

**SEASONAL WEATHER FORECAST & ITS EFFECTS TO AGRICULTURE  
FOR BELIZE**

**December 2018 Jan & Feb 2019**

**Drought Warning**  
**Drought Watch**

LIVESTOCK	Zone	District	Possible Effects and actions to mitigate effect
1	Poultry	North  Corozal & Orange Walk	<p>Still possibility of newcastle, Mareks, Fowl Pox and Bronchitis disease outbreak due to low temperature and bird migration.</p> <p>Continued active surveillance for early detection and control measures of poultry diseases.</p> <p>Increase public awareness.</p> <p>Increase biosecurity measures in poultry farms</p>
		Central Inland & Central Coastal	<p>Increase in newcastle, Mareks, Fowl pox and Bronchitis disease outbreak due to low temperature and bird migration.</p> <p>Continued active surveillance for early detection and control measures of poultry diseases.</p> <p>Increase public awareness.</p> <p>Increase biosecurity/traceability measures in poultry farms, points of entry &amp; Depots</p>
		South  Stann Creek & Toledo	<p>Increase in newcastle, Mareks, Fowl Pox and virus disease outbreak in Southern region; possible bronchitis disease outbreak as well.</p> <p>Implementation of vaccination program against newcastle disease.</p> <p>Training of farmer on how to vaccinate against newcastle</p> <p>Public awareness and educational trainings.</p> <p>Increase surveillance (active and passive) for early detection and control measures.</p>
2	Cattle	North  Orange Walk, Corozal	<p>Can cause an increase in internal and external parasites; as well as increase in rabies outbreak.</p> <p>Recommend timely vaccination against rabies and deworming of animals along with pasture management (silvopastoral system)</p> <p>Increase bat trapping for hematofagous bats</p> <p>Ensure adequate water supply and hay storage, protein banks or citrus pellets</p> <p>Can cause an increase in vesicular stomatitis in cattle and horses</p> <p>Increase management practice as well as pasture rotation.</p> <p>Increase biosecurity measures.</p> <p>Isolate and treat infected animal to prevent further infection.</p>
			<p>Monitoring for early detection in the increase of internal and external parasites; as well as increase in rabies outbreak.</p>

		Central Inland & Central Coastal	Cayo & Belize	<p>Recommend timely vaccination against rabies and deworming of animals along with pasture management (silvopastoral system)</p> <p>Continued bat trapping for hematofagous (vampire) bats</p> <p>Monitor for early detection of vesicular stomatitis in cattle and horses</p> <p>Increase herd management practice as well as pasture rotation.</p> <p>Increase biosecurity measures.</p> <p><b>Isolate and inform BAHA/MoA</b> to investigate infected animal.</p>
		South	Stann Creek & Toledo	<p>Still possibility of rabies transmission in cattle as well as vesicular diseases outbreak</p> <p>Continued surveillance for transboundary diseases.</p> <p>Continued rabies vaccination where applicable.</p> <p>Continued in bat trapping program required.</p> <p>Can cause an increase in vesicular stomatitis in cattle and horses</p> <p>Continued management practice as well as animal rotation.</p> <p>Continued biosecurity measures.</p> <p><b>Isolate and inform BAHA/MoA</b> to investigate infected animal.</p>
				<p>Possible out break of frog hopper in pastures</p> <p>Monitor and control measures where possible</p> <p>Can cause possible gastrointestinal infections</p> <p>Monitor for internal parasite in animals.</p>
3	Pigs	North	Corozal & Orange Walk	<p>Possible gastro intestinal and respiratory infections</p> <p>Proper farm management</p> <p>Implement deworming strategies and monitoring of symptoms</p>
		Central Inland & Central Coastal	Cayo & Belize	<p>Possible gastro intestinal and respiratory infections</p> <p>Proper farm management</p> <p>Implement deworming strategies and monitoring of symptoms</p>
		South	Stann Creek & Toledo	<p>Possible diarrhea infection</p> <p>Proper farm management (proper sanitary measures)</p> <p>Continued public awareness</p>
4	Sheep	North	Corozal & Orange Walk,	<p>Possible internal and external parasites.</p> <p>Rotation of Dewormers for animals and continued vitamins shots if required</p> <p>Proper farm management</p>

		Central Inland & Central Coastal	Cayo & Belize	<p>Possible internal and external parasites. Deworming of animals and vitamins shots required Proper farm management</p> <p>Possible rabies outbreak Continue vaccination and trapping of vampire bat</p>
		South	Stann Creek & Toledo	<p>Possible risk for vesicular and transboundary disease that can potentially enter Belize. Continue surveillance (active and passive) program for these transboundary disease. Proper farm management</p> <p>Can cause an out break of frog hopper in pastures Monitor and control measures where possible</p>

5	Bees	North	Corozal & Orange Walk	<p>Will favour an increase in small hive beetle population outbreak. Management practice in the control of the pest where it is present (Corozal Dist) Increase monitoring and surveillance</p>
		Central Inland & Coastal	Cayo & Belize	<p>Can have a possible infestation of small hive beetle population. Monitoring and surveillance needs to be conducted frequently</p>
		South	Toledo & Stann Crk	<p>Can have a possible infestation of small hive beetle population. Monitoring and surveillance needs to be conducted frequently</p>

#### AGRICULTURE COMMODITIES

1	Sugarcane	North	Corozal & Orange Walk (North & South West)	<p>This condition will not favour the pest population outbreak of the frog hopper. Continue surveillance and monitoring of the pest</p> <p>This condition will favour sugar cane borer population outbreak. Monitor and control where possible of the sugar cane borer.</p>
		Central & Inland Coastal	Cayo & Belize	<p>This condition will not favour the pest population outbreak of the frog hopper. Continue surveillance and monitoring of the pest</p> <p>This condition will favour sugar cane borer population outbreak. Monitor and control where possible of the sugar cane borer.</p>
		South	Stann Creek & Toledo	<p>Still poses a possibility of pest population increase of frog hopper. Increase surveillance and monitoring of pest population</p>

2		Central		<p>Will favour psyllid population growth and possible outbreak. Increase monitoring of population dynamics</p>
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	Citrus	Central Inland	Cayo	<p>Initiate area wide control measures</p> <p>Can increase the mite population a vector for the citrus leprosis virus.</p> <p>Miticide spray might be necessary for control.</p>
		South	Stann Creek & Toledo	<p>Will favour psyllid population growth.</p> <p>Monitoring and control for the pest where possible.</p>
3	Bananas	South	Stann Creek & Toledo	<p>Will still be a possibility of outbreaks of Sigatoka</p> <p>Increase monitoring and preventative control measures.</p> <p>Still a possibility of flooding in certain areas</p> <p>Maintenance of drainage systems</p> <p>Will still be possibility in nematodes outbreak</p> <p>Continue monitor and implement control measures where possible</p>
4	Grains: Corn, Rice, Beans, Soy bean & Sorghum	North	Corozal & Orange Walk	<p>This will still favour chances of mite population outbreak.</p> <p>Monitoring and preventative spray with miticide.</p> <p>Will favour army worm population outbreak</p> <p>increase monitoring and effective control measures if necessary</p> <p>This will favour the yellow sorghum aphid population increase.</p> <p>Increase surveillance and control where necessary.</p>
		Central & Coastal	Cayo & Belize	<p>This will favour an increase in chances of mite population outbreak.</p> <p>Monitoring and preventative spray with miticide.</p> <p>Will favour army worm population outbreak</p> <p>increase monitoring and effective control measures if necessary</p> <p>This will favour the yellow sorghum aphid population increase.</p> <p>Increase surveillance and control where necessary.</p>
		South	Stann Creek & Toledo	<p>This will favour fungal problems as well as bacterial outbreak.</p> <p>Increase monitoring and control measures where necessary.</p> <p>Ensure proper drainage system to avoid excess moisture</p>
5	Horticulture: Tomatoes, Peppers, Onions, Cabbage, Carrots &	North	Corozal, Orange Walk	<p>This will favour an increase in white flies, thrips and mite outbreak along with viral diseases.</p> <p>Monitoring and implementing effective control measures.</p> <p>Cover structure production where possible</p> <p>This will favour increase in population for diamond back moth</p> <p>Increase surveillance and monitoring of the pest and apply insectide where necessary</p>

	Carrots & Potatoes	Central Inland & Central Coastal	Cayo & Belize	<p>This will favour white flies, thrips and mite outbreak along with viral diseases. Monitoring and implementing effective control measures. Cover structure production where possible</p> <p>This will favour increase in population for diamond back moth</p> <p>Increase surveillance and monitoring of the pest and apply insecticide where necessary</p>
		South	Stann Creek & Toledo	<p>This will still favour fungal problems as well as bacterial outbreak. Increase monitoring and control measures where necessary. Ensure proper drainage system to avoid excess moisture</p>
6	Fruits Trees: Coconuts, Avocados, Soursop, Cacao & Pineapple	North	Corozal & Orange Walk	<p>Will increase red mite population in coconuts. Spray with miticide where possible</p> <p>Increase in white fly population in avocados and soursop Monitoring and spray with systemic insecticide</p> <p>Possible increase in the wasp &amp; moth population that affects soursop fruits. Monitoring of the wasp &amp; moth and insecticide application where necessary followed by bagging of fruits</p> <p>Can increase weevil (<i>Rhyncophorus palmarum</i>) infestations that causes red ring disease Increase monitoring and trapping</p>
		Central & Coastal	Cayo & Belize	<p>Can increase red mite population in coconuts. Monitor and Spray with miticide where possible</p> <p>Can increase in white fly population in avocados and soursop monitoring and spray with systemic insecticide</p> <p>Possible increase in the wasp &amp; moth population that affects soursop fruits. monitoring of the wasp &amp; moth and insecticide application where necessary followed by</p> <p>Can increase weevil (<i>Rhyncophorus palmarum</i>) infestations that causes red ring disease Increase monitoring and trapping</p>
		South	Stann Creek & Toledo	<p>This will favour possible incidence of phytophthora problems in coconuts and pineapple. Continue monitoring and control measures where necessary.</p> <p>Will favour possible problems in monilia in cacao. Continue monitoring for moniliasis and control measure where necessary Ensure proper drainage system to avoid excess moisture</p>

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<b>Aproximate rainfall amount expected for different areas of Belize for December 2018, Jan &amp; Feb 2019</b>		
<b>REGION</b>	<b>RAINFALL AMOUNT (mm)</b>	<b>Category</b>
North ( Corozal & Orange Walk District	130 - 170	Normal to slightly Below Normal
Central Inland areas (Cayo District)	300 - 650	Near Normal
Central Coastal Areas (Belize District)	340 - 400	Near Normal
Southern Areas (Stann Creek & Toledo District)	400 - 600	Normal to slightly above normal

Nb. Provided by the Met Department

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