

Impact of November Hurricanes Eta and Iota on the Segunda/Postrera Cropping Season in Central America

Updated December 15th, 2020

Highlights

- The start of the *Segunda/Postrera* agricultural season in Central America was generally favourable from August through October with above-average rainfall resulting in good crop development.
- Crop conditions quickly deteriorated in November across parts of the region impacted by the passing of two Category 4 hurricanes, Hurricanes Eta and Iota.
- The 2020 Atlantic hurricane season has been the most active ever recorded with 30 named storms, more than twice the long-term yearly average of 12, and the only season with two major hurricanes in November. This has resulted in one of the wettest October to November periods since 1981 across parts of Central America.
- In early November, Hurricane Eta crossed Central America and affected an estimated 4 million people across the region as persistent rains and heavy winds resulted in flooding, landslides, and crop damage across Nicaragua, Honduras, El Salvador, and Guatemala.
- Two weeks later on November 17th, Hurricane Iota made landfall over northern Nicaragua as a Category 4 hurricane, the strongest Atlantic hurricane this year, and extended along virtually the same path as Hurricane Eta across Nicaragua, Honduras, and Guatemala.
- Excessive flooding and considerable damage to standing crops and agricultural infrastructure have significantly decreased yield prospects for the *Segunda/Postrera* season crops (Figure 1).
- According to UN OCHA, as of December 4th, an estimated 7.3 million people have been affected by Eta and Iota across Central America with Honduras, Nicaragua, and Guatemala having the highest affected populations in respective order. Floodwaters have not yet fully receded in some areas, and additional rainfall in December has worsened flooding in parts of Honduras.

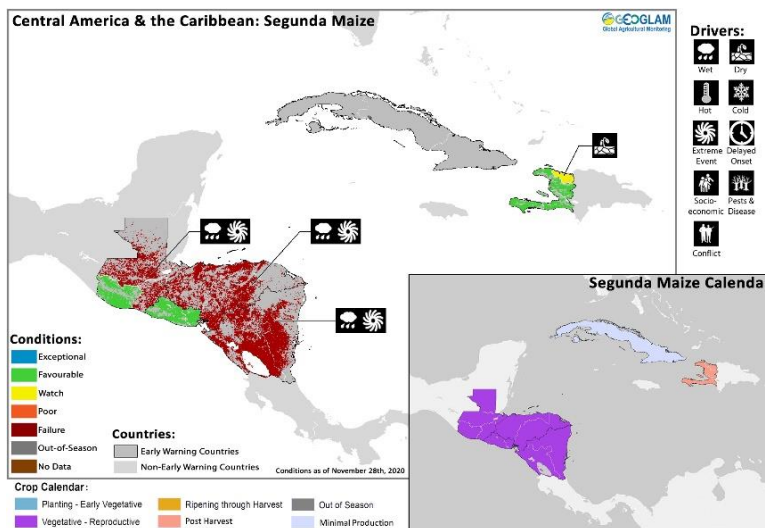


Figure 1. Crop conditions over Central America and the Caribbean as of November 28th, 2020. Source: GEOGLAM Crop Monitor for Early Warning December Bulletin

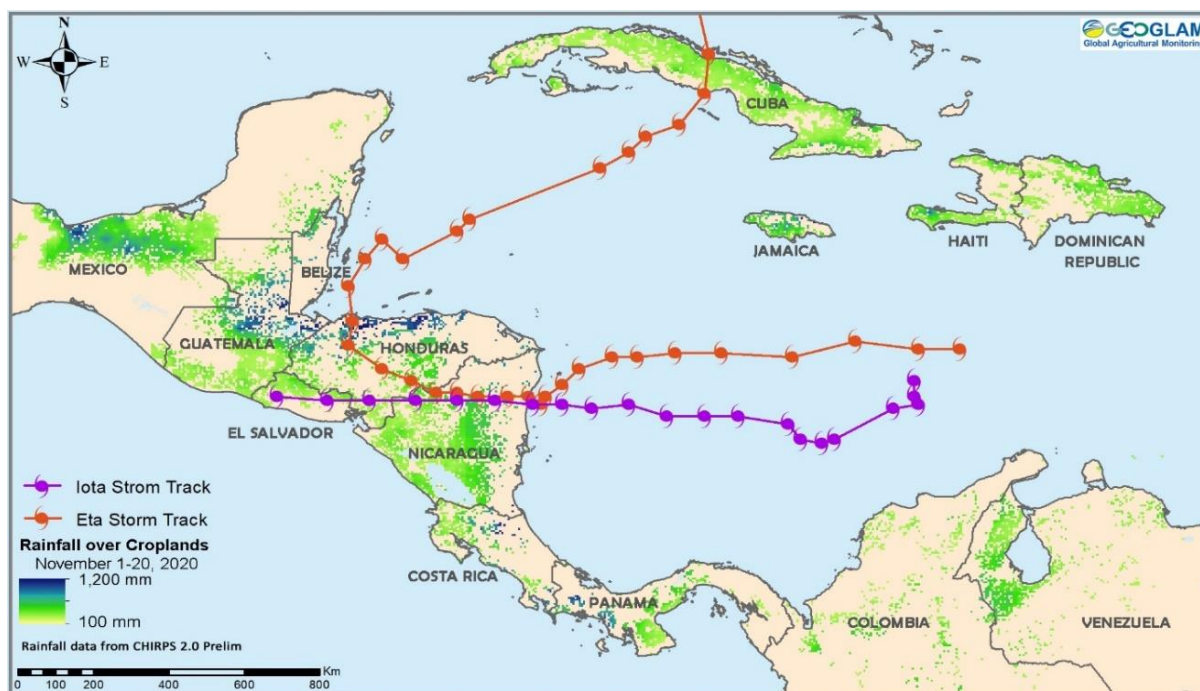
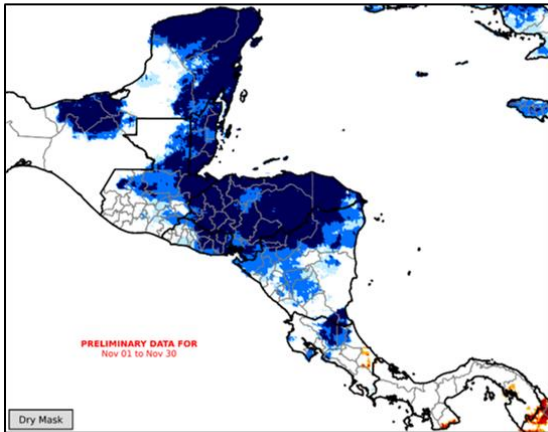


Figure 2. Hurricane Eta and Iota storm tracks and rainfall received over cropland areas in Central America and the Caribbean. Source: GEOGLAM.

Recent Rainfall Rank
October 01 – November 30 2020



Recent Rainfall Rank
November 01 –30 2020

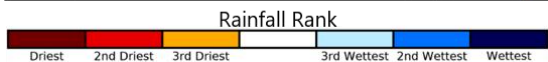
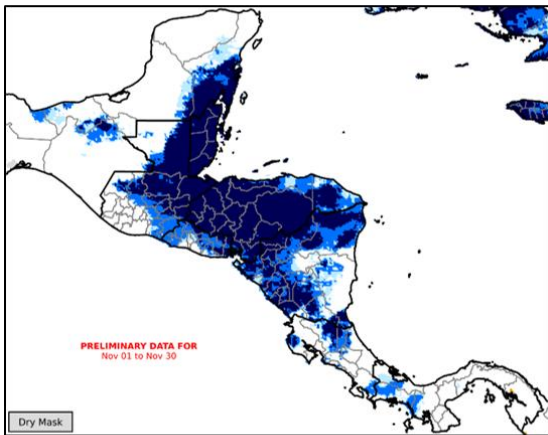


Figure 3. CHIRPS Rank graphic indicating rainfall totals for the October 1st to November 30th (top) and November 1st to November 30th (bottom) period ranked in the three wettest or three driest relative to the CHIRPS historical record (1981-2019). Source: UCSB Climate Hazards Center

Overview

The *Segunda/Postrera* season in Central America typically starts with planting in August and September, and concludes with harvest in December (Figure 4). It is the primary season for bean production across much of the region. From August through October, the 2020 *Segunda/Postrera* agricultural season in Central America was generally favourable with above-average rainfall resulting in good vegetation health and prospective yields. However, crop conditions quickly deteriorated in November across parts of the region impacted by the passing of two Category 4 hurricanes, Hurricanes Eta and Iota. The 2020 Atlantic hurricane season has been the busiest ever reported with 30 named storms, more than twice the long-term yearly average of 12 and the only season with two major hurricanes in November. This has resulted in one of the wettest October to November periods on record since 1981 across parts of Central America (Figure 3).¹

On November 3rd, Hurricane Eta made landfall in northeastern **Nicaragua** on the coast of southern Puerto Cabezas as a Category 4 hurricane before weakening to a tropical storm, entering eastern **Honduras**, and affecting **El Salvador** with rains on November 4th. Eta then headed northwest into northeastern **Guatemala** through November 5th before weakening to a tropical depression and turning into the Caribbean Sea on November 6th. The storm affected an estimated 4 million people across much of Central America as persistent rains and heavy winds resulted in flooding, landslides, and crop damage across **Nicaragua, Honduras, El Salvador, and Guatemala**.² Then on November 17th, Hurricane Iota made landfall over northern **Nicaragua** 25 km south of Eta’s landfall as a Category 4 hurricane, the strongest Atlantic hurricane this year, and extended along virtually the same path as Hurricane Eta.³ Iota quickly degraded to a tropical storm as it moved into southern **Honduras** and then weakened further to a tropical depression as it moved over **El Salvador**. The persistent rains and high winds exacerbated previous damage from Eta across **Honduras, Nicaragua, and Guatemala**.⁴

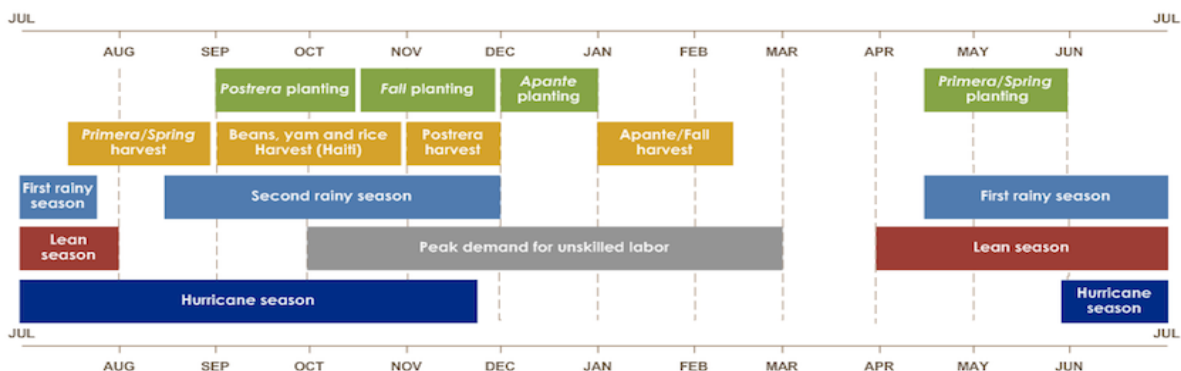


Figure 4. Central America and Caribbean Seasonal Calendar. Source: FEWS NET

Hurricane Eta and Iota Impacts

According to UN OCHA, 7.3 million people have been affected by Eta and Iota across Central America and the Caribbean with **Honduras, Nicaragua and Guatemala** having the highest affected populations in respective order.⁵ Across these countries, the northern departments were the most affected by flooding and damage to crops and infrastructure. In **Honduras**, heavy rainfall and strong winds from Hurricane Eta affected 2.94 million people, nearly 30 percent of the country’s population, and caused catastrophic damage across nearly all 18 departments, particularly in the northern departments of Atlántida, Cortés, Yoro, and the Sula Valley where banana and African palm are the primary crops and Santa Bárbara where coffee is produced.⁶ Government reports indicate the worst affected crops include banana as well as African palm and sugar cane.⁷ Also, according to the country’s Ministry of Agriculture



Figure 4. (Left) Flood affected maize fields in El Paraíso, Honduras. Source: Secretaría de Agricultura y Ganadería (SAG), Honduras. (Right) Flood affected maize crops in Valle, Honduras following heavy rains from Hurricane Eta. Source: SAG, Honduras.

and Livestock, 8,200 hectares of maize and 12,850 hectares of beans were lost in Atlántida, Colón, Comayagua, Copán, El Paraíso, Francisco Morazán, Intibucá, Lempira, Olancho, and Yoro departments as of November 12th (Figure 4).⁸ Hurricane Iota increased the number of affected people to 3.8 million, and many areas in the Cortés department experienced further flooding.⁹ The storm also inundated mountainous southern central departments that present significant landslide risks. In **Nicaragua**, Hurricane Eta affected 130,000 people throughout the country and was followed by Hurricane Iota which caused further flooding in the North, Central Pacific,



Figure 5. (Top-Left) Flood damaged Primera season maize crops in Chiquimula Department, Guatemala. (Top-Right) Landslide-affected agricultural fields in Chiquimula Department, Guatemala. (Bottom) Moisture damaged bean crops in Eastern, Guatemala. Source: FEWS NET/ Ministry of Agriculture, Guatemala.

and Caribbean regions, increasing the number of affected people to 1.8 million.¹⁰ *Postrera/ Segunda* season bean losses in the north were significant as they remained in the field and were impacted by both storms, while in the south, bean harvests were favourable as they were harvested prior to the impacts of Iota. In **Guatemala**, Hurricane Eta affected 900,500 people, and there is concern over potential extensive damages to crops and livelihoods.¹¹ The Ministry of Agriculture, Livestock and Food estimates 120,000 hectares

of land had been affected by Hurricane Eta as of November 17th with Santa Rosa (southeast) and Alta Verapaz (central north) departments having the largest affected areas.¹² Hurricane Iota then inundated nearly all departments, with the previously affected north and eastern departments amongst the most affected, particularly Izabal, Santa Rosa, and Jutiapa. The number of affected people increased to 1.7 million, and Hurricane Iota increased total affected crop area to 164,000 hectares.¹³ In Eastern Guatemala, a critical bean producing area of the country, bean losses were reported to be close to 50-60 percent amongst major production and subsistence farmers due to excess moisture (Figure 5-bottom). In addition to bean crop damage, many subsistence farmers in Chiquimula, Zacapa, and Jutiapa are reported to have lost a large portion of their 2020 *Primera* season maize crops to flood damage which were left in the field to support bean crop trellising (Figure 5-top-left). This will also reduce their seed quality and quantity for the next 2021 sowing season as seeds are usually saved and carried over from the previous harvest. In areas affected by landslides and where cropping areas were damaged or destroyed, sown area may decrease for subsistence farmers for the *Primera* 2021 cropping season (Figure 5-top-right). In addition, road collapses from landslides have reduced labour opportunities for many communities. For instance, in Chiquimula, three weeks of labour were lost as workers were not able to access the coffee plantations. This reduction in earnings will impact their ability to purchase food and the amount of money available to purchase seeds and inputs for the 2021 *Primera* season. While total losses of *Segunda* season maize crops were high, domestic supplies will likely not be diminished due to overall good harvests gathered in the *Primera* season. Conversely, impacts were minimal for bean and maize crops in the marginal producing south where conditions remain favourable. **El Salvador** was largely unaffected by Eta and Iota, though some regions were affected by high winds and minor landslides.¹⁴

Northern departments of **Guatemala**, **Honduras** and **Nicaragua** were some of the most affected areas from Hurricanes Eta and Iota. Agro-climatological indicators for the 2020 *Segunda* cropping season over these areas show the back to back effects of heavy rainfall from the two Hurricanes in November with cumulative seasonal rainfall significantly above the five-year average from the start of November across northern **Guatemala**, northern **Honduras** and northern **Nicaragua**. In addition, the surface soil moisture is above the five-year average across all areas and above the ten-year maximum in northern **Nicaragua** and northern **Honduras** (Figure 6).

Agro-climatic Indicators for Hurricane Impacted areas of Central America’s 2020 Segunda Cropping Season

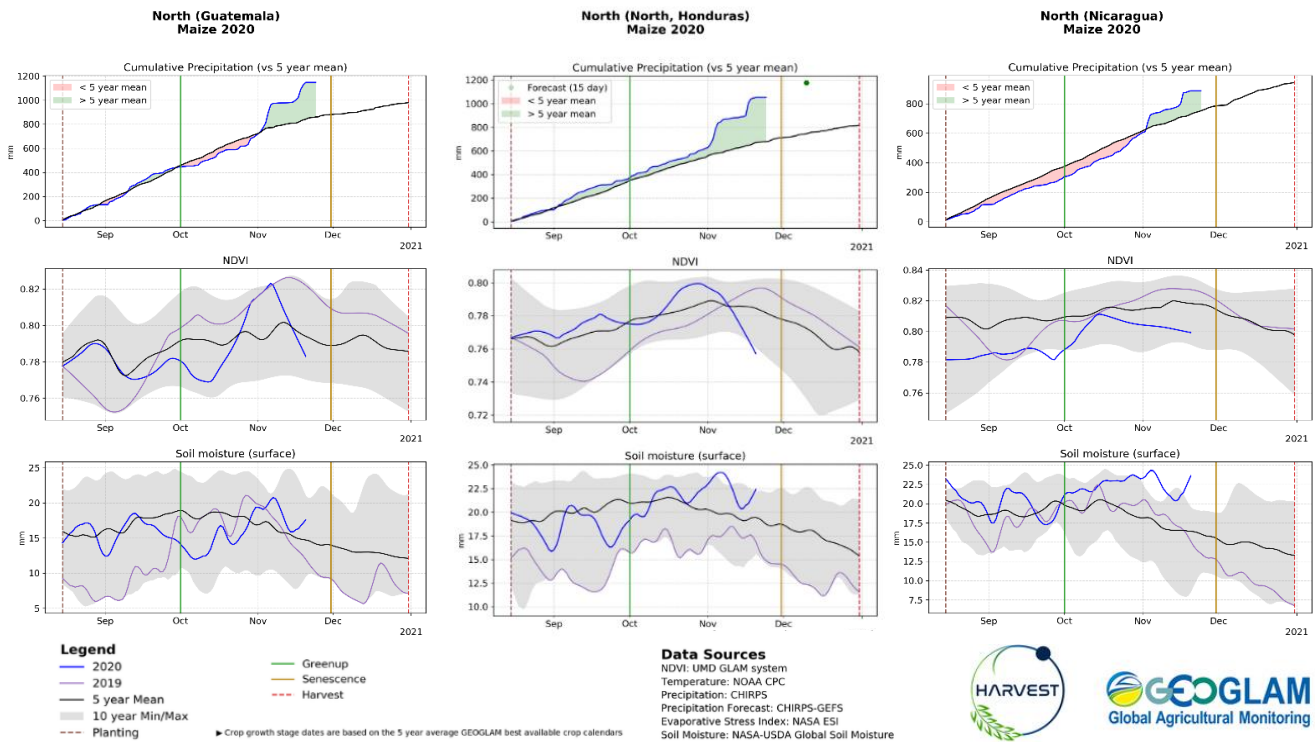


Figure 6. Agro-climatic indicators over the current 2020 main cropping season in North, Guatemala (left) North, Honduras (center) and North, Nicaragua (right). Source: NASA Harvest.

Flood water extent from Hurricanes Eta and Iota over agricultural lands is also visible from satellite imagery (Figure 7). The Ulua Basin in **Honduras** and Prinzapolka in **Nicaragua** were two areas that experienced heavy flooding and where crop damage resulted for *Segunda* crops (Figure 7); however, these regions are not significant production areas for maize and bean crops.

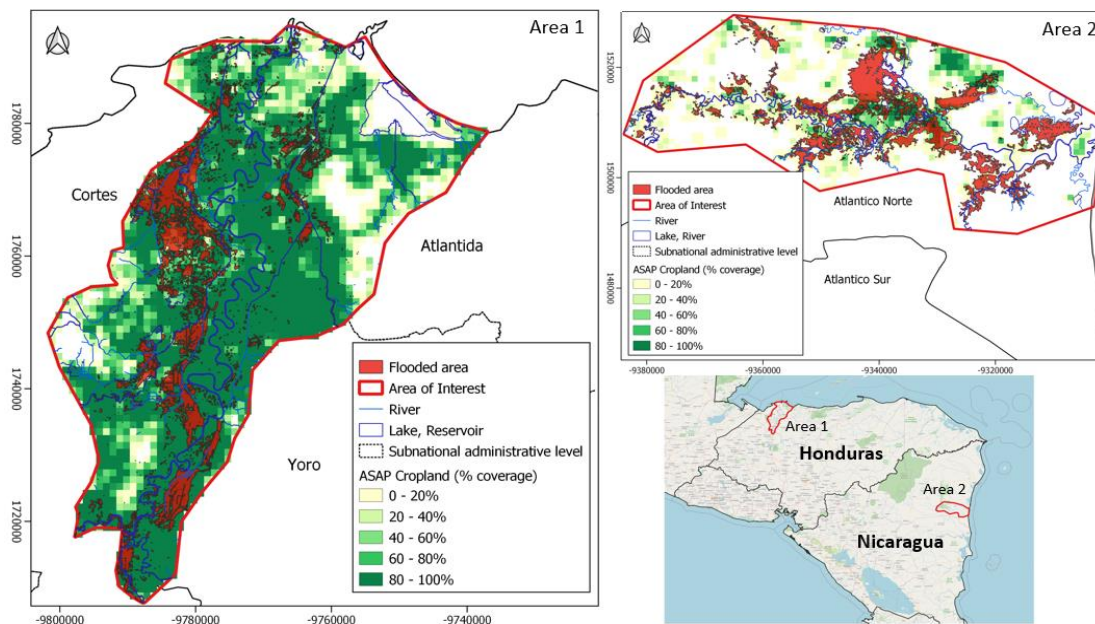


Figure 7. Flood water extent layer from Emergency Management Service Mapping-Copernicus overlaid to ASAP crop mask. Area 1 is located in Ulua Basin in Honduras and Area 2 in Prinzapolka in Nicaragua. According to [EMSR for Ulua Basin](#) , heterogeneous agricultural areas affected are 6862.1 ha, forests affected are 14397.4, shrub and/or herbaceous vegetation association affected are 4334.7 ha. According to [EMSR for Prinzapolka](#) , forests affected are 14926.2 ha, shrub and/or herbaceous vegetation association affected are 12822.1 ha. (Source of Flood layers: [EMSR481: Tropical Cyclone ETA in Honduras](#), [EMSR482: Tropical Cyclone Iota in Central America](#), Source of crop mask: [EC-JRC ASAP](#) , Basemap on the right: Open Street Map)

November Rainfall and Forecast Updates

Following the passing of Hurricanes Eta and Iota in November, which brought record rainfall amounts to the region (Figure 8-left), there was additional average to above-average rainfall from November 26th through December 5th across northern and southern Guatemala, southwestern **Honduras**, **El Salvador**, and western **Nicaragua**, while below-average rainfall was recorded along the Caribbean coast of **Guatemala**, **Honduras**, and **Nicaragua** (Figure 8-middle). The 15-day CHIRPS-GEFS rainfall forecast anomaly for December 10th to December 24th indicates below-average rainfall throughout the region, while rainfall amounts of 50 mm or higher are expected in parts of northeastern **Guatemala**, eastern **Honduras**, and eastern **Nicaragua**, which may increase the risk of further flooding and landslides (Figure 8-right).

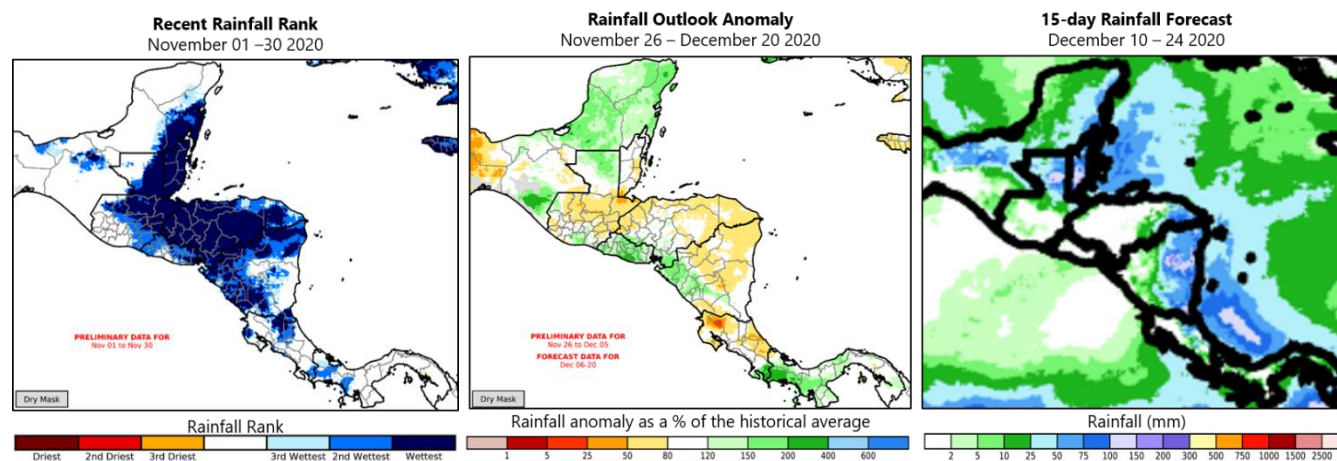


Figure 8. (Left) CHIRPS Rank graphic indicating rainfall totals for November 1st to November 30th ranked in the three wettest or three driest relative to the CHIRPS historical record (1981-2019). (Middle) Estimated and forecasted rainfall from November 26th to December 20th from UCSB Climate Hazards Center Early Estimates. (Right) 15-day forecast for December 10th to 24th from CHIRPS-GEFS. Source: UCSB Climate Hazards Center.

Potential Food Security Outcomes and Response

Prior to 2020, food security in parts of Central America was already affected by limited production from the poor rainfall received in 2018 and 2019 cropping seasons. The consecutive dry seasons drove high food insecurity and prompted food assistance needs, particularly in the Dry Corridor areas of **El Salvador**, southern **Guatemala**, west and central **Honduras**, and western **Nicaragua**.¹⁵ In 2020, prospects improved as the *Primera* season, the primary cereal production season across Central America, benefitted from above-average rainfall and resulted in favourable production when the season finalized in October 2020. While the *Segunda/Postrera* season benefitted from similar conditions from the start of planting in August through crop development in October, significant crop damage from Hurricanes Eta and Iota in November reversed previous estimates of favourable production.

As the *Segunda* season is a minor producing season for maize, the Governments of **Guatemala** and **Honduras** have assured that domestic supplies will likely not be diminished due to good harvests gathered during the main *Primera* season. However, there have been reports of subsistence farmers losing their stores of *Primera* season crop harvests as the high-water levels flooded houses and storage areas for crops.¹⁶ In these instances, households will not be able to fall back on stored crops that they rely on for food supply through the September 2021 harvest cycle.¹⁷ Additionally, prices of white maize increased in November across **Honduras** and **Guatemala** as a result of extensive crop damage and trade declines from damaged road infrastructure. In **Nicaragua**, prices of white maize continued to decline seasonally in November, though they were slightly above the comparative November 2019 levels.¹⁸

In contrast to maize production, the *Postrera* season is the primary season for bean production in many areas. As such, food security impacts will likely be more severe for areas that experienced bean crop losses, including north and southern **Honduras**, northern **Nicaragua**, and east and central **Guatemala**. To compensate for crop losses, farmers in **Nicaragua** and **Honduras** may increase plantings for *Apante* season beans, the main season for red beans in **Nicaragua**, to be planted from December. Overall, price increases of beans in November were more pronounced than those of maize across Central America. In **Honduras**, the Government placed price ceilings on essential food items, including red beans, for a period of one month amid sharp price increases resulting from crop losses. However, prices remained below comparative November 2019 levels due to above-average minor *Primera* season harvests earlier in the year. Similarly, in **Nicaragua**, while prices of beans increased more than 20 percent in November, they remained below the comparative November 2019 levels as ample minor *Primera* season outputs resulted in price declines for the July to October 2020 period.¹⁹ The Government is carrying out evaluations of the agricultural sector and is preparing family agriculture bonuses to mitigate food insecurity.²⁰ In **Guatemala**, prices of black beans in November were more than 30 percent higher than November 2019 levels due to decreased production in key eastern producing areas as well as previous upsurges amid the COVID-19 pandemic, further limiting accessibility for vulnerable households.²¹ Also, the World Food Programme reports that nearly 70 percent of local markets are not fully supplied due to the impacts from the storms.²²

In addition to crop and farmland damages, Eta and Iota also impacted labour demand, livestock and fishing activities, and transportation systems, decreasing income-earning opportunities for both rural and urban communities and thereby diminishing

household purchasing power.²³ Furthermore, the hurricane impacts are compounding the effects of the COVID-19 pandemic on food security. While the favourable 2020 *Primera* season harvests and the gradual increase in economic activity due to the lifting of COVID-19 measures somewhat improved food availability and access in Central America, many households still face difficulties earning sufficient income for their food needs. The combined impacts of decreased food supply from previous dry seasons, hurricane damages, and COVID-19 related economic impacts are expected to increase the number of people facing Crisis (IPC Phase 3) levels of food security for the coming months.²⁴ In addition, access limitations persist in many areas due to damaged roads and infrastructure and residual flooding, and many communities remain isolated as communication networks and infrastructure were damaged in both storms.²⁵

Endnotes

- ¹ "Central America Tropical Storm Eta & Hurricane Iota: Humanitarian Snapshot." Reliefweb. December 4, 2020. [https://reliefweb.int/sites/reliefweb.int/files/resources/2020-12-04_Snapshot_\(ENG\).pdf](https://reliefweb.int/sites/reliefweb.int/files/resources/2020-12-04_Snapshot_(ENG).pdf); "Latin America & The Caribbean: 2020 Hurricane Season Situation Report No. 4 (As of 5:00pm EST 20 November 2020)." Reliefweb. November 21, 2020. <https://reliefweb.int/report/honduras/latin-america-caribbean-2020-hurricane-season-situation-report-no-4-500pm-est-20>; "One Month after Hurricanes Batter North of Central America, Hundreds of Thousands Still Waiting for Humanitarian Aid." Reliefweb. December 8, 2020. <https://reliefweb.int/report/honduras/one-month-after-hurricanes-batter-north-central-america-hundreds-thousands-still>.
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