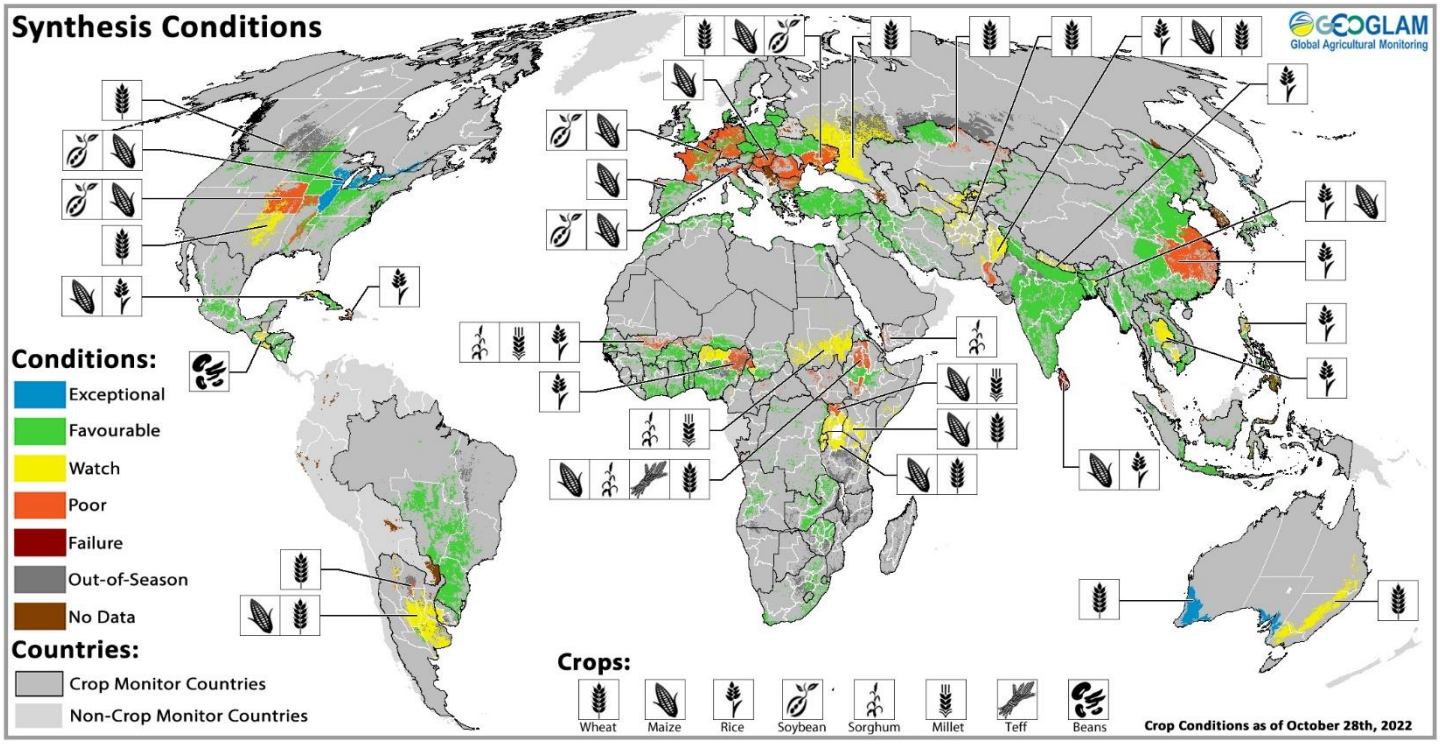
# GEOGLAM Global Crop Monitor

## Global Conditions at a Glance (as of October 28th)




*Crop condition map synthesizing information for all Crop Monitor crops as of October 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, and 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.***

| | Wheat | Maize | Rice | Soybean |
|---|---|---|---|---|
| Current Conditions | | | | |
| Compared to last month | ↑ | – | – | – |
| Compared to last year | ↓ | ↓ | ↓ | ↑ |

**Legend:**
Positive ↑ Better
Mixed – Similar
Negative ↓ Worse

See Appendix I for detailed methodology description

## Global Crop Overview

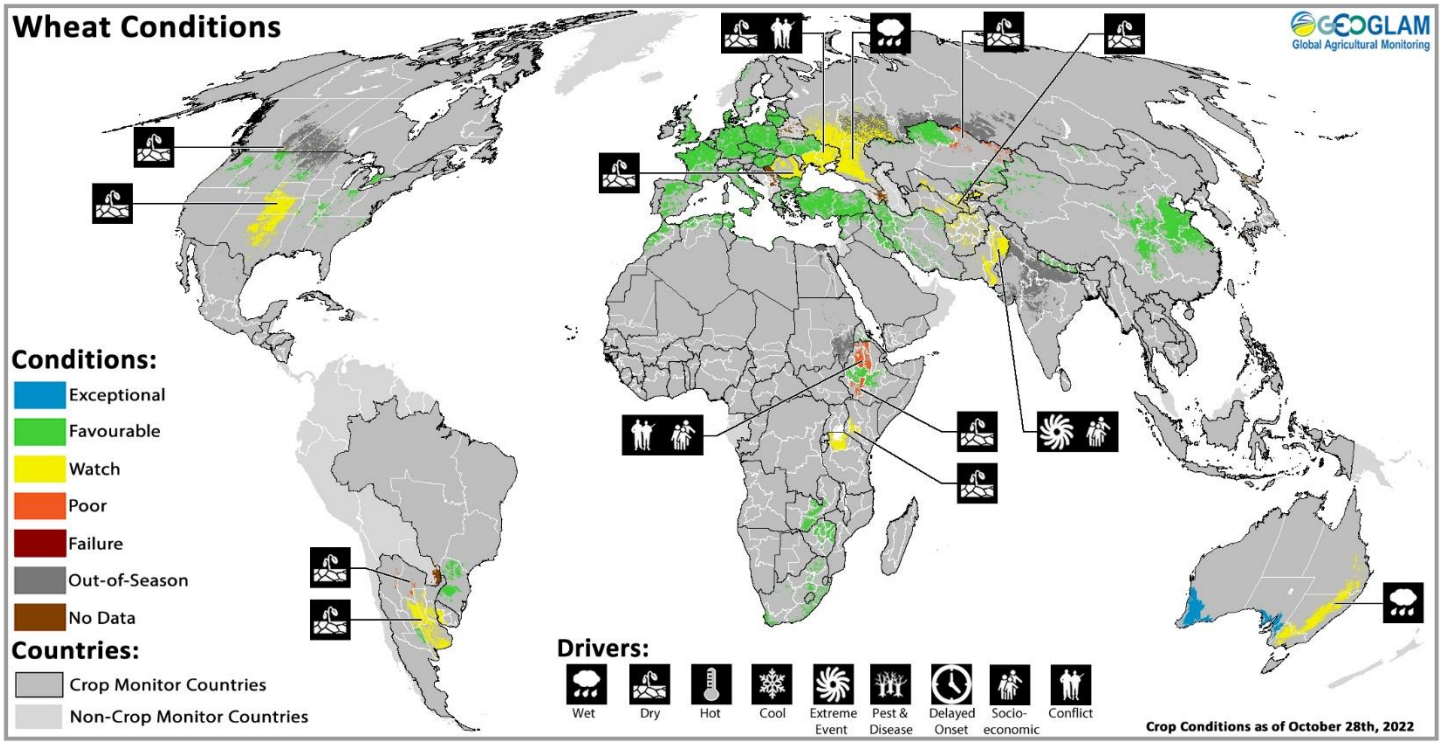
Global crop conditions at the end of October are overall positive for soybeans while mixed for wheat, maize, and rice. For **wheat**, there are areas of concern in eastern Australia, Argentina, the US, Ukraine, the Russian Federation, and Central Asia. For **maize**, parts of the US and Europe finish their seasons in poor conditions while sowing expands in the southern hemisphere. For **rice**, concern remains in parts of China, Pakistan, and select areas of Southeast Asia. For **soybeans**, harvesting is wrapping up in the Northern Hemisphere while sowing begins in the Southern Hemisphere. The remaining crops are covered in the CM4EW publication.

## Global Climate Influences

The El Niño-Southern Oscillation (ENSO) is currently in the La Niña phase. La Niña conditions will likely continue into early 2023 (86% chance for November to January and 59% chance for January to March), according to the IRI/CPC. Negative Indian Ocean Dipole (IOD) conditions are present and are expected through November. A transition towards neutral IOD is forecast for December (~55% chance), according to the Australia Bureau of Meteorology. For further details see page 6.

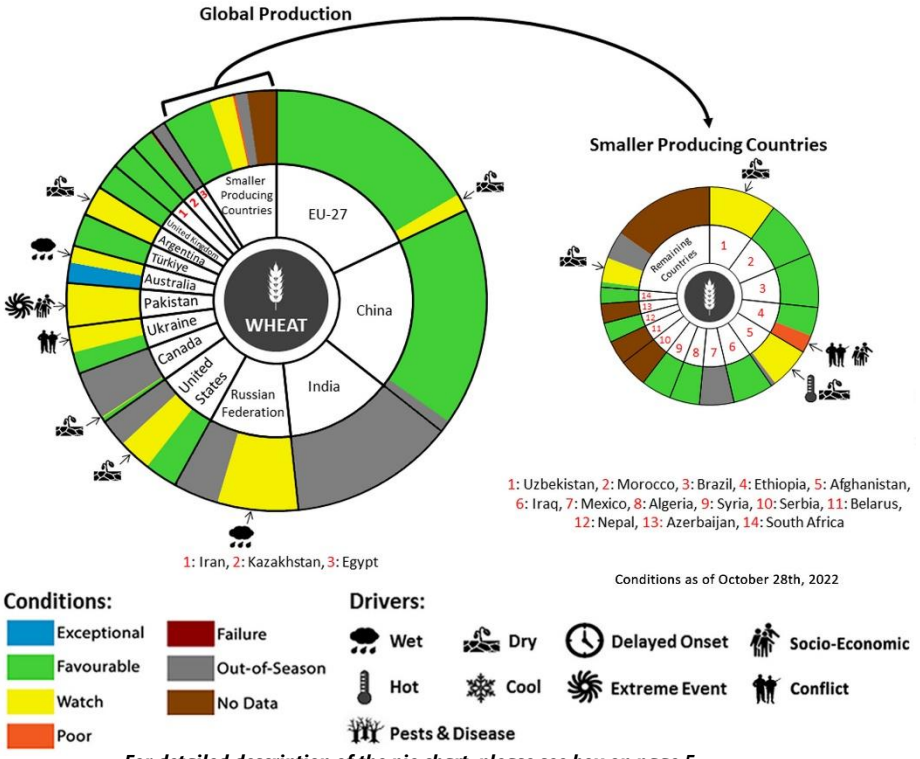
*Source: UCSB Climate Hazards Center*

## WHEAT



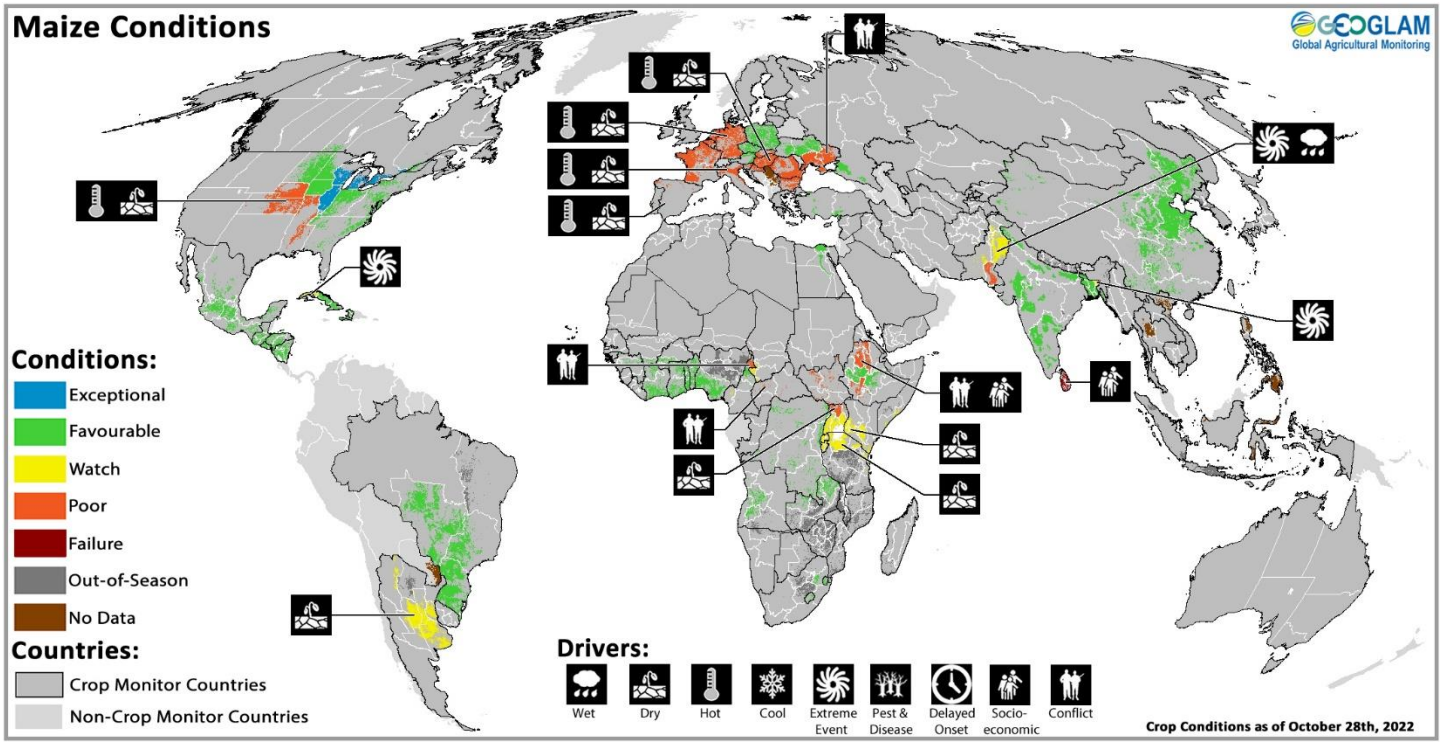

*Wheat crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Conditions are based upon information as of October 28th.*

In **North America,** winter wheat sowing is continuing in the US under dry conditions in the southern and central Great Plains. In Canada, winter wheat sowing continues under generally favourable conditions, despite dry conditions in the western Prairies. In **South America**, mixed conditions persist in the main producing areas of Argentina due to prolonged dryness and recent frost events during critical development stages. Harvesting has begun in the north with poor yields expected. In Brazil, conditions are favourable, despite excessive rainfall in some regions. There is an area increase in the total sown area compared to last year. In Uruguay, dry conditions are impacting the crop in the grain-filling stage. In **Europe**, sowing is progressing well in the EU across the northern countries and beginning in the Mediterranean countries. In the UK, sowing and emergence are ongoing under favourable conditions owing to good soil moisture and temperatures. In Ukraine, sowing is continuing under mixed conditions due to the ongoing war and areas of dryness in the south. In the Russian Federation, heavy rainfall from late September to early October has delayed sowing activities, particularly in the southern and central districts. In Türkiye, sowing is beginning under favourable conditions. In **Central Asia**, harvesting of spring wheat wraps up in Kazakhstan under favourable conditions except in the northeast. Sowing of winter wheat is underway in Afghanistan, southern Kazakhstan, Kyrgyzstan, Pakistan, Tajikistan, Turkmenistan, and Uzbekistan under dry conditions. In **East Asia**, sowing of winter wheat is ongoing in China under favourable conditions. In **Oceania**, as harvest begins in Australia, yields are expected to be exceptionally high across Western Australia and South Australia; however, heavy rainfall and flooding in the east may reduce yields. In **MENA**, sowing has begun under favourable conditions. In **Sub-Saharan Africa**, harvesting continues in Lesotho, South Africa, Zambia, and Zimbabwe under generally favourable conditions. Dry conditions persist in Kenya, Tanzania, and southern Ethiopia while conflict impacts remain in northern Ethiopia.



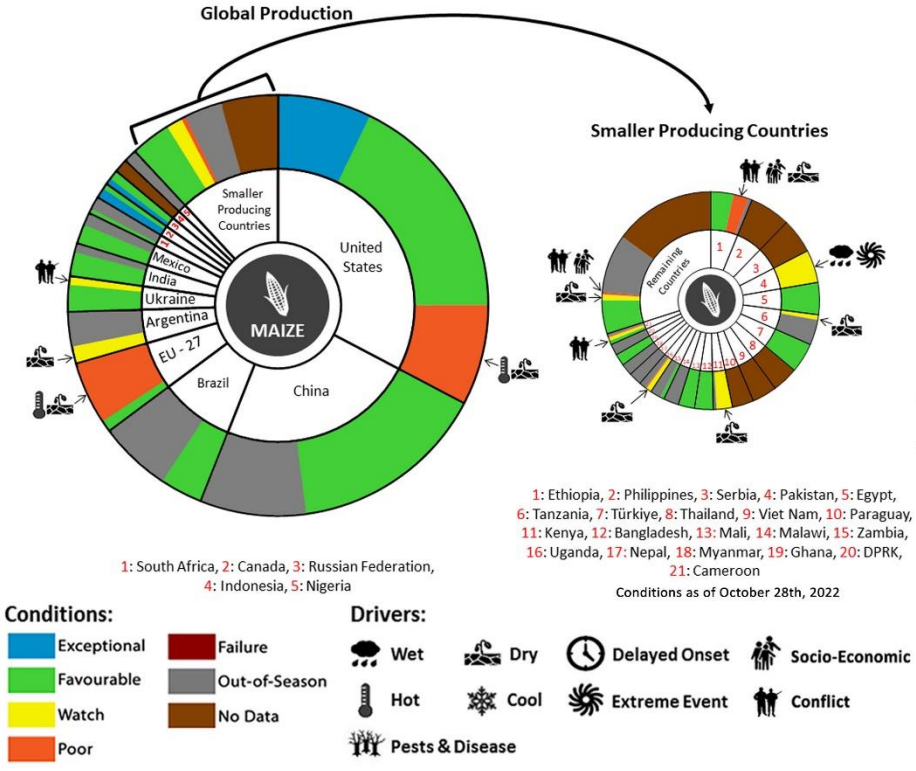

***For detailed description of the pie chart, please see box on page 5.***

## MAIZE



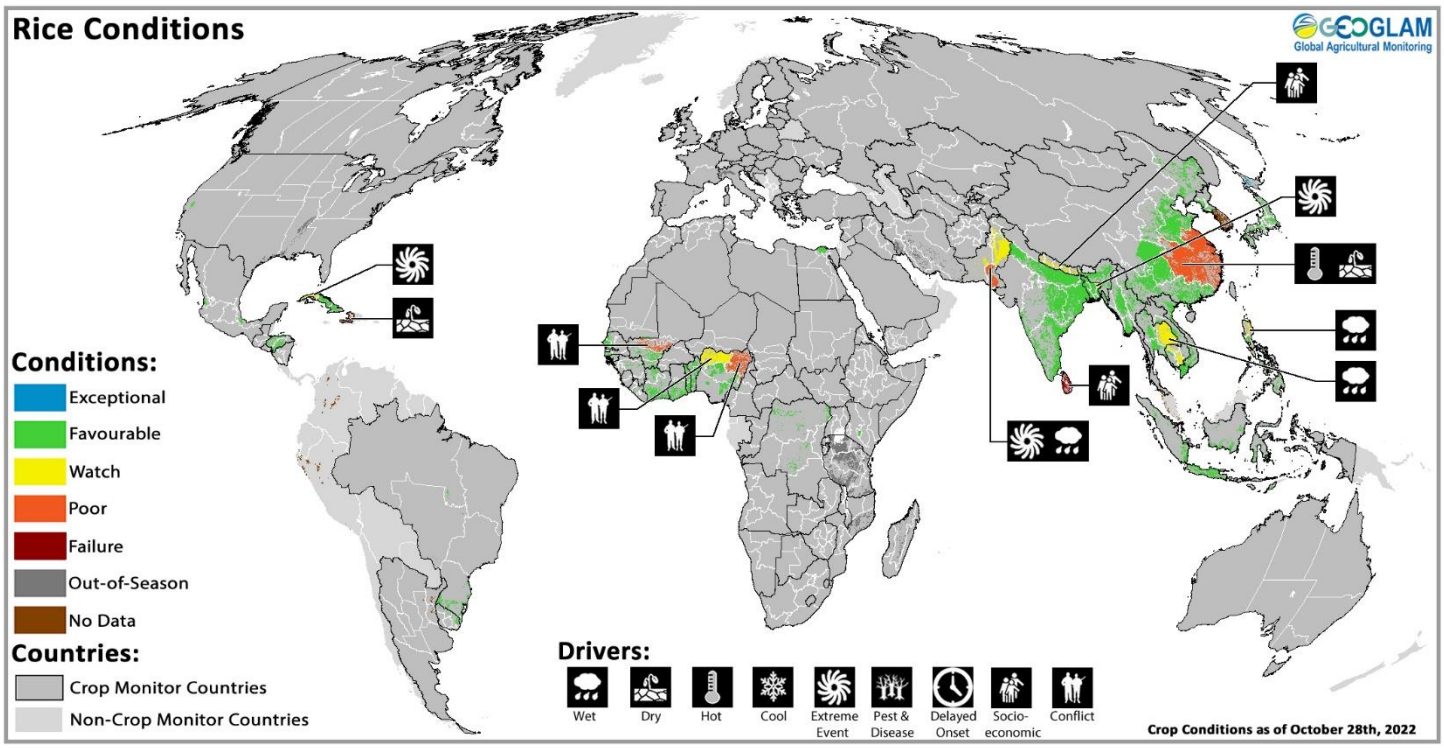

*Maize crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Conditions are based upon information as of October 28th.*

In **North America**, harvesting is progressing in the US under a split of conditions, poor in the western and southern Corn Belt, while exceptional in Illinois, Michigan, and Wisconsin. In Canada, harvest is wrapping up under favourable to exceptional conditions. In **Central America & the Caribbean**, harvesting is beginning in Mexico for the spring-summer season (larger season). The *Segunda/Prostrera* season crops are now in the vegetative to reproductive stage in El Salvador, Guatemala, Honduras, and Nicaragua. In Cuba, harvesting of main-season crops is continuing while in Haiti, harvesting of second-season crops begins. In **South America**, sowing of the spring-planted crop (smaller) is progressing in Brazil with a slight reduction in the total sown area expected compared to last year, due to a switch over to soybeans. In Argentina, a lack of surface moisture continues to delay the sowing of the early-planted crop (larger season), which is now expecting area reductions as the window for sowing is closing. Frost damage has occurred in northern Buenos Aires and southern Santa Fe. In **Europe**, harvesting is wrapping up in the EU with largely below-average yields across much of Europe due to a very hot and dry season. In Ukraine, harvesting is now picking up with the cessation of rains in October. In the Russian Federation, harvesting is wrapping up under favourable to exceptional conditions. In Türkiye, harvesting is wrapping up. In **South Asia**, harvesting in India of the *Kharif* crop is ongoing under favourable conditions. In Pakistan, harvesting of the *Kharif* crop is continuing under mixed conditions due to the unprecedented monsoon rainfall and flooding. In Bangladesh, harvesting is underway for main-season crops. In Sri Lanka, harvesting of *Yala* season crops is wrapping as the sowing of *Maha* season crops begins. In **East Asia**, harvest is wrapping up under generally favourable conditions in China. In **West Africa**, harvesting activities are nearing completion in the south and beginning along the Sahel. In **East Africa,** harvesting of main-season crops continues in the north under mixed conditions, while sowing of the second-season crops begins in the south. In **Southern Africa**, sowing is just beginning in some places.



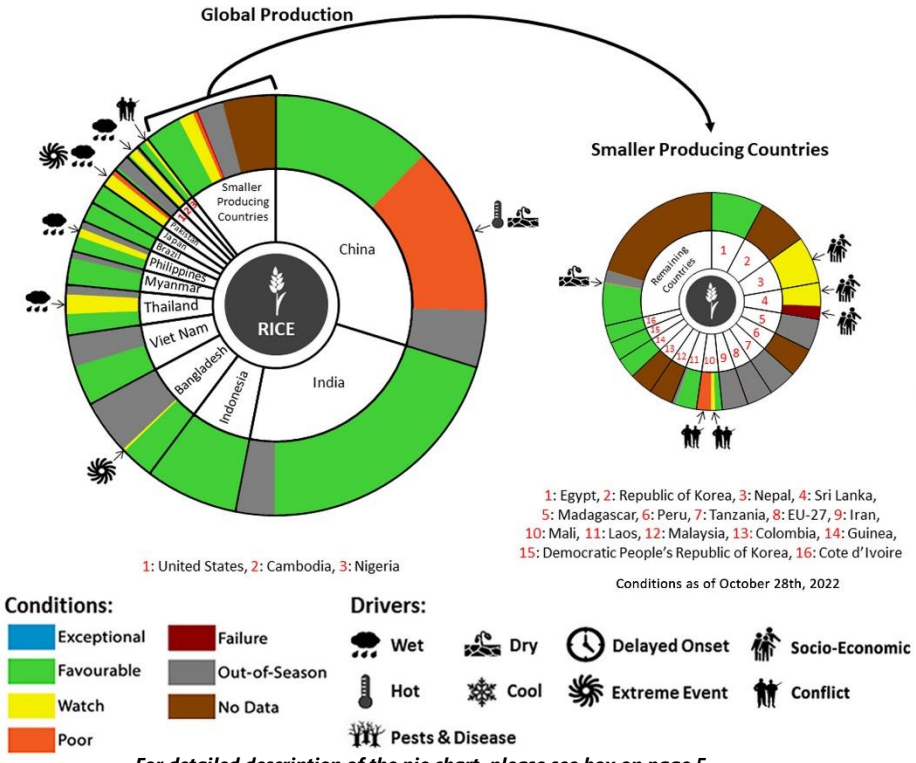

***For detailed description of the pie chart, please see box on page 5.***

## RICE



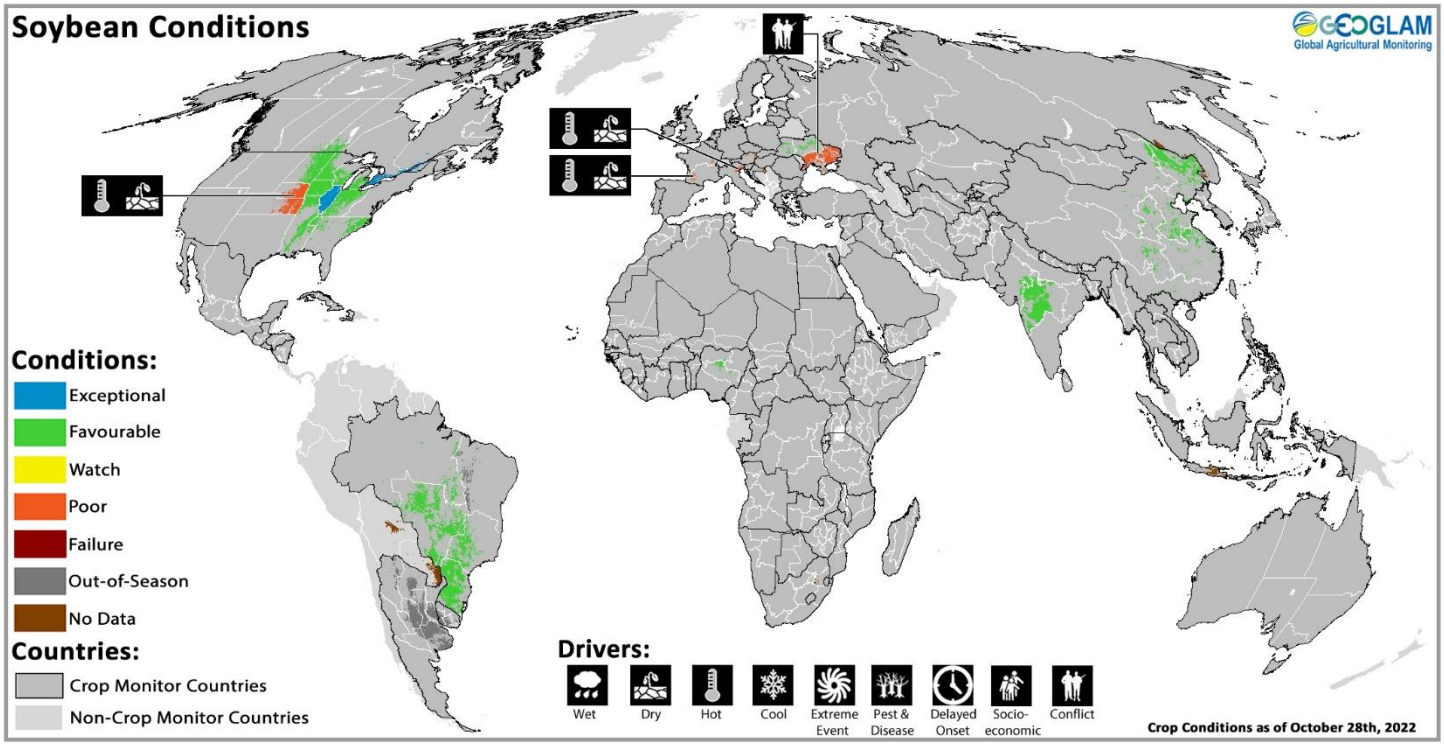

*Rice crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Conditions are based upon information as of October 28th.*

In **East Asia**, harvesting is wrapping up in China for the single-season rice under mixed conditions due to hot and dry weather earlier in the summer in the lower Yangtze River region. The late-season crops were also impacted by the summer weather. In Japan, harvesting is wrapping up under generally favourable conditions despite several storms impacting the south. In the Democratic People's Republic of Korea, harvesting of crops is wrapping up. In **South Asia**, conditions are favourable in India as the *Kharif* crop has reached maturity across most of the country and harvesting is progressing in the northern states. There is a slight reduction in the total sown area compared to last year, primarily in the eastern states. In Pakistan, harvesting of *Kharif* season crops continues under mixed conditions due to the unprecedented monsoon rain from mid-June that triggered one of the country's worst floods in a decade. In Bangladesh, damage from tropical Storm Sitrang is still yet to be assessed for *Aman* season crops. In Nepal, harvesting will begin next month. In Sri Lanka, harvesting of the *Yala* season crop is wrapping up as the sowing of *Maha* season crops begins. In **Southeast Asia**, harvesting of wet-season rice is underway in Myanmar, Thailand, Laos, Viet Nam, Cambodia, and the Philippines while harvesting of dry-season rice continues in Indonesia. Parts of Cambodia, the Philippines, and northern Thailand were affected by heavy rainfall. In the **Americas**, harvesting is wrapping up in the US. In Mexico, harvesting of the spring-summer crop is continuing. Harvesting is ongoing for second-season rice in Cuba and wrapping up for main-season rice in Haiti. In Brazil and Uruguay, sowing is continuing. In **MENA**, harvesting of summer-planted crops is continuing in Egypt. In **Sub-Saharan Africa**, conditions are generally favourable in western and central Africa except for in Mali and northern Nigeria due to continuing conflicts.



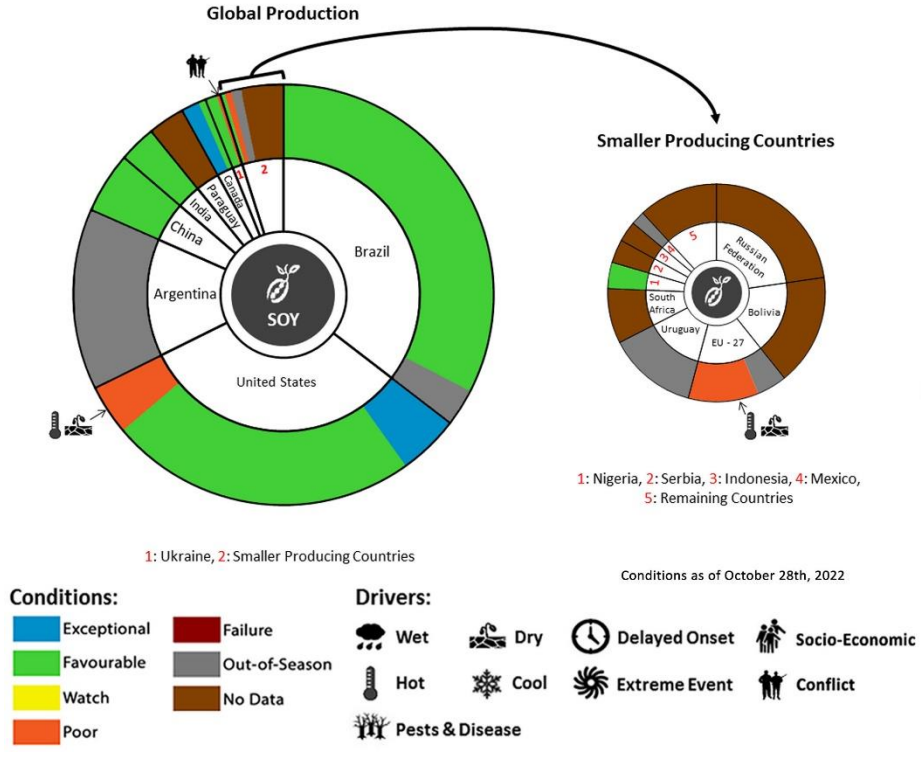

***For detailed description of the pie chart, please see box on page 5.***

## SOYBEAN




*Soybean crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Conditions are based upon information as of October 28th.*

In **North America**, harvesting is wrapping up in the US under a mix of conditions. Most of the country is under generally favourable conditions; however, hot and dry weather earlier in the growing season has taken its toll on final yields, particularly in Kansas and Nebraska; conversely, parts of the eastern corn belt have above-average yields. In Canada, harvesting is wrapping up under exceptional conditions in Ontario and Quebec, while under favourable conditions in the Prairies. In **South America**, sowing is progressing in Brazil under favourable conditions owing to good soil moisture levels. An increase in the total sown area is expected compared to last year. In **Asia**, harvesting is wrapping up in China under favourable conditions. In India, harvesting is wrapping up under favourable conditions. In **Europe**, hot and dry summer weather reduced yields in the EU, most notably across southern Europe. In Ukraine, harvesting is over halfway complete, albeit under the shadow of the ongoing war in the southern and eastern regions. In **Sub-Saharan Africa**, harvesting is wrapping up in Nigeria under favourable conditions.




**Pie Chart Description:** Each slice represents a country's share of total Global production (5-year average). Main producing countries (representing 90-95 percent of production) are shown individually, with the remaining 5-10 percent grouped into the "Smaller Producing Countries" category. The proportion within each national slice is coloured according to the crop conditions within a specific growing area; grey indicates that the respective area is out of season. Sections within each slide 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 (e.g., spring and winter wheat). When conditions are other than 'favourable', icons are added that provide information on the key climatic drivers affecting conditions.

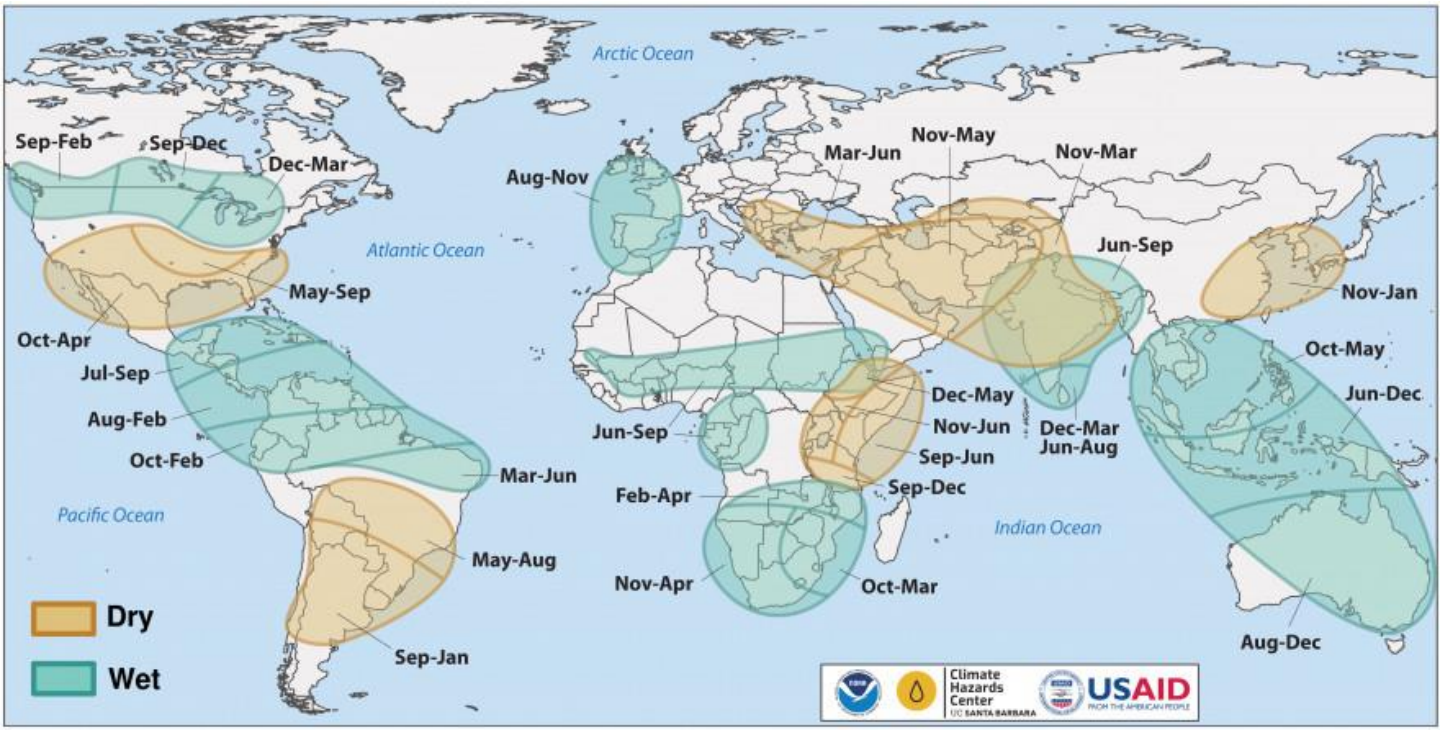
## Global Climate Influences

The El Niño-Southern Oscillation (ENSO) is currently in the La Niña phase. La Niña conditions will likely continue into early 2023 (86% chance for November to January and 59% chance for January to March), according to the IRI/CPC.

Negative Indian Ocean Dipole (IOD) conditions are present and are expected through November. A transition towards neutral IOD is forecast for December (~55% chance), according to the Australia Bureau of Meteorology.

Associated with the co-occurring La Niña and negative IOD conditions there are very high risks of severe drought impacts across the Horn of Africa, and heavy rainfall and flooding in Australia and Southeast Asia. Additionally, La Niña conditions for a third year in a row raises concerns about repeat dry conditions in 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. Historically, co-occurring La Niña and IOD events have led to very dry conditions in East Africa during boreal fall, and fall La Niñas are very often followed by poor spring rains as well, even if La Niña strength wanes.

*Source: UCSB Climate Hazards Center*




*Location and timing of likely above- and below-average precipitation related to La Niña events. Based upon observed precipitation during 21 La Niña events since 1950, wet and dry correspond to a statistically significant increase in the frequency of precipitation in the upper and lower thirds of historical values, respectively. Statistical significance at the 95% level is based on the resampling of precipitation during neutral El Niño-Southern Oscillation conditions. Source: FEWS NET & NOAA & CHC*

## Regional Outlooks

Both the two-week forecast (Figures 1 & 2) and the long-term November-December-January 2022/2023 forecast (Figures 3 & 4) are influenced by the co-occurring La Niña phase, and a Negative Indian Ocean Dipole (IOD).

In **North America**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation in the US across the Southeast and parts of the northern Great Plains. Canada is likely to also see below-average rainfall across the eastern of the Prairies. There is likely above-average precipitation in the US southwest. During the same time, temperatures are likely to be above-average across central and eastern North America. The long-term November-December-January 2022/2023 forecast (Figures 3 & 4) shows possible below-average precipitation across the majority of the central and southern US, while above-average precipitation in the US Pacific Northwest and across the Canadian Prairies. During the same time, temperatures are likely to be above-average across all of North America, especially in the southern and central US along with eastern Canada. For further details, see the CM4AMIS Regional Outlook for the United States.

In **Central America & the Caribbean**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation over Mexico, central Nicaragua, and eastern Cuba. During this time, temperatures are likely to be below-average in the northwest of Mexico. The long-term November-December-January 2022/2023 forecast (Figures 3 & 4) suggests likely continued below-average precipitation across Mexico, while above-average precipitation across Nicaragua, Costa Rica, and Panama. During this time, temperatures are likely to be above-average in Mexico and Cuba, while below-average in Costa Rica and Panama.

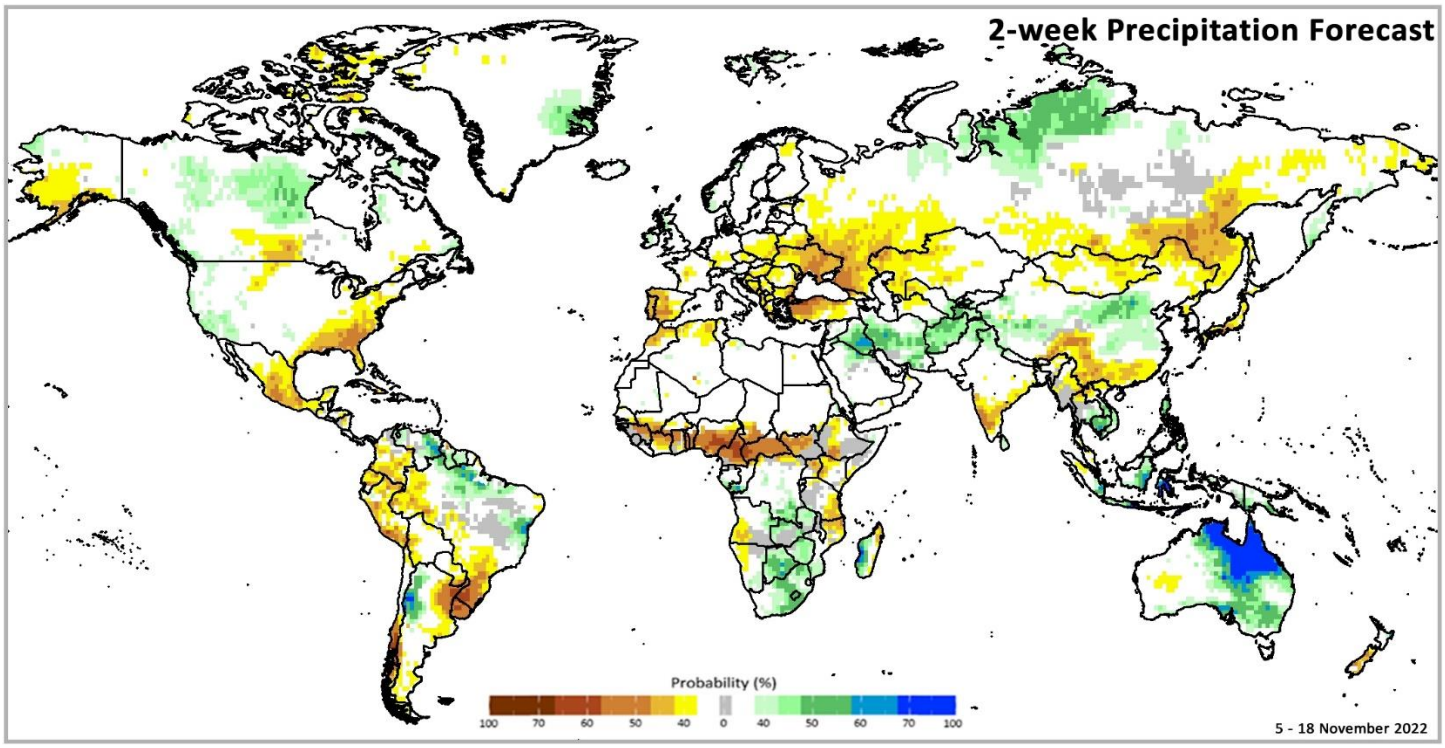



*Figure 1: IRI SubX Precipitation Biweekly Probability Forecast for 5 – 18 November 2022, issued on October 28th, 2022. The forecast is based on statistically calibrated tercile category forecasts from three SubX models. Source: IRI Subseasonal Forecasts Maproom*

In **South America**, the two-week forecast (Figures 1 & 2) indicates likely above-average precipitation in parts of eastern Venezuela, Guyana, Suriname, northern and northeast Brazil, and northwest Argentina. Below-average precipitation is likely over southeast Colombia, Ecuador, Peru, western Bolivia, northwest and southern Brazil, Uruguay, southern Paraguay, northeast Argentina, and southern Chile. During this time, temperatures are likely to be above-average in Argentina and southern Chile, while below average in parts of Brazil, eastern Paraguay, and southern Bolivia. The long-term November-December-January 2022/2023 forecast (Figures 3 & 4) suggests likely above-average precipitation across northwest Colombia, Venezuela, Guyana, Suriname, French Guiana, and northern and central Brazil. Below-average precipitation is likely across western Peru, southern Brazil, Paraguay, Uruguay, Argentina, and southern Chile. During that time, temperatures will likely be above-average across Argentina and below-average across eastern Brazil. For further details, see the CM4AMIS Regional Outlooks for Argentina and Brazil.

In **Europe**, the two-week forecast (Figures 1 & 2) indicates likely below-average rainfall over Portugal, western and central Spain, southeast Poland, Hungary, Bosnia and Herzegovina, Albania, Bulgaria, Greece, southern Belarus, Ukraine, Moldovia, northern and western Türkiye, eastern and western regions of the Russian Federation, and Georgia. During this time temperatures are likely to be above-average across most of Europe. The long-term November-December-January 2022/2023 forecast (Figures 3 & 4) predicts possible below-average precipitation in Portugal, northwest Spain, western France, Türkiye southeast Ukraine, southern Russian Federation, Georgia, Armenia, and Azerbaijan. During the long-term forecast, temperatures are forecast to be likely above-average across all of Europe.

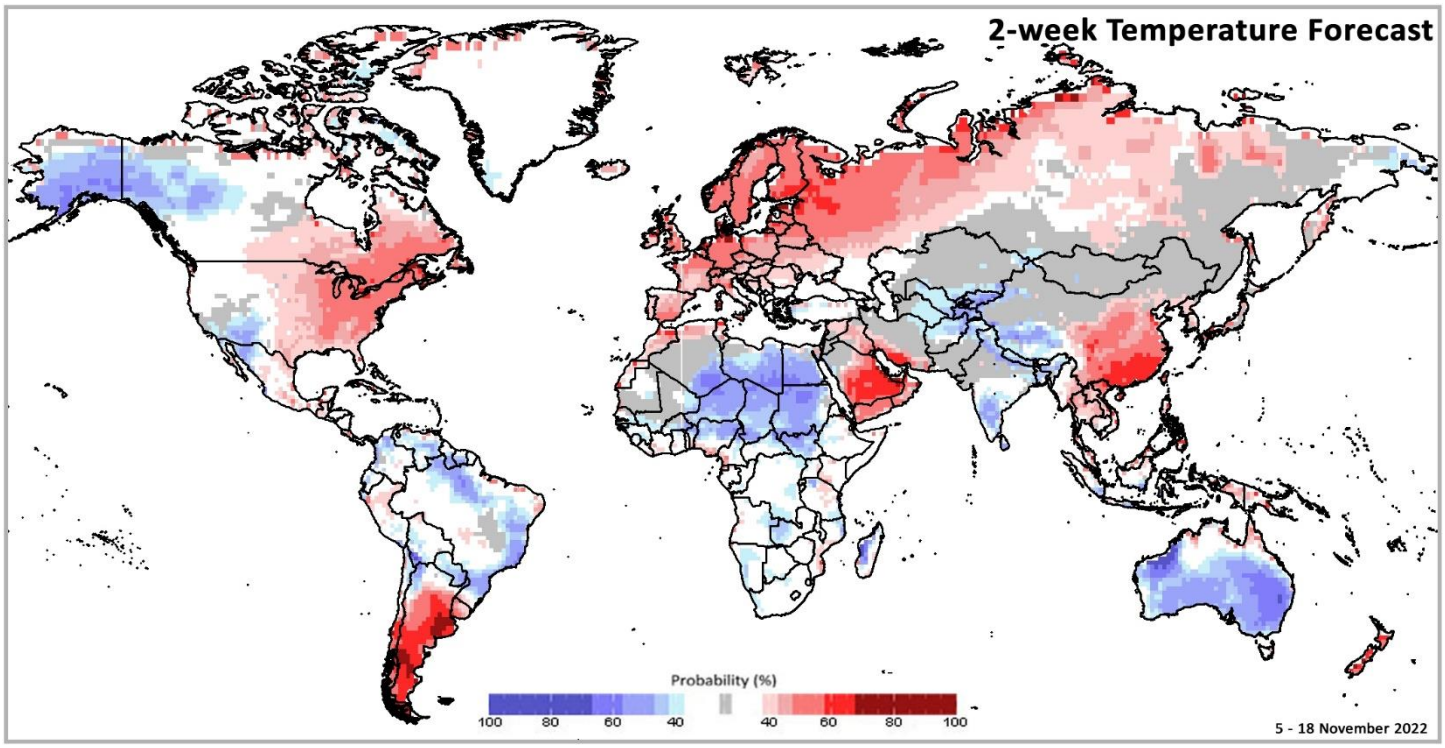



*Figure 2: IRI SubX Temperature Biweekly Probability Forecast for 5 – 18 November 2022, issued on October 28th, 2022. The forecast is based on statistically calibrated tercile category forecasts from three SubX models. Source: IRI Subseasonal Forecasts Maproom*

In **MENA**, the two-week forecast (Figures 1 & 2) indicates likely above-average precipitation in Iraq, and central Iran, while below-average precipitation in Morocco and northern Algeria. During this time, temperatures are likely to be above-average in Morocco, northern Algeria, Syria, Iraq, Saudi Arabia, Yemen, Oman, and southern Iran, while below-average in Egypt and eastern Lybia. The long-term November-December-January 2022/2023 forecast (Figures 3 & 4) predicts likely below-average precipitation in Syria, Lebanon, northern Jordan, northern Iraq, and Iran. During this time temperatures are likely to be above-average across most of the region, most notably in Egypt, eastern Iraq, and southern Iran. For further details, see the CM4EW seasonal forecast alert for East Africa.

In **Sub-Saharan Africa**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation over central Mali, Guinea, Burkina Faso, northern Côte d'Ivoire, northern Ghana, Togo, Benin, Nigeria, Cameroon, southern Chad, the Central African Republic, South Sudan, southern Ethiopia, western Kenya, northern Uganda, southeast Tanzania, northern Mozambique, southwest Angola, northwest Namibia, and eastern Madagascar. Above-average precipitation is likely over the southern Republic of Congo, southern Democratic Republic of the Congo, northern Zambia, Zimbabwe, Botswana, central South Africa, Lesotho, and western Madagascar. For the long-term November-December-January 2022/2023 forecast (Figures 3 & 4), precipitation is likely to be below-average over Eritrea, Ethiopia, Somalia, Kenya, Tanzania, Uganda, Tanzania, Rwanda, Burundi, southern DRC, northern Zambia, Malawi, and northern Mozambique, while above-average over Zimbabwe, Botswana, South Africa, and southern Madagascar. During this time, temperatures are likely to be above-average across most countries except for Botswana and South Africa. For further details, see the CM4EW seasonal forecast alert for East Africa and the regional outlooks for East Africa and Southern Africa.

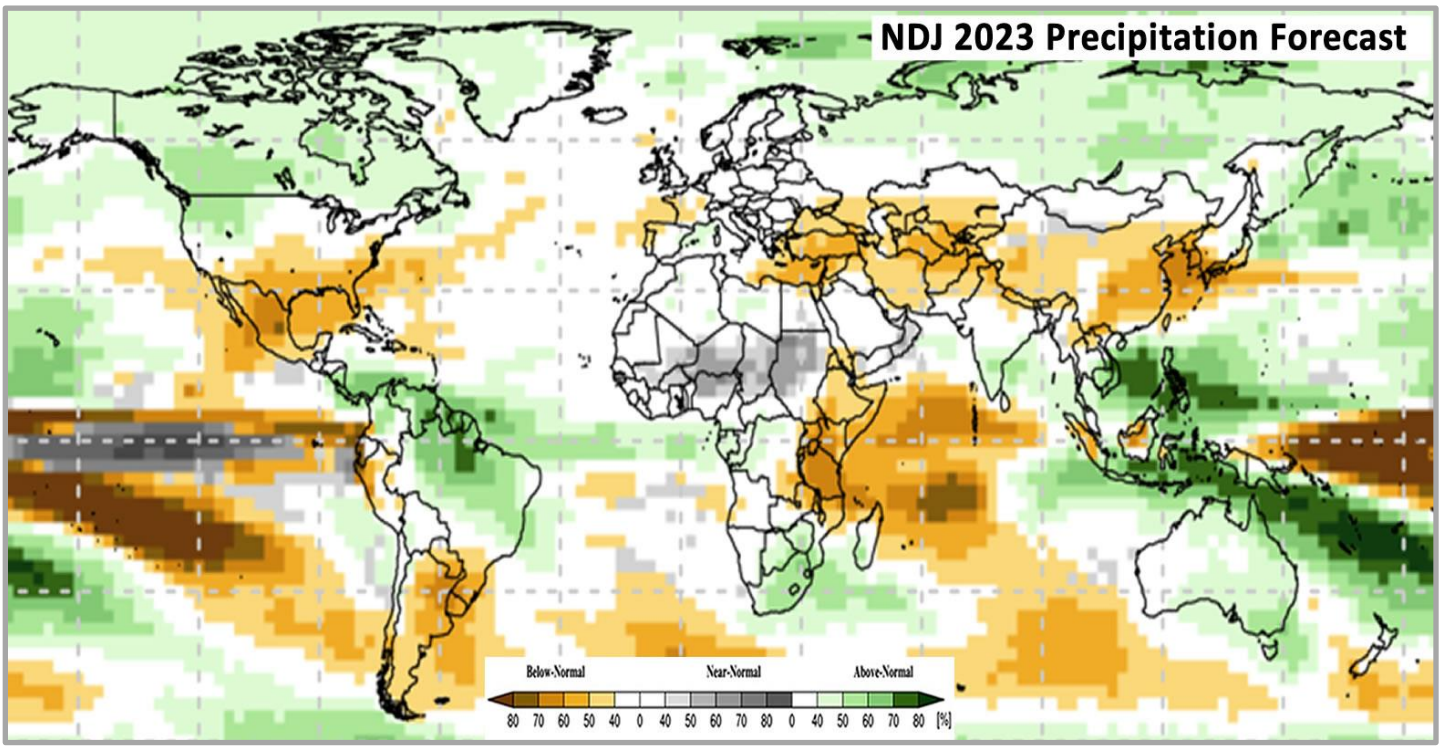



*Figure 3: Probabilistic forecast for most-likely November-December-January (NDJ) 2022/2023 rainfall tercile, based on October conditions. The white colour indicates that there is no dominant category across the model forecasts. Source: WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble*

In **Central Asia**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation in western Kazakhstan, western Uzbekistan, and western Turkmenistan, while above-average precipitation over eastern Uzbekistan, Tajikistan, and Afghanistan. During this time, temperatures are likely to be below-average in Kyrgyzstan, Tajikistan, eastern Uzbekistan, and eastern Afghanistan. The long-term November-December-January 2022/2023 forecast (Figures 3 & 4) predicts likely below-average precipitation across the entire region except for northern Kazakhstan. At the same time, temperatures are likely to be above-average across most of the region, particularly in eastern Afghanistan and southern Tajikistan. For further details see the CM4EW seasonal forecast alert.

In **South Asia**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation in southern India while above-average in northern Pakistan and northern India. During this time, temperatures are likely to be below-average in northern Pakistan, northern and southern India, Bangladesh, Nepal, and Sri Lanka. The long-term November-December-January 2022/2023 forecast (Figures 3 & 4) indicates likely above-average precipitation in southern India, while below-average across most of Pakistan, northern India, and Nepal. During this time, temperatures are likely to be above-average in northern Pakistan, northwest and northeast India, Nepal, Bhutan, and Bangladesh, while below-average in central and southern India.

In **East Asia**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation in parts of eastern Mongolia, northeast and southern China, southern Japan, and the eastern Russian Federation, while above-average precipitation is likely in northern and central China. During this time, temperatures are likely to be above-average over central and southern China, southern Japan, the Republic of Korea, and the Democratic People's Republic of Korea, while below-average in southwest China. The long-term November-December-January 2022/2023 forecast (Figures 3 & 4) suggests likely below-average precipitation over China, the Republic of Korea, the Democratic People's Republic of Korea, and southern Japan. During that time, temperatures are likely to be above-average across the entire region.

In **Southeast Asia & Oceania**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation in northern Viet Nam, northern Laos, northern Thailand, northeast Myanmar, and southern New Zealand, while above-average precipitation over the Philippines, southern Viet Nam, southern Laos, Cambodia, eastern Indonesia, and northern and eastern Australia. During this time, temperatures are likely to be above-average in most of the region except for most of Australia, which is likely to see below-average temperatures. The long-term November-December-January 2022/2023 forecast (Figures 3 & 4) precipitation is predicted to be above-average across southern Viet Nam, Cambodia, the Philippines, southern Indonesia, and Eastern Australia, while below-average in northern Viet Nam, northern Laos, and northern Indonesia. During the same time, temperatures are likely to be above-

average in Myanmar, the Philippines, Indonesia, Papua New Guinea, and New Zealand, while below-average in southern Thailand, Cambodia, southern Viet Nam, and southern and eastern Australia.

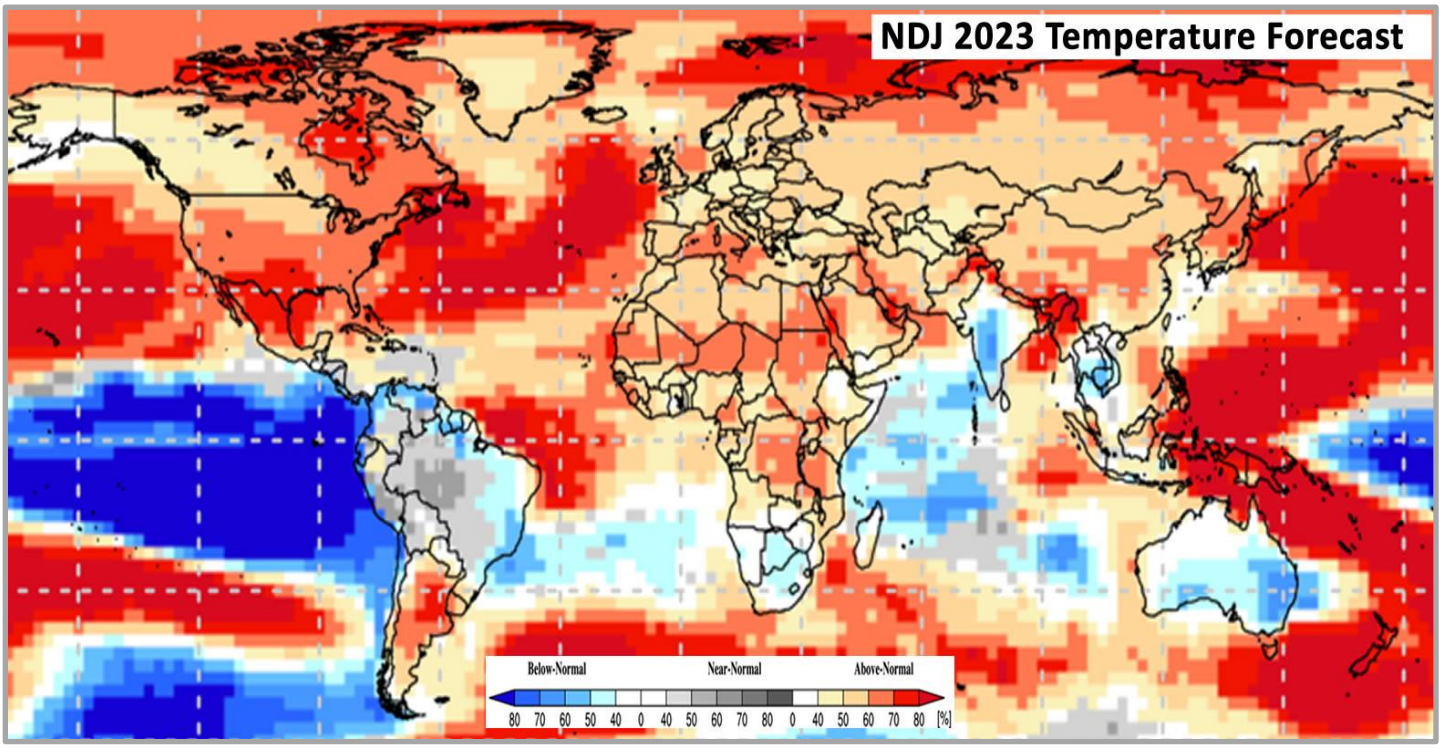



*Figure 4: Probabilistic forecast for most-likely November-December-January (NDJ) 2022/2023 temperature tercile, based on October conditions. The white colour indicates that there is no dominant category across the model forecasts. Source: WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble*

# Appendix 1: Terminology & Definitions

## Crop Conditions:


**Exceptional**: Conditions are much better than average* at the 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 more than 5-25% below-average. This is only used when conditions are not likely to be able to recover, and an 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.*

## Drivers:


These represent the key climatic, environmental, and anthropomorphic 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:** Wetter than average (includes water logging and floods).
**Dry:** Drier than average.
**Hot:** Hotter than average.
**Cool**: Cooler than average or risk of frost damage.
**Extreme Events:** Catch-all for all other climate risks (i.e., hurricane, typhoon, frost, hail, winter kill, wind damage, etc.). When this category is used the analyst will also specify the type of extreme event in the text.
**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 Condition Indicators:

**Current Crop Conditions:** The current crop condition indicators are based on only the crops that are currently in season. Crops with "No Data" are not counted. The crop condition is considered "Positive", with a green-coloured crop symbol, when 85-100% of active crops are currently under favourable to exceptional conditions. The crop conditions are considered "Mixed", with an orange-coloured crop symbol, when only 70-85% of active crops are under favourable to exceptional conditions. The crop conditions are considered "Negative", with a dark red-coloured crop symbol, when only 0-70% of active crops are under favourable to exceptional conditions.

**Crop Condition Comparisons**: Crop condition changes are measured between the current month's conditions compared to the previous month and to exactly one year ago. Only active crops are considered. If there is a -5% change in global crop conditions, then the crop conditions are considered "Deteriorating" (indicated by a down arrow). If there is a +5% change in global crop conditions, then the crop conditions are considered "Improving" (indicated by an up arrow). Otherwise, crop conditions are considered "Stable" (indicated by a dash).