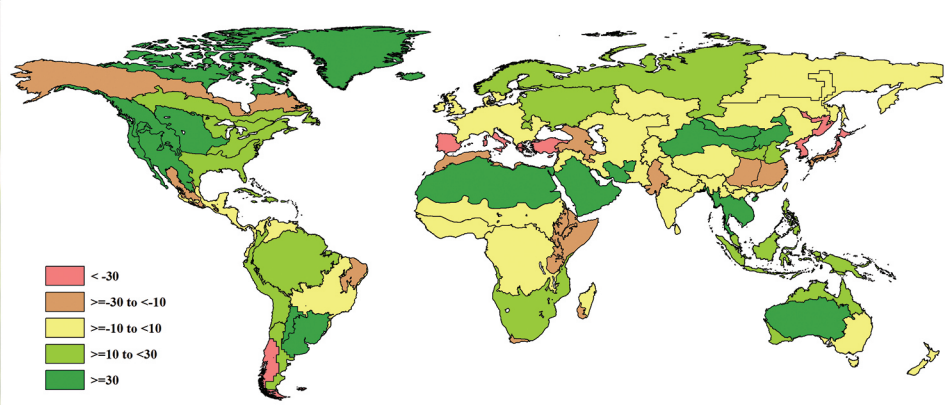

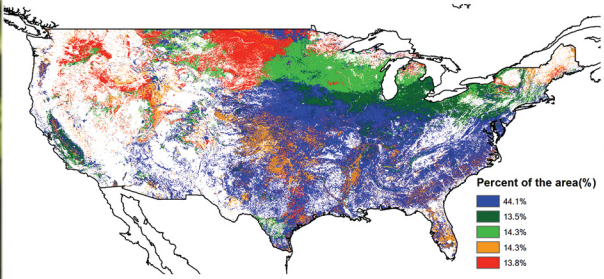

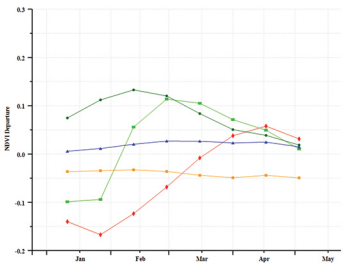

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CropWatch Online Resources: This bulletin along with additional resources is also available on the CropWatch Website at http://www.cropwatch.com.cn.

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Abbreviations

5YA	Five-year average, the average for the four-month period for January-April from 2012 to 2016; one of the standard reference periods.
15YA	Fifteen-year average, the average for the four-month period from January-April from 2002 to 2016; one of the standard reference periods and typically referred to as “average.”
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	El 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	Monitoring and Reporting Unit
NDVI	Normalized Difference Vegetation Index
OISST	Optimum Interpolation Sea Surface Temperature
PAR	Photosynthetically active radiation
PET	Potential Evapotranspiration
RADI	CAS Institute of Remote Sensing and Digital Earth
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 January and April 2017, a period referred to in this bulletin as the JFMA (January, March, April, May) period or just the "reporting period." The bulletin is the 105th such publication issued by the CropWatch group at the Institute of Remote Sensing and Digital Earth (RADI) at the Chinese Academy of Sciences, Beijing.

CropWatch analyses and indicators

CropWatch analyses are based mostly on several standard as well as new ground-based and remote sensing indicators, following a hierarchical approach. The analyses cover large global zones; major producing countries of maize, rice, wheat, and soybean; and detailed assessments for 30 major agricultural countries and Chinese regions. 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, and RADPAR, which describe weather factors; and (ii) agronomic indicators—BIOMSS, VHIn, CALF, and VCIx, describing crop condition and development. 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. 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 C, as well as online resources and publications posted at www.cropwatch.com.cn.

This bulletin is organized as follows:

Chapter	Spatial coverage	Key indicators
Chapter 1	World, using Monitoring 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	30 key countries (main producers and exporters)	As above plus NDVI and GVG survey
Chapter 4	China	As above plus high resolution images; information on pests and diseases; and food import/export outlook
Chapter 5	Production outlook, disaster events, and an update on El Niño.	

Regular updates and online resources

The bulletin is released quarterly in both English and Chinese. To sign up for the mailing list, please e-mail cropwatch@radi.ac.cn or visit CropWatch online at www.cropwatch.com.cn. Visit the CropWatch Website for additional resources and background materials about methodology, country agricultural profiles, and country long-term trends.

Executive summary

The current CropWatch bulletin is based mainly on remotely sensed data. It focuses on crops that were either growing or harvested between January and April 2017. The bulletin covers prevailing weather conditions, including extreme factors, as well as crop condition and size of cultivated areas, paying special attention to the major worldwide producers of maize, rice, wheat, and soybean. The bulletin also describes the current crop condition and prospects in China and presents a first global production estimate for crops to be harvested throughout 2017. The estimated production is based on partial data and will be updated in the next two CropWatch 2017 bulletins.

Global agroclimatic conditions

Compared with previous CropWatch bulletins, the current reporting period does not identify very large (continent-wide) anomalies, and their intensity is mostly not very severe. There were, nevertheless, some areas with abnormal conditions that affect several contiguous MRUs (Mapping and Reporting Units, the largest CropWatch monitoring units), starting with below average rainfall in the winter crop areas in Eastern Asia and in the Mediterranean basin (where the biomass production potential fell 20 to 30%). In East Africa, the El Niño induced drought persisted in some areas that had not recovered yet from the 2016 drought, a situation exacerbated by a refugee crisis stemming from a combination of environmental stress and conflict.

Excess precipitation is reported from (i) northern China and Mongolia and adjacent areas, (ii) continental Southeast Asia to parts of Australia across maritime Southeast Asia, (iii) much of North America and, especially, from the two areas of (iv) South Africa, mostly in Zimbabwe and Mozambique, and (v) north-western South America (Ecuador, Colombia, and Peru) where excess precipitation started in December 2016, lasting for months and severely affecting millions of people with damage amounting to billions of US dollars.

Much of North America also recorded above average temperature and below average sunshine in major agricultural areas. At the time of reporting, the CropWatch indicator for cropped arable land fraction (CALF) reaches 47% for this region, which is 5 percentage points above the average of the previous five years, while the maximum Vegetation Condition Index (VCIx) is also satisfactory (0.85). VCIx is lowest in central Europe and western Russia (0.65) where, in addition, CALF dropped to 72%, 8 percentage points below the five-year average. The largest VCIx drop occurred in West Africa (-13%).

Production outlook

The final outcome of the 2017 season will depend on agroclimatic conditions up to the end of the year. It is, therefore, crucial to note that the occurrence of another El Niño during 2017, the likelihood of which is currently put at 50%, may dramatically alter the current outlook in South America, South and Southeast Asia, and the Horn of Africa, which are some of the areas directly under the influence of El Niño.

The current global production estimates for 2017 of the major commodities amount to 730 million tons of wheat (representing a 1% drop below 2016 production), 761 million tons of rice (up 3%), 305 million tons of soybeans (down 3%), and 1056 million tons of maize (up 5% over 2016). The major producers—defined as the countries that together produce 80% of the various commodities—contribute 622 million tons of wheat (-1%), 685 million tons of rice (+3%), 282 million tons of soybeans (-4%), and 936 million

tons of maize (+6% compared to 2016). The share of the “minor producers” to the global production is 8% (soybean) to 15% (maize), and about 10% for rice and wheat.

For wheat production, in agreement with the above-mentioned agroclimatic and agronomic indicators for Russia, wheat production is currently put 18% below last year’s output. Relative production drops are also listed for Iran, Kazakhstan, Romania, and Turkey (in a range from -26% to -11%), as well as the United States with a smaller drop of 4%.

For rice production, most important Asian rice producers are also expected to do well, with the Philippines being the only major producer in the region that undergoes a decrease (-5%). The country is one of the major rice importers.

For soybean production, Argentina remains at the level of 2016 and Brazil is up 5%. For the global output, which is trend-based for all other countries, production drops among most minor producers, continuing a trend that has lasted for several years now. If it should continue in the future, it would exacerbate the current situation of “three producers and one buyer.”

Finally, for maize, CropWatch puts China at 212 million tons (+6%) and the United States at 383 million tons (+4%). In the southern hemisphere, both Brazil and Argentina did well with outputs of 79 million tons (+13%) and 30 million tons (+16%), respectively.

China

Winter wheat yield is up 2.2% over 2016, with a production forecast at 116 million tons, an increase of just under 2 million tons, equivalent to +1.7%, even if the cropped area dropped 2%, mostly in parts of Anhui and Jiangsu. The largest production increases are observed in Hebei (+4.0%), Shanxi (+5.7%), Shandong (+3.3%), and Henan (+3.9%). The area under rapeseed dropped about 1%, resulting in an overall increase of winter crops production by 1.3%.

In China, positive rainfall anomalies were largest in Inner Mongolia (+60%, accompanied by above-average temperature), while southwest China (-17%), Lower Yangtze (-21%), and southern China (-7%) all recorded a deficit and a reduction in sunshine. CALF was low in the Loess region (-7%) and crop/vegetation condition as assesses by VCIx was just fair or even rather low in Inner Mongolia (0.41). In terms of production, in addition to the already mentioned 6% increase in maize production to reach 212 million tons, rice and wheat (winter and summer crops) are up 2% (to 205 and 121 million tons, respectively), and soybean is down 3%. Since all estimates are trend-based, it is possible that soybean output will increase again, as it did in 2016 for the first time in a decade.

The present bulletin also includes a note on pests and diseases, the impact of which was relatively severe in mid-May 2017 in the main wheat producing regions.