Chapter 4. China

After a brief overview of the agroclimatic and agronomic conditions in China over the reporting period (section 4.1), Chapter 4 presents an updated estimate of national winter crop production (4.2) and describes the situation by region, focusing on the seven most productive agro-ecological regions of the east and south: Northeast China, Inner Mongolia, Huanghuaihai, Loess region, Lower Yangtze, Southwest China, and Southern China (4.3). Section 4.4 presents the results of ongoing pests and diseases monitoring, while sections 4.5 and 4.6 describe trade prospects (import/export) of major crops (4.5) and an updated outlook for domestic prices of maize, rice, wheat and soybean (4.6). Additional information on the agroclimatic indicators for agriculturally important Chinese provinces are listed in table A.11 in Annex A.

4.1 Overview

During the monitoring period, rainfall in China increased by 20% over average, while temperature decreased by 0.1°C and RADPAR by 8%, which is considerable. Consequently, the biomass production potential indicator (BIOMSS) was above average (+12%). At the sub-national scale, above-average rainfall occurred in all regions, with departures from +13% to +70%. Temperature was average or close to average, with departures ranging between -0.3°C and +0.1°C. The spatial distribution of rainfall profiles showed that this climatic variable fluctuated largely between July and mid-August (figure 4.1), but was relatively stable and close to average since late August for all the regions. Northeast and Southwest China (accounting for 23.9% of planted areas) and the Lower Yangtze region (22.2% of planted areas) respectively experienced excess rainfall (more than 75 mm compared to average) in early and mid-August, indicating that these areas may have suffered from flood damage. During the reporting period, temperature continuously fluctuated in various regions.

As shown in figure 4.3, high cropping intensity values mainly occurred in southern, southeast, southwest, and central China, with the values between 200% and 300%. On the contrary, low values (100%) are located in the northern part of China, including northeast China, Inner Mongolia, and Xinjiang. These indicate that double and triple cropping practices are distributed in the southern parts of China while single cropping is practiced in the north. The current period covers the growing and harvesting time for summer crops in China. Hence, most cropland in China was cropped, except for some regions of central Inner Mongolia, Ningxia, and Gansu. The VCIx map shows that higher values (greater than 0.8) of this indicator mainly occurred in Northeast China. In contrast, lower values (0.5-0.8) were primarily located in central Inner Mongolia, some parts of Ningxia and Gansu, western Henan, the Yangtze river delta and the Pearl river delta. CALF was average or near average for all regions, with the anomalies between -2% and 2%, as displayed in Table 4.1. The map for VHIn showed that low values (16-35) were mainly located in Sichuan Basin, southern Hebei and northwestern Henan (figure 4.6), except for Northeast China. This pattern was consistent with that of VCIx.

Table 4.1. CropWatch agroclimatic and agronomic indicators for China, July-October 2017, departure from 5YA and 15YA

Region	Agroclimatic indicators			Agronomic indicators			
	Departure from 15YA (2002-2016)			Departure from 5YA (2012-2016)			Current
	RAIN (%)	TEMP (°C)	RADPAR (%)	BIOMSS (%)	CALF (%)	Cropping Intensity (%)	Maximum VCI
Huanghuaihai	36	0.1	-12	23	0	-1	0.87
Inner Mongolia	70	-0.1	-6	32	2	0	0.77
Loess region	28	0	-11	17	-2	0	0.73
Lower Yangtze	13	-0.1	-8	4	0	1	0.74
Northeast China	19	-0.3	-3	4	0	-2	0.87
Southern China	17	-0.2	-7	7	-1	-2	0.69
Soutwest China	16	-0.1	-10	6	0	-6	0.77

Figure 4.1. China spatial distribution of rainfall profiles, July-October 2017

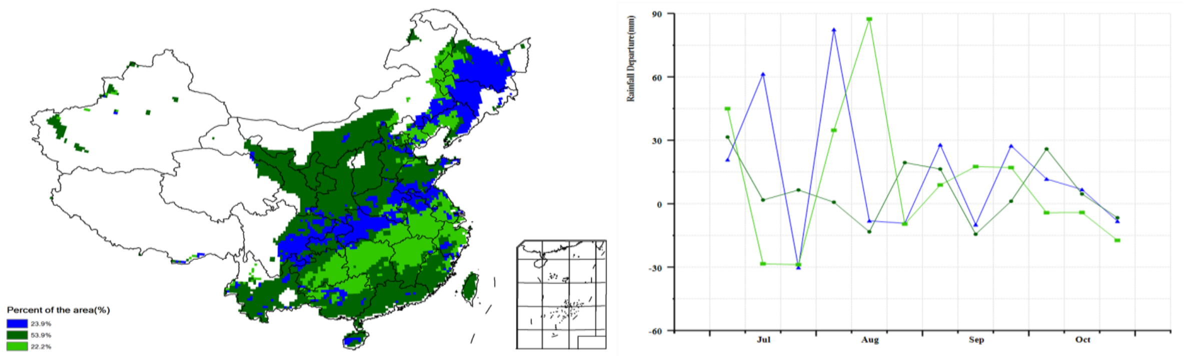


Figure 4.2. China spatial distribution of temperature profiles, July-October 2017

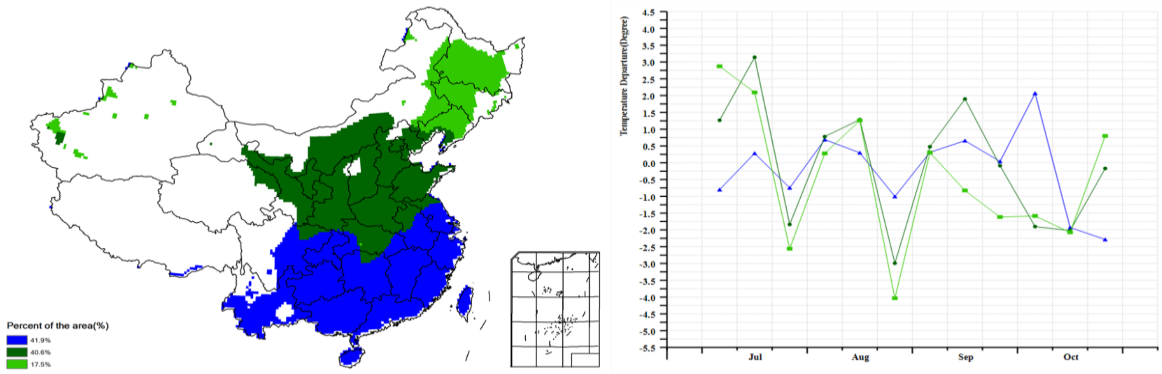


Figure 4.3. China cropping intensity, by pixel, July-October 2017

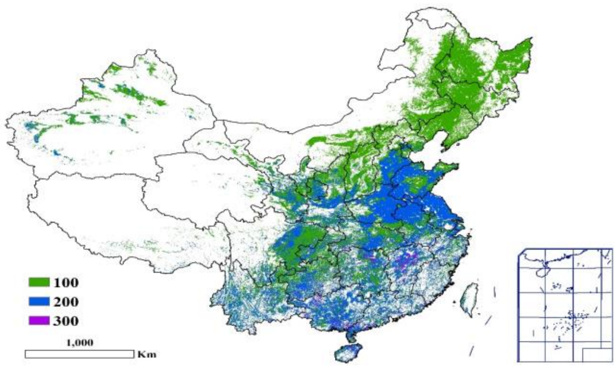


Figure 4.4. China cropped and uncropped arable land, by pixel, July-October 2017

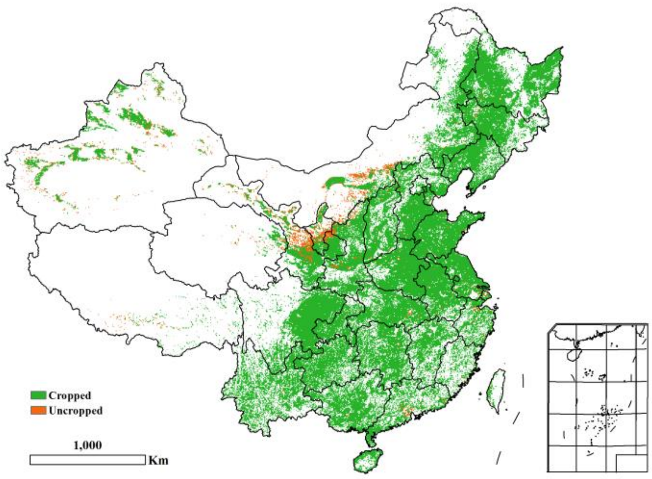


Figure 4.5. China maximum Vegetation Condition Index (VCIx), by pixel, July-October 2017

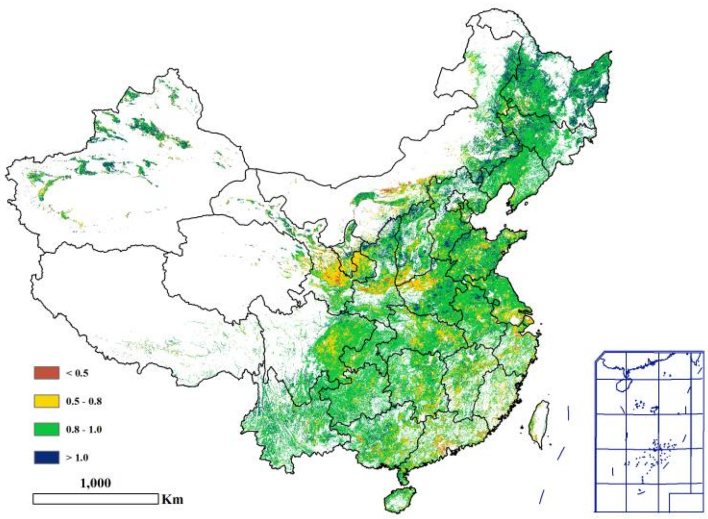
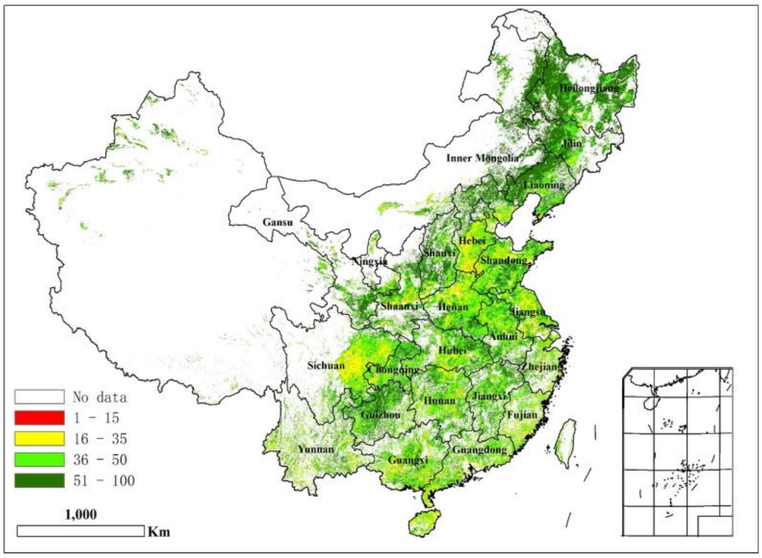


Figure 4.6. China minimum Vegetation Health Index (VHIn), by pixel, July-October 2017



4.2 China crop production

Most crops in China have already been harvested by the end of the reporting period, with the exception of late rice, for which harvesting just started in late October. Taking advantage of the full coverage of remote sensing data and agro-climatic indicators throughout the growing season, CropWatch gives a final revision of the 2017 yield and production estimates for maize, rice, wheat and soybean (table 4.2). Table 4.3 presents additional estimates for different types of rice for various growing seasons.

Maize

As illustrated in the tables, the production of maize is down to 1889.9 million tons, a 5% drop compared to 2016 due mainly to a decrease in planted area. Since late 2016, the maize price has been well below that of the previous five years, and farmers decided to plant less maize in order to have more profit from the fields. In addition, since 2016, China has been implementing a new agricultural policy that encourages farmers to shift from maize to other, more suitable crops in regions where maize cultivation is less than optimal due to soil or climate constraints. As a result, the planted area of maize decreased by 3.7% from 2016. Among the major maize producing provinces, Gansu and Jiangsu are the only two provinces that output more maize (+4% and +1%, respectively) than last year thanks to the favorable conditions. Heilongjiang, Henan, Inner Mongolia, Jilin, Liaoning, Shanxi, and Sichuan experienced significant production drops (more than 3%). Maize planted area in Heilongjiang, Henan, and Inner Mongolia decreased by more than 3%, while average yield in Shanxi and Sichuan decreased 2% or more. The largest drop (-5.3%) in maize area was observed in Henan province where many maize fields were converted to groundnuts cultivation.

Rice

The aggregated rice and single rice production in 2017 remains at 200.6 million tons, the same level as 2016, while production of late rice decreased by 1%. At the provincial scale, the total rice production in Fujian, Ningxia, and Sichuan decreased by 3%, 5%, and 3%, respectively. Both early rice and late rice production dropped in Fujian because of the shifts from double cropping rice to single rice. Adverse weather conditions hampered yield accumulation for rice in Ningxia and Sichuan. Large increases in rice production occurred in Hubei, Jiangsu, Jiangxi, and Zhejiang because of increasing planted area and average yield. Production of late rice in Hubei, Jiangxi, and Zhejiang also increased by more than 3%.

Wheat

The harvest of both winter wheat and spring wheat had been concluded by August and production of wheat remained the same as the previous estimates listed in this year's August CropWatch Bulletin.

Soybean

CropWatch revised its estimates for soybean production to 13,745 ktons, up 3% from last year's increased production. This is the second year of the increased production mainly due to increased planted area, even if the national average yield is down by 1.3%. The most significant increase in soybean production occurred in Inner Mongolia (a 6% increase). Heilongjiang, the top soybean region in China, produced 2% more than in 2016 thanks to increased area. Soybean production decreased in the Henan, Shanxi, Anhui, Liaoning, and Jilin resulting from unfavorable agro-climatic conditions and resulting lower yield.

Table 4.2. China 2017 production of maize, rice, wheat, and soybean, and percentage change from 2016, by province

	Maize		Rice		Wheat		Soybean	
	2017	Change (%)	2017	Change (%)	2017	Change (%)	2017	Change (%)
Anhui	3520	-2	17069	2	10233	-10	1062	-3
Chongqing	2090	-1	4745	0	1089	-2		
Fujian			2797	-3				
Gansu	4965	4			2559	0		
Guangdong			11062	1				
Guangxi			11179	-1				
Guizhou	4997	-2	5430	0				
Hebei	17999	0			10626	-2	188	1
Heilongjiang	26148	-4	20938	0	473	5	4709	2
Henan	15503	-8	3889	1	25619	2	753	-4
Hubei			15905	3	4281	-1		
Hunan			24638	0				
Inner Mongolia	15169	-6			2118	3	1078	6
Jiangsu	2210	1	17122	3	9540	-2	779	0
Jiangxi			17456	4				
Jilin	23572	-3	5682	0			694	-2
Liaoning	15274	-3	4376	-1			411	-2
Ningxia	1695	-1	523	-5	782	-1		
Shaanxi	3439	0	1020	0	3841	-4		
Shandong	19302	0			22293	2	699	0
Shanxi	8420	-3			2254	6	159	-4
Sichuan	7005	-3	14551	-3	4677	1		
Xinjiang	6713	0						
Yunnan	6139	0	5612	-1				
Zhejiang			6498	4				
Sub total	186706	-3	190492	1	100384	-1	10531	**1**
Other provinces*	3198	-63	10131	-14	18518	6	3215	13
China*	189904	-5	200623	0	118902	0	13745	**3**

* Production for Taiwan province is not included.
Note: Wheat data include both winter wheat and spring wheat.

Table 4.3. China 2017 early rice, single rice, and ate rice production and percentage difference from 2016, by province

	Early rice		Single rice		Late rice	
	2016	Change (%)	2016	Change (%)	2016	Change (%)
Anhui	1822	2	13496	2	1751	2
Chongqing			4745	0		
Fujian	1667	-3			1130	-3
Guangdong	5254	1			5808	1
Guangxi	5366	-1			5813	-1
Guizhou			5430	0		
Heilongjiang			20938	0		
Henan			3889	1		
Hubei	2339	3	10728	2	2837	5
Hunan	8220	0	8144	-1	8275	0
Jiangsu			17122	3		
Jiangxi	7591	4	2817	4	7048	4
Jilin			5682	0		
Liaoning			4376	-1		
Ningxia			523	-5		
Shaanxi			1020	0		
Sichuan			14551	-3		
Yunnan			5612	-1		
Zhejiang	823	4	4806	4	869	4
Sub total	33083	1	123788	1	33530	1
China	34469	1	131563	0	34592	-1

* Production for Taiwan province is not included

Overall, CropWatch puts the total 2017 output of summer crops (including maize, single rice, late rice, spring wheat, soybean, minor cereals, and tubers) at 403.0 million tons, a significant decrease (-3%) from 2016. The total annual crop production (including cereals, tubers, and legumes) is 562.3 million tons, a 1.0% drop or 8.0 million tons less compared with 2016. Detailed information of seasonal aggregated production by province is listed in Table 4.4. Inner Mongolia experienced the largest drop with 6% lower annual production than 2016, while Jiangxi, Shandong, and Zhejiang showed a significant increase in annual production of 4%, 5%, and 4%, respectively, compared to 2016.

Table 4.4. Aggregated crop production per the harvest season for major agricultural provinces, China 2017

	Winter crops		Early rice		Summer cops		Total	
	2017	Change (%)	2017	Change (%)	2017	Change (%)	2017	Change (%)
Anhui	11101	-8	1822	2	20480	1	33402	-2
Chongqing	2289	-1			8178	0	10467	0
Fujian			1667	-3	4123	-3	5790	-3
Gansu	2999	0			6139	4	9137	2
Guangdong			5254	1	7574	1	12828	1
Guangxi			5366	-1	10332	-1	15698	-1
Guizhou					12250	-1	12250	-1
Hebei	11391	-2			18186	0	29577	2
Heilongjiang					52855	-2	52855	-2
Henan	26293	4			24522	-6	50815	-1
Hubei	5756	-2	2339	3	18729	3	26824	2
Hunan			8220	0	19054	0	27274	0
Inner Mongolia					20207	-6	20207	-6
Jiangsu	9585	-4			21585	3	31170	1
Jiangxi			7591	4	10100	4	17691	4
Jilin					29949	-2	29949	-2
Liaoning					20061	-2	20061	-2
Ningxia					3020	-2	3020	-2
Shaanxi	3889	-5			6239	0	10128	-2
Shandong	24540	2			21319	0	45859	5
Shanxi	2251	1			8884	-3	11135	-2
Sichuan	5513	-1			26051	-3	31564	-2
Yunnan					14351	0	14351	0
Zhejiang			823	4	6614	4	7436	4
Sub total	105606	0	33083	1	390801	-1	529490	0
Other provinces*	19207	3	1386	2	12234	-37	32828	-17
China*	124814	0	34469	1	403035	-3	562318	-1

* Production for Taiwan province is not included.

4.3 Regional analysis

Figures 4.6 through 4.12 present crop condition information for each of China's seven agricultural regions. The provided information is as follows: (a) Phenology of major crops; (b) Crop condition development graph based on NDVI, comparing the current season up to July 2017 to the previous season, to the five-year average (5YA), and to the five-year maximum; (c) Spatial NDVI patterns for July to October 2017 (compared to the (5YA)); (d) NDVI profiles associated with the spatial patterns under (c); (e) maximum VCI (over arable land mask); and (f) biomass for July-October 2017. Additional information about agroclimatic indicators and BIOMSS for China is provided in Annex A.

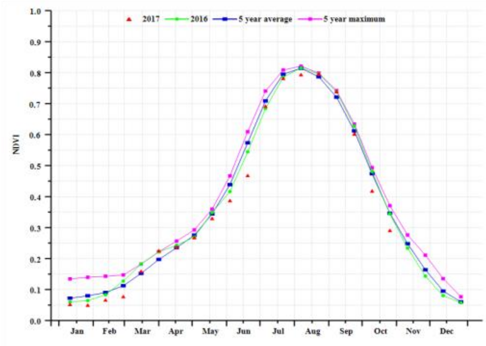
Northeast region

For the Northeast region, the current monitoring period mostly covers the harvest of spring crops, which was concluded in October in most areas. “Single crops” (including maize, rice, and soybean) reached the grain-filling to maturity stages in August to late September. The overall condition of crops was below the five-year average before August, but it recovered when NDVI reached its peak.

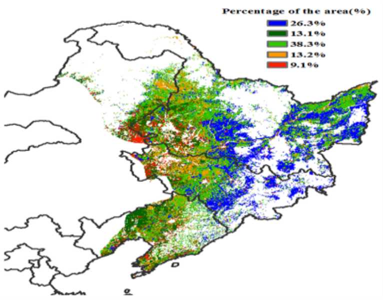
According to the CropWatch agroclimatic and agronomic indicators, rainfall increased +19% across the Northeast region. The increase in rainfall in Heilongjiang and Jilin provinces was over 25%, while in Liaoning it was 10%. Rainy and cloudy weather (TEMP -0.3°C and RADPAR -3%) combined with abundant water supply led to a 4% increase in the biomass production potential, which indicates fair crop condition. Among the three provinces, Heilongjiang enjoyed a near 6% BIOMSS increase, with relatively ample rainfall.

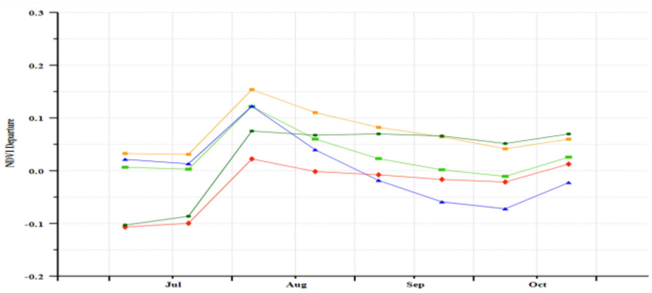
The NDVI profiles for the region stayed below the five-year average before August, but then recovered to average before harvesting. According to the VCIx distribution map, almost all of this area enjoyed a suitable VCIx (over 0.8), which points to a generally good condition without impact of agricultural disaster events. The region also experienced a slight drought over the reporting period, which mainly affected the west of Liaoning and Jilin. As a result of heavy rain at the start of August, crop condition recovered. This is also confirmed by the NDVI cluster map, showing crops in west Liaoning and Jilin recovering and slightly surpassing average condition before August.

Figure 4.6. Crop condition China Northeast region, July-October 2017

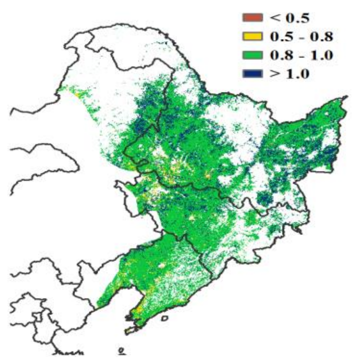


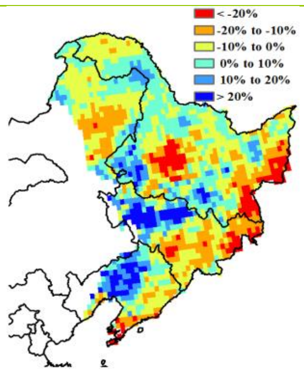
(a) Crop condition development graph based on NDVI





(b) Spatial NDVI patterns compared to 5YA (c) NDVI profiles





(d) Maximum VCI (e) Biomass

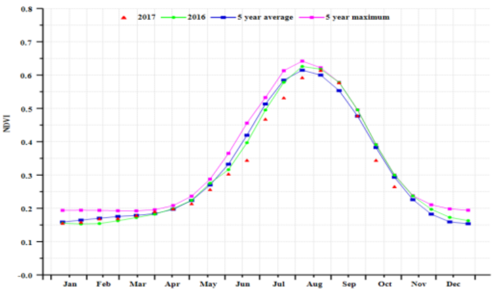
Inner Mongolia

During July to October 2017, the condition of maize and soybean was generally unfavorable in Inner Mongolia. Rainfall was well above average (RAIN +70%), but its temporal and spatial distribution was not homogeneous; both the west and the northeast of the region suffered dry weather from May. Temperature was close to average (TEMP -0.1°C) and radiation was below average (RADPAR -6%). Altogether, the region experienced a large potential biomass (BIOMSS) increase of 32% compared to the recent five-year average.

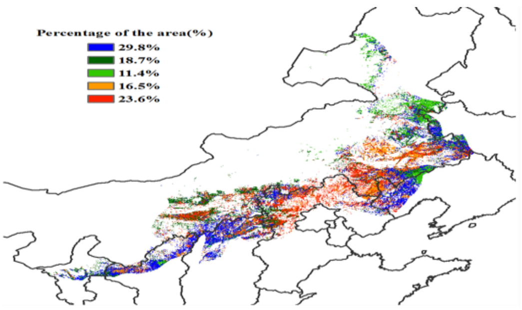
The crop development graph also indicates poor crop condition from May. Coming to July, central Ningxia, north Shaanxi and Shanxi, as well as the east and northeast of Inner Mongolia suffered from drought, which affected crop growth; below average conditions can be found in July in about 60% of the region. The maximum VCI is low (in some areas less than 0.5), and the potential biomass was poor as well in the area mentioned above. Until mid-August, decreased rainfall affecting crop growth is clearly shown by below-average NDVI, which is confirmed by the spatial NDVI patterns and profiles in about 19% of the region. Hereafter, crop condition improved and reached and exceeded the average of the last five years from late August to late September. This relief, however, came late, and the drought at crucial growing periods may eventually influence the crops' outcome. From late September, below average condition had little effect as the crops had reached maturity and were ready for harvest.

On the basis of the CropWatch monitoring results, maize production is estimated to decrease in Inner Mongolia and Shanxi compared with the last year (-6.4% and -2.8% respectively).

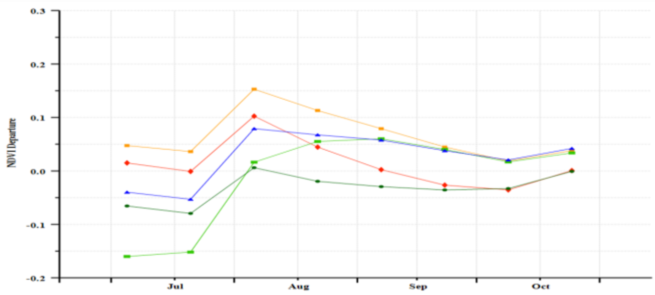
Figure 4.7. Crop condition China Inner Mongolia, July-October 2017



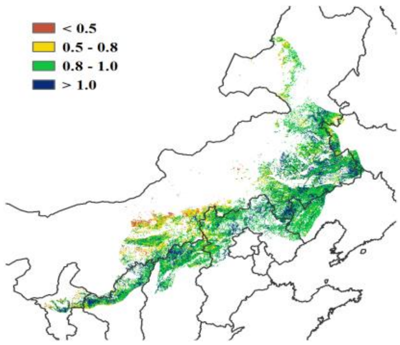
(a) Crop condition development graph based on NDVI



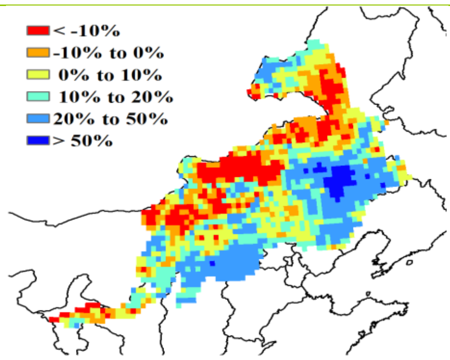
(b) Spatial NDVI patterns compared to 5YA



(c) NDVI profiles



(d) Maximum VCI



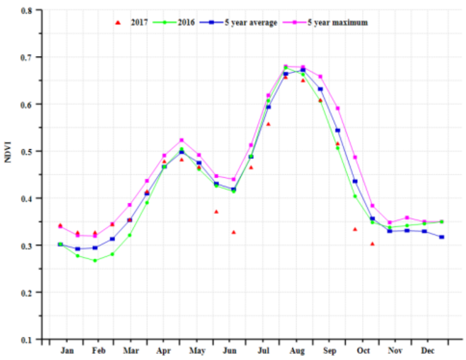
(e) Biomass

Huanghuaihai

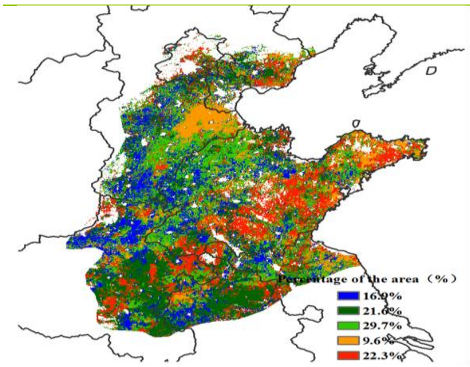
Crop condition in Huanghuaihai was generally below the recent five-year average. The main crop during the monitoring period is summer maize, which was planted in mid-June after the harvesting of winter wheat and completes its cycle by September. According to the crop condition development graph based on NDVI, crop condition was slightly below the five-year average during the entire period and declined sharply in October. Unfavorable condition may be related to the frequent precipitation and the continuous cloud over the region. According to the CropWatch agroclimatic indicators, temperature (TEMP) was average but precipitation (RAIN) was 36% above and radiation (RADPAR) 12% below. Excess precipitation and low sunshine may influence the growing of summer maize and possibly depress its yield. Precipitation can also provide favorable soil moisture condition for the sowing of winter wheat in October.

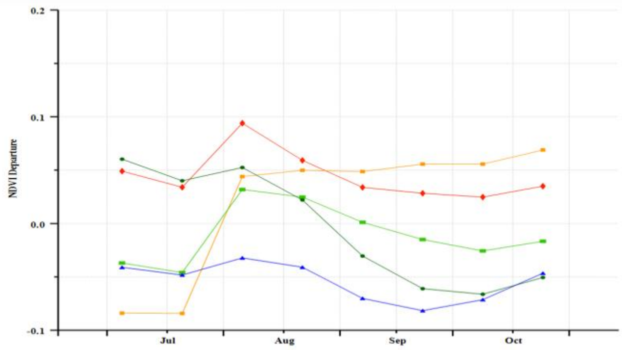
Regarding spatial distribution, many scattered areas over the region display below average condition. Southern Hebei, Northern Anhui, and eastern Shandong were below average throughout the period. Southern and central Huanghuaihai also experienced poor conditions throughout the period except for late July and August. The situation is confirmed by the VCIx and biomass departure maps.

Figure 4.8. Crop condition China Huanghuaihai, July-October 2017



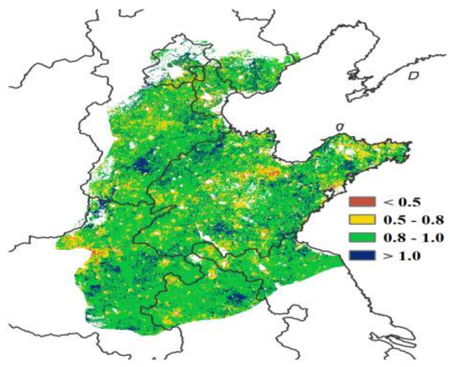
(a) Crop condition development graph based on NDVI

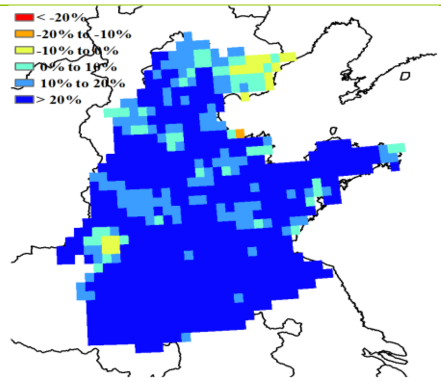




(b) Spatial NDVI patterns compared to 5YA

(c) NDVI profiles





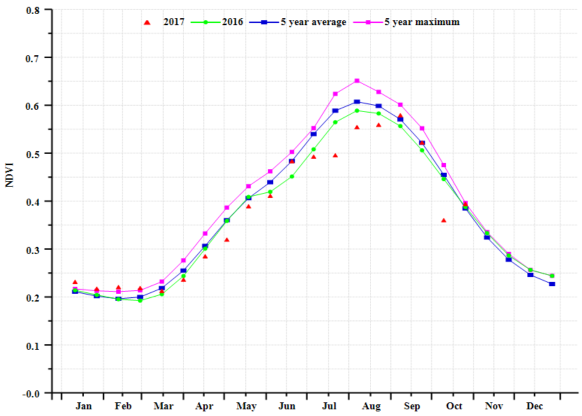
(d) Maximum VCI

(e) Biomass

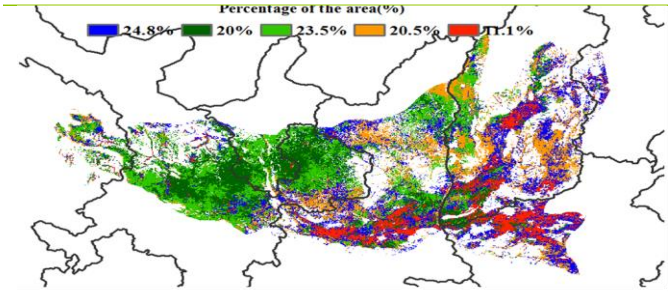
Loess region

Maize was harvested in late September and early October, and winter wheat in the Loess region has been planted at the end of the monitoring period. According to the crop condition development graph based on NDVI, crops were gradually ripening from August to early September, after which they were harvested from mid-September to the end of the monitoring period. The temperature (TEMP) was close to average while radiation was well below (RADPAR -11%). Abundant precipitation (RAIN +28%) resulted in a potential biomass production potential (BIOMSS) to be above average (+17%). In most of the area, the analyses based on spatial NDVI clusters and profiles are consistent with VCIx. The most favorable conditions occurred mainly in the north-central part of Shaanxi and the west and south central part of Shanxi from July to October, due to the abundant rainfall and suitable sunlight. On the contrary—and mostly because of drought during the monitoring period (as confirmed by the maps of potential biomass)—crops were in unfavorable condition (compared to the five-year average) in most parts of Gansu and Ningxia, especially in central Gansu. Moreover, the cropped arable land fraction (CALF) decreased by 2% compared with recent years, resulting in a relatively pessimistic crop production outlook for the region, which was also confirmed by figure 4.3.

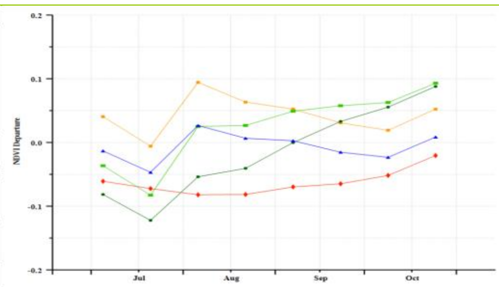
Figure 4.9. Crop condition China Loess region, July-October 2017



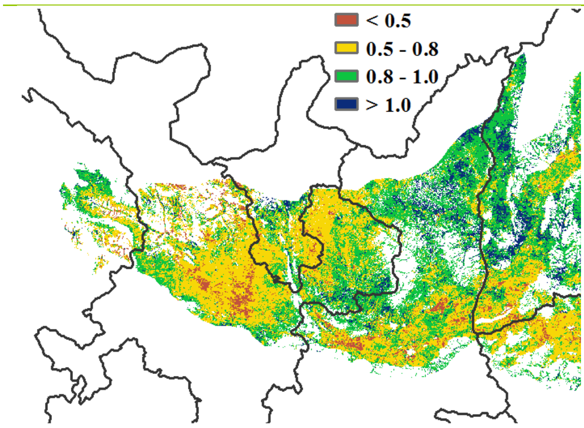
(a) Crop condition development graph based on NDVI



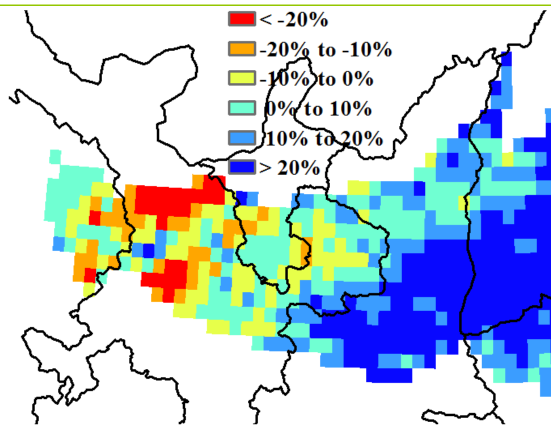
(b) Spatial NDVI patterns compared to 5YA



(c) NDVI profiles



(d) Maximum VCI



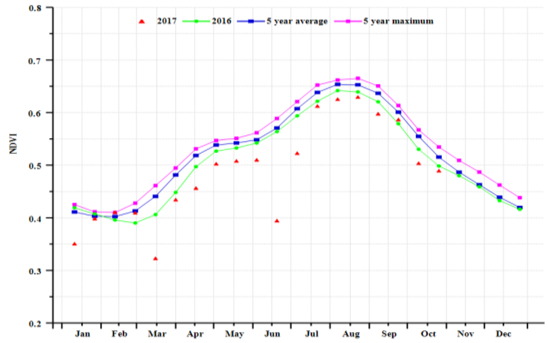
(e) Biomass

Lower Yangtze region

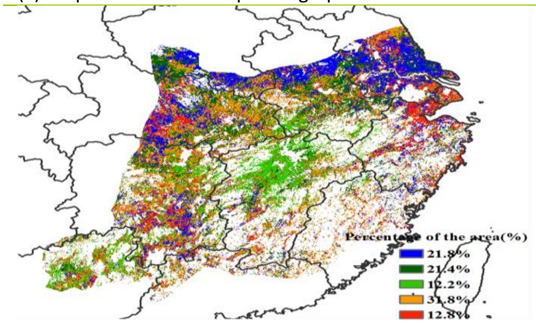
During this monitoring period, late rice matured in the center of the region including in Fujian, Jiangxi, Hunan, and Hubei provinces, while semi-late rice and maize have been harvested in the north of the Lower Yangtze region. Crop condition was slightly below last year's and the recent five-year average according to the crop condition development graph. CropWatch agroclimatic and agronomic indicators show that temperature (TEMP) was slightly below average (-0.1°C), while radiation (RADPAR -8%) decreased significantly compared to its fifteen-year average. Meanwhile, rainfall (RAIN) was significantly above average (13%), which brought about a slight increase of production potential (BIOMSS, 4%). According to the BIOMSS map, the biomass production potential was below average in the central and south of this region, especially in the center of Zhejiang, Hunan and Jiangxi province, which is mostly contradicted by fair VCIx values in the range from 0.5 to 0.8. NDVI profiles show that crop condition was slightly above but close to average in 65.4% of cropped areas after mid-July. Across the country, 21.8% of cropped areas located in the south of Jiangsu, Henan, and middle of Anhui provinces displayed above average condition before mid-July, after which NDVI levels dropped to below average. In another 12.8% of the region's total cropped area including central Hubei and northern Zhejiang province, crop condition was slightly below average.

The production of crops in the Lower Yangtze region is expected to be above but close to average.

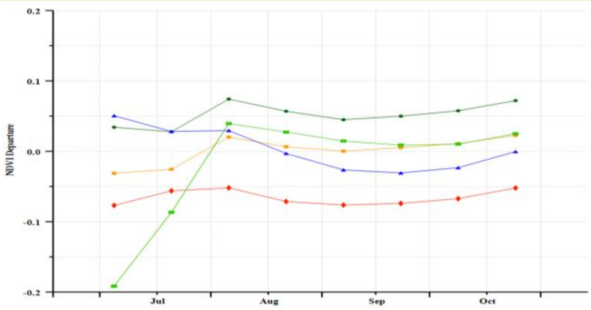
Figure 4.10. Crop condition Lower Yangtze region, July-October 2017



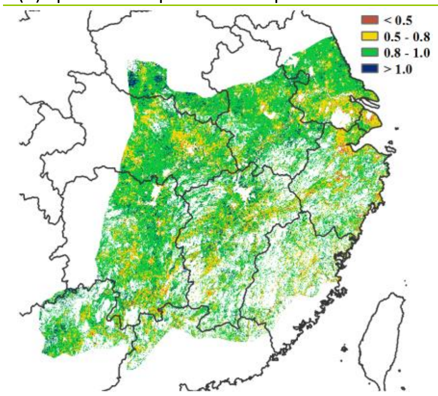
(a) Crop condition development graph based on NDVI



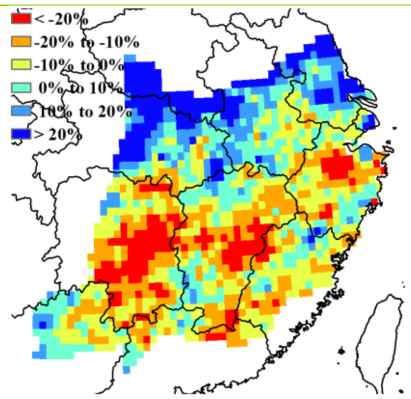
(b) Spatial NDVI patterns compared to 5YA



(c) NDVI profiles



(d) Maximum VCI

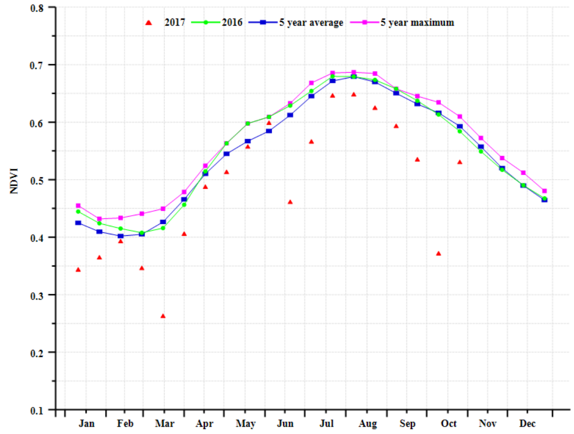


(e) Biomass

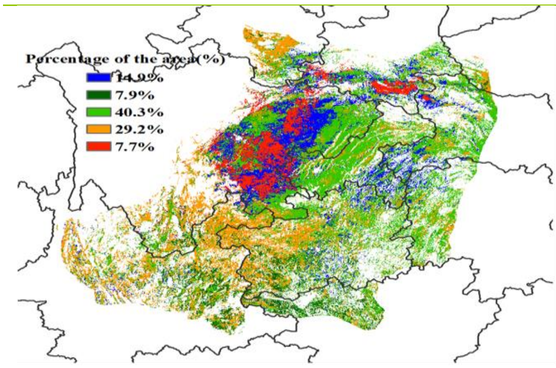
Southwest China

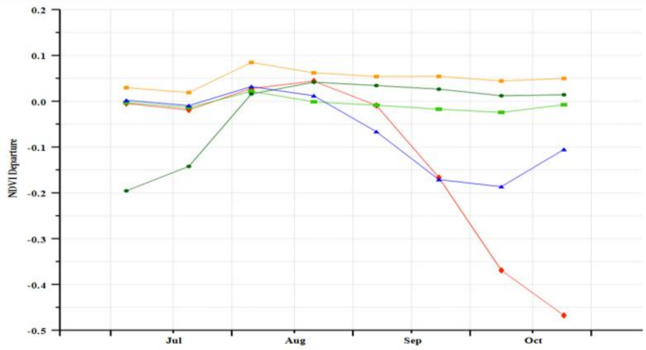
The reporting period coincides with the harvest of maize and single cropped rice, as well as the planting of winter wheat. Based on NDVI profiles for the region, crop condition in Southwest China was below average. This is possibly due to the excess of precipitation (RAIN +16%) and insufficient radiation (RADPAR -10%), compared with average. The NDVI in eastern Sichuan and part of southern Shaanxi was significantly below the five-year average level from August to October, with the VCIx in the range of 0.5-0.8. CropWatch found above average precipitation in Sichuan (RAIN +14%) and Shaanxi (+25%), and below average RADPAR in Sichuan (-7%) and Shaanxi (-12%), which has had a negative impact on crop condition. Although the fraction of cropped arable land (CALF) remained stable during the monitoring period, the cropping intensity in Southwestern China decreased by 6%, which is expected to negatively influence production.

Figure 4.11. Crop condition Southwest China region, July-October 2017



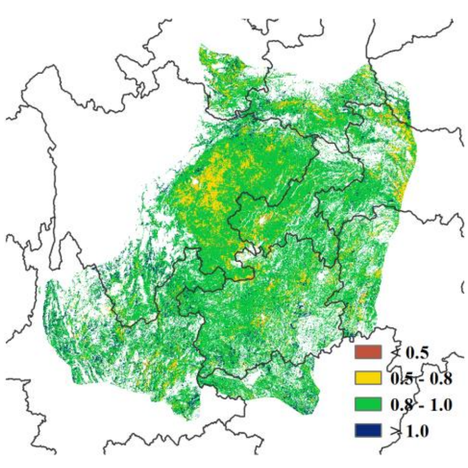
(a) Crop condition development graph based on NDVI

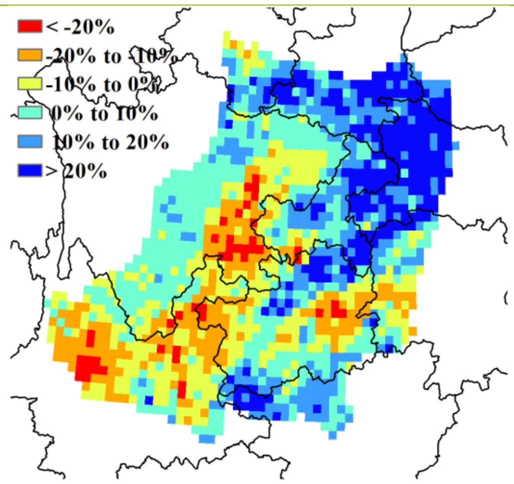




(b) Spatial NDVI patterns compared to 5YA

(c) NDVI profiles





(d) Maximum VCI

(e) Biomass

Southern China

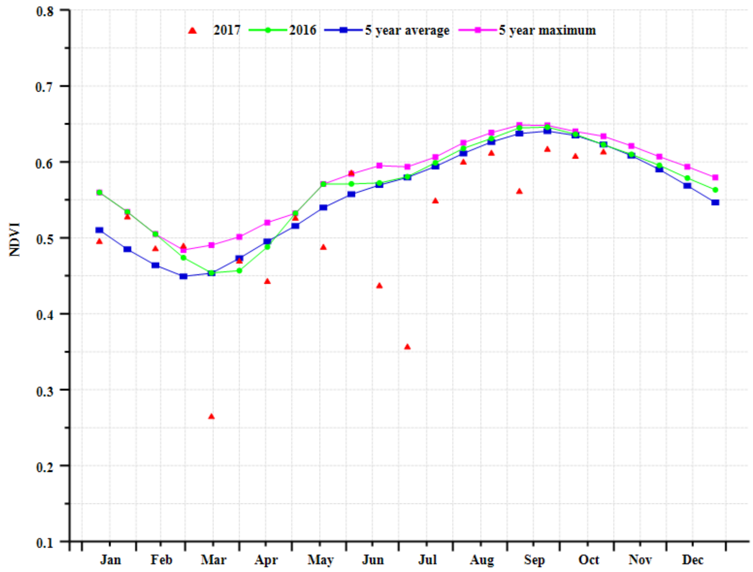
For Southern China, including some areas of the provinces of Yunnan, Guangxi, Guangdong, and Fujian, the NDVI development graph shows that crop condition was below the average of the recent five years.

According to the agroclimatic indicators, rainfall was above average (RAIN +17%), which accounts for the increase of biomass (BIOMSS +7%). Temperature was slightly below average (TEMP -0.2℃), while radiation was well below (RADPAR -7%). Compared to average, the cropped arable land fraction (CALF) decreased by 1%. The maximum VCI (VCIx) was 0.69.

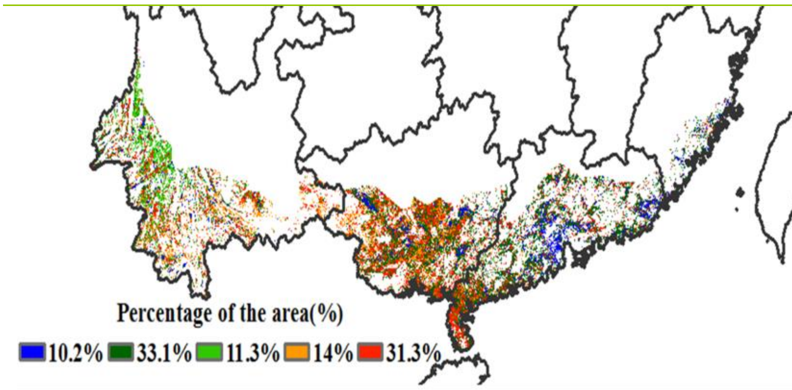
As shown in spatial NDVI patterns graph and NDVI departure profiles graph, 10.2% of the region's crop area has lower NDVI than average during the monitoring period, affecting small areas of the four provinces. A total of 11.3% of crop area has higher NDVI than average, mainly in western parts of Yunnan province. As a result of the abundant rainfall in Guangdong and Guangxi (RAIN +16% and +39%, respectively), the biomass production potential (BIOMSS) was also above average (beyond 20%) in southern parts of these two provinces, as displayed by the biomass map. Below average rainfall in Fujian province (RAIN -13%) led to lower biomass in most areas of the province. In most areas of Yunnan, the VCIx value was greater than 0.8 because of the moderate increase of RAIN (+5%) .

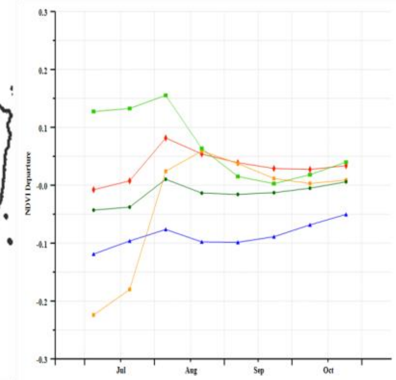
Overall, the biomass graph indicates crop conditions were just fair in parts of southwest Yunnan, eastern Guangdong, and most of Fujian. Unfavorable agroclimatic and agronomic conditions will have a negative effect on production for these areas, and CropWatch will continue to closely monitor these areas.

Figure 4.12. Crop condition Southern China region, July-October 2017



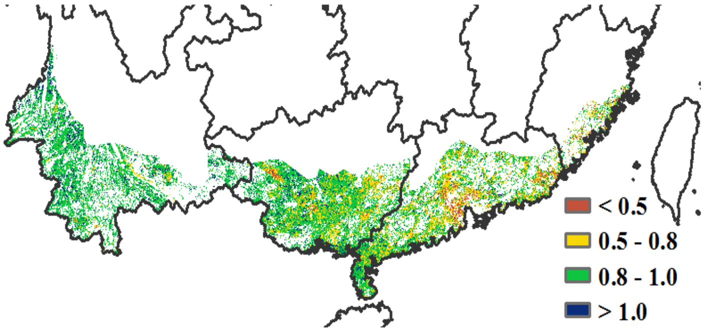
(a) Crop condition development graph based on NDVI



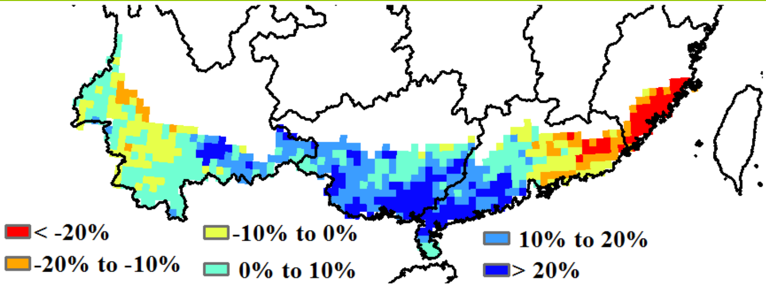


(b) Spatial NDVI patterns compared to 5YA

(c) NDVI profiles



(d) Maximum VCI



(e) Biomass

4.4 Pest and diseases monitoring

The impact of pests and diseases was relatively moderate during mid to late September 2017 in the main rice regions of China. Rainfall in the southern China and southern Yangtze River regions created habitat conditions conducive to rice planthopper and leaf roller migration, as well as dispersal of sheath blight.

Rice pests and diseases

The distribution of rice planthopper during mid to late September 2017 is shown in figure 4.7 and table 4.5. The total area affected reached 5.9 million hectares, with severe impact in central Anhui, central Guizhou, most of Jiangsu, and most of Guangxi, but only moderate impact in western Guangdong, central Hunan, central Jiangxi, and eastern Yunnan.

Rice planthopper

The distribution of rice planthopper during mid to late July 2017 is shown in figure 4.13 and table 4.5. The total area affected by the planthopper reached 6.1 million hectares, with severe impact in central Guizhou, northern Guangxi, and most of Guangdong; the pest only moderately affected rice crops in northern Yunnan and northern Hunan.

Figure 4.13. Distribution of rice planthopper in China, mid to late September 2017

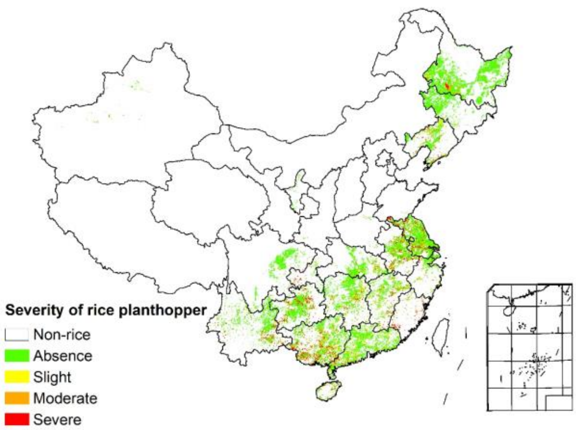


Table 4.5. Occurrence ratio of rice planthopper in China, mid to late September 2017

Region	Occurrence ratio (%)			
	Absence	Slight	Moderate	Severe
Huanghuaihai	63	17	14	6
Inner Mongolia	88	5	6	1
Loess region	89	7	4	0
Lower Yangtze	67	15	13	5
Northeast China	84	6	8	2
Southern China	70	13	12	5
Southwest China	82	7	7	4

Rice leaf roller

Rice leaf roller (figure 4.8 and table 4.6) damaged around 4.9 million hectares, severely so in most of Jiangsu, most of Guangxi, and central Guizhou. The impact was moderate in eastern Yunnan, central Anhui, and central Hunan.

Figure 4.14. Distribution of rice leaf roller in China, mid to late September 2017

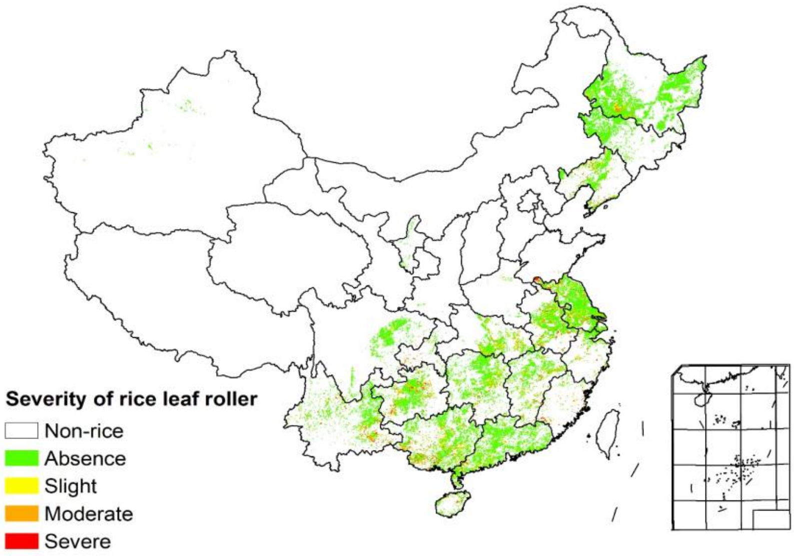


Table 4.6. Statistics of rice leaf roller in China, mid to late September 2017

Region	Occurrence ratio (%)			
	Absence	Slight	Moderate	Severe
Huanghuaihai	71	16	9	4
Inner Mongolia	92	3	4	1
Loess region	90	7	3	0
Lower Yangtze	75	13	9	3
Northeast China	89	5	5	1
Southern China	77	11	9	3
Southwest China	75	11	11	3

Rice sheath blight

Rice sheath blight (figure 4.9 and table 4.7) touched around 7.1 million hectares, severely affecting central Anhui, central Guangdong, and most of Jiangsu. The impact was moderate in eastern Guangxi, central Hunan, and central Jiangxi.

Figure 4.15. Distribution of rice sheath blight in China, mid to late July 2017

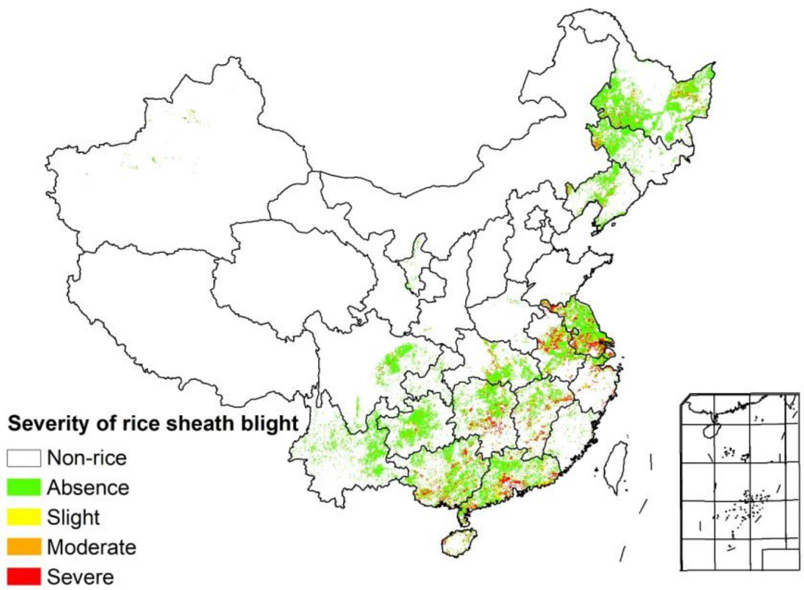


Table 4.7. Statistics of rice sheath blight in China, mid to late September 2017

Region	Occurrence ratio (%)			
	Absence	Slight	Moderate	Severe
Huanghuaihai	52	18	8	22
Inner Mongolia	80	6	10	4
Loess region	80	4	8	8
Lower Yangtze	58	14	9	19
Northeast China	81	6	8	5
Southern China	67	12	8	13
Southwest China	87	4	7	2

Maize pests and diseases

Maize suffered moderately from pest and disease attacks during late August in the main production areas. Abundant precipitation, some of it due to typhoons, created conditions conducive to the reproduction of armyworms and the dispersal of leaf blight.

Armyworm

The distribution of maize army worm in late August 2017 is shown in figure 4.10 and table 4.8. The total area affected reached 4.2 million hectares, part of it severely (central Shannxi, central Hebei, northern Shandong, and southwest Heilongjiang). The impact was moderate in central Jiangsu, northern Anhui, and southern Hebei.

Figure 4.16. Distribution of maize armyworm in China, late August 2017

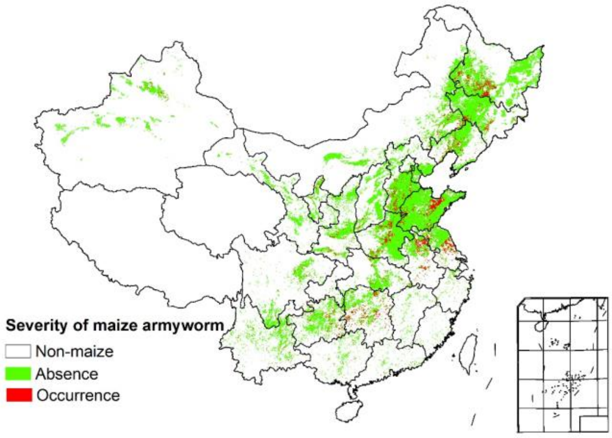


Table 4.8. Statistics of maize armyworm in China, late August 2017

Region	Occurrence ratio (%)	
	Absence	Occurrence
Huanghuaihai	86	14
Inner Mongolia	93	7
Loess region	95	5
Lower Yangtze	92	8
Northeast China	87	13
Southern China	97	3
Southwest China	92	8

Leaf blight

Maize leaf blight damaged around 2.0 million hectares, mostly in northwest Jilin, central Shannxi, central Gansu, and most of Ningxia (severe impact), and in southwest Heilongjiang and central Inner Mongolia (moderate impact). Figure 4.11 and table 4.9 present an overview.

Figure 4.17. Distribution of maize sheath blight in China, late July 2017

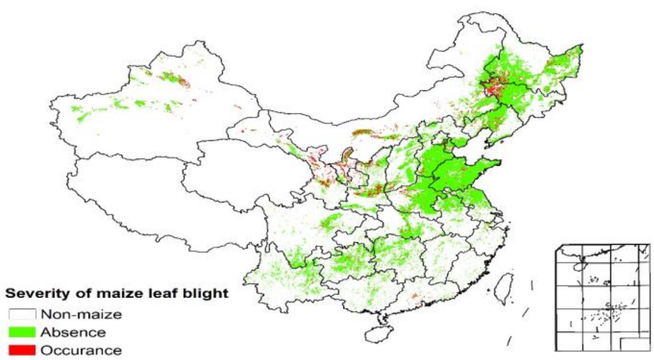


Table 4.9. Statistics of maize sheath blight in China, August 2017

Region	Occurrence ratio (%)	
	Absence	Occurrence
Huanghuaihai	95	5
Inner Mongolia	90	10
Loess region	91	9
Lower Yangtze	97	3
Northeast China	91	9
Southern China	99	1
Southwest China	97	3

4.5 Major crops trade prospects

Grain import and export in China in the first half of 2017

Rice

In the first three quarters of 2017, the total import of rice in China was 2.9818 million tons, an increase of 16.3% compared to the previous year. The imported rice mainly stems from Vietnam, Thailand, and Pakistan, respectively accounting for 57.9%, 30.1%, and 5.3% of imports. The expenditure for rice import was US$1358 million. Total rice exports over the period were 887,600 tons, mainly exported to the Côte d'Ivoire, Republic of Korea, and Turkey (29.6%, 14.9%, and 7.4%, respectively). The value of the export was US$420 million.

Wheat

During the first three quarters of 2017, Chinese wheat imports reached 3.6265million tons, an increase of 25.6% over 2016. The main sources include Australia (46.7%), the United States (37.7%), and Canada (7.6%). Imports amounted to US$847 million. Wheat exports were 98,300 tons. Hong Kong (58.9%), Korea (32.7%) were the main destinations of Chinese wheat exports. The value of the export was US$48 million.

Maize

In the first three quarters of 2017, maize imports totaled 2275,900 tons, down by 23.6% year-on-year. The main importing countries were Ukraine and the United States, accounting for 65.3% and 30.9% of imports respectively. The value of the import was US$472 million. Total maize exports were 75,200 tons, mainly exported to Japan (26.4%) and North Korea (66.6%). The value of the export was US$17.125 million.

Soybean

The total import of soybean was up by 16.8% to 71,451,700 tons in China during the first three quarters of 2017. Brazil, Argentina and the United States respectively contributed 60.0%, 6.3% and 28.9%, for a total value of US$2968,100 million. Soybean exports were 60,400 tons, down 13.1%.

Import prospects for major grains in China for 2017

Based on the latest monitoring results, China grain imports are projected to increase. The projections are based on remote sensing data and the Major Agricultural Shocks and Policy Simulation Model, which derived from the standard GTAP (Global Trade Analysis Project).

Rice

According to the model forecast, rice imports and exports increased by 14.6% and 18.3% respectively in 2017. As the international rice prices continued to fall, domestic and international price differences still existed. The import of rice in our country will increase. It is estimated that the import of rice in 2017 will maintain its growth momentum within the quota range.

Wheat

China's wheat imports will increase by 19.5 percent, but exports are projected to drop 13.1% compared with those of 2016. At present, the global supply and demand of wheat is still in a relaxed pattern. The persistence of high quality wheat price difference at home and abroad still exists. Wheat imports will grow steadily throughout the entire year.

Maize

According to the model forecast results, maize imports decreased by 25.4% in China in 2017, but exports increased by 17.9%. Due to the slackening global supply and demand of maize, prices at home and abroad both dropped. Maize imports are expected to decline sharply throughout the year in China.

Soybean

Soybean imports will increase by 5.8% while exports will be reduced by 7.2% in 2017. With abundant soybean supply in the world, China's soybean imports will remain at a high level. Under the impetus of the structural adjustment policies for planting, the domestic soybean production will increase and the space for the growth of imported soybean will narrow. It is estimated that the increase of soybean imports in 2017 will not be large.

Figure 4.18. Rate of change of imports and exports for rice, wheat, maize, and soybean in China in 2017 compared to those for 2016 (%)