

EMBRACING CLIMATE-SMART AGRICULTURE

“Ensuring Food and Nutrition Security in an era of Changing Climate”



KEY MESSAGES

Modern agricultural systems and practices, such as the use of protected structures, aquaponics, hydroponics, vertical farming and other controlled system farming, have been shown to be more productive and offer greater resilience to the impacts of climate change, over traditional systems. Improved water use practices such as trickle and drip irrigation have shown increased yields, are more efficient and decrease water usage.

Soil conservation practices such as mulching; using straw and plastic, are efficient techniques. The addition of bio-charcoal has been shown to increase soil fertility and crop productivity.

Enhanced plant genetic material could be used to mitigate climate change and extreme adverse conditions. For example, flood tolerant species of rice and drought tolerant species of dasheen are now being grown in Guyana.

There is need for greater accessibility to funding opportunities, capacity building and farmers' training, knowledge transfer, inter-agency and inter-governmental collaboration, along with the identifications of country specific priorities.

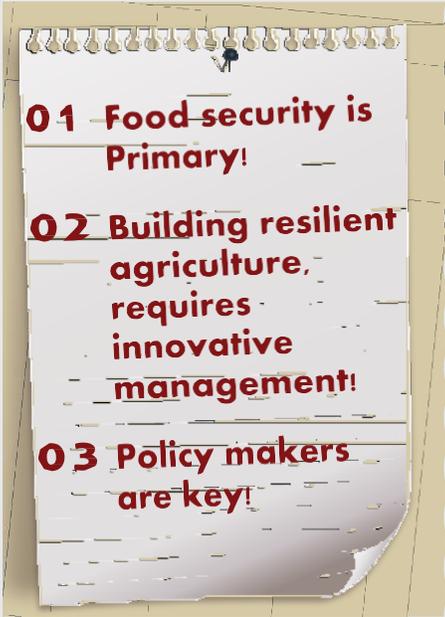
Economic analyses of practices, techniques and systems are needed to encourage and justify adoption by farmers.

Risk reduction and disaster management need to be considered when planning farm activity.

POLICY BRIEF

Experts and farmers call on policy makers to take action to make Food and Nutrition Security a priority in the face of Climate Change in the Caribbean. An international forum to highlight the challenges to food and nutrition security in an era of climate change titled “Climate Change Impacts on Food and Nutrition Security” (hereafter “Conference”) was hosted by the Faculty of Food and Agriculture, The University of the West Indies, in Port-of-Spain from November 12 to 16, 2018. Over 100 regional and international experts, including farmers and scientists, deliberated and over 80 research papers were presented on emerging case studies and practices as a way forward for the agri-sector. The emerging approaches, strategies and plans put forward for enabling agricultural practices, presented valuable information to help build a sustainable food production system. There was a high level of desire to collaboratively tackle this global challenge; particularly within the Caribbean. This was an encouraging sign towards building resilient agriculture which requires innovative management strategies and approaches, important for food and nutrition security.

Policy makers and their decisions are key to making a major contribution towards Food and Nutrition Security and a vibrant Agri-business sector in Small Island Developing States (SIDS).

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- 01 Food security is Primary!**
 - 02 Building resilient agriculture, requires innovative management!**
 - 03 Policy makers are key!**

“Climate Smart Agriculture (CSA) married with strategic and timely policy, is an integrated approach that can be used to develop sustainable and resilient food systems with the advent of climate change.”

KEY ISSUES/CHALLENGES

The Conference highlighted several issues and challenges related to capacity building, confronting agricultural climate change resilience, greenhouse gas emission reduction, strengthening research and technological innovation, improving plant and animal productivity and strengthening institutional frameworks. This policy brief addresses some of the major issues which were highlighted at the conference, and which need attention at the policy level.

POLICY PRIORITIES

POLICY DEVELOPMENT/REFORM

To re-engineer and/or review existing policies to ensure the formulation of robust food production policies based on the three CSA pillars of productivity, adaptation and mitigation.

• Productivity

- i) Provide incentives or subsidies to encourage farmers to adopt new and emerging agricultural techniques, which would increase agricultural productivity. For example, the development or re-design of directed subsidy/incentives and financial support (tax breaks) for precision, protected and vertical agricultural technologies, and actions to reduce risk on investment and encourage faster decision-making regarding technology adoption;
- ii) Strengthen programmes and agricultural education from the primary school level to foster pride and interest in farming using innovative farming methods;
- iii) Increase taxes on traditional pesticides and fertilisers and subsidise organic farming practices as incentives for farmers.
- iv) Promote food and nutrition security, including biological pest control measures and in general safe food production practices.



• Adaptation

Policy to include adaptive processes in the agricultural sector including research and development:

- i) There is a need for water conservation policies in response to predicted future changes in the hydrological cycle and to encourage the widespread adoption of improved water management practices. For example, develop or reorient agricultural water policies that encourage the adoption of water smart agriculture technologies (WaSa) and practices within a framework of integrated water management;
- ii) Formulate post-disaster policies in conjunction with scientific experts, for more proactive and less reactive approaches towards a national preparedness strategy for better adaptations to climate change effects;
- iii) Provide adequate funding for continuous national research and development into improved and more resilient crop varieties and livestock breeds.

• Mitigation

- i) Promote policies for adoption of agricultural practices which favour reduced greenhouse gas emissions and increased carbon sequestration capacity. For example, the implementation of a farm-waste use policy which provides guidelines on recycling and standards for the incorporation of farm waste into soils to promote soil health;
- ii) Promote seafood as an alternative protein source to meat so as to reduce the demand of livestock, leading to reduced methane emissions;
- iii) Promote and implement policies to ensure the sustainable use of the blue economy and its protection against the devastating effects of climate change;
- iv) Drought Risk Adaptation:
 - Enable farmers through provision of subsidies, to adopt modern agricultural techniques, gain access to and cultivate drought-tolerant crop species developed through crop breeding;
 - Promote rainwater harvesting and community ponds in farming areas which would save water for use in prolonged dry periods.
- v) Drought Risk Mitigation:
 - Improve crisis and on-farm water management during periods of drought and water shortage by developing strict policies for water allocation.
- vi) Flood Risk Adaptation:
 - The provision of subsidies to allow farmers to adopt modern agricultural techniques and gain access to flood-tolerant crop species developed through crop breeding. Improve drainage systems on agricultural lands and farms, including regular desilting, to alleviate flood risk.



vii.) Flood Risk Mitigation:

- Develop and implement land management policies, which would encourage farmers to cultivate on land with low flood-risk, thereby reducing vulnerability to flooding events. Designate off-limits for flood-prone areas, and agricultural/farming zones;
- Improve flood warning and preparedness system. A monitoring and forecasting system combining river levels, soil saturation levels, weather and hydro-meteorological data, in conjunction with inter-agency coordination and communication;
- Create elevated flood havens, as well as designated evacuation routes for livestock.

FUNDING

There was a consensus at the conference that actions to build resilience to climate change need to be adequately financed. This will facilitate:

- The development and adoption of new and emerging agricultural techniques such as containerized and vertical (controlled environments) systems;
- The application of crop simulation modelling to inform better planning and decision-making and use of biostimulants, beneficial microorganisms, and improved crop varieties to enhance crop production in stressful conditions;
- Continuous research and development into climate change resilient crops and livestock, as well as its integration with climate models;
- Farmer training and professional development for capacity building towards resilient agricultural practices.



COLLABORATIVE LEARNING



COLLABORATION

There were strong calls to strengthen collaborative efforts both within and outside the region. Collaboration can significantly improve the harmonizing of effective agri-practices, which have been tested and implemented in keeping with food security and nutrition while adapting to climate change impacts.