



Overview:

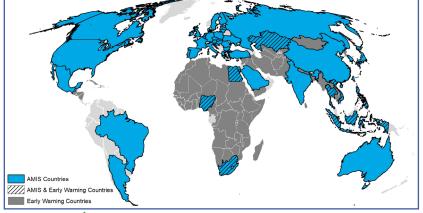
At the end of June, conditions remain generally favourable for maize, rice, and soybeans while mixed for wheat. In the northern hemisphere, areas of concern for wheat remain in North America, Europe, and Central Asia. In the southern hemisphere sowing begins under mixed conditions in Argentina. Maize harvest continues in the southern hemisphere while crop growth continues in the northern hemisphere. Rice conditions remain generally favourable, except southern China and Indonesia. Soybean harvesting is wrapping up in Argentina as sowing wraps up in the northern hemisphere.











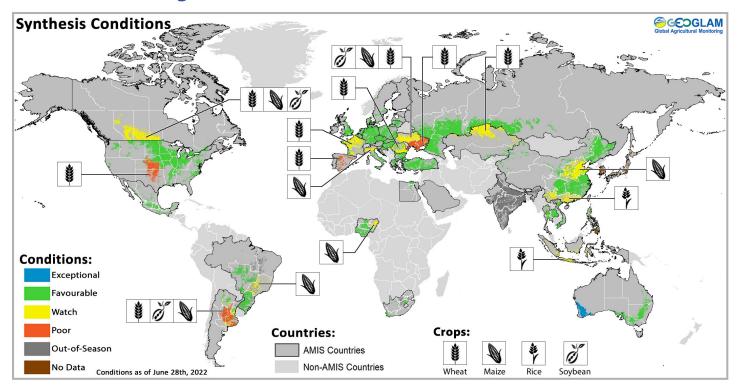


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At a glance for AMIS countries (as of June 28th)



Crop condition map synthesizing information for all four AMIS crops as of June 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. Crops that are in other than favourable conditions are displayed on the map with their crop symbol.

Crop Conditions at a Glance

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Wheat - In the northern hemisphere, winter wheat harvesting is beginning under mixed conditions in Europe, Ukraine, and the US. In the southern hemisphere, sowing is progressing under dry conditions in Argentina.

Maize - In the southern hemisphere, harvesting continues in Brazil and Argentina. In the northern hemisphere, crops are in the early vegetative stages under generally favourable conditions, except for in parts of the Northern China Plain.

Forecasts at a Glance

Climate Influences - The El Niño-Southern Oscillation (ENSO) is currently in the La Niña phase. Weak La Niña conditions are likely from July to September (52%) and are forecast to strengthen after that (59% for October to December).

Argentina – The short-term (2-week) outlook shows likely rainfall in the east while the long-term (July-August-September) outlook shows likely below-average precipitation across the central and southern agricultural regions.

Europe – Both the short-term (2-week) and the extended July-August-September forecast shows likely below-average rainfall over much of Europe.

Rice - In China, excess rainfall is impacting early-season rice. In Southeast Asia, sowing of wet-season rice is ongoing in the northern countries while dry-season rice sowing continues to be at low levels in Indonesia.

Soybeans - In the southern hemisphere, harvesting is wrapping up in Argentina while in the northern hemisphere, sowing is wrapping up.

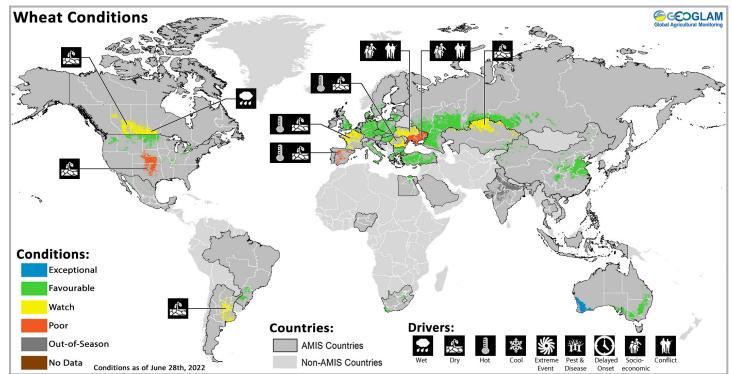
Southeast Asia – Above-average rainfall is anticipated from July to November across the southern countries. In the northern countries, below-average rainfall is anticipated for July to August followed by a transition to above-average rainfall from September to November.

United States – The short-term (2-week) outlook shows possible above-average rainfall in the south while below-average in the northern Great Plains. The long-term (July-August-September) outlook shows possible below-average across the Great Plains.

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.

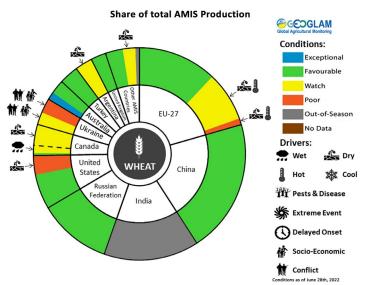
* Assessment based on information as of June 28th

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. Condition information is based upon information as of June 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.

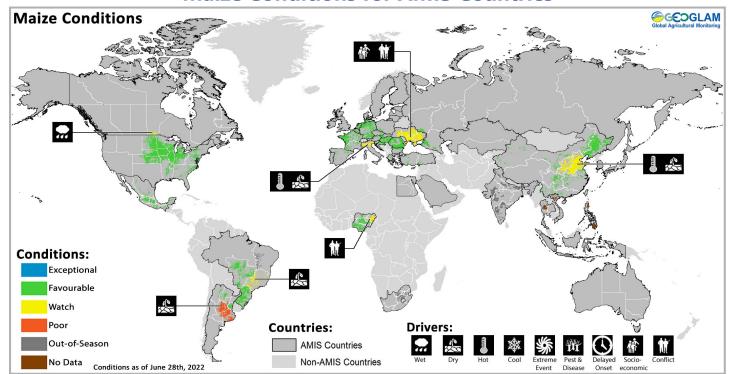
Wheat: In the EU, hot and dry weather is impacting France, Spain, Portugal, and Romania, while the rest of Europe remains under favourable conditions. In the United Kingdom, conditions are favourable. In Ukraine, hot and dry conditions have accelerated grain ripening and brought about harvesting in the south. However, the ongoing war has reduced the area that can be harvested in and near the conflict zones. In the Russian Federation, conditions remain favourable for winter wheat going into harvest. Spring wheat conditions have been supported by recent rainfall. In Turkey, conditions are favourable. In China, harvesting has begun for winter wheat, while spring wheat development continues. In the US, harvesting of winter wheat is ongoing under mixed conditions as prolonged



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

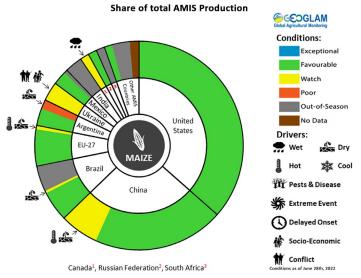
dryness in the central and southern Great Plains has impacted yields. Spring wheat conditions are favourable, albeit developmentally delayed. In **Canada**, spring and winter wheat conditions are mixed in the Prairies due to excess rainfall in the east and dry condition across the rest of the region. In **Australia**, conditions are favourable; however, extremely wet conditions across parts of northern New South Wales and southern Queensland are delaying sowing activities. In **Argentina**, sowing is being hampered by dry conditions throughout the country.

Maize Conditions for AMIS Countries



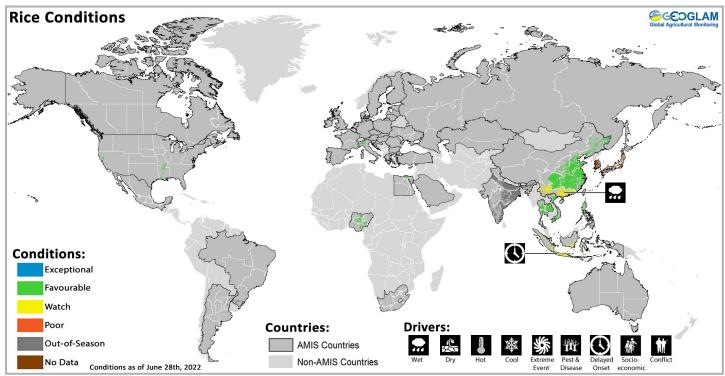
Maize crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Condition information is based upon information as of June 28th. Where crops are in other than favourable conditions the climatic drivers responsible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

Maize: In **Argentina**, harvesting of the earlyplanted crop (larger season) and the late-planted crop (smaller season) is continuing under mixed conditions as drought from December to January has reduced the yields of the early-planted crop. In Brazil, harvesting of the summer-planted crop (larger season) is beginning under mixed conditions due to a lack of rain, particularly in the Southeast regions. In the **US**, conditions are favourable across the country, despite earlier sowing delays in the northern Corn Belt. In Canada, conditions are favourable in the east and mixed in the Prairies. In Mexico, conditions are favourable for both the harvesting of the autumn-winter crop (smaller season) and the continued sowing of the spring- For detailed description of the pie chart please see box on page 6.



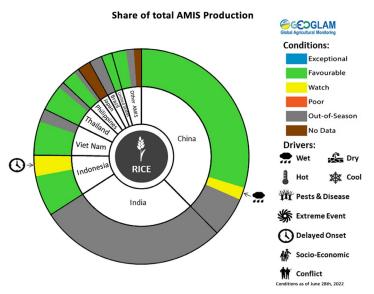
summer season (larger season). In the EU, conditions are generally favourable, except for hot and dry conditions in northern Italy. In Ukraine, conditions for working in the fields remain mixed due to the uncertainties of the ongoing war. There is a reduction in the total sown area compared to last year. In the Russian Federation, conditions are favourable. In China, spring-planted maize is maturing in the south, while hot and dry conditions in parts of the Northern China Plain are slowing development. Summer-planted maize is sowing.

Rice Conditions for AMIS Countries



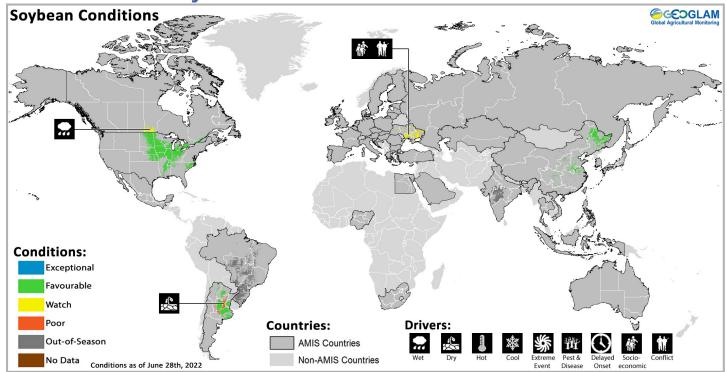
Rice crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Condition information is based upon information as of June 28th. Where crops are in other than favourable conditions the climatic drivers responsible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

Rice: In **China**, high rainfall and low solar radiation in the south are reducing potential yields of earlyseason rice. Single-season rice is under favourable conditions. In **Indonesia**, harvesting of wet-season rice is wrapping up under favourable conditions with an increase in the total harvested area compared to last year. Although already in its third month, sowing of dry-season rice remains at low levels. In Viet Nam, harvesting of winter-spring rice (dry-season) is ongoing in the north while the sowing of summerautumn rice (wet-season rice) begins. In the south, the summer-autumn rice (wet-season rice) is in the seeding and tillering stage. In **Thailand**, sowing of wet-season rice is continuing under generally favourable conditions. A total sown area increase For detailed description of the pie chart please see box on page 6. compared to last year is expected due to ample



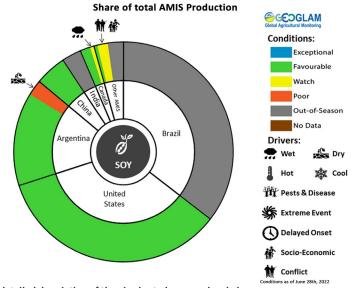
rainfall. In the **Philippines**, wet-season rice is under favourable conditions with crops sown from April to May in the early vegetative stages. In the **US**, conditions are favourable.

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. Condition information is based upon information as of June 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 **Argentina**, harvesting is wrapping up under generally favourable conditions except for in La Pampa, Santa Fe, and San Luis where yields have been reduced due to an earlier in-season drought. In the **US**, conditions are favourable as sowing is wrapping up despite earlier delays in Minnesota and North Dakota. In **Canada**, conditions are favourable in the main producing province of Ontario, while under mixed conditions in the Prairies due to dryness in Saskatchewan and excess moisture in Manitoba. In **China**, sowing is ongoing under favourable conditions. In **Ukraine**, sowing is wrapping up, while the ongoing war brings uncertainties.



For detailed description of the pie chart please see box below.

Information on crop conditions in non-AMIS countries can be found in the <u>GEOGLAM Crop</u> <u>Monitor for Early Warning</u>, published July 7th

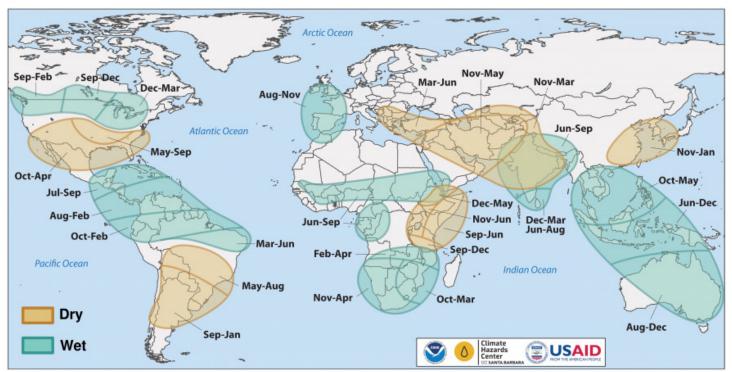
Pie chart description: Each slice represents a country's share of total AMIS production (5-year average). Main producing countries (representing 95 percent of production) are shown individually, with the remaining 5 percent grouped into the "Other AMIS Countries" category. The proportion within each 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: La Niña Advisory and Likely Negative Indian Ocean Dipole

The El Niño-Southern Oscillation (ENSO) is currently in the La Niña phase and is expected to remain as La Niña into early 2023, according to the IRI/CPC. Weak La Niña conditions are likely from July to September (52% chance) and are forecast to strengthen after that (59% chance for October to December). 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 and would be particularly harmful for regions that have already experienced two years of below-average rainfall.

Negative Indian Ocean Dipole (IOD) conditions are forecast to develop in July and last through November or longer. Models indicate that this may be a strong IOD event. Negative IOD and La Niña conditions often happen in tandem. During previous tandem events, there have been severe drought impacts across the Horn of Africa, and heavy rainfall and flooding in Australia and Southeast Asia.

Source: UCSB Climate Hazards Center

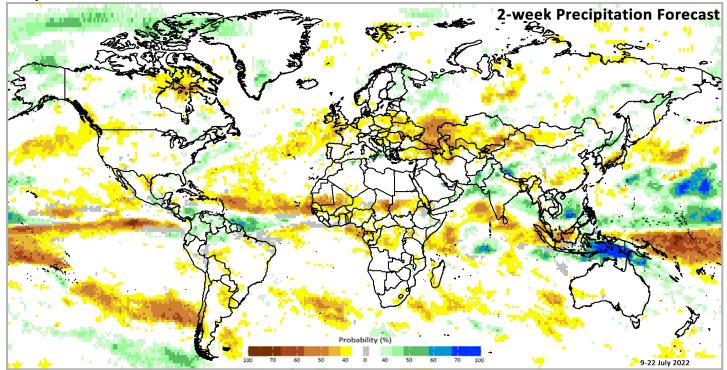


Location and timing of likely above- and below-average precipitation related to La Niña events. Based upon observed precipitation during 21 La Niña events since 1950, wet and dry correspond to a statistically significant increase in the frequency of precipitation in the upper and lower thirds of historical 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 https://fews.net/la-ni%C3%B1a-and-precipitation

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 Columbia, Venezuela, Guyana, French Guiana, northwest Brazil, southern Italy, northern Algeria, Oman, northeast Kazakhstan, Pakistan, northern and central west India, central and western China, eastern Indonesia, and Papua New Guinea.

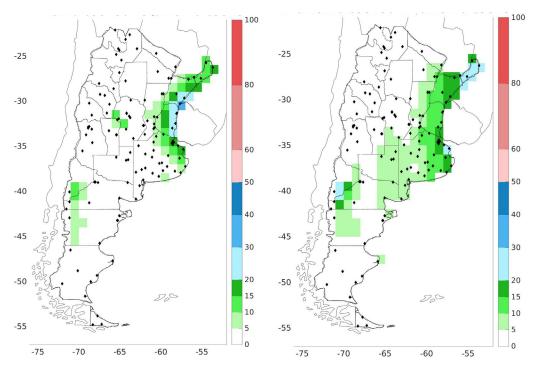
There is also a likelihood of below-average rainfall over the western Prairies in Canada, the northern Great Plains in the US, northeast Mexico, Haiti, the Dominican Republic, western Brazil, Uruguay, eastern Argentina, southern Chile, Southern United Kingdom, northern Europe, Ukraine, central and southern districts of the Russian Federation, Georgia, Azerbaijan, Armenia, Turkey, northern Iran, southern Mauritania, Mali, Senegal, northern Côte d'Ivoire, Burkina Faso, northern Ghana, Togo, Benin, Nigeria, Chad, Sudan, Eritrea, southern Cameroon, Equatorial Guinea, Gabon, the Republic of the Congo, The Democratic Republic of the Congo, Uganda, southern Madagascar, western and southern Kazakhstan, Uzbekistan, Kyrgyzstan, western Tajikistan, western Turkmenistan, southern India, Sri Lanka, northern Bangladesh, Bhutan, northern Myanmar, Mongolia, northwest and southern China, southern and central Japan, Malaysia, western Indonesia, and Western Australia.



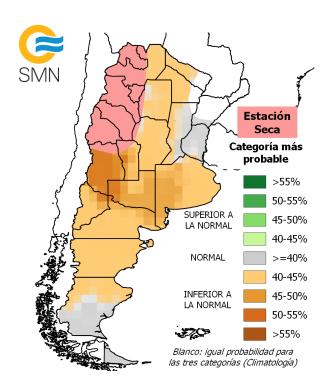
IRI SubX Precipitation Biweekly Probability Forecast for 9 - 22 July 2022, issued on July 1st, 2022. The forecast is based on statistically calibrated tercile category forecasts from three SubX models. Source: IRI Subseasonal Forecasts Maproom

Argentina Outlook

The forecast for the next two weeks indicates that rainfall is concentrated over Misiones, Corrientes, Entre Rios, and eastern Buenos Aires during the first week. Then during the second-week rainfall is forecast to expand over Santa Fe, all of Buenos Aires, southern Cordoba, La Pampa, and eastern Rio Negra. The long-term July-August-September outlook shows below-average rainfall across much of the central and southern agricultural regions.



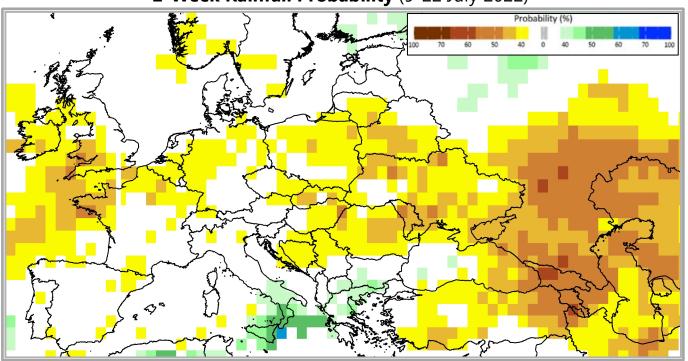
Left: July 7 – 13 forecast precipitation accumulation in mm. **Right:** July 14 – 20 forecast precipitation accumulation in mm. Images from the <u>National Meteorological Service of Argentina</u>. **Below**: July-August-September forecast rainfall anomaly. Image from the <u>National Meteorological Service of Argentina</u>.



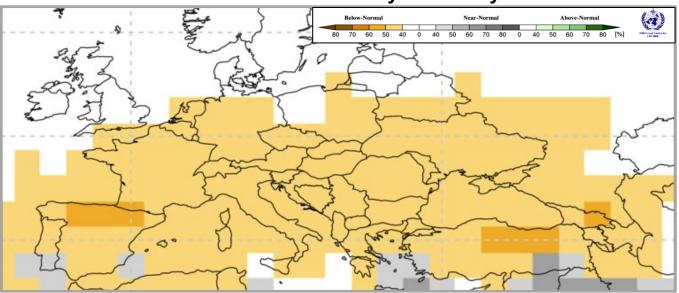
Europe Outlook

The two-week forecast (Figure 1) indicates likely below-average rainfall over Ireland, the western United Kingdom, northern France, Belgium, the southern Netherlands, northern Germany, Poland, eastern Czechia, Slovakia, Hungary, Croatia, Bosnia and Herzegovina, Serbia, Romania, Moldova, Lithuania, Belarus, Ukraine, Turkey, and the southern and central district of the Russian Federation. Above-average precipitation is likely over southern Italy and Greece. The long-term July-August-September 2022 forecast (Figure 2) predicts likely below-average precipitation across the majority of Europe except for Ireland, the United Kingdom, Norway, Sweden, Denmark, Lithuania, Latvia, Estonia, and northern Belarus. The highest probabilities are in northern Spain, Turkey, and eastern Georgia.

2-Week Rainfall Probability (9-22 July 2022)



3-Month Rainfall Anomaly Probability



Top: IRI SubX Precipitation Biweekly Probability Forecast for 9-22 July 2022, issued on July 1st, 2022. The forecast is based on statistically-calibrated tercile category forecasts from three SubX models. Image from the <u>IRI Subseasonal Forecasts Maproom</u>.

Bottom: Multi-model ensemble probabilistic forecast for July-August-September (JAS) 2022 precipitation from the WMO Lead Centre for Long-Range Forecast Milt-Model Ensemble at https://www.wmolc.org/seasonPmmeUI/plot_PMME.

Southeast Asia Outlook

In recent weeks, rainfall was average to below-average in most northern areas of the region (Figure 1 left), following significantly wetter-than-average conditions and incidents of high-impact flooding during April and May. However, continued heavy rain in northern Bangladesh in June led to repeated flooding, further impacting millions of people. Average to above-average April 1st to July 10th rainfall totals are estimated in most northern and southern areas, reflecting the mixed conditions during these months and a two-week forecast (Figure 1 middle-left). Below-average rainfall is forecast through early July in Bangladesh and western Myanmar, and above-average rainfall is forecast in northeastern areas due in part to Typhoon Chaba that reached mainland China on July 2nd.. Above-average rainfall is also forecast in southern Indonesia during that time.

Above-average rainfall is anticipated from July to November in southern areas of the region, including Indonesia and east Malaysia. Models from several international forecasting centers, such as the WMO forecast from June (Figure 1 middle-right and right), indicate this with high confidence. Wetter-than-average conditions are typical of negative Indian Ocean Dipole and La Niña conditions. Models are forecasting sea surface temperatures that are coincident with these climate modes, including much warmer-than-average conditions in the Indo-Pacific Ocean region. In northern areas of the region, there are elevated chances for below-average July-to-August rainfall in southern Myanmar, southern Thailand, southern Vietnam, Cambodia, southern Laos, and the northern Philippines (Figure 1 middle-right). From September to November, models indicate a transition to above-average rainfall in some of those areas (Figure 1 right).

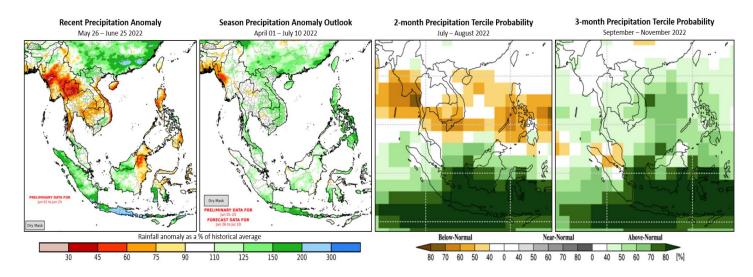


Figure 1. May 26th to June 25th and April 1st-to-July 10th, 2022 precipitation anomalies, and probability forecasts for July-to-August and September-to-November 2022 precipitation. The left two panels are CHC Early Estimates, which compare current precipitation totals to the 1981-2021 CHIRPS average for their respective accumulation periods. These show the percent of average for May 26th to June 25th, 2022 based on preliminary CHIRPS data (left), and April 1st to July 10th based on CHIRPS final data through May, preliminary June data, and a two-week bias-corrected GEFS forecast for June 26th to July 10th (middle-left). The right two panels show WMO probabilistic forecasts for July-to-August (middle-right) and September-to-November (right) 2022 precipitation, based on models initialized in June. From the WMO Lead Centre Long-Range Forecast Multi-Model Ensemble.

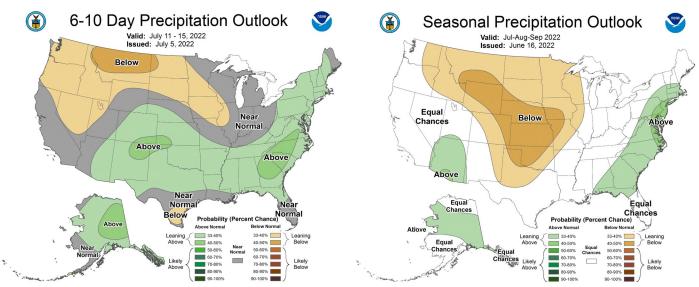
Source: UCSB Climate Hazards Center

United States Outlook

For the 11 – 15 July outlook, there is the possibility of below-average precipitation extending from the Pacific Northwest to the Upper Mississippi Valley and down into Nevada. The highest likelihood is centered over Montana. Conversely, there is the possibility of above-average precipitation in the southern Great Plains and the Southeast up into New England. At the same time, temperatures are likely to be above-average across the western and southern halves of the United States, while temperatures are likely to be below-average in Michigan and along the Mid-Atlantic coast.

For the longer-term seasonal July-August-September (JAS) 2022 outlook, below-average precipitation is possible all of the Great Plains and extending into the interior Northwest. Above-average precipitation is possible across the East Coast and Arizona. At the same time, temperatures will likely be above-average across most of the country, with the highest likelihood centered in New England and the Southwest.

Short-term and the June-July-August Precipitation Outlooks



The official 6 – 10 June precipitation outlook issued on June 31st, 2022, and the extended June-July-August outlook issued on June 19th, 2022 from NOAA/National Weather Service, National Centers for Environmental Predictions, Climate Prediction Center. Images from https://www.cpc.ncep.noaa.gov/products/forecasts/.

Source: NOAA Climate Prediction Center

Conditions:

Exceptional

Favourable

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 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% below average. This is only used when conditions are not likely to be able to recover, and 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 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



Extreme Event

Delayed-Onset

Crop Season Nomenclature:

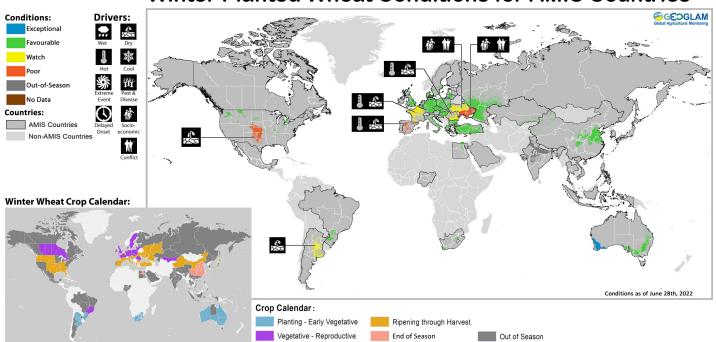
In countries that contain multiple cropping seasons for the same crop, the following chart identifies the national season name associated with each crop season within the Crop Monitor. Within the Crop Monitor for AMIS countries, the larger producing season (most recent 5 years) has been assigned to the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

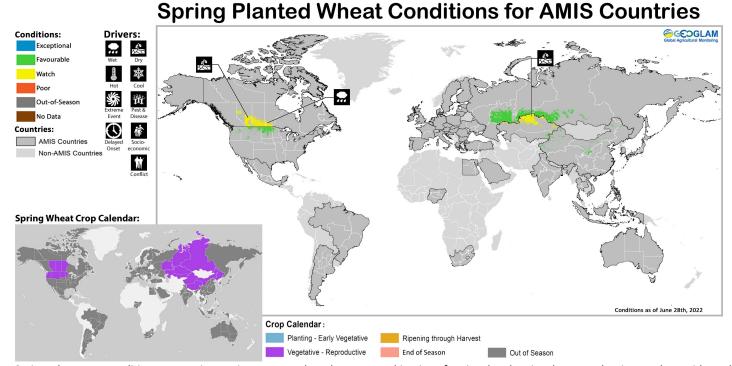
^{*&}quot; Average" refers to the average conditions over the past 5 years.

Appendix 2: Crop Season Specific Maps

Winter Planted Wheat Conditions for AMIS Countries

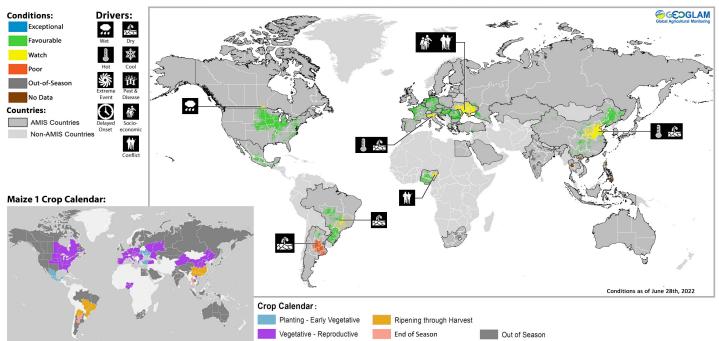


Winter wheat crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Condition information is based upon information as of June 28th. Where crops are in less than favourable conditions the climatic drivers responsible 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.



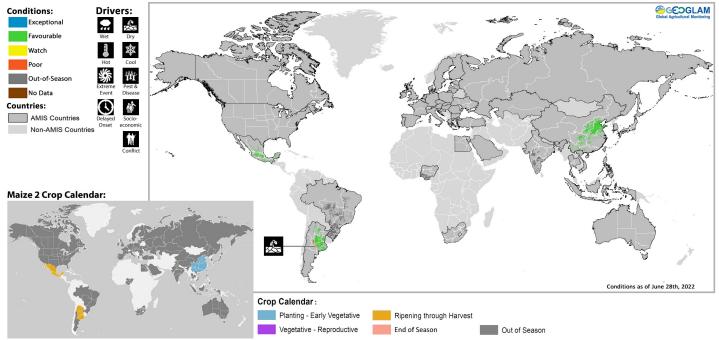
Spring wheat crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Condition information is based upon information as of June 28th. Where crops are in less than favourable conditions the climatic drivers responsible 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



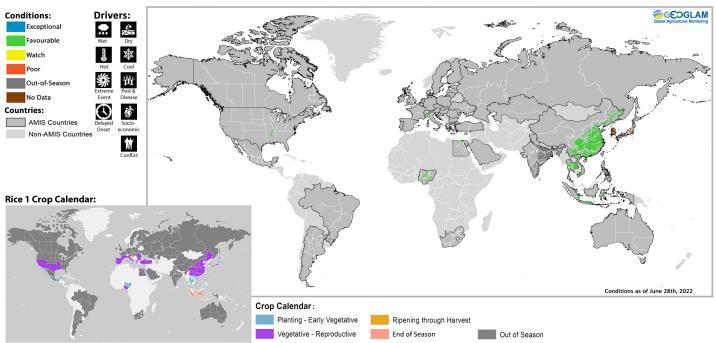
Maize 1 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Condition information is based upon information as of June 28th. Where crops are in less than favourable conditions the climatic drivers responsible 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 Conditions for AMIS Countries

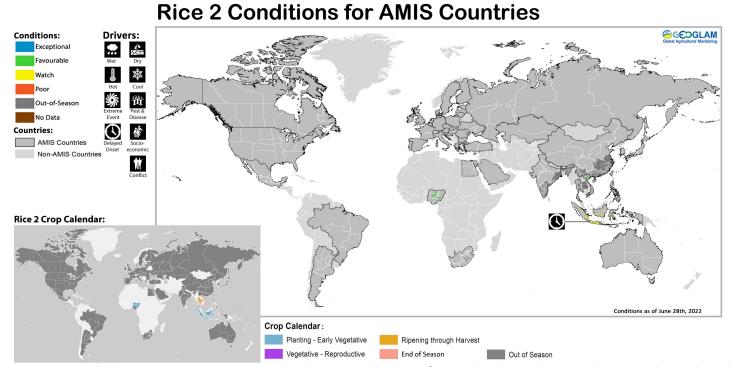


Maize 2 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Condition information is based upon information as of June 28th. Where crops are in less than favourable conditions the climatic drivers responsible 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 Conditions for AMIS Countries

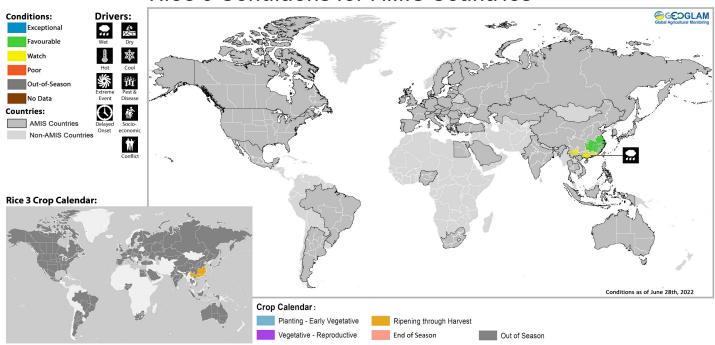


Rice 1 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Condition information is based upon information as of June 28th. Where crops are in less than favourable conditions the climatic drivers responsible 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.

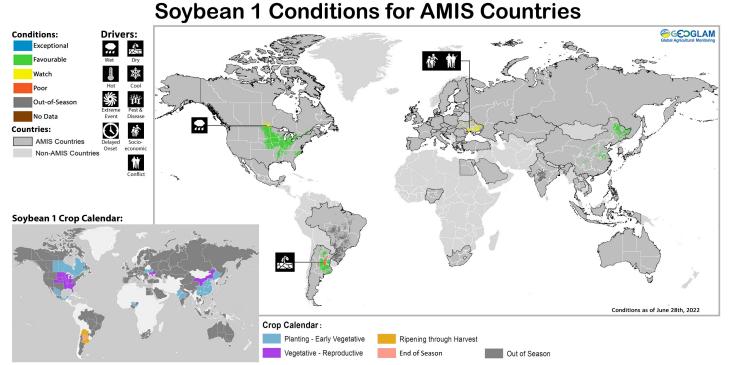


Rice 2 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Condition information is based upon information as of June 28th. Where crops are in less than favourable conditions the climatic drivers responsible 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.

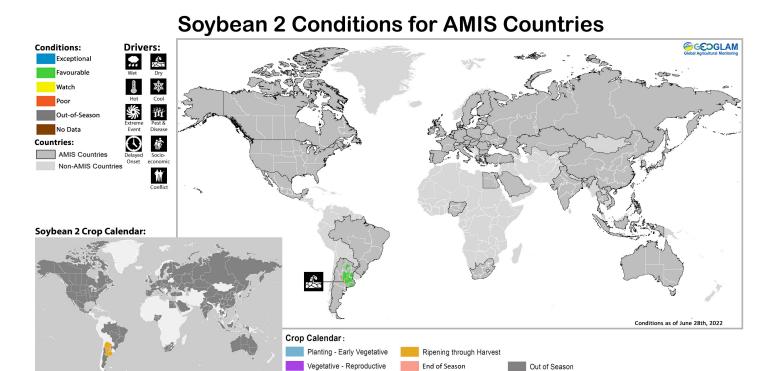
Rice 3 Conditions for AMIS Countries



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. Condition information is based upon information as of June 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. Condition information is based upon information as of June 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. Condition information is based upon information as of June 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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