Overview:
At the end of August, conditions are generally mixed for wheat and favourable for maize, rice, and soybeans with a few areas of concern. For wheat in the northern hemisphere, harvesting of winter wheat is complete while spring wheat harvesting is nearing completion. For maize, harvesting is mostly complete in the southern hemisphere and is underway in the northern hemisphere. Rice conditions are favourable throughout Southeast Asia, transplanting of Kharif season rice is mostly complete in India, and single-season rice harvesting is underway in China. Soybeans are developing under generally favourable conditions in the northern hemisphere, and harvesting has begun in some regions.
At a glance for AMIS countries (as of August 28th)

Crop condition map synthesizing information for all four AMIS crops as of August 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, winter wheat harvesting is mostly complete while spring wheat harvesting is wrapping up with poor conditions persisting in parts of Canada, the US, Kazakhstan, and the Russian Federation. In the southern hemisphere, winter wheat continues to develop under generally favourable conditions.

**Maize** - Harvesting in the southern hemisphere is mostly complete with below-average yields in Brazil and parts of Argentina. Planting and development continues in the northern hemisphere under generally favourable conditions except in parts of the US, eastern Europe, and Canada.

**Soybeans** - In the northern hemisphere, crops are developing under generally favourable conditions as harvesting begins in some regions. However, concern remains in parts of the northern US and western Canada due to persistent dryness.

**Rice** - Harvesting of single-season crops is underway in China while transplanting of Kharif season crops is mostly complete in India. In Southeast Asia, wet-season rice conditions remain favourable in the north, and in Indonesia, conditions for dry-season rice are favourable despite delayed planting progress.

Forecasts at a Glance

**Climate Influences** - Neutral El Niño-Southern Oscillation (ENSO) conditions are present, and a negative Indian Ocean Dipole (IOD) event is underway.

**Argentina** – August rainfall was below-average in all productive regions, and deficits occurred in marginal producing areas.

**United States** – The short-term outlook for the next week and a half shows below-average rainfall likely to occur in the north and northwest down into the southern plains and in parts of the southeastern US.

**Southeast Asia** – Above-average rainfall is forecast for September through December across much of the region.

* Assessment based on information as of August 28th
Wheat Conditions for AMIS Countries

Wheat Conditions

Wheat: In the EU, harvesting of winter wheat is mostly complete with above-average yields due to beneficial wetter than normal conditions throughout the season. In the UK, winter wheat harvesting finalized in August under favourable conditions. In Turkey, harvesting of winter wheat finalized under favourable conditions despite recent periods of hot weather. In Ukraine, harvesting of winter wheat finalized with the highest yield in the last five years. In the Russian Federation, harvesting of winter-planted wheat finalized with below-average yields due to winterkill in the key producing Southern District. There is concern for spring-planted wheat in southern Volga and southern Ural regions due to hotter and drier than average conditions in August. In China, harvesting of spring-planted wheat is nearing completion, and conditions are generally favourable except in the northwest where dryness persists. In the US, harvesting of winter-planted wheat finalized with below-average yields across parts of the north. Harvesting of spring-planted wheat is underway, and crops are unlikely to recover from excessive heat and dryness. In Canada, harvesting of winter-planted crops finalized with below-average yields in parts of the prairie impacted by persistent dry and hot conditions. Spring-planted crops are unlikely to recover from long-term rainfall deficits. In Argentina, winter wheat crops are developing under mixed conditions with concern in the north and La Pampa due to low rainfall received. In Australia, conditions are generally favourable to exceptional following good rainfall and ample soil moisture levels, particularly in the key producing states of New South Wales and Western Australia.

* Assessment based on information as of August 28th
Maize: In Brazil, harvesting of summer-planted (larger producing season) crops is underway with below-average yields likely due to low rainfall and periods of frost during critical development stages. In Argentina, harvesting of the late-planted crop (usually smaller season) is mostly complete under generally favourable conditions except in Entre Rios where dry conditions impacted yields. In the US, conditions are generally favourable except in the Dakotas and Minnesota where season-long dryness and heat are expected to negatively impact yields. In Canada, conditions in the east remain favourable while crops in Manitoba are unlikely to recover from dry and hot conditions despite recent rainfall. In Mexico, planting of the spring-planted (larger season) crop continued under favourable conditions despite localized crop damage due to dryness. In the EU, vegetation conditions are generally average to above-average except in Croatia, Hungary, and Slovenia where dry and hot conditions are impacting crop development. In Ukraine, harvesting began under favourable conditions with normal crop development, and yields are expected to well exceed the previous year. In the Russian Federation, harvesting began in August under favourable conditions with sufficient precipitation received. In China, harvesting of the spring-planted crop is wrapping up while summer-planted crops continue to develop, and conditions are generally favourable except in the northwest where dryness persists. In India, Kharif season crops are developing under favourable conditions. Sowing is nearing completion, and sown area is near-average.

* Assessment based on information as of August 28th
Rice Conditions for AMIS Countries

**Rice: In China, conditions remain favourable for both single and late-season crops. In India, Kharif season crops are developing under favourable conditions despite above-average temperatures. Transplanting is mostly complete except in a few south and eastern states, and planted area is above-average. In Indonesia, harvesting of earlier planted dry-season rice crops continues under favourable conditions due to sufficient precipitation during the growing season. However, planting progress remains at a low level following the protracted wet-season. In Viet Nam, summer-autumn (wet-season) rice is in young panicle forming stage in the north while harvesting is underway in the south, and growing conditions are favourable due to better irrigation preparation and warm weather. In Thailand, wet-season rice is in tillering to young panicle forming stage under favourable conditions due to sufficient rainfall received as well as a timely start to the rainy season. In the Philippines, wet-season rice planted in April and May is in the maturing to harvesting stage under favourable conditions. High precipitation associated with the Southwest Monsoon has fallen in northern Luzon and parts of Mindanao. In Japan, harvesting is underway with concern in parts of the south due to cool weather, insufficient sunlight exposure from late June to early July, and heavy rainfall. Elsewhere, weather conditions have been conducive for crop development. In the US, harvest is nearing completion, and overall conditions are favourable.**

* Assessment based on information as of August 28th
Soybean Conditions for AMIS Countries

### Soybean Conditions

#### Conditions:
- Exceptional
- Favourable
- Watch
- Poor
- Out-of-Season
- No Data

#### Countries:
- AMIS Countries
- Non-AMIS Countries

#### Drivers:
- Wet
- Dry
- Hot
- Cool
- Extreme Event
- Delayed-Onset

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 August 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**, crops continue to develop under mixed conditions with concern in the Dakotas and Minnesota due to excessive heat and dryness. In **Canada**, yield outlooks in Manitoba and Saskatchewan have been downgraded due to dry and hot conditions while conditions in the east remain favourable. In **China**, conditions are generally favourable except in the southern region where below-average precipitation may impact crop development. In **India**, crops are developing under favourable conditions. Sowing is complete in the major producing states, and sown area is above-average. In **Ukraine**, harvesting began under favourable conditions with normal crop development, and good yields are expected.

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

Information on crop conditions in non-AMIS countries can be found in the GEOGLAM Crop Monitor for Early Warning, published September 2nd.

**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.

* Assessment based on information as of August 28th
Climate Forecasts for AMIS Countries

Climate Influences: La Niña Watch issued and Negative IOD event underway

Neutral El Niño-Southern Oscillation (ENSO) conditions are present and expected to continue into September. A La Niña event will potentially develop during the September-to-November season and last through early 2022 (67% chance for October to December; 69% to 55% chance for November to March). The IRI/CPC has issued a La Niña Watch.

La Niña conditions typically increase the chances of below-average precipitation in East Africa, Central Asia, southern South America, southern United States, northern Mexico, and eastern East Asia. La Niña conditions typically increase the chances of above-average precipitation in Southeast Asia, Australia, Southern Africa, and northern South America. A negative Indian Ocean Dipole (IOD) event is underway. Negative IOD conditions are expected to continue into November, according to the Australia Bureau of Meteorology forecast (79% to 56% chance for September to November). Negative IOD conditions typically increase the chances of above-average rainfall in Southeast Asia and Australia and below-average rainfall in East Africa.

Source: UCSB Climate Hazards Center

Global 30-day Forecast of Areas with Above or Below-Average Precipitation

The 30-day precipitation forecast indicates a likelihood of above-average rainfall across southern Canada, the eastern US, Mexico, Honduras, Nicaragua, Costa Rica, Panama, Colombia, Venezuela, northern Guyana, Ecuador, Peru, Bolivia, Paraguay, northeast and southern Brazil, southern Chile, the Gulf of Guinea, central Cameroon, southern Chad, southeastern South Sudan, northern Ethiopia, eastern South Africa, Germany, Czechia, Poland, Lithuania, southern Sweden, Slovenia, Croatia, Bosnia and Herzegovina, southern Belarus, western Ukraine, western Romania, parts of Russia, China, Democratic People’s Republic of Korea, Republic of Korea, India, Nepal, southern Myanmar, Laos, Thailand, Cambodia, Viet Nam, the Philippines, Malaysia, Indonesia, Papua new Guinea, and northern New Zealand. There is also a likelihood of below-average rainfall in parts of Canada, the southeastern US, Cuba, Haiti, the Dominican Republic, parts of Venezuela, Chile, western Senegal, Angola, coastal Kenya, northeastern United Republic of Tanzania, the United Kingdom, Norway, Japan, Bangladesh, southeastern China, Taiwan, northern Myanmar, western Malaysia, and western Indonesia.

* Assessment based on information as of August 28th
Argentina: Current Water Reserves and Wheat Sowing Probability

% Useful Water – August 31, 2021

- Rainfall in August was lower than normal throughout all productive areas.
- As rainfall in the main wheat areas is typically minimal in winter, the first rains of the new season are very important.
- In this context, there is a large area with a water deficit for wheat in marginal producing regions.
- Soil moisture conditions in the south-east region of Buenos Aires are better than in the core zone (north of Buenos Aires, south of Santa Fe, and south-east of Cordoba).


Accumulated Rainfall Forecast

For the week of September 1 to 7, the expected rains will likely be concentrated in the province of Buenos Aires with estimated maximums of 30mm. For the week of September 8 to 14, the forecasted rains will be mostly concentrated in the east of the country, especially in the province of Misiones. According to this forecast, rainfall in the next two weeks will likely be normal to slightly lower than normal.

* Assessment based on information as of August 28th
30-day Wheat Water Stress Probability Scenarios

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

* Assessment based on information as of August 28th
United States Climate Outlook

For the September 5-9 short-term outlook, there is a possibility of below-average precipitation from the Pacific Northwest to the western Lake States and down through the Southern Plains (33-40%). There is also an area of below-average precipitation likely in South Carolina and surrounding states (33-40%). Areas of above-average precipitation are likely in southern California, southern Nevada, southwestern Utah, and western Arizona (33-40%) as well as in the Northeast and eastern Lake States (33-40%).

During the September 7-13 short-term outlook, the possibility of below-average precipitation remains across the Pacific Northwest to the western Lake States and down through the Southern Plains (33-40%) with the exception of the central-western Mountain region where near-normal precipitation is likely. The area of likely below-average precipitation in South Carolina and surrounding states expands to reach parts of Virginia, eastern Tennessee, and northern Florida (33-40%). The area of likely above-average precipitation remains in western Arizona and surrounding areas (33-40%) but diminishes in the northeast (33-40%).

For the longer-term September-October-November 2021 outlook, below-average rainfall is likely to continue across the Mountain region up through the Dakotas and through parts of the western Lake States and western Corn Belt (33-40%). The highest probabilities are centered around Wyoming, Utah, western Colorado, Arizona, western New Mexico, and surrounding areas (40%). Areas of above-average rainfall are only likely in the far Pacific Northwest (33%). During the same time period, above-average temperatures are forecast for most of the US, particularly around Nevada, Utah, Arizona, and surrounding areas (50%) and in the northeast (50%).

6-10 Day and 8-14 Day Precipitation Outlooks

The official 6-10 and 8-14 day outlooks issued August 30th, 2021 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

* Assessment based on information as of August 28th
Southeast Asia Current Seasonal Conditions plus 30-day Forecasts

Rainfall was below-average in recent weeks in some mainland areas of the region, from central Laos to Vietnam, as well as in eastern Malaysia and the Philippines (Figure 1-left). Many of these same areas have been persistently drier than average since May. Most southern areas of the region received average to above-average rainfall in recent weeks. Wetter-than-average conditions are forecast in many areas during the next several months. Through late September, average to above-average rainfall and above-average temperatures are likely in most areas, according to the SubX 30-day forecast (Figure 1-middle). Areas with forecast below-average rainfall include portions of Indonesia’s northern Sumatra, the southern Malay Peninsula, and far northern Laos and Vietnam. During October to December, the WMO forecast from August indicates high chances (>70%) of above-normal rainfall across southern Indonesia as well as increased chances of above-normal rainfall in southern mainland areas and in the Philippines (Figure 1-right). This is consistent with increased chances for La Niña-like climate conditions (67% chance for La Niña, according to the CPC/IRI August official forecast) and the forecast continuation of negative Indian Ocean Dipole conditions (79% to 56% chance for September to November, according to the Australia Bureau of Meteorology).

Figure 1. Recent rainfall anomaly, a 30-day rainfall forecast anomaly, and a 3-month rainfall forecast probability. The left panel is a CHC Early Estimate, which compares July 21st to August 20th, 2021, rainfall amounts to the 1981-2020 CHIRPS average. These are expressed as a percent of average. The middle panel is a 30-day forecast rainfall anomaly from August 26th. The image shows the average of six Subseasonal Experiment (SubX) model forecasts from that day. The anomaly is based on the 1999 to 2016 model average. Skill assessments of SubX can be accessed here. The right panel is a probabilistic forecast for most-likely October-November-December 2021 rainfall tercile from the WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble, based on August conditions. White color indicates that there is no dominant category across the model forecasts.

Source: UCSB Climate Hazards Center

* Assessment based on information as of August 28th
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.

*“Average” refers to the average conditions over the past 5 years.

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

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.

<table>
<thead>
<tr>
<th>Country</th>
<th>Crop</th>
<th>Season 1 Name</th>
<th>Season 2 Name</th>
<th>Season 3 Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>Soybean</td>
<td>Spring-planted</td>
<td>Summer-planted</td>
<td></td>
</tr>
<tr>
<td>Brazil</td>
<td>Maize</td>
<td>Summer-planted (larger producing season)</td>
<td>Spring-planted (smaller producing season)</td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td>Wheat</td>
<td>Winter-planted</td>
<td>Spring-planted</td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>Maize</td>
<td>Spring-planted</td>
<td>Summer-planted</td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>Rice</td>
<td>Single-season</td>
<td>Late-season</td>
<td>Early-season</td>
</tr>
<tr>
<td>Egypt</td>
<td>Wheat</td>
<td>Winter-planted</td>
<td>Spring-planted</td>
<td></td>
</tr>
<tr>
<td>Egypt</td>
<td>Rice</td>
<td>Summer-planted</td>
<td>Nili season (Nile Flood)</td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>Maize</td>
<td>Kharif</td>
<td>Rabi</td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>Rice</td>
<td>Kharif</td>
<td>Rabi</td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>Rice</td>
<td>Wet-season</td>
<td>Dry-season</td>
<td></td>
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<tr>
<td>Mexico</td>
<td>Maize</td>
<td>Spring-planted</td>
<td>Autumn-planted</td>
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<td>Nigeria</td>
<td>Maize</td>
<td>Main-season</td>
<td>Short-season</td>
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<td>Nigeria</td>
<td>Rice</td>
<td>Main-season</td>
<td>Off-season</td>
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<td>Wet-season</td>
<td>Dry-season</td>
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<td>Russian Federation</td>
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<td>Spring-planted</td>
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<td>Thailand</td>
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<td>Dry-season</td>
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<td>Spring-planted</td>
<td></td>
</tr>
<tr>
<td>Viet Nam</td>
<td>Rice</td>
<td>Wet-season</td>
<td>Dry-season</td>
<td></td>
</tr>
</tbody>
</table>

* Assessment based on information as of August 28th
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 August 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 Planted Wheat Conditions for AMIS Countries

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 August 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.

* Assessment based on information as of August 28th
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 August 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. Condition information is based upon information as of August 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. Condition information is based upon information as of August 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 August 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.

* Assessment based on information as of August 28th
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 August 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 August 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.

* Assessment based on information as of August 28th
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 August 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.
Prepared by members of the GEOGLAM Community of Practice
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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 Brian Barker

https://cropmonitor.org/

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Sources & 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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