



#### **Overview:**

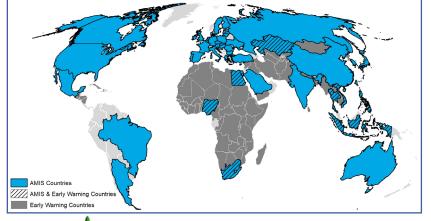
At the end of July, conditions are mixed for wheat, maize, rice, and soybeans. Winter wheat harvesting is progressing in the northern hemisphere while spring wheat is developing, and the southern hemisphere experienced improved July rains. Maize harvesting is nearing completion in Argentina under poor conditions while droughts persist in the northern hemisphere as rains ease. Early-season rice harvests continue in China while Kharif transplanting picks up in India, and conditions are favourable in Southeast Asia except for Thailand. Recent rains improved soybean conditions in the US and China, while sowing in India caught up after an initial delay.













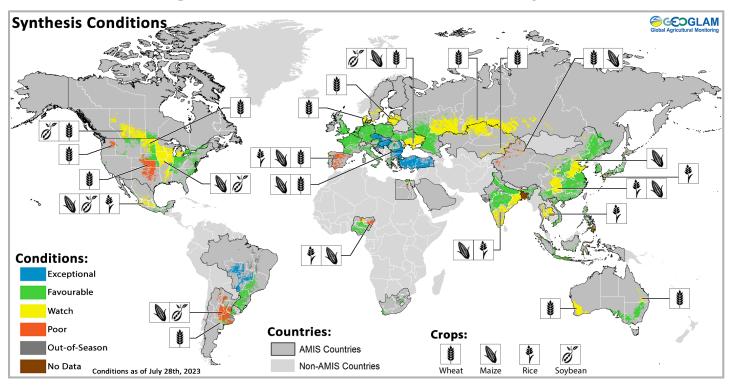
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## At a glance for AMIS countries (as of July 28th)



Global crop condition map synthesizing information for all four AMIS crops as of July 28th. Crop conditions over the main growing areas for wheat, maize, rice, and soybean are based on a combination of national and regional crop analyst inputs along with earth observation data from all Crop Monitors. Crops that are in other than favourable conditions are displayed on the map with their crop symbol.

## **Crop Conditions at a Glance**

**Wheat** – In the northern hemisphere, winter wheat harvesting is progressing as spring wheat continues to develop under mixed conditions. In the southern hemisphere, conditions continue to improve owing to generally good rains during July.

**Maize** – In the southern hemisphere, harvest is wrapping up in Argentina under poor conditions. In the northern hemisphere, rains have eased and have not fully alleviated droughts in the US, Mexico, and China.

#### Forecasts at a Glance

**Climate Influences** – El Niño is currently present, and models predict that this will likely be a moderate to strong El Niño event that is expected to last through early 2024. Positive Indian Ocean Dipole (IOD) conditions may also develop during August to December.

**Argentina** – The short-term (two week) forecast indicates likely below-average precipitation across some major producing eastern areas with above-normal temperatures expected in the northern half of the country.

**Rice** – In China, harvesting of early-season rice is wrapping up. In India, transplanting of Kharif season rice is picking up. In Southeast Asia, conditions are generally favourable for dry-season rice in Indonesia and for wetseason rice in the northern countries except for Thailand due to below-average rains.

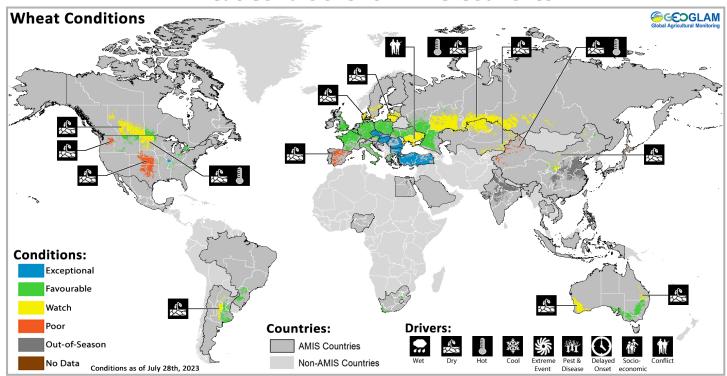
**Soybeans** – In the northern hemisphere, rains over the past month have improved conditions in the US and China while sowing in India has caught up after an initial delay.

**Southeast Asia** – Below-average August to October rains are forecast across Indonesia and some ongoing deficit areas of Thailand, and above-average temperatures are likely in all areas during the same period.

**The United States** – The short-term (two weeks) forecast indicates likely above-average precipitation across most areas with below-average precipitation expected in the southwest through southern Texas.

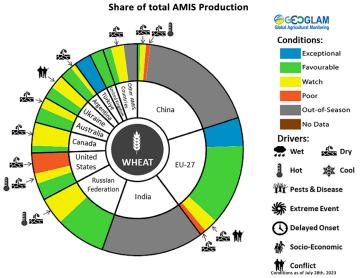
While the Crop Monitor for AMIS is primarily focused on documenting crop conditions based on environmental factors, the war in Ukraine and in other conflict areas will very likely negatively impact the ability of the crop to be harvested.

#### **Wheat Conditions for AMIS Countries**



Wheat crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Crop condition information is based upon information as of July 28th. Where crops are in other than favourable conditions the climatic drivers responsible for those conditions are displayed. Crop Season Specific Maps can be found in Appendix 2.

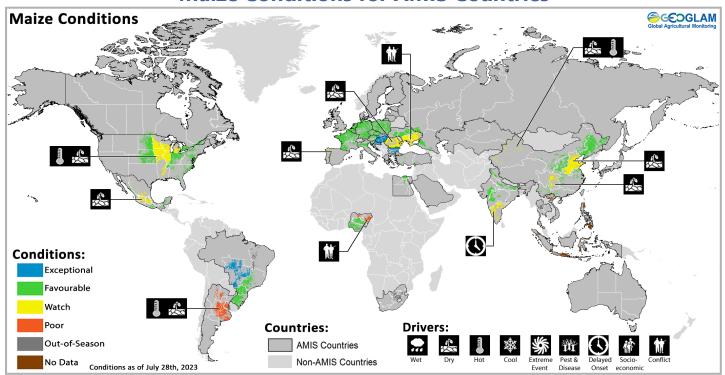
Wheat: In the EU, conditions are overall favourable as harvesting continues with poor yields in Spain balanced by exceptional yields in parts of central and southeast Europe. In the UK, conditions are favourable. In Türkiye, harvesting is ongoing under exceptional conditions. In Ukraine, harvesting is continuing away from the war zones with an increase in yields compared to last year. In the Russian Federation, harvesting of winter wheat is continuing under favourable conditions. Spring wheat remains under dry and hot conditions. In China, spring wheat continues to develop under dry and hot conditions in the north and northwest. In the US, harvesting of winter wheat is wrapping up in the central and southern Great Plains under poor conditions, while harvesting continues in the north.



For detailed description of the pie chart please see box on page 6.

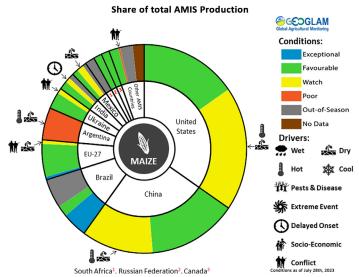
Spring wheat is under mixed conditions in parts of the Dakotas due to hot and dry weather in May and June. In **Canada**, conditions are mixed for both winter and spring wheat as drought continues to expand across the western Prairies. There is an increase in spring wheat total sown area compared to the average. In **Australia**, near-average July rainfall has benefited crops in most regions; however, soil moisture levels remain below-average in Queensland and northern parts of Western Australia. In **Argentina**, recent rains have allowed sowing to advance and have improved conditions; however, further rainfall is needed to support the crop.

## **Maize Conditions for AMIS Countries**



Maize crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Crop condition information is based upon information as of July 28<sup>th</sup>. Where crops are in other than favourable conditions the climatic drivers responsible for those conditions are displayed. Crop Season Specific Maps can be found in Appendix 2.

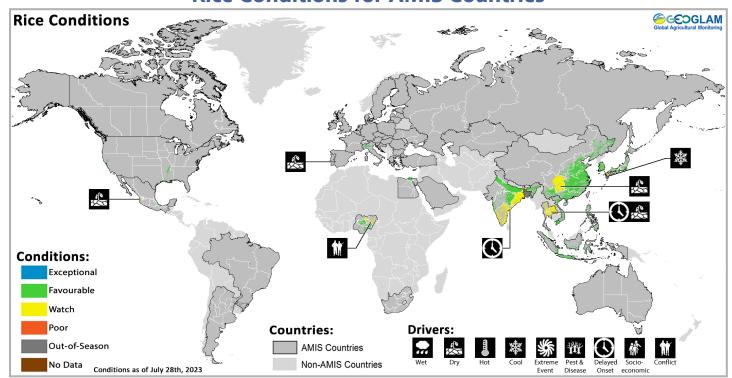
Maize: In Brazil, harvesting of the summer-planted crop (larger season) is continuing with record yields being recorded in the Central West region. There is an increase in total sown area compared to last year. In Argentina, harvesting is continuing for the late-planted crop (typically smaller season) under poor conditions due to the prolonged drought and extreme heat. In the US, after an extremely dry spring, rains and lower temperatures have improved conditions in parts of the eastern and far western Corn Belt. In Mexico, harvesting of the Autumn-Winter crop (smaller season) wraps up under favourable conditions as the Spring-Summer crop (larger season) continues to be impacted by drought. In Canada, conditions are favourable in the main producing eastern provinces. In China, conditions



For detailed description of the pie chart please see box on page 6.

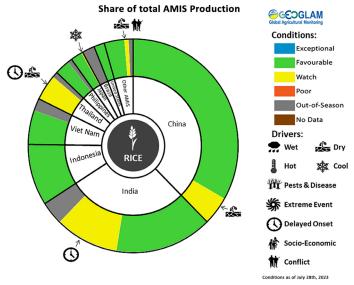
remain mixed due to earlier dryness in parts of the North China Plain and developing dryness in the southwest. In **India**, sowing of the Kharif crop is wrapping up with improved conditions. In the **EU**, conditions are generally favourable as dryness in Romania and Spain is balanced out by higher yield expectations in central and eastern Europe. In **Ukraine**, conditions are favourable away from the ongoing war due to sufficient July rainfall. In the **Russian Federation**, conditions are favourable.

## **Rice Conditions for AMIS Countries**



Rice crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Crop condition information is based upon information as of July  $28^{th}$ . Where crops are in other than favourable conditions the climatic drivers responsible for those conditions are displayed. Crop Season Specific Maps can be found in Appendix 2.

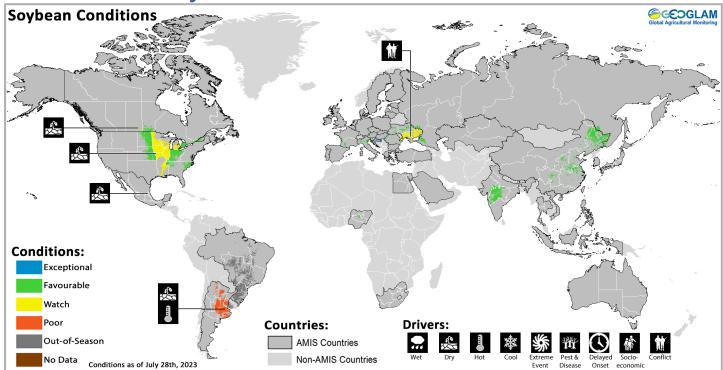
**Rice:** In **China**, conditions are favourable as the harvesting of early-season rice is wrapping up and the sowing of late-season rice continues. Single-season rice is under generally favourable conditions despite developing dryness in the southwest. In **India**, transplanting of the Kharif crop has quickly picked up pace after an initial delay due to the late arrival of the monsoon rains. In **Indonesia**, conditions are favourable as the harvesting of wet-season rice wraps up while the sowing of dry-season rice enters the fourth month under favourable conditions due to sufficient irrigation water. In **Viet Nam**, harvesting of dry-season rice (Winter-Spring) is wrapping up in the north under favourable conditions. Wet-season rice



(Summer-Autumn) is under favourable conditions in For detailed description of the pie chart please see box on page 6.

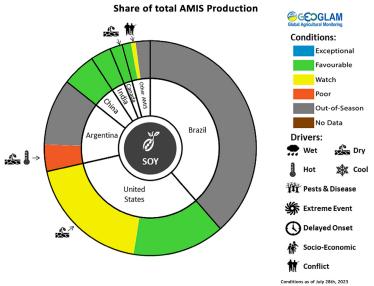
both the north and the south, while the sowing of the other wet-season rice (Autumn-Winter) is beginning in the south. In **Thailand**, wet-season rice is under mixed conditions due to delayed and below-average rains, and there is also a high risk of damage from pests and diseases. There is also a drop in total sown area compared to last year. In the **Philippines**, wet-season rice sown from April to May is currently in the maturing stage under favourable conditions. In **Japan**, conditions are mixed as near-normal temperatures from the planting to heading stage were followed by a lack of adequate sunlight levels in June and July that impacted parts of the south. In the **US**, conditions are favourable.

## **Soybean Conditions for AMIS Countries**



Soybean crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Crop condition information is based upon information as of July 28th. Where crops are in other than favourable conditions the climatic drivers responsible for those conditions are displayed. Crop Season Specific Maps can be found in Appendix 2.

**Soybeans:** In the **US**, conditions have improved particularly in the eastern Corn Belt; however, good rainfall over the next month will be needed to preserve yields. In Argentina, harvest finalized under poor conditions due to persistent drought and extreme heat. In China, ample showers during July have improved soil moisture conditions in the main producing northeast region and in the North China Plain just in time for the critical reproductive stage. In India, sowing of the majority of the crop has been completed after initial delays. There is an increase in total sown area compared to last year. In Canada, conditions are favourable except in Saskatchewan due to drought. In Ukraine, conditions are favourable away from the frontlines of the war as the For detailed description of the pie chart please see box below. rains in July were enough to maintain soil moisture levels.



Information on crop conditions in non-AMIS countries can be found in the **GEOGLAM Crop** Monitor for Early Warning, published August 3rd

Pie chart description: Each slice represents a country's share of total AMIS production (5-year average). Main producing countries (representing 95 percent of production) are shown individually, with the remaining 5 percent grouped into the "Other AMIS 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 (i.e., spring and winter wheat). When conditions are other than' favourable', icons are added that provide information on the key climatic drivers affecting conditions.

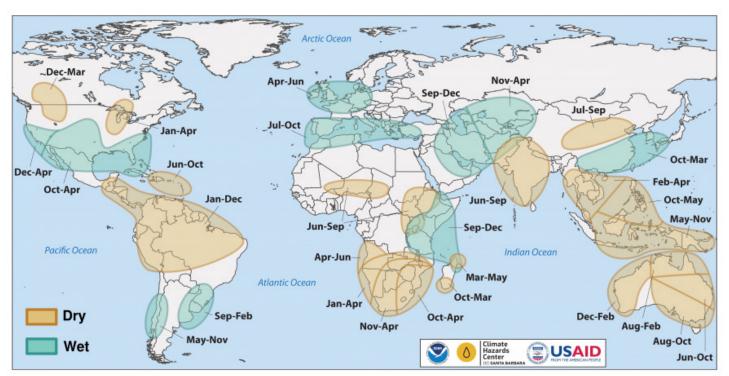
## Climate Influences: El Niño Advisory and Positive IOD Watch

The El Niño-Southern Oscillation (ENSO) is currently in the El Niño phase. This event is forecast to reach a peak strength of moderate-to-strong intensity during November to January and to remain active until February to April (85% chance), according to the IRI/CPC forecast.

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

Positive Indian Ocean Dipole (IOD) conditions are forecast for August to December, 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 events.

Source: UCSB Climate Hazards Center

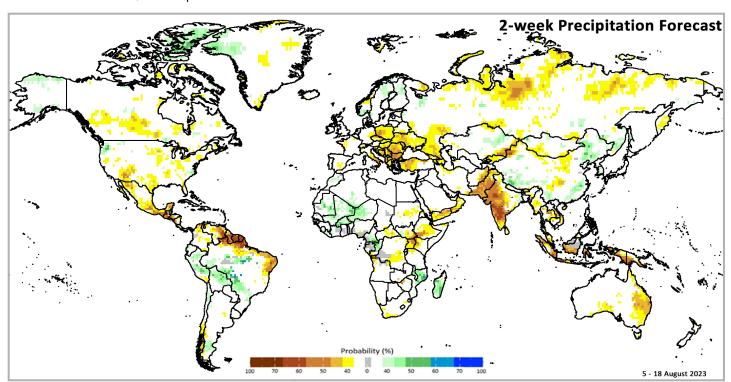


Location and timing of likely above- and below-average precipitation related to El Niño events. Based upon observed precipitation during 22 El Niño events since 1950, wet and dry correspond to a statistically significant increase in the frequency of precipitation in the upper and lower thirds of historical 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 the Pacific Northwest and central-east United States, Ecuador, Peru, Bolivia, central and western Brazil, northern Chile, southern Argentina, Morocco, Mauritania, Mali, southern Algeria, Niger, Burkina Faso, western Cote d'Ivoire, northwestern Nigeria, Cameroon, the Republic of Congo, Mozambique, Madagascar, western South Sudan, Scandinavia, the Far East of the Russian Federation, northeastern Kazakhstan, northern Mongolia, southwest, south, and eastern China, northeastern India, northern Japan, and the Republic of Korea.

There is also a likelihood of below-average rainfall over the Canadian Prairies, Midwest, northeast, and southern parts of the United States, Mexico, Guatemala, Belize, El Salvador, western Honduras, western Nicaragua, Colombia, eastern Venezuela, Guyana, Suriname, French Guiana, northern Brazil, southern Peru, southern Chile, the Central African Republic, northern Sudan, eastern South Sudan, Ethiopia, Uganda, western Kenya, northern United Republic of Tanzania, the Democratic Republic of Congo, southern Zambia and northwestern Zimbabwe, southern South Africa, much of central and eastern Europe, western Turkey, the North Caucasus region and northern parts of the Russian Federation, Yemen, Oman, Iran, eastern Afghanistan, southeastern Kazakhstan, Kyrgyzstan, Pakistan, India, Sri Lanka, southern Mongolia, central China, Myanmar, Thailand, Laos, Cambodia, Viet Nam, Malaysia, Indonesia, central-south and eastern Australia, and Papua New Guinea.



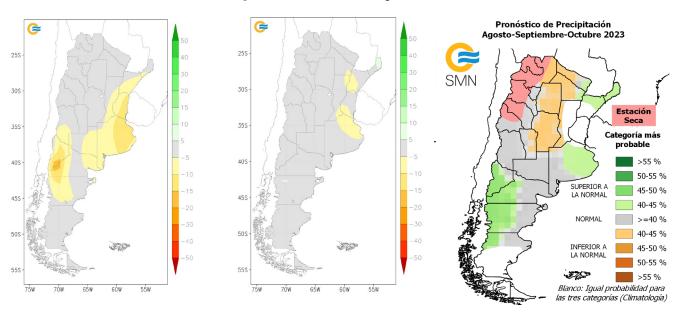
IRI SubX Precipitation Biweekly Probability Forecast for 5 – 18 August 2023, issued on 28 July 2023. The forecast is based on statistically calibrated tercile category forecasts from three SubX models. Source: IRI Subseasonal Forecasts Maproom

## **Argentina Outlook**

The 1-7 August precipitation forecast anomaly (left) indicates a likelihood of below-average rainfall over the main producing areas in the east from eastern Rio Negro to southern Misiones as well as in the minor producing central-west from western Chubut to southern Mendoza. During the same period, temperatures are likely to be above-normal in the northern half of the country, particularly around Santiago Del Estero and Chaco. The 8-14 August precipitation forecast anomaly (centre) shows a continuation of likely below-average rains in some of the major producing western regions. During the same period, a continuation of above-normal temperatures is expected, particularly in the centre around San Luis and Cordoba.

The long-term August-September-October 2023 forecast (right) indicates below-average precipitation over the northwest and north-centre and above-average precipitation in the northeast, eastern Buenos Aires, and southwest. During the same period, temperatures are likely to be above-average in the northern half of the country and below-average in the southwest.

## **Precipitation Anomaly Forecasts**



**Left:** 1 – 7 August 2023 forecast precipitation anomaly in mm. **Center:** 8 – 14 August 2023 forecast precipitation anomaly in mm. Images from the <u>National Meteorological Service of Argentina</u>. **Right:** August-September-October 2023 forecast rainfall anomaly. Image from the <u>National Meteorological Service of Argentina</u>.

#### **Southeast Asia Outlook**

During June 26th to July 25th, rainfall was average to above-average in most areas—in central Myanmar, southern Vietnam, Malaysia, southeastern Cambodia, and Indonesia. Rainfall was significantly below-average in areas to the north, and in some coastal areas of Bangladesh and Myanmar. In Thailand, rainfall performance was much better during these six weeks than earlier in the season. However, below-average rainfall continued to impact some northern and western areas during this time. Hot, above-average temperatures continued in many areas. Daytime high temperatures were frequently above 35 deg Celsius in northern Thailand. Such high temperatures are capable of damaging crops, especially in combination with ongoing dry conditions such as in portions of northern Thailand. Thailand rice harvests tend to be below-average during El Niño years.

Cumulative rainfall since April 1st will likely remain below-average in northern Thailand, northern Laos, northern Vietnam, and Bangladesh for the next several weeks (Figure 1 middle-left). During late July to early August, below-average rainfall is likely in northern Thailand, eastern Vietnam, and Indonesia, based on GEFS and ECMWF forecasts from July 27th. August to October rainfall will likely be below-normal in Indonesia, according to most international forecast ensembles, as well as in some of the ongoing deficit areas in Thailand, based on NOAA's new hybrid C3S/machine-learning-based forecast system (Figure 1-middle-right) and a similar outlook from the NMME. Models strongly agree that temperatures will be above-normal across the region during that time (Figure 1-right).

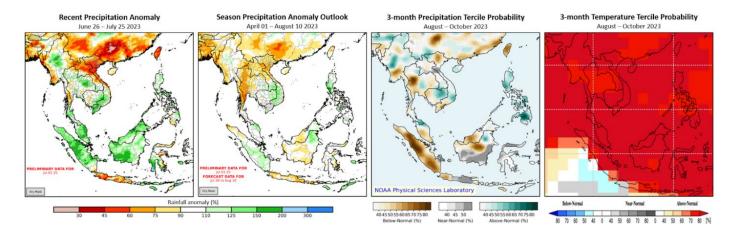


Figure 1. A recent rainfall anomaly, a seasonal rainfall anomaly outlook, and 3-month probabilistic rainfall and temperature forecasts. Left and middle-left: CHC Early Estimates, which compare current precipitation totals to the 1981-2022 CHIRPS average for respective accumulation periods. These show the percent of average precipitation for June 26th to July 25th, 2023 and June 1st to August 10th, respectively. Both panels use CHIRPS Prelim for April 1st to 25th; the second panel includes a CHIRPS-GEFS forecast for July 26th - August 10th. Middle-right and right: Probabilities of above and below-normal August to October 2023 rainfall (middle-right) and 2m temperature (right). Forecasts from NOAA PSL Experimental Forecasts. Source: UCSB Climate Hazards Center

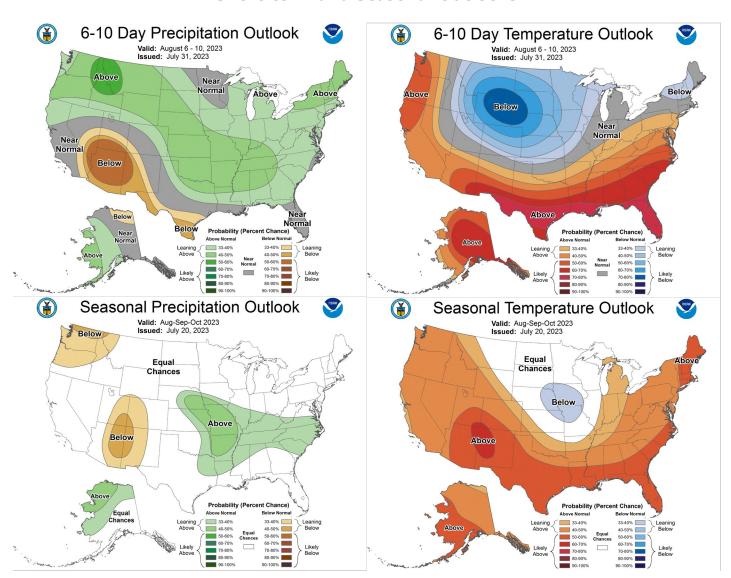
Source: UCSB Climate Hazards Center

#### **United States Outlook**

The 6 – 10 August 2023 outlook indicates a likelihood of above-average precipitation across much of the US from the Pacific Northwest, particularly around northern Idaho, extending to the southeast near northern Florida and up into the northeast. Below-average precipitation is expected in the southwest, particularly around Arizona, extending from southeastern Nevada to southern Texas. During the same time, temperatures are likely to be above-average across the Pacific, south, and east while below-average temperatures are likely in the Rocky Mountains, particularly around Colorado, as well as in the Midwest and northeast.

For the long-term seasonal August-September-October (ASO) 2023 outlook, below-average precipitation is likely to continue in the southern Mountain region and emerge in the Pacific Northwest while above-average precipitation is likely to continue in parts of the southeast from eastern Nebraska to southern Virginia and down towards eastern Texas. During the same period, a continuation of above-average temperatures is expected across much of the country except in a small area of the Midwest around Iowa, Nebraska, Kansas, and Missouri where below-normal temperatures are likely.

#### **Short-term and Seasonal Outlooks**



Upper Left: 6 – 10 day precipitation outlook issued on 31 July 2023. Upper Right: 6 - 10 day temperature outlook issued on 31 July 2023. Lower Left: Extended August-September-October precipitation outlook issued on 20 July 2023. Lower Right: Extended August-September-October temperature outlook issued on 20 July 2023. Maps from NOAA/National Weather Service, National Centers for Environmental Predictions, and Climate Prediction Center https://www.cpc.ncep.noaa.gov/products/forecasts/.

Source: NOAA Climate Prediction Center

**Conditions:** 

Exceptional

**Favourable** 

Out-of-Season

Watch

**Poor** 

# **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 close to 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% below average. This is only used when conditions are not likely to be able to recover, and an impact on production is likely.

**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.

#### **Drivers:**

These represent the key climatic drivers that are having an impact on crop condition status. They result in production impacts and can function 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.

# No Data Wet Dry Hot





#### **Crop Season Nomenclature:**

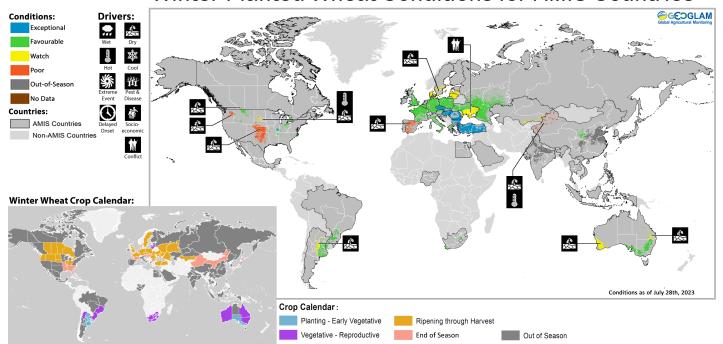
In countries that contain multiple cropping seasons for the same crop, the following chart identifies the national season name associated with each crop season within the Crop Monitor. Within the Crop Monitor for AMIS countries, the larger producing season (most recent 5 years) has been assigned to the first season.

Crop Season Nomenclature					
Country	Crop	Season 1 Name	Season 2 Name	Season 3 Name	
Argentina	Soybean	Spring-planted	Summer-planted		
Brazil	Maize	Summer-planted (larger producing season)	Spring-planted (smaller producing season)		
Canada	Wheat	Winter-planted	Spring-planted		
China	Maize	Spring-planted	Summer-planted		
China	Rice	Single-season	Late-season	Early-season	
China	Wheat	Winter-planted	Spring-planted		
Egypt	Rice	Summer-planted	Nili season (Nile Flood)		
India	Maize	Kharif	Rabi		
India	Rice	Kharif	Rabi		
Indonesia	Rice	Wet-season	Dry-season		
Mexico	Maize	Spring-planted	Autumn-planted		
Nigeria	Maize	Main-season	Short-season		
Nigeria	Rice	Main-season	Off-season		
Philippines	Rice	Wet-season	Dry-season		
Russian Federation	Wheat	Winter-planted	Spring-planted		
Thailand	Rice	Wet-season	Dry-season		
United States	Wheat	Winter-planted	Spring-planted		
Viet Nam	Rice	Wet-season	Dry-season		

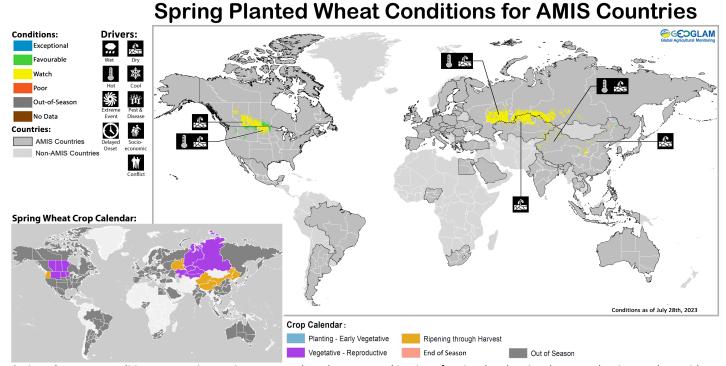
<sup>\*&</sup>quot; Average" refers to the average conditions over the past 5 years.

# **Appendix 2: Crop Season-Specific Maps**

## Winter Planted Wheat Conditions for AMIS Countries

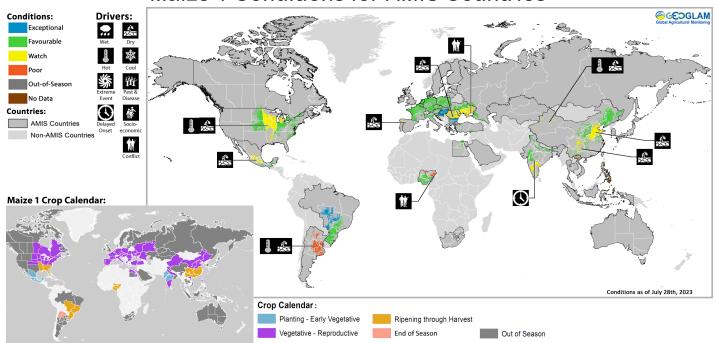


Winter wheat crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Crop condition information is based upon information as of July 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.



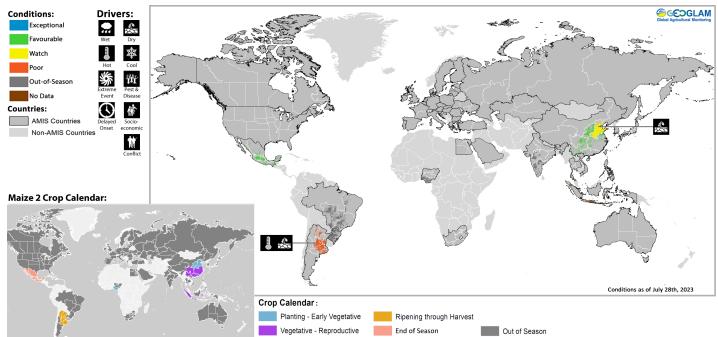
Spring wheat crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Crop condition information is based upon information as of July 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.

## **Maize 1 Conditions for AMIS Countries**

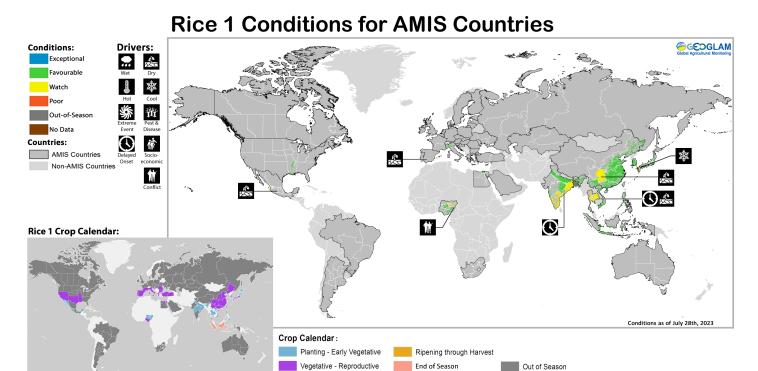


Maize 1 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Crop condition information is based upon information as of July 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.

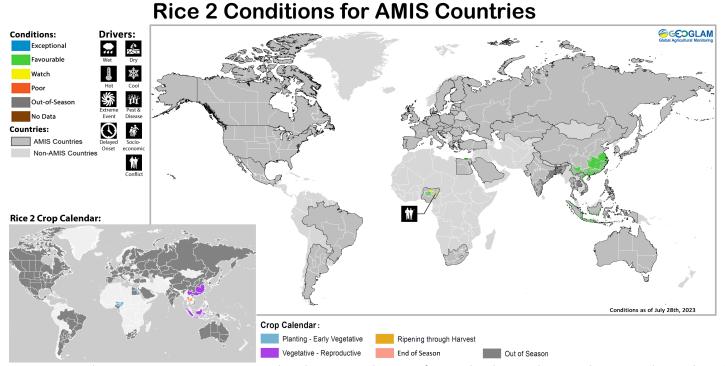




Maize 2 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Crop condition information is based upon information as of July 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.

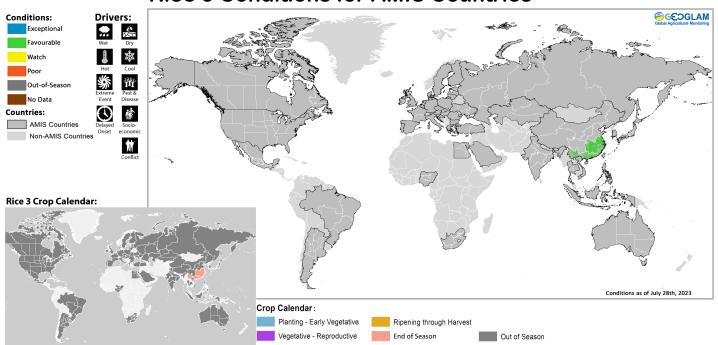


Rice 1 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Crop condition information is based upon information as of July 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.

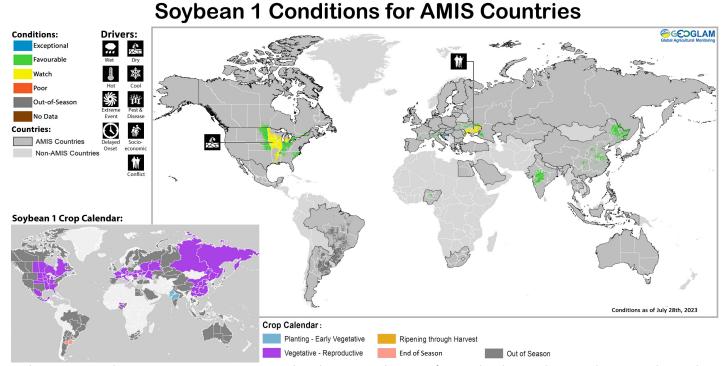


Rice 2 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Crop condition information is based upon information as of July 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.

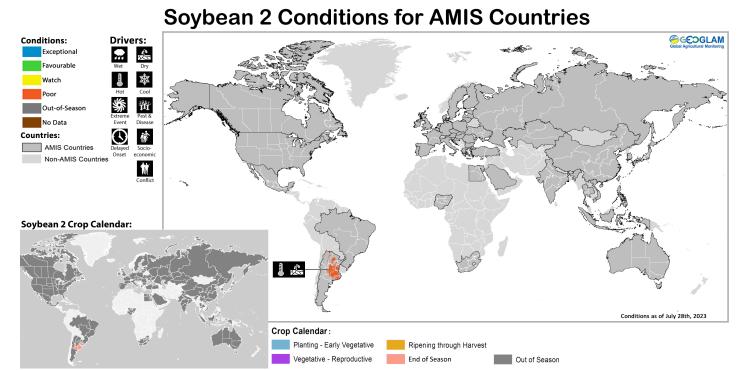
## **Rice 3 Conditions for AMIS Countries**



Rice 3 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Crop condition information is based upon information as of July 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.



Soybean 1 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Crop condition information is based upon information as of July 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.



Soybean 2 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Crop condition information is based upon information as of July 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.





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

Photo courtesy of Brian Barker

https://cropmonitor.org/

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