africa, leading to crop loss and livestock deaths, especially for smallholder farmers as majority are poor and vulnerable. Despite the great advancement of climate science in understanding and dealing with climate change and its impacts on the agricultural sector at the international and local levels, awareness and the concern for the problem at local levels, especially among the rural farmers in Africa remains crucial. The most of crop farming in Africa is rain-fed. Changing rainfall patterns including amount will greatly affect both crop and livestock farming.

Objective

- Examine the rainfall variability and drought characteristics in two agro-climatic zones.
- Assess level of awareness and sensitivities of local farmers' to climate variability and change.
- Identify factors determining farmers' preference for selected adaptation strategies.

Methods

- Drought characteristics were assessed using seasonal rainfall fluctuations.
- The probability and the frequency of dry spells, during the growing seasons, were estimated.
- Information about the coping strategies adopted by farmers and farmers' perception of drought was gathered through questionnaires and focus group discussions in the 11 communities.

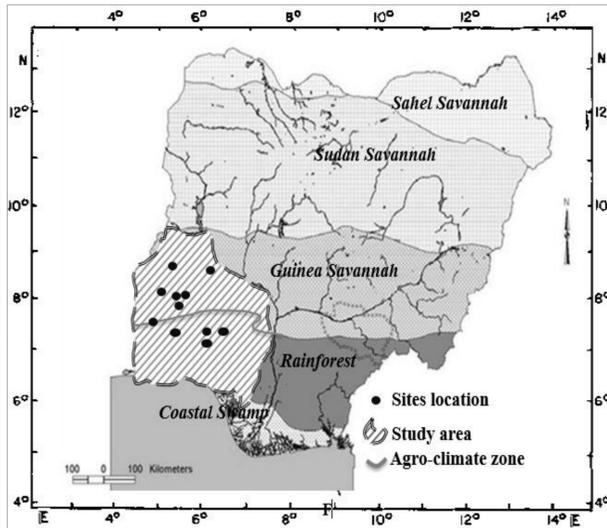


Fig: Map of Study Area

- Fulani pastoralists complained mostly about the reduction of grazing grass and water for their cattle, though they move their cattle around for pasture.
- Farmers' perception of drought and extreme climate events mirror meteorological analysis.

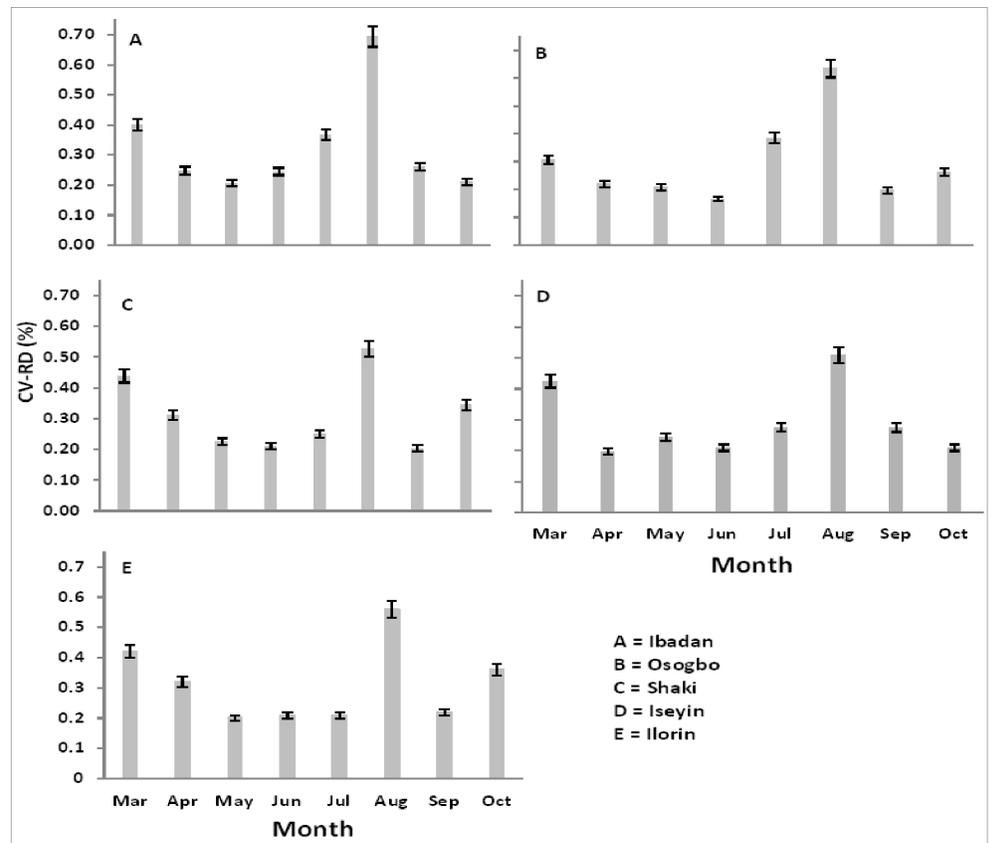


Fig: Coefficient of variation in rainy days (CV-RD) during growing seasons

Results

- the probabilities that dry spells exceed 3, 5, 10, and 15 consecutive days are very high in the Guinea Savanna than Rainforest zone

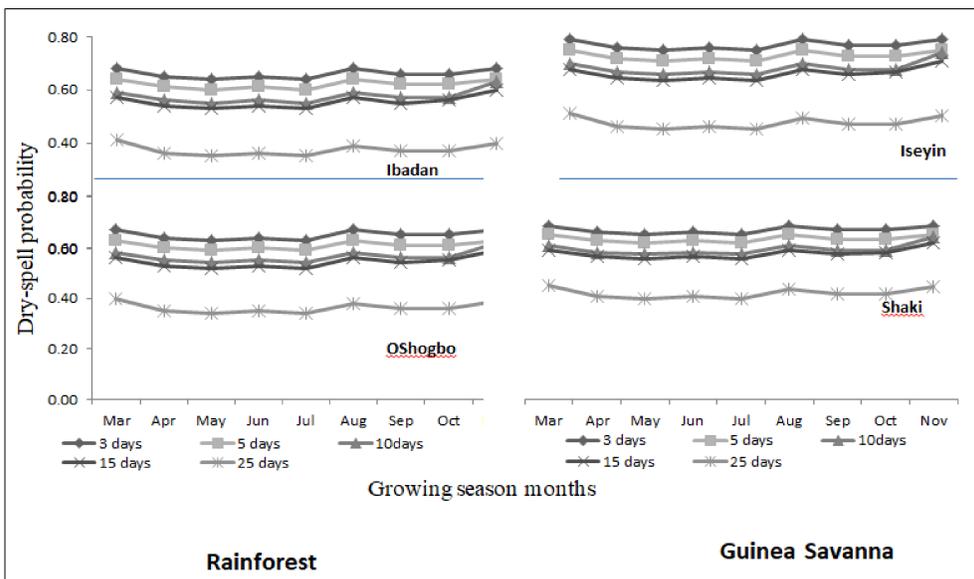


Fig: Probability of dry-spell exceeding 3, 5, 20, 15 and 25 consecutive days in growing seasons

- Length of farming experiences has a significant relationship with farmers' perceptions of climate change adaptation strategies.
- Many herders observed that cattle health is now poor and the milk obtained from their cattle has reduced greatly, compared to several earlier centuries

Categories of farmers	Strategies	% responses
Crop Farmers	A majority of the farmers interviewed engaged in: planting drought tolerant crops,	39
	irrigation techniques,	48
	Scale-down production,	58
	Mulch thicker	56
Livestock Farmers (Fulani pastoralists)	A majority of the farmers interviewed engaged in: crop residues/by-products from (soybean, groundnuts, and cowpeas.)	41
	Migration to green pasture,	62
	Changes in housing,	12
	another source of water ,	36
	Use of Hay,	31
	Seek the alternative source of income,	56
	Selling some or all stock.	61
Mixed crop-livestock farmers	Timing the application of water,	51
	Another source of water	69
	Sale of or increased reliance on livestock,	48
	Spray plants with leaf fertilizer,	53
	Temporary exit from farming.	31

Table: Farmers' coping strategies during droughts by category of farmers



Farmers during interviews

Conclusion

In all the study sites, planting dates were re-scheduled to when most suitable and favorable for the crops to be planted. For instance, some crops are planted at the onset of rainfall but in situations when rainfall is delayed, the planting date of the crop would be shifted to the time when the rain starts. It is apparent that farmers' perceptions of drought fundamentally mirror climatic patterns from historical weather data. However, farmers have adopted different strategies to cope with recurrent drought events in the study area. These strategies only partially compensated for the fact that agriculture would almost certainly have been better if the climate had kept constant. The facilities and equipment for adaptation should be provided at a subsidized price by the government, and that efforts should be made to develop crop varieties that can cope with the current conditions of climate change in Nigeria.



Cocoa Farm



References

- Adebayo MA, Menkir A. Combining Ability of Adapted and Exotic Drought-tolerant Maize Inbred Lines Under Full Irrigation and Rainfed Conditions in Nigeria. *Journal of Crop Improvement* 2015; 29: 117-130..
- Araujo JA, Abiodun BJ, Crespo O. Impacts of drought on grape yields in Western Cape, South Africa. *Theoretical and applied climatology* 2016; 123: 117-130.

