

Second consecutive year of failed yields for subsistence farmers in Central America’s Dry Corridor

updated October 21, 2019

Highlights

- Harvest of *Primera* (main season) maize and beans completed in September across Central America.
- While national production was generally average across the region, with exception of Honduras, due to an increase in area planted, final yields were reduced due to irregular weather conditions during the start of the season including high temperatures, below-average and irregular rainfall, and extended dry spells, which resulted in severe soil moisture deficits.
- In particular, subsistence and some larger-scale farmers along the Dry Corridor of Guatemala, Honduras, and Nicaragua without access to irrigation systems or riverine areas experienced significant crop losses ranging from 50 to 75 percent.
- This is the second consecutive year of poor and failure *Primera* season harvests across the Dry Corridor, after the severe drought of 2018, and food security is of increasing concern for subsistence farmers.
- *Postrera* (second maize season) planting, was delayed in some regions with rainfall deficits during late-August and was resumed in mid-September with increased rainfall amounts.

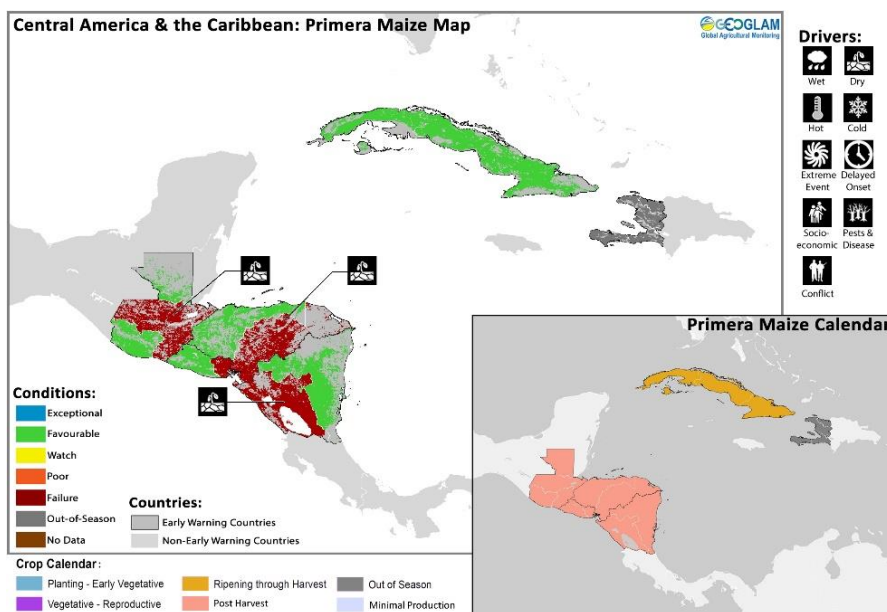


Figure 1. Post-harvest conditions for the 2019 Primera season. source GEOGLAM Crop Monitor for Early Warning Bulletin, October 2019.

Overview:

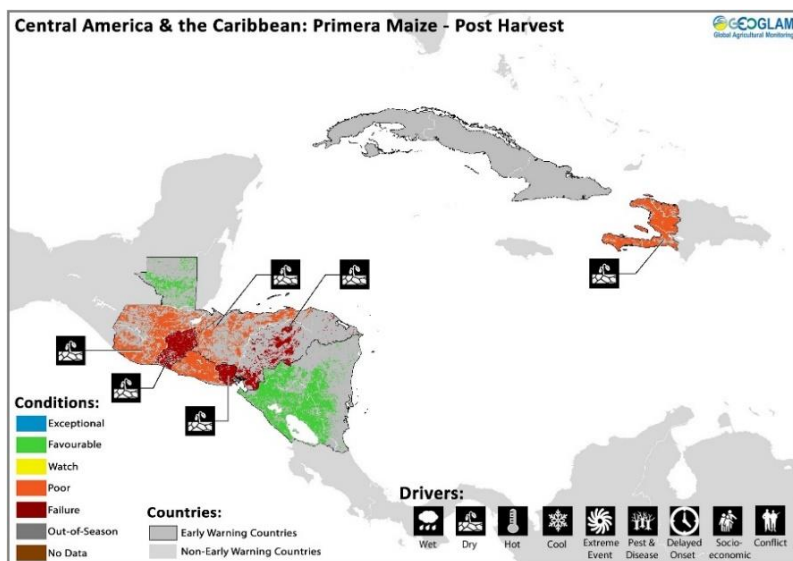


Figure 2. Post-harvest conditions for the 2018 Primera season. Source: GEOGLAM Crop Monitor for Early Warning Bulletin, October 2018.

Last year during the 2018 main producing *Primera* season, severe drought impacted large parts of Central America resulting in poor and failure conditions (See Figure 2). According to the [UN FAO](#), the 2018 drought led to the loss of 280,000 hectares of beans and maize in Guatemala, El Salvador, Honduras, and Nicaragua, affecting the food security of more than two million people. The majority of crop losses were among subsistence agriculturalists along the Dry Corridor, where field-scale maize and bean losses reached 75-100 percent. A State of Emergency was declared in El Salvador and Honduras to address the lack of water and resulting crop losses.

2019 marks the second consecutive year of failure for *Primera* crops over the Dry Corridor of Central America due to below average and irregular rainfall, and above-average temperatures. The start of the season made records as one of the driest early-June to late-July periods since 1981 with some areas receiving rainfall totals of less than 80 percent of the average (See Figure 3).

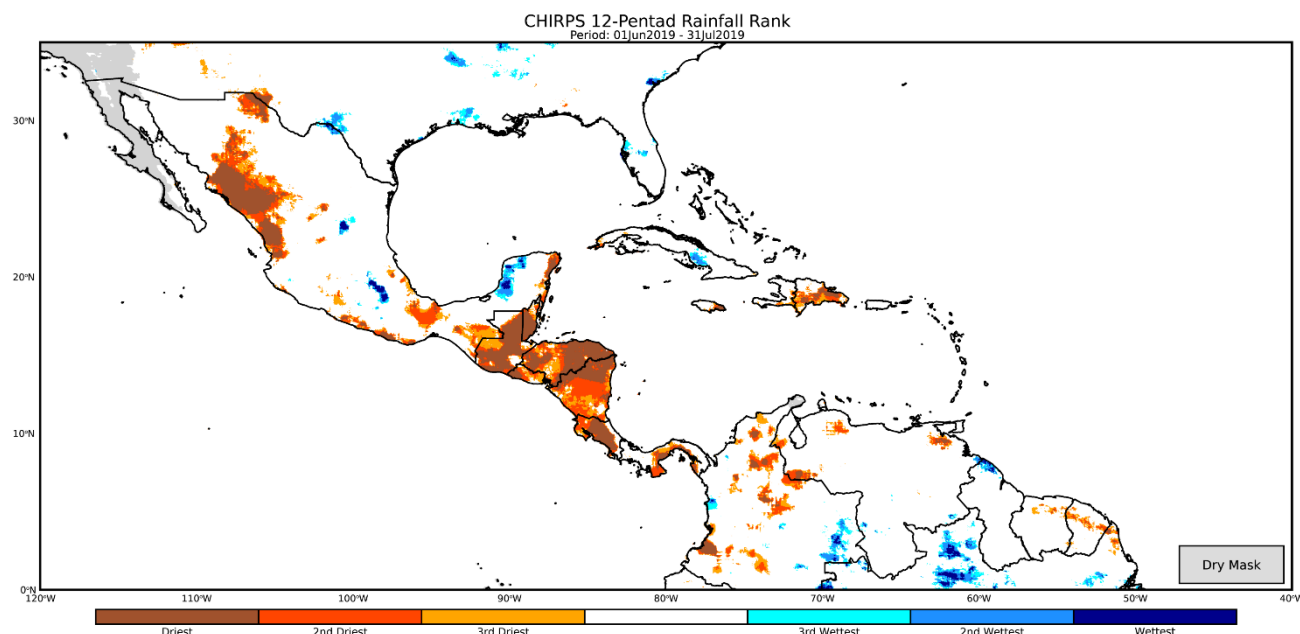


Figure 3. June 1st to July 31st, 2019 rainfall rank. Based on CHIRPS data for 1981-2019 data. Red (blue) colors show where totals for this period are among the lowest (highest) since 1981. Source: UCSB CHC

Primera season harvest finished last month and national-level production remained close to the average across the region, thanks to an increase in total maize sown area. However, significant crop losses occurred across central and east Guatemala, south Honduras, east El Salvador, and parts of Nicaragua with many areas incurring yield reductions of up to 50 to 75 percent (Figure 1). The worst losses were experienced by subsistence farmers along the Dry Corridor without access to irrigation.

2019 *Primera* Season Outcomes

In **El Salvador**, national output was average due to the timely distribution of rainfall in the west, which provided enough moisture for crops to produce favourable yields despite the overall rainfall deficit. However, significant crop losses resulted among subsistence and medium size farmers in the east due to the early-season drought. In central and eastern **Guatemala**, final yields among subsistence farmers were more than 75 percent below-average, while some larger producing farmers in Quiche and Retalhuleu departments reported a nearly 40 percent reduction in yields. In the North and South **Guatemala**, timely rainfall at the end of the season resulted in favourable crop yields, with some localized losses in dry areas of the southern departments Escuintla, Retalhuleu, and Suchitepequez. However, due to the increase in total sown area this year, crop losses from the dry conditions do not represent a major problem for the overall national production. In southern **Honduras**, irregular and insufficient rainfall (Figure 4) reduced yields by an estimated 50 percent due to crop losses in subsistence and main production areas, including in the main producing El Paraiso and Olancho departments. Over El Paraiso department, satellite imagery shows a significant decrease in agricultural areas compared to last year's severe drought (Figure 5) and vegetation indicators show NDVI (vegetation greenness) to be only slightly above 2014 and 2015 drought-stricken levels (Figure 4, left center panel). Similarly, surface soil moisture over southern Honduras is at the lowest recorded level of the past ten years (Figure 4, center bottom panel). In south **Nicaragua**, agro-metrological indicators show seasonal cumulative precipitation and NDVI (vegetation greenness) to be below the 5-year average (Figure 6). Field reports indicate losses of more than 50 percent in the departments of Madriz, Chinandega, Estelí, Matagalpa, Boaco, Nueva Segovia, and Leon. In Leon department, satellite imagery shows a decrease in agricultural areas over small holder plots compared to last year's drought, whereas, over larger commercial farms with access to irrigation or riverine areas cropping conditions look similar to last year.

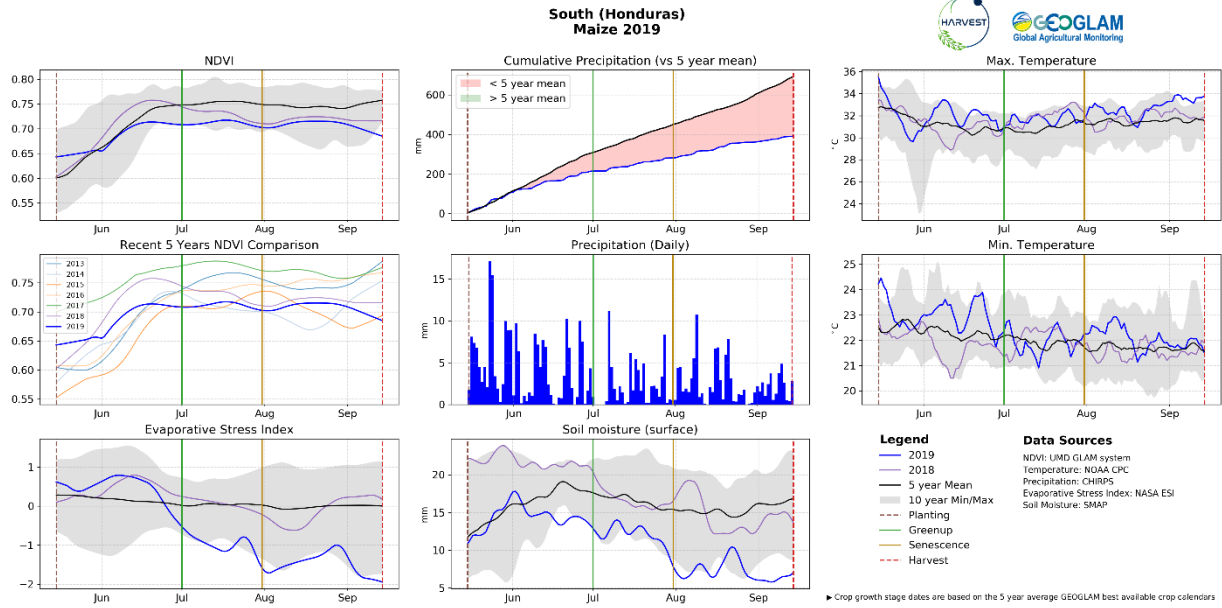


Figure 4. Agro-climatic indicators over the 2019 Primera season in South, Honduras. Cumulative precipitation, NDVI, and Evaporative Stress Index are below the 5-year average and NDVI is only slightly above 2014 and 2015 levels (2014 and 2015 are considered as below average years). Surface soil moisture is at the lowest recorded level of the past ten years. (source: NASA Harvest)

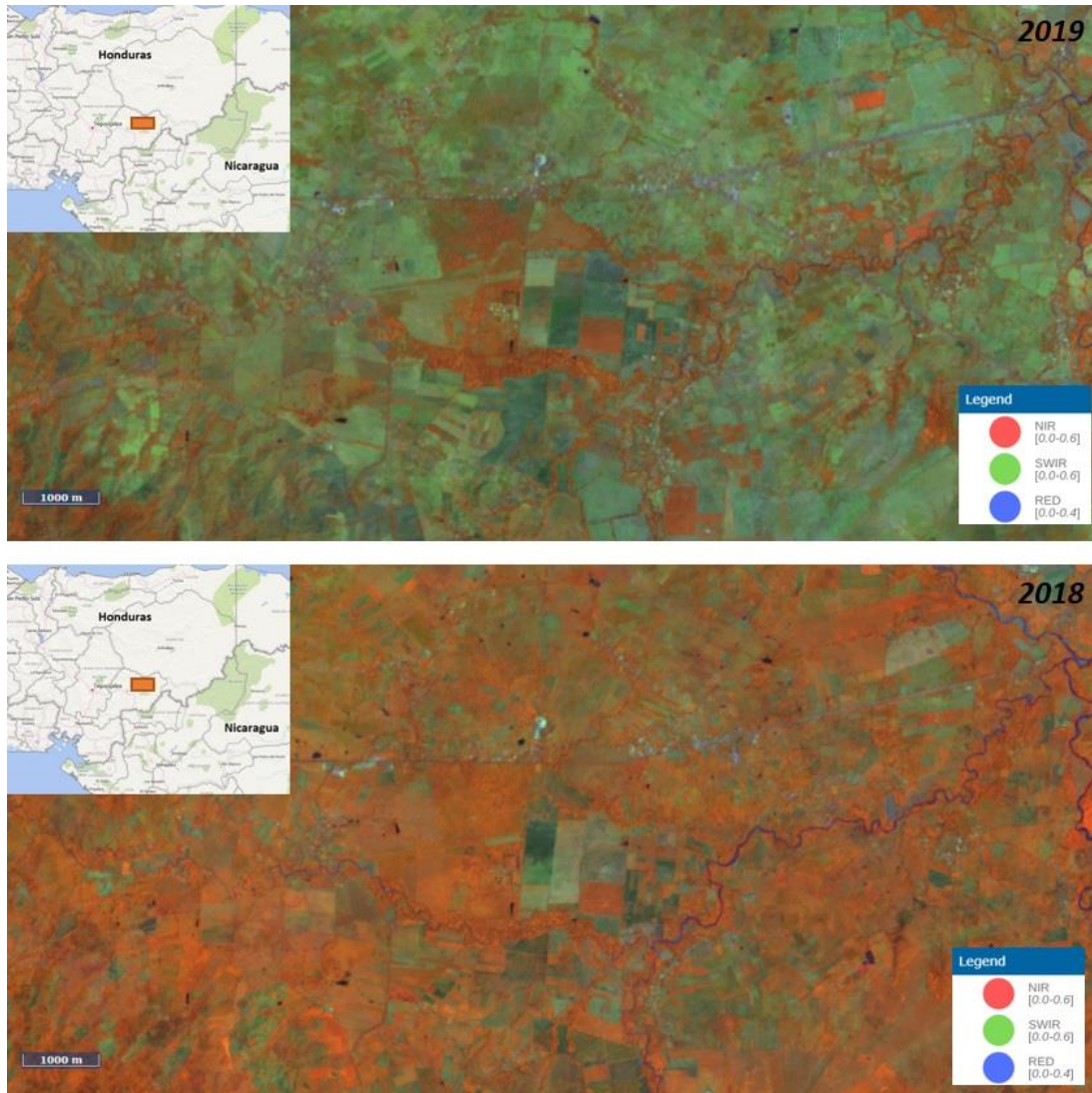


Figure 5: Sentinel-2 Imagery showing crop areas in El Paraiso department, in Honduras, in 2019 (top) and in 2018 (bottom-considered also as a below-average year). Active vegetation is shown in red and bare soil in green. The top image for September 2019 shows that many agricultural areas are bare which represents areas not planted or with crop failure, while at the same time of the year in 2018 most fields had active crops. (source: JRC ASAP, <https://mars.jrc.ec.europa.eu/asap/s/b42c5447>.)

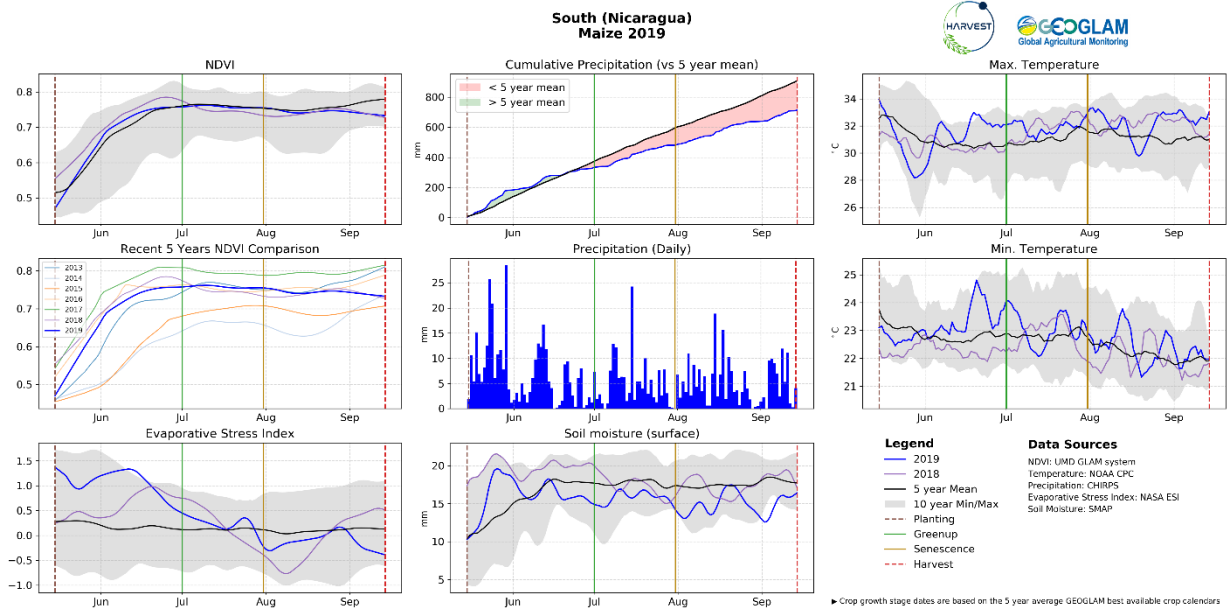


Figure 6. Agro-climatic indicators over the 2019 Primera season in South, Nicaragua. Cumulative precipitation and Evaporative Stress Index are below the 5-year average (source: NASA Harvest)

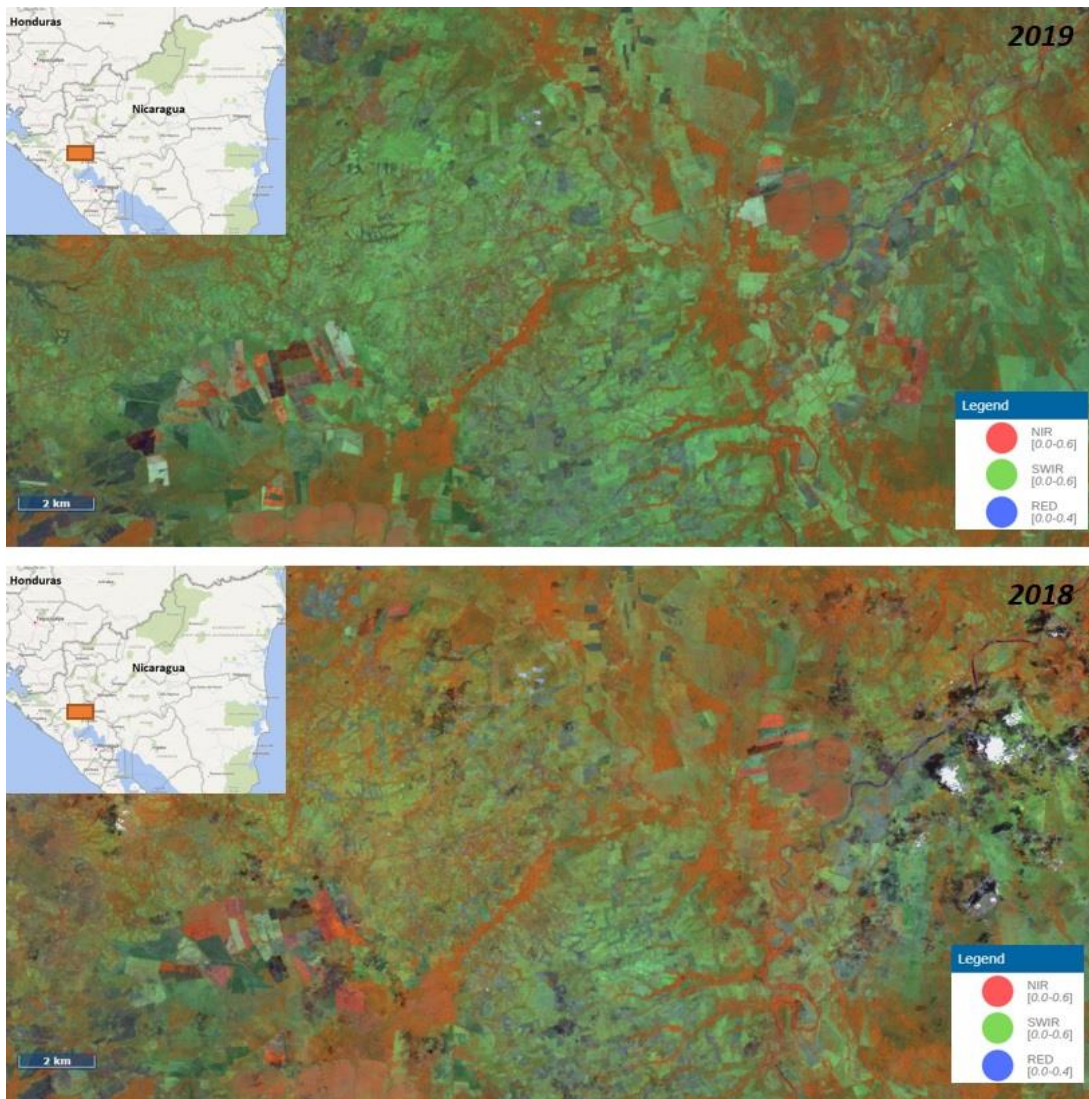


Figure 7: Sentinel-2 Imagery showing crop areas in Leon department, in Nicaragua, in 2019 (top) and in 2018 (bottom). Active vegetation is shown in red and bare soil in green. The top image for September 2019 shows that many agricultural areas are bare, while at the same time of the year in 2018 (also a drought year) most fields had active crops. The maps also shows that whereas large commercial farms and irrigated pivots show similar crop conditions in 2018 and in 2019, smaller fields are significantly less active in 2019. (source: JRC ASAP, <https://mars.jrc.ec.europa.eu/asap/s/348440bb>)

Potential Food Security Concerns:

According to [UN FAO](#), close to half of the 1.9 million small grain producers in Central America live in the Dry Corridor. These significant crop losses for the *Primera* season (main producing season) will severely impact both food security and food access for the most vulnerable populations, potentially increasing the risk of malnutrition.

Postrera (second season) production will be key to food security improvements across the Dry Corridor. Rainfall deficits during late-August delayed the start of *Postrera* sowing activities in the Dry Corridor. In southern Honduras, the government went as far as to recommend farmers cancel *Postrera* maize sowing due to soil moisture deficits from the previous season, delayed rains, and local forecasts of below-average rainfall. However, since mid-September, many farmers have started sowing activities due to the regular distribution and average cumulative rainfall observed across main production areas of *Postrera* (Figure 8), while rainfall deficits still remain across areas of southern Honduras, Nicaragua, and marginal producing areas (Figure 8).

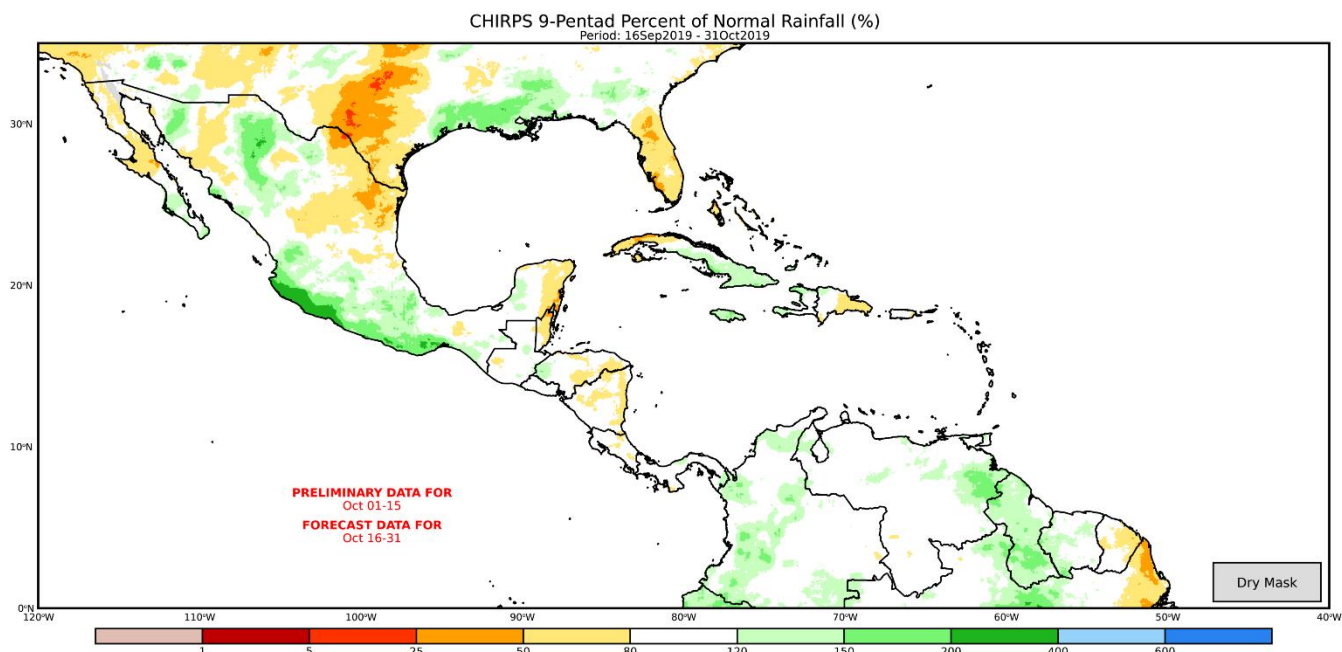


Figure 8. A preliminary estimate of September 16th through October 31st, 2019 percent of normal rainfall. This Climate Hazards Center Early Estimate combines CHIRPS final and preliminary rainfall with an unbiased version of the 15-day GEFS ensemble mean forecast (Source: UCSB CHC)

Forecasts indicate average to below-average rainfall to continue in the next 30 days with some localized areas of above-average rainfall. As the main crop planted during *Postrera* is beans, above-average rains may affect yields due to the excess of moisture which could result in pest and disease outbreaks. Farmers already affected by the reduced *Primera* season production will not have the economic ability to buy fungicides and pesticides and this could reduce the availability of food in the lean season.

The GEOGLAM Crop Monitor team is monitoring the situation. Further information will be provided in the next Crop Monitor for Early Warning, to be released on November 7th.

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