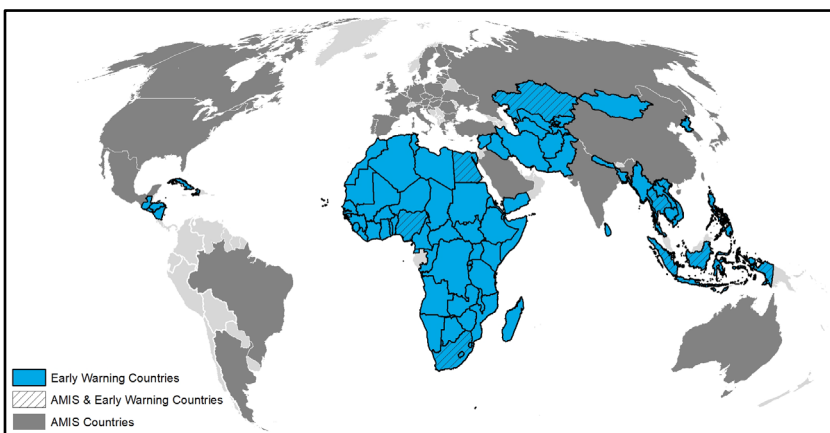


Crop Monitor

EARLY WARNING

Overview:

In **East Africa**, a fourth consecutive poor rainfall season has resulted in below-average yields for *Belg* crops in Ethiopia and main season cereals in parts of Somalia and Kenya (See Regional Outlook Pg. 6). In **West Africa**, planting and development of main season cereals continues under generally favourable conditions except in Guinea-Bissau and Mali due to dry conditions and in conflict-affected regions. In the **Middle East and North Africa**, winter wheat is unlikely to recover in Morocco, Algeria, central Tunisia, northern Syria, and northwestern Iraq due to persistent dryness. In **Southern Africa**, harvesting of main season cereals finalized in most areas under mixed conditions due to persistent dry conditions throughout the season and damage from the passage of several tropical storms in parts of Mozambique, Malawi, and Madagascar. In **Central and South Asia**, harvesting of winter wheat crops is just beginning while planting and development of spring wheat crops is underway, and dry conditions continue to impact affected regions. This is the second consecutive season of dry conditions in many areas (See Regional Outlook Pg. 12). In **Southeast Asia**, harvesting of dry-season rice is nearing completion in the north while harvesting of wet-season rice is underway in Indonesia, and conditions are generally favourable except in parts of the Philippines and Indonesia. In **Central America and the Caribbean**, planting of *Primera* season cereals is underway under generally favourable conditions.



Contents:

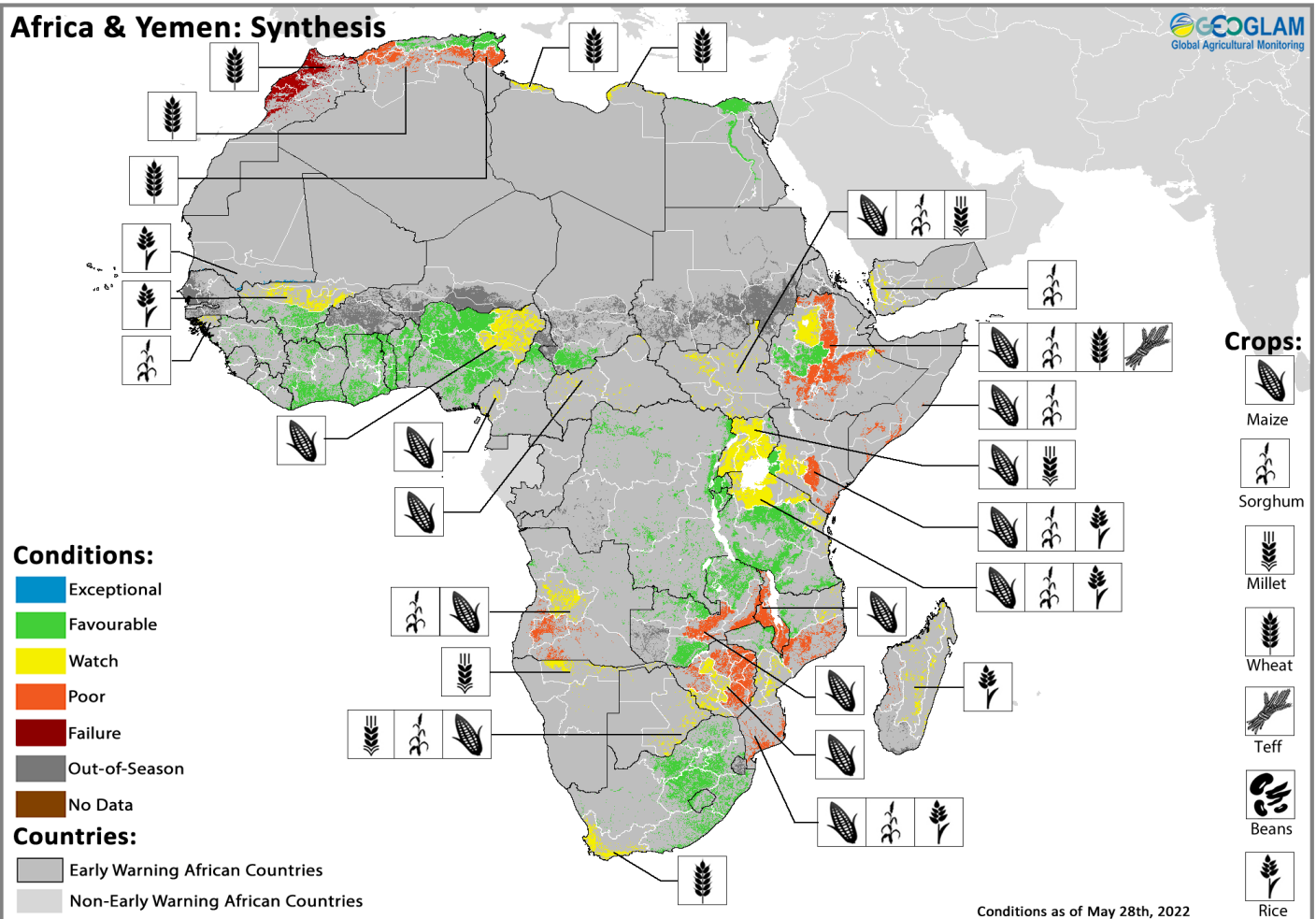
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GEOGLAM Crop Monitor for Early Warning

Crop Conditions at a Glance

based on best available information as of May 28th

Africa & Yemen: Synthesis



Crop condition map synthesizing information for all Crop Monitor for Early Warning crops as of May 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Regions that are in other than favourable conditions are labeled on the map with a symbol representing the crop(s) affected.**

EAST AFRICA: Several consecutive poor rainfall seasons in combination with severe rainfall deficits for the March to May rainfall season are impacting *Belg* season cereals in Ethiopia as well as main season crops in parts of south-central Somalia, marginal agricultural areas of Kenya, Uganda, and northern Tanzania, and some of these areas are also at risk of a below-average October to November rainfall season (See Regional Outlook Pg. 6 and May 2022 [East Africa Special Report](#)).

WEST AFRICA: Planting and development of main season cereals is underway, and conditions are generally favourable except in Guinea-Bissau due to a severe rainfall deficit and long dry spells and in areas of Mali, Nigeria, and the Central African Republic impacted by persisting conflict.

MIDDLE EAST & NORTH AFRICA: Harvesting of winter wheat is underway in some countries, and conditions remain mixed as persistent dryness is causing concern for crop outcomes in parts of Morocco, Algeria, Tunisia, Syria, Iraq, and Iran. Conflict and socio-economic challenges continue to impact agricultural activities in Syria and Libya.

SOUTHERN AFRICA: Harvesting of main season cereals finalized in most areas under mixed conditions with below-average yields

in many areas due to persistent dryness throughout the season as well as damage from the passage of several tropical storms in central Mozambique, southern Malawi, and eastern Madagascar.

CENTRAL & SOUTH ASIA: Harvesting of winter wheat crops has just begun in some areas while planting and development of spring wheat crops is underway, and conditions are mixed as dryness persists in Afghanistan, northern Kazakhstan, parts of Tajikistan, Ahal and Mary provinces of Turkmenistan, and southeastern Uzbekistan.

SOUTHEAST ASIA: Harvesting of dry-season rice is nearing completion under generally favourable conditions except in areas of the Philippines where tropical storms and flooding impacted final yields. Concern remains in Sri Lanka and Nepal due to high prices and limited availability of fertilizer.

CENTRAL AMERICA & CARIBBEAN: Planting of *Primera* season cereals is underway under generally favourable conditions, and wetter-than-normal conditions are forecast from June to August for many areas in Central America (See Regional Outlook Pg. 16). However, there is concern for main season cereals throughout Haiti and in western Cuba due to below-average rainfall in recent weeks.

Global Climate Outlook: Two-week Forecast of Areas with Above or Below-Average Precipitation

The two-week forecast (Figure 1) indicates a likelihood of above-average rainfall over northwest Prairies in Canada, Florida in the US, Southern Mexico, Nicaragua, Colombia, Ecuador, northern Peru, northern Brazil, Côte d'Ivoire, southern Ghana, southeast Nigeria, eastern Kenya, Tajikistan, northern and central Afghanistan, northeast and southwest China, southern Japan, Java in Indonesia, and northern and western Australia.

There is also a likelihood of below-average rainfall over the US southwest and northern plains, Haiti, the Dominican Republic, central Bolivia, Paraguay, southern Brazil, Uruguay, Argentina, central Chile, southern France, Spain, central Italy, Austria, eastern Ukraine, central and eastern Turkey, Georgia, Armenia, Azerbaijan, western Turkmenistan, northern Iran, northern Iraq, Republic of the Congo, the western Democratic Republic of the Congo, northern Pakistan, northern and western India, western China, northern Thailand, central Viet Nam, eastern Indonesia, and Papua New Guinea.

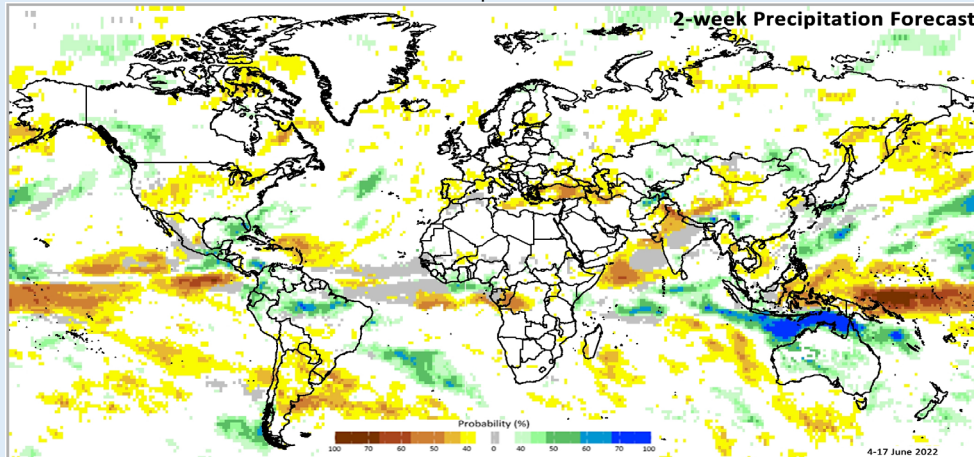


Figure 1: IRI SubX Precipitation Biweekly Probability Forecast for 4 – 17 June 2022, issued on May 27th, 2022. The forecast is based on statistically calibrated tercile category forecasts from three SubX models. Source: [IRI Subseasonal Forecasts Maproom](https://climate.iri.columbia.edu/subseasonal-forecasts-maproom/)

Climate Influences: La Niña Advisory and Outlook for a Negative Indian Ocean Dipole from June

The El Niño-Southern Oscillation (ENSO) is currently in the La Niña phase and is expected to remain as La Niña through at least August (69% chance), according to the IRI/CPC. Long-range forecasts show higher-than 58% chances of La Niña, and very low chances of El Niño, through the end of 2022.

If La Niña conditions persist or redevelop in late 2022, it would be the third year in a row with a La Niña event, which is uncommon. La Niña could elevate risks of repeated dry conditions in negatively affected regions, such as eastern East Africa, southern South America, Central and Southern Asia, and southern North America, where multiple rainfall seasons have been below-average since late 2020.

Negative Indian Ocean Dipole (IOD) conditions are forecast to develop in June and last through October or longer. Models indicate that this may be a strong IOD event. Negative IOD and La Niña conditions often happen in tandem, and are associated with above-average rainfall in Australia and southeast Asia, and below-average rainfall in East Africa. Severe drought impacts across the Horn of Africa, and heavy rainfall and flooding in Australia and southeast Asia, have occurred during La Niña and negative IOD conditions. Source: UCSB Climate Hazards Center

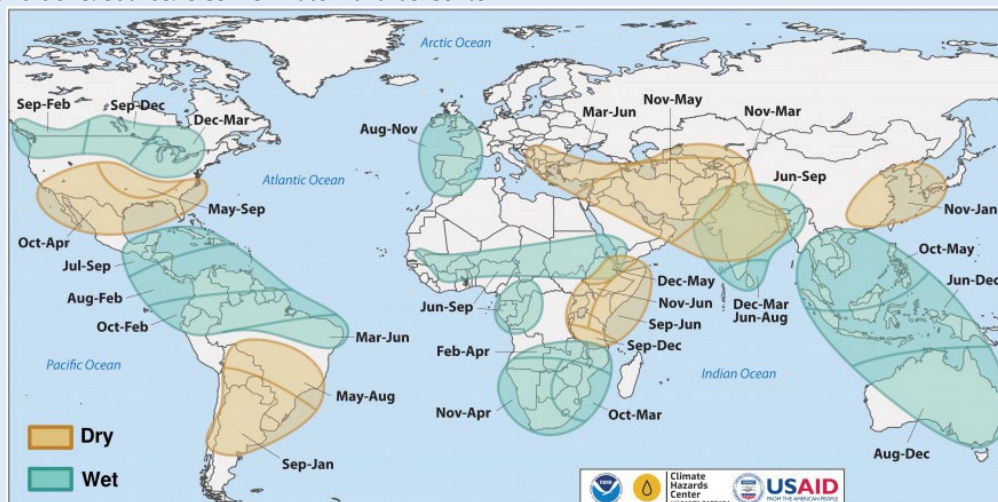
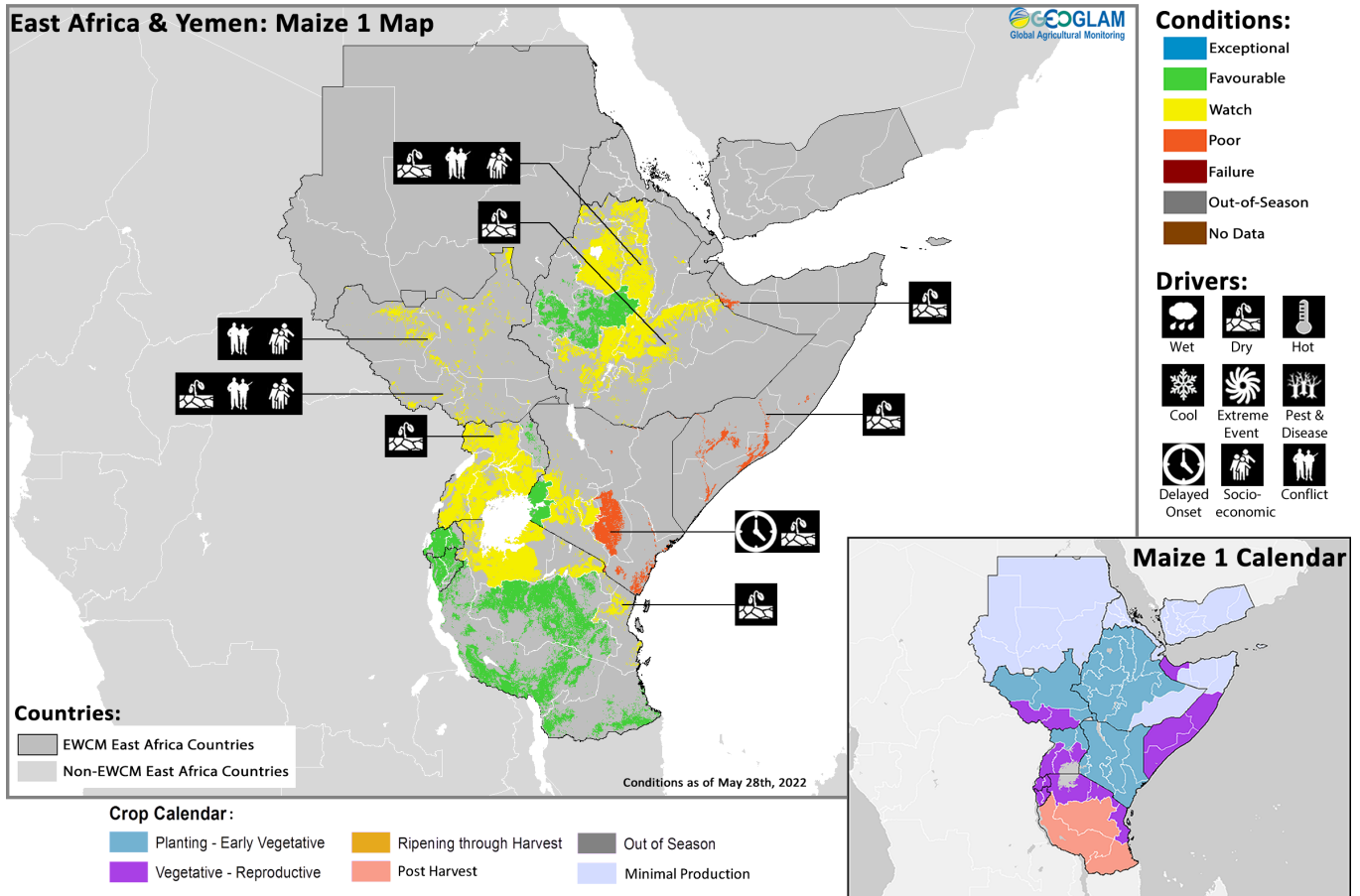


Figure 1. Timing of wet and dry conditions related to La Niña <https://fews.net/la-ni%C3%B1a-and-precipitation>. Source: NOAA & CHC & FEWS NET

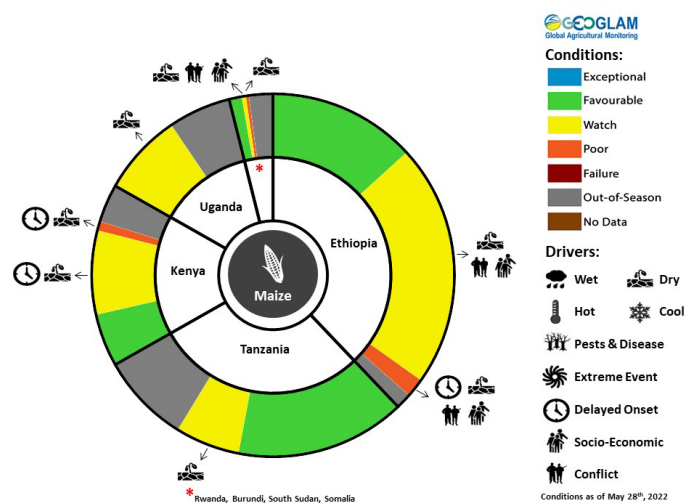
East Africa & Yemen



Crop condition map synthesizing Maize 1 crop conditions as of May 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Conditions that are other than favourable are labeled on the map with their driver.**

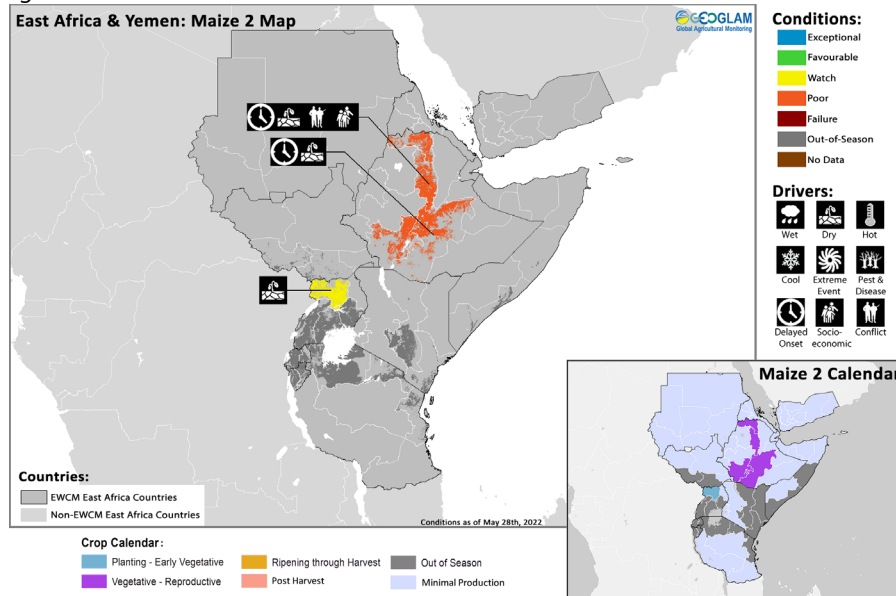
Across the north of the subregion, planting and development of main season cereals is underway in **South Sudan** and **Yemen**, and there is concern in both countries due to persisting insecurity and related socio-economic challenges as well as current dry conditions in southern areas of **South Sudan**. In **Ethiopia**, *Belg* season cereals are in vegetative to reproductive stage, and production prospects are poor as crops are unlikely to recover from severe rainfall deficits. Planting of main *Meher* season cereals has just begun, and rainfall deficits from March to May *Gu/Genna* rainfall as well as a late start to the *Meher* season is causing concern. Additionally, ongoing insecurity continues to hamper agricultural operations in areas of Tigray, Amhara, and Afar regions. The June to September rainy season, which contributes more than 70 percent of annual rainfall to northern parts of the subregion, is expected to start on time, and above-normal rainfall is forecast in many north and western areas of East Africa (See Regional Outlook Pg. 6).

Across the south of the subregion, harvesting of main season cereals is nearing completion in the **United Republic of Tanzania** while crops are still developing in **Kenya**, **Rwanda**, **Burundi**, **Somalia**, and **Uganda**. Significantly below-average production is expected in **Somalia** and southeast and coastal **Kenya**, and there is concern across parts of **Uganda** and central and Rift Valley areas of **Kenya** as the 2022 March to May (MAM) seasonal rains were late, poorly distributed, and generally below-average, especially in eastern areas of the Horn of Africa, marking a fourth consecutive poor rainy season in many areas. Severe rainfall deficits have affected main season Long Rains crops over marginal agricultural producing areas of southeast and coastal **Kenya**, main season *Gu* crops over south and central **Somalia**, and secondary season *Belg* crops over central and eastern **Ethiopia**. Below-average and erratic rainfall is also impacting first season crops in bimodal rainfall areas covering most of **Uganda**. These areas are also at risk of below-average October to November (OND) 2022 rainfall, based on climate forecasts (See Regional Outlook Pg. 6 and May 2022 [East](#)



For detailed description of the pie chart please see description box on Pg. 16.

[Africa Special Report](#)). Furthermore, a significant increase in fuel prices is likely to impact areas that mainly rely on mechanization for agriculture such as Sudan.



Northern East Africa & Yemen

In **Ethiopia**, *Belg* season crops are unlikely to recover from delayed and substantially below-average and erratic seasonal rains and observed vegetation stress. Following several failed rainy seasons since late 2020, much of the agro-pastoral south and southeast that were already facing drought conditions have also been affected by a particularly poor 2022 March to May "*Gu/Genna*" season, with rainfall totals estimated among the lowest in at least the past 40 years. Planting of main *Meher* season cereals, for harvest from October, has just begun in key producing areas of western Oromia, western Amhara, and Benishangul Gumuz regions. Agricultural operations continue to be hampered in conflict-affected areas of Tigray, Amhara, and Afar regions by a volatile security situation and related input shortages. Slowly maturing "long cycle" crops will be impacted by *Gu/Genna* deficits, and concerns about a late

Crop condition map synthesizing Maize 2 conditions as of May 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. Conditions that are other than favourable are labeled on the map with their driver.

start to the *Meher* season are beginning to emerge (See Regional Outlook Pg. 6). In **South Sudan**, main season cereals are in vegetative to reproductive stage in southern bimodal rainfall areas while planting is underway in northern unimodal rainfall areas. There is ongoing concern due to dry conditions across the south, potential impacts of heavy rainfall and consecutive seasons of flooding in flood-prone areas of the northeastern quadrant, and persisting socio-economic challenges associated with insecurity throughout the country. In **Yemen**, planting of main season cereals is underway, and there is ongoing concern as conflict and socio-economic challenges are likely to impact seasonal outcomes. However, following a truce on April 2nd between the parties involved in the conflict, there has been a sharp reduction in violence. In **Sudan**, the main June to September cropping season is about to start, and despite the favourable rainfall outlook, the macroeconomic challenges and costs of inputs might lower access to inputs. Similarly, removal of fuel subsidies and associated increased cost of fuel will hamper mechanized farming.

Southern East Africa

In **Somalia**, *Gu* season maize and sorghum crops, for harvest from mid-July, are in vegetative to reproductive stage, and conditions have deteriorated in most areas of the country due to late-onset, well below-average March to mid-May rains, and compounded impacts from multiple consecutive below-average rainfall seasons that have resulted in widespread vegetation stress. Despite scattered showers received in early May that resulted in a limited improvement of vegetation conditions, forecast below-average rainfall for the remainder of the April to June *Gu* season is likely to worsen extreme drought conditions. (See Regional Outlook Pg. 6 and May 2022 [East Africa Special Report](#)). Severe impacts on crop performance are expected, with preliminary forecasts pointing to 40 to 60 percent below-average cereal production. In **Uganda**, development of first season cereals is underway, and crop growth has generally been delayed in the north and centre due to early-season dryness in March as well as generally below-average rainfall performance that impacted planting activities and affected crop establishment and development, with widespread germination failures reported. However, late-planted crops in the north may benefit from forecast above-average June through September rainfall. In Karamoja, conditions have recently improved due to sufficient rainfall. However, localized flooding and waterlogging could negatively impact crops (See Regional Outlook Pg. 6 and May 2022 [East Africa Special Report](#)). Overall aggregate cereal production is likely to be below-average for bimodal areas. In **Kenya**, there is a high level of concern in southeast and coastal marginal agriculture areas due to far below-average March to May Long Rains which are expected to result in a poor harvest. In the main southwestern producing areas of the Rift Valley, vegetation conditions are slightly below-average due to dry spells. However, favourable rains in May and additional rains forecast for June through September in western parts of the country are likely to support crop recovery (See Regional Outlook Pg. 6 and May 2022 [East Africa Special Report](#)). Furthermore, armyworms were reported in several areas across the country, and there is a risk of further spread as the drought provides conducive conditions for breeding. In **Burundi** and **Rwanda**, Season B crops, for harvest from June, are developing under favourable conditions despite poor rains in the first half of May in some central and southern areas of **Burundi**. In the **United Republic of Tanzania**, harvesting of *Msimu* season cereals is underway in key-producing unimodal rainfall areas in the centre and south. While crop conditions immediately before the harvest were favourable, previous dry conditions during planting are expected to result in a slight decrease in maize production as farmers switched to alternative crops, according to the USDA FAS. Harvesting of *Masika* season cereals will begin in July in bimodal northern areas, and below-average rains in several cropping regions are expected to result in a reduced cereal production.

Regional Outlook: Record dry conditions across much of the Eastern Horn with little to no likelihood of recovery and a possibility of a 5th consecutive dry season for the OND 2022 rainy season

Across East Africa, there was a major expansion and intensification of seasonal rainfall deficits in recent weeks (Figure 1-left). This is highly concerning, as many of these areas were also impacted by much drier-than-average conditions [earlier in the season](#). Many areas received only 45 to 75% of average rainfall between late-April and late-May. Affected areas were central, northern, and southwestern Ethiopia, Somalia, northern Uganda, southwestern South Sudan, Burundi, portions of Kenya, Rwanda, and eastern Tanzania. Across eastern areas of the region, mainly drier-than-average conditions prevailed, with the exception of a 10-day period from late-April to early-May when above-average rainfall occurred in eastern Kenya, southeastern Ethiopia, and southern and central Somalia.

An estimate for March 1st to June 5th rainfall percent of average (Figure 1-middle) shows the severe, widespread rainfall deficits that have accumulated and are forecast to worsen in many areas into early June. In a high and concerning number of locations across East Africa, the 2022 March to May rainfall season may be [one of the driest MAM seasons](#) in the 42-year CHIRPS record, based on March and April rainfall, preliminary data for May 1st to 20th, and a two-week forecast. These locations include large areas of central, northern, and southwestern Ethiopia, northern Somalia, portions of southern Somalia and eastern Kenya, northern Uganda, and southwestern South Sudan.

In the eastern Horn, the 2022 March-May rainy season is ending with severely below-average rainfall totals that have compounded impacts from a delayed start to the season and dry spells and above-average temperature during crop development. Below-average rainfall is forecast in coastal Tanzania, Kenya, southern Somalia, central-eastern Ethiopia, and northwestern Somalia from May 26th to June 9th, according to a bias-corrected GEFS forecast from May 26th. Most other areas of the Horn will either be climatologically dry or receive low rainfall amounts. The very poor performance of the 2022 MAM season followed several consecutive seasons of below-average harvests. In combination with water and pasture shortages and related livestock losses, the MAM 2022 drought conditions are likely to worsen severe food insecurity, with widespread Crisis (IPC Phase 3) and Emergency (IPC Phase 4) outcomes expected in affected areas, and over 80,000 people in Catastrophe (IPC Phase 5) in Somalia. A May 24th [CM4EW Special Report](#) and a May 30th [Multi-Agency Alert](#) describe this potentially devastating situation.

In some western and northern areas that will continue to receive seasonal rains, there are elevated risks of a 4 to 5 week-long period with consistently below-average rainfall, considering rainfall performance during early-to mid May and the two-week forecast from May 26th. That forecast indicates below-average rainfall across much of Ethiopia, South Sudan, and southern Sudan through June 9th, and mixed conditions in equatorial areas. There have been extreme *Belg* season drought conditions in many areas in central and southwestern Ethiopia. Continuation of below-average rainfall could also be problematic for high-yielding *Meher* cropping areas in central Ethiopia that rely on rains from March through November. Land surface temperatures and vegetation imagery indicate severe moisture stress. Temperatures were abnormally hot in mid-May across the Ethiopian highland areas and most southwestern and central areas (See the May 26th [Ethiopia Dekadal Monitoring](#) report).

Forecasts indicate elevated chances for above-normal rainfall during June-to-September in western and northern areas. Figure 1-right shows the Greater Horn of Africa Climate Outlook Forum (GHACOF61) forecast for June-to-September 2022 precipitation. Central and northern Tanzania, central and eastern Kenya, southeastern Ethiopia, and southern and central Somalia will likely have hotter-than-normal temperatures, which will negatively impact livestock resources through the dry season. Forecast [negative Indian Ocean Dipole](#) and [La Niña](#) conditions may negatively impact the October-to-December 2022 rainfall season and raises concerns about the possibility of another below-normal season in eastern East Africa.

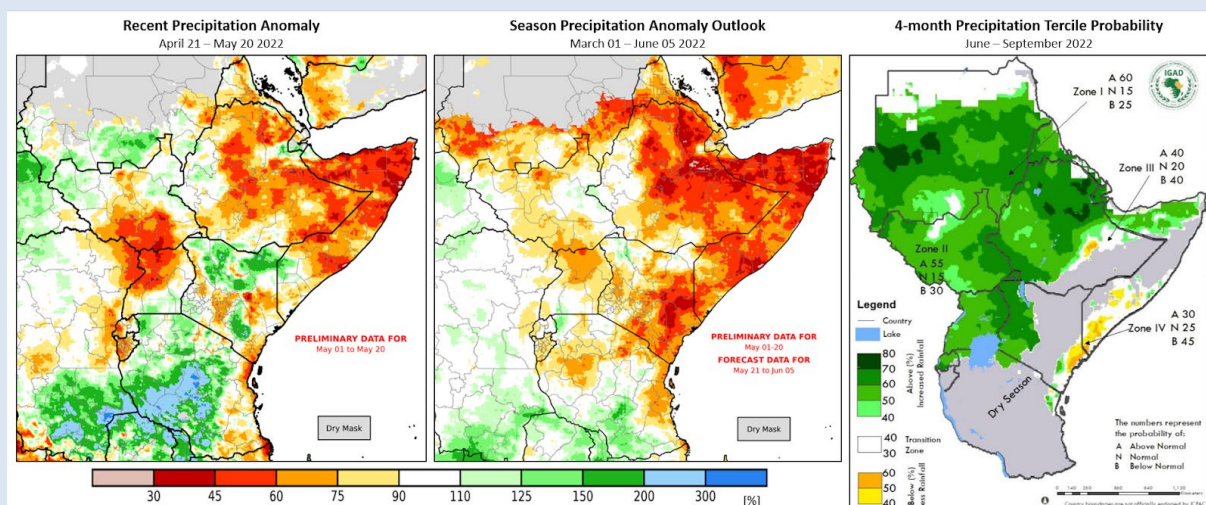
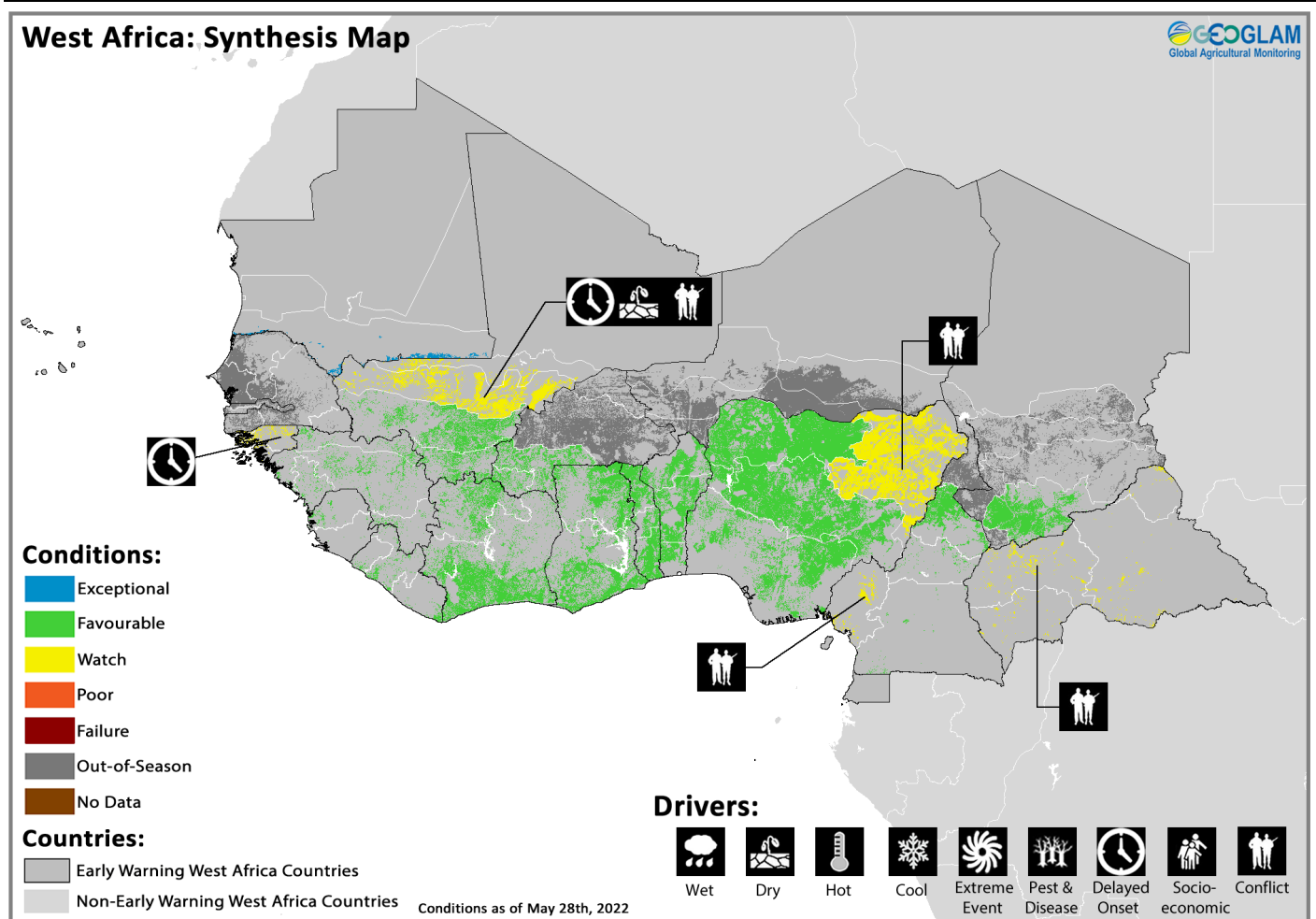


Figure 1. Past 30-day and March 1st-to-June 5th precipitation anomalies, and the GHACOF 61 forecast for June-to-September 2022 precipitation. The left and middle panels are CHC Early Estimates, which compare current precipitation totals to the 1981-2021 CHIRPS average for their respective accumulation periods. These use final data through April and preliminary data for May 1st-20th. The left panel shows April 21st to May 20th, 2022, precipitation totals, in terms of the percent of average. The middle panel shows an outlook for March-to-June 5th, 2022 percent of average including a two-week bias-corrected GEFS forecast for May 21st to June 5th. The right panel shows the Greater Horn of Africa Climate Outlook Forum (GHACOF61) forecast for June-to-September 2022 precipitation. Image from [ICPCAP](#). Source: UCSB Climate Hazards Center

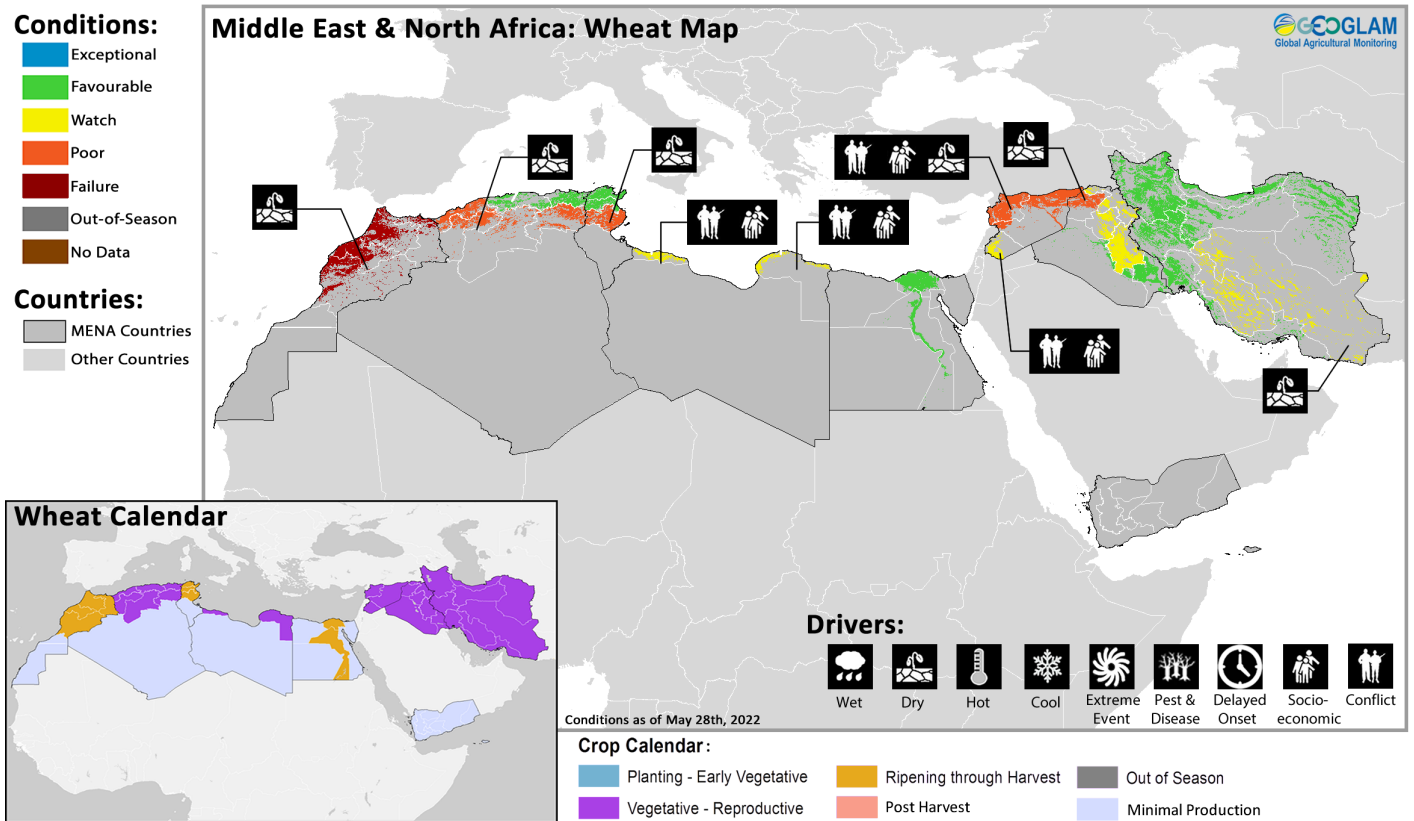
West Africa



Crop condition map synthesizing crop conditions as of May 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Crops that are in other than favourable conditions are labeled on the map with their driver.**

In West Africa, planting and development of main season cereals is underway in **Guinea-Bissau, Mali, Guinea, Sierra Leone, Liberia, Cote d'Ivoire**, southwestern **Burkina Faso, Ghana, Togo, Benin, Nigeria**, central **Cameroon**, and the **Central African Republic** for harvest from July. Harvesting of second season maize and rice crops finalized in southern **Mauritania** while planting and development is underway in central **Nigeria** and central and southern **Cameroon** for harvest from August. Conditions are generally favourable throughout the region except in **Guinea-Bissau** due to a severe rainfall deficit coupled with long dry spells from 18 to 20 days in the east and 26 days in the west as well as in **Mali** where delayed rainfall onset and dry conditions are impacting planting activities. There is also concern in central **Mali**, northeastern **Nigeria**, southwestern **Cameroon**, and the **Central African Republic** where persisting internal conflict continues to impact agricultural activities. Additionally, there has been a recent expansion of violence into the northwest and northcentral areas of **Nigeria** involving a wide range of attacks by various actors. However, impacts on agricultural activities and livelihoods in these areas are presently localized and not expected to significantly impact regional yields. While current agro-climatic conditions are favourable in **Ghana**, the government has reduced the fertilizer subsidy rate which is expected to curtail access to fertilizer for smallholder farmers.

Middle East & North Africa

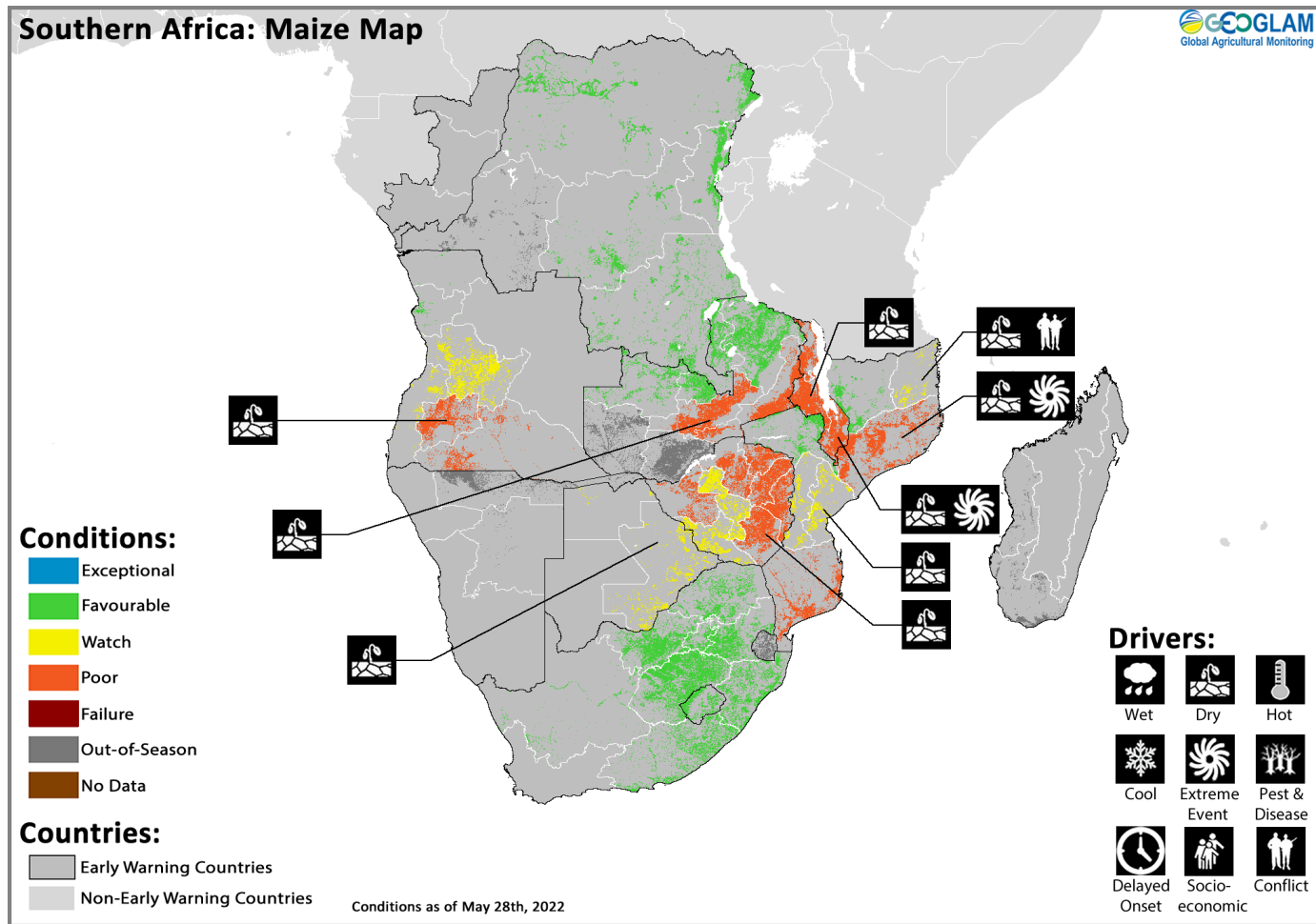


Crop condition map synthesizing wheat conditions as of May 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Crops that are in other than favourable conditions are labeled on the map with their driver.**

In the Middle East and North Africa, harvesting of winter wheat is underway in **Morocco, Tunisia, and Egypt** while crops continue to develop in parts of **Algeria, Libya, Syria, Iraq, and Iran**. Crop conditions remain mixed as persistent dryness throughout much of the season has resulted in crop failure with well below-average yields in **Morocco** and poor conditions with below-average yields in central and western **Algeria**, central **Tunisia**, northern **Syria**, and Ninewa governorate in northwestern **Iraq**. Conditions in central **Iraq** and in the centre-south of **Iran** have also downgraded due to recent drier than average conditions. Furthermore, persisting conflict and socio-economic challenges continue to impact agricultural activities in **Libya** and **Syria**. In **Algeria**, while above-average rainfall in April allowed for some crop recovery in central and eastern areas, drought conditions continued in the western *wilayas* of Tiaaret, Tlemcen, Sidi Bel Abbes, and Saida. As a result, average wheat yield is forecast to be below the five-year average. In **Syria**, while conflict and socio-economic impacts are the primary drivers impacting agriculture, a delayed start to the season and dry conditions have compounded these impacts, and crop biomass is below-average in parts of the north. Conversely, crop biomass is near-average in the southern half of the country. In **Iraq**, dry conditions from the end of December to the end of February in the north has resulted in below-average conditions in Ninewa, Dahuk, and Diyala governorates. Below-average cereal production is also expected in Sulaymaniyah governorate due to a delayed crop cycle. Elsewhere in the country, vegetation conditions are average to slightly below-average. In **Iran**, there is concern in the centre-south of the country due to recent drier than average conditions, and below-average production is expected in Esfahan and Fars provinces. Elsewhere, crop conditions are close to average.

In **Egypt** and northern **Iran**, planting of main season maize and rice crops is underway, and overall planting conditions are favourable.

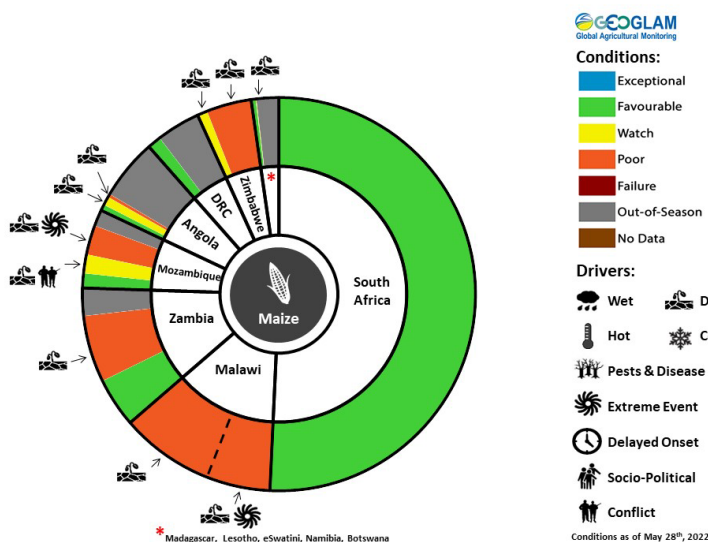
Southern Africa



Crop condition map synthesizing maize conditions as of May 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Crops that are in other than favourable conditions are labeled on the map with their driver.**

In Southern Africa, harvesting of main season cereals finalized in most areas under mixed conditions. Below-average yields resulted in **Malawi**, parts of **Mozambique**, **Zambia**, **Zimbabwe**, west and southern **Madagascar**, and southern **Angola**, and there is ongoing concern in central **Angola**, **Botswana**, northern **Namibia**, and east and central **Madagascar** due to persistent dryness throughout the season as well as damage from the passage of several tropical storms in central **Mozambique**, southern **Malawi**, and eastern **Madagascar**. Elsewhere, conditions are favourable, and final yields are expected to be near-average.

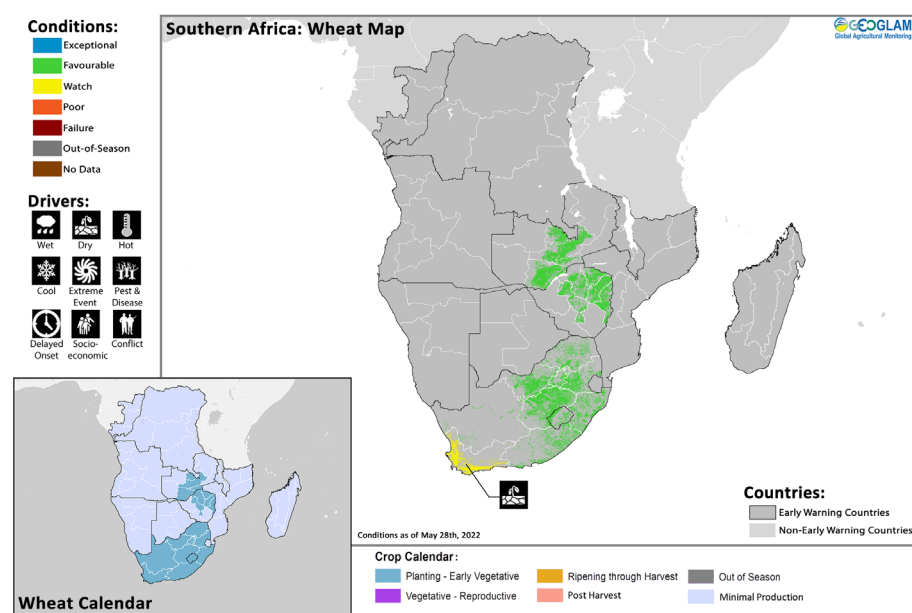
In **Angola**, below-average yields are expected in southern areas of Huila and southern provinces, and there is concern in central areas where harvesting activities will finalize in June. While seasonal rainfall totals are near-average with vegetation condition improvements from early to mid-April, uneven rainfall distribution throughout the season impacted crop outcomes, and some of these affected areas are facing compounding impacts of two consecutive extreme drought years. The southern provinces of Huila, Cunene, and Namibe are experiencing a fifth consecutive year of drought conditions, and agricultural yields and pasture have been severely affected. Conversely, conditions along the north and east of the country remain favourable with near-average yields expected. In **Botswana**, concern remains in the north and east due to erratic rainfall throughout the season with periods of below-average precipitation as well as periods of heavy rainfall that may have resulted in localized crop damage. In **Lesotho**, despite a delayed start to the rainfall season as well as heavy rainfall and localized flooding from December



For detailed description of the pie chart please see description box on Pg. 16.

The southern provinces of Huila, Cunene, and Namibe are experiencing a fifth consecutive year of drought conditions, and agricultural yields and pasture have been severely affected. Conversely, conditions along the north and east of the country remain favourable with near-average yields expected. In **Botswana**, concern remains in the north and east due to erratic rainfall throughout the season with periods of below-average precipitation as well as periods of heavy rainfall that may have resulted in localized crop damage. In **Lesotho**, despite a delayed start to the rainfall season as well as heavy rainfall and localized flooding from December

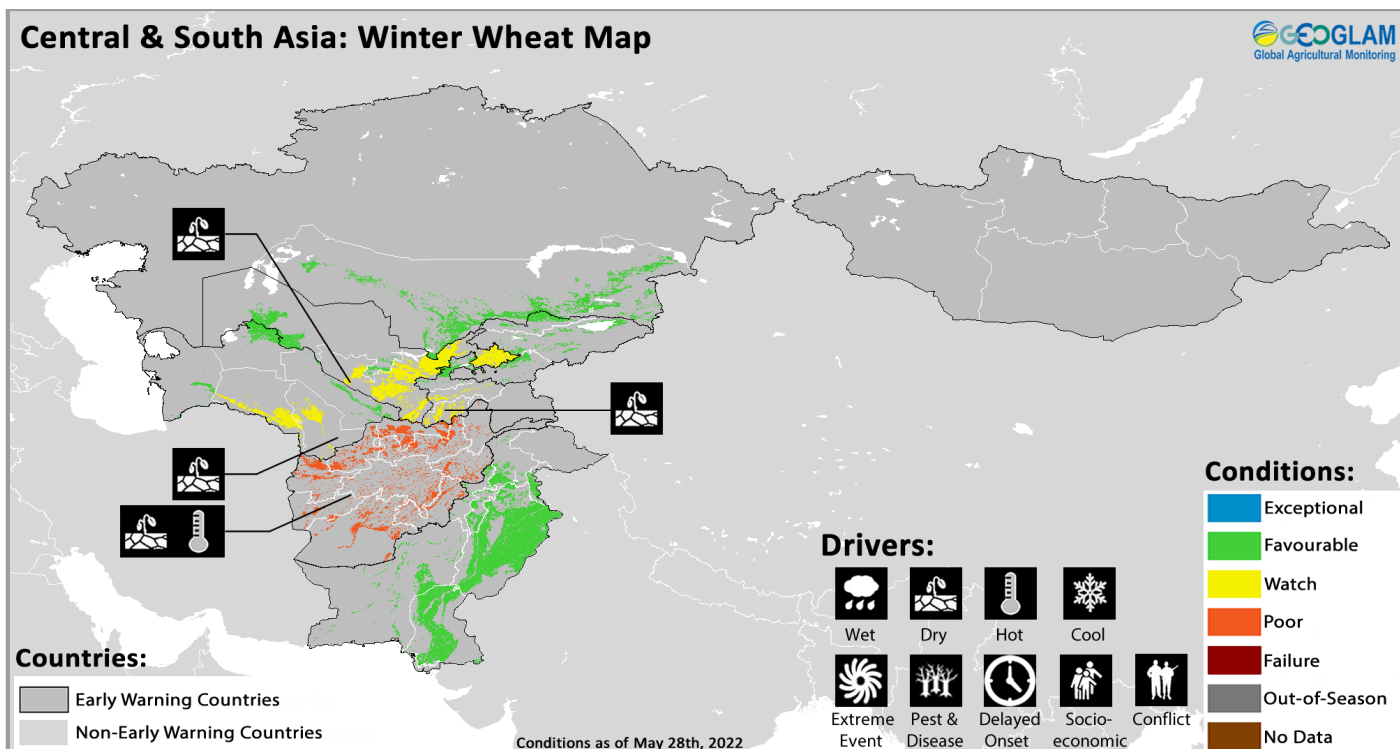
through January, seasonal totals are above-average, and near-average yields are expected. In **Madagascar**, maize harvesting finalized last month with below-average yields due to long-term moisture deficits and above-average temperatures that further exacerbated dry conditions, particularly in the south and west where multi-year consecutive droughts severely degraded soil moisture and vegetation conditions. Final rice yields in the west are below-average, and concern remains in central and eastern areas due to delayed rainfall onset and below-average seasonal totals despite rainfall received from the passage of two tropical cyclones. There is also concern in the east due to significant storm damage as the cyclones flooded rice crops at the transplanting stage, primarily in large rice plains in the districts of Manakara, Vohipeno, Farafanga, and Vangaindrano, with losses estimated between 25 to 100 percent. In **Malawi**, final yields are below-average throughout the country due to poor mid-season rainfall, damage from the passage of three tropical storms in the south, and localized fall armyworm damage. Conditions in the centre and south are worse than in the north where damage is localized. In **Mozambique**, conditions are poor across central and southern parts of the country following a season characterized by extended dry conditions with periods of heavy rainfall from several cyclones. Delayed rainfall onset in combination with prolonged dry conditions from January to March and significant deficits during February and March have resulted in reduced yield and production outcomes in southern provinces. Additionally, since the beginning of the year, the country has been impacted by five tropical storms and cyclones along central-northern coastal areas, resulting in significant crop damage particularly for Nampula and Zambezia provinces. Ongoing conflict in Cabo Delgado province also affected agricultural activities in localized areas. In **Namibia**, concern remains for crops in the north and east due to irregular rainfall distribution throughout the season. In **South Africa**, favourable conditions during summer and a slow onset of the frost season supported maize production over most areas. In **Zambia**, national production and yields for maize are expected to be below-average due to delayed rainfall onset, reduced planted area, uneven rainfall distribution, and an extended dry spell from February to March over central and eastern parts of the country. In **Zimbabwe**, maize yields are expected to be below-average throughout the country, and national production estimates are well below the previous year's level. Despite near-average rainfall totals and overall improved conditions in the northwest compared to west and southern areas, and despite improved rainfall in April, the February to March dry spell is likely to have resulted in irreversible crop damage. In the **Democratic Republic of the Congo**, harvesting of main season sorghum crops is underway in the southeast while crops continue to develop in the north, and harvesting of second season maize crops finalized in central and southeastern regions while crops continue to develop in the north and east. Overall growing conditions are favourable throughout the country.



Crop condition map synthesizing wheat conditions as of May 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Conditions that are other than favourable are labeled on the map with their driver.**

Planting of winter wheat is underway in **Lesotho, South Africa, Zambia, and Zimbabwe** for harvest from September, and planting conditions remain favourable. Over the summer rainfall region in **South Africa**, wet conditions during the past summer resulted in favourable soil moisture levels in the interior and mostly sufficient water supply in reservoirs to support winter wheat production. Conversely, over the main producing winter rainfall region, the onset of the rainy season is somewhat delayed, and widespread rain will be needed within the next few weeks to support production.

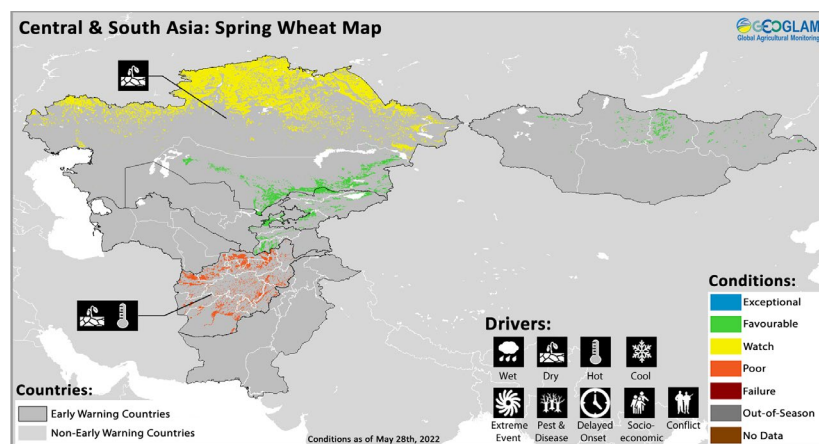
Central & South Asia



Crop condition map synthesizing Winter Wheat conditions as of May 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Crops that are in other than favourable conditions are labeled on the map with their driver.**

In Central and South Asia, harvesting of winter wheat is underway in **Afghanistan** and **Pakistan** while crops continue to develop in southern **Kazakhstan**, **Kyrgyzstan**, **Tajikistan**, **Turkmenistan**, and **Uzbekistan** for harvest from June. Conditions remain mixed as crops in **Afghanistan** are unlikely to recover, and crop stress remains in some areas of Khatlon and Tadjikistan territories in **Tajikistan**, Ahal and Mary provinces in **Turkmenistan**, and some areas of the southernmost Surkhandarya oblast in southeastern **Uzbekistan** due to below-average precipitation levels in April and despite abundant rains in early May. Elsewhere, conditions remain favourable. In **Kyrgyzstan**, despite below-average rainfall in some regions since April, vegetation conditions and soil moisture levels were near-average as of early May except in some localized central areas. In Almaty, Zhambyl, and Turkestan oblasts of southern **Kazakhstan**, conditions are favourable for crop development as precipitation has replenished soil moisture. In **Afghanistan**, parts of the southwest, north, central highlands, and northeast have experienced near-record low precipitation for the second consecutive season while parts of Helmand, Kandahar, and Kabul basins experienced near-average cumulative precipitation. Significant moisture stress is impacting the northern wheat belt, and near-record low snow water volumes persist in most basins throughout the country as of late May. Agricultural drought conditions this season were worse compared to the previous season, and national wheat production is expected to be below the five-year average due to the reduction of wheat sown area and below-average yields from drought. Impacts are also expected to be mild to medium for irrigated crops and severe for rainfed crops. Wheat production losses

greater than 30 to 40 percent below-average have been observed in Badghis, Ghor, Faryab, Jawzjan, Sar-e-Pul, and Samangan in the north in 2022, whereas in 2021, only Faryab in the north, Herat in the west, and Kandahar and Zabul in the south observed similar levels of crop loss. In **Pakistan**, the 2022 wheat output is estimated at 26.4 million tonnes, above the five-year average but below previous expectations of record production.



Crop condition map synthesizing Spring Wheat conditions as of May 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Crops that are in other than favourable conditions are labeled on the map with their driver.**

Spring wheat is in vegetative to reproductive stage in **Afghanistan** while planting continues in **Kazakhstan**, **Kyrgyzstan**, **Mongolia**, and **Tajikistan** for harvest from July, and conditions are generally favourable except in **Afghanistan** and northern **Kazakhstan**. As of mid-May, soil moisture levels were favourable in southern **Kazakhstan**, **Kyrgyzstan**, and **Tajikistan**. In **Kazakhstan**, satisfactory rainfall replenished soil moisture reserves, particularly in the

west, and warm weather and good rainfall benefitted crop growth and development in the south. Conversely, in the main producing northern areas, soil moisture levels were below-average as of mid-May, following insufficient rains since April. However, planting activities are still underway, and adequate crop establishment and development will mostly depend on rainfall performance in the coming months. In **Mongolia**, planted area is expected to be above the five-year average, reflecting strong demand. In **Afghanistan**, hotter and drier than average conditions have led to low soil moisture and water availability in many basins, which is likely to lead to below-average cultivation, and access to seeds, fertilizer, and water for irrigation remains limited. If La Niña conditions are present again in late 2022, there may be a chance for a third consecutive below-average precipitation season across the subregion (See Regional Outlook Pg. 12).

Regional Outlook: Record below-average precipitation impacting parts of the region and expected to continue through June

Very low rainfall during the last several months of the 2021-2022 wet season capped off a second consecutive year of drought, leaving highly concerning hydrologic impacts in their wake. Record-low precipitation amounts between late March and late May 2022 are estimated in southern areas of the region (Figure 1-left). Across the region, many areas carried precipitation deficits through the winter and spring (Figure 1-middle). The severity of these deficits fluctuated by location and with episodic wet periods (e.g., mid-December to mid-January). In many areas in central and northern Afghanistan, as well as portions of southern Uzbekistan and eastern Turkmenistan, October 2021 to May 2022 precipitation totals are [among the lowest](#) of the 42-year CHIRPS record. Seasonal rains typically continue through the end of June in eastern Afghanistan, and into summer in portions of Central Asia. There are elevated chances for below-normal June rainfall in Tajikistan, eastern Uzbekistan, Kyrgyzstan, and eastern Kazakhstan, based on the WMO forecast from May. The bias-corrected GEFS forecast from May 25th indicates mixed conditions across these areas from May 25th to June 8th, with the possibility for localized above-average amounts in portions of eastern Afghanistan and southeastern portions of Tajikistan, Kyrgyzstan, and Kazakhstan. Below-average rainfall is forecast in portions of central Kyrgyzstan and eastern Kazakhstan crop-growing areas. Hotter-than-normal summer temperatures are expected across the region (Figure 1-right). Associated with these temperatures is an elevated risk of severe heat waves that can threaten human health and livestock and rapid depletion of remaining seasonal snowpack.

In Afghanistan, most areas are ending the winter and spring precipitation season with 60% to 90% of average amounts. Hydrological drought conditions are dramatically worse in Afghanistan now than a year ago, based on extremely low snow water levels through the peak of the main snow season and [current record-low](#) amounts. Root zone soil moisture is substantially below-normal in central and northern Afghanistan. Record-low snowpack and reservoir levels will limit water supply needed in coming months for second season crop cultivation. In the northern wheat belt, hotter and drier-than-average conditions led to reductions in spring soil moisture and crop stress. Agricultural and hydrological drought conditions are not expected to improve until at least the next precipitation season, which begins in October 2022.

This is the second year in a row with below-average winter and spring precipitation in many areas across the region, associated with two back-to-back La Niña events. If La Niña conditions are present again, which is favored for late 2022 (~ [60% chance](#)), ongoing depletion of water supply and increased chances for a third below-average precipitation season will worsen an already highly concerning situation.

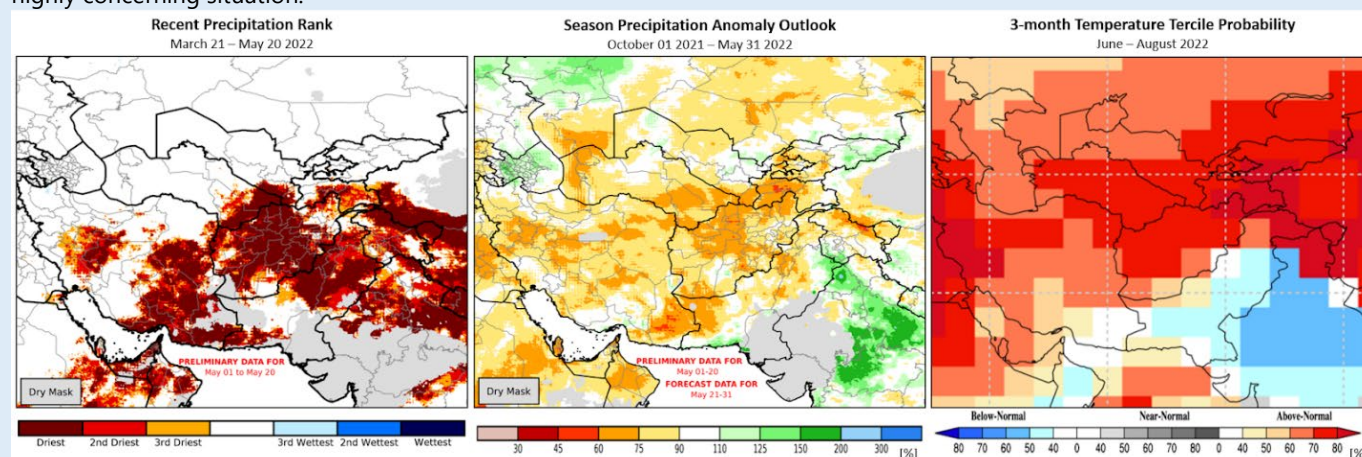
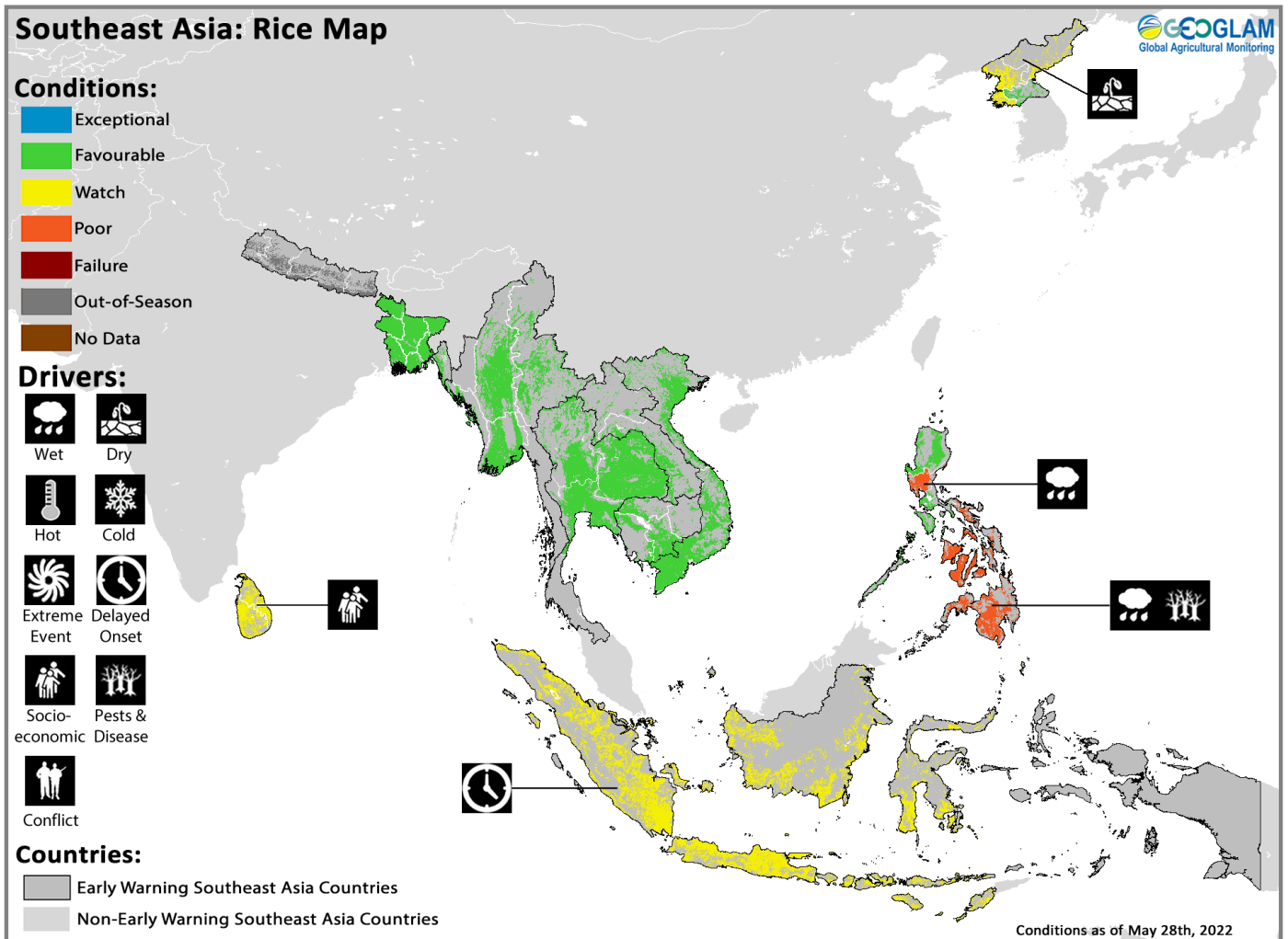


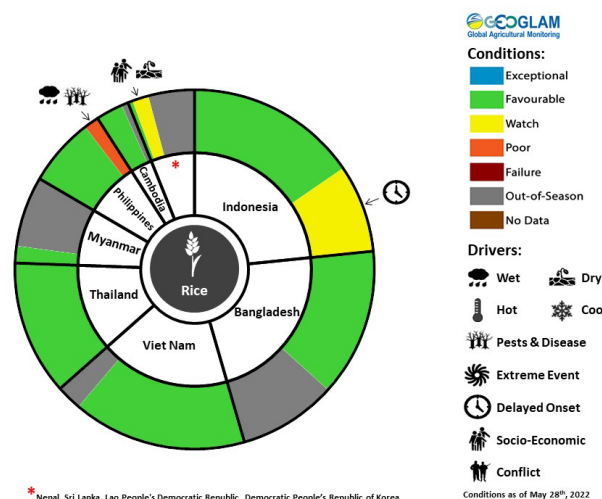
Figure 1. Past 60-day and October 1st-to-May 31st precipitation anomalies, and a 3-month 2m temperature tercile probability forecast for June to August 2022. The left and middle panels are CHC Early Estimates, which compare current precipitation totals to the 1981-2021 CHIRPS average for their respective accumulation periods. These use final data through April and preliminary data for May 1st-20th. The left panel shows how March 21st to May 20th, 2022, precipitation totals rank respectively to the CHIRPS historical record. The middle panel shows the October-to-May 31st 2021-22 season rainfall performance including a two-week bias-corrected GEFS forecast for May 21st to 31st, represented as a percent of the 1981-2021 CHIRPS historical average. The right panel is the WMO probabilistic forecast for June-to-August 2022 2m temperature, based on models initialized in May. From [WMO Lead Centre Long-Range Forecast Multi-Model Ensemble](#). Source: Climate Hazards Center

Southeast Asia



Crop condition map synthesizing rice conditions as of May 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Crops that are in other than favourable conditions are labeled on the map with their driver.**

In northern Southeast Asia, harvesting activities are nearing completion, and planted area of dry-season rice has increased compared to the previous year due to the high market price. Conditions are generally favourable except in south and central regions of the **Philippines** and other localized areas where tropical storms and flooding during the growing season resulted in below-average yields. Wet-season rice is in the seeding to field preparation stage under favourable conditions, and total planted area is forecast to increase compared to the previous year due to good weather conditions. In **Indonesia**, harvesting of wet-season rice enters the fifth month with good yields due to sufficient water and sunlight during the growing period. Total harvested area has reached 5.3 million hectares, slightly higher than the previous year. While May is typically the second month for planting of dry-season rice, planted area is currently limited as farmers wait for ideal conditions. While May precipitation decreased slightly in some areas, particularly on Java Island, the reduced rainfall has not impacted rice development. In the **Philippines**, dry-season rice harvesting finalized under mixed conditions due to damaging rains in Visayas and pest infestations in Mindanao during maturing stage. Final production is 4.54 million metric tons, a slight decrease of 1.9 percent compared to the same period last year. Land preparation and sowing of wet-season rice is beginning under favourable conditions, and rainfall is expected to be above-normal in most parts of the country. In **Thailand**, dry-season rice harvesting is wrapping up with an increase in total sown area compared to last year, and final production is expected to increase 35 percent compared to the previous year. Land preparation and sowing of

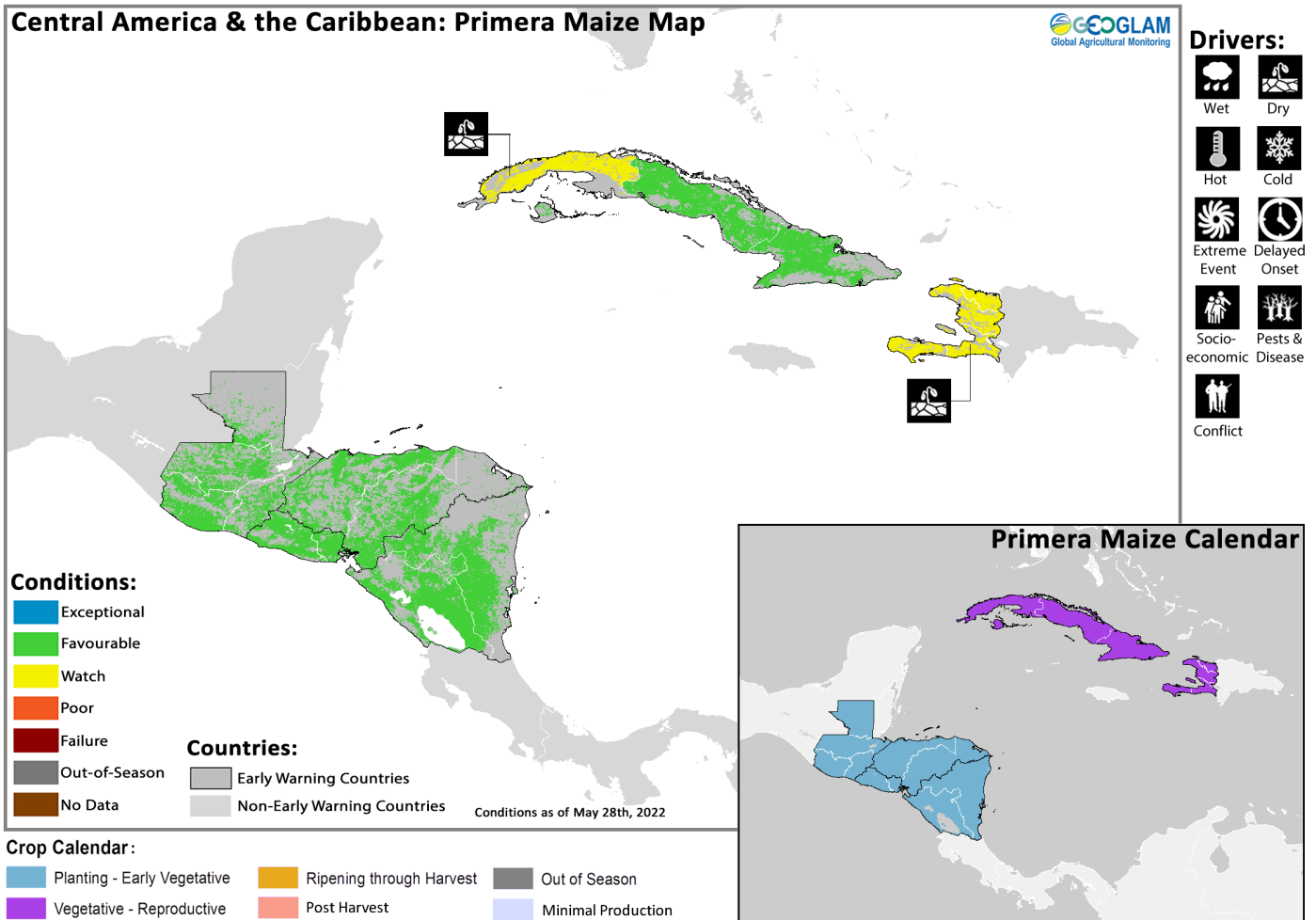


For detailed description of the pie chart please see description box on Pg. 16.

wet-season rice are beginning under favourable conditions. Planted area may increase due to the government's continuation of the income insurance scheme that offers financial assistance to farmers whose crops have been damaged by destructive weather conditions. However, planted area may only increase slightly due to the comparative rising prices of other crops such as sugarcane. In **Viet Nam**, winter-spring rice (dry-season) is continuing to develop in the north, and the yield is forecast to decrease due to rainstorms in May 2022 in the North Midlands and mountain regions. Harvesting is underway in the south, and harvested area has reached 1.57 million hectares out of 1.91 million hectares planted with a yield of 7.1 tons per hectare, slightly lower than last year due to floods in some provinces of the south-central coastal region. Sowing of summer-autumn rice (wet-season) in the Mekong River Delta is ongoing under favourable conditions. In **Laos**, harvesting of dry-season rice is nearing completion, and harvested area has reached 81 percent of the planted area. Final harvested area is estimated at 90,000 hectares with a total output of 405,000 tons and a yield of 4.5 tons per hectare, which is slightly lower than the national plan due to localized damage from heavy rainfall and pests. Land preparation of wet-season rice is underway with a national planting plan of 870,000 hectares. In **Myanmar**, 69.2 percent of the total planted area of 0.98 million hectares of dry-season rice have been harvested with a yield of 4.87 tons per hectare, slightly higher than the previous year. Early monsoon rain may benefit wet-season rice development this year. In **Cambodia**, planting of wet-season rice is underway, and planted area has reached 8 percent of the national planting plan. While sowing activities are slightly delayed compared to the previous year, growing conditions are generally favourable, and COVID-19 related restrictions on agricultural work have been removed. In **Sri Lanka**, sowing of *Yala* season maize crops is underway for harvest from April. Planted area is estimated below the five-year average, reflecting reduced availability and high prices of fuel and fertilizer. In **Nepal**, harvesting of the mostly irrigated wheat crop is underway and will finalize in June while maize crops continue to develop for harvest from August. Final yields may be affected by the reduced application of fertilizers, which are mostly imported, due to their high prices and limited availability. In **Bangladesh**, harvesting of *Boro* season rice crops continues under generally favourable conditions, and harvesting activities will finalize in June. Planting of main season maize crops began in May under favourable conditions. However, from early May, extensive flooding affected five districts of the northeast, including Sylhet and Sunamganj districts, which are the most severely affected, as well as Habiganj, Netrokona, and Maulvibazar. Agricultural land and critical infrastructure were affected in localized areas. In the **Democratic People's Republic of Korea**, planting of main season maize and rice crops is underway for harvest from September, and there is concern as the western half of the country, which includes the main producing provinces, received less than 50 percent of normal rainfall since the beginning of April.

Central America & Caribbean

Central America & the Caribbean: Primera Maize Map

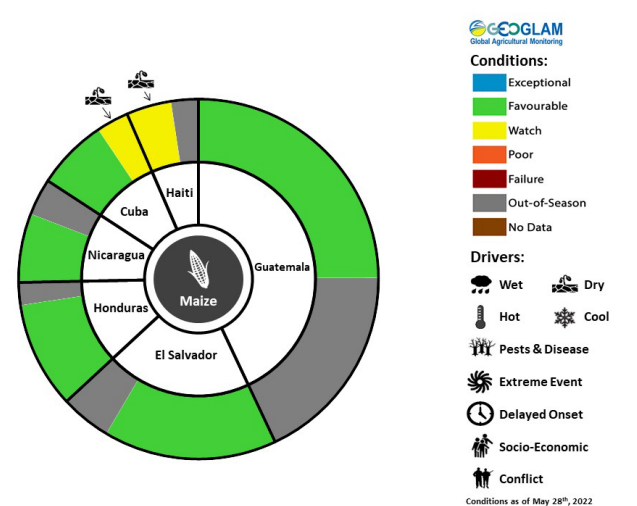


Crop condition map synthesizing Primera season maize conditions as of May 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Conditions that are other than favourable are labeled on the map with their driver.**

In Central America, planting of *Primera* season cereals is now underway across **El Salvador, Guatemala, Honduras, and Nicaragua** for harvest from July, and conditions are generally favourable. Despite deficit rainfall in recent weeks across north and central areas of **Guatemala**, increased rainfall in late May has resulted in adequate soil moisture for planting activities, and forecast above-average precipitation is expected to further improve deficits. However, there is concern in localized southern areas along the Pacific coast that have been affected by torrential rainfall that triggered flooding and landslides (See Regional Outlook Pg. 16). In **El Salvador, Honduras, and Nicaragua**, overall conditions are favourable as precipitation since the third dekad of April is near the long-term average, and above-average rainfall in main producing areas is benefitting sowing activities (See Regional Outlook Pg. 16).

In **Haiti**, main season cereals are in vegetative to reproductive stage, and there is concern as below-average rainfall in recent weeks is impacting crop development. Current vegetation conditions reflect degradation in crop health compared to the beginning of May. While cumulative seasonal rainfall is near-average, rainfall performance since late April has been unfavourable for crop development, and forecasts indicate a continuation of deficit rainfall (See Regional Outlook Pg. 16). In **Cuba**, harvesting of main season maize and rice crops is nearing completion while planting of second season rice crops is underway for harvest from September, and conditions are generally favourable except in the western tip where persistent dry conditions prevailed in Pinar del Río Province with unfavourable prospects for yields.

Throughout the subregion, increased prices of fertilizers are expected to limit yields, particularly for smallholder farmers who cannot afford to buy the usual quantities. For larger producers, farmers will raise market prices at the end of the *Primera* season to compensate for the cost of production. The increased cost of fuel and transportation has already affected the price of basic grains.



For detailed description of the pie chart please see description box on Pg. 16.

Regional Outlook: Wetter than normal June to August is forecast for much of Central America

During late April through May 20th, conditions were drier than average in central and northern Guatemala, southern and northern Belize, western El Salvador, central and eastern Haiti, and the Dominican Republic. During this time there was ample, above-average rainfall in Honduras, Nicaragua, eastern El Salvador, Costa Rica, and the Pacific areas of Guatemala, where localized floods and landslides occurred.

Figure 1-left shows April 1st to May 20th rainfall performance. Below-average rainfall impacted central and northern Guatemala during most of the *Primera* season, and several weeks in May were much drier than average in some of these areas. At the end of May (Figure 1-middle), heavy rainfall in central Guatemala improved conditions and also led to damages and fatalities. Western Honduras and southern Belize also received above-average rainfall during this time. In central and eastern Haiti, seasonal rains have been irregular and, overall, below-average, with highly above-average rainfall during mid-April, as well as other localized wet periods. The dry conditions in recent weeks are concerning, due to May typically being the wettest month of the *Printemps* season. Drier-than-average conditions will likely continue in some of these areas through June or July, based on the two-week unbiased GEFS forecast from May 25th and longer-range WMO and NMME forecasts.

Associated with recent and forecast wet weather, there are elevated risks of floods and landslides, particularly in unstable mountainous terrain or already-saturated areas. Wetter-than-normal conditions are forecast from June to August for many areas in Central America, while Haiti may be drier than normal, based on the NMME forecast from May (Figure 1-right).

The 2022 Atlantic basin hurricane season will likely be more active than normal, according to the NOAA Climate Prediction Center. [NOAA predicts](#) 14-21 named storms and 3-6 major hurricanes. Atmospheric and ocean conditions may be similar to last year, which was the third-most-active year on record, with 21 named storms.

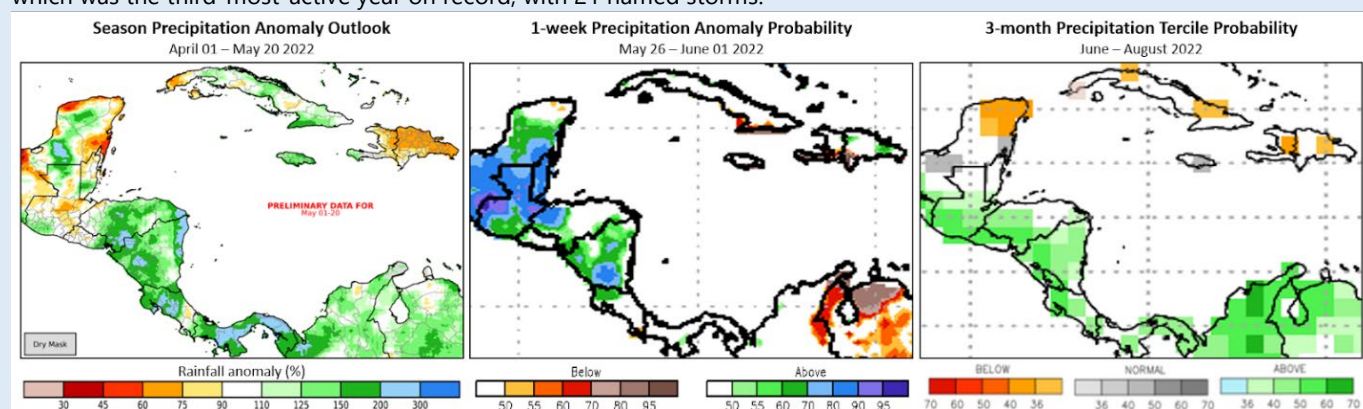


Figure 1. Season rainfall anomaly and 1-week and 3-month rainfall anomaly probability forecasts. The left panel shows the April-to-May 20th 2022 season rainfall performance, represented as a percent of the 1981-2021 CHIRPS historical average based on final CHIRPS data for March and April, and preliminary CHIRPS data for May 1st-20th. The middle panel is the [NOAA CPC GEFS](#) week 1 forecast for May 26th to June 1st, 2022 from May 25th, which shows the chances for above-average (> 120% of average) and below-average (< 80% of average) rainfall. The right panel is a 3-month NMME probabilistic rainfall forecast for June to August, 2022, based on May 2022 initial conditions. The forecast probability is calculated as the percentage of all 79 NMME ensemble members that fall in a given tercile (above/below/near-normal). White color indicates there is no dominant category across the model forecasts. NMME image from the [NOAA CPC Climate Forecasts](#). Source: UCSB Climate Hazards Center

Pie Chart Description: Each slice represents a country's share of total regional production. The proportion within each national slice is colored according to the crop conditions within a specific growing area; grey indicates that the respective area is out of season. Sections within each slice are weighted by the sub-national production statistics (5-year average) of the respective country. The section within each national slice also accounts for multiple cropping seasons (i.e. spring and winter wheat) and are a result of combining totals from multiple seasons to represent the total yearly national production. When conditions are other than favourable icons are added that provide information on the key climatic drivers affecting conditions.

Information on crop conditions in the main production and export countries can be found in the *Crop Monitor for AMIS*, published June 2nd, 2022.

Appendix

Crop Conditions:

Exceptional: Conditions are much better than average* at time of reporting. This label is only used during the grain-filling through harvest stages.

Favourable: Conditions range from slightly lower to slightly better than average* at reporting time.

Watch: Conditions are not far from average* but there is a potential risk to final production. The crop can still recover to average or near-average conditions if the ground situation improves. This label is only used during the planting-early vegetative and the vegetative-reproductive stages.

Poor: Crop conditions are well below-average. Crop yields are likely to be 10-25% below-average. This is used when crops are stunted and are not likely to recover, and impact on production is likely.

Failure: Crop conditions are extremely poor. Crop yields are likely to be 25% or more below-average.

Out of Season: Crops are not currently planted or in development during this time.

No Data: No reliable source of data is available at this time.



"Average" refers to the average conditions over the past 5 years.

Note: In areas where conflict is a driver of crop condition, crop conditions are compared to the pre-conflict average rather than the average conditions over the past 5 years. In areas where conflict is protracted and based on expert analysis on a case by case basis, crop conditions will be compared to the average conditions over the past five years.

Drivers:

These represent the key climatic drivers that are having an impact on crop condition status. They result in production impacts and can act as either positive or negative drivers of crop conditions.

Wet: Higher than average wetness.

Dry: Drier than average.

Hot: Hotter than average.

Cool: Cooler than average or risk of frost damage.

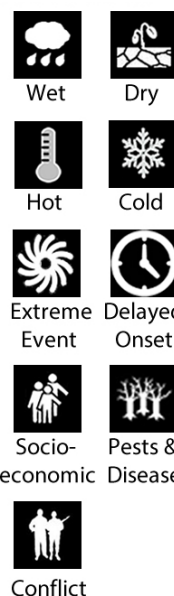
Extreme Events: This is a catch-all for all other climate risks (i.e. hurricane, typhoon, frost, hail, winterkill, wind damage, etc.)

Delayed-Onset: Late start of the season.

Pest & Disease: Destructive insects, birds, animals, or plant disease.

Socio-economic: Social or economic factors that impact crop conditions (i.e. policy changes, agricultural subsidies, government intervention, etc.)

Conflict: Armed conflict or civil unrest that is preventing the planting, working, or harvesting of the fields by the farmers.



Crop Season Nomenclature:

In countries that contain multiple cropping seasons for the same crop, the following charts identifies the national season name associated with each crop season within the Crop Monitor for Early Warning.

MENA				
Country	Crop	Season 1 Name	Season 2 Name	Season 3 Name
Egypt	Rice	Summer-planted	Nili season (Nile Flood)	

East Africa				
Country	Crop	Season 1 Name	Season 2 Name	Season 3 Name
Burundi	Maize	Season B	Season A	
Ethiopia	Maize	Meher Season (long rains)	Belg Season (short rains)	
Kenya	Maize	Long Rains	Short Rains	
Somalia	Maize	Gu Season	Deyr Season	
Somalia	Sorghum	Gu Season	Deyr Season	
Uganda	Maize	First Season	Second Season	
United Republic of Tanzania	Maize	Long Rains	Short Rains	
United Republic of Tanzania	Sorghum	Long Rains	Short Rains	

West Africa				
Country	Crop	Season 1 Name	Season 2 Name	Season 3 Name
Benin	Maize	Main season	Second season	
Cameroon	Maize	Main season	Second season	
Cote d'Ivoire	Maize	Main season	Second season	
Ghana	Maize	Main season	Second season	
Mauritania	Rice	Main season	Off-season	
Nigeria	Maize	Main season	Short-season	
Nigeria	Rice	Main season	Off-season	
Togo	Maize	Main season	Second season	

Southern Africa				
Country	Crop	Season 1 Name	Season 2 Name	Season 3 Name
Democratic Republic of the Congo	Maize	Main season	Second season	
Mozambique	Maize	Main season	Second season	

Southeast Asia				
Country	Crop	Season 1 Name	Season 2 Name	Season 3 Name
Bangladesh	Rice	Boro	Aman	
Cambodia	Rice	Wet season	Dry season	
Indonesia	Rice	Main season	Second season	
Lao People's Democratic Republic	Rice	Wet season	Dry season	
Myanmar	Rice	Wet season	Dry season	
Philippines	Rice	Wet season	Dry season	
Sri Lanka	Rice	Maha	Yala	
Thailand	Rice	Wet season	Dry season	
Viet Nam	Rice	Wet season (Autumn)	Dry season (Winter/Spring)	

Central & South Asia				
Country	Crop	Season 1 Name	Season 2 Name	Season 3 Name
Afghanistan	Wheat	Winter-planted	Spring-planted	
Kazakhstan	Wheat	Winter-planted	Spring-planted	
Kyrgyzstan	Wheat	Winter-planted	Spring-planted	
Tajikistan	Wheat	Winter-planted	Spring-planted	

Crop Season Nomenclature:


In countries that contain multiple cropping seasons for the same crop, the following charts identifies the national season name associated with each crop season within the Crop Monitor for Early Warning.

Central America & Caribbean				
Country	Crop	Season 1 Name	Season 2 Name	Season 3 Name
Cuba	Rice	Main season	Second season	
El Salvador	Beans	Primera	Postrera	
El Salvador	Maize	Primera	Segunda	
Guatemala	Beans	Primera	Postrera	Apante
Guatemala	Maize	Primera	Segunda	
Haiti	Maize	Main season	Second season	
Honduras	Beans	Primera	Postrera	
Honduras	Maize	Primera	Segunda	
Nicaragua	Beans	Primera	Postrera	Apante



GEOGLAM

Global Agricultural Monitoring

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The Crop Monitor is a part of GEOGLAM, a GEO global initiative.

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