



What is Climate Smart Agriculture?

“Agriculture that sustainably increases productivity, resilience (to climate change), reduces/removes greenhouse gases (mitigation), and enhances achievement of national food security and development goals”

Source: FAO, 2010

Climate change causes some serious challenges to the agricultural sector and

therefore to the national food security and development goals for Grenada. The table below outlines these challenges and

appropriate climate smart agricultural (CSA) practices to counter them:



Yields enhanced with compost and encased beds

For Crops:

Climate change signal	Appropriate CSA practice
Temperature Increase: heat stress or increased disease could reduce yields, leading to increased production costs.	Heat tolerant varieties, mulching, water management, shade house, boundary trees
Extreme weather events: more frequent heat waves, strong winds, and storms lead to top-soil erosion, reduced yields, and damages to trees, infrastructures and equipment (eg. hurricane).	Flood tolerant plant varieties, rainwater harvesting, irrigation, mulching, composting, contour planting, check dams, terraces to plant on slopes, etc.
Rising sea level: 3% of agricultural land could be lost due to 1 m, including widespread loss of agricultural land from saline intrusion into coastal aquifers.	Saline water tolerant plant variety in coastal areas
Weeds, Pests and Disease: It is also possible that increases in temperature, moisture and carbon dioxide could result in higher populations of destructive pests.	Intercropping, crop diversity, mulching, container gardening and encased beds
Irrigation and Rainfall: Changes in climate may also impact the water availability and water needs for agriculture. Rain shortage leads to extended dry spells, and excessive rains leads to erosion and loss of soil fertility.	Rainwater harvesting, efficient irrigation, mulching, composting, treated manure and nitrogen fixing trees

For Livestock:

Climate change signal	Appropriate CSA practice
Temperature: Increased air temperatures can lead to more stress on livestock – lower reproduction & growth rate, increased disease & mortality rates.	Appropriate housing & spacing
Feed Quality: Availability of forage could also decrease if there is not enough water and nutrients in stressed soils to keep up with plant growth.	Crop management practices, improved feeding strategies, rotational grazing
Diseases: Insect parasites and diseases could also become more prolific and new diseases may also emerge as global warming progresses.	Improved livestock health



Climate-smart agricultural practices

Crop management	Livestock Management	Soil and water management	Agroforestry	Integrated food energy system
<ul style="list-style-type: none"> • Intercropping to maximise space, pest control & cash crop • Crop rotations should include legumes • New crop varieties (e.g. drought, wind & flood tolerant) • Improved storage and processing techniques • Greater crop diversity • Underground crops (e.g. yams, dasheen) • Stake plants to reduce wind damage • Composting and organic fertilizer • Mulching crops • Shade house 	<ul style="list-style-type: none"> • Improve feeding strategies (e.g. cut 'n carry) • Rotational grazing • Grow suitable crops (with proper management) to feed animals eg. Leucaena & gliricidia • Manure treatment (well-rotted/ decomposed) • Improved livestock health • Animal husbandry improvements 	<ul style="list-style-type: none"> • Conservation agriculture (e.g. minimum tillage) • Contour planting • Use mounds to plant on slopes • Grass barriers (e.g. kush grass) • Stone barriers • Check dams • Use bench/eyebrow terraces to plant on slopes • Encase beds (pallets, bamboo) • Water storage (e.g. rainwater harvesting) • Improved irrigation (e.g. drips) 	<ul style="list-style-type: none"> • Boundary trees, & wind breaks • Nitrogen-fixing trees on farms (e.g. legumes) • Multipurpose trees (e.g. fruit trees used as windbreaker) • Fruit orchards 	<ul style="list-style-type: none"> • Biogas • Improved stoves • Solar power • Ram pumps for irrigation • Gravity-fed irrigation system

Source: Neufeldt et al., 2011 and Phillip, 2014



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