Caribbean Agricultural Research and Development Institute
Improving Lives Through Agricultural Research

R&D in Agriculture
A Bulletin on Information Resources

Climate Smart Agriculture

Improving Lives Through Agricultural Research
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R&D in Agriculture: a bulletin on information resources, September 2021

CONTENT

CLIMATE SMART AGRICULTURE

CLIMATE SMART AGRICULTURE - General

Climate-Smart Agriculture Webinar Series hosted by PPCR Project / CARDI - VIDEOS

The Pilot Programme for Climate Resilience (PPCR Project) and CARDI hosted a **Climate-Smart Agriculture Webinar**, focusing on **Climate-Smart Agriculture Compliance (C-SAC)**. The webinar series took place every **Tuesday** and **Wednesday** for **five consecutive weeks** starting on **Tuesday, July 20, 2021, at 10:00 am (EST)**.

- Introduction to Climate-Smart Agriculture Webinar, 20-21 July 2021. PPCR Project / CARDI Climate-Smart Agriculture Webinar Series
  20 July 2021 https://www.youtube.com/watch?v=a--TCj9DIw4

  21 July 2021 https://www.youtube.com/watch?v=cFaFrQTPD9Y

- Soil and Water Management. Irrigation Management Webinar, 27-28 July 2021. PPCR Project / CARDI Climate-Smart Agriculture Webinar Series
  27 July 2021 https://www.youtube.com/watch?v=2jGkRsx0mNY
  28 July 2021 https://www.youtube.com/watch?v=tivaQj4IeBE

- Root and Tuber Crops Webinar, 3 August 2021. PPCR Project / CARDI Climate-Smart Agriculture Webinar Series
  https://www.youtube.com/watch?v=Nu_mjZ11vZw

- Vegetables Open Field and Protected Agricultural Systems Webinar, 4 August 2021. PPCR Project / CARDI Climate-Smart Agriculture Webinar Series
  https://www.youtube.com/watch?v=z8XIyeWYapw

- Hot Pepper - Harvesting & Production Webinar, 10 August 2021. PPCR Project / CARDI Climate-Smart Agriculture Webinar Series
  https://www.youtube.com/watch?v=FH9OP03orwg

- Integrated Pest Management Webinar, 11 August 2021. PPCR Project / CARDI Climate-Smart Agriculture Webinar Series
  https://www.youtube.com/watch?v=o0FHfsmpkLo

- Post-Harvest Production Technology. Risk Management Webinar, 17 August 2021. PPCR Project / CARDI Climate-Smart Agriculture Webinar Series
  https://www.youtube.com/watch?v=UB000oJp2pE

- Livestock Webinar, 18 August 2021. PPCR Project / CARDI Climate-Smart Agriculture Webinar Series
  https://www.youtube.com/watch?v=lw-WpbtCgIs

- PPCR Project / CARDI Climate-Smart Agriculture Webinar Series Closing session, 18 August 2021
  https://www.youtube.com/watch?v=lw-WpbtCgIs

Climate-smart agriculture case studies 2021 – Projects from around the world
FAO
2021
Rome: FAO
https://doi.org/10.4060/cb5359en

http://www.fao.org/documents/card/en/c/cb5359en/

http://www.fao.org/3/cb5359en/cb5359en.pdf
Abstract:
This publication describes climate-smart agriculture (CSA) case studies from around the world, showing how the approach is implemented to address challenges related to climate change and agriculture. The case studies operationalize the five action points for CSA implementation: expanding the evidence base for CSA, supporting enabling policy frameworks, strengthening national and local institutions, enhancing funding and financing options, and implementing CSA practices at field level. The publication provides examples of the innovative roles that farmers, researchers, government officials, private sector agents and civil society actors can play to transform food systems and help meet the Sustainable Development Goals; it also demonstrates how these actors can collaborate. The case studies discuss context-specific activities that sustainably increase agricultural productivity and incomes, adapt and build resilience of people and food systems to climate change, and reduce and/or remove greenhouse gas emissions where possible.

Climate-smart agriculture: resource book for trainers of agricultural extension workers and students.
IITA, ICRAF & FAO
2021
Dar es Salaam: IITA
https://cgspace.cgiar.org/handle/10568/114728

INFORMATION AND COMMUNICATION TECHNOLOGY SOLUTIONS - Saint Lucia

Saint Lucia – advancing the use of information and communication technology solutions for climate-smart agricultural practices In: FAO. 2021. *Climate-smart agriculture case studies 2021 – Projects from around the world*. Rome: FAO, pp.77-79
http://www.fao.org/3/cb5359en/cb5359en.pdf
This case study was submitted by Andrea K. Veira, crop scientist, CARDI Saint Lucia infocentre@cardi.org
The project discussed in this case study investigated and addressed the needs and challenges of farmers as to the sustainable production of food under climate change in Saint Lucia. ICT was selected as an appropriate tool to ensure the availability of locally produced food in the country. The adoption of ICT strategies can increase agricultural productivity and thus directly contribute to a nation's resilience by providing food security. The use of ICT along with the adoption of good agricultural practices can help reduce GHG emissions. The project was implemented by the Caribbean Agricultural Research and Development Institute (CARDI) between January and December 2019, with funds provided by the Japan-Caribbean Community (CARICOM) Friendship and Cooperation Fund. It was supported by Saint Lucia's Ministry of Agriculture, Fisheries, Physical Planning, Natural Resources and Cooperatives. The project supports the Ministry's Seven Crop Project for import substitution.

INVESTMENT PORTFOLIOS - Guyana

Climate-smart agriculture investment portfolios in Guyana: a way forward

Navarrete-Frías C, Lizarazo M, Eitzinger A, Mwongera C, Sandoval D, Rosales J, Bullen P, Daggers L, Benn D and Nanlall S

2021

Cali (Colombia): Alliance of Bioversity International and CIAT

Policy Brief n. 50.

https://cgspace.cgiar.org/handle/10568/114178

Guyana has densely populated coastal regions and relatively inaccessible Hinterland and is highly vulnerable to climate change and climate variability. The agriculture sector requires a transformation towards climate-resilient agriculture systems. In order to respond to this priority, the Alliance of Bioversity International and CIAT, the Ministry of Agriculture of the Government of Guyana and local partners, joined efforts to develop and implement a Caribbean Development Bank (CDB) financed project, 'Development of a Framework for Prioritizing Climate-Smart Agriculture (CSA)'. Interventions were focused on two regions in Guyana - Region 3 (Essequibo Islands-West Demerara) and Region 9 (Upper Takutu-Upper Essequibo).

INTEGRATED CROP AND SPATIAL MODELING APPROACHES - Guyana

Assessing climate change impact on Guyana's crops using integrated crop and spatial modeling approaches.

Benn D K, Nanlall S, Jines A and Eitzinger A

2021.

Cali (Colombia): Alliance of Bioversity International and CIAT.

https://cgspace.cgiar.org/handle/10568/113955

The Crop and Spatial Modeling activity was part of the project 'Development of an Evidence-Based, Gender Equitable Framework for Climate Smart Agriculture Interventions,' carried out under the Ministry of Agriculture and in collaboration with the International Center for Tropical Agriculture (CIAT), the Hydrometeorological Service of Guyana, and the University of Guyana. The project required geospatial vulnerability assessment and crop modeling research and extends previous climate change studies and vulnerability and capacity assessments regarding Guyana's agricultural sector. The research was completed on the comparative use of geospatial methods and crop modeling tools for modeling crop suitability and yield in Guyana. This report shows thematic map outputs that indicate agro-climatic zones of high to low growth potential using current climate and edaphic datasets. Crop modeling required research of the growing conditions of target crops, after which calibrations were applied to estimate yields under future climate scenarios RCP4.5 and RCP8.5.

Crops: Rice, plantain, coconut, cassava, pineapple, sweet potato, peanut,

CSA PLANNING & PRIORITIZATION

AICCRA Webinar: Bundled CSA Planning & Prioritization. Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA)
Mwongera C, Bonilla-Findji O, Huyer S, Rose A, Kagabo D and Kinyua I
2021
https://cgspace.cgiar.org/handle/10568/114238

https://hdl.handle.net/10568/114238
Abstract/Description
The CSA Prioritization seminar was organized by FP2, FP4 and GSI on 10 June 2021, with the aim of highlighting the steps to develop a CSA plan, bundling CSA/CIS, and integrating Gender and Social inclusion in CSA prioritization. The presentation highlighted examples of tools and methodologies that have been developed by the CGIAR and CCAFS for CSA Planning & Prioritization. The seminar also showcased case study examples and resources from previous CGIAR projects on CSA prioritization. Four steps were presented to develop and implement a CSA Plan: 1) situation analysis, 2) targeting and prioritizing, 3) program design, and 4) monitoring and evaluation. The seminar was attended by more than 60 participants from the six AICCRA country teams and partners.

RUMINANT LIVESTOCK

Ruminant livestock and climate change in the tropics
Ericksen P J, Thornton P K and Nelson G C. 2020. **Ruminant livestock and climate change in the tropics**. In: McIntire J and Grace D. (eds.). The impact of the International Livestock Research Institute. Nairobi, Kenya: ILRI and Wallingford, UK: CABI, pp. 601-638
https://cgspace.cgiar.org/rest/rest/bitstreams/b5dbb74d-d4c3-4026-afda-b3a67dae9a59/retrieve

https://www.ilri.org/publications/ruminant-livestock-and-climate-change-tropics

IRISH POTATO

Synergies and trade-offs of selected climate smart agriculture practices in Irish potato farming, Kenya
Ogola R J O and Ouko K O. | Manuel Tejada Moral (Reviewing editor)
2021
Cogent Food & Agriculture, 7:1
https://www.tandfonline.com/doi/full/10.1080/23311932.2021.1948257
Abstract
Research on and disseminating Climate Smart Agricultural (CSA) practices has led to increased awareness and farmers' capacity to develop resilient agricultural production systems for sustainable livelihoods and food security while addressing climate change adaptation and mitigation. Thus, there is a potential in gaining valuable insight into how Irish potato smallholder farmers should respond to current and future climate risks. However, studies exploring and linking expert opinion on synergies and trade-offs in adapting the CSA practices are limited. This study integrated qualitative and quantitative data from 22 expert surveys and semi-structured questionnaires to answer the following objectives: 1) Which top five CSA practices are currently used by Irish potato farmers and which ones are preferred by experts in response to climate change adaptation in Kenya? 2) How do the selected CSA practices perform in Irish potato farming in Kenya? 3) Which synergies and trade-offs occur upon implementation of these CSA practices? The study found that CSA practices most preferred by both experts and farmers are improved crop varieties, efficient use of agrochemicals, early land preparation, diversified crop production, efficient use of inorganic fertilizer, irrigation and changing planting dates. These selected CSA practices indicated the productivity pillar to be the best performing CSA pillar synergistically while trade-offs to occur across CSA pillars. These findings can inform different potato value chain stakeholders on the synergies and trade-off dynamics associated with adopting CSA practices for climate change adaptation. In conclusion, while CSA practices are perceived as essential, most preferred CSA practices are focused on increased production and adaptation,

while mitigation goals receive less attention. The findings of this study provide an important basis for recommendation to farmers and policymakers. This study calls for sustainable and innovative ways that help to upscale the selected CSA practices in Irish potato farming in Kenya and beyond.

AGRO-CLIMATE SERVICE / AGRO-METEOROLOGICAL INFORMATION

An assessment of factors influencing awareness, access and use of agro-climate services among farmers in Clarendon, Jamaica

Buckland S F and Campbell D
2021
Geoforum 126:171-191
https://doi.org/10.1016/j.geoforum.2021.07.032

https://www.sciencedirect.com/science/article/abs/pii/S0016718521002347

Abstract:
In recent times, the provision of agro-climate services has been elevated as an adaptation policy priority across the Caribbean. Despite strides in such efforts, there is a paucity of research on levels of awareness and use of climate services by farmers. Understanding these nuances can illuminate important pathways for improving climate service uptake and delivery for favourable social and economic development outcomes. In this paper, we used a mixed-method approach to assess the factors influencing climate service uptake among farmers (N = 356) in one of Jamaica's principal agricultural regions, Clarendon. Regression analysis techniques were used to specifically determine the likelihood of farmers' awareness, access and use of locally developed climate services disseminated via TV/radio, climate text message, online farmer bulletin, and community-specific forecast across fifteen (15) social and environmental variables. Eight (8) factors were found to have significant influence on climate service awareness, access, and use ($p < 0.05$). These include gender, age, access to extension service, participation in groups/organizations, climate change perceptions, non-farm income, farm size, and agronomic conditions. The active use of the climate and weather information was closely linked to farmers' experiential observation of the relevance of the information within their own immediate context. Qualitative case study analyses further highlighted socio-spatial patterns of inequalities in CIS use, being dominated by the younger, more educated demographic. These results highlight potential entry points for increased tailoring of the design and delivery of agro-climate service products for greater effectiveness in climate service delivery. Given the projected impacts of increased climate variability on Caribbean agricultural systems, learning how farmers interact with agro-climate service products can surface opportunities to increase uptake and strengthen resilience.
Keywords: Climate service; Socio-ecological systems; Equity; Agro-climate service; SIDS

Climate smart agriculture: top ten decisions to make with weather info

Njuguna C, Baijukya F and Myaka F
2021
Dar es Salam, Tanzania: IITA
https://cgspace.cgiar.org/bitstream/handle/10568/113097/Decision_Eng.pdf?sequence=1

https://cgspace.cgiar.org/handle/10568/113097

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