



#### **Overview:**

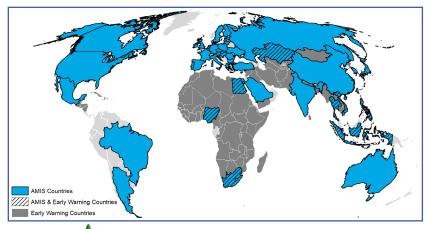
As of the end of November, conditions are favourable for maize, rice, and soybeans while mixed for wheat. In the northern hemisphere, spring wheat harvesting is wrapping up under favourable conditions while winter wheat sowing and emergence is ongoing under mixed conditions. In the southern hemisphere, winter wheat conditions are mixed due to dry conditions. For maize, conditions are generally favourable except for a few areas as harvest draws to a close in the northern hemisphere. In the southern hemisphere, sowing ongoing under favourable conditions. Rice conditions are favourable in all major growing areas. Soybean conditions are generally favourable in as harvest is ongoing in the northern hemisphere and sowing begins in the southern hemisphere.













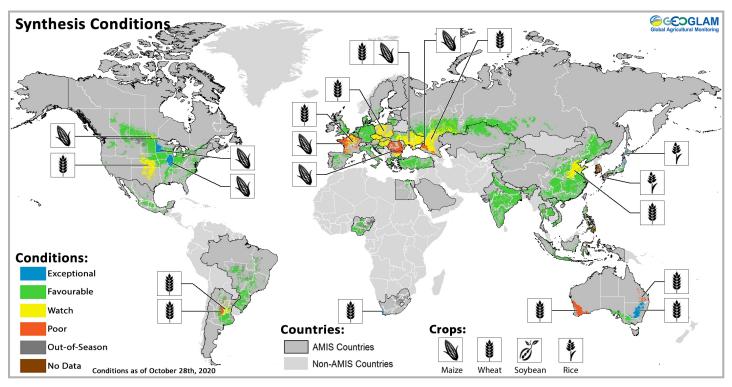
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# At a glance for AMIS countries (as of October 28th)



Crop condition map synthesizing information for all four AMIS crops as of October 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**

**Wheat** - In the northern hemisphere, spring wheat harvest wraps up under favourable conditions. Winter wheat sowing is nearing completion with a few areas of concern in the EU, Ukraine, the Russian Federation, China, and the US. In the southern hemisphere, dryness continues to affect parts of Argentina and Australia.

**Maize** - In the northern hemisphere, harvest is progressing with some downgrading of conditions in parts of the EU, Ukraine, and the Russian Federation. In

the southern hemisphere, Argentina and Brazil are sowing the spring-planted crop under favourable conditions.

**Rice -** Harvesting is ongoing under favourable conditions in China and India. In Southeast Asia, conditions are favourable for both wet-season rice in the northern countries and dry-season rice in Indonesia.

**Soybeans** - In the northern hemisphere, harvesting is progressing under favourable conditions. In the southern hemisphere, sowing is underway in Brazil and Argentina under generally favourable conditions.

#### Forecasts at a Glance

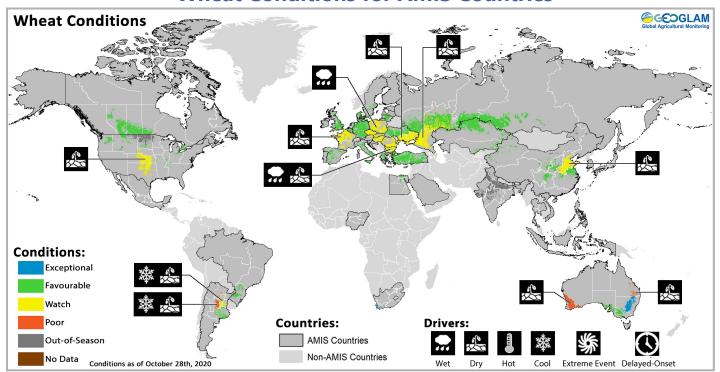
**Climate Influences** - El Niño-Southern Oscillation (ENSO) is currently in the La Niña phase. La Niña conditions are expected to continue from November to February (~85% chance).

**The United States -** For November, warmer and drier than average conditions are likely across most of the contiguous US except for a likely increase in rainfall in the Pacific Northwest.

**Argentina** – Large parts of the central growing areas for maize have a high probability of experiencing water stress over the next 30-days.

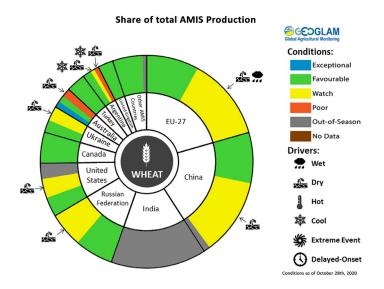
**Southeast Asia -** The three-month forecast indicates an increased likelihood of above-average rainfall in southern Indonesia, central Vietnam, and the Philippines.

#### 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 October 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.

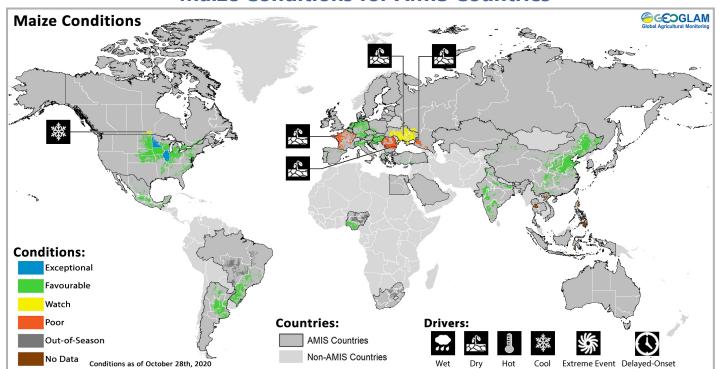
**Wheat:** In the **EU**, conditions are mixed as first dry and then wet conditions have hampered sowing activities in France and eastern Europe, however, central Europe remains under favourable conditions. In Ukraine, recent rainfall has benefited winter wheat sowing and emergence in the central and western regions, while southern and eastern regions remain under watch conditions due to ongoing drought. In the Russian Federation, spring wheat harvesting is wrapping up under favourable conditions. Winter wheat sowing continues to be impacted by low soil moisture and above-average temperatures in Volga and the southern regions. In China, sowing of winter wheat is ongoing under mixed conditions with some low soil moisture affecting emergence in the east. In the **US**, sowing of winter wheat is ongoing under mixed



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

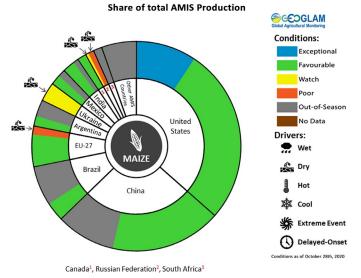
conditions due to expanding dryness in the central and southern Great Plains. In **Canada**, conditions are favourable as harvest is wrapping up for spring wheat and sowing of winter wheat is ongoing. In **Argentina**, conditions continue to be mixed with favourable conditions in Buenos Aires and La Pampa, while in the remaining provinces, recent rainfall has come too late for many crops damaged by prolonged dryness. In **Australia**, conditions are split with favourable conditions in South Australia and Victoria, exceptional conditions in New South Wales, and then poor conditions in Queensland and Western Australia due to prolonged dryness.

# **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 October 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.

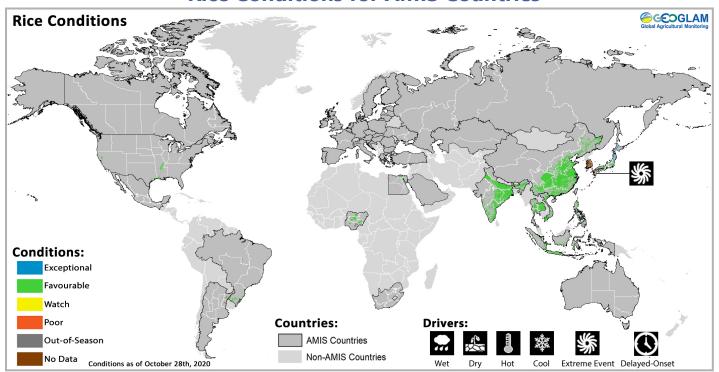
**Maize:** In the **US**, harvesting is advancing under favourable to exceptional conditions with the highest yields expected in Minnesota and Illinois. In Canada, conditions are favourable across much of the country with harvest ongoing, recent frosts in Manitoba may impact yields and crop quality. In Mexico, conditions are favourable for the spring-summer crop with harvesting beginning in some areas. In the **EU**, harvest is wrapping up under generally favourable conditions except for France, Bulgaria, and Romania where summer drought has reduced yields. In Ukraine, harvesting is over halfway complete under mixed conditions due to the severe summer drought pushing expected yields below the 5-year average. In the Russian Federation, harvest is progressing under mixed conditions in the central and southern regions



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

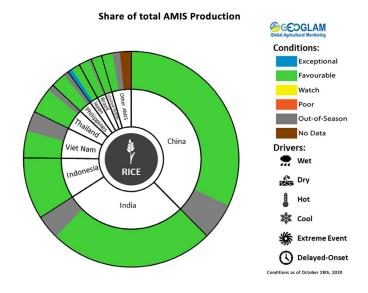
due to drought and high temperatures during the growing season. In **China**, conditions are generally favourable for both spring-planted and summer-planted crops as harvesting wraps up. In **India**, harvesting of Kharif maize is ongoing under favourable conditions. In **Brazil**, conditions are favourable for the spring-planted crop in the south region. Meanwhile, the southeast is awaiting further rainfall to advance sowing activities. In **Argentina**, sowing is wrapping up for the spring-planted crop under favourable conditions with continued support from recent rains.

# **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 October 28<sup>th</sup>. Where crops are in other than favourable conditions the climatic drivers responsible for those conditions are displayed.

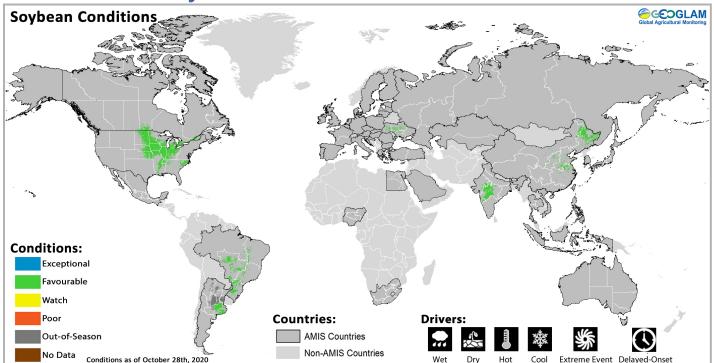
**Rice:** In **China**, conditions are favourable for both single-season and late-season rice as harvesting continues. In India, conditions are favourable for Kharif rice with harvesting beginning in the northern and central states. There is an increase in sown area this season compared to last year. In Indonesia, harvesting of dry-season rice is at its peak with yields expected to be slightly lower than last year's due to less rainfall during the season. Sowing of wet-season rice is beginning under favourable conditions. In Viet Nam, conditions are favourable in the south for the continued harvesting of the summer-autumn (wetseason) crop and the beginning of harvesting for the autumn-winter (wet-season) crop. In the north, harvesting is beginning for the summer-autumn (wetseason) crop under favourable conditions with slightly



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

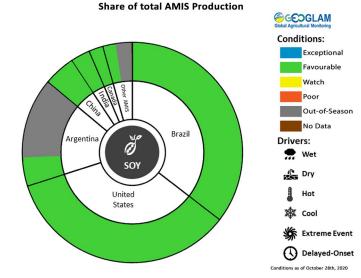
higher expected yields compared to last year. In **Thailand**, wet-season rice is entering the grain filling stage under favourable conditions with an increase in total sown area compared to last year, along with an increase in expected yields. In the **Philippines**, wet-season rice is under favourable conditions with ample rainfall this season. Crops sown from July to August are in the reproductive stage. In **Japan**, harvesting is wrapping up under generally favourable conditions with exceptional conditions in Hokkaido and poor conditions in Kyushu due to the impacts of several typhoons. In the **US**, harvesting is wrapping up under favourable conditions.

# **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 October 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.

**Soybeans:** In the **US**, harvesting is wrapping up under favourable conditions with the total sown area and expected yields up compared to last year. In Canada, harvest is progressing under favourable conditions with yields expected to be slightly above average. In China, harvest is wrapping up under favourable conditions. In India, harvesting is ongoing under favourable conditions with an increase in sown area compared to average. In **Ukraine**, harvest is ongoing under generally favourable conditions with expected yields only slightly below average due to summer dryness. In Brazil, sowing is ongoing under favourable conditions despite the delayed start due to earlier low soil moisture levels. A slight increase in sown area is expected compared to last year. In Argentina, sowing has begun under favourable conditions in Buenos Aires. The remaining provinces are awaiting the beginning of the sowing window.



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 November 5<sup>th</sup>

**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 Forecasts for AMIS Countries**

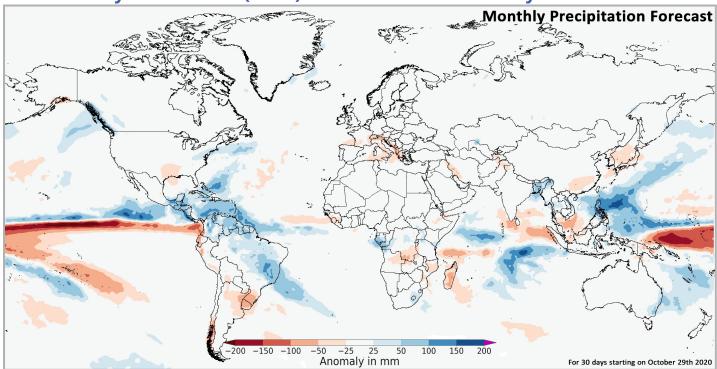
## **Climate Influences: La Niña Advisory**

The El Niño-Southern Oscillation (ENSO) is currently in the La Niña phase, with very cool ocean conditions in the eastern equatorial Pacific. La Niña conditions are expected to continue during November to February (~85% chance) and potentially through February to April (~60% chance).

La Niña conditions typically reduce November to February/May rainfall in East Africa, the southern United States, the northern Middle East, southern Central Asia, Afghanistan, Pakistan, and India. Southern Brazil, northern Argentina, eastern China, the Korean Peninsula, and southern Japan typically see reduced rainfall into January. La Niña conditions typically increase November to February/May rainfall in Southeast Asia, Southern Africa, southern Central America, northern South America, and in southernmost India and Sri Lanka. Australia and Indonesia typically see increased rainfall into December.

Source: UCSB Climate Hazards Center

### Global 30-day Subseasonal (SubX) Rainfall Forecast Anomaly



Multimodel mean subseasonal forecast of global rainfall anomaly for the 30-days starting from October 29<sup>th</sup> showing areas of above or below-average rainfall. The image shows the average of four Subseasonal Experiment (<u>SubX</u>) model forecasts from that day. The anomaly is based on the 1999 to 2016 model average. Skill assessments of SubX can be accessed <u>here</u>. Source: UCSB Climate Hazards Center

The 30-day SubX forecast indicates a likelihood of above-average rainfall over US mid-Atlantic, southern Mexico, Central America, Colombia, Venezuela, Guyana, Suriname, French Guiana, north to southeast Brazil, Gabon, southern Republic of Congo, Lesotho, southeastern South Africa, Bangladesh, eastern India, central Thailand, central Vietnam, Philippines, southern Indonesia, and southeast Australia. There is also a likelihood of below-average rainfall across southern US, southwest Columbia, western Ecuador, northwest Peru, southern Brazil, Uruguay, north and northeast Argentina, southern France, Italy, Bosnia and Herzegovina, Montenegro, Albania, Greece, eastern Iran, Guinea, Sierra Leone, southern DRC, eastern Angola, northern Zambia, northern and central Mozambique, southern China, central Japan, western DPRK, western Republic of Korea, and northern Papua New Guinea.

#### **United States Climate Outlook**

In November 2020, the temperature outlook is for likely above-average temperatures across the majority of the Contiguous United States (CONUS) except for the northern plains, with the highest probability over the Southwest to Southern Plains and the Northeast. The precipitation outlook for November shows high potential for above-average precipitation in the Pacific Northwest towards the Northern Plains. Below-average precipitation is most likely across most of the southern US extended northward into the Central Plains and Mid-Atlantic.

# ONE-MONTH OUTLOOK BECOME THE PROBABILITY OF THE PRO

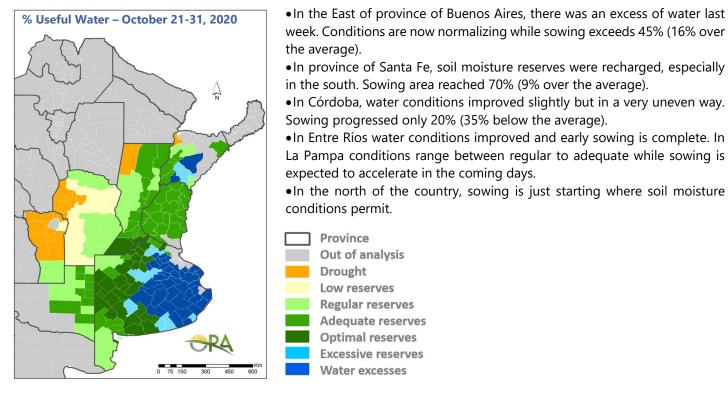
#### **November 2020 Temperature and Precipitation Outlooks**

The official 30-day forecast as of 30 October 2020 from NOAA/National Weather Service, National Centers for Environmental Predictions, Climate Prediction Center.

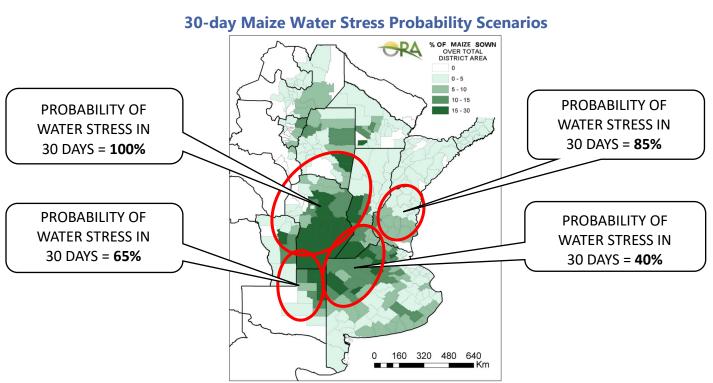
For the longer November-December-January (NDJ) 2020-2021 period, temperatures are likely to continue to be above-average across the majority of the Contiguous United States (CONUS) with the highest likelihood in the southwest and New England. Below-average precipitation is likely to continue across the southern US, from southern California across to the Southeast with the strongest possibility focused on Texas, New Mexico, and Louisiana. However, above-average precipitation is likely from the Pacific Northwest across to Minnesota.

Source: NOAA Climate Prediction Center

#### **Argentina Current Water Reserves and Forecasts for Maize**

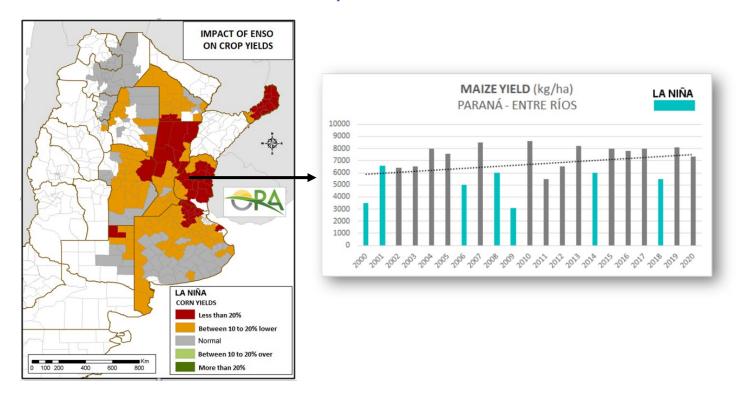


Source: Office of Agricultural Risk. <a href="http://www.ora.gob.ar/descargas.php">http://www.ora.gob.ar/descargas.php</a>



The scenarios were developed based on the weather forecast of the SMN https://www.smn.gob.ar/pronostico-trimestral

#### **Potential Yield Impacts of ENSO on Maize**



Considering average maize yields of the last 20 years for each district and comparing it with yields of El Niño/La Niña years, an estimation of what may happen in the current crop season was obtained. The grey color in the map corresponds to districts where the expected yield deviation is lower than 10% compared to average and with no significant impacts. In the orange-colored districts, a moderate negative impact can be expected, while in red-colored districts, negative impacts can be significant.

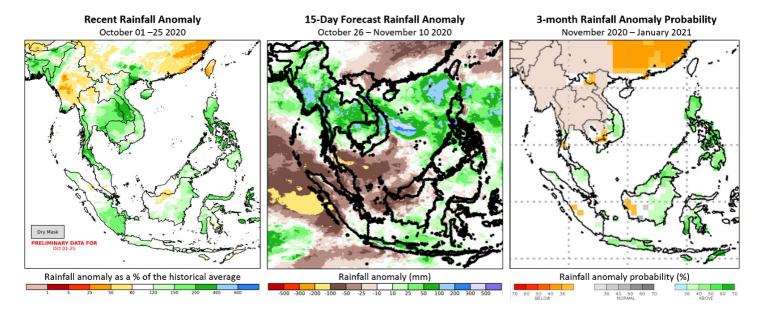
#### Southeast Asia Current Seasonal Conditions plus 3-month Forecast

Heavy, above-average rainfall during the past month <u>affected Vietnam</u>, <u>Laos</u>, <u>Cambodia</u>, <u>southern Thailand</u>, <u>southern Myanmar</u>, <u>the Philippines</u>, <u>and parts of Indonesia</u>. Rainfall amounts for most of October were between 120 and 200 percent of average in these areas and exceeded 200 percent of average in southern Laos. In other parts of the region, conditions were more mixed, with below-average amounts in central Myanmar, and near-average amounts in Malaysia and northern Indonesia (Figure 1-left).

According to the forecast for October 26<sup>th</sup> to November 10<sup>th</sup>, wetter than average conditions will continue to impact mainland Southeast Asia. This forecast shows especially high amounts for this period in the Philippines, eastern Vietnam and central Myanmar, which could already-present flooding hazards. Drier than average conditions are forecast in Malaysia and northern Indonesia (Figure 1-middle).

The Philippines was heavily impacted by Typhoon Goni, the strongest storm of the year thus far. Typhoon Goni <u>made landfall</u> <u>north of the mid-section of the Philippine archipelago</u> on November 1st. Catastrophic winds, heavy rainfall, and flooding destroyed infrastructure, displaced tens of thousands of people, and killed at least 16 people. Tropical Storm Atsani may bring heavy rains to the northern Philippines, Taiwan, and Vietnam beginning on November 6th.

Rainfall in upcoming months will impact the main rice growing season in Indonesia. November to January rainfall is likely to be above normal in southern Indonesia. Some western coast areas of Sumatra and Kalimantan islands are more likely to receive normal or below-normal amounts (Figure 1-right).



Source: UCSB Climate Hazards Center

# **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



Exceptional



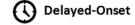
**Conditions:** 











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

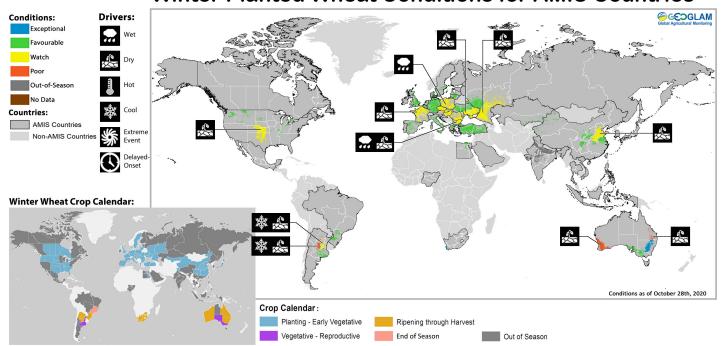
In countries that contain multiple cropping seasons for the same crop, the following chart identifies the national season name associated with each crop season within the Crop Monitor. Within the Crop Monitor for AMIS countries, the larger producing season (most recent 5 years) has been assigned to the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

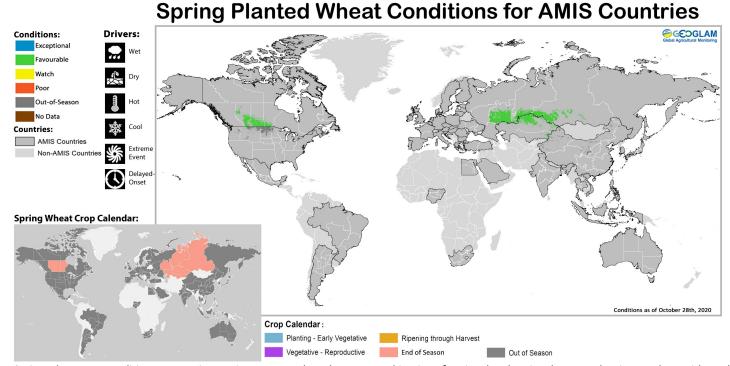
<sup>\*&</sup>quot; Average" refers to the average conditions over the past 5 years.

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

#### Winter Planted Wheat Conditions for AMIS Countries

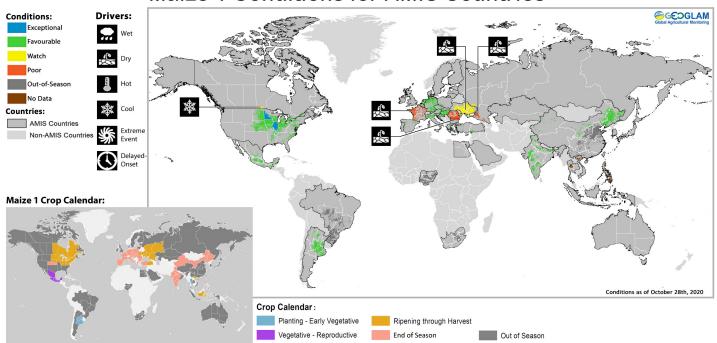


Winter wheat crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Condition information is based upon information as of October 28th. Where crops are in less than favourable conditions the climatic drivers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



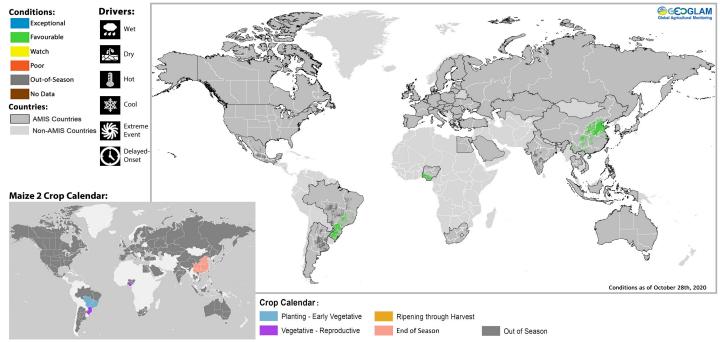
Spring wheat crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Condition information is based upon information as of October 28th. Where crops are in less than favourable conditions the climatic drivers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



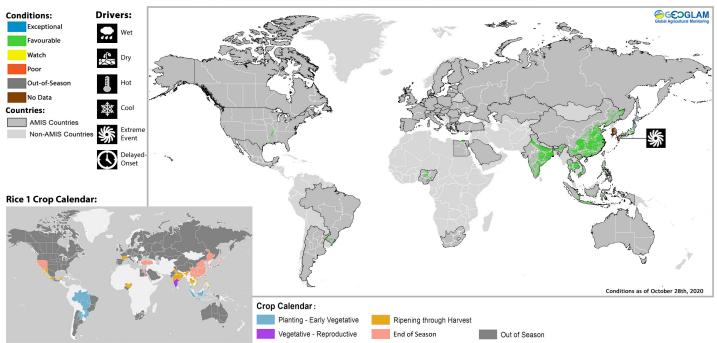
Maize 1 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Condition information is based upon information as of October 28th. Where crops are in less than favourable conditions the climatic drivers responsible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

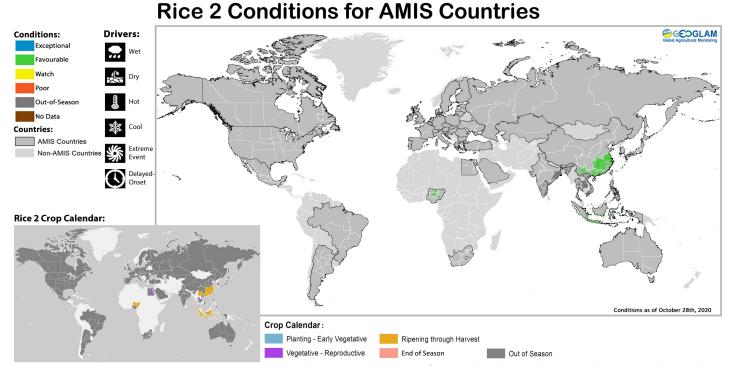


Maize2 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Condition information is based upon information as of October 28th. Where crops are in less than favourable conditions the climatic drivers responsible 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**

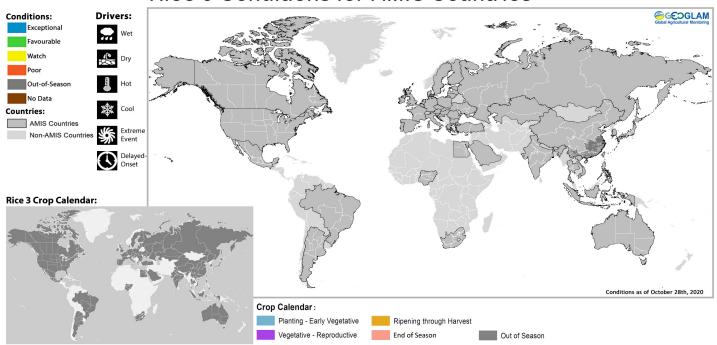


Rice 1 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Condition information is based upon information as of October 28th. Where crops are in less than favourable conditions the climatic drivers responsible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

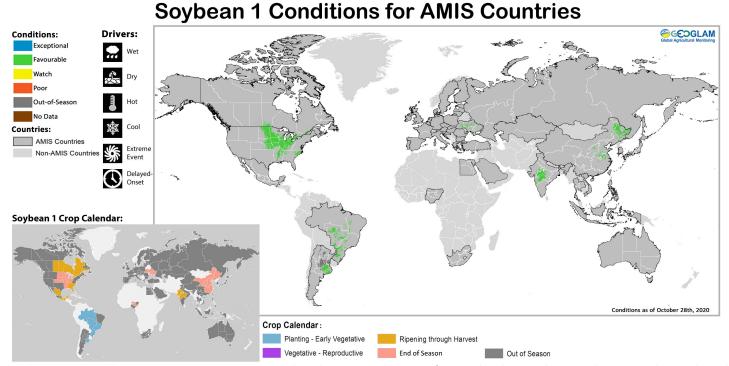


Rice 2 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Condition information is based upon information as of October 28th. Where crops are in less than favourable conditions the climatic drivers responsible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

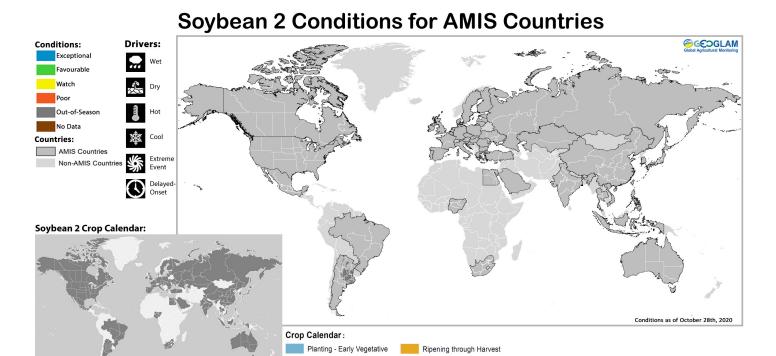
# **Rice 3 Conditions for AMIS Countries**



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 October 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 October 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 October 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.

End of Season

Vegetative - Reproductive





Prepared by members of the GEOGLAM Community of Practice Coordinated by the University of Maryland with funding from NASA Harvest Climatic Influences by Climate Hazards Center of UC Santa Barbara

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

Photo courtesy of Asia RiCE

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#### **Sources & Disclaimer**

Sources and Disclaimers: The Crop Monitor assessment is conducted by GEOGLAM with inputs from the following partners (in alphabetical order): Argentina (Buenos Aires Grains Exchange, MAGyP), Asia Rice Countries (AFSIS, ASEAN+3 & Asia RiCE), Australia (ABARES & CSIRO), Brazil (CONAB & INPE), Canada (AAFC), China (CAS), EU (EC JRC MARS), Gro Intelligence, India (NCFC), Indonesia (LAPAN & MOA), International (CIMMYT, FAO GIEWS, IFPRI & IRRI), Japan (JAXA, MAFF), Mexico (SIAP), Russian Federation (IKI), South Africa (ARC & CSIR & GeoTerralmage & SANSA), Thailand (GISTDA & OAE), Ukraine (NASU-NSAU & UHMC), USA (NASA, UMD, USGS – FEWS NET, USDA (FAS, NASS)), Viet Nam (VAST & VIMHE-MARD). The findings and conclusions in this joint multiagency report are consensual statements from the GEOGLAM experts, and do not necessarily reflect those of the individual agencies represented by these experts.

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