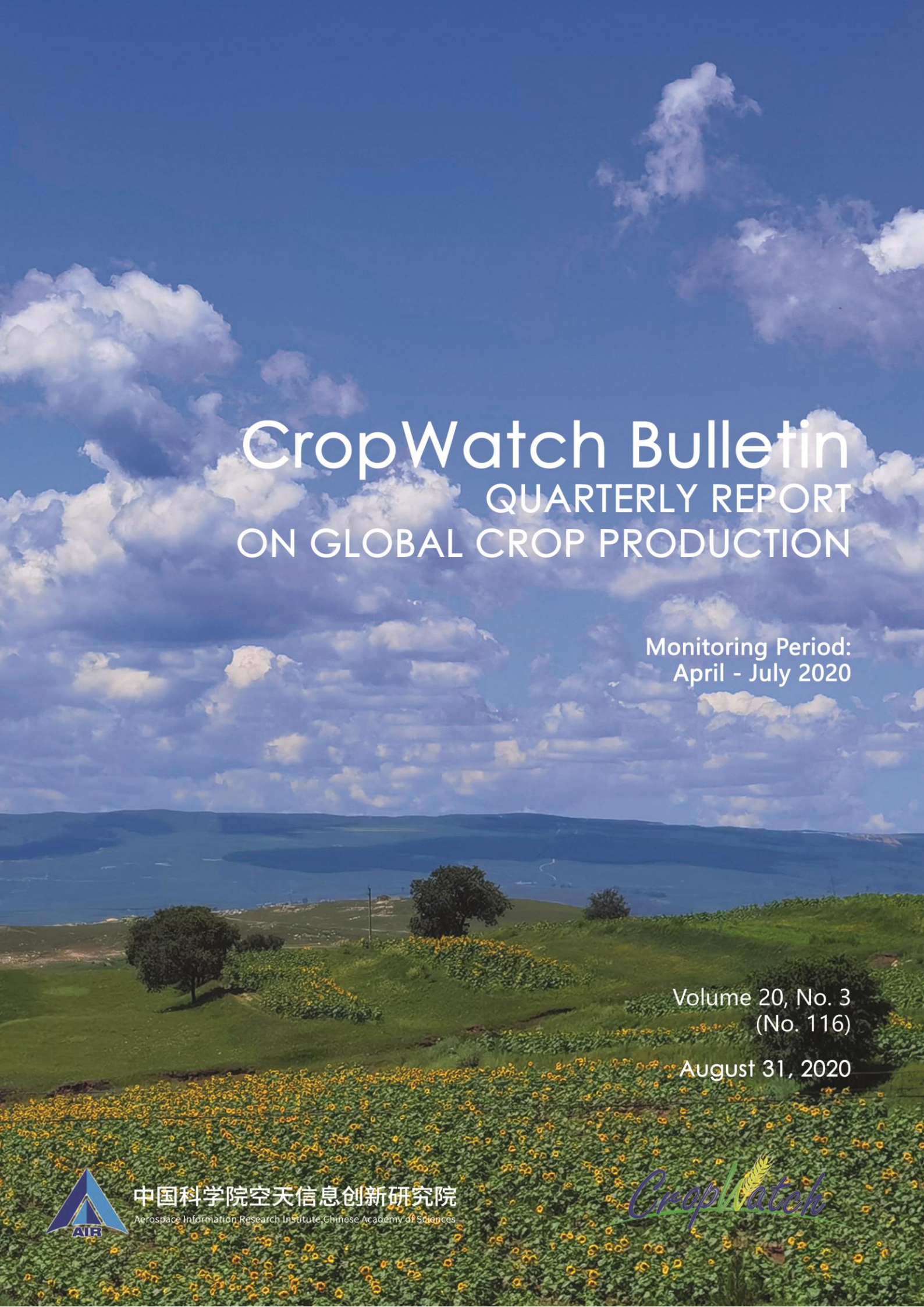

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CropWatch

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CropWatch Online Resources: This bulletin along with additional resources is also available on the CropWatch Website at http://www.cropwatch.com.cn and http://cloud.cropwatch.com.cn/.

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NOTE: CROPWATCH RESOURCES, BACKGROUND MATERIALS AND ADDITIONAL DATA ARE AVAILABLE ONLINE AT WWW.CROPWATCH.COM.CN.

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Abbreviations

5YA	Five-year average, the average for the four-month period from April to July for 2015-2019; one of the standard reference periods.
15YA	Fifteen-year average, the average for the four-month period from April to July for 2005-2019; one of the standard reference periods and typically referred to as “average”.
AEZ	Agro-Ecological Zone
BIOMSS	CropWatch agroclimatic indicator for biomass production potential
BOM	Australian Bureau of Meteorology
CALF	Cropped Arable Land Fraction
CAS	Chinese Academy of Sciences
CWAI	CropWatch Agroclimatic Indicator
CWSU	CropWatch Spatial Units
DM	Dry matter
EC/JRC	European Commission Joint Research Centre
ENSO	EI Niño Southern Oscillation
FAO	Food and Agriculture Organization of the United Nations
GAUL	Global Administrative Units Layer
GVG	GPS, Video, and GIS data
Ha	hectare
Kcal	kilocalorie
MPZ	Major Production Zone
MRU	Mapping and Reporting Unit
NDVI	Normalized Difference Vegetation Index
OISST	Optimum Interpolation Sea Surface Temperature
PAR	Photosynthetically active radiation
PET	Potential Evapotranspiration
AIR	CAS Aerospace Information Research Institute
RADPAR	CropWatch PAR agroclimatic indicator
RAIN	CropWatch rainfall agroclimatic indicator
SOI	Southern Oscillation Index
TEMP	CropWatch air temperature agroclimatic indicator
Ton	Thousand kilograms
VCIx	CropWatch maximum Vegetation Condition Index
VHI	CropWatch Vegetation Health Index
VHIn	CropWatch minimum Vegetation Health Index
W/m^2	Watt per square meter

Bulletin overview and reporting period

This CropWatch bulletin presents a global overview of crop stage and condition between April and July 2020, a period referred to in this bulletin as the AMJJ (April, May, June and July) period or just the "reporting period." The bulletin is the 118th such publication issued by the CropWatch group at the Aerospace Information Research Institute (AIR) of the Chinese Academy of Sciences, Beijing.

CropWatch indicators

CropWatch analyses are based mostly on several standard as well as new ground-based and remote sensing indicators, following a hierarchical approach.

In parallel to an increasing spatial precision of the analyses, indicators become more focused on agriculture as the analyses zoom in to smaller spatial units. CropWatch uses two sets of indicators: (i) agroclimatic indicators—RAIN, TEMP, RADPAR, and potential BIOMSS, which describe weather factors and its impacts on crops. Importantly, the indicators RAIN, TEMP, RADPAR, and BIOMSS do not directly describe the weather variables rain, temperature, radiation, or biomass, but rather they are spatial averages over agricultural areas, which are weighted according to the local crop production potential; and (ii) agronomic indicators—VHIn, CALF, and VCIx and vegetation indices, describing crop condition and development. (iii) PAY indicators: planted area, yield and production.

For each reporting period, the bulletin reports on the departures for all seven indicators, which (with the exception of TEMP) are expressed in relative terms as a percentage change compared to the average value for that indicator for the last five or fifteen years (depending on the indicator).For more details on the CropWatch indicators and spatial units used for the analysis, please see the quick reference guide in Annex B, as well as online resources and publications posted at www.cropwatch.com.cn.

CropWatch analysis and indicators

The analyses cover large global zones; major producing countries of maize, rice, wheat, and soybean; and detailed assessments for Chinese regions, 42 major agricultural countries, and 217 Agro-Ecological Zones (AEZs).

This bulletin is organized as follows:

Chapter	Spatial coverage	Key indicators
Chapter 1	World, using Mapping and Reporting Units (MRU), 65 large, agro-ecologically homogeneous units covering the globe	RAIN, TEMP, RADPAR, BIOMSS
Chapter 2	Major Production Zones (MPZ), six regions that contribute most to global food production	As above, plus CALF, VCIx, and VHIn
Chapter 3	42 key countries (main producers and exporters) and 210 AEZs	As above plus NDVI and GVG survey
Chapter 4	China and regions	As above plus high-resolution images; Pest and crops trade prospects
Chapter 5	Production outlook, and updates on disaster events and El Niño.	

Regular updates and online resources

The bulletin is released quarterly in both English and Chinese. E-mail **cropwatch@radi.ac.cn** to sign up for the mailing list or visit CropWatch online at **www.cropwatch.com.cn**, **http://cloud.cropwatch.com.cn/**

Executive summary

The current CropWatch bulletin describes world-wide crop condition and food production as appraised by data up to the end of July 2020. It is prepared by an international team coordinated by the Aerospace Information Research Institute, Chinese Academy of Sciences.

Special attention is paid to the major producers of maize, rice, wheat and soybean throughout the bulletin. The assessment is based mainly on remotely sensed data. It covers prevailing weather conditions, including extreme factors, at different spatial scales, starting with global patterns in Chapter 1. Chapter 2 focuses on agro-climatic and agronomic conditions in major production zones in all continents. Chapter 3 covers the major agricultural countries that, together, make up at least 80% of production and exports. Each is the object of a detailed analysis. Chapter 3 constitutes the bulk of the Bulletin. Chapter 4 zooms into China. The bulletin also presents this year's second CropWatch production estimates for selected countries and reviews the first production estimation in chapter 5.

This report for the period from April to July 2020 covers wheat, maize, soybean and rice production in the Northern Hemisphere. Winter wheat reached maturity in June/July and spring wheat will typically reach maturity in August. In the tropical countries, planting of the main rice crop typically starts at the beginning of the monsoon season in May or June. In the Southern Hemisphere, harvest of maize and soybean was concluded by April or May. Sowing of wheat started in May.

The outbreak of COVID-19 has had limited impact on the food production so far. Governments generally tried their best to secure adequate supply of inputs, such as seed and fertilizer. They also tried to ensure that the flow of food from the farmer to the consumer was not interrupted. There were a few shortages in some countries which also resulted in price hikes, but the situation seems to be mostly under control. However, many people, predominantly those working in the informal sectors, lost their income. The United Nations are estimating that an additional 80 to 120 million people are expected to go hungry in 2020.

Another plague, the outbreak of desert locusts in East Africa, Middle East and southwest Asia is still not under control either. Ample rainfall keeps maintaining a favorable environment for them to spread even further. Their impact on world food supply is limited but is devastating for the farmers in the areas that are hit by a swarm.

Agro-climatic conditions

According to the analyses presented in Chapters 1 and 3.1, prevailing climate conditions during the current 2020 AMJJ reporting period were close to normal for cropland. Average temperatures, rainfall and photosynthetically active solar radiation stayed close to the 15-year average. No prolonged heat wave in any of the major production countries was observed during this period.

However, taking all land surfaces into account, NOAA reported that May tied with 2016 as the warmest May on record. June was the third warmest on record, while July ranked as second. Both months were 0.92°C above their respective averages measured during the last century. For the northern hemisphere, this was the hottest July ever.

The following is a summary of the situation in key production regions and noteworthy anomalies during the April to July 2020 period:

- North America: Conditions were generally cooler and wetter during April and May. This caused some minor delays in planting and subsequent crop development. However, conditions turned to favorable in June and July, although some regions in the Western Great Plains suffered from drier-than-normal conditions. All in all, conditions in North America were favorable.

- South America: Moisture conditions for wheat sowing in Argentina and Brazil were favorable due to timely rainfall in May and June.

- Africa: The Horn of Africa and the Ethipian Highlands are still receiving above-average rainfall, which provided favorable conditions for the short season crops as well as for the planting of the main season crops in June and July. Conditions in the south of Africa are drier than normal, where this season is mainly used for vegetable production. Wheat production in South Africa's Cape province was off to a good start. The monsoon season in West Africa started on time and crop conditions are normal.

- Europe: Winter wheat suffered from a prolonged dry period that lasted until the end of April. This caused yield losses for winter wheat in the United Kingdom, France, Germany, Romania and the Ukraine. The return of regular rains, though still slightly below average, created generally favorable conditions for the summer crops, such as maize, sugarbeets and potatoes, as well as for fruit and forage production. Above average rainfall from the Ukraine to the Ural caused favorable conditions for spring wheat and maize in the Ukraine and Russia.

- Central Asia also benefitted from above-average rainfall. Prospects for the summer crops are favorable.

- South Asia: The monsoon season started timely. In eastern India and Bangladesh, excessive rainfall caused widespread flooding, which caused damage to crops (mainly rice), houses and infrastructure.

- Southeast Asia: The drought conditions in this region persisted until the end of May. The monsoon was off to a slow and delayed start. Rains reached close to average levels in July. The lack of rainfall was exacerbated by record low water levels of the Mekong River, which hampered irrigated dry season production of rice in the Mekong River Valley and Delta.

- China: Excessive rainfall in southern China caused extensive flooding. This will negatively impact rice production. The regions further north also received above-average rainfall. The summer crop stands to benefit from this additional moisture.

- Australia: After a prolonged drought, rainfall was average in Southeastern Australia, which created favorable conditions for wheat planting. However, in Southwest Australia, rainfall remained below average.

Overall, the weather conditions during this monitoring period were quite favorable, as few extreme weather phenomena were observed.

2020 Production estimate

Maize: Weather conditions in most maize producing countries have been rather favorable. Increases in production are expected in the USA (+2.6%), China (+0.6%), Argentina (+1.7%) and most European countries. Reductions are estimated for Brazil (-2.8%), Romania (-7%), Mozambique (-3.1%), Myanmar (-12.3%), Nigeria (-14.2%) and Turkey (-2.2%). But production gains by far outweigh the losses and at the global scale, maize production is estimated to reach 1,068.01 million tons (+1.2%).

Rice: Drought impacted rice production in Brazil (-3.3%), Cambodia (-5%), Vietnam (-6.5%), and Nigeria (-10.8%). Flooding is expected to decrease rice production in China (-1.8%) and Bangladesh (-5%). Conditions were favorable in India (+1.6%), Pakistan (+3.5%), Argentina (+4.8%), USA (+1.2%) and Iran (+5.3%). All in all, a decrease in global production is forecasted. Production will be 745.273 million tons (-1.1%).

Wheat: Conditions for wheat varied across regions. Drought conditions in the spring caused a reduction in some European countries, such as France (-6.4%), Germany (-4.1%), the United Kingdom (-5.5%) and the Ukraine (-1.9%). A decrease in production is also forecasted for the USA (-3.7%). Conditions were more favorable in the world's top three producing countries: China (+2.9%), India (+6.1%) and Russia (+4.7%). Wheat production is estimated to increase and reach 728.910 million tons (+1.8%).

Soybean: Soybean production in the USA is expected to increase (+3.7%), which will put USA soybean production slightly ahead of Brazil's, where production decreased (-1%). Production gains are estimated for Argentina (+2.2%) and last but not least, China (+2.5%. At the global scale, soybean production is expected to increase and reach 324.718 million tons (+0.2%).

All in all, conditions for crop production have been favorable in 2020 and global gains in production for maize (+1.2%), wheat (+1.8%) and soybean (+0.2%) are forecasted. Rice production suffered from drought conditions in Southeast Asia and flooding (Bangladesh and China) and a decrease (-1.1%) in production is forecasted.