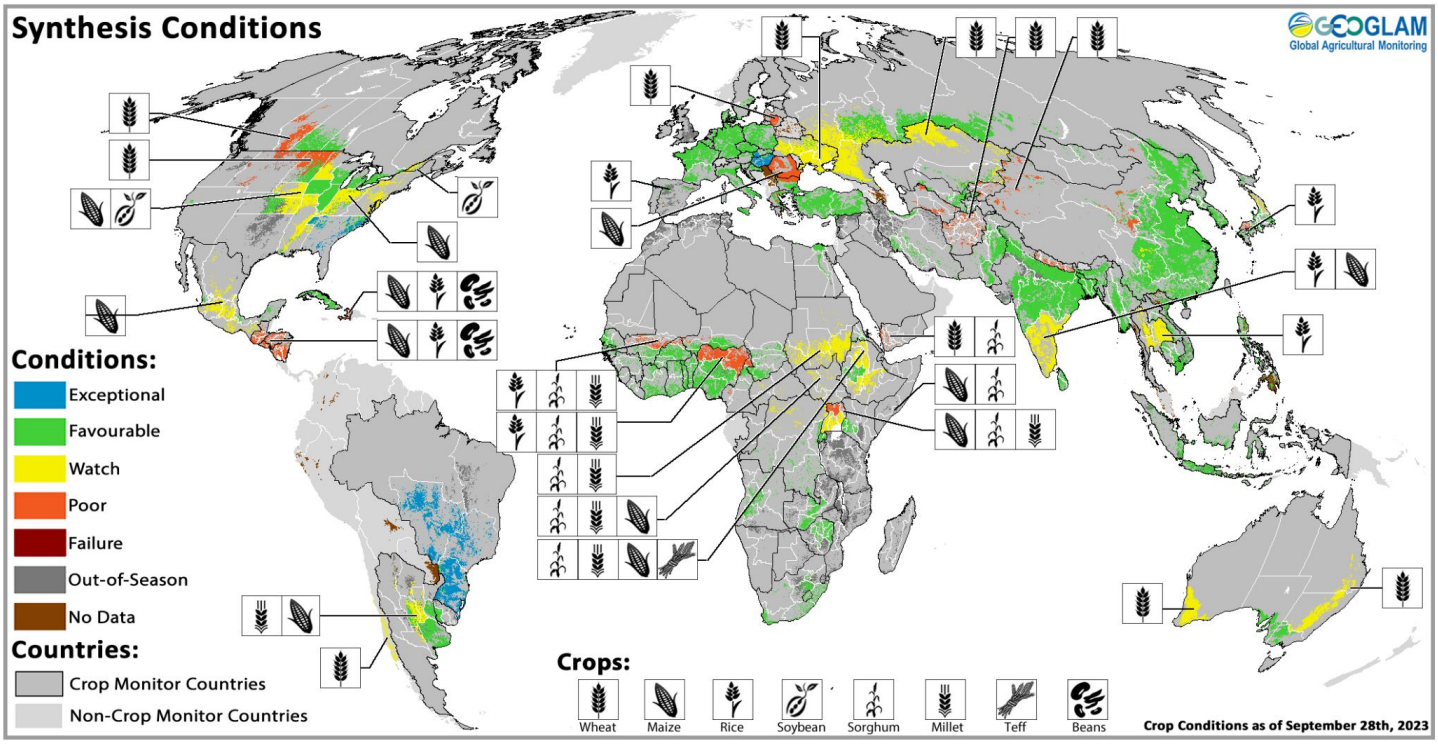
GEOGLAM Global Crop Monitor

Synthesized from the Crop Monitor for AMIS, the Crop Monitor for Early Warning, and direct submissions from individual countries.



Crop condition map synthesizing information for all Crop Monitor crops as of September 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

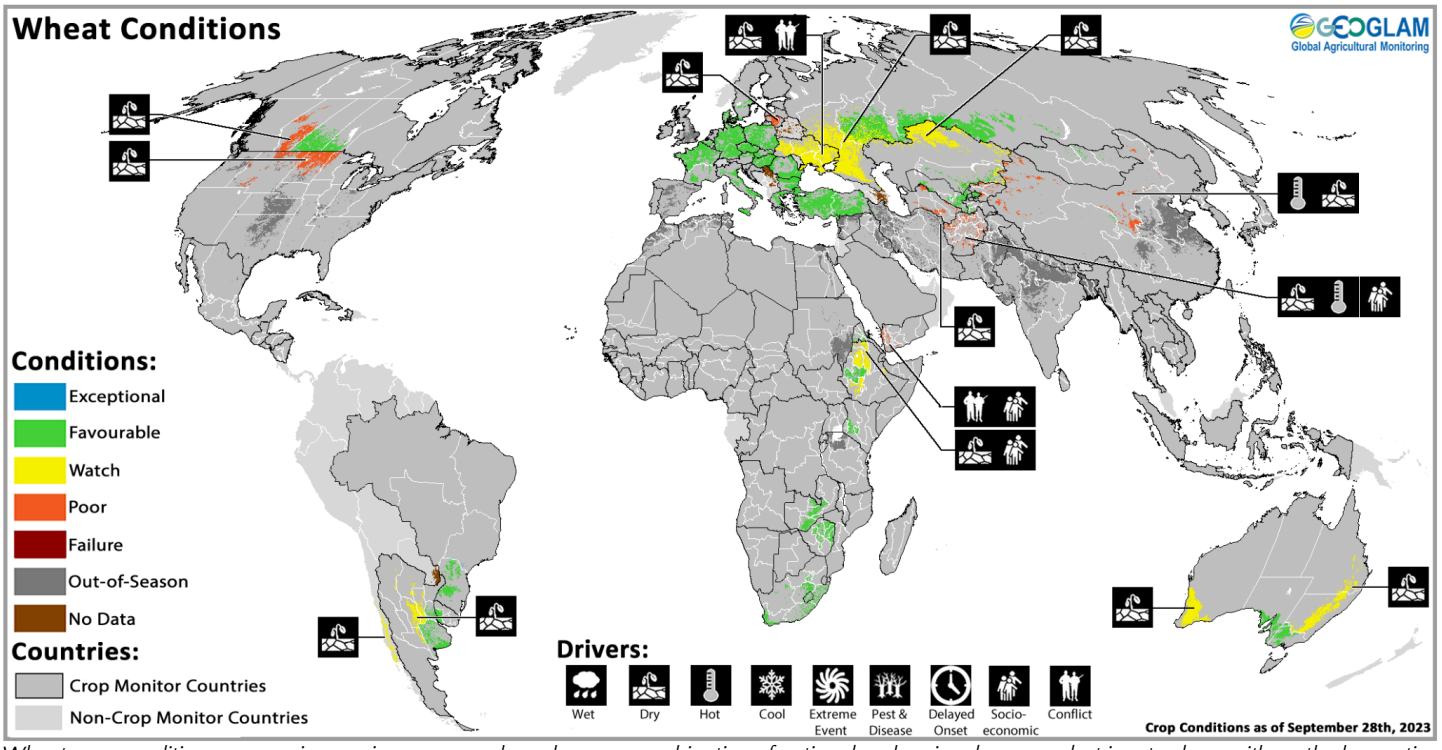
Global crop conditions at the end of September are mixed for maize and rice, positive for soybean and negative for wheat. For **wheat**, even though conditions are improving compared to last month, spring wheat harvesting is wrapping up with poor conditions in Canada, the US, and China. There are ongoing dry conditions in Argentina, Australia and conflict in Western Africa. For **maize**, conditions are similar to previous months. Conditions are mostly favourable in the Southern Hemisphere while mixed in the Northern Hemisphere, with yield declines in Central America due to irregular rainfall. For **rice**, conditions are mixed but improving compared to last month and last year, with rains in China improving the crops but dryness concerns in India and in Central America. For **soybeans**, conditions are improving compared to previous month, harvesting begins with dry and hot weather in the US, Romania, the Russian Federation, and China. The remaining crops are covered in the CM4EW publication.

Global Climate Influences

El Niño is currently present, and models predict a strong intensity during October to January. Positive Indian Ocean Dipole (IOD) conditions are present and likely to be strong and impactful.

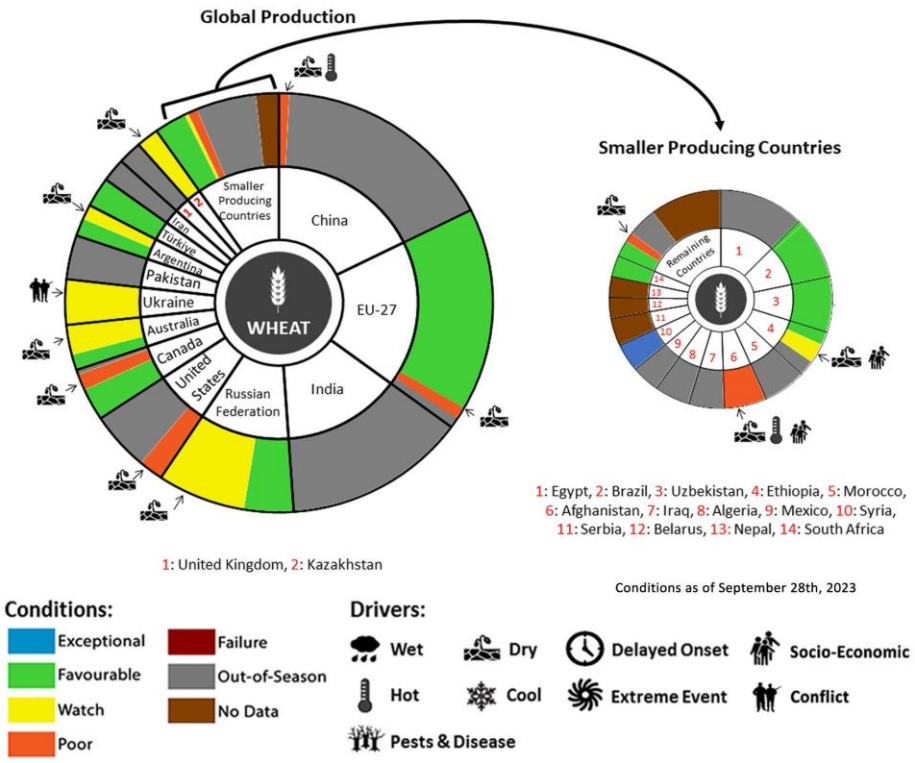
Source: UCSB Climate Hazards Center

WHEAT

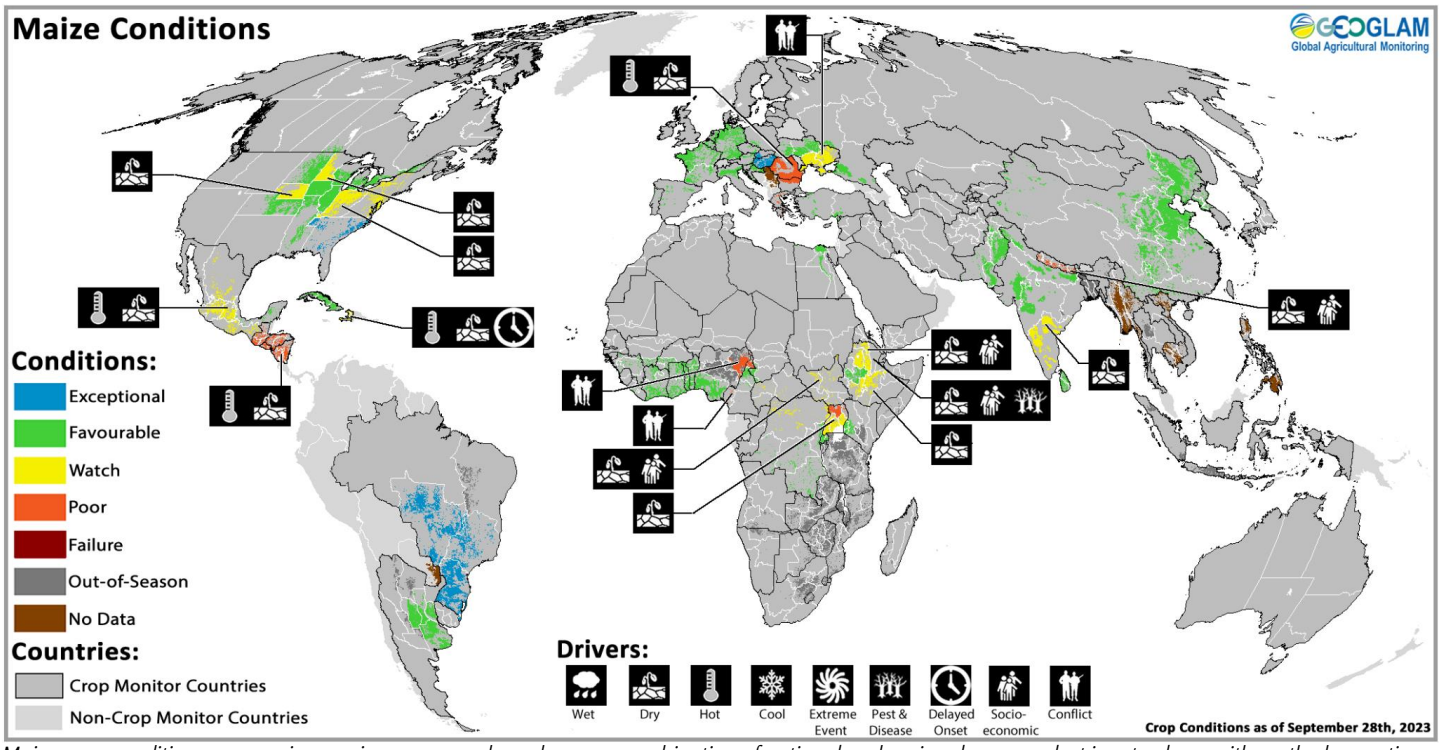


Wheat crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Conditions are based upon information as of September 28th.

In **North America**, below average winter wheat yields are expected in the US and Canada, together with downgraded spring wheat conditions due to dryness especially by the end of the season. In **South America**, in Argentina, dry conditions are expanding and conditions are mixed, and in Chile conditions are poor due to dryness. In **Europe** harvest finalized with poor yields in part of the north, while planting begins in some countries under favourable conditions. In Ukraine, summer-autumn drought is impacting timely sowing activities, and rainfall outcomes in early October will determine the possibility of improvement. In the Russian Federation, harvesting of the spring crop was finalized under favourable conditions despite previous drought. Spreading dryness is impacting winter wheat planting, particularly in the Volga region. In **Central and South Asia**, harvesting finalized under mixed conditions for the spring-planted crop due to impacts of drought and heat stress along the north and northwest China. Persistent dry and hot conditions throughout the season resulted in poor outcomes in Afghanistan, Turkmenistan, and Kyrgyzstan for winter wheat. Spring wheat harvest is underway and concern remains in Kazakhstan and Kyrgyzstan. In **Oceania**, In Australia, concern remains for winter crops in much of the east and west, and rainfall is needed soon to sustain yield potential. In **MENA**, wheat planting will start next month across the region. In **West Africa**Harvesting of main season cereals is underway in most areas, and planting and development of second season cereals continues in areas south of the Sahel. Average to above-average rainfall has been generally conducive to cropping conditions despite localized deficits. However, below-average outcomes are expected in conflict-affected regions. In **Southern Africa**, wheat crops continue to develop under favourable conditions in Zambia, Zimbabwe, South Africa, and Lesotho with near-average yields expected.

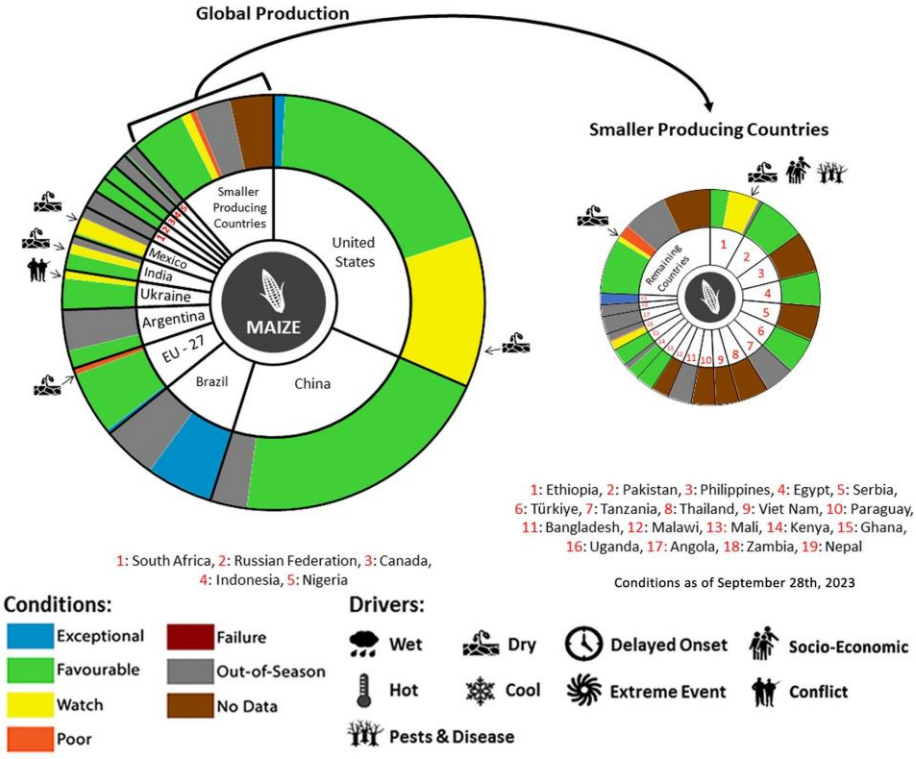


MAIZE



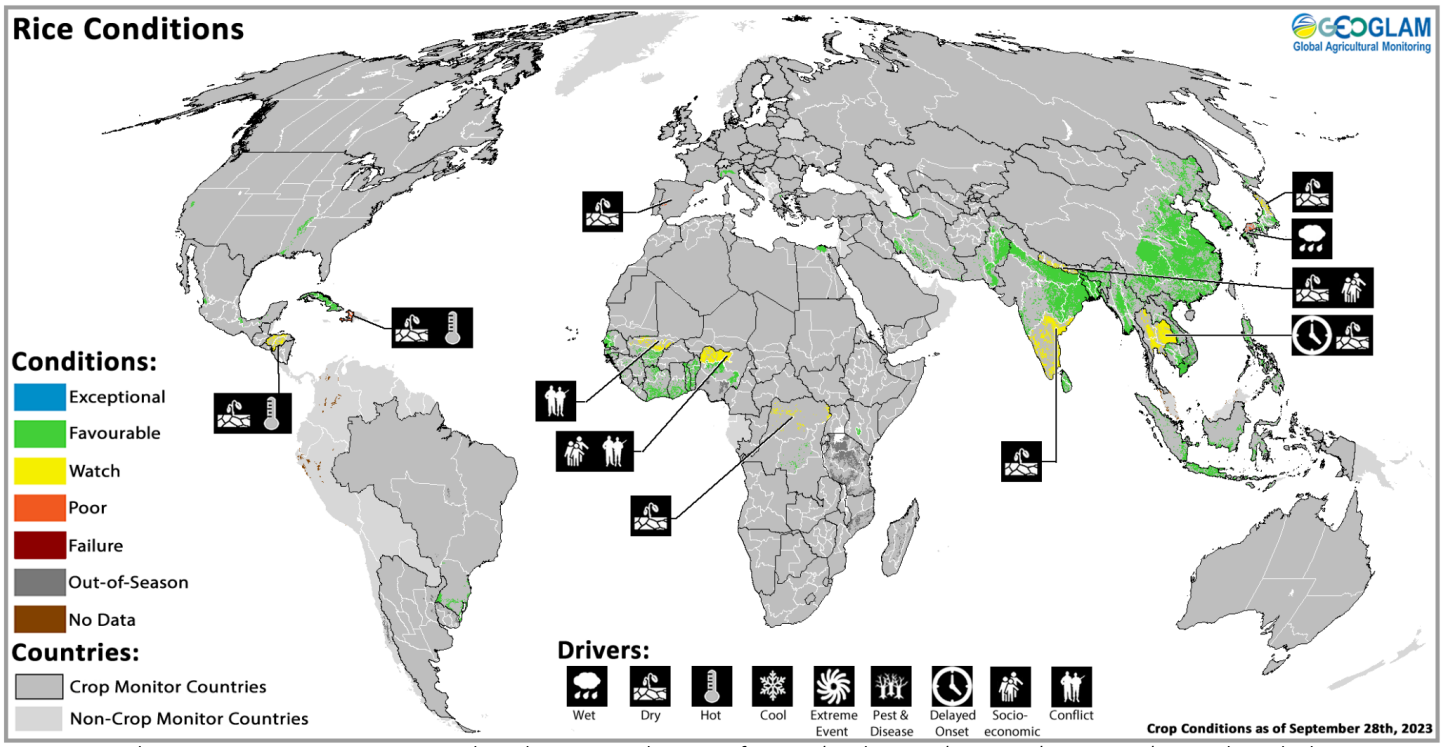
Maize crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Conditions are based upon information as of September 28th.

In **South America,** in Brazil, harvesting of the summer-planted (larger season) crop is wrapping up under exceptional conditions, and planting of the spring-planted (smaller season) crops begins in the main producing South region. In Argentina, sowing of the early-planted (usually larger season) crop is progressing in the eastern provinces, with recent rains benefitting crop emergence. In **Central America & the Caribbean**, harvesting of Primera season cereals is nearing completion with expected yield declines in all regions due to irregular rainfall distribution and significant deficits, coupled with hot temperatures that exacerbated evapotranspiration. Farmers are mostly awaiting adequate rains to sow for the Postrera/Segunda season. In Cuba, Tropical Storm Idalia did not end up affecting agriculture. In **North America**, dry weather is emerging in parts of the Midwest and Northeast of the US while other areas have recovered from prior drought. In Mexico, drought and heat stress are impacting crop development except along northwest and southeastern coastal regions. In **Europe**, conditions are mostly favourable with poor yields expected in Bulgaria and Romania due to dry and hot weather and in Greece due to the passage of Tropical Storm Daniel. In Ukraine, conditions remain favourable with the exception of conflict-affected areas. In Central and South **Asia**, northeast, and eastern areas of Afghanistan, second-season maize is being impacted by drought, and farmers are using the groundwater for irrigation purposes, especially in the north and northeast. In Pakistan, maize harvesting is underway under favourable conditions. **East Africa,** has generally experienced average to above-average rainfall between June and September.. The mixed conditions are largely influenced by hotter-than-normal temperatures and dry conditions.In **West Africa**, harvesting of main season cereals is complete or nearing completion in Sierra Leone, Liberia, Cote d'Ivoire, Ghana, Togo, Benin, Nigeria, and northern Cameroon while planting and development continues in Guinea and the Central African Republic.



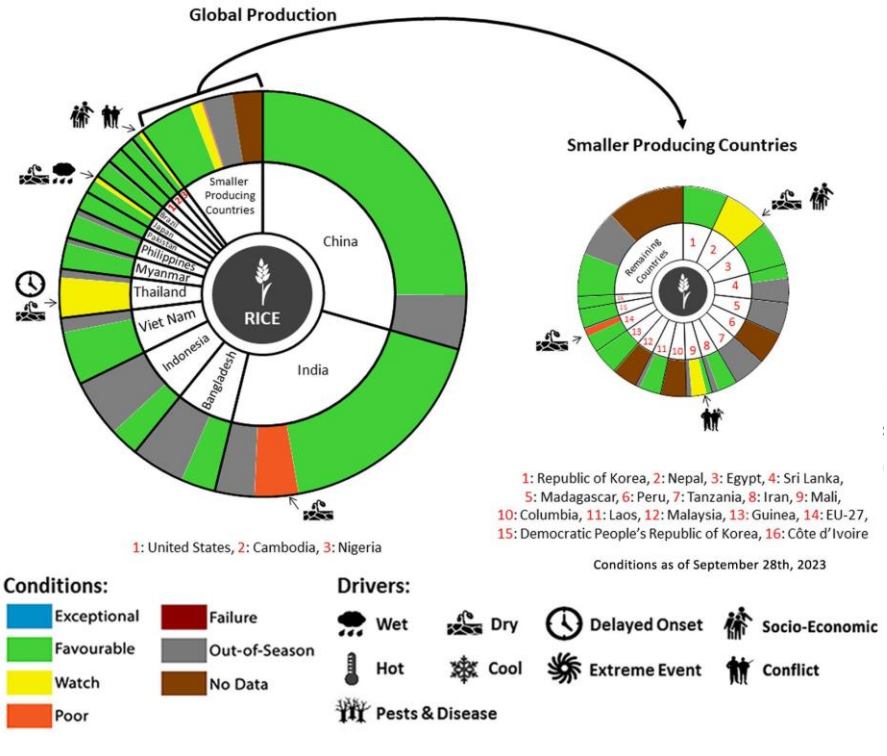
For detailed description of the pie chart, please see box on page 5.

RICE



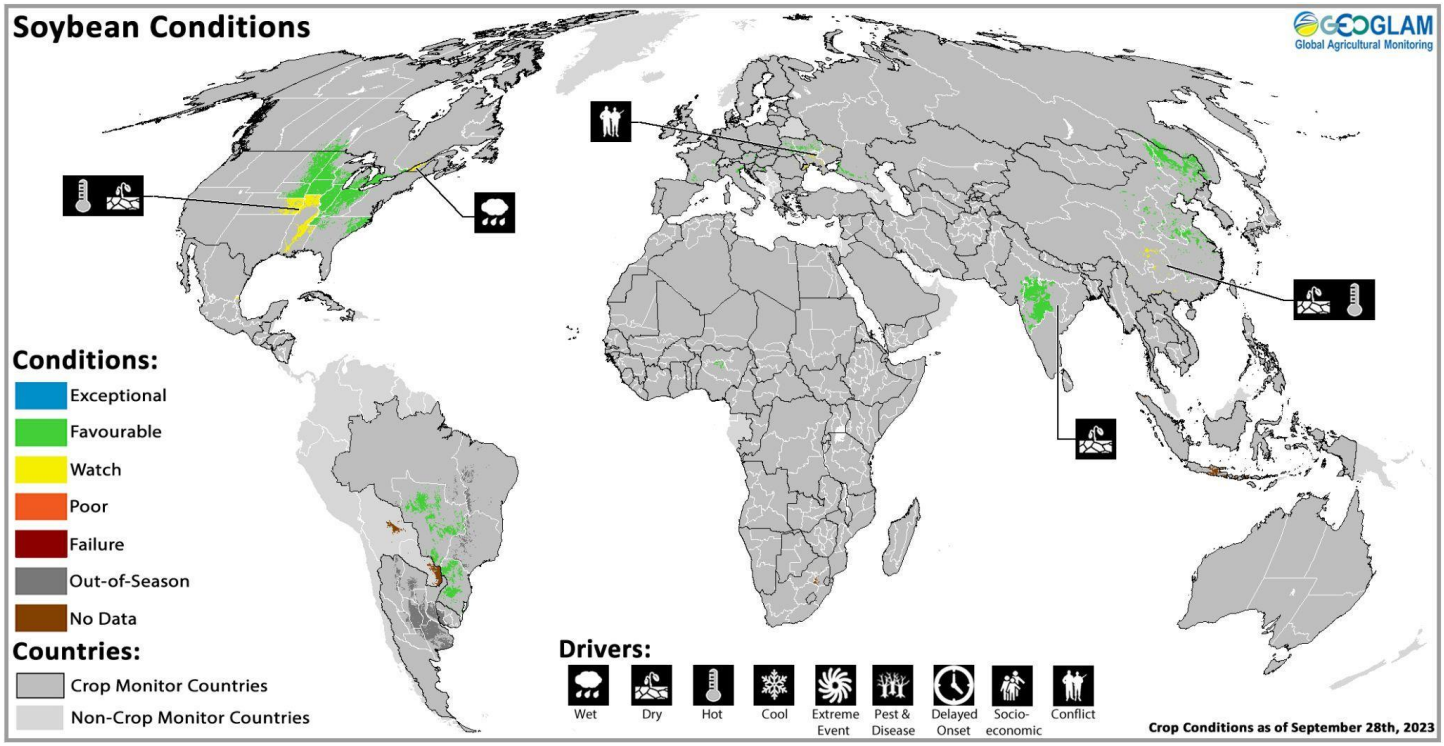
Rice crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Conditions are based upon information as of September 28th.

In **Asia,** in China, conditions are favourable for both the single and late-season crop as recent rains improved vegetation in the south and southwest. In **South Asia,** for India, the Kharif harvest begins under mostly favourable conditions except in the south where monsoon rains were below-average. In Sri Lanka, harvesting of maize continues, and crops in the southwest have recovered from drought-like conditions and water shortages in some reservoirs. In Bangladesh, sowing of both Aman season rice as well as sorghum crops continues under favourable conditions despite monsoon rains and flash flooding in Chattogram Division located in the southeast that caused widespread damage in Chattogram, Cox's Bazar, Rangamati, and Bandarban districts. In **Southeast Asia**, In the Philippines, wet-season rice planted from April to May is now fully harvested with a slightly lower production output compared to the previous year due to the passage of three tropical cyclones and the enhanced southwest monsoon. Crops planted from July to August are now in the tillering stage under favourable growing conditions in most areas. In Thailand, wet-season rice is in the young panicle forming stage with ongoing concern due to seasonal drought that continued in many areas through the end of August. Planted area has reached only 60 percent of the expected area and is forecast to decrease as received rainfall amounts are 20 percent below-normal. Growing conditions are poor, and an estimated 70,000 hectares of crops will be damaged. As a result, both production and yield outcomes are expected to decrease compared to last year. In northern Viet Nam, both the main wet-season (seasonal) rice and other wet-season (summer-autumn) rice are in the young panicle forming to grain filling stage under favourable conditions due to adequate irrigation preparation. In the south, the main wet-season (summer-autumn) rice is in the harvesting stage, and current yield is the same as last year at about 5.7 tons per hectare. The other wet-season rice (autumn-winter and seasonal) is developing under favourable conditions.



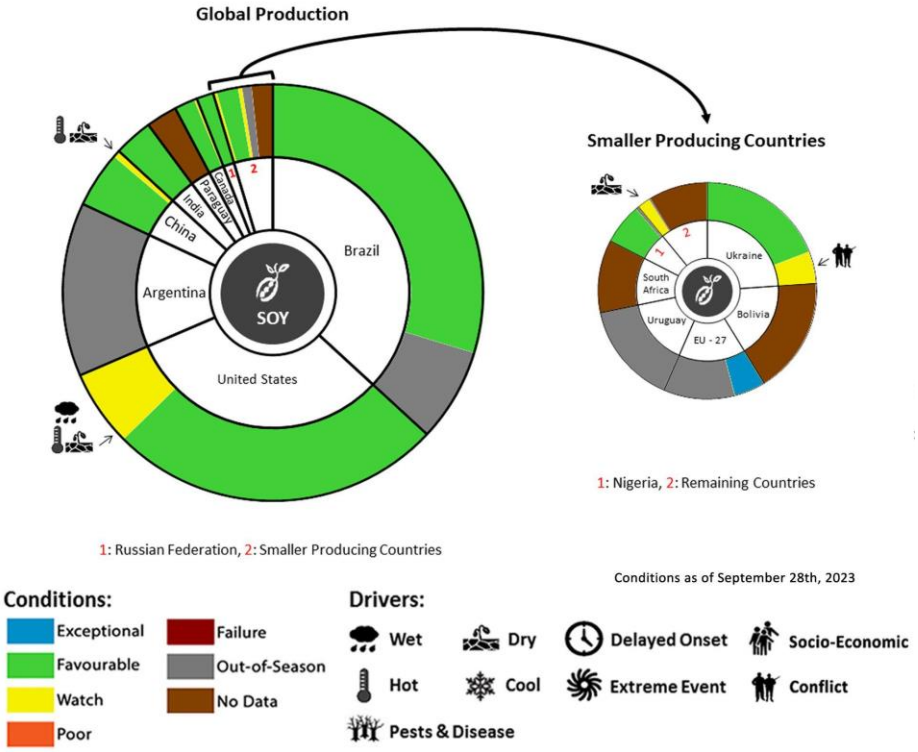
For detailed description of the pie chart, please see box on page 5.

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 September 28th.

In **North America**, in the US, soybeans are developing under mostly favourable conditions except in the Central Plains and Delta Region where dry weather and heat stress continues. In Canada, harvesting conditions are favourable except in Quebec due to concerns about excess moisture. In **South America,** sowing is beginning in Brazil under favourable conditions in irrigated areas and in some regions with sufficient soil moisture. In **Europe**, harvesting conditions remain favourable in unoccupied territories, and yield is higher than last year in Ukraine. In **East Asia**, dry and hot weather continue to impact crops in the south and southwest of China. Elsewhere, harvesting conditions remain favourable. In **South Asia**, crops have recovered from the limited precipitation received in August in India.



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.

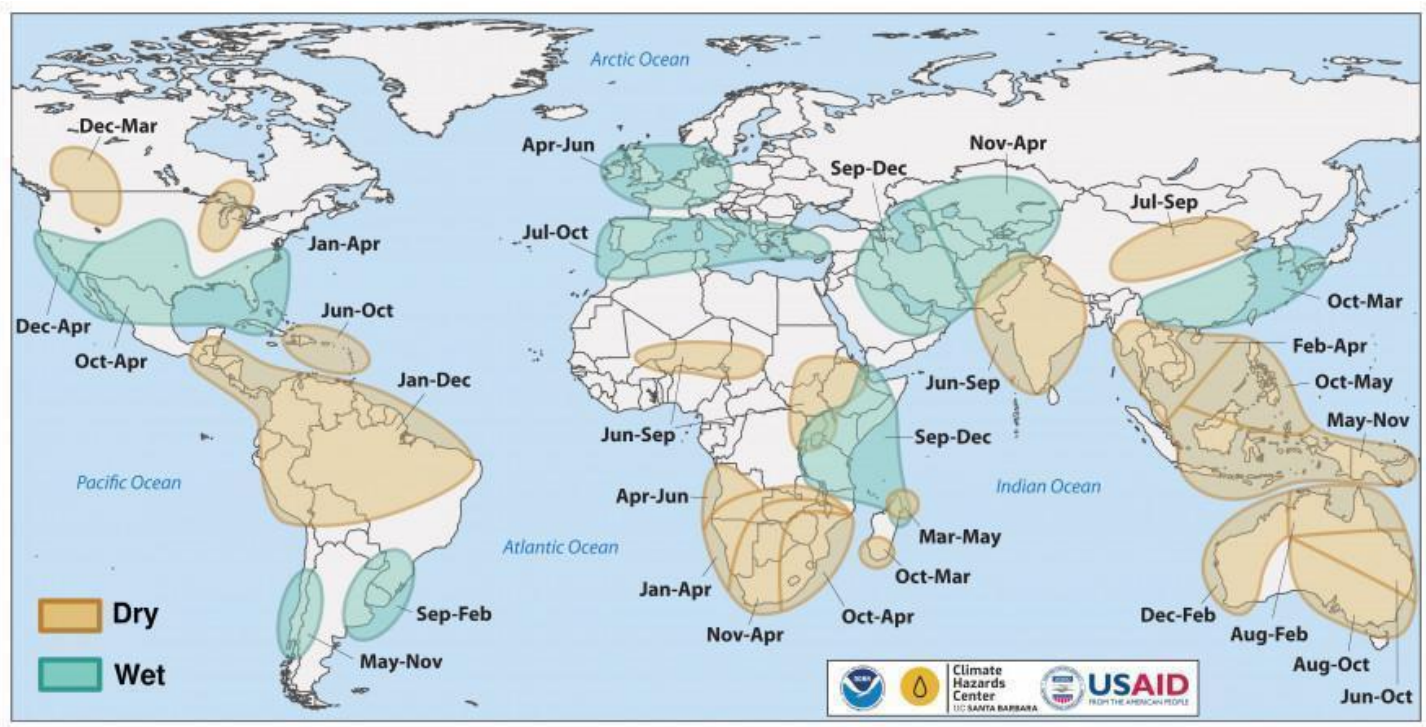
Global Climate Influences: El Niño Advisory

The ongoing El Niño event will likely reach peak intensity during October 2023 to January 2024, and then remain active into March to May 2024 (78 percent chance), according to the IRI/CPC forecast. Very warm sea surface temperatures in the Nino3.4 region indicate this is already a strong event.

El Niño events tend to enhance precipitation in Central Asia, southern North America, south-eastern South America, southern Europe, east and southern East Africa, and south and eastern China. Drier-than-average conditions tend to occur in Central America, the Caribbean, northern South America, parts of west and northern East Africa, Southern Africa, India, Northern China, the Maritime Continent, and Australia.

A positive Indian Ocean Dipole (IOD) event is also underway and will likely be strong and impactful with a peak in October and November and lasting until January, according to the Australian Bureau of Meteorology. Positive IOD conditions typically enhance the drying influences of El Niño in Australia and the Maritime Continent, and substantially increase the chances of a wet and intense East Africa short rains season during El Niño.

Source: UCSB Climate Hazards Center



Location and timing of likely above- and below-average precipitation related to El Niño events. Based upon observed precipitation during 22 El Niño 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

Global 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 parts of central and northeastern Canada, the Pacific Northwest and Southern Plains of the US, northern Mexico, Honduras, Nicaragua, the Dominican Republic, southern Peru, southern Brazil, central Argentina, parts of North Africa, much of western West Africa, Gabon, eastern South Africa, southern South Sudan, southern Ethiopia, Somalia, the United Kingdom, Finland, north and central parts of the Russian Federation, Kazakhstan, western Iran, southern India, Sri Lanka, Myanmar, Thailand, southern Viet Nam, and central-eastern Australia.

There is also a likelihood of below-average rainfall over much of central, southwest, and southeastern Canada, central and eastern parts of the US, Mexico, much of northern South America, northern Argentina, Uruguay, southern Chile, northern Morocco, northern Algeria, northern Tunisia, southern Niger, northeastern Nigeria, Cameroon, Chad, the Central African Republic, southern Sudan, north and central Ethiopia, Eritrea, Uganda, Kenya, Rwanda, Burundi, the United Republic of Tanzania, much of Southern Africa, much of north and eastern Europe, Turkey, much of the Russian Federation, Mongolia, China, DPRK, the Republic of Korea, Japan, Afghanistan, Pakistan, Nepal, Bhutan, much of India, Malaysia, Indonesia, Papua New Guinea, much of Australia, and New Zealand.

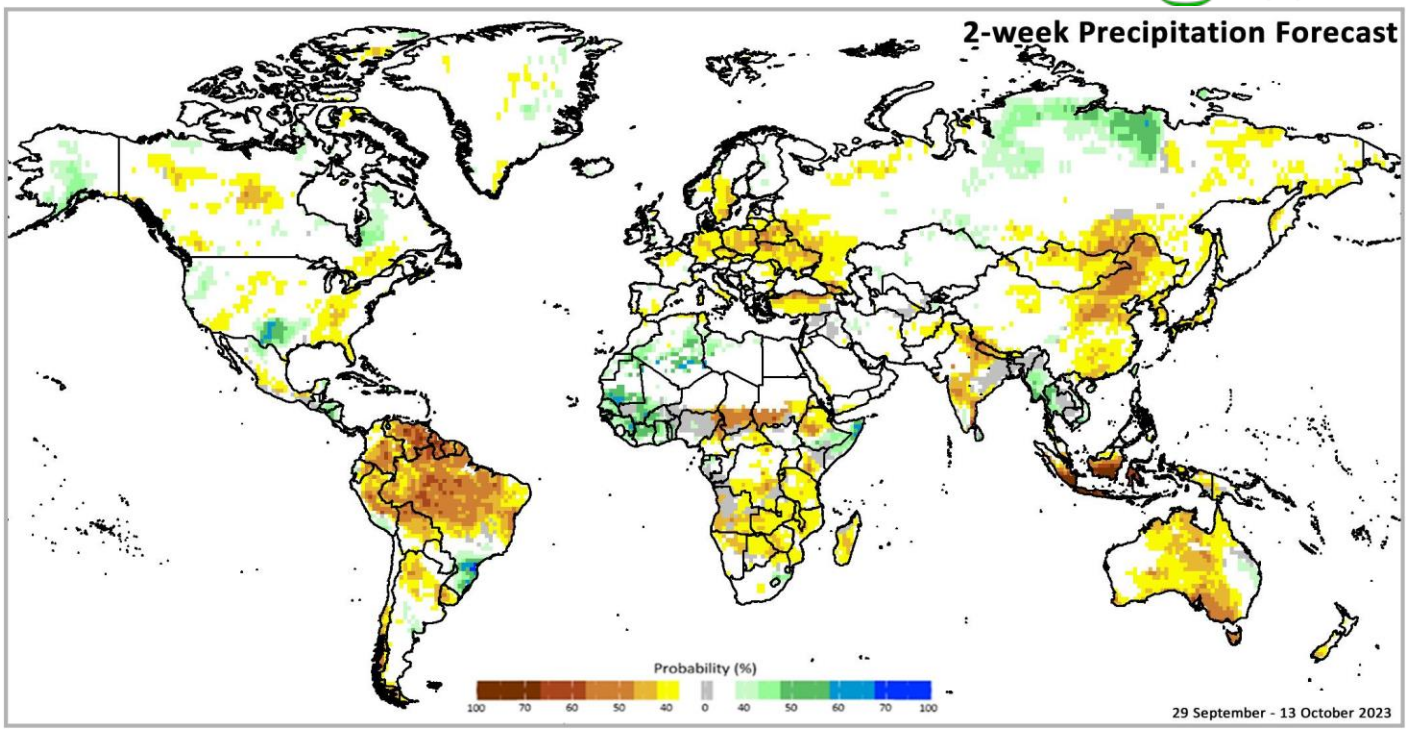


Figure 1: IRI SubX Precipitation Biweekly Probability Forecast for 29 September – 13 October 2023, issued on 22 September 2023. The forecast is based on statistically calibrated tercile category forecasts from three SubX models. Source: IRI Subseasonal Forecasts Maproom

The Crop Monitor is a part of GEOGLAM, a GEO global initiative.
Prepared by members of the GEOGLAM Community of Practice.
Coordinated by the University of Maryland with funding from NASA Harvest.
Synthesized from the Crop Monitor for AMIS, the Crop Monitor for Early Warning, and direct submissions from individual countries.

https://cropmonitor.org/

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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 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).