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QUARTERLY REPORT ON GLOBAL CROP PRODUCTION

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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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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 January-April periods from 2010 to 2014; one of the standard reference periods.
14YA	Fourteen-year average, the average for the January-April periods from 2001 to 2014; one of the standard reference periods and typically referred to as “average.”
BIOMSS	Agroclimatic indicator for biomass production potential
BOM	Australian Bureau of Meteorology
CALF	Cropped Arable Land Fraction
CAS	Chinese Academy of Sciences
CWSU	CropWatch Spatial Units
DM	Dry matter
EBV	Ebola Virus Disease
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
OCHA	UN Office for the Coordination of Humanitarian Affairs
PAR	Photosynthetically active radiation
RADI	CAS Institute of Remote Sensing and Digital Earth
RADPAR	PAR agroclimatic indicator
RAIN	Rainfall agroclimatic indicator
SOI	Southern Oscillation Index
TEMP	Air temperature agroclimatic indicator
Ton	Thousand kilograms
VCIx	Maximum Vegetation Condition Index
VHI	Vegetation Health Index
VHIn	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 1 and April 30, 2015. It is the 97th bulletin produced by the CropWatch group at the Institute of Remote Sensing and Digital Earth (RADI) at the Chinese Academy of Sciences, Beijing. CropWatch analyses are based mostly on several standard and 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 of Chinese regions.

In parallel to the increasing spatial precision of the analyses, indicators become more focused on agriculture as the analyses zoom into 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. The indicators RAIN, TEMP, RADPAR and BIOMSS do not directly describe the weather variables rain, temperature, radiation, or biomass, but rather are spatial averages over agricultural areas, which are weighted according to the local crop production potential. 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.

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	31 key countries (main producers and exporters)	As above plus NDVI
Chapter 4	China	As above
Chapter 5	Special topics: Disaster events and trends in South America	
Online Resources	www.cropwatch.com.cn	

Newsletter 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 2015. 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. Current condition in China and the likely global production prospects for crops to be harvested throughout 2015 are also described.

Global agroclimatic impacts

The most remarkable feature of the current January to April 2015 reporting period was above average temperature for almost all the CropWatch global mapping and reporting units (MRU), with temperatures for the MRUs usually about 1.0 to 1.5 ℃ above average, which is significant when it occurs over large areas and month-long time periods. High temperature has accelerated crop development in several regions in the northern hemisphere, including southern areas of west Russia and neighboring areas, which complicates the interpretation of some of the crop condition indicators and adds uncertainty to the analyses.

Below average rainfall occurred in most tropical areas across all continents, affecting also the Horn of Africa and the east African highlands, much of southwest Europe and especially the northern Mediterranean, the southernmost areas in China, Pakistan, the western United States (California and Washington state), and northeast Australia and New-Zealand. The largest positive departures of rainfall from average occurred in the Sierra Madre in Mexico (+139%) and in eastern Asia, including also northwest India and major agricultural areas in China. Water-related disasters were reported from South America, the Caribbean (Peru and Haiti), Central Asia (Kazakhstan), and from southern Africa during the beginning of the reporting period.

>> Global agroclimatic impacts: sections 1.1-1.4; disaster events: section 5.2.

China

For the country as a whole, agroclimatic conditions were generally close to average, with local differences, especially high winter temperature in the Northeast and Southwest, affecting about ten provinces. Rainfall was above average in several major producing regions, resulting in generally favorable crop conditions, above those from last year.

>>Agroclimatic and crop condition in China: chapter 4.

Production outlook

The CropWatch global estimates for 2015 cover both already harvested crops and those currently growing or to be planted; for the latter, average conditions are assumed for later parts of the growing cycle. Compared to 2014, maize production is forecast to decrease 1.3% this year with a 0.6% increase in the southern hemisphere. The drop results mostly from lower expectations for the maize output in the United States compared with the exceptional 2014 harvest, but also low cropped arable land fraction (CALF, 55%) and a low maximum vegetation condition index (VCIx) of 0.72 at the beginning of the planting season. Global rice projection is up 1.0%, while both wheat and soybean production are

projected to drop 1.1% compared to 2014. When focusing on the main producing and exporting countries only, maize could undergo a decrease of 1.8%; rice is projected to increase (+1.0%), and wheat and soybean could drop 1.6% and 1.7%, respectively.

In China, due to favorable conditions so far, all grain production is expected to increase by about 1% (1.1% for wheat, with maize and rice forecast to increase 1.6% and 0.6% respectively), while soybean is forecast to continue its decade-long falling trend (-1.3%). Winter wheat conditions were particularly favorable in Shandong province (production up by 4.6%) and moderately unfavorable in Hubei (-2.6%) and Anhui (-2.5%).

The largest projected increase for maize production is the one expected for Mexico (+8.2%). Among the major exporters, the situation is also very favorable for wheat in Argentina and Brazil (+14.8% and +8.7% production) and for rice in Thailand (+7.2%) and in Vietnam (+6.6%).

Most projected significant decreases in production are associated with well-identified causes, mostly involving weather and subsequent reductions in cultivated areas in extreme cases. For maize, this applies to countries such as South Africa (-12.4% production compared to 2014 and a decrease in CALF of 10 percentage points) and Ukraine (-15.0% production, only a 1 percentage point reduction in CALF, but a low VCIx of 0.69). For wheat, countries affected are Australia (-9.0% production mostly due to drought), as well as some eastern European countries and Russia (production about -8% with CALF at 65% and VCIx at 0.64).

For India, CropWatch forecasts decreases in the production of maize, rice, and wheat by 4.6%, 1.9%, and 4.5%, respectively, compared to last year's harvest.

>> CropWatch global production outlook: section 5.1; winter crops in China: section 4.2; crop condition indicators and production estimates for individual countries such as the United States and India: chapter 3 and tables 3.1 and 5.1.

Areas of concern

With El Niño conditions considered to be almost certain for the end of this year, the current CropWatch projections will likely need regular revision. Areas deserving close scrutiny include Ethiopia (projected outputs are -10.0% for maize and -7.0% for wheat), as a critical shortage of rainfall for 'Belg' crops is also likely to affect crops harvested later in the year. In the Sahel, signs (to be confirmed) point to a late onset of the rainy season. Other countries where CropWatch identified unfavorable production prospects include Cambodia and Myanmar.

>>El Niño: section 5.4; individual country analyses: section 3.2.